

Project System in SAP S/4HANA®

The Comprehensive Guide to Project Management

- > Set up master data for project management in SAP S/4HANA
- > Use Project System to run each project phase, from planning to execution
- > Explore reporting and integration scenarios for your projects

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Preface

Due to the pressure of implementing projects successfully within increasingly shorter periods and under continuously rising costs, project management methods and tools are becoming more important in the industry and in the public sector. Projects range from smaller cost and investment projects, to development or plant maintenance projects, to large-scale projects in plant engineering, construction, and mechanical engineering.

Project management software products are available in abundance for project managers to use for support in planning and implementing their projects. Many companies also use programs they have developed by themselves for individual aspects of project planning and implementation; however, only a few project management tools can map the entire lifecycle of a project completely and uniformly. A lack of integration options frequently results in project data, such as cost information or time data, needing to be entered several times. Therefore, most project management tools suffer from inaccurate project data and restricted transparency of project-related information and documents.

To avoid these problems, companies that already use an SAP enterprise resource planning (ERP) system, such as an SAP R/3, SAP ERP, or SAP S/4HANA system, are now increasingly using Project System to manage their projects and therefore benefit from the close integration of Project System with accounting, materials management, sales, production, human resources, and so on. Further integrations, for example with Portfolio and Project Management (PPM) or Commercial Project Management (CPM) functionality in SAP S/4HANA, enhance Project System with functions for managing project portfolios or with extended cost and revenue planning options.

Compared to previous versions, Project System in SAP S/4HANA provides numerous innovations:

- Renewed functions such as project texts and process enhancements (e.g., Project Manufacturing Management and Optimization [PMMO]) complement and modernize the functional scope of Project System.
- Simplified, device-independent and role-based user interfaces improve the usability of the application and support mobile project teams.
- Documented, external programming interfaces—called application programming interfaces (APIs)—facilitate the extension of project management processes by SAP partners or company-specific developments and simplify the integration with cloud-based applications.

Because Project System offers functions for managing almost all types of projects (and often in different ways, depending on the requirements), most companies that use Project System only use a small portion of the available functions. Frequently, companies initially only use a few of the Project System tools (e.g., to control their project costs) and then gradually use other options.

Objective of This Book

The objective of this book is to explain the main functions and integration scenarios of Project System in SAP S/4HANA. We'll discuss business processes that can be mapped using Project System and also highlight the required settings for doing this and for Customizing in Project System. References to customer enhancements (user exits) and business add-ins (BAIs) or to notes addressing modifications indicate additional Customizing options of Project System.

[+] Relevant Software Versions

Although this book is written with SAP S/4HANA release 2022 in mind, most of the functions are also available in earlier releases.

Therefore, this book can also be used by readers who, for example, use SAP ERP 6.0 release.

For additional explanations of the differences between SAP ERP and SAP S/4HANA, refer to the documentation at https://help.sap.com/s4hana_op_2022 and in particular to the simplification list contained therein.

The range of Project System functions can be used across different project types and industries. This book therefore describes the functions of Project System in the most general sense possible, without restricting itself to specific uses or to individual project types. Nevertheless, you'll note that often only explicit examples and specific screenshots can truly clarify functions and contexts.

Target Audience

This book is intended for readers who require detailed knowledge of the different settings options of Project System for the purpose of system implementation or for those who require newly added functions and thus broaden or refresh their knowledge. These users could include consultants or persons responsible for Project System implementation, project managers, Competence Center employees, or key users of a company. However, this book is also for readers who are interested in getting an overview of the functions and concepts of Project System, such as decision makers in a company who are responsible for deciding to implement Project System. Readers whose companies are planning to switch to SAP S/4HANA will find this book helpful in assessing the potential impact on existing processes and functions.

As a general prerequisite for using this book, you as the reader must have basic business knowledge and be familiar with project management methods. Due to its integration with various other SAP components, a basic knowledge of these SAP components is also required to understand many of the functions and processes of Project System. Project System doesn't contain any organizational units of its own, for example, but instead uses organizational units of financial accounting, production, purchasing, sales

and distribution, and so on. A detailed explanation of all these organizational units or the integrated components would go beyond the scope of this book. Therefore, readers with only a modicum of SAP knowledge should, if necessary, use SAP Glossary and SAP Library that are available free at <https://help.sap.com>.

Structure of the Book

The structure of this book reflects the individual phases of managing a project using Project System. **Chapter 1** first describes how you can map your projects in the SAP system using suitable structures. These structures, and their master data, form the basis for all other planning and execution steps.

With this structuring, you set the course for other planning and execution functions using the profiles and control indicators covered in this chapter. If you want to use this book as an initial introduction to project management with Project System, skip the details about these profiles and indicators described in **Chapter 1** when you first read the book and try to get an overview of the planning and implementation functions of Project System in the subsequent chapters first.

Chapter 2 deals with the various functions of Project System available for planning the logistical and relevant accounting aspects of your projects. For many projects (in particular, cost or investment projects), budgeting takes place in the approval phase. **Chapter 3** describes the functions of Project System available for budgeting. **Chapter 4** discusses typical processes that can be mapped in the SAP system as part of the execution phase of projects following approval and the resulting quantity and value flows. The wide range of integration options of Project System with other SAP components is also addressed in this chapter. Additional procedures, such as calculating overhead costs or project settlement, are carried out periodically. **Chapter 5** covers the periodic procedures available in Project System for the planned and actual data of your projects.

A key aspect of project management is the analysis of all project-related data. The reporting functions of Project System that support you in every phase of your project management process are introduced in **Chapter 6**.

Finally, **Chapter 7** discusses the possible integration of Project System with PPM and CPM functionality in SAP S/4HANA, as well as the cloud-based SAP S/4HANA Cloud for projects.

The most important database tables of Project System and a list of APIs available for developing your own interfaces and process steps are listed in **Appendix A** and **Appendix B**. **Appendix C** additionally contains tables listing the transaction codes and menu paths of the most important transactions and Customizing activities mentioned in the text.

To make it easier for you to use this book, we've included special symbols to indicate information that might be particularly important to you.

[!] This icon refers to specifics that you should consider. It also warns you about frequent errors or problems that can occur.

[+] This icon highlights tips that provide further information on the current topic. It flags tips that will make your work easier.

[AT A GLANCE] Text passages highlighted with this icon summarize thematic relationships at a glance.

1 Structures and Master Data

In Project System, structuring projects is the basis for all subsequent project management steps. Therefore, selecting the right structures and an efficient structuring process are critical when managing your projects.

A prerequisite of project management using Project System is the mapping of projects in the SAP S/4HANA system via appropriate structures. These structures form the basis for planning, entering, and analyzing all data that is relevant to a project. For this purpose, Project System provides two structures: work breakdown structures (WBS) and networks. These two structures differ in the way they enable you to structure projects and in the functions provided for them in the SAP S/4HANA system. For example, if you need a hierarchical budget management function for a project, then you should use a WBS. If you also want to perform capacity requirements planning for the same project, then you need to use networks as well.

We begin this chapter with a description of the basic differences between WBS and networks. Then we'll discuss the essential master data of the two structures and milestones, documentation options, and Customizing activities that are necessary in a structuring process. Statuses play a major role in controlling projects. We'll show you the functions that statuses are responsible for in Project System and how you can define your own statuses. We'll also introduce you to the transactions and tools you can use for structuring purposes and for processing master data. You'll learn how to use versions of Project System to document the progress of a project and for what-if scenario analyses. Finally, we'll describe the different steps and necessary prerequisites for archiving and deleting project structures.

In Project System, structuring projects is the basis for all subsequent project management steps. Therefore, selecting the right structures and an efficient structuring process are critical when managing your projects.

1.1 Basic Principles

Depending on your specific requirements, you may be able to map a project via a WBS only, networks only, or a combination of both.

[Figure 1.1](#) illustrates the different structuring options. The symbols used for the different structure objects in the figure correspond to the symbols used in the SAP system to represent those objects. The following sections describe the basic differences between the different structuring options.

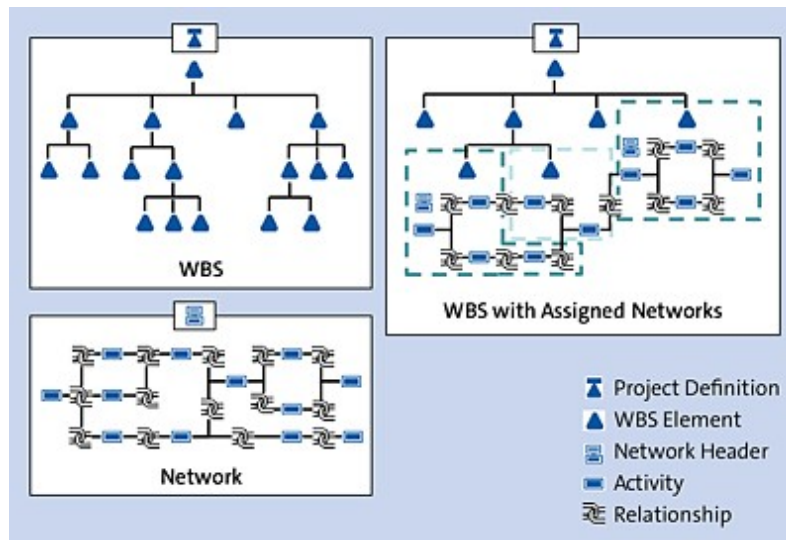


Figure 1.1 Usage Options of WBS and Networks to Structure Projects

1.1.1 Overview of Project Structures

A WBS enables you to map the structure of a project in the SAP S/4HANA system. This is done via *WBS elements* that are located at different levels and that structure the project hierarchically. An advantage of a hierarchical structure is that within the structure, data can be inherited or distributed in the top-down direction, and it can be aggregated or summarized in the bottom-up direction.

You can use WBS elements to structure your projects (e.g., based on phases, functions, or organizational aspects) at the individual level. There is no universal recommendation with regard to how you should structure a project using a WBS. Instead, the selection of appropriate structures depends on

many different aspects and should be carefully thought out before a project starts. [Section 1.2](#) has some general tips on how you can structure projects using a WBS.

The following list provides an overview of important functions of a WBS in the SAP system:

- Planning and entering dates
- Cost planning and account assignment of documents
- Planning and invoicing revenues
- Planning and monitoring payment flows
- Managing hierarchical budgets
- Managing material stock
- Handling various period-end closing tasks
- Monitoring project progress
- Performing aggregated data analysis

Because of their functional scope, WBSs that aren't assigned to networks are typically used to map projects that focus on controlling aspects and therefore require fewer logistical functions. These kinds of projects usually involve overhead cost or investment projects. WBSs are also frequently used in real life due to their controlling functions, and actual project management tasks are performed using other project management tools (see [Chapter 7](#)). WBSs are also used, for example, instead of internal orders, because a WBS enables you to carry out hierarchical project controlling activities. For example, you can distribute a budget to individual parts of a project within a WBS. This isn't possible if you use internal orders.

You can use one or several networks to map the flow of a project or of parts of a project in the SAP S/4HANA system. In a network, individual aspects of the project are mapped as *activities*, which are linked by *relationships* (see [Figure 1.2](#)).

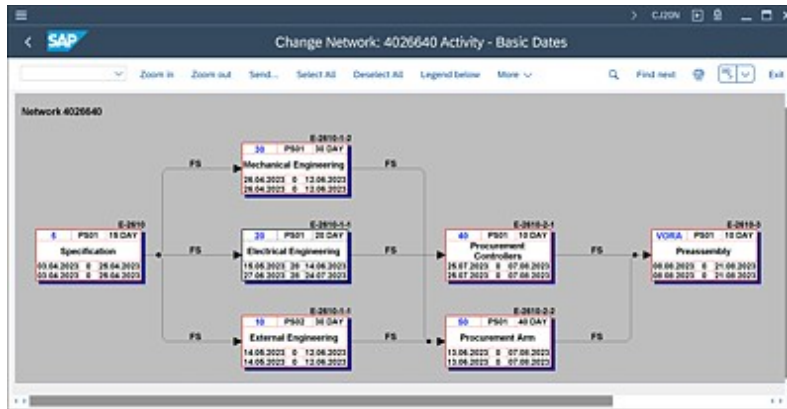


Figure 1.2 Flow Structure of a Network (Network Graphic)

The relationship between two activities defines the logical sequence of the activities (predecessor-successor relationship) and their time-based interdependencies. You can also map project flows across different networks by linking activities of different networks to each other. An essential advantage of the network technique is that SAP S/4HANA can automatically determine planned dates for each activity and the entire network on the basis of the duration of individual activities and their chronological sequence. The system can also determine floats and time-critical activities.

The following list provides an overview of important network functions in the SAP S/4HANA system:

- Scheduling
- Resource planning
- Performing work confirmation
- Procuring external services
- Material requirements planning (MRP), procurement, and delivery
- Network costing
- Performing various period-end closing tasks
- Monitoring project progress

Because of their functionality, networks are predominantly used to map projects in which logistical functions, such as automatic time scheduling, resource planning, or the procurement of materials, are required. You can use networks independently of or in conjunction with a WBS.

To utilize the functions and benefits of WBSs and networks at the same time, you can assign network activities to WBS elements. A WBS element can be assigned several activities (even from different networks, if required); however, an activity can only be assigned to a maximum of one WBS element. Once you've assigned activities to WBS elements, you can exchange data between the WBS and the activities. For example, activities can inherit statuses from the WBS elements they are assigned to. Conversely, you can total up project activity dates to the WBS elements or check funds allotted to activities against the budget of the WBS elements. In reporting, you can obtain an aggregated analysis of the data of assigned activities at the WBS element level.

In general, the structures available in Project System are divided into *operative structures* (WBS and network), *standard structures* (standard WBS and standard network), and *versions* (project version and simulation version).

While you can use the operative structures for planning and carrying out your projects (i.e., for operational project management), the standard structures merely serve as templates for the creation of operative structures or of parts of those structures. Versions can be used to record the status of a project at a specific point in time or at a certain stage in the system. In addition, you can use versions to test changes that are implemented retroactively before including them in your operative project.

1.1.2 Custom Fields

Usually, each company has its own requirements for the information fields that are to be evaluated in reporting together with the master data fields of the project structure. For this purpose, you can use user fields for the project definition (see SAP Note 2636018), WBS elements, and network activities. You can use the following predefined fields, which can be maintained in the **User Fields** tab (see [Figure 1.3](#)):

- Two fields for 20 alphanumeric characters each
- Two fields for 10 alphanumeric characters each
- Two date fields

- Two numeric fields with units of measure
- Two numeric fields with currencies
- Two indicators

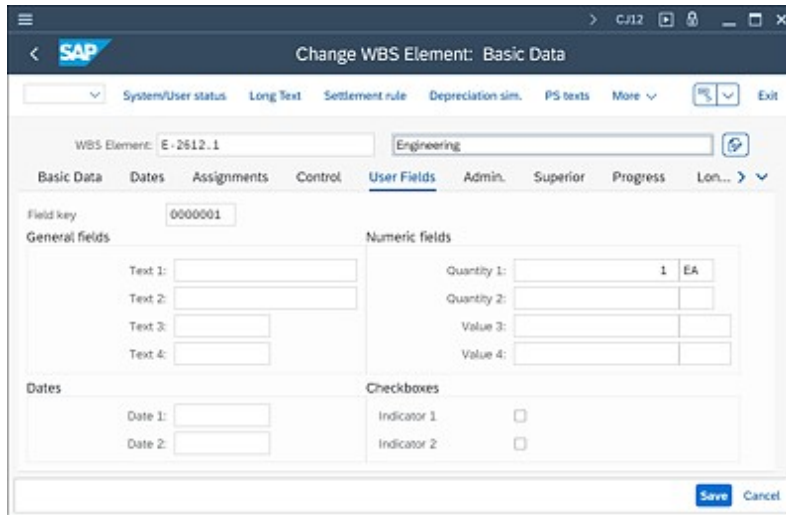


Figure 1.3 User Fields of a WBS Element

The designation of the fields in the detail screen can be controlled via the **Field key** field ([Section 1.2.2](#)), which can be proposed via the project profile. Instead of the standard description **Text 1**, you can, for example, store the description “Model series” for the first alphanumeric field in Customizing for the **Field key**. A customer extension enables you to implement a validation of the entries. By default, there’s no input help for the alphanumeric fields.

[!] Using the Field Key

When working with user fields, you should note that you can set the field key individually for each project object; however, this may lead to confusion in reporting. For example, if you use two different field keys in your project, one containing the name **Model Series** for the first alphanumeric field and the other containing the name **Color** for the same field, then the field values are displayed in the same report column in reporting, regardless of the fact that project objects with the first field key contain information on model series, whereas the project object with the other field key contain color information. For this

reason, you should either use a uniform field key within a project or use the field key as a selection criterion in your evaluations.

If the number of predefined user fields isn't sufficient for your requirements, you can define additional fields for project objects via a customer extension. In SAP S/4HANA, *key user extensibility* is available to you for this purpose. The Custom Fields and Logic SAP Fiori app (F1481) enables you to add fields for the following project objects:

- Project definition
- WBS element
- Network
- Network activity
- Material component
- Milestones

You can maintain the customer-specific fields in the processing transactions in the **Free fields** detail screen for operational projects and simulations. The field properties of customer fields, such as ready for input and required field, can be customized using the business add-in (BAI) `PS_EXT_FLD_PROP` ([Section 1.8](#)). For evaluation purposes, the fields are available in the respective SAP Fiori apps with overview and object pages as well as in various reports.

1.1.3 User Interface and Roles

You can display and edit Project System objects either via the SAP GUI and SAP Business Client applications installed locally on your PC or in the web browser via the SAP Fiori launchpad (see [Figure 1.4](#)). While classic transactions are available in SAP GUI for maintaining project objects, you can also use SAP Fiori apps in SAP Business Client or via the SAP Fiori launchpad.

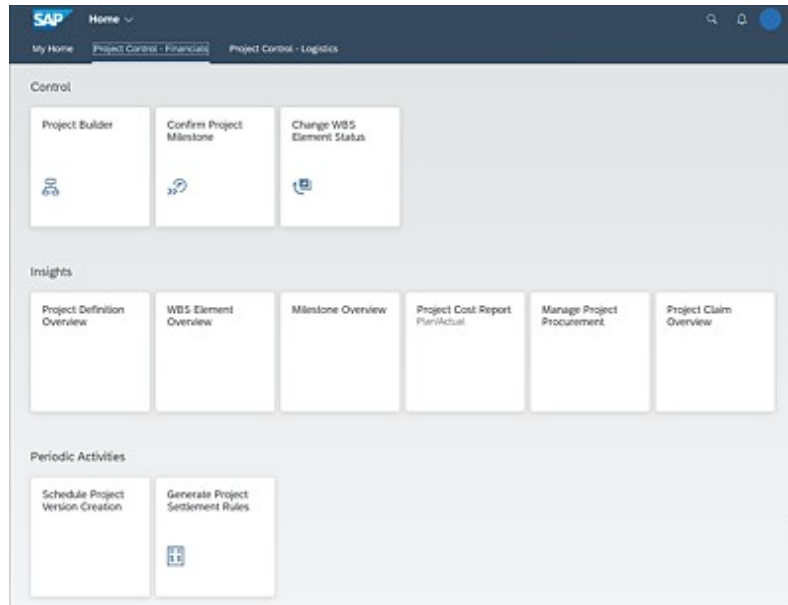


Figure 1.4 SAP Fiori Launchpad

The SAP Fiori user interface (UI) is based on HTML5 and supports diverse end devices such as desktops, tablets, or smartphones; many apps automatically adapt to the respective size ratios and special features of the end devices.

Transactional SAP Fiori apps typically address a single user role and task. Compared to SAP GUI transactions, they therefore offer a greatly simplified UI that also allows tasks to be executed on mobile devices while on the move, at the construction site, or, for example, at the customer's premises. You can use the following transactional apps for Project System as of the time of writing:

- Change WBS Element Status
- Change Network Activity Status
- Confirm Project Milestone
- Confirm Network Activity

For the graphical representation of project data, you can use the following SAP Fiori apps: Project Schedule, Project Schedule for Versions, and Project Network Graphic. These are described in detail in [Section 1.7](#).

In addition to transactional and graphical apps, overview and object page apps are available for displaying project objects. These contain the most

important data about the respective object as well as context information. [Figure 1.5](#) shows an example of a WBS element object page.

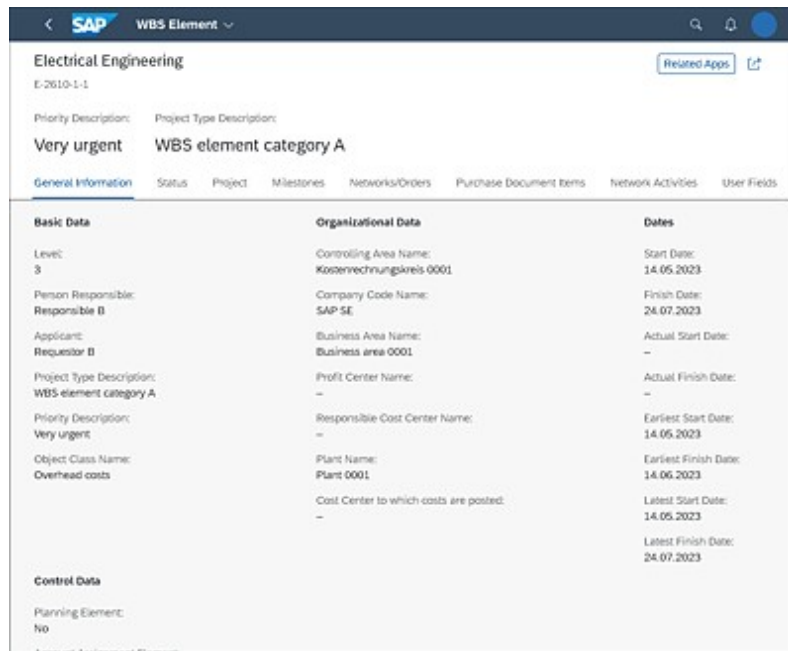


Figure 1.5 WBS Element Object Page

In the header of the object page, in addition to the name and identification of the business object, additional important information can be displayed, such as the priority and project type of the WBS element. In the **General Information** section, you'll then find important selected data about the object. Linked objects are displayed in other areas. From the object page, you can navigate to further details of the object or linked objects, or call transactional apps or even transactions, if required.

For the use of the project system via SAP Fiori launchpad, the two roles `SAP_BR_PROJ_FIN_CONTROLLER` and `SAP_BR_PROJ_LOG_CONTROLLER` are provided for the financial and logistical project control, respectively. By default, transactional, graphical, and overview apps, as well as some tiles for calling transactions via the SAP Fiori launchpad, are already assigned to these roles. However, you can easily create your own user-specific launchpad and use the App Finder, for example, to transfer other Project System transactions from the SAP menu to your launchpad as tiles.

When you call a classic transaction via the launchpad, this transaction is technically started as SAP GUI for HTML in an SAP Fiori theme. The

theme follows the SAP Fiori design principles and thus allows you to use both SAP Fiori apps and classic transactions without major breaks in the user experience. [Figure 1.6](#) shows an example of Project Builder in the SAP Fiori design.

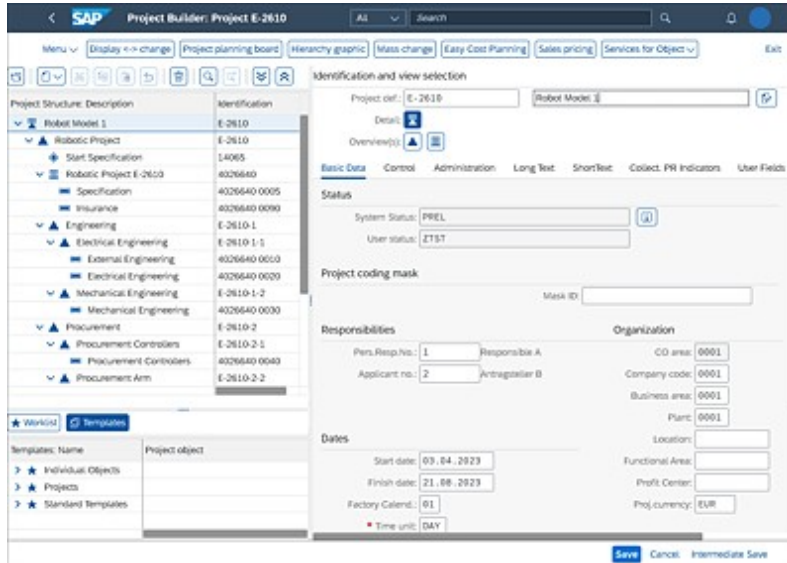


Figure 1.6 Project Builder, Launched from the SAP Fiori Launchpad

Note that SAP GUI for HTML doesn't support all classic Project System transactions and graphics. For example, you can't open the SAP GUI-based network graphic or the Project Planning Board in SAP GUI for HTML. For this reason, the corresponding graphical SAP Fiori app gets launched in SAP GUI for HTML. However, if you want to launch the Project Planning Board from the launchpad, for example, you can also call the SAP Fiori launchpad via SAP Business Client. In that case, the transactions will be launched in SAP GUI for Windows.

1.2 Work Breakdown Structure

You can subdivide a project into different parts by using the WBS elements of a WBS. You can further subdivide those parts until you've reached the required level of detail. Technically, you can use any number of WBS elements at each level; however, for performance reasons, a WBS should not contain more than 10,000 WBS elements. You can find more detailed information on the size of WBSs in SAP Note 206264.

A WBS should map all relevant aspects of a project to enable comprehensive planning and analysis of a project in the SAP S/4HANA system. The tasks of the different project parts, particularly the individual WBS elements, should be defined clearly and unambiguously, and they should be time-dependent and feasible. Furthermore, the tasks should contain criteria that enable you to analyze their progress, which is important for analyzing the progress of the entire project.

Let's take a brief look at a sample robotics project to demonstrate some possible ways of structuring a WBS at a specific level:

- **Phase-based structuring**
This type of structuring could involve the following WBS elements: engineering, procurement, and assembly. Phase-based structuring is particularly well-suited for time scheduling and a step-by-step execution of project parts.
- **Function-based structuring**
This structuring method could comprise WBS elements for individual assemblies of the robot, such as control unit, casing, or gripper arm. If you use project stocks (see [Chapter 2, Section 2.3.2](#)), then those elements enable you to keep separate stocks for the different assemblies.
- **Structuring based on organizational aspects**
If this type of structuring is used, individual structures could contain single WBS elements for *sales and distribution*, *purchasing*, or *production*, or they could be separated by responsible cost centers. With regard to reporting, this type of

structuring allows the direct evaluation of cost portions for the different organizational units.

[Figure 1.7](#) illustrates the structure of the robotics project, which is used as a real-life example here.

Name	Planning Element	Account Assignment El...	Billing Element
▼ Robot Model 1	No	No	No
▼ Robot Model 1	Yes	Yes	Yes
▼ Engineering	Yes	Yes	No
▲ Engineering Electrics	Yes	Yes	No
▲ Engineering Mechanics	No	Yes	No
▼ Procurement	Yes	Yes	No
▲ Procurement Mechatronics	No	Yes	No
▲ Procurement Shell	No	Yes	No
▲ Assembly	Yes	Yes	No
▲ Acceptance	No	Yes	No

Figure 1.7 Structure of the Sample Project

We used phase-based structuring for level 2, whereas the structuring type we chose for level 3 is based on functional aspects. The example shows that you can choose different structuring logics for different levels. Note, however, that you should not vary the structuring types at a single level within the WBS.

When structuring your projects, you should also pay attention to the following question: “Based on which aspects do you want to analyze the data in reporting?” You can use different project views and the project summarization function in reporting to include alternative evaluation hierarchies in your analysis (see [Chapter 6, Section 6.2.1](#)).

The required level of detail in cost planning and budgeting can provide you with additional information about how many hierarchy levels you may need. You should also consider which structuring option might be the most appropriate if you want to settle the project costs at a later stage or carry out a results analysis (see [Chapter 5, Section 5.6](#)).

[+] Alternative Structuring Options

Avoid creating too many hierarchy levels and WBS elements. For example, if you want to use WBS elements to track dates or events but

not for controlling purposes, you can also work with milestones or progress tracking (see [Chapter 4, Section 4.7.3](#)).

1.2.1 Structure and Master Data

A WBS consists of WBS elements that are located at different levels to map the hierarchical structure of a project. Each WBS is based on a *project definition* that serves as a framework for the project and contains parameters that control the properties of the entire project. Furthermore, the project definition contains default values that are passed on to newly created WBS elements. However, it's the WBS elements that actually contain the cost, revenue, budget, and scheduling data. The project definition isn't a separate controlling object in the SAP S/4HANA system.

[!] Assignment of the WBS Elements

Each WBS element is uniquely assigned to a project definition. This assignment can't be changed; that is, you can't reassign a WBS element that is based on a specific project definition to another project definition.

Project Definition

If you create a project in Project System via one of the transactions described in [Section 1.7](#), you must first create a project definition (see [Figure 1.8](#)).

The screenshot shows the 'Change Project Definition' dialog in SAP. The 'Project def.' field is set to 'E-2610' and the 'Robot Model' is '1'. The 'Basic Data' tab is active, displaying various fields for project configuration. The 'Status' section includes 'System Status' (PREL) and 'User status' (ZTST). The 'Project coding mask' and 'Mask ID' fields are empty. The 'Responsibilities' section has 'Pers.Resp.No.' set to 1 and 'Applicant no.' set to 2. The 'Organization' section includes 'CO area' (0001), 'Company code' (0001), 'Business area' (0001), 'Plant' (0001), 'Location', 'Functional Area', 'Profit Center', and 'Proj.currency' (EUR). The 'Dates' section includes 'Start date' (03.04.2023), 'Finish date' (21.08.2023), 'Factory Calend.' (01), 'Time unit' (DAY), 'Fcst start date', and 'Finish date (F)'. 'Save' and 'Cancel' buttons are at the bottom right.

Figure 1.8 Basic Data of a Project Definition

Some processes require you to first create a WBS element. The project definition is then created automatically when you save the WBS element. Note that once you've saved a WBS element, this element can never exist without an associated project definition.

During the creation process, you must specify a unique *identification* for the project definition, which may consist of a maximum of 24 characters. You can also search for an available identification. You can control the structure of the identification via *coding masks* ([Section 1.2.2](#)).

In addition to the identification, you also specify a *short text* as a description for your project. If necessary, you can also enter a descriptive *long text*. Depending on the scheduling settings (see [Chapter 2, Section 2.1](#)), you must specify a start or end date for your projects; otherwise, the system will propose using the current date. You can always change the dates later during the date planning process.

When creating the project definition, you must always specify a *project profile*. The project profile contains control data and default values for the project. You can store all additional mandatory fields of the project definition as default values in the project profile, so it's usually sufficient to specify the identification and the project profile when creating the project

definition. You can't change the project profile of a project at a later stage. Project profiles can be created for different project types in the Customizing section of Project System ([Section 1.2.2](#)).

You must assign your project to a controlling area at the project definition level. The assignment to a controlling area is mandatory. It can be proposed via the project profile and can't be changed after you've saved your project for the first time.

[!] Assignment to the Controlling Area

The assignment of a project to a controlling area via the project definition is unique. For this reason, a WBS can't comprise several controlling areas.

Although the **Company code** and **Proj.currency** (project currency) fields are also mandatory, the entries you store in the project definition are merely default values for the WBS elements. Therefore, the assignment to a company code can be changed for each individual WBS element.

The **Proj.currency** field has the following purpose: All currency-based data of your projects is managed in three different currencies—the controlling area currency, the transaction currency (i.e., the currency of the respective business transactions), and the project or object currency if this is explicitly permitted for the controlling area. The conversion of currency-based data then occurs automatically when the data is entered and on the basis of the latest exchange rates defined in Customizing.

You can choose the object currency for each WBS element separately, provided you use only one company code in your controlling area. If you cover several company codes in cost accounting, then the object currency is automatically derived from the local currency of each company code and can't be changed manually.

The assignments to other organizational units within financial accounting (business area, profit center) and logistics (plant, location) that you can enter in the project definition serve as default values for the WBS elements of the project. However, you should note that the **Business area** field is also mandatory if business area balance sheets are maintained.

You can also store a responsible person for your project in the project definition and an applicant ([Section 1.2.2](#)). These entries are automatically adopted as default values when you create a WBS element.

If you want to enter additional personal data or partner information for purely informational purposes, you can enter a *partner determination procedure* in the project definition ([Section 1.2.2](#)). Once you've specified the partner determination procedure, the system displays an additional tab for the project definition (and all assigned WBS elements) in which you can enter additional responsible persons, personnel numbers, SAP users, or even supplier and customer IDs, depending on the definition of the partner determination procedure. You can even navigate into the detailed views of all those entries. The reporting section provides a separate report for analyzing this partner data.

In addition to the partner determination procedure, you can also define the budget profile (see [Chapter 3, Section 3.1](#)), planning profile (see [Chapter 2, Section 2.4](#)), and simulation profile ([Section 1.9.2](#)) in the project definition. All other profiles contained in the **Control** tab of the project definition are default values for the WBS elements of the project.

Another important setting to be made at the project-definition level involves the project stock indicators. You can find details about this setting in [Chapter 2, Section 2.3.2](#). However, you should note that you can no longer modify the settings as to whether you want to allow a valuated project stock once you've saved the project definition.

The *sales pricing* fields are only relevant if you want to carry out sales pricing exclusively on the basis of your project data—that is, without any relation to a customer inquiry (see [Chapter 2, Section 2.5.4](#)).

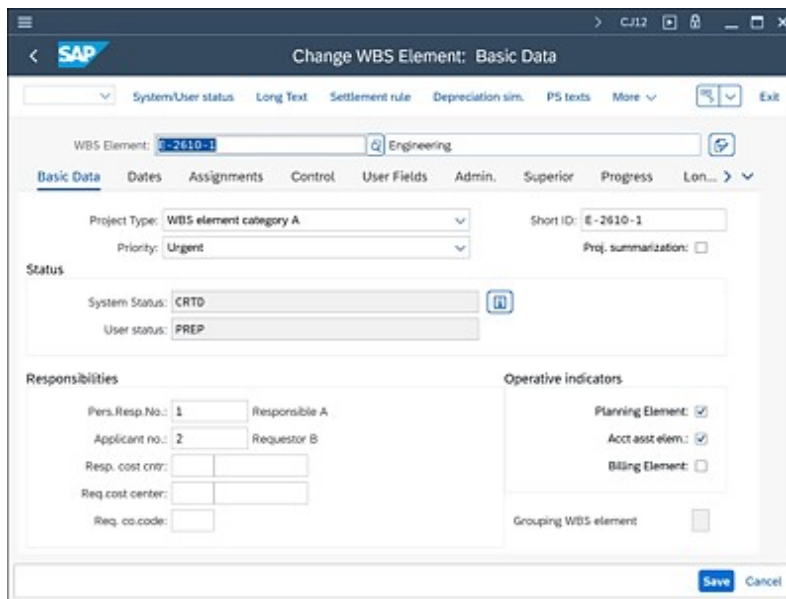
You can control the presentation of the project definition fields using *field selection* ([Section 1.8.1](#)). Additional project definition fields can be implemented by using a customer enhancement.

You can define *grouping indicators* in a project in the form of free text to use these indicators later in assigned networks to summarize procurement-relevant items (material, external activities, and services) of the project in a suitable way (see [Chapter 2, Section 2.2.4](#)).

WBS Elements

[Figure 1.9](#) shows the detail screen of a WBS element. Like the project definition, a WBS element also contains a unique external identification that consists of a maximum of 24 characters and can be controlled through a coding mask. Because the project definition and WBS elements involve different objects, a WBS element can have the same identification as the project definition. Internally, the system assigns another unique number to the WBS element, which allows you to modify the external identification at a later stage.

However, you can't modify the external identification at a later point in time if you've distributed the WBS to other systems via Application Link Enabling (ALE), or if the status of a WBS element doesn't allow for a modification. In addition to the unique identification and the short text as a description, you can also specify a *short identification*.



The screenshot displays the SAP 'Change WBS Element: Basic Data' interface. At the top, the title bar reads 'Change WBS Element: Basic Data'. Below the title bar, there are navigation tabs: 'Basic Data', 'Dates', 'Assignments', 'Control', 'User Fields', 'Admin.', 'Superior', 'Progress', and 'Lon...'. The 'Basic Data' tab is active. The main area contains several input fields and checkboxes:

- WBS Element:** E-2610-1
- Short ID:** E-2610-1
- Project Type:** WBS element category A
- Priority:** Urgent
- Status:** System Status: CRTD, User status: PREP
- Responsibilities:** Pers. Resp. No.: 1 (Responsible A), Applicant no.: 2 (Requestor B), Resp. cost ctr: [empty], Req. cost center: [empty], Req. oo. code: [empty]
- Operative indicators:** Planning Element: , Acct.asst.elem.: , Billing Element:
- Grouping WBS element:**

At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 1.9 Basic Data of a WBS Element

You can use short identifications to save space for displaying the WBS elements in tabular displays or in hierarchical cost planning or budgeting. You can either assign a short identification of your choice manually or use the **Mask ID** field in the project definition screen to derive the short ID of the WBS elements from their IDs.

You can integrate a WBS element into your company structure by assigning it to organizational units in accounting and logistics. Most of the organizational units can be proposed using the project profile or project definition, and, if required, you can modify each WBS element separately; however, note that those changes must comply with your existing company structure.

[+] Cross-Company Code Projects

In an international project, you can store different company codes in different WBS elements. However, all of these company codes must be assigned to the controlling area you've specified in the project definition.

The company code, object currency, object class, and—if business area accounting is carried out—even the business area are mandatory fields at the level of WBS elements and can no longer be modified once the planned or actual values have been entered.

The WBS elements contain numerous control profiles and indicators. We'll describe the control indicators in the following sections, and the profiles will be discussed in [Chapter 5](#), [Section 5.3](#), [Section 5.4](#), [Section 5.6](#), and [Section 5.9](#).

The basic data of a WBS element contains three operative indicators: **Planning Element**, **Acct asst elem.** (account assignment element), and **Billing Element**. You can use these indicators to define the controlling properties of the WBS element.

WBS elements you want to plan costs for manually must be marked as planning elements. If you use the appropriate settings in the planning profile of the project (see [Chapter 2](#), [Section 2.4](#)), you can even ensure that manual cost planning on a WBS element is only possible if this indicator is set. Creating planned costs by rolling up planned values of subordinate WBS elements or orders is possible regardless of the **Planning Element** indicator.

The **Acct asst elem.** indicator determines whether you can assign orders to the WBS element (in particular, activities and networks). It also controls whether you can assign any documents to the WBS element that result in actual or commitment postings to the WBS element. If you don't set this

indicator for a WBS element, for example, you can't assign a purchase requisition or invoice to this WBS element. You can also store this indicator as a default value for all WBS elements in the project profile.

If you want to base revenue planning on a WBS element and post actual revenues to the WBS element at a later stage, then you must mark the WBS element as a billing element. Refer to [Chapter 5, Section 5.6](#) and [Section 5.9](#), for information on how to set this indicator.

You can define any combination of those indicators for a WBS element, regardless of the element's hierarchy level. [Figure 1.7](#) previously showed an example of the operative indicators of a project. The example shown there allows for manual cost planning only on WBS elements of levels 1 and 2. However, the display of actual costs can be more detailed because the account assignment of documents can also be carried out for WBS elements at level 3. In addition, the highest-level WBS element is also responsible for planning and implementing revenues.

Another indicator that's also used for defining the controlling properties of a WBS element is the **Statistical** flag (found in the **Control** tab). If you set this indicator for a WBS element (you can also set it as a default value for all WBS elements in the project profile), then the actual costs are only updated statistically for this WBS element under value type 11 (**Statistical Actual**) instead of value type 4 (**Actual**). This means that when you assign documents to a statistical WBS element, you must specify the WBS element as an account assignment recipient and a "real" account assignment object that serves as a recipient of actual costs. If that element is always a specific cost center, then you can store this cost center as a default account assignment in the detail screen of the statistical WBS element.

There are different ways to use statistical WBS elements and statistical projects. Some companies use statistical projects for purely hierarchical analyses. In that case, operational controlling is still carried out at the level of cost centers, internal orders, or cost objects, for example.

Another typical usage of statistical WBS elements consists of indirect budgeting and availability control (see [Chapter 3, Section 3.1.5](#)) of objects in the SAP S/4HANA system that otherwise aren't assigned a budget. For example, in asset accounting you can't assign budgets to assets. This means that you can't use availability control to control direct capitalizations of the

asset to automatically avoid exceeding specific threshold values. However, you can achieve this aim by entering a statistical WBS element as an account assignment for investment in the master record of the asset. In addition, the corresponding balance sheet accounts must be defined as statistical cost elements and must contain a field status definition that allows for additional account assignment to a WBS element. Moreover, you must activate WBS elements as account assignment objects in asset accounting.

Once the WBS element has been budgeted and the availability control has been activated for the project, each posting to the asset is accompanied by a statistical account assignment on the WBS element. This means that the statistical actual costs are automatically validated against the budget of the WBS element.

[!] Restrictions for Statistical WBS Elements

Note that not all accounting functions are available for statistical WBS elements. For example, you can't carry out any overhead application based on the statistical actual costs, nor can you perform any settlement of the statistical actual costs. Although statistical WBS elements can be used for calculating interest, the interest itself must be updated in a real account assignment object (see [Chapter 5, Section 5.5](#)).

The **Integrated Planning** indicator in the **Control** data of a WBS element refers to a specific function that allows you to pass planned activity inputs of a project as scheduled activities to cost center accounting. [Chapter 2, Section 2.4.3](#) and [Section 2.4.5](#), provide more detailed information on integrated planning.

You can use the **Proj. summarization** indicator in the basic data of a WBS element to control how the WBS element should be treated in an analysis (typically cross-project) using custom evaluation hierarchies (see [Chapter 6, Section 6.4](#)). In the project profile, you can store this indicator as a default value for all WBS elements, only for account assignment elements, or only for the billing elements. If you don't use project summarization, then the indicator has no other specific function.

The **Grouping WBS element** indicator marks a WBS element as relevant for the grouping of requirements and stocks of material components that are

maintained in individual requirements inventory. The indicator can be set either manually for selected WBS elements or automatically for the highest-level WBS element provided that automatic requirements grouping has previously been set in the project definition. [Chapter 2, Section 2.3.2](#), contains further details on the possible attributes this indicator can have and on additional prerequisites of requirements grouping. Detail screens are available for each WBS element for date planning and entering actual dates. In addition, a separate detail screen is available for each WBS element to determine the progress of a project. The data in these detail screens is described in more detail in [Chapter 2, Section 2.1.1](#), and in [Chapter 4, Section 4.7.2](#).

A lot of fields in the WBS elements are pure information fields that don't contain any control functionality. For example, in Customizing, you can define attributes for the **Project Type**, **Priority**, **Scale**, or **Investment Reason** fields and store these attributes separately for each WBS element. In addition, the **Equipment** and **Functional Area** fields in the **Assignments** detail screen are also used for purely informational purposes; that is, you can analyze all those fields in reporting, use them to build groups or for filtering purposes in reports, or employ them as selection criteria when selecting objects to be analyzed.

If required, changes to master data can be logged in the form of *change documents* and analyzed at a later stage. For the WBS elements, just as for the project definition, you can use the **Field Selection** area in Customizing to control which fields are to be hidden, displayed, ready for input, highlighted in color, or mandatory ([Section 1.8.1](#)).

You can activate various other tabs for WBS elements according to your requirements. Depending on your Customizing settings, you can use additional tabs for integration scenarios—for example, in integrated product and process engineering (iPPE), joint venture accounting, depreciation simulations in asset accounting, or in funds management.

1.2.2 Customizing the Structure

[Figure 1.10](#) shows the different activities in structure Customizing of operative WBSs. Before you can create a WBS, you must create at least one

project profile here. Prior to the initial creation of a WBS, you should also consider defining coding masks. Using coding masks isn't mandatory, but it has many advantages. You can only create or modify coding masks at a later stage—with many restrictions.

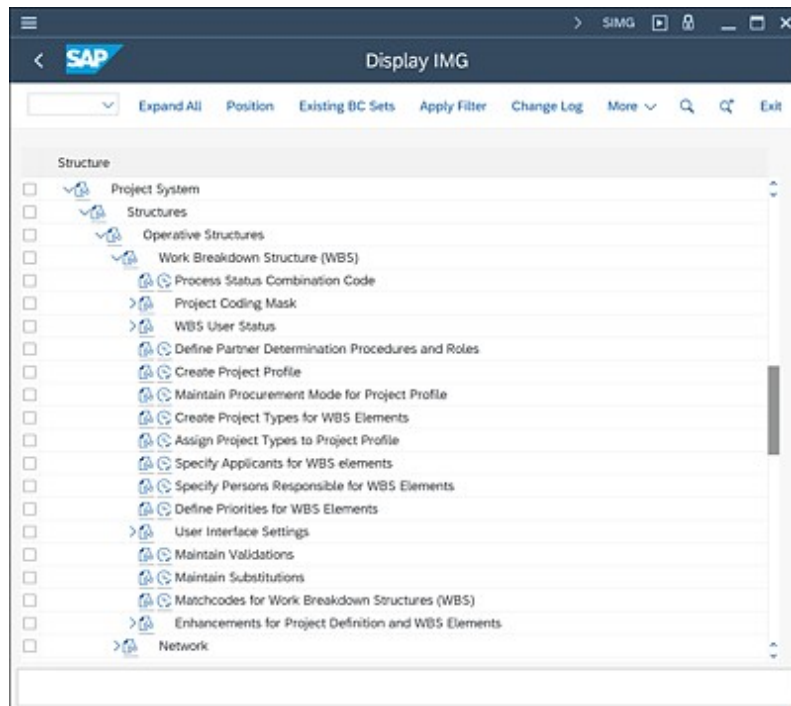


Figure 1.10 Structures Customizing of WBS

Depending on your specific requirements, you must specify various settings in structure Customizing of operative WBSs in addition to defining project profiles and coding masks. The following sections briefly describe the individual Customizing activities involved. The Implementation Guide (IMG) of the SAP system also contains detailed documentation for each of these Customizing activities.

Project Profile

When creating a project, you must always specify a project profile that has been previously defined for the respective project type in Transaction OPSA. The project profile contains values and profiles that can be used as default values for project definitions or WBS elements during the creation phase. Depending on the field selection and status of the object, those values and profiles can be modified, for example, with regard to the project type,

organizational units, and so on. In addition, the project profile contains *referenced fields* (see [Figure 1.11](#)).

Referenced fields define properties of your project without being displayed or editable in the WBS. They will be briefly described in the following sections.

The **Only one root** indicator controls whether one or several WBS elements are allowed at level 1 of the WBS. If you set this indicator and try to save two or more WBS elements at the highest level, then the system will output an error message, and you'll have to change the hierarchical structure before you can save the project.

The project profile contains two indicators that are relevant for writing change documents:

- The indicator for changes to master data
- The indicator for status changes

Besides activating the respective indicator, you must meet another requirement to write change documents—namely, a status must explicitly allow the business operation **Create Change Document** ([Section 1.6](#)).

The project summarization via master data (**Proj. summ. MastDa**) indicator is only relevant if you want to use the project summarization function for your analyses (see [Chapter 6, Section 6.4](#)). This indicator enables you to decide whether you want to carry out the summarization process based on the master data or based on a classification of the WBS elements.

Particularly with regard to system performance, you should summarize on the basis of master data characteristics. In the project profile, you can mark billing elements, account assignment elements, or all WBS elements of the project as relevant for inheriting master data during project summarization.

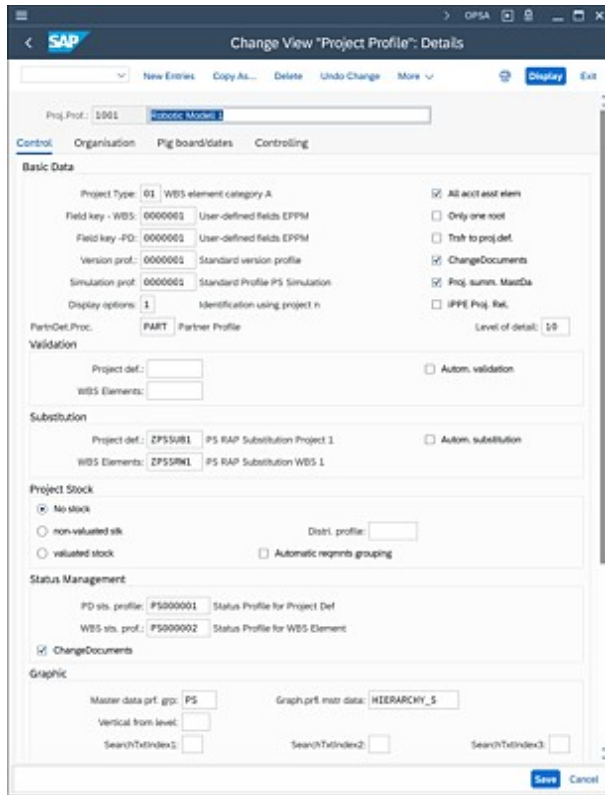


Figure 1.11 Sample Project Profile

The **Version prof.** field is responsible for the automatic creation of project versions on the basis of their statuses ([Section 1.9.1](#)). It's referenced via the project profile.

If you specify substitutions and validations and set the automatic (i.e., **Autom. validation** or **Autom. substitution**) indicator, then you can make sure that logics for setting and checking field values, which you personally have defined, are processed during the save process ([Section 1.8.4](#) and [Section 1.8.5](#)).

The specification of status profiles ([Section 1.6](#)) for project definitions and WBS elements is only a default value for the corresponding objects; however, a status profile can no longer be changed in the object once a user status is set directly above it. In this case, the entry of the status profile in the project profile also has a referencing character. Because the subsequent entry of status profiles in the objects is tedious and can't be done by means of a mass change ([Section 1.8.3](#)), you should store the profiles you've defined in the project profile.

You can call a graphical display of project data via the editing transactions ([Section 1.7](#)) or by using the transactions for cost planning, time scheduling, and budgeting. The graphical presentation of the data is controlled by the graphics profiles that you must store for various purposes in the project profile. If required, you can define your own graphics profiles, but usually the default profiles will suffice.

If you set the **iPPE Proj. Rel.** indicator, then the system displays an additional tab for WBS elements, which allows for integration with iPPE (see [Chapter 2, Section 2.3.1](#)).

If you enter a **Strategy** in the **Controlling** tab of the project profile, you can automatically generate the settlement rules for WBS elements. [Chapter 5, Section 5.9](#), provides a detailed description of how to define strategies and how to derive settlement rules.

Coding Masks

To enable employees in different departments to use project structures easily in their daily work, it's useful to agree on certain conventions regarding the identification of WBS objects, for example, identifying on the basis of the type and usage of projects. To do this, you can define coding masks to control the external identification of project definitions and WBS elements in Customizing.

You can define coding masks on the basis of *keys* in Customizing activity **Define Project Coding Mask** (Transaction OPSJ). A coding mask contains *sections* for the external identifications. These sections are separated by special characters. A section consists either of numbers that are represented by zero characters in the coding mask or of alphanumeric characters that are represented by X characters in the mask. You can store a descriptive text for each coding mask in Customizing and use *lock indicators* to control whether the key and the associated mask can be used for operative or standard WBSs.

In the following sections, we'll demonstrate the definition of coding masks on the basis of our robot example. All robotics projects in the sample company begin with the letter "E." For this reason, the coding mask shown in [Figure 1.12](#) was defined in Customizing for the key "E" even before the first robot project was created.

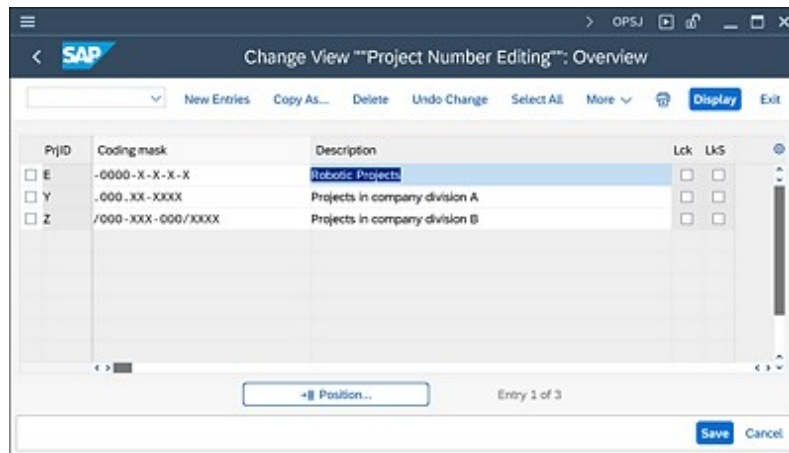


Figure 1.12 Sample Coding Masks

Each identification of project definitions and WBS elements that begins with an “E” is now based on the convention that the “E” key must be followed by a hyphen as a special character, which, in turn, is followed by a section containing a maximum of four characters that may only consist of numbers. If a letter is entered in the first section, then the system outputs an error message.

In the example, the first section is used for the sequential numbering of projects. The system supports this in that it provides the option to search for the next available number.

If a longer ID must be assigned to WBS elements, then the numerical section must be followed by a second hyphen, which is followed by a one-digit section that may contain an alphanumeric character, and so on. When entering the identification, you can usually omit the special characters because the system automatically inserts them after you’ve pressed the (Enter) key. However, the external identification is stored without special characters in the database table of the WBS elements. SAP Note 536471 provides further information on coding masks.

Because a lock indicator is set neither for operative nor for standard structures in the example, you can create both operative projects and standard WBSs with identifications for the key “E.”

[!] Restrictions for the Creation of Coding Masks

You can only create a coding mask for a key as long as no object exists for that key.

You should consider using coding masks when you first implement Project System and before you create the first project. If necessary, you should define masks for keys as early as possible—even if you want to use them at a later stage—and lock those coding masks. You can further detail those masks at a later point in time and release them for usage (i.e., remove the lock indicators).

[!] Restrictions for Changing Coding Masks

Coding masks that are already used by objects can only be modified to a certain extent. The only two possible options to change coding masks retroactively consist of adding alphanumeric sections and converting a numeric section into an alphanumeric one of identical length.

When you create or change coding masks, the system carries out several checks; however, not all the steps involved in those checks are carried out when you transport Customizing settings to coding masks. For this reason, we recommend that you don't transport coding masks; instead, you should create them manually in the respective systems.

To define coding masks in Customizing, you must first enter several settings in Customizing activity **Define Special Characters for Projects** (Transaction OPSK; see [Figure 1.13](#)). Here, first define the length of the keys for the coding masks. Note that the maximum length for a key is five (numeric or alphanumeric) characters. For example, if you enter “3” in the respective field, then you can only use keys of a maximum of three characters when defining the coding masks. If you want the keys to be exactly three characters long and no shorter, then you must also set the structure length (SL) indicator.

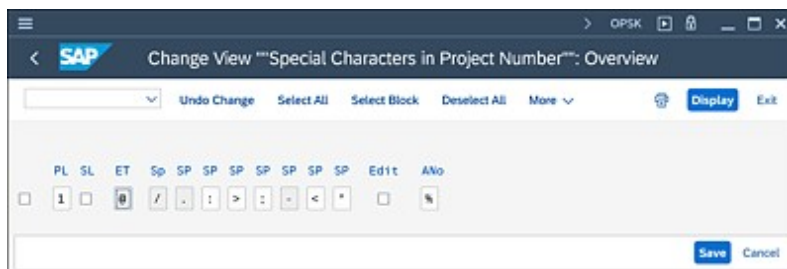


Figure 1.13 Examples of Special Characters

You can simplify the tabular creation of WBS elements by entering any character in the entry tool (**ET**) field. Instead of always having to enter the complete ID for a new WBS element, which can be prone to errors when you use long IDs, you can simply enter the entry tool character for the part of the ID that is identical to the object on the higher level. When the data is confirmed by pressing (Enter), the system replaces the character with the identification of the higher-level object.

In the eight **SP** (special character) fields, you must store the characters you want to use as separators between two sections when defining the coding masks.

By setting the **Edit** indicator, you can ensure that project definitions and WBS elements can only be created with identifications that are controlled by coding masks that aren't locked. For example, if you haven't defined a coding mask for the key "Z," then you can't create any projects that begin with "Z" when the **Edit** indicator is set.

If you enter a character of your choice in the automatic number assignment (**ANo**) field when creating a WBS element from the template area, then the system will automatically propose an ID for that WBS element ([Section 1.7.1](#)). If the system can't automatically propose a number, then it will assign a temporary number that begins with the character you've previously entered in the **ANo** field.

Project Type and Priority

The definition of project types and priorities merely consists of a key and a description. You can enter project types and priorities in the basic data of WBS elements. They are usually used for purely informational purposes, but you can also use them as selection criteria in Reporting. You can store default values for the project type and priority in the project profile. You also have the option to assign project types to project profiles and thus control which project types can be selected for which projects. SAP Note 2232730 describes the necessary prerequisites for this solution.

Partner Determination Procedure

The definition of partner determination procedures consists of three Customizing activities. First, you create the identifications and names for the roles you want to assign to projects at a later stage and link the IDs and names with the partner number types provided.

For example, if you want to store the sold-to party as additional information in customer projects, you must create a sold-to party role and link this role to the customer type. This allows you to specify a customer number for the sold-to party role and to view the data of the corresponding customer master record in the project.

[+] Roles

The term *role* is used in different contexts here. The roles defined here aren't related to the roles that are used to assign authorizations or to the roles that are defined in Portfolio and Project Management (PPM), for example.

In the second Customizing activity, you can translate the name of the roles into other languages. Depending on the logon language, the system will then output the corresponding name.

The final step consists of summarizing the roles you want to be available for selection in your project into a partner determination procedure. When doing so, you can define for each role whether it must be specified in any case, whether an entry for a role can be modified at a later stage, and whether it should be possible to enter several values for a role. You can store a partner determination procedure as the default value in the project profile.

Applicants and Responsible Persons

You can use Transactions OPS6 and OPS7 to create possible responsible persons and applicants for project definitions and WBS elements. The definition of applicants and responsible persons consists of an ID that may contain a maximum of eight characters and the name of the corresponding person. You must make these entries manually; you don't need any data

from human resources (HR) for this process. If you want to transfer data from HR, you can use the solution described in SAP Note 2331027.

In addition, you can assign the corresponding SAP users to responsible persons. This type of entry is relevant if you want to notify the user automatically via email in case of budget overruns (see [Chapter 3, Section 3.1.5](#)).

Field Key

You can use field keys to control the names of user fields (refer to [Figure 1.3](#)). Data can only be entered into the fields for which you've stored a name in the field key definition. For the two quantity fields of the user fields, you can create a link to the parameters to use the quantities in formulas at a later stage (see [Chapter 2, Section 2.2.1](#)). You can enter a default value for the field key in the project profile.

1.2.3 Standard WBS

A standard WBS consists of a *standard project definition* and *standard WBS elements*, and it can be used as a template for operative projects. You can create standard WBSs by using Transaction CJ91. You must also have a reference to a project profile. You can also use other standard WBSs or even operative projects as templates.

A standard WBS may already contain important master data. Standard WBS elements can be assigned milestones ([Section 1.4](#)) or PS texts ([Section 1.5.1](#)); however, you can't store any planning data, such as date information, planned costs or revenues, and settlement rules, in the standard WBS. Moreover, you can't assign document info records in a standard WBS ([Section 1.5.2](#)).

Furthermore, you can't set any statuses for the standard WBS elements; however, you can store the status profiles for the operative project definition and WBS elements in the standard project definition.

In addition, there are three different system statuses available at the level of the standard project definition:

- **Created (Standard WBS)**
The system issues a warning message if you want to use the standard WBS as a template in this initial status.
- **Released (Standard WBS)**
You can use the standard WBS as a template without any restrictions. Note that you can't undo this status.
- **Closed (Standard WBS)**
You can't copy the standard WBS.

[AT A GLANCE] Work Breakdown Structures

You can use the WBS elements of a WBS to map a project hierarchically in the SAP S/4HANA system. All WBS elements of a WBS are uniquely assigned to a project definition.

You can also store data for informational purposes and control profiles and indicators in the master data of those project elements. Standard WBSs can be used as templates for operative projects. Before you can create WBSs, you must define a project profile in the Customizing section of Project System. It's useful to also define coding masks in Customizing that enable you to control the identification of the project elements.

1.3 Network

You can use networks to map the flow of different project activities as activities and relationships in the system. In particular, networks enable you to use various logistical integrations with materials management, production, plant maintenance, purchasing, capacity requirements planning, and time scheduling.

Networks should not exceed a size of approximately 500 activities because you usually only store one responsible person per network. Another reason for keeping the aforementioned size can be found in the lock logic of networks. Whenever a network object is edited or confirmed, for example, the entire network is locked. The bigger your networks and the higher the number of possible confirmations, the greater the risk that the network gets locked for editing.

1.3.1 Structure and Master Data

A network consists of a *network header* and *activities*. The activities can be linked to each other via *relationships*. *Activity elements* allow you to further detail or complement activities.

You can enter the identification of a WBS element in the header of a network and in the activities and activity elements to create an assignment to a WBS. Based on this assignment, you can then exchange data between the network objects and the respective WBS elements.

Each network contains a unique ID that consists of a maximum of 12 characters. Depending on the Customizing settings, either you must enter this ID manually when creating the network, or the ID is automatically assigned by the system. For networks assigned to a WBS element, you can also derive the ID from the ID of the WBS element via a customer enhancement.

Technically, networks are implemented as orders, so some of their functions will probably remind you of production orders, maintenance orders, service

orders, and, to a certain extent, even internal orders. In the SAP S/4HANA system, the different orders are distinguished by firmly defined *order categories*. Networks represent order category 20.

The properties of orders are specified within the individual order categories through *order types* that must be defined in the Customizing section of the respective application. In the context of networks, these order types are referred to as *network types*. Depending on the network type and the plant in the header of the network, you can define additional network properties in the Customizing section of Project System ([Section 1.3.2](#)).

Network Header

A network header acts as a framework for the various objects of a network. The network header contains control profiles and indicators, as well as default values for the different network objects (see [Figure 1.14](#)).

The screenshot displays the SAP 'Network Change: Header Data' form. The network is identified as '4104205' with the name 'Robot Model 1'. The 'Control' tab is active, showing the following data:

- General:**
 - Network Profile: 0000002 Network profile w/activity acct. assignm
 - Network type: PS02 Network with activity assignment(int.NA)
 - Plant: 0001
 - MRP controller: 001 PERSON 1
 - Priority: (empty)
 - Execution Fact.: 1
- Costing:**
 - Costing Sheet: PP-PC1 PP-PC Standard
 - Plnd Costing Va: PS02 Network: Planned
 - Act. Costing Va: PS03 Network: Actual
 - Overhead key: (empty)
 - Plan cost calc.: 2 Determine plan costs
- Components:**
 - Res./Purc. req.: 2 From release

Buttons for 'Save' and 'Cancel' are visible at the bottom right of the form.

Figure 1.14 Control Data of a Network Header

When creating a network header ([Section 1.7](#)), you must enter a profile, type, and plant in the corresponding **Network Profile**, **Network type**, and

Plant fields. Note that you can also specify the network type and the plant via the network profile. The plant is used to identify the associated company code and controlling area.

The plant is also forwarded as a default value to the activities of the network from which it can be modified, provided that the new plant belongs to the same controlling area of the network header. Other pieces of data included in the network header, such as given in the **Business Area** and **Profit Center** fields (in the **Assignments** tab), and the **Res./Purc. req.** indicator, are also used as default values for the activities of the network.

In addition to specifying the **MRP controller** in the network header, you must also enter various settings regarding time scheduling, capacity requirements planning, and costing. Those settings are described in greater detail in [Chapter 2](#), [Section 2.1.2](#), [Section 2.2.1](#), and [Section 2.4.5](#).

You can use the **Execution Fact.** field to multiply quantity data in the activities, activity elements, and assigned material components. If you use an integer as an execution factor and store it in the network header, then the system automatically multiplies the duration, work, costs, and quantities of activities, and the associated activity elements and material components by that factor. However, you should note that only those activities that you've explicitly marked for this multiplication process are taken into account.

Activities

In the context of networks, we must differentiate from among the following four activity types:

- Internally processed activities
- Externally processed activities
- Services
- Costs

Each activity type is defined by the *control key* of the activity ([Section 1.3.2](#)). You can use the name, long texts, or assigned PS texts and documents ([Section 1.5](#)) to further specify the purpose of each individual activity.

Each activity has a unique, four-digit ID within the network and can thus be uniquely identified together with the network identification. If you create a new activity, the system automatically proposes an ID for this activity based on the highest activity number within the network to date and the activity step size specified in the network profile.

An internally processed activity—control key PS01 is available by default for this activity type—can be used for planning and entering a service that is rendered by capacities (e.g., people or machines) of your own company. [Figure 1.15](#) shows for the sample project an internally processed activity, which is used to do a specification of the robot in the network.

The **Normal duration** field enables you to plan the length of time to be considered in time scheduling for rendering the internal service. If you want to plan costs and capacity requirements for the internal service, then you must specify a work center in the **Work Center** field (see [Chapter 2, Section 2.2.1](#)) that is supposed to render the respective service. In addition, you must enter the amount of work in the **Work** field.

The screenshot displays the 'Activity detail data (Basic)' form. At the top, the activity ID is '4104285' and the specification is '0010 Specification'. The 'Internal' tab is selected. The 'General data' section includes: System Status (CMF MCNF REL SETC), WBS Element (E-2610), Work Center (2000 / 0001), Work (40,0 H), Calculation key (Maintain manually), Activity Type (MNGR), Priority, and Usage. The 'Scheduling' section includes: Normal duration (5,0 DAY), Min. duration (DAY), Flexible checkbox, Factory Cal. ID (01), and Red. Strategy. The 'Control key' is set to PS01, and there are checkboxes for 'Subntwk exists' and 'Project Sum.'. Other fields include 'DndKeyCapReqmts', 'Number', 'Percent', 'Execution Fact', 'Business Process', and 'Std Text Key'.

Figure 1.15 Internally Processed Activity

If, for an internally processed activity, a fixed reference exists between the planned work and its duration, then you can use the **Calculation key** field to ensure, for example, that the duration is calculated on the basis of the planned work of the activity and the amount of time that the work center is used. If you use the **Number** and **Percent** fields, you can also specify how

many different capacities should be considered and at what percentage during the calculation. Conversely, you can also calculate the amount of work required on the basis of the duration of the activity. A possible third alternative to using the calculation key is to manually specify the planned amount of work and its duration. Based on these aforementioned entries, the system then calculates the number of different capacities required.

An externally processed activity—for which you can use control key `PS02` by default—enables you to plan and procure a service that is supposed to be provided by an external resource. You can specify the service to be procured either manually, by using long texts, PS texts, or assigned documents, or by specifying appropriate info records or outline agreements from purchasing. [Figure 1.16](#) shows an example of an externally processed activity that is used to procure an external engineering service within the network.

The screenshot displays the 'Activity detail data (Basic)' window in SAP. The 'Activity' field contains '4104286', '0030', and 'External Engineering'. The 'External processing' section is active, showing various fields for system status, WBS element, info record, vendor, price, and requisition details. Key values include 'REL SETC' for System Status, 'E-2610.1.1' for WBS Element, '5,000.00 EUR' for Price, and '15083094' for Requisition. The 'Control key' is set to 'PS02', and the 'Purchasing Org.' is '0001'. The 'Res./Purc. req.' is set to '3 Immediately'. The bottom status bar shows 'Pur.req.' and 'Invoicing plan'.

Figure 1.16 Externally Processed Activity

Based on your entries regarding the external service, the planned delivery time (**Pl. Deliv. Time**), the activity quantity (**Activity qty**), the **Material Group**, and the responsible purchasing organization (**Purchasing Org.**) and purchasing group (**Purch. group**), the system can create a purchase requisition. This process depends on the **Res./Purc. req.** indicator:

- Immediately—that is, automatically the next time the network is saved
- From release of the activity and the subsequent save process
- Never automatically but at any time during the save process once you've manually set the indicator from **Never** to **Immediately**

Like an externally processed activity, you can use a service activity (default control key PS05) to plan and procure external services through purchasing (see [Figure 1.17](#)). Whereas external processing allows you to procure only one specified service, a service activity enables you to plan and procure several services and to enter data for services that haven't yet been specified in detail.

The screenshot shows the SAP 'Activity detail data (Basic)' window for an activity named 'External Quality Assurance'. The activity number is 4104286 and the control key is PS04. The 'External processing' section is active, showing various fields for system status (CRTD SETC), WBS element (E-2610.3), and purchasing details. The price is set to 6,000.00 EUR per 1 AU. The requisition is 15083094 with a quantity of 10. The 'Res./Purc. req.' dropdown is set to '3 Immediately'. The 'Service exists' checkbox is checked. The bottom status bar shows 'Pur.req.', 'Service', 'Invoicing plan', 'Settlement rule', 'Costs planned/actual', 'PS text', and 'PS text'.

Figure 1.17 Service Activity

To do this, you must create *service specifications* when creating a service activity. These specifications could be structured as a table containing information on service master records, or they could be structured as sample or standard service specifications that refer to planned services. If necessary, the table could also be hierarchically structured (see [Chapter 2, Section 2.2.5](#)). In addition, you must specify a value limit for unplanned services, that is, for services that can't yet be exactly specified. This limit

must not be exceeded by the supplier during *service entry* when the values of unplanned services are entered (see [Chapter 4, Section 4.4.2](#)).

As is the case with an externally processed activity, you can use the **Res./Purc. req.** indicator to control exactly when a purchase requisition should be created on the basis of the data of a service activity. The purchase requisition is then processed further using the functions of the service area in purchasing.

Cost activities can be used for planning and for the account assignment of costs that aren't generated by internal services, the procurement of external services through purchasing, or the consumption of materials. The types of costs involved in cost activities are usually travel costs and other primary costs. By default, control key `PS03` is provided for cost activities. [Figure 1.18](#) shows an example of a cost activity that maps insurance costs within the network.

The screenshot displays the 'Activity detail data (Basic)' window in SAP. The activity is identified as '4164286 0520 Insurance Costs'. The 'Costs' tab is active, showing various configuration fields. Key fields include: System Status (MCNF PCNF REL SETC), WBS Element (E-2610), Company Code (0001), Plant (0001), Amount (2,800.00 USD), Control key (PS03), Factory Cal. ID (01), and Cost Element (466000). The 'Normal duration' field is set to 'Flexible'. The bottom of the window shows navigation buttons for 'Invoicing plan', 'Settlement rule', and 'Costs planned/actual'.

Figure 1.18 Cost Activity

Cost activities provide various options to plan these types of costs. The easiest way to plan for a type of cost is to specify an **Amount** and a **Cost Element**. In contrast to that, you can carry out unit costing or use invoicing plans to store more detailed information (see [Chapter 2, Section 2.4.5](#)).

If you want to distribute the costs across several periods, you can enter a duration in a cost activity and—if you don't want an equal distribution across the entire duration—a distribution key (see [Chapter 2, Section 2.2.1](#)).

Relationships

Relationships allow you to define the sequence of activities. When creating a relationship between two activities, you must define which activity is the *predecessor* and which activity is the *successor*. This way, you can specify the logical sequence. In addition, you must specify the type of relationship, based on which the system determines the chronological sequence of predecessor and successor in the context of time scheduling.

The following types of relationships exist:

- **FS (finish-start relationship)**
The successor begins once the predecessor has finished.
- **SS (start-start relationship)**
The successor begins at the same time as the predecessor or once the predecessor has started.
- **FF (finish-finish relationship)**
The successor ends at the same time as the predecessor, or once the predecessor has ended.
- **SF (start-finish relationship)**
The predecessor begins once the successor has finished.

If you enter a positive time interval in a relationship during time scheduling, then you can ensure that the time interval is kept between the activities. Conversely, a negative time interval means that in a finish-start relationship, for example, the activities can overlap by this time interval.

You can enter the time intervals as absolute values, such as a number of days, or as a percentage based on the duration of the predecessor or successor. If you want the time intervals to refer exclusively to workdays or the operating time of capacities, then you must also enter a factory calendar or work center in the relationship.

You can create relationships for activities in a tabular view. In addition, you can use the *connection mode* in the network graphic and the Project Planning Board to create relationships graphically. Moreover, the Project Planning Board allows you to simply select activities and use the **Connect Selected Activities** icon to automatically create finish-start relationships between those activities in the order in which they are listed in the table.

You can also create relationships between activities of different networks and therefore map interdependencies between the networks. The networks that are connected by relationships in such a way may also belong to different projects. Relationships between activities of different networks are also referred to as *external relationships*.

Activity Elements

There are four different types of activity elements:

- **Internal elements**
For planning and entering performances of capacities of your own company.
- **External elements**
For planning and procuring external services.
- **Service elements**
For planning and procuring external services using service specifications.
- **Costs elements**
For planning and assigning additional primary costs to accounts.

As is the case with an activity, an activity element enables you to plan the costs and capacity requirements for internal services, to plan and trigger the procurement of external services through purchasing, and to plan additional costs. All of those operations depend on the control key that defines the type of activity element. An activity element is identified by a unique number within the network. [Figure 1.19](#) shows an example of a costs type activity element.

In contrast to an activity, however, an activity element doesn't contain any relationships and is therefore not relevant for time scheduling. An activity element must be firmly assigned to an activity so that it adopts the dates that pertain to the activity. Note that you can specify time intervals to define that the activity element starts later or finishes earlier than the superordinate activity. However, the planned period of an activity element must always be within the limits of the planned period of an activity.

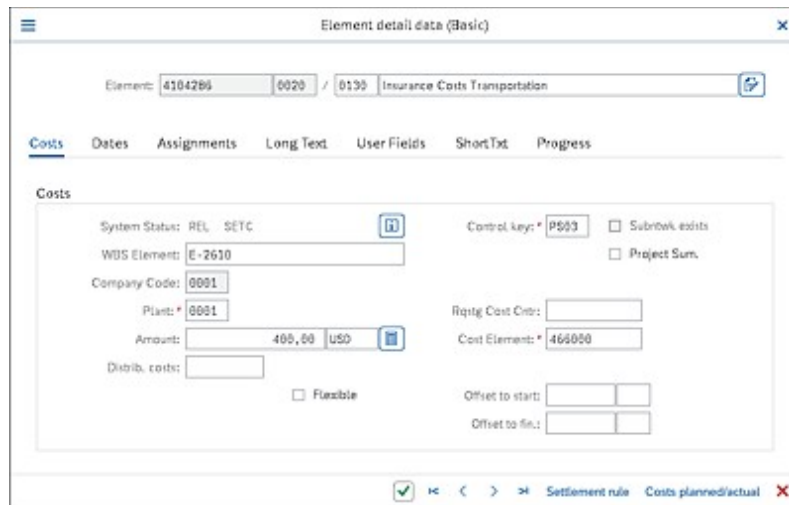


Figure 1.19 Costs-Type Activity Element

Another difference between activity elements and activities is that you can't assign any additional objects—particularly PS texts, documents, milestones, or material components—to activity elements.

By using activity elements instead of activities, you can keep a clear structure of the network and the time scheduling component of the network. The following two examples of the robotics project demonstrate the advantage of using activity elements instead of activities:

- **Example 1: Delivery**
The delivery of robot components is mapped by the internally processed activity, **Delivery**. For the transport, you want to plan additional insurance costs. To do that, you use a costs element called **Transport Insurance**, which you assign to the **Delivery** activity. Due to the fixed date assignments between the activity and the activity element, the planned costs of the costs element automatically lie within the scheduled delivery period.
- **Example 2: Assembly**
The assembly of a robot component is carried out by several work centers; a part of this service is rendered by an external supplier. Because the different kinds of work are carried out simultaneously, and thus a detailed flow plan of the individual activities isn't needed, you should use activity elements instead of individual activities for each work center and each external service. This means that you must create an activity with a planned duration for

the entire assembly of the component, including the required relationships. Then, you have to assign an activity element to this activity for each work center that is involved and for the required external procurements.

Subnetworks

Subnetworks are networks that are linked to an activity of another network via an assignment at the network header level. Thus, subnetworks can be used to further specify the superordinate activity.

When assigning a network to a superordinate activity, the system passes activity dates to the subnetwork header. In addition, the activities within the subnetwork can take over the assignment to a WBS element and organizational data from the higher level (superordinate) activity to which the subnetwork is assigned. During the assignment of a subnetwork, the **Subntwk exists** indicator is set in the superordinate activity, and the control key of the activity changes ([Section 1.3.2](#)). You can also assign several subnetworks to an activity. Furthermore, you can assign subnetworks to the activities of a subnetwork. Instead of creating subnetworks manually, you can also use milestone functions to automatically create networks based on standard networks and simultaneously assign the networks as subnetworks to activities ([Section 1.4.2](#)). The example described in the following sections will demonstrate a possible way of using subnetworks.

At an early planning stage of the robotics project, you want to define a network to roughly map the flow of individual project activities. You can use the network right away to plan dates, costs, and capacity requirements for planning, construction, and assembly of the robot.

In the context of the detailed project planning, you then want to create new, detailed networks—especially for construction and assembly. These networks are assigned separate responsible persons, and the network headers are assigned to the **Construction** and **Assembly** activities of your first network. The system passes the dates of the activities and the assignment to the WBS of the robotics project to the two subnetworks.

To avoid the duplication of planned costs and capacity requirements for the construction and assembly for your project in reporting, you'll have needed

to define in Customizing that the control keys of superordinate activities are automatically modified in such a way that they are no longer relevant for costing and the calculation of capacity requirements.

The persons responsible for the subnetworks can then process the subnetworks and add more details without locking the superordinate network. If basic dates of the project or parts of the project must be shifted, then you can use overall network scheduling to simultaneously recalculate the dates of the superordinate network and of the subnetworks (see [Chapter 2, Section 2.1.2](#)).

Plant Maintenance and Service Orders as Subnetworks

You can also assign plant maintenance and service orders as subnetworks to activities of a network to define the sequence of the orders and schedule their execution periods. Moreover, you can use the network or project in extensive plant maintenance activities for planning all preparatory measures, for planning the required materials and resources, and for progress monitoring. If, at the same time, you assign these orders to WBS elements as well, you can also use the project for managing the budget of the plant maintenance activities, which allows you to already check the planned costs of the orders against the available budget (see [Chapter 3, Section 3.1.5](#)).

The process of assigning plant maintenance and service orders to network activities or WBS elements occurs in the header of the respective orders. You can also use the **Order Assignment to Project** function (Transaction ADPMPS) to create assignments either by manually (dragging and dropping) or automatically (see [Figure 1.20](#)). The **Ref. Element PM/PS** field allows you to activate automatic assignments in network activities and order headers or their templates. If you select a project or network and orders in the **Order Assignment to Project** function and automatic assignment is triggered, then the WBS elements or network activities are assigned all the selected orders that have the same reference element. You can define reference elements in Customizing for plant maintenance.

You can call the **Order Assignment to Project** function either directly or via the Maintenance Event Builder (Transaction WPS1), which provides additional functions for a revision-specific planning of plant maintenance

activities and allows for linking projects or networks to revisions, for example.

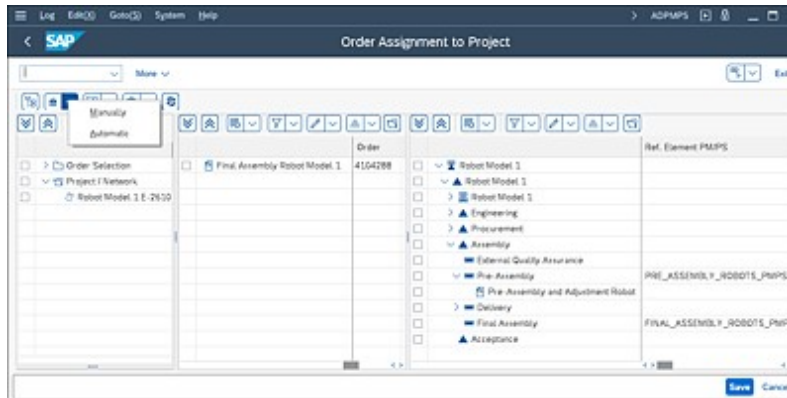


Figure 1.20 Assigning Plant Maintenance Orders to Projects Using Transaction ADPMP5

For further information on the Maintenance Event Builder, for details on the **Order Assignment to Project** function, and for general information on the planning and execution of maintenance activities with SAP, you can refer to *Plant Maintenance with SAP S/4HANA: Business User Guide* by Karl Liebstückel (SAP PRESS, 2021), available at <https://www.sap-press.com/5180>.

1.3.2 Customizing the Structure

Before you can create operative networks in the SAP S/4HANA system, you must configure several settings in the Customizing section of Project System. In addition to settings in the Customizing structure that are described in the following sections, you must define *scheduling and confirmation parameters* and enter the necessary settings to carry out *material availability checks*. These Customizing activities are described in more detail in [Chapter 2](#), [Section 2.1.2](#), [Section 2.3.4](#), and in [Chapter 4](#), [Section 4.3](#).

Network Type

In the first step, you define a network type in Transaction OPSC (see [Figure 1.21](#)) and assign this network type to a number range. When defining

the number ranges for all order types (Transaction CO82), you must also define whether you want the number to be automatically assigned by the system or whether it should be manually assigned by the user (internal or external number assignment).

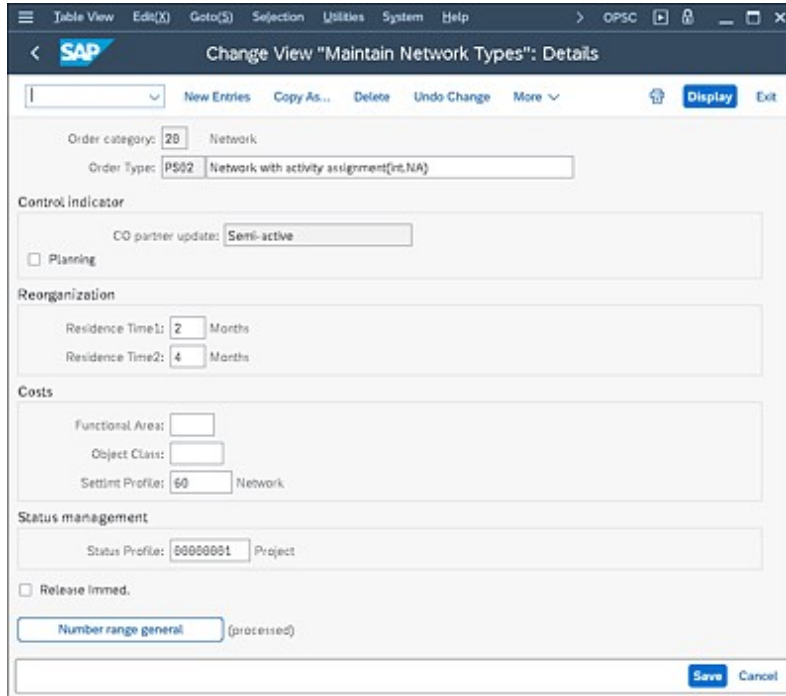
The image shows a screenshot of the SAP 'Change View Maintain Network Types' details screen. The window title is 'Change View "Maintain Network Types": Details'. The interface includes a menu bar with options like 'Table View', 'Edit(X)', 'Goto(S)', 'Selection', 'Utilities', 'System', and 'Help'. Below the menu, there are buttons for 'New Entries', 'Copy As...', 'Delete', 'Undo Change', 'More', 'Display', and 'Exit'. The main form area contains several sections: 'Order category' with a dropdown set to '20' and 'Network'; 'Order Type' with a dropdown set to 'P502' and 'Network with activity assignment(int.NA)'; 'Control indicator' with a dropdown set to 'Semi-active' and a 'Planning' checkbox; 'Reorganization' with 'Residence Time1' set to '2' Months and 'Residence Time2' set to '4' Months; 'Costs' with 'Functional Area', 'Object Class', and 'Settmt Profile' (set to '60' Network) fields; 'Status management' with 'Status Profile' set to '00000001' and 'Project'; and a 'Release Immed.' checkbox. At the bottom, there is a 'Number range general' field with '(processed)' next to it, and 'Save' and 'Cancel' buttons.

Figure 1.21 Network Type

[+] Network and Order Types

Because networks are technically implemented as orders in the SAP system, the Customizing section of Project System often uses the generic term *order type* as a synonym for the term *network type*.

Furthermore, you can store default values for the **Functional Area**, **Object Class**, and **Settmt Profile** (settlement profile) fields of network objects, and the **Status Profile** controlling the allowed user statuses ([Section 1.6](#)). If you activate the **Release Immed.** indicator, you can make sure that all network objects are assigned the status **Released** as their initial status, which means you can enter actual data in the network immediately after you've created the network.

Besides control settings that are used for classification and archiving purposes (residence times; see [Section 1.10](#)), you can use the **Planning**

indicator to determine whether the planned values of the network should be validated against the budget of assigned WBS elements during an active availability check (see [Chapter 3, Section 3.1.5](#)).

Networks whose planned costs aren't included in the availability check are referred to as *planning networks*. Planning networks are particularly relevant for projects that utilize a nonvaluated project stock (see [Chapter 2, Section 2.3.2](#)) because, contrary to regular networks, planning networks can display planned costs for material components that are stored in the nonvaluated project stock.

Network Type Parameters

Once you've defined a network type, you must define the network type parameters for a combination of the **Plant** and **Network type** fields in Transaction OPUV (see [Figure 1.22](#)).

The screenshot displays the SAP OPUV transaction interface for defining network type parameters. The title bar indicates the current view is "Change View 'Network type parameters: Overview': Details". The main area is divided into several sections:

- Plant:** 0001 (Plant 0001 - no change allowed)
- Network type:** PS02 (Network with activity assignment(int.NA))
- Network type parameters:**
 - Strategy:
 - Default Rule: PS1 (Networks to sales ord./WBS el.)
 - Red. Strategy:
 - Plnd. Costing Va: PS02 (Network: Planned)
 - Act. Costing Va: PS03 (Network: Actual)
 - Plan Cost Calc.: 2 (Determine plan costs)
 - Wklw PD chg.:
 - ActvtyAcctAngr.:
 - Net Order Price:
 - CollectiveRequest:
- Status change documents:**
 - Change document:
 - Documents:
 - OrdStatChangeDc:
 - OpStatChangeDoc:
 - MatStatChangeDoc:
 - PRTStatChangeDc:
- BOM Usage:**
 - BOM Application:
- Change Management:**
 - Change profile: PS0001 (NETWORK GENERAL)
 - PDC active:

Buttons for "Save" and "Cancel" are located at the bottom right of the form.

Figure 1.22 Network Type Parameters

Apart from the default values for the reduction strategy (**Red. Strategy**; see [Chapter 2, Section 2.1.2](#)), the planned and actual costing variants (**Plnd Costing Va** and **Act. Costing Va**), and the time of plan cost calculation (**Plan Cost Calc.**), the network type parameters contain referenced control settings only.

These settings comprise parameters for generating settlement rules (see [Chapter 5, Section 5.9](#)), for writing change documents when master data and statuses are changed (**Change document** indicator), for automatic determination of alternative bills of materials (BOMs), and for indicators for external procurement processes (see [Chapter 4, Section 4.4](#)).

The specification of a change profile is only relevant if you use the variant configuration of networks ([Section 1.8.6](#)). In this case, the change profile that you can define via Transaction OPSG determines how retroactive changes to the configuration should be handled once a network has been released.

The **ActvtyAcctAsgn.** indicator enables you to define whether you want to use *header account assignment* or *activity account assignment* for networks of this combination of plant and network type.

If you use header account assignment for a network, all planned and actual costs and commitments are stored at the level of the network header. This method doesn't allow for a more detailed evaluation of costs at the level of activities. The use of header account assignment for networks is necessary if you want to assign networks without WBSs to sales order items.

[!] Activity Account Assignment for Networks with Header Account Assignment

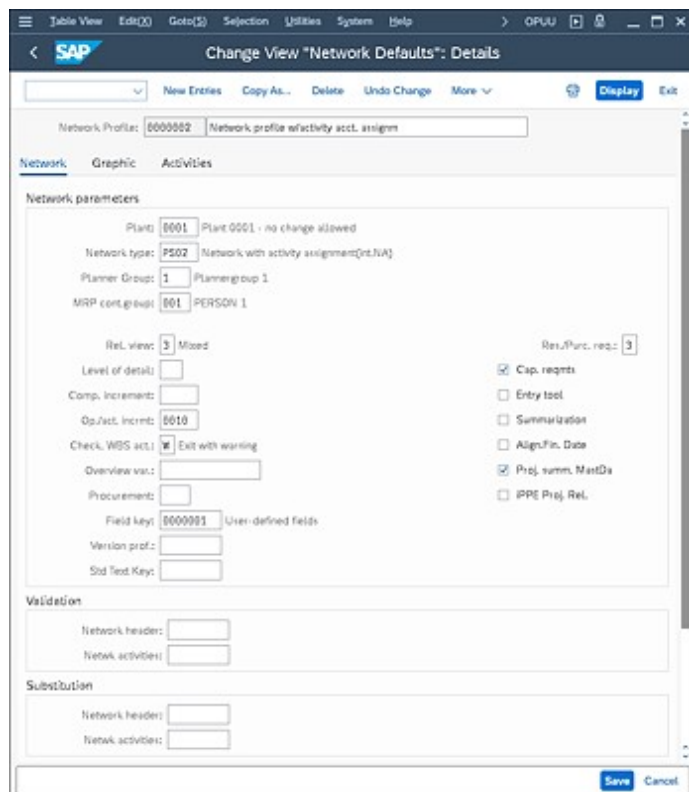
If you use header account assignment for networks in combination with WBSs, then you should not assign the activities of these networks to different WBS elements. Because the cost information is displayed in aggregated form only in WBS elements that have been assigned the network headers, assigning activities of these networks to different WBS elements could prove to be very confusing when analyzing the costs.

If you use activity account assignment for networks, then the activities and activity elements represent separate account assignment objects. All cost-related information can be analyzed separately in the individual activities and activity elements. Unlike networks that are based on header account assignments, networks for which you use activity account assignments allow you to assign the activities to different WBS elements without any problems. You can't use header account assignment and activity account assignment in parallel for the same network. Furthermore, you can't retroactively change this property of a network.

The plant-dependent definition of the network type parameters enables you to define different parameters to use networks in different plants if that is necessary. The network type parameters you define are determined on the basis of the plant and network type you've specified in the network header during the creation of a network.

Network Profile

To create a network, you also need a network profile that you can define using Transaction OPUU (see [Figure 1.23](#)).



The screenshot shows the SAP Change View 'Network Defaults': Details. The window title is 'Change View "Network Defaults": Details'. The SAP logo is visible in the top left corner. The main content area is divided into several sections:

- Network parameters:**
 - Plant: 0001 (Plant 0001 - no change allowed)
 - Network type: PS02 (Network with activity assignment[nt.NA])
 - Planner Group: 1 (Plannergroup 1)
 - MRP cont.group: 001 (PERSON 1)
 - Rel. view: 3 (Mixed)
 - Level of detail:
 - Comp. increments:
 - Op./fact. incmt: 0010
 - Check, WBS act.: Exit with warning
 - Overview var.:
 - Procurement:
 - Field key: 0000001 (User-defined fields)
 - Version prof.:
 - Std Text Key:
 - Ret./Purc. req.: 3
 - Cap. reqmts:
 - Entry tool:
 - Summarization:
 - Align./Fin. Date:
 - Proj. summr. MantDa:
 - IPPE Proj. Rel.:
- Validation:**
 - Network header:
 - Network activities:
- Substitution:**
 - Network header:
 - Network activities:

At the bottom right, there are 'Save' and 'Cancel' buttons. The top menu bar includes 'Table View', 'Edit(O)', 'Goto(S)', 'Selection', 'Utilities', 'System', and 'Help'. The top toolbar includes 'New Entries', 'Copy As...', 'Delete', 'Undo Change', 'More', 'Display', and 'Exit'.

Figure 1.23 Sample Network Profile

In the network profile, you can enter various default values for the fields and the presentation of network headers, activities, activity elements, relationships, and material components.

In particular, you can already store default values for the plant, the network type, and the MRP controller of the network in a network profile so that you only need to specify a network profile when creating a network. If you haven't defined any MRP controllers in production yet or if you want other MRP controllers to be responsible for the networks, then you must first define MRP controllers for your networks in Customizing.

As is the case in the project profiles of the WBSs, in the network profile, you can configure the settings for creating project versions ([Section 1.9.1](#)), for using substitutions and validations ([Section 1.8.4](#) and [Section 1.8.5](#)), for aggregating and graphically displaying networks, and for using access control lists (ACLs).

In addition, you can enter various default values for activities and activity elements in the network profile depending on the type of activities and activity elements used. In particular, you can store default values for the respective control keys of the activities and activity elements.

To enter material forecasting values in internally processed activities, you must specify a cost element for the forecast costs of material forecasting in the network profile. Those *material forecasting values* enable you to enter planned costs for materials at an early planning stage without having to explicitly assign materials to the respective activity. If you assign material components to the activity at a later stage, then the share of the material forecasting value in the planned costs is automatically reduced by the planned value of the assigned components. In this way, duplication of the planned costs is avoided.

Control Key

The standard version of the application already contains control keys for the different activity types, but, if necessary, you can also create your own control keys using Transaction OPSU (see [Figure 1.24](#)). The **Gen. costs act.**,

Service, and **Ext. Processing** fields allow you to define the type in each control key.

The **Cost**, **Det. Cap. Req.** (determine capacity requirements) and **Scheduling** indicators in the control key are used to control whether you want to determine planned costs, calculate capacity requirements, or include a scheduling-relevant duration for a specific activity. For example, if you don't set the **Scheduling** indicator, then the system will always use the duration 0 in time scheduling, regardless of the activity dates. The **Sched.Ext.Op.** indicator enables you to specify for the two activity types, external processing and service, whether the planned delivery time of the activity or the **Normal Duration** field in the **Internal** tab should be used for scheduling the activity.

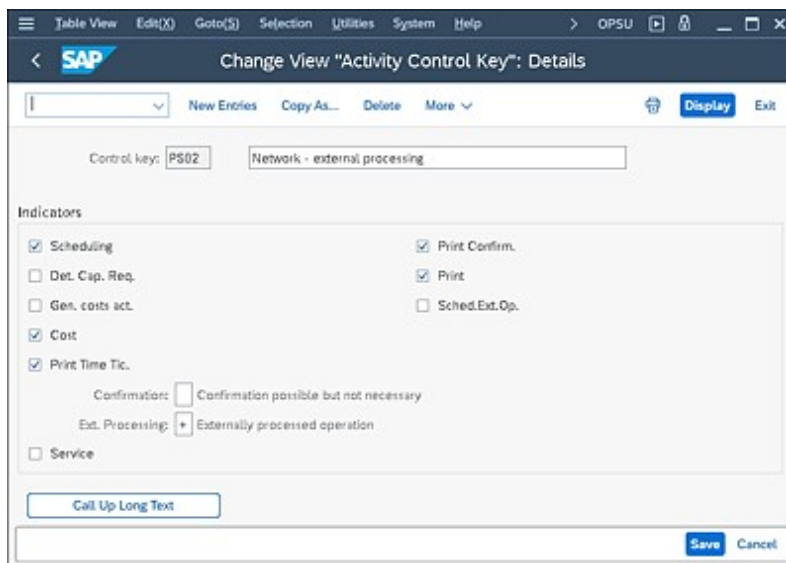


Figure 1.24 Control Key for Externally Processed Activities

If you set the **Confirmation** indicator, then you can define whether an activity must be confirmed before you can close it, whether confirmations are permitted but not required, or whether the entry of confirmations isn't possible for activities with this control key.

To print shop papers (i.e., *completion confirmation slips* or *time tickets*) for an activity, you must permit the printout by setting the respective indicators in the control key. Furthermore, you must first define the *print control* in the structure Customizing section of the networks. Finally, you must specify the

number of shop papers to be printed and the printer in the operative network activities.

Subnetwork Parameters

If you want to use a subnetwork, you must enter two settings in the subnetwork parameters. These settings depend on the network type of the superordinate network being used and on the network type (or order type in the case of plant maintenance or service orders):

- **Specify the control key**
You must specify the control key that must be set automatically for the superordinate activity once a subnetwork has been assigned.
- **Specify dates**
You must specify the dates you want to pass from the activity to the subnetwork header.

In addition, you can define priorities and field keys for user fields in the Customizing section of operative networks. This process is similar to customizing the WBSs ([Section 1.2.2](#)).

[!] Necessary Customizing for Networks

Before you can create operative networks, you must first define scheduling parameters, confirmation parameters, and—if materials are used in the network—the material availability check in the Customizing section of Project System in addition to the structure Customizing settings. These settings are described in [Chapter 2, Section 2.1.2](#); [Chapter 4, Section 4.3](#); and [Chapter 2, Section 2.3.4](#), respectively.

1.3.3 Standard Networks

A standard network consists of a *standard network header* and *standard network activities*, and you can use it as a template for operative networks. You can create standard networks using Transaction CN01. By defining an assignment to standard WBS elements in the header of the standard network

and of the standard network activities, you can use both standard structures together as templates ([Section 1.7](#)).

As in an operative network, you can use the four different activity types for structuring purposes in a standard network and create relationships between the activities of the standard network and the activities of other standard networks. You can also use activity elements and milestones to further specify the standard network activities. If you want to document the activities of a standard network, then you can use long texts and PS texts, but not document info records.

Unlike networks, standard networks are technically not implemented as orders in the SAP S/4HANA system but as plans (comparable to the routings that can be used as templates for production orders). For this reason, several essential differences exist between operative networks and standard networks:

- To create standard networks, you need *standard network profiles* that you must have previously defined in the Customizing section for standard networks in Project System. Standard network profiles contain data that is similar to the data contained in network profiles for operative networks ([Section 1.3.2](#)).
- When creating a standard network, you can use another standard network as a template, but you can't use an operative network for this purpose.
- A standard network can be identified by an eight-digit key that is based on specific number range intervals for standard networks and an alternative number. This means that you can create different structures for a standard network key, each of which can be distinguished by a different alternative.
- You can only specify statuses in the header of the standard network; however, note that you must first create those statuses in the Customizing section of standard networks. When doing so, you can use a specific indicator to control whether you want the system to issue a warning message when the standard network is used as a template.

[AT A GLANCE] Networks

A network consists of a network header and activities that can be linked to each other via relationships to map the flow of different tasks within a project. Depending on the activity type, you can store different data related to planning and controlling in that activity. Activity elements and subnetworks are simply different methods of detailing activities. You can create standard networks to use them as templates for operative networks. Before you can create networks, you must establish various settings in the Customizing section of Project System.

1.4 Milestones

In Project System, milestones can be used to map events of particular importance, such as the completion of critical project stages. For this reason, you can store a descriptive short text in a milestone and, if necessary, a long text and the planned date on which the milestone will probably be reached. This information is complemented by data on the milestone's purpose or function. You can document the achievement of a milestone by an actual date. Unlike in some other project management tools, milestones don't control time scheduling for WBS elements and activities in Project System.

You can create any number of milestones for WBS elements or activities in operative structures and in standard structures. When doing so, the system automatically assigns a unique ID number to each milestone.

If you want to use milestones that are similar to each other on a regular basis, then you can create *standard milestones* as templates via Transaction CN11. Moreover, you can assign several milestones as *milestone groups* to one object. To do this, you must first define the relevant milestone groups in Transaction OPT6 (Customizing of Project System) and then assign the standard milestones to those milestone groups. Depending on whether you want to assign milestones to a WBS element or to an activity, there are different methods of usage.

1.4.1 Milestones Assigned to WBS Elements

[Figure 1.25](#) shows the detail screen of a milestone that is assigned to a WBS element. You can use milestones that have been assigned to a WBS element for purely informational purposes. The reports in the structure info system enable you to analyze the milestone data separately by their usage. *Exceptions* allow you to highlight (in color) those milestones in reporting for which the planned dates have already passed.

The screenshot shows the SAP WBS Milestone configuration form. It is divided into several sections:

- Identification:** Milestone no.: 362, LT, Start Specification.
- Basic data:** Usage: 00002, Start specification, WBS Elem.: E-2610, Robot Model 1.
- Usage:** Prog. analysis, Sales doc. date, Trend analysis.
- Percentage of completion:** Perc of compl.: 10 %, InvoicePercentage: %.
- Dates:** Basic fix. date: 08.05.2023, Scheduled: 08.05.2023, Offset to fin., Fcst fixed date: , Scheduled: , Actual date: .
- Reference to WBS date:** Offset: / , Offset %: .

Figure 1.25 WBS Milestone

When you create billing plans for WBS elements or sales order items (see [Chapter 2, Section 2.5.3](#)) or when you create invoicing plans for activities (see [Chapter 2, Section 2.4.5](#)), you can use the dates and the planned percentage of the milestones for which the **Sales doc. date** indicator has been set. When the milestone dates change, the dates in the billing and invoicing plans change automatically as well. The **Usage** field of the milestone enables you to enter further details of revenue and cost planning. The technique of transferring milestone dates to sales documents is also used in milestone billing (see [Chapter 4, Section 4.6.1](#)).

If you use project versions ([Section 1.9.1](#)) and set the **Trend analysis** indicator for a milestone, then you can analyze retroactive changes to milestone dates either in a table or graphically at a later stage via *milestone trend analysis* (see [Chapter 4, Section 4.7.1](#)).

The planned date and planned percentage in the **Perc of compl.** field in the milestone can be used to determine planned percentages of completion (see [Chapter 4, Section 4.7.2](#)) if you set the **Prog. analysis** indicator. If you enter an actual date in the milestone, then you can also use the percentage of completion as an actual percentage of completion.

You can either specify the planned date of a milestone that is assigned to a WBS element as a fixed date or derive it based on the scheduled date of the WBS element. This date is determined in the time scheduling process for the

WBS (see [Chapter 2, Section 2.1](#)) either on the basis of the activities assigned or—if you don't use any networks—on the basis of the planned dates of the WBS element. In this context, you can specify whether you want the milestone date to refer to the start date or to the finish date. In addition, you can specify an absolute or percentage time interval (based on the duration of the WBS element). If you use a time reference for the WBS element, then changing the scheduled WBS element date will automatically change the milestone date as well, whereas a fixed date isn't affected by date changes in the WBS element. To document that a milestone of a WBS element has been reached, you must manually enter an actual date into the milestone. You can't derive that actual date from the actual dates of the WBS element.

1.4.2 Milestones Assigned to Activities

You can use milestones that are assigned to activities in the same way as those that are assigned to WBS elements ([Section 1.4.1](#)). However, milestones assigned to activities provide the following additional milestone functions that can be used in any combination (see the options under **Milestone functions** in [Figure 1.26](#)):

- **Release following activities**
This function releases all activities that are linked as direct successors to the activity via relationships.
- **Release up to stop indicator**
This function releases all subsequent activities; however, the automatic release process stops when it reaches activities that have been assigned a release stop indicator. A release stop indicator is an activity milestone for which the **Release Stop Ind.** flag has been set.
- **Include standard network**
This function enables you to automatically include new activities. You must use the parameters of this function to store the standard network that is supposed to be used as a template and to store the predecessor and successor of the new activities.

- **Create network**
This function creates a new network. To do this, the standard network you enter in the parameters for this function is used as a template.
- **Include subnetwork**
You must use the parameters of this function to define which activity you want to detail by using a subnetwork and also which standard network should be used as a template for the subnetwork. When you trigger this function, the system will automatically create a network and link this network to the activity specified. In this context, a dialog window allows you to decide whether you want the relationships of the activity to be adopted by the subnetwork.
- **Start workflow task**
This function triggers a workflow that you must specify in the parameters for this function. Note that prior to this, you must define the workflow.

Identification

Milestone: 363 Include Subnetwork for Assembly

Basic Data **Functions** Administr. ShortText

Usage:

Activity: 0110 Final Assembly

Milestone functions

Functions **Parameter**

Function	Syst.Sts	User sts	Change	Once	Active
<input type="checkbox"/> Release following activities:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Release up to stop indicator:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Include standard network:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Create network:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Include subnetwork:	REL	<input type="text"/>	+	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Start workflow task:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 1.26 Functions of Activity Milestones

You can use the fields provided for each function in the milestone to define whether a function should be used and, if so, when it should be triggered. A

milestone function can start automatically if the milestone contains an actual date and the status of the activity changes or if one of these two events occurs. If you use a status change to trigger a function, you must also specify whether setting a status, undoing the status, or both status changes should be relevant. In addition, you must define which status combinations should be relevant. Finally, you can use the **Once** indicator to specify whether you permit multiple triggering of the function or whether you don't want the function to be executed more than once.

As with milestones that are assigned to WBS elements, you can enter the planned dates of activity milestones either manually (fixed dates) or by referencing the dates contained in the activity.

You can either enter the actual dates of activity milestones manually or derive them from the actual dates contained in activity confirmations (see [Chapter 4, Section 4.3](#)).

You can define *usages* in the Customizing section of the milestones and store those usages in milestones that are assigned to WBS elements or activities. On the one hand, a usage serves as a sorting and/or filtering criterion in the context of analyses; on the other hand, you can store specific control settings in a usage.

If you enter a billing/invoicing rule in the usage, that rule can be transferred to the billing and invoicing plans along with the date and percentage of a milestone. This way, the usage of a milestone enables you to control, for example, whether a down payment, a partial invoice, or a final invoice is due on the milestone date (see [Chapter 2, Section 2.5](#)).

By setting the **No Dialog** indicator, you can hide dialog windows that are only used for informational purposes when triggering a milestone function.

1.5 Documents

You can use long texts to describe objects in greater detail and assign those long texts to all structure objects of Project System: project definitions, WBS elements, network headers, activities, activity elements, and milestones. The short text of an object corresponds to the first 40 characters of the first line of the long text. For various object types, you can activate multiple language support in Customizing, which enables you to save short and long texts in different languages. The system automatically displays the short and long texts in your logon language. If no text has previously been entered in your logon language, then the system uses the text of a language you can select (master language). The entry of short texts in multiple languages occurs in a new tab.

However, note that you can't simply copy texts from one object to another. Moreover, short and long texts don't support any status or version management. For this reason, Project System allows you to use *PS texts* or *documents from document management*.

[+] Generic Object Services

In addition, you can assign any documents to projects by using the generic object services. However, this type of assignment isn't explicitly displayed in the editing or reporting transactions of Project System.

1.5.1 PS Texts

You can create PS texts using either Transaction CN04, the Project Text app (F5612), or various other editing transactions of project structures and then assign those texts to WBS elements or activities. The SAP mail system can also be used to send PS texts to other SAP users. A PS text can be identified on the basis of the PS text type, name, format, and language of the PS text. The PS text type serves as a sorting criterion for your PS texts, but in

particular can also be used to control different access permissions. You must define appropriate text types for PS texts in the Customizing section of Project System.

[+] PS Texts in SAP S/4HANA

In SAP S/4HANA, the PS texts were renewed to support, for example, the assignment of multiple assets in different formats. For migrating your old PS texts, you can use program CN_PS_TEXT_MIGRATION. The activation of the new PS texts can then be done in the Customizing section of Project System.

PS texts can be created in different languages. The **Language** field in the identification of the PS texts will enable you to distinguish the texts at a later stage. The system automatically provides you with the existing PS texts in your logon language. If no PS text is available in your logon language, then the system displays a dialog in which you can select a PS text.

You can use PS texts as templates for other PS texts or create references between the texts. If you reference a PS text that has been assigned to a specific object in another object, which may even be located in a different project, then changes to the PS text assigned to the former object will also occur in the PS text assigned to the other object.

In a PS text, you can enter a long text and also add any number of attachments and links. [Figure 1.27](#) shows an example of a PS text in the Project Text app.

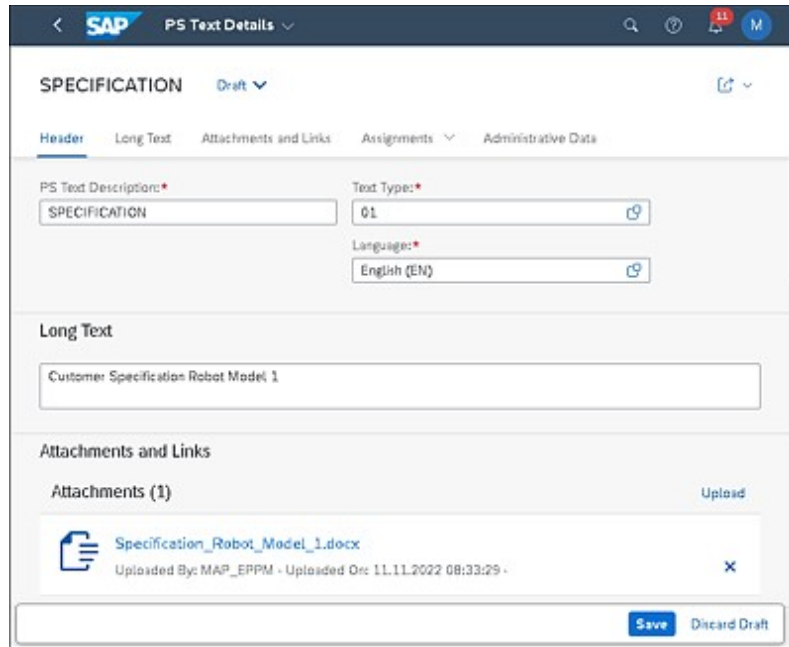


Figure 1.27 PS Text in the Project Text App

1.5.2 Integration with Document Management

You can assign *document info records* of the SAP Document Management service to operative WBS elements, network headers, and activities to directly access the original documents that are managed by the document info records from the project maintenance transactions.

Depending on the settings in the document management system, you can use virtually any document format in projects. The original documents don't need to be saved in the SAP S/4HANA database and can be stored on separate document servers. In addition, you can use functions such as *status management*, *versioning*, or *classification* for documents. Once you've created an assignment to an existing document info record, you can directly navigate to that record from your projects.

In addition, you can use the editing functions for projects to create new document info records and check in original documents. At the same time, you can create a link to a WBS element or activity.

[+] Restrictions for Document Info Records

<https://t.me/PrMaB2>

Note that you can't assign any document info records to standard WBSs and standard networks.

1.6 Status

Project definitions, WBS elements, network headers, activities, and activity elements contain statuses. Statuses document the state of an object and therefore serve as information or selection criterion for evaluations. They also define which business transactions are currently possible for the respective object.

There is a general distinction between *system statuses*, statuses that are predefined in the system, and *user statuses*, statuses that you can define in the Customizing section of Project System and then summarize in a user status profile.

The four-digit short forms of up to seven system and user statuses each are displayed in the basic data of the objects. The detail screens of the statuses contain all active system statuses for the respective object and all user statuses that have been defined within the status profile, including their short forms and short texts (see [Figure 1.28](#)).

The detail screen of the statuses also tells you which business processes the current combination of system and user statuses will permit, which ones are forbidden, and which business processes are only permitted with a warning. The *transaction analysis* provides information about which statuses are responsible for each situation.

To carry out a business process, there must be at least one active status that permits the process, and no status that prohibits the process or permits it only with a warning. A warning is issued for a business process when there is at least one active status that permits the process with a warning and when no status is active that prohibits the process.

[+] Interaction of Statuses

As soon as there is one active status that prohibits the business process, the process can't be carried out. The system and user statuses interact on an equal footing.

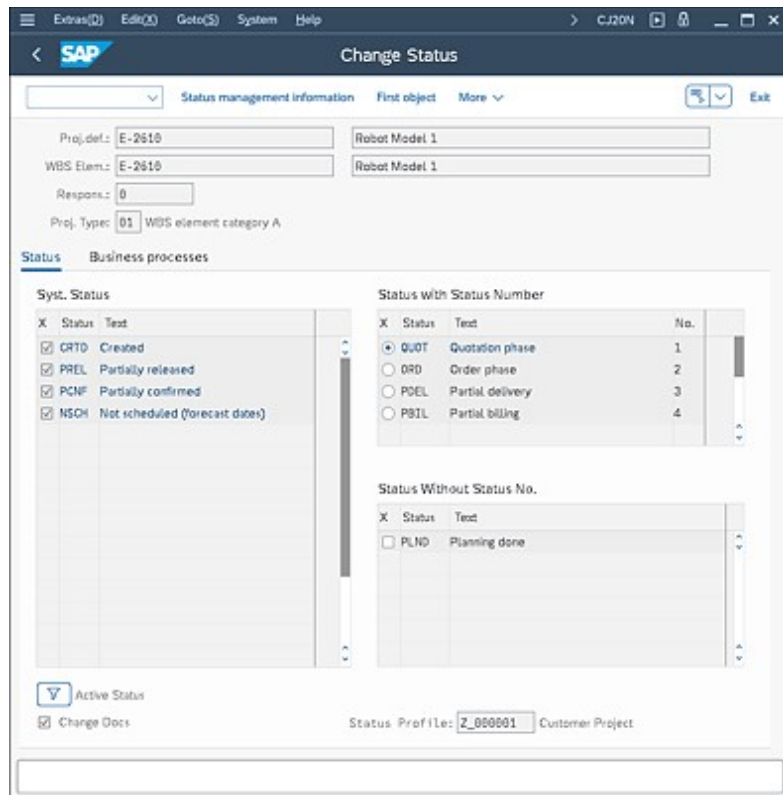


Figure 1.28 Details of System and User Statuses

Statuses can be automatically set by the system based on different business processes (e.g., budgeting or entering actual dates), activated by inheritance, or manually assigned by the user.

For WBS elements and network activities, you can also use SAP Fiori apps to change specific statuses for individual objects (e.g., the Change WBS Element Status app; see [Figure 1.29](#)).

The following list contains some important system statuses for WBSs:

- **CRTD (created)**
Initial status that allows all planning activities and structure changes but not the entry of actual dates or actual costs.
- **REL (released)**
Status that allows the entry of actual data. This status is automatically passed on to subordinate project elements and can't be reset.
- **PREL (partially released)**
This status is automatically assigned by the system when a

subordinate object is released. For WBS elements, this status allows the entry of actual start dates.

- **TECO (technically completed)**

This status is automatically passed on. It doesn't allow any planning activities, but it does permit the account assignment of costs and revenues. This status deletes capacity requirements and controls the transfer of assets under construction to completed assets within the scope of the settlement for investment projects (see [Chapter 5, Section 5.9](#)).

- **CLSD (closed)**

This status prohibits not only planning activities but also postings of actual costs. It also deactivates assets under construction. The status is automatically passed on. Resetting this status leads to the **TECO** status.

- **DLFL (deletion flag)**

This status prohibits virtually all business processes and is a prerequisite if you want to archive and delete projects at a later stage. The status can be inherited and reset.

- **FNBL (final billing)**

This status can be set for billing elements and can't be inherited. It prohibits additional billing processes, but allows you to post costs.

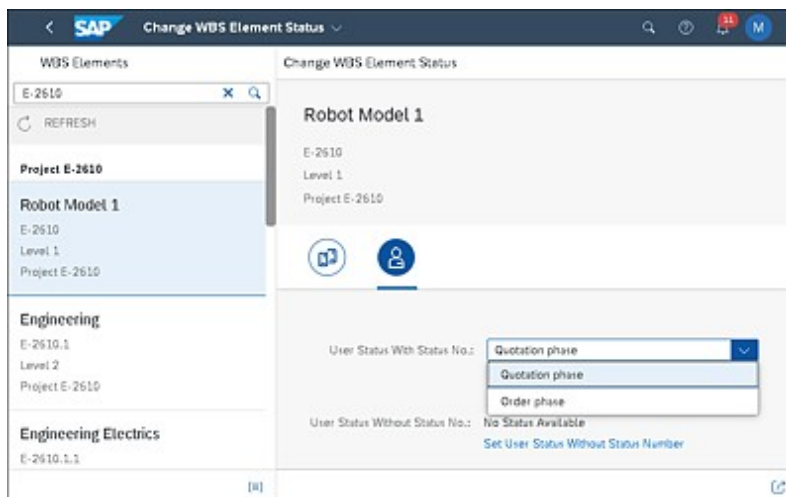


Figure 1.29 Change WBS Element Status App

In addition to the preceding list, you can manually set various system statuses, for instance, to lock cost planning or time scheduling processes or even for the account assignment of documents.

[+] Closed Status

Using the solutions described in SAP Notes 2323546, 2230659, and 3090902, you can implement various customer-specific validations when setting the closed status. For example, you can prevent objects for which there are still open time confirmations in the time sheet, project stock, or as-yet-incomplete maintenance/production orders from being completed prematurely.

To enhance the functionality of system statuses, you can define your own statuses, which are referred to as *user statuses*. To do that, you must first create an ID and a name for a user status profile in Customizing Transaction OK02, and then assign those object types to the profile for which you want to use the user status profile. Last, you must define user statuses for the status profile. [Figure 1.30](#) shows an example of a user status profile.

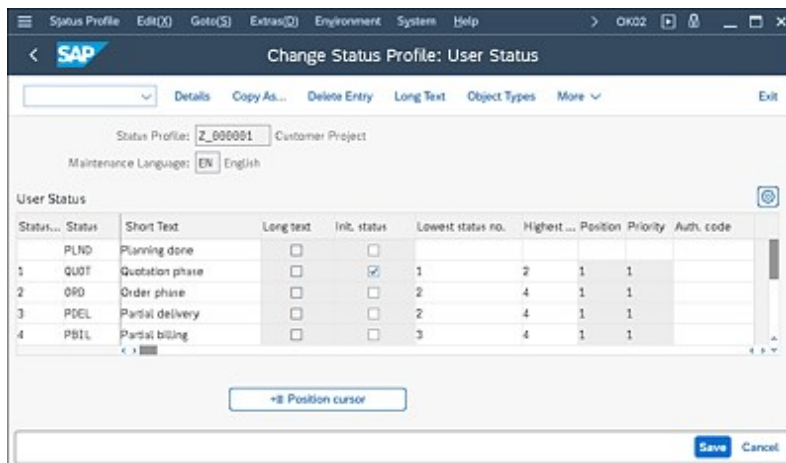


Figure 1.30 User Status Profile

User statuses can be divided into statuses with and without *status numbers*. You can define a sequence for statuses that have a status number. This means that you can set those statuses in the defined sequence (but you should carefully read the (F1) help for the lowest [**Lowest status no.**] and highest

[**Highest ...**] status number fields). Note that only one status with a status number can be active for an object.

Conversely, you can set any number of user statuses without status numbers. The **Position** and **Priority** fields enable you to define which user status is displayed in its short form in the basic data of the objects.

The user statuses that are supposed to be set during the creation of an object or during the assignment of the user status profile must be marked as **Init. status**. By assigning authorization keys to user statuses, you can assign explicit authorizations for setting and resetting user statuses.

[+] **Authorizations for Business Transactions Using Statuses**

If you allow for a user status to be automatically set as a follow-up action of a business process, then you can use authorization object `B_USERST_T` to indirectly assign the authorization for the business process (e.g., the release) through the authorization key.

The detail screen of each status enables you to define *influences* and *next actions* for the respective status. You can use the indicators of the **Next Action** column to define whether you want the user status to be set automatically through a business transaction or whether you want it to be reset. The indicators of the **Influence** column allow you to define which business transactions are allowed by the user status and which ones are allowed with warning, prohibited, or not influenced at all.

You can store user status profiles as default values in project profiles, network types, and standard project definitions. However, once a user status of the user status profile has been active in an object, you can't enter any other user status profile in that object.

The statuses of project objects are stored in a different database table in the SAP S/4HANA system than their master data. Therefore, if you use statuses as selection criteria in reporting, then the system must read multiple database tables for the purpose of object selection, which can affect your system's performance, particularly when you select many objects. You can therefore copy a combination of active statuses of an object as a *status combination code* into the object master data and use the status combination code as

selection criteria in reporting; this increases the system performance during object selection.

You can enter specific settings for the status combination codes in the Customizing section of Project System. There are 14 predefined combination codes available for system status combinations. For user statuses, you can define your own combination codes and assign combinations from user statuses. If multiple status combination codes are available for a specific object, then the priority of the combination code determines which combination code will be included in the master data of the object.

Program STATUS_COMB_UPDATE enables you to trigger a global identification process for status combination codes and to adopt these codes in the master data of the respective objects. Then, the status combination codes are updated every time the status of a project object changes.

1.7 Editing Functions

You can create operative project structures either manually or based on templates. For example, you can use standard WBSs, standard networks, and other operative project structures and simulation versions ([Section 1.9.2](#)) as templates.

When you create a WBS using a template, the system automatically aligns the first section of the identification with the identification of the new project. You can add a customized extension that enables you to align multiple sections of the identification. If you only use parts of the template, then you must carry out the alignment of the identification yourself by using the **Replace** function.

If you want to create projects that consist of a WBS and a network using templates, the following two methods are available:

- **Create project with a template**
If you use this function and set the **With Activities** indicator, then you can control whether you want to copy the networks that have been assigned to the template as well.
- **Create network with a template**
If you use this method, then you must first create a network using a template. If the network or standard network you use as a template is assigned to a WBS or standard WBS, then the system will propose that you also create a new operative WBS on the basis of a template when you save the new network. This function is typically used for variant configurations with networks ([Section 1.8.6](#)) and for assembly processing ([Section 1.8.7](#)).

Even when editing operative structures, you can always use templates to extend your project structures. The process of creating new project parts by using templates is referred to as *inclusion*.

Project System provides various transactions for creating, changing, and displaying operative project structures, such as Project Builder, the Project Planning Board, or special maintenance functions. You don't need to decide

on using only one transaction to edit your projects. For example, you can create projects in Project Builder and edit them later in the Project Planning Board or in specific maintenance transactions, and so on. However, the prerequisite is always that you have the appropriate authorizations to display or edit the data. Project System uses the general authorization concept of the ERP system, based on authorization objects and authorization profiles.

[+] Information about the Authorization System

Details on the general authorization concept in the SAP S/4HANA system can be found, for example, in *Authorizations in SAP S/4HANA and SAP Fiori* by Alessandro Banzer and Alexander Sambill (SAP PRESS, 2022), available at www.sap-press.com/5203. You can also find tips on general authorizations in Project System in SAP Notes 554415 and 522426.

Because this authorization concept allows the assignment of authorizations for individual objects or parts of a project only indirectly, the development of ACLs created a direct possibility for the assignment of object-related authorizations in operative projects. ACLs are merely a means of detailing general authorizations. Thus, to have permissions for an object, a user must have both the general permissions and be authorized via the object's ACL. The ACLs are part of the compatibility pack license and can therefore probably only be used until the end of 2025.

For a mass creation of operative projects and WBSs (but not networks), a Microsoft Excel upload is also available via Transaction CNMASSCREATE. For more information on implementing this function, see SAP Note 2321481.

1.7.1 Project Builder

You can use Project Builder (Transaction CJ20N) to create, modify, and display project structures. Because of its structure and functions, Project Builder is well suited for structuring projects. You don't need to make any additional settings in Customizing if you want to use Project Builder. The user-specific options of Project Builder enable you, for example, to define

which objects may be edited in Project Builder, or how many hierarchy levels of a project should be opened when you launch a project in Project Builder (see [Figure 1.31](#)). The two options **Exclude Material Master Data** and **Exclude Purchase Order History** are also available to you here. By setting these indicators, you can improve the performance for opening and editing networks with a large number of material components and purchase requisitions.

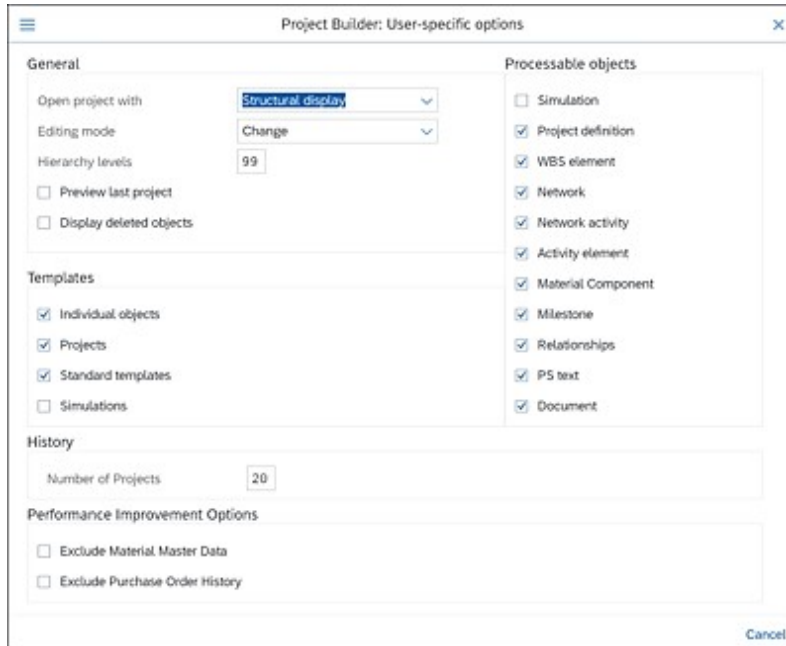


Figure 1.31 User-Specific Options in Project Builder

[+] Customer Enhancements Possible

You can use a customer enhancement to use these performance improvement options for other transactions. Note, however, that selecting the **Exclude Purchase Order History** option results in fields about the goods receipt quantity or existing purchase orders no longer being displayed in the network.

The Project Builder UI consists of three areas (see [Figure 1.32](#)). The **Worklist** on the lower-left side always contains the most recent projects you've worked on. However, you can also include other projects or parts of projects in the **Worklist** folders via right-clicking. If you want to edit a

project that's contained in the **Worklist**, you can simply double-click on the relevant project.

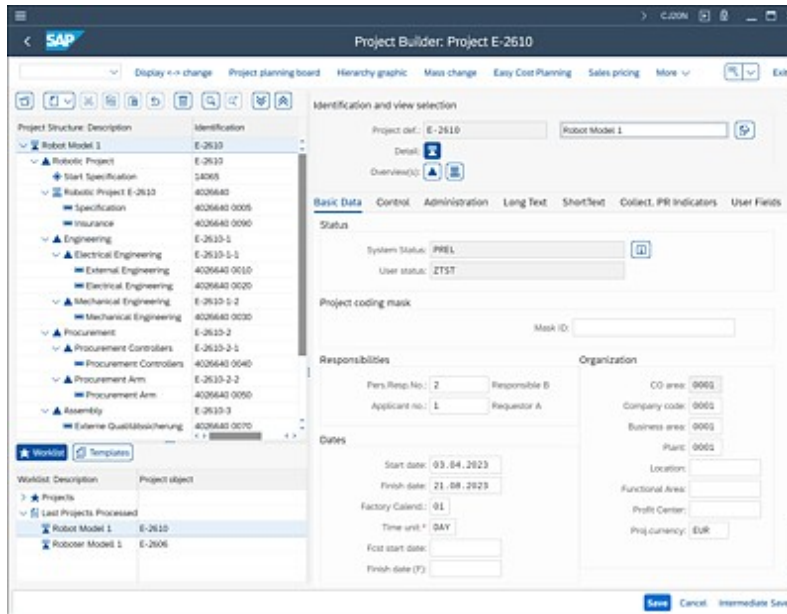


Figure 1.32 Editing a Project in Project Builder

Once you've opened a project for editing, the structure of the project is displayed in the structure tree in the upper left. At the same time, the system switches from the **Worklist** to the **Templates** area in the lower left. You can insert objects from the **Templates** area, such as new WBS elements or activities, into the structure of the project either by double-clicking on the objects or via drag and drop.

Depending on the Project Builder settings, the structure tree displays the project definition, WBS elements, network headers, activities, activity elements, milestones, PS texts, documents, and assigned material components of a project, including its IDs and descriptions. By right-clicking on the structure tree heading, you can change the order in which the IDs and description are displayed. You can change the project structure via drag and drop or by right-clicking—for instance, to modify the WBS hierarchy or to create or include new objects. The structure tree also allows you to navigate within the project structure.

If you set the **Preview last project** indicator in the Project Builder options (refer to [Figure 1.31](#)), then the project that you last worked on will be displayed in the **Preview** area in the structure tree. When you double-click

on the project in the **Preview** area, the project opens and can be edited while the system immediately navigates to the last object you had worked on.

The *work area* on the right in Project Builder displays data of the object that you've selected in the structure tree. The upper part of the work area displays the ID and description of the object selected in the structure tree. You can use the icons on top of the work area to toggle between the detail screen of the object, a tabular list of objects of the same type, and a table that lists assigned objects. By right-clicking in the detail screen of an object, you can navigate, for example, to the settlement rule of an object, to the billing and invoicing plans, or so on.

From Project Builder, you can go directly to the **Project planning board**, **Easy Cost Planning**, or **Sales pricing** options you've set in Project Builder. In addition, you can call the *network graphic*, if you've selected a network object.

The network graphic provides a graphical display of the activities of one or several networks (refer to [Figure 1.2](#)). In this context, the system arranges the display of activities in accordance with their logical sequence. However, you can change this order via drag and drop. In addition, you can group the activities based on the work centers used or on the WBS elements to which they are assigned. You can also show a navigation area to navigate easily in large network structures.

Depending on the graphics profile stored in the network profile and on your selection under **Display Activities**, the network graphic can display the IDs, descriptions, control keys, duration, planned dates, and floats of the activities. In addition, specific indicators used in the extended display of the activities allow you to determine which objects have been assigned to an activity.

Time-critical activities (with an overall float smaller than or equal to zero) are highlighted in red in the network graphic, partially confirmed activities are displayed with a single strikethrough, and confirmed ones are displayed with a double strikethrough (see [Chapter 2, Section 2.1.2](#), and [Chapter 4, Section 4.3](#)).

For the display of relationships, you can choose between a time-dependent presentation and a finish-start presentation. If you choose the *finish-start relationship presentation*, then the relationships are always displayed as

connection lines between the finish of the predecessor and the start of the successor, regardless of the relationship type. Contrary to this, the time-dependent presentation displays a start-start relationship, for example, as a connection between the start of the predecessor and the start of the successor. The type and, if necessary, fixed time interval of a relationship are displayed in the graphical presentation of the relationship.

You can navigate to the detail screen of an activity or relationship by double-clicking on it. Moreover, you can create and delete activities and relationships in the network graphic.

To create relationships in the network graphic, you must draw a connection line between the predecessor and the successor in the connection mode of the network graphic. To create a finish-start relationship, you must connect the finish of the predecessor with the start of the successor; to create a finish-finish relationship, you must connect the finish of the predecessor with the finish of the successor, and so on.

The **Loop Analysis** function of the network graphic enables you to highlight relationships that lead to a cyclical sequence of activities in specific colors. Networks with a loop can't be scheduled. You can also print out the hierarchy and network graphics of a project. When doing so, you can include additional graphics, such as a company logo, in the graphic as well.

Using the solutions described in SAP Notes 2231730 and 2231800, you can also perform network scheduling and activity confirmations in the Project Builder network graphic.

The Project Network Graph app (F5130) is available for displaying networks in the HTML environment (see [Figure 1.33](#)).

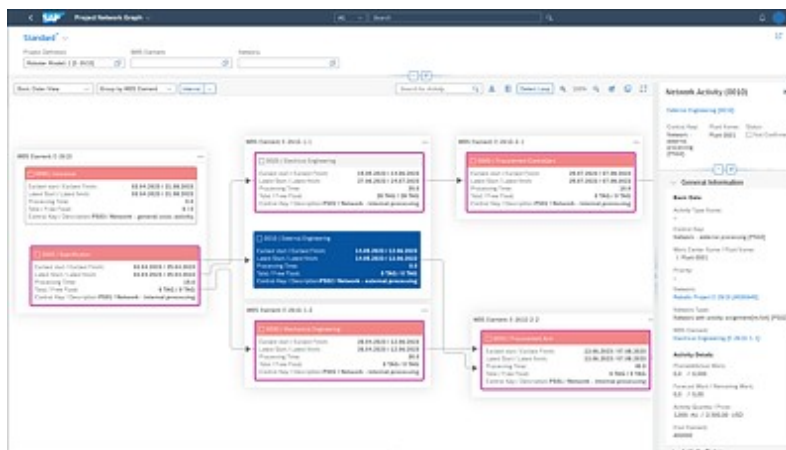


Figure 1.33 Project Network Graph App

Similar to the classic network graphic, in this app, you can show the activities of one or more networks; switch between different views; group objects; display details of networks, WBS elements, activities, and relationships; and navigate to the corresponding editing transactions.

You can also define your own views for the SAP Fiori app in the Customizing section of Project System. To navigate in large networks, you can use the **Find** and **Highlight Elements** functions next to the navigation pane, which highlight the result elements in color.

1.7.2 Project Planning Board

Transactions CJ27, CJ2B, and CJ2C of the Project Planning Board respectively enable you to create, modify, and display WBSs and assigned networks. To open a project in the Project Planning Board, you must specify a *planning board profile*, provided the project profile doesn't propose any. The planning board profile controls the display and functions of the Project Planning Board.

The Project Planning Board UI is based on an interactive SAP bar chart in which you can display data related to the project definition, WBS elements, activities, activity elements, and milestones—both as a table and in a diagram (see [Figure 1.34](#)). The planning board profile defines which of the aforementioned object types and which table fields are displayed. Note that you can change this setting in the Project Planning Board.

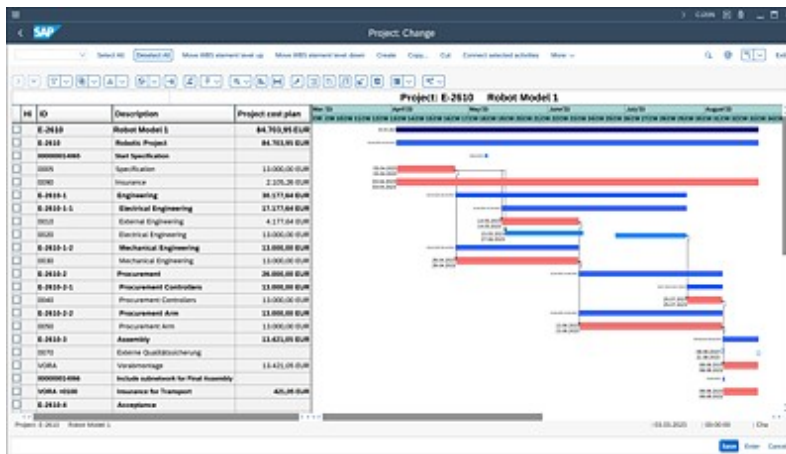


Figure 1.34 Editing a Project in the Project Planning Board

Filtering, sorting, and grouping functions also enable you to define which objects should be displayed in which order. Moreover, you can use the **Highlight Objects** function to highlight those project elements that have been assigned documents, for example, or that contain specific properties.

From the Project Planning Board menu, you can also navigate to the assignment of PS texts and documents. You can call the detail screen of a network header by clicking on the corresponding icon. A separate overview of assigned material components is available in the Project Planning Board. When the **Templates** area is displayed, you can create new objects for a project by double-clicking on a template or dragging and dropping it to a project.

The graphical area of the Project Planning Board—the *diagram section*—displays the scheduling data of the objects displayed in the form of different time bars. In addition, dates and different master data fields of the objects can be displayed to the left or right, above or below, and even directly on the time bars.

The graphical presentation of the different objects in the table section and particularly in the diagram section is controlled by a graphics profile that's stored in the planning board profile. However, you can customize the presentation using the *planning board assistant* in the Project Planning Board. A preview area in the planning board assistant allows you to view how your changes will affect the presentation of the objects.

The overall period displayed in the diagram section is referred to as the *evaluation period*. The evaluation period consists of a *pre-evaluation period*, a *planning period*, and a *post-evaluation period*. To further clarify these periods, you can display each of them in a different scale. For example, you can choose a greater scale for project stages that are in the past or the distant future than you would choose for project stages that are in the current planning period, for which you may need a presentation in terms of days.

You can control the size and layout of the evaluation period and the presentation of the timescale (color layout, display of the day of week or date, etc.) via subprofiles of the planning board profile; however, you can customize them using the options and the *timescale assistant*. You can edit

an object in the Project Planning Board in a table or in the detail screen, for example, by double-clicking on the object in the table or diagram section.

If necessary, you can change scheduled dates graphically by moving, extending, or shortening the respective time bars. Relationships between activities can be created as tables in the Project Planning Board, graphically in the connection mode, or by using the **Connect Selected Activities** function. If you use this function, the system automatically creates finish-start relationships for all selected activities in the order in which the activities are listed in the table section.

Besides the date overview described previously, you can show additional overviews for selected objects. All the overviews consist of a table section and a graphical area. For those overviews, you can use a field selection to define which fields should be displayed in the table section. Furthermore, the context menu enables you to open a legend of the objects displayed and additional functions. The following additional overviews are available in the Project Planning Board:

- **Component overview**
The graphical section of this overview displays requirement dates and, if needed, delivery and goods movement dates for assigned material components. You can navigate to the detail screen of a material component by double-clicking on it.
- **Cost overview**
The graphical section displays planned costs and, if available, planned and actual revenues of WBS elements as a totals curve.
- **Capacity overview**
This overview compares the available capacity of work centers assigned to activities with the (total) capacity requirement for different periods as a bar chart or histogram. You can display the work centers by double-clicking on them.
- **Plant maintenance overview**
The graphical section of this overview displays the dates of plant maintenance orders that you've assigned as subnetworks to activities.

Other functions that can be called through the Project Planning Board include the following:

- Hierarchy graphic and network graphic
- Planning boards for capacity leveling
- Workforce planning
- Milestone trend analysis
- Cost and capacity reports
- Overview of direct predecessors and successors of an activity

When exiting the Project Planning Board, you can save the changes to the Project Planning Board that you made using the planning board and timescale assistants and the field selection, as well as some changes to the Project Planning Board options. This way, you can use those changes the next time you open a project in the Project Planning Board. The **Undo User Settings** function enables you to delete the changes. In addition, you can save user-specific zoom factors and a user-specific separation between the table and graphical areas.

[+] Deleting User-Specific Settings

You can use report RSAPFCJGR to simultaneously reset user-specific settings for multiple users in the Project Planning Board.

The standard version of the program already contains planning board profiles and subprofiles that are needed for the Project Planning Board. However, you can also define your own planning board profiles in the Customizing section of Project System (see [Figure 1.35](#)).

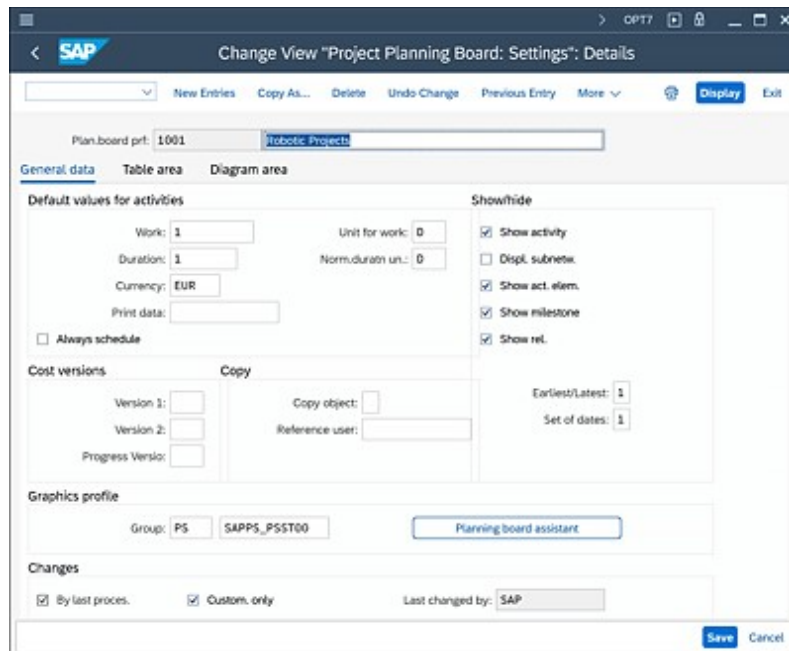


Figure 1.35 Sample Planning Board Profile

In a planning board profile, you must specify the field selection for the date overview and the other overviews of the Project Planning Board. The graphics profile in the planning board profile is used to define the presentation of the objects in the table and graphical sections. To create new graphics profiles, you can use the planning board assistant in the same way as you did in the Project Planning Board. Other Project Planning Board subprofiles include the following:

- **Time profile**
This profile determines the beginning and end of the evaluation and planning periods. This means that pre-evaluation and post-evaluation periods are defined automatically.
- **Scale profile**
This profile enables you to define the scale to be used for the planning period and for the pre-evaluation and post-evaluation periods.
- **Timescale profile**
This profile defines the presentation of the different timescales (e.g., annual, monthly, or daily period splits), and it determines which timescales should be displayed with which scales.

Furthermore, a planning board profile allows you to specify which objects, dates, and floats and which data should be displayed with the different time bars. You should also note that to display cost and progress data, you need to define the corresponding CO versions in the planning board profile.

1.7.3 Project Schedule

To display the hierarchy of project objects and monitor schedules in the HTML environment, you can use the Project Schedule app (F5611) for operative projects and networks (see [Figure 1.36](#)). You can start the app either directly from the SAP Fiori launchpad and then use filters to select the project or network you want to display, or you can navigate in the HTML environment directly from Project Builder. Unlike the Project Planning Board, you can't make project changes directly in the app; instead, you must navigate to the corresponding editing functions.

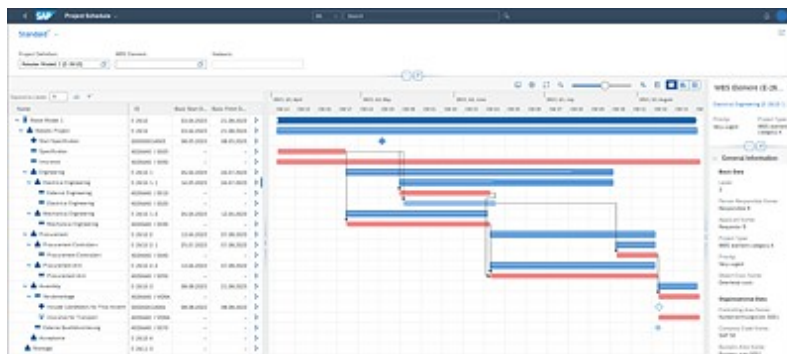


Figure 1.36 Project Schedule App

The project schedule interface combines project definition data, WBS elements, activities, activity elements, and milestones in a table and graphical display. In addition, you can display plant maintenance orders and their activities. You can define which table fields and object types are displayed in the hierarchy on a user-specific basis via the settings.

In the diagram section, each object's schedule data is displayed by means of different schedule bars or milestones. For activities, the relationships are displayed by connecting arrows. Via the settings, you can determine which sets of dates and labels are used for the display.

Details on the project objects can be displayed directly in the app via side panels; general information as well as more specific information, such as date restrictions, status, and predecessor/successor activities, is available there for the respective object. From the side panels, you can also navigate to related apps and editing transactions.

You can save the settings, as well as the filters used, as user-specific views and make them available to other users if required.

1.7.4 Special Maintenance Functions

The menu for special maintenance functions in Project System provides transactions that enable you to create, change, and display WBSs (Transactions CJ01, CJ02, CJ03), networks (Transactions CN21, CN22, CN23), and WBSs with networks assigned (Transactions CJ2D, CJ20, CJ2A). [Figure 1.37](#) shows, for example, how you use structure planning (Transaction CJ20) to edit a project.

All the preceding transactions allow you to toggle between the detail screen of the project definition or network header and the table views of WBS elements or activities. Conversely, you can navigate from a table view into the detail screen of an object. The menu also enables you to call lists of assigned objects, such as PS texts, documents, or milestones.

You can also call the hierarchy and network graphics from the special maintenance functions and navigate to planning board displays. You don't need to enter any additional Customizing settings to use the special maintenance functions. You can simply define the presentation of objects in table views, graphics, and functions for capacity requirements planning in the relevant settings of the project or network profiles.

Transactions CJ06, CJ07, and CJ08 allow you to create, change, or display individual project definitions, and Transactions CJ11, CJ12, and CJ13 allow you to do the same for WBS elements. When creating a new WBS element using Transaction CJ11, you must either create an assignment to an existing project definition or create a new project definition when saving the WBS element. That new project definition must then be filled with the data of the

WBS element. To create a new project definition, use a project profile in which the **Transfer to Project Definition** indicator has been set.

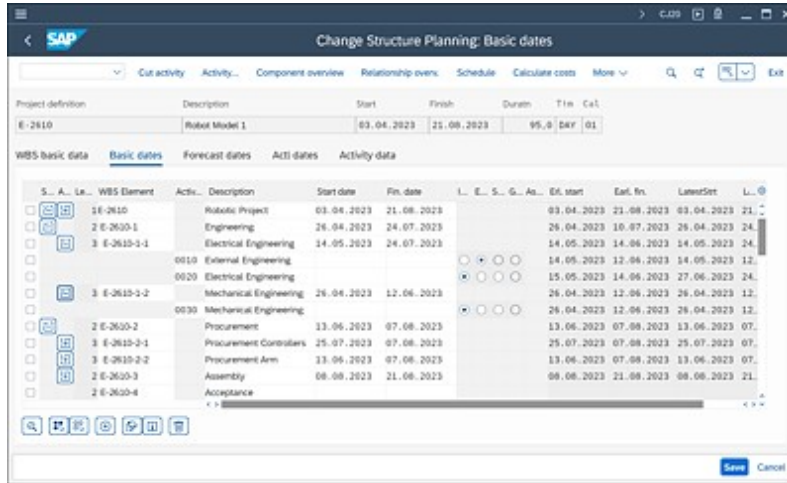


Figure 1.37 Editing a Project in Structure Planning

In live projects, the special maintenance functions are typically used by users who don't need more than a simple table option to edit project structures and who regard Project Builder or the Project Planning Board as too complex.

1.8 Tools for Optimized Master Data Maintenance

To make the creation and editing of project structures as easy as possible for users, you can use various Project System tools. For example, you can make adjustments to the input interface to avoid incorrect entries and generally increase end user acceptance of the various editing transactions, and you can automate the maintenance of master data in some cases to make it as efficient as possible.

1.8.1 Field Selection

You can influence fields of project definitions, WBS elements, network headers, activities, and activity elements using the field selections in the structure Customizing section of Project System. You can mark the properties of fields using a field selection as follows:

- **Ready for input**
Data that is contained in this type of field can be modified, provided this isn't forbidden by a specific status.
- **Displayed**
Data contained in this type of field is visible but can't be modified in tables or in the detail screen. However, note that you can still change display fields via mass changes or via a substitution.
- **Hidden**
Fields of this type aren't displayed.
- **Required field**
You must enter data in this type of field before you can save the respective object.
- **Highlighted**
The values of these fields are displayed in a different color than the values of the other fields.

Thus, you can use field selections—in accordance with the requirements of your projects—to completely hide fields that aren't needed, to display fields that are intended to be filled with data only via the template or default values in Customizing, or to force certain entries to be made during the creation of an object.

Although you can define a client-wide field selection, you usually combine field selections with influencing values, such as the project or network profiles or the network type. For example, you can select and control different fields for different project types.

1.8.2 Flexible Detail Screens and Table Controls

Flexible detail screens enable you to control the distribution of the fields to different tabs for WBS elements and activities. By default, each tab displays exactly one detail screen, including the corresponding data. For example, the **Dates** tab contains the **Dates** detail screen, including all date fields.

The **Layout Detail Screens** function allows you to define your own tabs and to integrate up to five detail screens in any sequence in each tab. When doing so, you can define the name of each tab and, if required, select an icon that is supposed to be displayed in conjunction with the name. The **First tab page** indicator can be used to define which tab should be displayed first when the object is opened. [Figure 1.38](#) shows a sample definition of a tab.

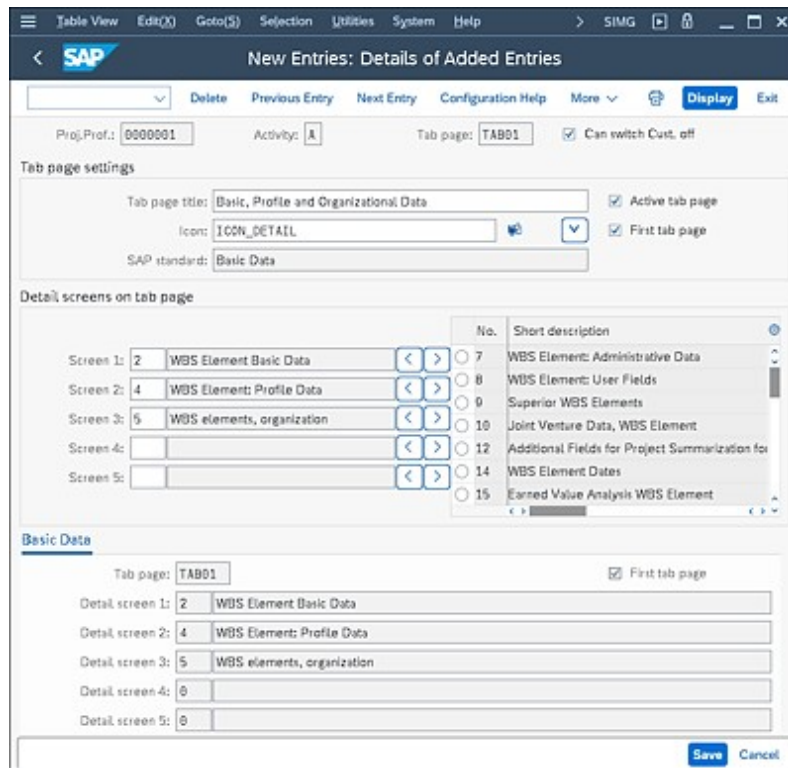


Figure 1.38 Defining a WBS Element Tab in Customizing

You can either define tabs for all users in the Customizing section of Project System or for individual users in the editing transactions. You can define tabs in Customizing based on the project or network profile and the activity type (**Create, Change, Display, or All Activities**). The **Can switch Cust. off** indicator allows you to define whether users can switch between the tabs defined in Customizing and the standard tabs.

Authorized users can also create tabs when editing WBS elements or activities on the basis of the respective project profile or network profile. When doing so, you can manually create new tabs, use the standard tabs, or use those that have been defined in Customizing as templates. The definition of those tabs can be used temporarily or stored for each user individually.

The presentation of all project structure objects in tables is made possible by *table controls* in the editing transactions, with the exception of the Project Planning Board and SAP Fiori apps. Table controls allow you to modify the column width and the order of the columns displayed by dragging and dropping. The changes you make can then be saved as variants for each user.

When opening a table at a later stage, you can then select a variant that you've defined so that you can display the columns according to your requirements. If you select a variant as the default setting, then the table is automatically displayed on the basis of that variant.

You can use the administrator settings to apply the table control settings to all users. The administrator settings also enable you to hide complete columns and to define the number of fixed columns—that is, columns that should always be displayed regardless of where you scroll within your table.

1.8.3 Mass Change

If you want to change the field contents of multiple objects simultaneously, then you can use the mass change function in Project System. The following objects can be changed via a mass change:

- Project definitions
- WBS elements
- Network headers
- Activities and activity elements
- Milestones
- Relationships

The object types you use will determine which fields can be changed by using the mass change function. Usually, you can only change the master data fields of objects in a mass change; however, in WBS elements, you can also change planned dates, and you can set the **Released** status for activities. There is also a separate transaction available for mass changes of statuses (see the explanations on mass changes of status in this section). Among other things, you can't change settlement rules or status profiles using a mass change.

If you want to change objects of a single project, then you can call the mass change function from within Project Builder, the Project Planning Board, or structure planning. If you want to change objects of multiple projects simultaneously, then you can trigger the mass change of those projects via

the structure information system or using Transaction CNMASS. This transaction also allows you to schedule the execution of the mass change as a background job.

If field values are changed using the mass change, then the system performs the same checks as in a manual change. In particular, this means that you need to be authorized to change an object in order to also change the data of that object via the mass change.

To carry out a mass change directly, you must start the mass change function and select the objects to be changed. Then you must select the fields you want to change and enter the new field value. If necessary, you can use the previous field value as an additional filtering criterion for the changes. For numerical fields, you can also define formulas that calculate the new values on the basis of the original field values.

You can test your changes prior to executing and saving mass changes to objects. In addition, you can use Transaction CNMASS to save a log of the changes that have been implemented, and you can analyze that log at any time using Transaction CNMASSPROT.

[!] Mass Changes Can't Be Reversed

You can't simply cancel a mass change; that is, you can't undo it. If necessary, you must manually correct changes to field values that have been implemented by incorrect mass changes.

To obtain a higher degree of control when performing mass changes to multiple objects, you can carry out a tabular mass change instead of the direct mass change via Transaction CNMASS (see [Figure 1.39](#)).

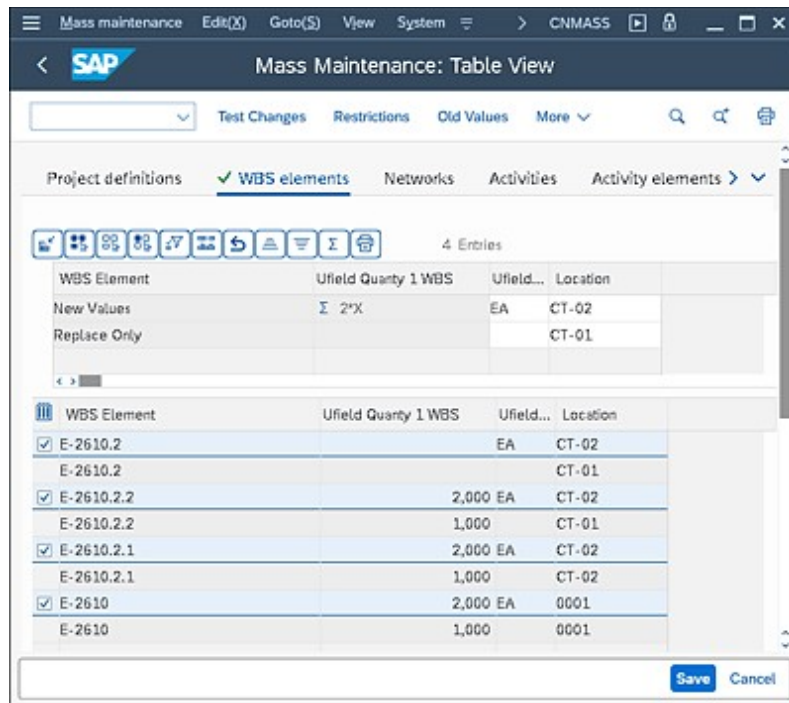


Figure 1.39 Mass Change of Activities in the Table View

After selecting the objects and fields in a tabular mass change, the system first displays a list of selected objects in which you can use a filtering function to manually exclude objects from the mass change. In addition, you can also display the previous field values in this view, then carry out a mass change, and finally compare the new values with the old ones. Not until you've saved the changes can you undo the changes made in the tabular mass change.

Transaction CNMASSSTATUS is available for mass changes of user statuses as well as selected system statuses (see [Figure 1.40](#)).

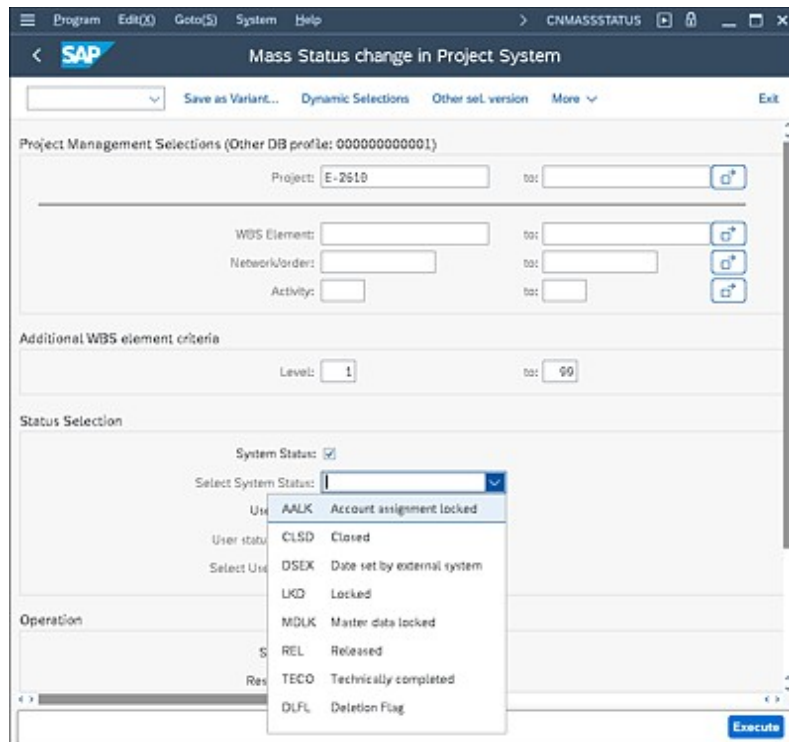


Figure 1.40 Selection Screen of Transaction CNMASSTATUS for Mass Changes of Statuses

1.8.4 Substitution

Substitutions enable you to automatically change master data fields of project definitions, WBS elements, network headers, and activities in accordance with conditions that you've defined. For WBS elements, you can also influence various profiles from the settlement parameters using substitutions. [Figure 1.41](#) shows an example of the definition of a substitution. This substitution automatically sets the project type **01** and some settlement parameters for those WBS elements of a particular project profile into which an investment profile has been entered.

You must define substitutions in the structure Customizing section of WBSs or networks. When creating a substitution, you must specify the object type for which you want to use the substitution and assign an ID and a description to the substitution. Then you must create one or more steps within the substitution. For each step, you can choose which fields must be changed and which prerequisites must be fulfilled for a change to be made.

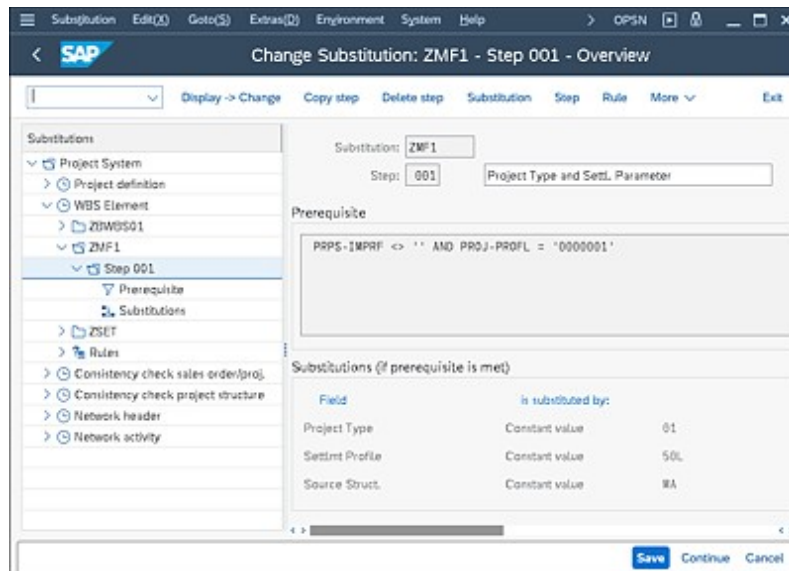


Figure 1.41 Sample Definition of a Substitution in Customizing

To define prerequisites, you can use the master data of the respective object and general system data, such as client, date, or user name, as parameters; for WBS elements, you can use the data of superordinate objects as parameters. You can then use relational operands in an editor to match those parameters to fixed values or to other field values. A traffic light icon indicates whether the prerequisite you've defined is complete.

Only if this prerequisite is fulfilled during the execution of the substitution for an object will the field values be replaced. If the prerequisite isn't fulfilled, the system performs the next step of the substitution.

When defining the field value substitution of a substitution step, you can either use fixed values for the fields to be changed or use the values of other fields.

You can trigger a substitution manually or have the system execute it automatically when objects are saved. A manual substitution can be carried out from within all editing transactions. To do this, you must first select the objects to be processed and then choose the **Substitution** function. The system then displays a dialog in which you can select the substitution you want to execute. Once you've selected the substitution, the system displays a log that lists the changes that have been made.

For project definitions and WBS elements, you can avoid the window for selecting the substitution by entering a substitution for project definitions or

WBS elements in the project profile.

To have the system automatically perform a substitution during a save process, you must store the relevant substitution in the project profile either for project definitions or for WBS elements and set the **Automat.**

Substitution indicator. To enable the automatic substitution function for networks, you only need to enter the relevant substitution in the network profile.

[+] Performing Substitutions for Several Projects

A common method for triggering an automatic substitution for multiple projects simultaneously is to carry out a mass change of a nonrequired field in those projects. The automatic substitutions are then processed when the mass change is saved.

1.8.5 Validation

Validations enable you to carry out self-defined checks for master data fields of project definitions, WBS elements, network headers, and activities. The result of a validation can consist of informational messages, warnings, or even error messages. Note that if an error message occurs, you can't save the respective object.

For example, you can use validations to ensure that projects, which contain a specific project profile, always begin with the same key, or you can validate the consistency of IDs within the project structure. For WBS elements, you can also validate different profiles in the settlement parameters and thus avoid problems during subsequent settlement runs (see [Chapter 5, Section 5.9](#)). [Figure 1.42](#) shows an example of a validation ensuring that level 1 WBS elements, which belong to the project type customer project (CP), are marked as billing elements.

Like substitutions, you must define validations in structure Customizing of Project System. A validation can comprise several steps, each of which performs a separate check. For each step, you must define a **Prerequisite**, a **Check**, and a corresponding **Message**. The check will be performed only if an object fulfills the prerequisite. If the condition of the check is fulfilled,

then the system issues a message; otherwise, the validation step for the object in question will terminate.

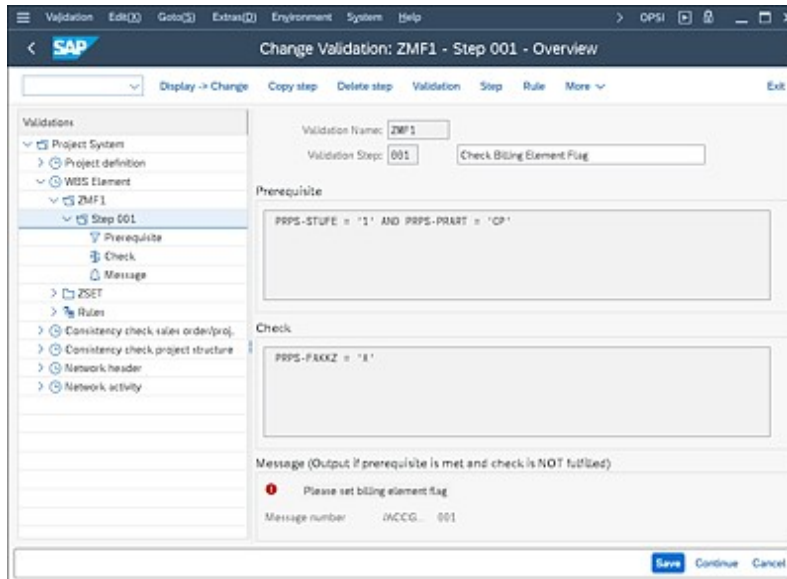


Figure 1.42 Sample Definition of a Validation in Customizing

The definition of prerequisites and checks occurs in the same way as the definition of prerequisites in substitutions ([Section 1.8.4](#)). When defining the message, you must first specify whether the message type is **Information**, a **Warning**, an **Error**, or a **Termination**. Then, create a message text for a message number and assign the text to the message. Within the message, you can define fields as variables (e.g., the identification of the object) and include the corresponding field values in your message text.

As is the case with substitutions, you can trigger the execution of validations either manually or automatically during the save process. To enable automatic validations of project definitions or WBS elements, you must enter the relevant validation in the project profile and set the indicator for automatic validation. For network headers and activities, you must store the validations in the network profile.

If both substitutions and validations are executed during a save process, then the substitution steps are carried out step-by-step first, followed by the validation steps.

1.8.6 Variant Configurations with Projects

We'll now describe the use of variant configurations in project structures on the basis of the robotics project example. Then we'll discuss the necessary prerequisites that must be fulfilled.

In the example, a company produces different types of robots with different features and designs. Each robot variant requires different material components and activities as part of the production project. Standard structures are used as the template for the creation of the required project structures. Instead of defining a separate standard network—including the required material components and activities and a separate WBS as a template for each potential variant—the company only uses one standard network that can be configured in different ways.

The configurable standard network contains material components and activities for all possible variants of the different robot types. If the configurable standard network is used as a template for an operative network, then the respective robot variant must first be specified via a *characteristic value assignment* (robot type, characteristics, variant, etc.; see [Figure 1.43](#)).

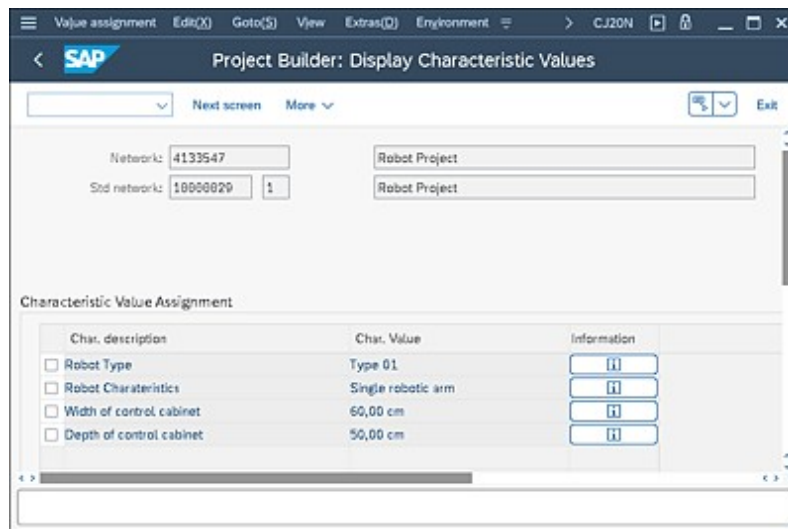


Figure 1.43 Sample Characteristic Value Assignment

Based on the characteristic value assignment and the *object dependencies* in the activities of the standard network and BOM items (i.e., the material components), the system copies only those activities and components that

are actually required for the variant. If, during the save process for the configured operative network, a WBS based on a template is created as well, then the system only copies those WBS elements that are assigned at least one operative activity, including their superordinate WBS elements. This way, the WBS is configured “indirectly,” which is required because WBS elements can’t contain any object dependencies.

To use the variant configuration with project structures, you must first define characteristics in the central logistical functions. These characteristics may include the robot type, the size of the robot, and so on and can be defined using Transaction CT04. When doing so, you must specify, among other things, the input format, possible characteristic values, and, if necessary, a default value for each characteristic value. You can then summarize the characteristics into *classes* (Transaction CL02) so that you can define which of the characteristics should be displayed during the characteristic value assignment process. Note, the classes must belong to a class type that allows variant configuration (by default, this is class type 300).

You can define the necessary object dependencies either directly during the maintenance of standard network activities (*local object dependencies*) or centrally using Transaction CU01 (*global object dependencies*). Global object dependencies can be used multiple times in different standard networks or BOMs. Note, however, that you can’t modify them there.

The object dependency type selection condition is used to determine whether an object should be copied. The dependency editor that uses a specific syntax (see SAP documentation) is available for the definition of conditions within such an object dependency (e.g., “Should the robot have one or two arms?”). If the condition you define and assign as an object dependency to a BOM item or standard network activity is met in the characteristic value assignment, then the object will be copied. You can use the object dependency type procedure to derive field values of material components or activities from the characteristic value assignment (e.g., the planned work for an activity).

Finally, you must define the standard structures you want to use as templates ([Section 1.2.3](#) and [Section 1.3.3](#)) and link them with the class of characteristics. The standard structures must contain activities, relationships, material components, and, if necessary, WBS elements for all possible variants. The necessary object dependencies must be assigned to the relevant

standard network activities and BOM items. You can link the standard structures, or rather, the standard network, with the class of characteristics by using a *configuration profile* that you can create in Transaction CU41 in Project System.

If you want changes to the characteristic value assignment to be possible after you've released the configured operative network, then you must define a *change profile* in the Customizing section of the networks and assign this profile to the respective network type. Depending on the respective statuses, you can use the overall change profile, for example, to control whether the object changes that are necessary for the new variant should result in error messages or warnings or whether single changes are even permitted. In addition, you can use standard workflows in variant configurations, for example, to inform the MRP controller of the network about retroactive changes and to enable the controller to decide whether those changes should be implemented.

If you use configurable subnetworks for structuring purposes, then the characteristic value assignment is passed on from the superordinate network, provided its templates have been assigned to the same class. Finally, you can also combine variant configurations with project structures with assembly processing. In this case, you can carry out the characteristic value assignment directly in the relevant sales document.

[!] Extended Variant Configuration

The extended variant configuration, which can be used in integration scenarios with SAP Commerce Cloud, for example, isn't supported in Project System at the time of writing.

1.8.7 Assembly Processing

The concept of *assembly processing* describes a process in which the creation of a sales document item involves the simultaneous creation of an operative network and, if required, of an operative WBS. The process also involves the exchange of scheduling, quantity, and controlling data between the sales document item and the project.

Time scheduling for the network is directly carried out in the sales document on the basis of a customer's desired delivery date and the quantity that is transferred to the network as an execution factor. The system then proposes the calculated finish date of the network as the date for the complete delivery of the item in the sales document. At the same time, the system calculates the network and transfers the calculated costs to the sales document item, in which they can be used for pricing purposes in accordance with the pricing procedure used.

If the project contains milestones that are marked as relevant to sales documents, then the dates and billing data of those milestones can also be automatically included in the billing plan of the item. If an operative WBS is generated when the sales document is saved, then the sales document item can be automatically assigned to a WBS element.

The link between the sales document item and the network lets you use the schedule lines of the item to navigate directly to the network display or, conversely, to navigate directly to the sales document item display via the network header. Furthermore, you can transfer retroactive changes to the sales document directly to the project and vice versa.

If you use a sales document that contains multiple items, then you can also create a separate operative network for each item through assembly processing. If, in that case, the corresponding standard networks are already linked to each other via relationships, then those external relationships can also be automatically created for the operative networks. The time scheduling process for all networks of the sales document is carried out simultaneously using overall network scheduling (see [Chapter 2, Section 2.1.2](#)).

You can only create one WBS per sales document by using assembly processing. If you set the **SD/PS Assignment** indicator in the project definition of the standard WBS, then the system will create a separate hierarchy within the project for each sales document item, including a separate WBS element at level 1. Note that coding masks are required for using **SD/PS Assignment**. You must ensure that the **Only one root** indicator isn't set in the project profile.

The identification of a project that is created in the context of assembly processing is automatically derived from the sales document ID. If you've

defined a coding mask for the identification of the standard WBS, then the ID of the operative project consists of the key of the mask and the sales document number, which is copied into the first section of the project ID. If the first section of the coding mask is shorter than the sales document ID, then the system will only copy the last digits of the ID. Therefore, you should ensure that the first section of the respective coding masks is long enough. When using **SD/PS Assignment**, the item number is also copied to the second section of the WBS element ID. If you don't use any coding masks, then the project will have the same ID as the sales document.

Using assembly processing makes sense whenever you want to process customer projects that always contain identical structures and shouldn't be created until a requirement has been generated in sales and distribution (caused by a request, quotation, or sales order), as well as when you want to automate the creation of the project structures and the exchange of data between Project System and the sales and distribution department.

The following list contains the prerequisites that must be fulfilled if you want to use assembly processing:

- **Standard structures**
You must create a standard network and—if a WBS is required as well—a standard WBS that can be used as templates for the operative project structures.
- **Material master record settings**
You need a material master record whose **Item Category Group (Sales Org. Data 2 sales view)** or **Strategy Group (MRP 3 view)** references a requirements class for assembly processing with networks.
- **Assignment between material and standard network**
Optionally, you can assign the material to a standard network. If you don't create this assignment now, then you can do so later when creating the sales document item.
- **Customizing settings**
In Customizing, you must enter the relevant settings that enable the system to determine an appropriate requirements class based on the sales document type and the material master record data.

The following sections describe the prerequisites in greater detail. When you create a sales document and enter a material number into an item, the system performs *requirements type determination* in the background. The requirements type can be determined in two different ways.

On one hand, the system can use the *strategy group* in the material master record to determine a primary strategy, which, in turn, is used to determine a requirements type. If the material master record does not contain a strategy group, then the system tries to determine a strategy group based on the MRP group of the material. If the material master record doesn't contain an MRP group either, then the system tries to derive the MRP group on the basis of the material type.

On the other hand, the system can use the *item category group* of the material and the *document type* of the sales document to determine, among other things, an item category that defines the basic properties of the sales document item and that also references a requirements type. Finally, the setting in Customizing activity **Control of Requirements Type Determination** for the combination of the item category group and, if available, the MRP type of the material (**MRP 1** view) determines which of the two requirements types should be used.

The requirements type, in turn, is uniquely assigned to a requirements class. The requirements class (Transaction OVZG) ultimately controls the procurement of the material (see [Figure 1.44](#)). For assembly processing, the following fields are relevant in this context:

- **Assembly Type/Order Type**
The **Assembly Type** allows you to define whether you want to carry out assembly processing using networks. The **Order Type** defines the network type of the automatically created operative network.
- **Req. transfer/Avail. Check**
These indicators must be set if you want to exchange scheduling and quantity data between the sales document item and the network.
- **Acct Assgmt Cat**
The account assignment category in the requirement class refers to the **Consumption Posting** and **Special Stock** indicators to control

the value flows in assembly processing and inventory management of the finished material.

- **No MRP**

Because the network is used for procuring the finished material in assembly processing, you can use the **No MRP** indicator to define that no MRP should be carried out for this material.

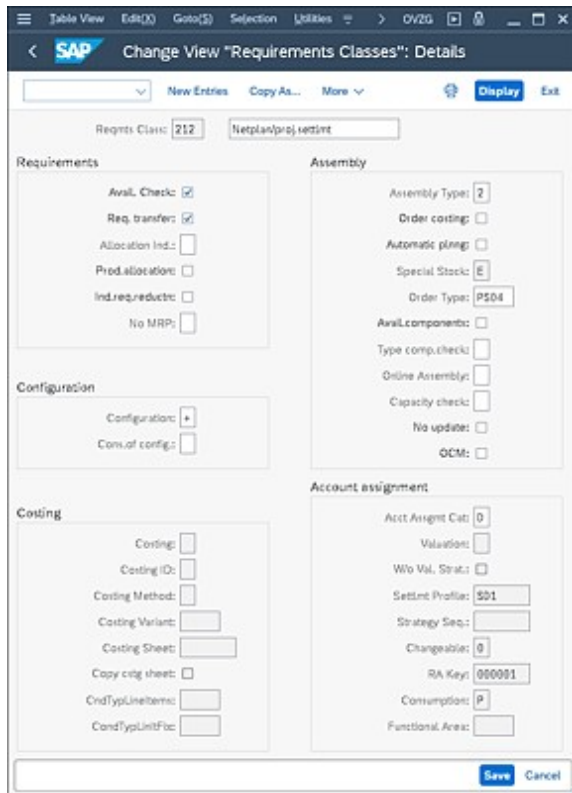


Figure 1.44 Standard Requirements Class 212 for Assembly Processing Using Networks

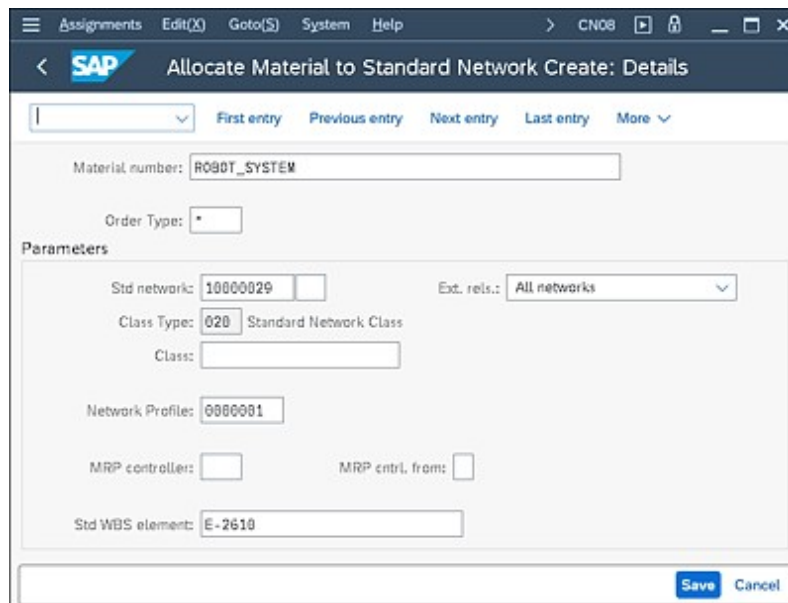
You can find all the necessary Customizing settings for account assignment categories, requirements classes, and especially for the requirements type determination in the material Customizing section of Project System under **Control of Sales-Order-Related Production**. By default, you can use requirements type KMPN and requirements class 212 for assembly processing.

[+] Requirements Class 212 and MRP Relevance

Requirements class 212 doesn't prohibit any MRP process for the material. To avoid MRP, you must customize the requirements class, define a new requirements class, or deactivate MRP via the material master record of the respective material.

If you use assembly processing without WBSs, you can use the standard account assignment category **E** that provides for value and inventory management at the sales document item level. If, in assembly processing, a WBS is generated in addition to the network, then value management must occur at the project level. Depending on the stock you want to use for the finished material (see [Chapter 2, Section 2.3.2](#)), you can use the standard account assignment categories **Q** (project stock) or **D** (sales order stock).

To enable the system to automatically determine an appropriate template for the operative project structures during assembly processing, you must assign the material number to a standard network. The assignment of the standard network to a standard WBS then also enables the system to automatically determine the template for the operative WBS.



The screenshot shows the SAP transaction CN08 'Allocate Material to Standard Network Create: Details'. The interface includes a menu bar with 'Assignments', 'Edit(X)', 'Goto(S)', 'System', and 'Help'. The title bar shows 'SAP Allocate Material to Standard Network Create: Details' and the window title 'CN08'. Below the title bar are navigation buttons: 'First entry', 'Previous entry', 'Next entry', 'Last entry', and 'More'. The main form contains the following fields:

- Material number: ROBOT_SYSTEM
- Order Type: *
- Parameters section:
 - Std network: 10000029
 - Ext. rels.: All networks
 - Class Type: 020 Standard Network Class
 - Class: (empty)
 - Network Profile: 0000001
 - MRP controller: (empty)
 - MRP ctrl, from: (empty)
 - Std WBS element: E-2610

At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 1.45 Sample Assignment of a Material Number to a Standard Network in Transaction CN08

In Project System, you must use Transaction CN08 to assign a material number to a standard network (see [Figure 1.45](#)). If necessary, you can define this assignment on the basis of the network type.

<https://t.me/PrMaB2>

In addition, during the assignment process, you can also specify whether you want external relationships to be created automatically, which MRP controller is responsible for the operative network, and to which WBS element you want to assign the sales document item.

1.9 Versions

Project System distinguishes three types of versions that can be used for different purposes:

- **CO versions**
You can use CO versions in the context of project planning to save several different cost and revenue plans for one object and to evaluate those plans separately or compare them with each other. You can use the values of CO versions for different evaluations in accounting. Moreover, CO versions can be used for specific purposes, such as progress analyses or for cost forecasts in Project System (see [Chapter 5, Section 5.8](#), and [Chapter 4, Section 4.7.2](#)). In addition to using the term *CO version*, you can also use *planning version* or just *version*.
- **Project versions**
Project versions are used to capture the state of a project at a specific point in time or for a certain system status to document the project flow. Project versions are a prerequisite for a milestone trend analysis (see [Chapter 4, Section 4.7.1](#)).
- **Simulation versions**
You can use simulation versions to test different project structures, planning activities, changes to the structure, or plans of projects without having to implement actual changes in the operative structures. After that, you can use the simulation versions to create operative projects or to update existing projects.

1.9.1 Project Versions

Project versions are snapshots of project data. You can create project versions at specific moments and therefore document the progress of your projects over time. Furthermore, you can automatically generate different versions of objects when specific status changes occur.

When creating project versions, you must always specify a *version key*. This means that the objects contained in project versions can be identified based on the combination of the operative ID and the version key. *Version groups* allow you to summarize versions that contain objects of the same type.

[!] Project Versions and Milestone Trend Analysis

Only if you mark a project version as being relevant to milestone trend analysis will you be able to use its data for this purpose.

You can carry out a time-dependent creation of project versions either by using the structure information system (Transaction CN41) or directly via Transaction CN72. To do so, you must use the relevant selection screen and database profile to define which objects and which data of those objects should be copied to the project version. Transaction CN72 also allows you to schedule a background job to automatically create new project versions at regular intervals.

Alternatively, you can create time-dependent project versions for individual WBSs or networks by using the special maintenance Transactions CJ02 or CN22, respectively. In this context, the *version profile* (see [Figure 1.46](#)) defines which data of the objects should be copied to the project version.

To enable the automatic creation of project versions based on the status of the objects, you must first create a version profile in the Customizing section of Project System (Transaction OPTS) and assign this version profile to the project profile or network profile in question. The version profile defines whether the object is relevant to the milestone trend analysis and which data should be copied to the project version. In addition, the version profile determines for which status changes a project version should be created and the corresponding version key and description to be used. The status change can refer to both the system status and the user status.

For example, if you define that the project version with version description **Released** must be used when an object is released, then the system will write a copy of an object to the project version every time an object is released. If you release parts of projects at different times, then the project version will be complemented step by step with the newly released objects. What this

means is that status-dependent project versions don't necessarily have to reflect the state of a project at a specific point in time.

You can evaluate project versions in the structure information system of Project System and by using hierarchy reports of **Project Information System: Financials**, provided the database profile or report definition allows the selection of version data (see [Chapter 6, Section 6.1](#)). You can also view project versions using the Project Schedule for Versions app (F5611). The functions of the app largely correspond to those of the Project Schedule app (refer to [Section 1.7.3](#)), but here, it's not possible to navigate from the side panel to related apps and editing functions.

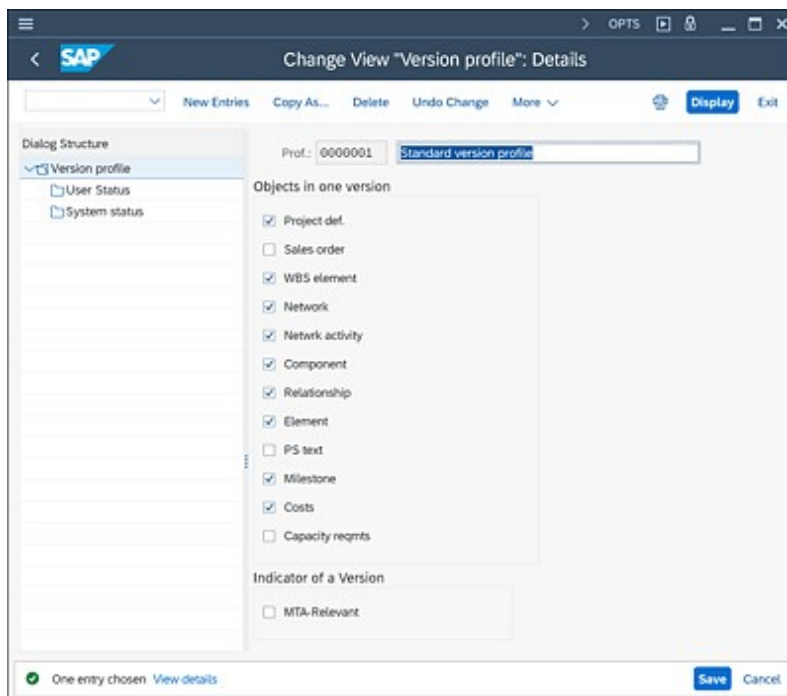


Figure 1.46 Sample Definition of a Version Profile

For example, you can compare individual lines of data of multiple project versions or operative projects with each other in the structure information system. Furthermore, you can use version-dependent exceptions to highlight (in different colors) differences between version data and operative data. In **Project Information System: Financials**, you can use the standard Project Version Comparison: Actual/Plan report to compare version data with actual data.

Project versions that have been created automatically on the basis of the status are archived with the operative project structures and can therefore be deleted simultaneously from the database ([Section 1.10](#)). For time-dependent project versions, you can carry out separate archiving and deletion sessions. However, you can also delete project versions manually at any time using the structure overview (Transaction CN41).

1.9.2 Simulation Versions

Simulation versions enable you to carry out what-if analyses for project structures. You can create simulation versions without an existing operative project (e.g., during the quotation phase), and you can generate simulation versions by transferring operative projects or other simulation versions.

A simulation version can be identified by a combination of the project ID and a version key. Thus, if required, you can simultaneously create, edit, and compare multiple simulation versions for one project ID that are independent of each other. You can use *input templates* in the Customizing section of Project System to define which version keys can be assigned to simulation versions (Transaction OPUS).

To manually create and edit simulation versions, you can either use Project Builder (provided that simulation versions are marked as changeable objects in their options) or Transaction CJV2, which has the editing options that are also provided in the Project Planning Board. To display simulation versions, you can use the Project Schedule for Versions app ([Section 1.9.1](#)).

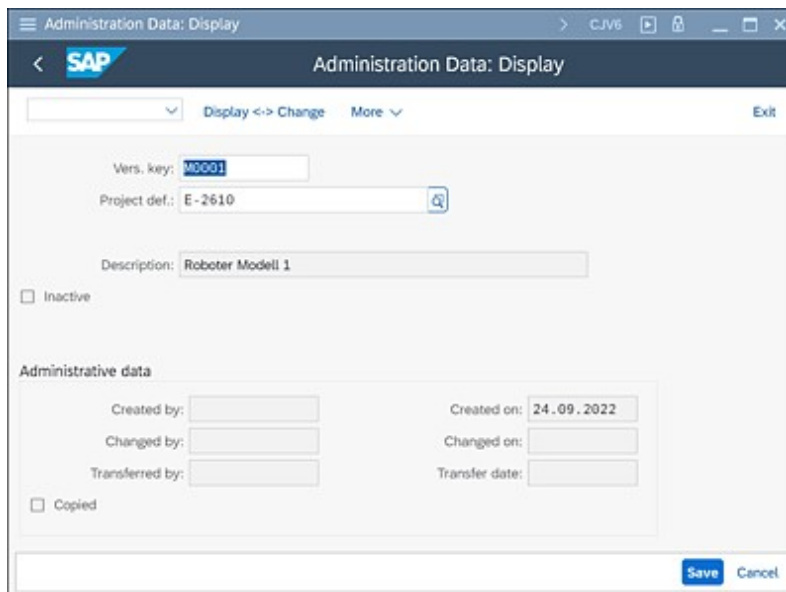
If you want to plan the costs of simulation versions, then you can do that in the context of the Easy Cost Planning function (see [Chapter 2, Section 2.4.4](#)) and network costing (see [Chapter 2, Section 2.4.5](#)). You can only perform revenue planning for simulation versions by using billing plans (see [Chapter 2, Section 2.5.3](#)).

To create simulation versions via transferring operative projects or other simulation versions and retransferring them into operative projects, you must use Transaction CJV4. This transaction also allows you to test the transfers. A transfer involves all master data and planned data of WBSs and networks, as well as the milestones and material components assigned to them. In

addition, actual data of operative structures is also transferred to the simulation versions for informational purposes; however, this data isn't retransferred into the operative project.

You can define a *simulation profile* in the Customizing section of Project System and then store it in the project profile or project definition. A simulation profile enables you to define whether you want to include long texts, PS texts, or the assignment to documents in the document management system in the transfer as well. Transaction CJV5 allows you to delete simulation versions at any time.

Every time you create a simulation version, the system generates administration data for the respective version. You can analyze this data using Transaction CJV6 (see [Figure 1.47](#)). In addition to this data having creation and modification information, it also contains the **Inactive** and **Copied** indicators.



The screenshot shows the SAP 'Administration Data: Display' transaction window. The title bar includes 'Administration Data: Display' and 'CJV6'. The main area contains the following fields and options:

- Vers. key:** M0001
- Project def.:** E-2610
- Description:** Roboter Modell 1
- Inactive
- Administrative data:**
 - Created by: [] Created on: 24.09.2022
 - Changed by: [] Changed on: []
 - Transferred by: [] Transfer date: []
- Copied

At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 1.47 Sample Administration Data of a Simulation Version

If a simulation version is active, that is, if the **Inactive** indicator isn't set, then the system issues a warning message whenever you try to modify the structure of the operative project or its planned data or master data because those changes may impede a retransfer of the simulation version.

If you retransfer a simulation version back into the operative project, then the system automatically sets the **Inactive** indicator for all simulation

versions that belong to this project. This means you can no longer edit those simulation versions. However, you can deactivate (uncheck) the **Inactive** indicator manually, although we recommend that you transfer the operative project into a new simulation version.

In addition, the simulation version that has been retransferred is automatically marked as copied so that you can use the administration data to determine which version was used for the update process. Simulation versions can be evaluated in the same way as project versions ([Section 1.9.1](#)). In particular, you can use the *version comparison* function in **Project Information System: Structures**, for example, to highlight deviations between the simulation version and the operative project in color.

In addition, you can also use a specific capacity report for simulation versions. This report reads the work centers of the activities of the simulation version and determines all capacity requirements of those work centers; however, instead of the requirements of the operative project, the report uses the requirements of the simulation version. This way, simulation versions enable you to analyze to what extent possible date and structure changes would affect the capacity utilization of the work centers in your company.

In addition to the limited cost and revenue planning options, simulation versions are subject to other restrictions. Simulation versions don't support integration with other components of the SAP system. Objects with a reference to operative objects can't be deleted here; however, you can set the **Deletion Flag** status ([Section 1.6](#)). Apart from that, no other status changes, such as system or user status changes, are possible for simulation versions. Furthermore, you can't archive simulation versions.

1.10 Archiving Project Structures

You can delete operative WBSs and activities in every editing transaction. A prerequisite for this is that the status of the WBSs and activities is either **Created** or **Released** and that no documents have been assigned to them yet. However, once a document has been assigned to a WBS or network, you must first archive the project structure before you can delete the data from the database.

You can delete standard structures, project versions, and simulation versions at any time without having to meet any specific requirements. If you want to archive project data without deleting the data from the database, then you can also do this without meeting any additional requirements. However, if you want to archive operative projects that have assigned documents and delete those projects afterward, then you must carry out specific steps, each of which must meet certain requirements:

1. When deleting operative project structures, the first step you must carry out is setting the **Deletion Flag** status. A prerequisite for setting this status is that assigned orders have also been flagged for deletion. Another requirement is that no open purchase requisitions or purchase orders can exist for the project. In addition, the project balance must be zero; otherwise, the project might not be subject to settlement (see [Chapter 5, Section 5.9](#)).
When a project is flagged for deletion, almost all business processes are forbidden; however, you can deactivate the **Deletion Flag** status if required.
2. The second step involves setting a *deletion indicator* for the project structures via archiving transactions. A prerequisite for setting this indicator is that the deletion indicator is already active in assigned orders. To avoid premature deletions of networks, a certain number of months have to pass between the first two steps. This period is referred to as **Residence Time 1**, and you can define it in the Customizing section of the network type.

You can still display and evaluate projects carrying the deletion indicator in all editing and reporting transactions, but you can no longer execute any business processes for those projects.

[!] No Undoing of Deletion Indicators

You can't undo the deletion flag.

3. The final step consists of archiving the project structures and deleting the project data from the SAP database. This is only possible for projects carrying the deletion indicator. For networks, **Residence Time 2** must have passed between the setting of the deletion indicator and the deletion process itself. This residence time must have been stored in terms of months in the network type.

You can carry out all the necessary steps for archiving projects using the general archiving Transaction SARA with a reference to archiving object PS_PROJECT. The archiving object PS_PROJECT enables you to archive the master data, planned data, and actual data of operative WBSs, networks, and project versions. The information and programs required for writing and evaluating the archive files are linked to this archiving object.

Transaction SARA enables you to carry out the different steps for archiving and deleting project structures continuously. This way, you can use selection variants to select multiple projects at the same time and, if required, to schedule the execution of the individual steps in the background. In addition, you can store a descriptive text for the archiving session in the selection variant for archiving structures.

The job monitor allows you to analyze which of the jobs for setting deletion flags or deletion indicators and for archiving or deleting projects has been carried out successfully, which of them are still active, and which have been terminated due to errors. Logs for the individual jobs provide you with additional details. The log that is created when archive files are written contains, among other things, the technical names of the archive files, their size, and the relevant database tables.

The administration data of Transaction SARA allows you to analyze which archiving sessions have been completed. Traffic lights indicate which sessions have been completed successfully and which caused problems. You can view the details of an archiving session by double-clicking on it. Moreover, you can call all relevant Customizing activities related to the archiving of projects from the overview.

The **Retrieval** function in Transaction SARA enables you to evaluate the archived data at any time. Note that this is also possible if you use the reports provided by the structure and financials Project Information Systems, given that the database profile allows the selection of archive files. You can also display archived projects in Project Builder. Project System doesn't allow you to copy archived project data as operative data or to use archived project structures as templates for new projects.

Project System contains the additional archiving objects `PS_PLAN` for standard networks and `CM_QMEL` for claims. There are also various other archiving objects in other applications for documents and objects, which can be linked to projects. Within the scope of archiving, a customer enhancement allows you, for example, to explicitly select purchasing documents or maintenance orders via your project reference or to explicitly exclude them from selection. This way, project-related objects are immediately archived with projects or excluded from archiving as long as the projects are still used. The system doesn't allow you to archive simulation versions, drafts, or standard WBSs.

For selected projects, program PSARCHPRECHECK enables you to have the system display a list of objects that avoid the setting of deletion indicators or deletion flags, including message details (see [Figure 1.48](#)). If required, you can also use the list to directly navigate to the respective objects, for example, to analyze further details. This allows you to identify possible project-archiving problems at an early stage and eliminate their causes. SAP Note 1631113 provides further information on how to activate this program.

Precheck Report for Archiving PS objects

Networks for project:
WBS assign. to network leader
WBS assign. to network activity
Project E-2606 To set Deletion Flag is not possible.
Network 000004026740 To set Deletion Flag is possible.

Exception	Project PS Object	PS Object Id	Description	Related Object	Related Object Id	Message Text
•	E-2606 Network Activity	000004026740 0010	Externe Konstruktion	PURCHASE REQUISITION	00000372800010	There is still a purchase requisition commitment for N...
•	E-2606 WBS	E-2606-3	Mortgage	PM ORDER	000004026741	Order 4026741 Not marked for deletion

Figure 1.48 Sample Message Details in Program PSARCHPRECHECK

The archiving of projects and the subsequent deletion of the project data from the SAP database have several advantages: Because you can store archive files in compressed form and on separate servers, you can significantly reduce the database load by deleting the operative data. This, in turn, increases performance and simplifies the administration of the system. Moreover, the IDs of deleted project structures are no longer included in the search helps, so you can assign them to new projects if you want to.

It's also useful to consider archiving aspects before a project starts, especially if you use many projects or large project structures that entail a substantial growth of the data volume over time. Due to the different requirements that must be met to archive or delete projects, you should collaborate with other departments that may be involved.

1.11 Summary

In this chapter, we described the two structures, WBS and network, that can be used to map projects in the SAP S/4HANA system. In addition to the master data of those structures and different detailing options (e.g., using milestones or documents), we discussed the Customizing activities that are necessary for creating the structures, and we introduced transactions and tools that enable you to create, edit, archive, and delete the structures. The next chapter will explain how you can plan your projects on the basis of those structures.

2 Planning Functions

Using project planning, you can preview the time flow, the required resources and materials, and the expected cost and revenues for the individual project parts. It's thus an essential part of project management.

Once you've properly mapped a project using the work breakdown structure (WBS) and the network, you can use various Project System functions to plan the dates of the individual work packages, estimate the expected costs and revenues, and provide internal and external resources and materials on schedule before the project starts.

Depending on your requirements, there are planning functions with different levels of detail. For example, within a quotation phase or approval phase, you can create a preliminary plan of dates and costs with very little effort and then add specifications later, if necessary, using other planning functions or additional structures.

In the implementation phase, the planned data is compared with actual data that is posted to the project structures by different business transactions (see [Chapter 4](#)). In the processing transactions, particularly in Project System reporting, you can therefore make a plan/actual comparison later and then monitor the project progress.

In this chapter, we'll first discuss the various possibilities of time scheduling in Project System, which form the basis of several other planning activities. Then, we'll explain how to use networks to plan internal and external resources, as well as material for projects. Lastly, we'll explore the possibilities for planning costs and revenues for your projects in Project System.

2.1 Date Planning

Planning the dates of a project or parts of a project is integral to your project planning. Capacity requirements planning ([Section 2.2.1](#)), for example, requires prior scheduling. Cost planning via Easy Cost Planning ([Section 2.4.4](#)) or network costing ([Section 2.4.5](#)) is automatically aligned with the planned project dates as well.

Depending on whether you use WBSs or networks for structuring your projects, different functions are available for planning dates. These are discussed separately in [Section 2.1.1](#) and [Section 2.1.2](#). If you use both a WBS and networks, scheduling data can be exchanged between the WBS elements and the activities, which is discussed in [Section 2.1.2](#) as well.

Regardless of the structures you use for mapping your projects (WBS or network), there are two separate sets of dates available for time scheduling in Project System: *basic dates* and *forecast dates*. You can schedule dates in both sets separately; however, you can also copy dates from one set of dates to the other as often as you like. A third set of dates is available for entering actual dates. [Figure 2.1](#) shows the various sets of dates in the **Dates** detail screen of a WBS element.

Section	Field	Value
Basic Dates	BscStart	09.01.2023
	Duration	80
	Earl. start	09.01.2023
	LatestStt	09.01.2023
Forecast dates	FcstStart	07.01.2023
	Duration	75
	Earl. start	
	LatestStt	
Actual dates	ActStart	
	Duration	0
	TentActStt	
	Act.Finc	
Calendar	Calendar	01

Figure 2.1 Dates Detail Screen of a WBS Element

[+] Exclusive Functions of Basic Dates

The calculation of capacity requirements, the requirement date of material components, or, for example, the Easy Cost Planning and the planned costs calculation using network costing, are exclusively based on the basic set of dates.

Typically, the forecast set of dates is used for *baselining*; that is, fixing planned dates at a specific planning stage. To do this, you copy the basic set of dates into the forecast set of dates. Changes to dates at a later stage are made to the basic set of dates, while the dates in the forecast set of dates remain unchanged. Therefore, you can always read the current status of time scheduling in the basic set of dates, while the forecast set of dates reflects your original time schedule. If you want to maintain several stages of time scheduling, you can use project versions (see [Chapter 1, Section 1.9.1](#)).

The presentation of forecast dates depends on the respective transaction. The tabular presentation of structure planning contains, for example, separate tabs for the respective sets of dates (see [Chapter 1, Section 1.7.4](#)). In Project Builder, the WBS elements detail screen shows all sets of dates, while either the basic set of dates or the forecast set of dates is displayed for networks, depending on the settings. In the Project Planning Board or the Project Schedule app, you determine the field selection and the options for which dates are to be listed or graphically displayed. [Figure 2.2](#) shows the simultaneous presentation of basic and forecast dates in the Project Planning Board.

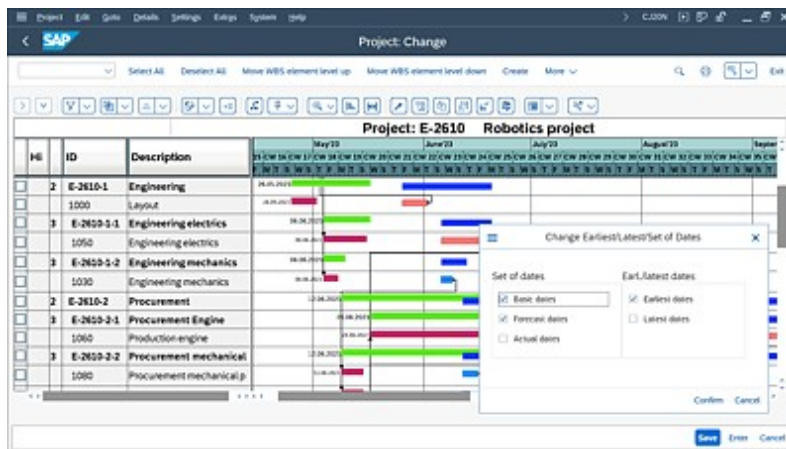


Figure 2.2 Basic and Forecast Dates in the Project Planning Board

2.1.1 Scheduling with WBS Elements

When creating a project, you can enter a planned start and end date for the project in the project definition. When you later schedule dates on the WBS elements level, the system notifies you if the WBS element dates are outside

the date range specified in the project definition. If you want, however, start and end dates of the project definition can be adapted to the dates of the WBS elements.

Dates for WBS elements can be scheduled in Project Builder in the WBS elements detail screen, in the Project Planning Board, or via the special maintenance functions, either in a tabular format or, in the Project Planning Board, in a graphical format. Optionally, you can specify both planned start and end dates, or one of the two along with a planned duration for the WBS element. The system then calculates the other date automatically.

In this time scheduling, the system considers the factory calendar of the WBS element, which distinguishes workdays and non-workdays (holidays, weekends, company holidays, etc.). The entered duration in days, for example, is interpreted as the number of workdays; start or end dates on non-workdays cause system warnings. In the Project Planning Board, the maintenance and presentation of nonworking times are controlled by the **Nonwork. time** tag in the options or the planning board profile, respectively.

The standard version already contains numerous predefined factory calendars. You can also define your own factory calendars in Customizing using Transaction SCAL. Select the factory calendars separately for every WBS element, or enter them as default values in the project definition or in the project profile.

In addition to the manual maintenance of planned dates for WBS elements, there are various functions that—depending on the transaction—support you in your time scheduling tasks. Using the Project Planning Board as an example, we'll explain in detail various time scheduling functions for WBS elements without assigned activities.

Using the **Shift dates** function, you can shift the planned dates of individual WBS elements, of entire subtrees, or of your entire project. For example, if you select a WBS element and choose the **Shift Dates • Subtree** function, a dialog box opens in which you can either enter a new start date or a new end date, depending on the WBS scheduling parameters ([Section 2.1.2](#)). The system then shifts both the WBS element and all subordinate WBS elements accordingly.

[+] Chronologically Shifting WBS Elements of the Same Level

Because WBS elements *don't* have relationships, shifting WBS elements *doesn't* automatically cause the planned dates of WBS elements on the same level to be shifted.

Using the **Copy top-down** function, you can copy the start and end dates of a WBS element to all hierarchically subordinate WBS elements and, if required, to the assigned activities. Existing planned dates are thereby overwritten.

Instead of inheriting dates in a top-down fashion, you can, in turn, aggregate dates within the WBS hierarchy using the **Extrapolate dates** function. Using this function, you have to distinguish between *bottom-up* and *strict bottom-up extrapolation*.

If you run the **Extrapolate dates** function for your project and the **Open planning** or **Bottom-up (taking dates of higher level WBS into account)** planning method has been set, the date ranges of the project definition and of all WBS elements are adapted so that they span the dates of the respective subordinate WBS elements. The date ranges of higher-level objects are therefore extended, if necessary, but not reduced. This means the date range of a higher-level object can be larger than that of the subordinate objects.

[Figure 2.3](#) shows an example of the bottom-up projecting of WBS element dates. The dates of the WBS elements **Engineering electrics** and **Engineering mechanics** have been time-shifted, and the dates have been projected to the higher-level **Engineering** WBS element. The upper time bars (forecast dates) correspond to the dates before the shifting and projecting process, and the lower time bars (basic dates) correspond to the dates after the same.

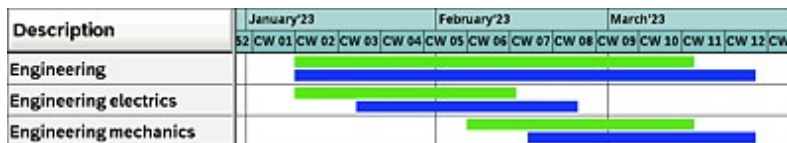


Figure 2.3 Bottom-Up Extrapolation

If you execute the **Extrapolates dates** function for a project for which the **Strict Bottom-up (without dates of higher-level WBS)** planning method has been set, the date ranges of the project definition and of all WBS

elements are accurately adapted to the scheduling frameworks of the subordinate WBS elements (see [Figure 2.4](#)). The date ranges of higher-level objects are thus both extended and reduced, if necessary.

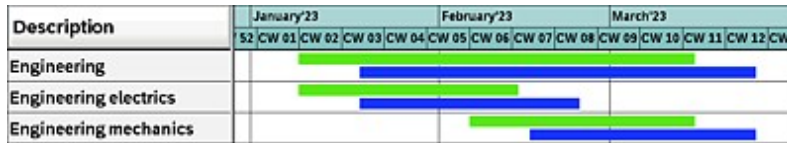


Figure 2.4 Strict Bottom-Up Extrapolation

Another function you can implement when time scheduling with WBS elements is **Check dates within project structure**. The system then highlights WBS elements in color where planned dates of the subordinate WBS elements are outside of the scheduling framework of the WBS element itself. You can therefore avoid hierarchically inconsistent time scheduling for projects.

Using planning methods, several of the functions just mentioned can be automatically executed during the saving process, regardless of the editing transaction. The following planning methods are available:

- **Top-down**
When saving, the system automatically checks the dates within the project structure. If the time scheduling isn't consistent, the project can't be saved. However, no dates are automatically changed.
- **Bottom-up**
When saving, the system automatically changes the dates of WBS elements and project definition via bottom-up extrapolation.
- **Strict bottom-up**
When saving, the system automatically changes the dates of WBS elements and the project definition using a strict bottom-up extrapolation.
- **Open planning**
The system doesn't automatically check or change the dates. However, you can manually trigger the **Check dates within project structure** or **Extrapolate dates** functions.

You specify the planning method to be used separately for the basic and the forecast set of dates in the project definition. In the project profile, you can

store default values for the planning methods of both sets of dates.

If you work with WBS without assigned networks, the *scheduled dates* of WBS elements, that is, their earliest and latest start and end dates (refer to [Figure 2.1](#)), are only relevant if you use milestones, the dates of which are derived from the WBS element dates. Because the dates of milestones are exclusively derived from the scheduled dates, you must run WBS scheduling function at least once in this case. For WBS without assigned networks, WBS scheduling only causes the planned dates to be accepted as scheduled dates.

2.1.2 Scheduling Using Networks

While you enter the planned dates of WBS elements manually or via projecting or inheritance, the planned dates of activities are automatically calculated by the system. This determination of the planned dates of networks is called *scheduling*. Depending on the transaction you used to trigger the scheduling, you use *network scheduling*, *overall network scheduling*, or *WBS scheduling*.

In network scheduling, only one network is scheduled. All activities of the network are selected, and their dates are calculated. If you use overall network scheduling, several networks are scheduled at the same time, provided they are linked via relationships or subnetworks. All activities of these networks are then scheduled. In WBS scheduling, you select one or more WBS elements, or the entire project, and trigger the scheduling process. The system then selects only those activities for scheduling that are assigned to the selected WBS elements and calculates their dates. Before we elaborate on more differences between the various scheduling methods, we'll first describe the scheduling concept, which is the same for all three methods.

[+] Forward and Backward Scheduling

In Project System, the scheduling always takes place both in a forward and backward direction.

In *forward scheduling*, the system first determines the activities that—due to their relationships—don't have any predecessors among the selected activities. Beginning with a start date, the system calculates the earliest possible start date for these activities. Depending on the scheduling settings, the start date of forward scheduling can originate from the header of the network or from the assigned WBS elements (WBS determines the dates), or it can be the current date.

After the earliest start date of these activities has been determined, the system calculates the earliest possible end date of these activities using the scheduling-relevant duration. Then, the system selects the direct successors of these activities and calculates their earliest start and end dates. Each type of relationship (see [Chapter 1, Section 1.3.1](#)) determines whether the earliest start date must be after the end date of its predecessors (finish-start) or after their start date (start-start), and so on.

The scheduling now goes through all selected activities in a forward direction and calculates their earliest possible start and end dates. Forward scheduling results in the earliest dates of activities. Thus, the result of forward scheduling is the *earliest date* of activities.

In *backward scheduling*, the system first determines the activities that—due to their relationships—don't have any more successors among the selected activities. Starting from an end date—depending on the end date of the network header or the assigned WBS elements—the system now calculates the latest possible end date of these activities. Based on the scheduling-relevant duration of the activities, the latest start dates of these activities are then calculated.

The system then goes through the network in a backward direction, following the relationships, and thus successively calculates the latest possible start and end dates for all selected activities, considering their types of relationship and their durations. Backward scheduling determines the *latest dates* of activities.

The earliest start date and the latest end date of the network activities are forwarded to the network header as the scheduled dates. In WBS scheduling, the activity dates are also indicated in an aggregated fashion as scheduled dates at the level of the assigned WBS elements.

This logic of forward and backward scheduling requires a number of additional notes regarding the various influencing factors that are relevant to scheduling.

Without relationships, the result of scheduling in Project System wouldn't be a chronological sequence of activities. The type of relationship determines how two activities will interact chronologically. If you specified a time interval for a relationship, this will be taken into account during scheduling. This time interval, however, is only interpreted as a minimum time interval; that is, the scheduled time interval between predecessor and successor can be longer than the time interval defined in the relationship.

If the activities selected for scheduling have relationships to activities that aren't scheduled at the same time, these relationships are still taken into account. If relationships can't be met, the system issues warnings that you can analyze in a scheduling log.

The calculation of the scheduling-relevant duration and the consideration of nonworking times depend on the respective activity type; however, for all activity types, the control key of the activities must permit scheduling so that a duration unequal to zero is used during the date calculation.

For internally processed activities, the scheduling-relevant duration—as long as no actual dates have been entered (see [Chapter 4, Section 4.1.2](#))—is derived from the value of the **Normal duration** field or, if a work center has been stored in the activity, from an appropriate *formula* in the scheduling details of the work center. Typically, however, you'll store the standard formula `SAP004` in the work center, which references the value of the **Normal duration** field in the activity.

The unit of the **Normal duration** field is relevant as well. For example, if you enter a duration of 24 hours, these hours are interpreted as working hours. If the scheduling-relevant capacity of the work center uses an operating time of 8 hours per day, this results in a scheduling-relevant duration of three (working) days. If you entered a duration of one day, the system would only use one (working) day as the scheduling-relevant duration.

The scheduling of internally processed activities also considers nonworking times. If you maintained a work center in the activity, the system only uses the working times of the scheduling-relevant capacity of the work center for

scheduling. Start and end dates are only scheduled for working days. The differentiation between working and nonworking days originates from a factory calendar that is determined according to the following priority:

1. Factory calendar in the activity
2. Factory calendar in the work center
3. Factory calendar of the plant in the activity

For externally processed activities and service activities, the system, by default, uses the **Pl. Deliv. Time** (planned delivery time) as the scheduling-relevant duration without differentiating between working and nonworking days. But, if you want to use a deviating duration for scheduling, you can define a control key with the **Sched.Ext.Op.** indicator and manually enter the scheduling-relevant duration in the **Normal duration** field of the **Internal** tab.

For general costs activities, you can manually specify the scheduling-relevant duration via the **Normal duration** field. Using factory calendars in the costs activities, you can restrict scheduling to working days.

If necessary, the system can automatically reduce the duration of activities if the scheduled dates are outside of the basic or forecast dates of the network header. The system can therefore automatically adapt the duration of activities to enable the network to be carried out in a given time frame. This automatic adaptation of activity durations is called *reduction*. By specifying a minimum duration in an activity, you can ensure that a time interval that is required for processing an activity isn't further reduced.

The reduction of the activity durations is performed in several successive stages. In the first stage, for example, the durations could be reduced by 10%. If this reduction isn't sufficient, the originally planned durations could be reduced by 15% in a second stage, and so forth. A maximum of six stages could be implemented. After scheduling, you'll find the actual number of required reduction levels in the network header.

For a system to automatically reduce the duration of an activity, you must store a *reduction strategy* in the relevant activity. In the definition of a reduction strategy, for each reduction level, you specify the percentage by which the planned duration of an activity is to be reduced. [Figure 2.5](#) shows

an example of the definition of a reduction strategy in the Customizing section of Project System.

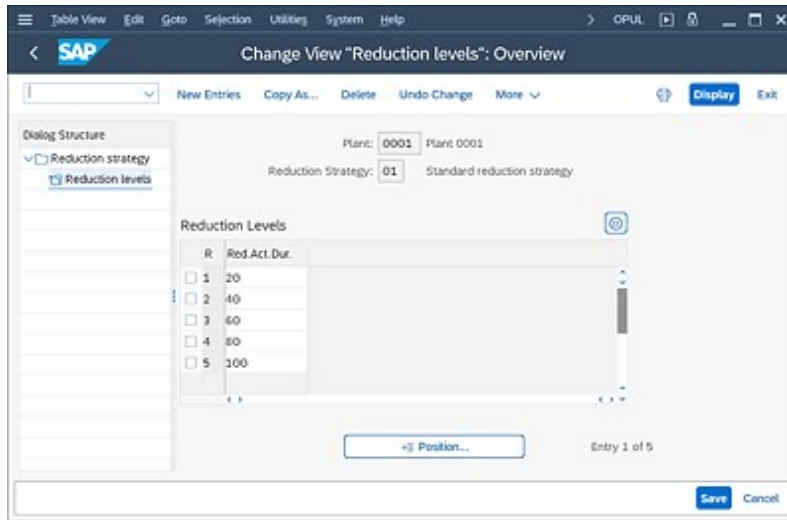


Figure 2.5 Reduction Strategy

Finally, you need to specify in the *scheduling parameters* that a reduction is to be carried out. To do this, you specify the maximum number of levels to run through. In addition, you can specify in the scheduling parameters whether all activities that have a reduction strategy are to be reduced or only the *time-critical* ones.

You can adapt the duration of an activity to the replenishment lead times of the assigned material components. Call the function **Transfer delivery time -> duration** for an activity. The system then determines the longest replenishment lead time of the assigned components and uses them as the activity duration.

Scheduling calculates the planned earliest and latest dates of activities, and the scheduled dates of network headers and WBS elements. The corresponding fields can't be changed manually.

However, you may want to assist in scheduling activities to, for example, define fixed dates or to consider constraints that cause activities to be feasible only within specific periods. To do this, you can specify *scheduling constraints* for activities (see [Figure 2.6](#)).

Using scheduling constraints, you can either fix the earliest or latest start or end dates of activities (**Must start/finish on**) or restrict them via threshold

values (**Cannot start/finish before/no later**). You can manually enter scheduling constraints or graphically determine them in the Project Planning Board, depending on the options or the planning board profile (see [Chapter 1, Section 1.7.2](#)).

The screenshot displays a software interface with a top navigation bar containing tabs: Internal, Extnl, Dates, Assignments, Long Text, User Fields, Qualification, and ShortTxt. The main content area is divided into two sections: 'Constraints' and 'Dates'.

Constraints Section:

- Start:** A dropdown menu is set to 'Cannot start before', with a date field showing '26.06.2023' and a time field showing '00:00:00'.
- Fin.:** A dropdown menu is empty, with a date field showing '24:00:00'.
- Early/Late:** A dropdown menu is empty.
- Float in days:** A sub-section containing 'Total float: 0' and 'Free float: 0'.

Dates Section:

	Start		Fin.		Duration	Work
Ear.:	26.06.2023	00:00:00	15.09.2023	24:00:00		
Last:	26.06.2023	00:00:00	15.09.2023	24:00:00	60,0 DAY	60,0 HR
Act.:		00:00:00		00:00:00		0,0
	Fcat conf.:			00:00:00	0,0	60,0
Dispatch.:		00:00:00		00:00:00	0,0	0,0

Figure 2.6 Scheduling Constraint for an Activity

In scheduling, the various influencing factors are considered according to the following prioritization:

1. Actual dates (see [Chapter 4, Section 4.1.2](#))
2. Scheduling constraints
3. Relationships
4. Start and end dates of the network header or the assigned WBS elements if the WBS determines dates

From the scheduled dates of the activities, the system also determines *floats* for each activity, which can be displayed in the detail screen of the activities and the network graphic, or graphically illustrated in the Project Planning Board, respectively. Regarding floats, there is a distinction between a *total float* and a *free float*.

The total float of an activity results from the difference between its latest and earliest dates, therefore specifying the time interval by which you can shift an activity from its earliest date without exceeding the end date defined in the network header or—if it determines dates—of the assigned WBS element. Activities with a total float smaller than or equal to zero are regarded as time-critical and are highlighted in color in the network graphic

and the diagram section of the Project Planning Board. In the Project Planning Board, you can use the options or even the planning board profile to control the total float starting from which activities are to be highlighted in color.

The free float of an activity is the interval by which you can shift the activity from its earliest date without affecting the earliest date of the succeeding activities. For two activities that are linked to each other by a finish-start relationship (without a time interval), the free float of the predecessor results, for example, from the difference between the earliest start date of the successor and the earliest end date of the activity itself.

Free floats typically result from scheduling constraints of succeeding activities, or they occur when there are parallel paths within the network where one path consumes more time than the other (see [Figure 2.7](#)). Because you can use the free float to perform activities without affecting subsequent activities with regard to scheduling, you can set the **Flexible** indicator for an activity to cause the earliest dates of this activity to be calculated based on the normal duration plus the free float. Consequently, the capacities have more time for performing the activity.

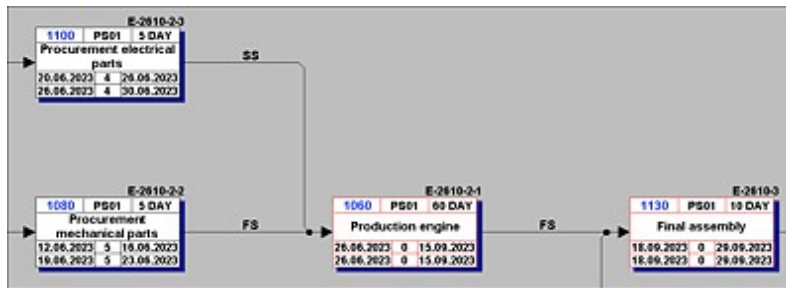


Figure 2.7 Time-Critical Activities and Floats in the Network Graphic

You can supplement activities or add more details (see [Chapter 1, Section 1.3.1](#)) via activity elements. Because activity elements don't have a duration or relationships, they don't affect the scheduling result. Just like activities, however, activity elements have earliest and latest start and end dates. These dates are derived from the scheduled dates of the activity to which the activity elements are assigned and from the time intervals you may have entered in the activity elements.

[+] Date Reference of Activity Elements

The planned dates of the activity elements always fall within the activity dates. Scheduling constraints can be defined at an activity level, but not for activity elements.

For milestones you've assigned to activities, you can either manually enter *fixed dates* or establish a *time reference* to the activity. If you use a time reference, you can use appropriate indicators to specify whether the milestone date is to be taken from the earliest or latest date, and the start or the end date of the activity. Furthermore, you can specify a time interval either in absolute terms (e.g., in a number of days), or in terms of percentage based on the duration of the activity. When using a time reference, every date shift of the activity directly affects the milestone date.

Even if you assign material components to an activity ([Section 2.3.1](#)), you can select between a fixed requirement date for the material and a requirement date that is derived from the start or the end of the activity. The scheduling parameters control whether the date reference should refer to the earliest or the latest date of the activity. If necessary, you can also specify an absolute time interval that is considered when deriving the requirement date from the activity date.

Network Scheduling

In network scheduling, all activities of an individual network are scheduled. Whenever you call the scheduling from the specific maintenance function (Transaction CN22) or from the Project Builder, provided you've selected a network header or a network activity in the structure tree, you trigger network scheduling.

In network scheduling, the scheduling settings are determined from the network scheduling parameters, but they can also be temporarily modified. Before you can create a network, you must have defined network scheduling parameters for the combination of the plant and the network type of the network header in the Customizing section of Project System (Transaction OPU6). [Figure 2.8](#) shows an example of defining network scheduling parameters.

In the scheduling parameters, you first store the **Scheduling Type**. This value is displayed at the network header level and can be changed there, if

necessary. The following scheduling types are available in Project System:

- **Forward**
The system first performs a forward and then a backward scheduling. You use forward scheduling if you know the start of the execution, but not its end date.
- **Backward**
The system first performs a backward and then a forward scheduling. You use backward scheduling if you know the end of the execution (e.g., an agreed delivery date), but not its start date.
- **Current date**
Instead of start dates that lie in the past, the system uses the current date for forward scheduling. You can therefore see if the planned period for the execution is still sufficient and which floats may still be available. This also includes both forward and backward scheduling.
- **Only capacity requirements**
The activities use the start and end dates from the network header (or the assigned WBS elements, if they determine dates) as the earliest and latest start and end dates. Relationships or the duration of individual activities aren't taken into account in this scheduling type. You can implement this scheduling type if you don't want to specify any details (yet) about the process and duration of individual activities, but you want to calculate the capacity requirements for the total runtime ([Section 2.2.1](#)).

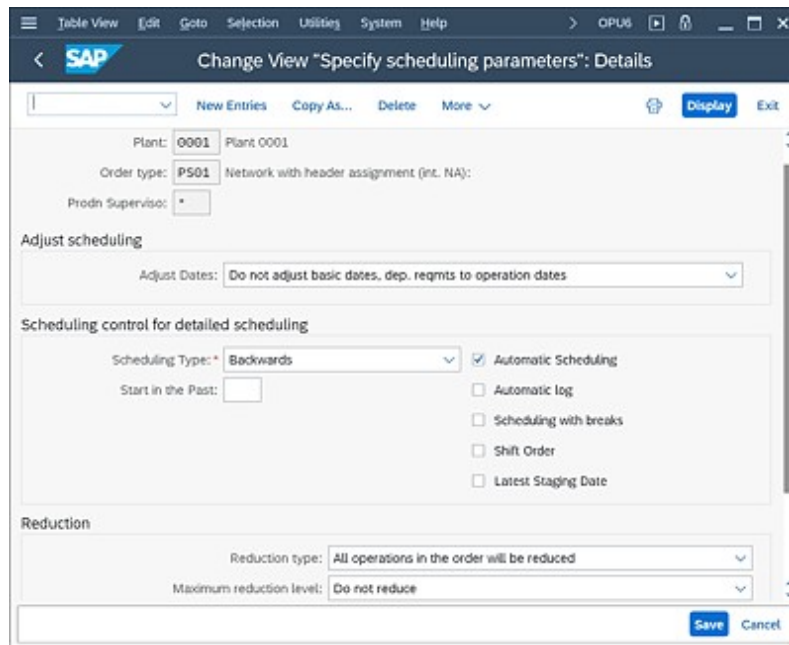


Figure 2.8 Network Scheduling Parameters

[+] Scheduling Type Restrictions

In Project System, start and end dates for scheduling can be specified in the network header or the WBS elements to the day only. Scheduling types with a reference to the time of the day can't be implemented in Project System.

Using the **Adjust Dates** dropdown in the scheduling parameters, you control if the system accepts the scheduled dates at the network header level as basic or forecast dates. For example, if there is a fixed time frame for the execution, enter the start and end dates manually in the network header, and set the **Do not adjust basic dates** indicator. Your dates will remain fixed during the scheduling process, and by comparing the scheduled dates, you can determine whether the time frame is sufficient for the execution. If the scheduled dates are outside of the predefined dates, the scheduling log issues appropriate warnings.

However, if you only know the start date, for example, and want the system to calculate the end date and to adjust it if changes need to be made at a later stage, select the **Forward** scheduling type, set the **Adjust Dates** dropdown, and manually enter a start date in the network header. Based on your start

date, the system first calculates the scheduled end of the network, inserts it as the end date, and then performs the backward scheduling based on this date.

The number of days you enter in the **Start in the Past** field in the scheduling parameters controls the handling of start dates that have already passed. If the system determines a start date during scheduling that is farther in the past than you permitted in the **Start in the Past** field, the system issues a warning and automatically uses the current date for forward scheduling (this is called *today scheduling*).

[+] Any Start Dates in the Past

If you enter “999” in the **Start in the Past** field, the system permits start dates that can be anywhere in the past without performing a today scheduling.

By setting the **Automatic Scheduling** indicator in the scheduling parameters, you cause scheduling to be performed automatically when the network is saved whenever there has been a scheduling-relevant modification to the network. The indicator is forwarded as a default value to the network header and can be changed there. At the latest, during the implementation phase of a network, it’s usually recommended that you remove this indicator from the network header to avoid uncontrolled changes to capacity requirements, purchase requisitions, or reservations of material due to automatic scheduling.

Other indicators in the scheduling parameters control the output of scheduling logs in Transaction CN22, the handling of breaks in the scope of scheduling, the date reference of material components, the consideration of actual dates from partial confirmations (see [Chapter 4, Section 4.3](#)), and how later date changes affect a workforce planning ([Section 2.2.2](#)).

Overall Network Scheduling

In overall network scheduling, all networks or orders that are linked to each other via external relationships or subnetworks are scheduled at the same time. Overall network scheduling is run automatically within the assembly

processing (see [Chapter 1, Section 1.8.7](#)) or started from a sales document. You can trigger overall network scheduling in Project System using Transactions CN24 or Transaction CN24N.

During overall network scheduling, the scheduling settings are determined, just like in network scheduling, from the scheduling parameters for the network type.

If you use Transaction CN24 for overall network scheduling, first specify the identification of a network and the set of dates for scheduling. Then you can make temporary changes to the scheduling settings, if necessary, or enter new start and end dates for scheduling (see [Figure 2.9](#)).

If you work with maintenance or service orders as assigned subnetworks, you can use the **To schedule** field to determine whether only these orders are to be scheduled, only the networks, or both networks and assigned maintenance or service orders.

After you've performed the scheduling, you can use the **Old/new dates** function to compare the old dates to the newly calculated dates. Afterward, you can save the date changes of the networks or orders, respectively.

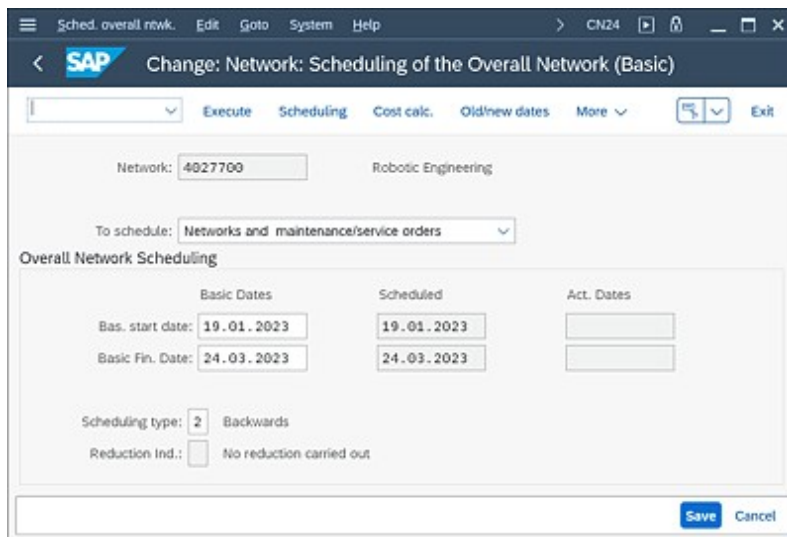


Figure 2.9 Overall Network Scheduling Using Transaction CN24

In contrast to Transaction CN24, Transaction CN24N (Overall Network Scheduling with Selection Options) enables you to influence the selection of the networks and subnetworks to be scheduled before the scheduling process

(see [Figure 2.10](#)) and to also use a monitor for observing the dates of subnetworks.

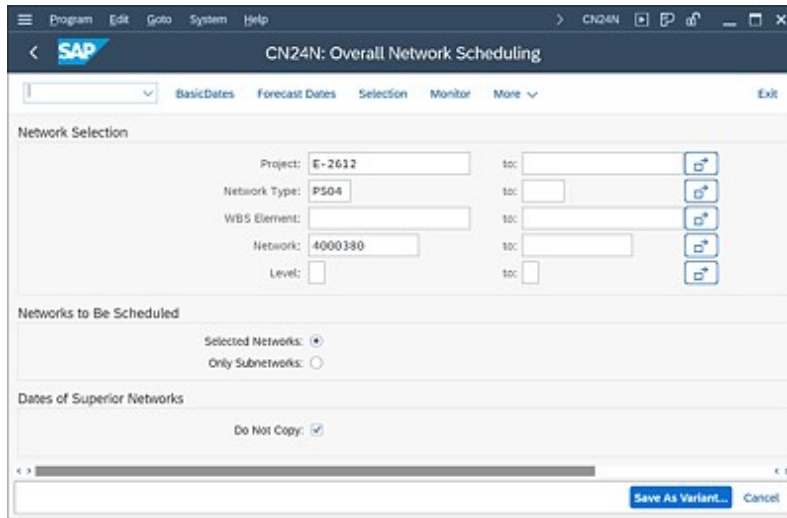


Figure 2.10 Overall Network Scheduling with Selection Options

In the *Subnetwork Monitor*, accessed via the **Monitor** function, both data from the selected networks and data from the assigned subnetworks are displayed in a table (see [Figure 2.11](#)). You can go to the activity or network header display by clicking on them. In addition, you can enter activity confirmations in the Subnetwork Monitor or call the **Project Information System: Structures** component (see [Chapter 6, Section 6.1](#)). Traffic lights indicate when the dates of the subnetworks are outside of the dates of the higher-level activity (**Conflicts**) or don't exactly match (**UpdateReq.**).

To use the functions of overall network scheduling with selection options in the Customizing section of Project System, you need to define *levels* in addition to the scheduling parameters for the network type, and then manually assign these levels to the network types and number range intervals of the networks and subnetworks. The level definition must reflect the hierarchical arrangement of the networks and subnetworks. The levels serve as selection criteria in Transaction CN24N. A scheduling using Transaction CN24N can span a maximum of two levels. If you use more than two levels in your project structure, you have to perform scheduling successively several times. Transaction CN24N is intended primarily for companies that work with a large number of multilevel subnetwork structures and that don't always want to schedule all networks and subnetworks at the same time.

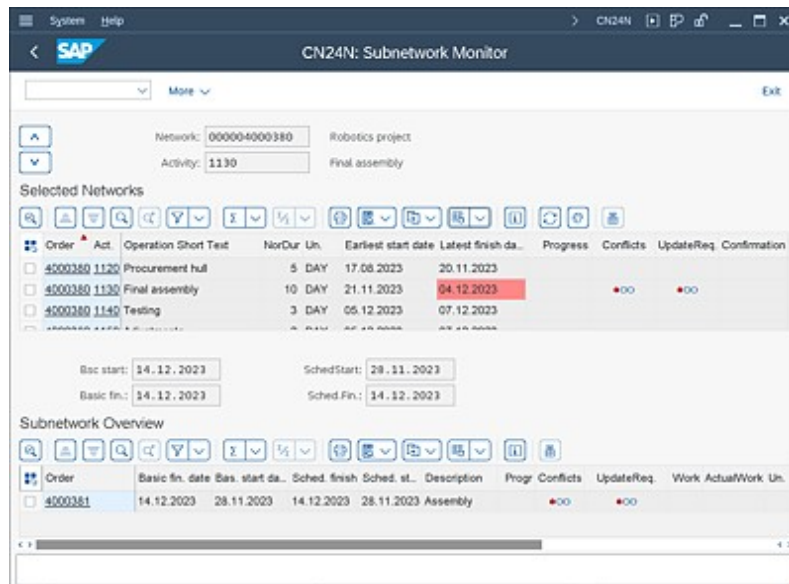


Figure 2.11 Subnetwork Monitor

WBS Scheduling

In WBS scheduling, the scheduling is started based on one or more WBS elements. In WBS scheduling, activities that are scheduled are assigned to these WBS elements. Therefore, you can schedule individual parts of a project without scheduling all activities of a network. A WBS scheduling can be started in the specific maintenance functions (Transaction CJ20 or CJ02), using Project Scheduling (Transaction CJ29), or in the Project Planning Board. In the Project Builder, you can perform WBS scheduling if you've selected the project definition or a WBS element in the structure tree.

In WBS scheduling, the scheduling settings are determined from the control parameters for WBS scheduling, but can also be changed temporarily. These control parameters are grouped in a profile that you can define in the Customizing section of Project System (see [Figure 2.12](#)) and entered in the project profile as a default value for the project definition.

The control parameters for WBS scheduling basically contain the same settings as the parameters of network scheduling, that is, the scheduling type, an indicator for automatically scheduling at saving time, or reduction settings. If you set the **Adjust bsc date** in WBS scheduling, not only are the network header dates adapted to the scheduled dates, but the planned dates of the WBS elements are also derived from the scheduled dates of the

assigned activities. For that reason, the planned dates of activities and WBS elements can be determined at the same time during the WBS scheduling.

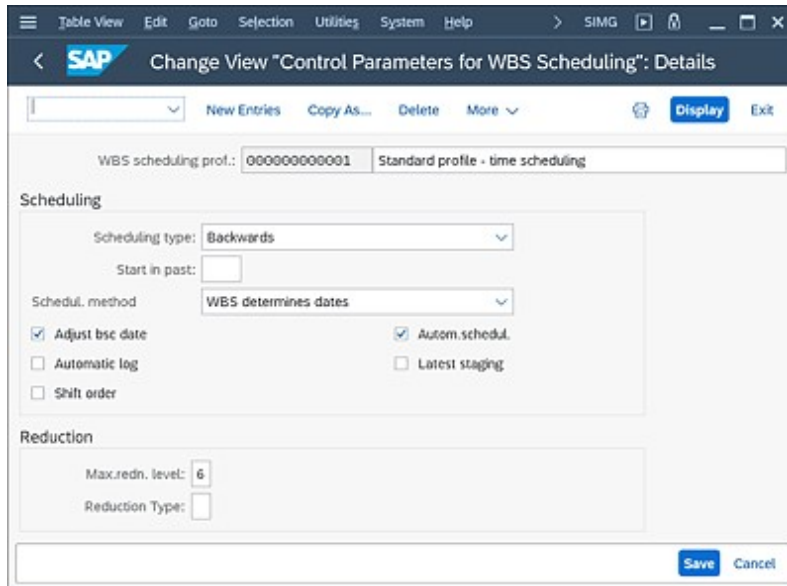


Figure 2.12 Control Parameters for WBS Scheduling

In addition, the parameters for WBS scheduling include the **Schedul. method** field with the following two options:

- **Network determines dates**
The network header determines the start and end dates of scheduling.
- **WBS determines dates**
The planned dates of the WBS element determine the start and end dates for scheduling the assigned activities.

Therefore, the idea behind choosing **WBS determines dates** as the scheduling method is to first make a manual time schedule at the WBS element level and then schedule the assigned activities. The scheduling of the activities is then based on the manually planned start and end dates of the WBS elements.

In the time scheduling process using WBS elements and networks, the scheduling parameters that control the scheduling of the activities and the data exchange with the WBS elements play an important role, and the planning methods control the hierarchical exchange of planned dates between WBS elements on different levels. You can define the WBS

scheduling parameters in Customizing and specify them together with the planning methods for your project. Alternatively, you can also use predefined *scheduling scenarios* with WBS elements and networks.

If you select a scheduling scenario for scheduling a project, all settings are determined via the scheduling scenario. The following scheduling scenarios are available:

- **Bottom-up scenario**
Based on the basic start date of the network header (which may be anywhere in the past), a forward scheduling and then a backward scheduling are performed. The scheduled dates are used as planned dates at the network header level and the assigned WBS elements. The planned dates of the WBS elements are finally projected in a bottom-up fashion.
- **Top-down scenario**
In this scenario, you first have to perform manual scheduling at the WBS element level. During this process, the system checks the hierarchical consistency of this time scheduling when scheduling or saving. The scheduling of the assigned activities is based on the planned dates of the WBS elements (which may be anywhere in the past).

In both scheduling scenarios, requirement dates for material are derived from the latest date of activities, and reductions aren't performed. The settings of both bottom-up and top-down scheduling scenarios are predefined and can't be changed.

If you want to use one of the two scheduling scenarios, you can store the scenario in the project definition or enter it as a default value in the project profile. However, if you want to use different settings, you need to set the **Scheduling Scenario** field to the **Free Scheduling Value** and specify the appropriate settings manually.

[AT A GLANCE] Scheduling

Scheduling enables you to have the system automatically calculate the planned dates of operations and assigned objects, as well as identify time-critical activities. If the activities are assigned to WBS elements,

date information can be exchanged between the activities and the WBS elements. If required, you can also manually schedule dates at the level of WBS elements. There are various functions available to support you in this context, such as the extrapolation of dates or hierarchical consistency checks. Depending on your requirements, you can use different transactions for scheduling.

2.2 Resource Planning

If you mapped a project using only a WBS, you can plan costs for internal or external resources ([Section 2.4](#)) and later assign activity allocations, purchase requisitions, purchase orders, goods receipts, and acceptances, for example, to WBS elements, and thereby post the costs of the resource usage to the project (see [Chapter 4, Section 4.2](#)). Logistic resource planning in the sense of capacity planning, or an automatic data exchange between the project structure and purchasing documents is only possible in Project System if you also implement networks. Manual cost planning for the required resources and a manual assignment of purchasing documents at the WBS element level aren't necessary when using networks.

The following sections deal with the functions that are available for planning resources via network activities.

2.2.1 Capacity Planning with Work Centers

When structuring your projects, you use internally processed activities or internally processed activity elements for specifying services that will be provided by internal resources, such as machine or personnel resources. Within scheduling, the system has calculated when these services will be performed; however, the scheduling doesn't verify whether there are sufficient internal resources at the planned date. To make statements about the availability of your resources and thus the feasibility of your projects in terms of capacities, you can use *capacity requirements planning* in Project System.

The primary function of capacity requirements planning is to determine capacity requirements and to periodically (e.g., on a weekly or daily basis) compare these requirements with the available capacity using the appropriate reports (see [Chapter 6, Section 6.3.3](#)). The available capacity is defined using work centers, while the required capacity is derived from the activity data of networks or, for example, production orders or maintenance orders. If you discover that the capacity requirement is higher than the available

capacities during a specific period, you'll need to perform *capacity leveling* to get your planning in line with the capacities.

Definition of Work Centers and Available Capacity

Work centers are organizational units in the SAP S/4HANA system that define where an activity can be performed and by whom. If you've already defined work centers for production or maintenance, you can use these work centers in networks as well, provided that this is permitted by the application of the work centers. If you haven't yet defined any work centers in the SAP system, or if you want to use separate work centers for projects, you can create new work centers in Project System (Transaction CNR1). A mandatory prerequisite for capacity requirements planning using networks is the definition and usage of work centers.

When creating a new work center, in addition to the identification and the plant of the work center, you also specify the **Work center category** (see [Figure 2.13](#)). Among other things, the work center category defines the fields (**Field sel.**) and tabs (screen sequence [**Scrn seq.**]) to be displayed in the master record of the work center. By default, you can use the **0006 (Project management)** work center category in Project System. If required, you can define additional work center categories (Customizing Transaction OP40).

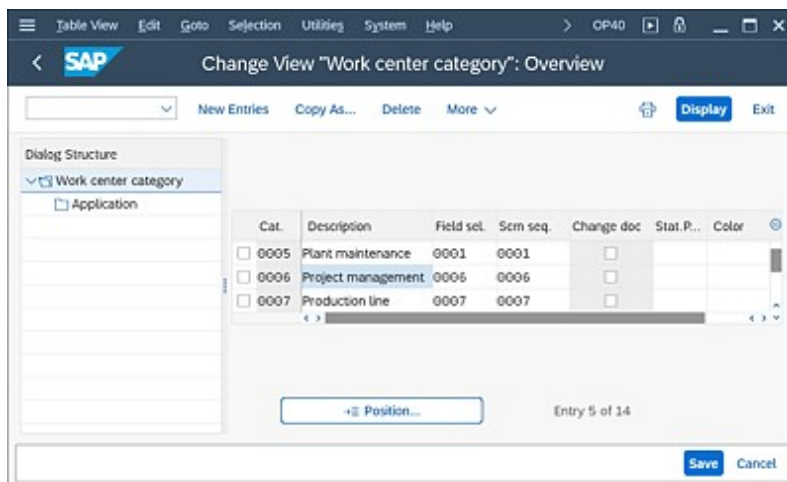


Figure 2.13 Definition of Work Center Categories

The **Usage** field in the basic data of the work center determines the task list types and order categories in which the work center can be used. For a work center to be used in standard networks and particularly in operative networks, it must have a usage that is assigned to the task list type **0** (**Standard Network**). If the work center is to be exclusively used for networks, you can, for example, enter the usage **003 (Networks Only)** in the master record of the work center. If you want, you can use Customizing Transaction OP45 to define your own usages and assign them to the relevant task list types.

Depending on the work center category, you can make a number of settings for the time scheduling ([Section 2.1.2](#)) and the calculation ([Section 2.4.5](#)) of activities in the master data. For capacity requirements planning, however, the settings on the **Capacities** tab are relevant.

On this tab, you first store one or more capacity categories, for example, for persons or machines, and then define the respective available capacity. Capacity categories are defined in Customizing and specify, among other things, whether the available capacity must be defined in time units or in base or volume units, and whether, for example, you can assign persons from human resources (HR).

In the simplest case, the definition of available capacity consists of the specification of a factory calendar for distinguishing working and nonworking days; information about the beginning, the end, and the duration of breaks of a working day; the specification of a capacity utilization rate; and the number of available individual capacities. The rate of capacity utilization describes how much of the daily working time can actually be used for production. The available capacity finally results from the productive operating time of a capacity, multiplied by the number of individual capacities (see [Figure 2.14](#)).

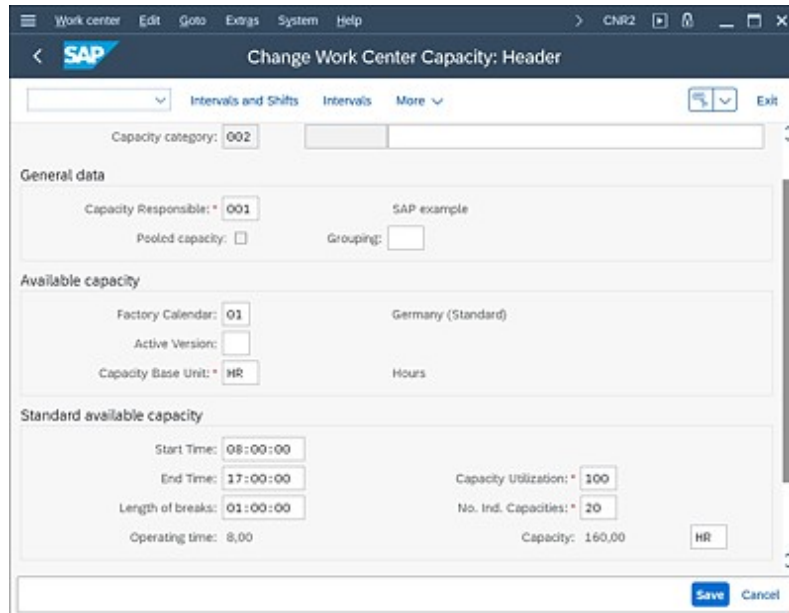


Figure 2.14 Work Center Capacity

In addition to the definition of the standard available capacity, there are several more detailed options for defining available capacities. On the one hand, you can specify time intervals and define a separate available capacity for every interval. Thus, you can map employment relationships depending on the season, for example.

On the other hand, you can define shift sequences in Customizing (Transaction OP4A) and assign them to the capacity category in the work center. Using shift sequences, you can then specify exact break times that can be considered in capacity requirements planning.

Finally, you can also define *individual capacities* and assign them to the capacity category in the work center. Using appropriate reporting settings, you can then also use the aggregated availability of the assigned individual capacities for capacity evaluations instead of the standard offer. For personnel resources, the availability of individual capacities is derived from the planned working time (infotype 0007) that is maintained for employees in HR.

After you've defined the available capacity, enter a formula in the work center in the **Other Formula** field for the capacity category. The formula determines how the capacity requirements are to be calculated from the activity data. Usually, the standard formula `SAP008` is entered here.

[Figure 2.15](#) illustrates the definition of this formula. The `SAP_07` parameter in the `SAP008` formula is linked to the **Work** field in activities or activity elements.

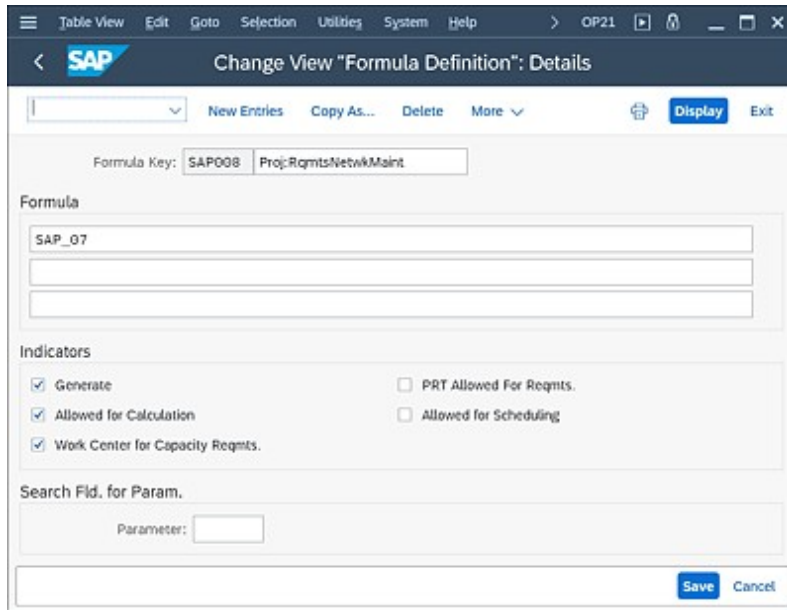


Figure 2.15 Definition of the SAP008 Formula

In Customizing, however, you can also define your own formulas (Transaction OP21) to consider values of other activity fields as well when calculating capacity requirements. This way, you can also include user fields in formulas, for example. To do this, you must define a separate parameter for the corresponding user field and assign it to the user field in the field key definition. This parameter can then be used for the definition of a formula. In the work center, you can first test the calculation of capacity requirements using a formula before you save the work center. If you define your own formulas, however, note that the calculation of capacity requirements should always be clearly documented in reporting.

Using a distribution key in the work center, you can specify how the capacity requirements of an activity are to be distributed across the activity duration. A distribution key consists of a distribution strategy (**Strat** column) and a distribution function (**Function** column), as shown in [Figure 2.16](#).

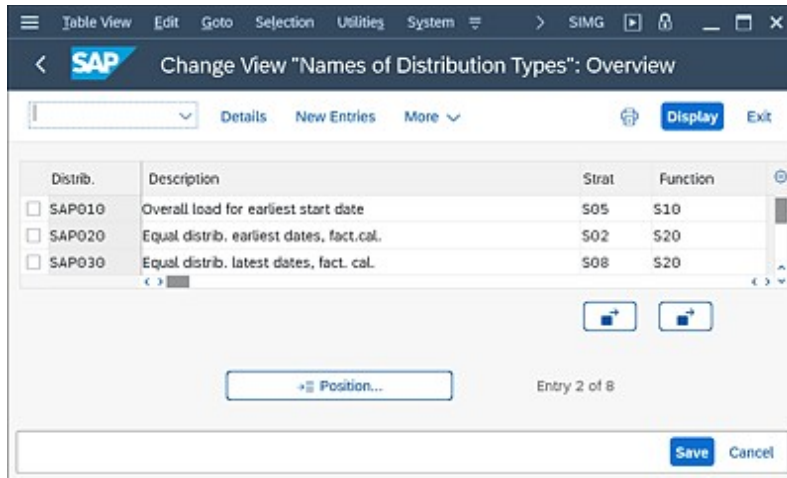


Figure 2.16 Definition of Distribution Keys

The distribution function determines—after which percentage of the activity duration—what percent of the entire capacity requirement is needed (see [Figure 2.17](#)).

Among other things, the distribution strategy determines whether the distribution is to take place via the earliest or the latest dates of the activity (see [Figure 2.18](#)).

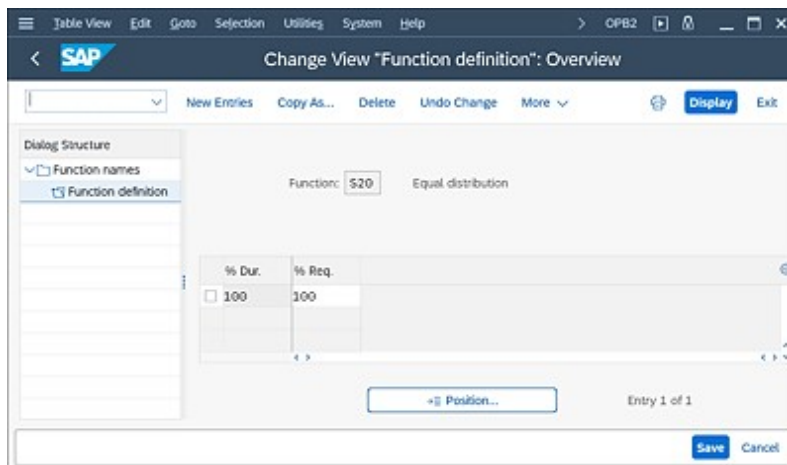


Figure 2.17 Definition of a Distribution Function

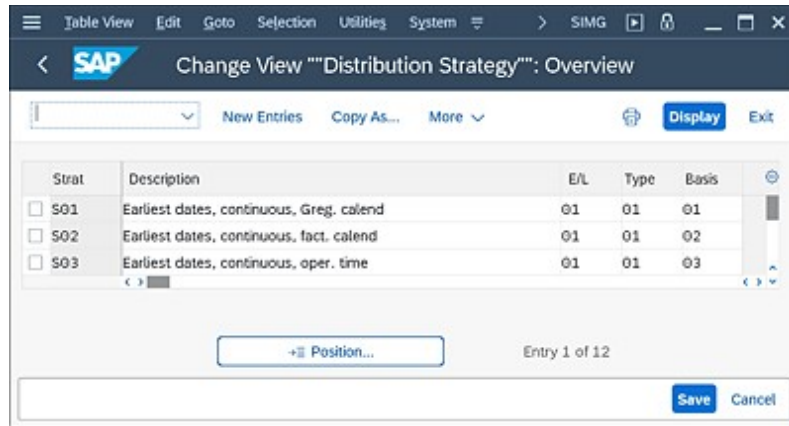


Figure 2.18 Definition of a Distribution Strategy

In the standard version, various distribution keys are already defined, such as SAP030 (**Equal distribution across the latest dates**) or SAP020 (**Equal distribution across the earliest dates**). If you want, you can also define additional distribution keys, functions, or strategies in the Customizing section of Project System.

Prerequisites for Determining Capacity Requirements

To compare the available capacities shown in capacity reports with the corresponding capacities required by your projects, the network must meet various prerequisites:

- The network activities must contain the work centers and planned work.
- The control key of the activities must be identified as relevant to the determination of capacity requirements (see [Chapter 1, Section 1.3.2](#)).
- The calculation of capacity requirements must be enabled; that is, the **Capacity Requirements** indicator must be set in the network header.

You can remove the **Capacity Requirements** indicator from the network header at any time if capacity requirements are no longer required for a network. This may be relevant, for example, if a project is canceled or stopped during the implementation phase.

- After you've enabled capacity requirements, a scheduling must have been performed.

Also note that a final confirmation or setting the status to **Technically Completed** sets the (remaining) capacity requirement of an activity to zero (0).

[+] Capacity Requirements Planning for Suppliers

If you want, you can perform your capacity requirements planning for suppliers as well, that is, using externally processed activities or service activities, if the control key permits this. To do this, you need to define a separate work center with the appropriate required capacities for the supplier, and enter the work center on the **Internal** tab of the activity.

If necessary, you can enter a distribution key in the activities just like you would in a work center. Unless the report you use for the capacity evaluation provides a dedicated distribution key, the system determines the distribution of capacity requirements according to the following strategy:

1. Distribution key of the activity
2. Distribution key of the work center
3. Equal distribution across the latest dates of the activity

After you've created the capacity requirements for a network, you can use various reports to compare the capacity requirements of the network plus the requirements of other projects or orders to the corresponding available work centers or capacities, respectively. [Figure 2.19](#) shows the capacity overview of the Project Planning Board, which graphically illustrates the available capacities of work centers and the respective total capacity requirement using bars or histograms. Capacity overloads, that is, requirements that exceed the available capacities during a specific period, are highlighted in color. Additional detailed capacity reports are discussed in [Chapter 6, Section 6.3.3](#).

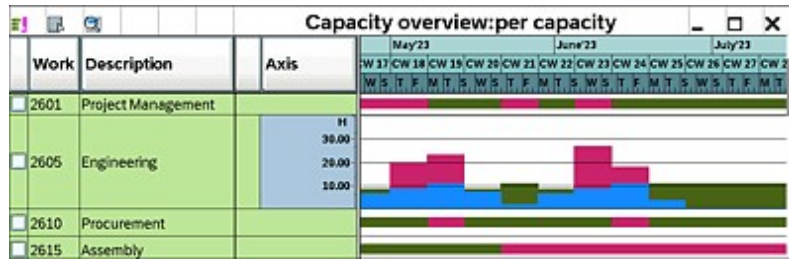


Figure 2.19 Capacity Overview of the Project Planning Board

During the implementation phase of projects, the capacity requirements are adjusted due to the completed work and forecast data from confirmations. Capacity reports therefore distinguish from among three different capacity requirements:

- **Planned capacity requirements**
The capacity requirement resulting from the planned data of the activities.
- **Remaining capacity requirements**
The current capacity requirements resulting from the originally planned requirements, the previously confirmed services, and possibly the forecasted remaining work.
- **Actual capacity requirements**
The service that has actually been used and has already been confirmed.

[+] Prerequisite for Actual Capacity Requirements

In addition to the relevant settings of the extended capacity reports, it's necessary to perform an analysis of actual capacity requirements so that the relevant work centers determine actual capacity requirements.

2.2.2 Workforce Planning

A work center can consist of several available individual capacities; however, if you perform your capacity requirements planning only at the work center level, you won't be able to specify which individual capacity of

the work center will provide the respective service. Therefore, you can't create meaningful capacity evaluations for the individual capacities.

For some projects, however, you must plan individual capacities—particularly as far as personnel resources are concerned—to avoid an overload of individuals or to consider employees' qualifications when planning the project, for example. To do this, you can distribute the work via capacity splits, that is, split the planned work of an activity into individual capacities. Capacity splits can be individual machines, organizational units, or positions, for example. Usually, however, the Project System performs *workforce planning*, that is, distribution with a direct reference to the personnel numbers. The work distributed to a person can later be used as a default value for the time data recording using the cross-application time sheet (CATS) (see [Chapter 4, Section 4.3.3](#)).

Prerequisites for Workforce Planning

A prerequisite for workforce planning is that Project System is provided with various HR master data. This can either be maintained in the system as HR mini-master records, or originate from an HR system. The minimum requirement is HR master data of the infotypes 0001 (Organizational Assignment) and 0002 (Personal Data). If you want to consider the availability of the person or their qualifications in your planning, you'll also need infotypes 0007 (Planned Working Time) and 0024 (Qualifications). Another later use of the data in the time sheet also requires infotype 0315 (Default Values Time Sheet).

[+] Prerequisites for Workforce Planning

Before you can distribute the work of an activity to individuals, you must have already determined the capacity requirements. This means you need at least one work center for workforce planning as well.

The persons to whom you want to distribute the work don't necessarily have to be assigned to that work center. Depending on the system settings, you can use the following personnel for workforce planning:

- Persons who are assigned to the work center of the activity

- Persons of a project organization
- Any personnel resources

There are two ways of assigning personnel to a work center: First, you can assign an organizational unit or an HR work center to the work center and therefore indirectly assign personnel. Second, you can directly assign positions or persons to the work center capacity. The benefit of the second option is that you can use the total amount of availabilities of the assigned personnel included in capacity reports as the available capacity of the work center instead of the standard availabilities.

Project organization refers to persons, positions, or organizational units that you assign to WBS elements as the default set for later workforce planning. If you use Transaction CMP2 (Workforce Planning – Selection Project View), the system always first suggests the persons, positions, or organizational units of the project organization for your workforce planning. If you haven't assigned a project organization to a WBS element, Transaction CMP2 of the system provides the project organization of the hierarchically superior WBS element for workforce planning. If you only want to store one project organization for the entire project, an assignment at the top project level will suffice. You can assign project organizations to WBS elements in Transaction CMP2 or in most of the processing transactions for WBSs. [Figure 2.20](#) shows an example of assigning a project organization to a WBS element.

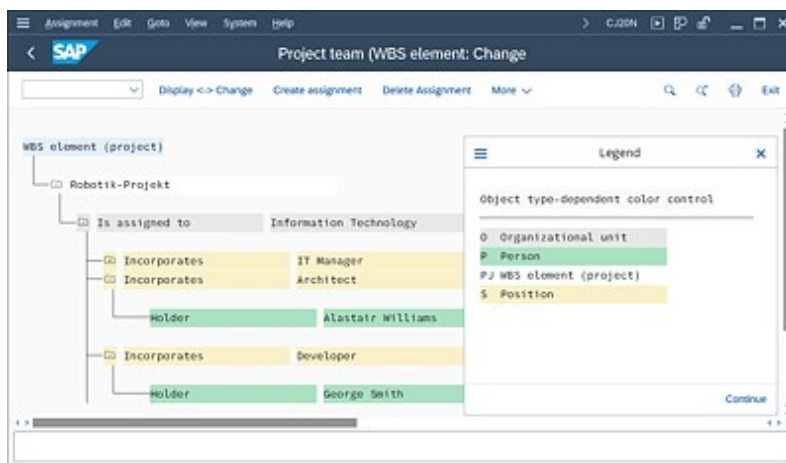


Figure 2.20 Sample Project Organization

If you want, however, you can plan personnel resources in your workforce planning that aren't assigned to the work center or to your project organization. Depending on the transaction you use for workforce planning, however, you must explicitly enable this in the activity or the workforce planning profile.

If you want to take into account the qualifications of the personnel while planning the workforce (e.g., language skills, education, etc.), you can store a requirements profile in the individual activities that describes the qualifications required for accomplishing an activity. If you also defined the qualifications of the individual personnel resources (Transaction PPM), the system can create a ranking list during workforce planning listing those persons who are best qualified to meet the requirements of the activity.

Workforce Planning Process

There are different ways to plan a workforce. You can assign persons to an activity on the **Person assignment** tab and specify the date, the planned work, and the permitted duration for every split; the system then automatically distributes the requirements across the specified duration (see [Figure 2.21](#)). You can use Transactions CMP2 (Project View) or CMP3 (Work Center View) for distributing your work to persons, positions, or organizational units. You can also manually distribute the work to different days or weeks, for example, or use the graphical or tabular planning board of capacity requirements planning to include capacity splits ([Section 2.2.3](#)).

Sp1	Person	D	Date	Time	Work	Un.	Dur.	Un.	Rqmt	Un.
<input type="checkbox"/>	Smith	<input type="checkbox"/>	06.06.2023	08:00	20,0	HR	9,0	DAY	20,00	HR
<input type="checkbox"/>	Johnson	<input type="checkbox"/>	06.06.2023	08:00	8,0	HR	9,0	DAY	8,00	HR
<input type="checkbox"/>	Miller	<input type="checkbox"/>	06.06.2023	08:00	4,0	HR	9,0	DAY	4,00	HR
<input type="checkbox"/>		<input type="checkbox"/>	06.06.2023	00:08					0,00	
<input type="checkbox"/>		<input type="checkbox"/>	06.06.2023	00:08					0,00	

Remaining: 0,0 0,0 0,00

Capacity Requirement: 06.06.2023 00:08 32,00 HR 9 DAY 32,00 HR

Only from wip Earliest dates/start Number of Persons: 0

Rank list

Figure 2.21 Person Assignment Screen of an Internally Processed Activity

To use Transactions CMP2 and CMP3 in Project System, you first need to define a workforce planning profile in Customizing (Transaction CMPC; see [Figure 2.22](#)).

Among other things, the profile specifies whether it's permissible to plan resources that don't belong to the work center or to the project organization, and which periods (e.g., days, weeks, or months) are to be used for planning. Here, you can also define mixed period splits to make a day-based planning for the next period, for example, but only a week-based planning for activities that are based more in the future. If you use Transaction CMP9 to evaluate your workforce planning, you can use the profile to define traffic light functions (*exceptions*) indicating, for example, undistributed work or overloaded employees.

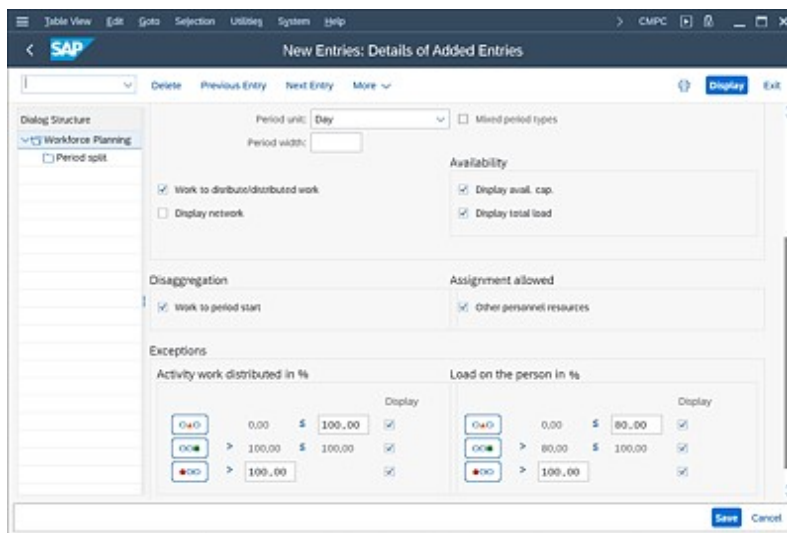


Figure 2.22 Workforce Planning Profile

In workforce planning using Transaction CMP2 (Project View), you select the activities for workforce planning by specifying one or more projects, WBS elements, or networks. You receive a list of activities for which there are capacity requirements and then can create an assignment to organizational units, positions, or personnel resources. If there is a project organization, it will be suggested for the assignment; however, you can also use the work center resources and—provided this is permitted by the profile—any other personnel resources.

However, the assignment of a resource isn't sufficient for workforce planning; so, in addition, you need to enter the period in which the resource

is to accomplish the specified amount of the planned work of the activity. At first, the system only offers the period for distribution that covers the capacity requirements of the activity. If you want, however, you can also use different periods for workforce planning.

You can also display the availability (planned working time) or the total load of the resources for each period. The total load shows a resource's total work distribution to network activities for a specific period. Work distributions to other order categories aren't taken into account.

You can also display details of the activities or show the planned distribution of the activities' capacity requirements as well as the work of the activities that has already been confirmed. [Figure 2.23](#) shows an example of workforce planning using Transaction CMP2.

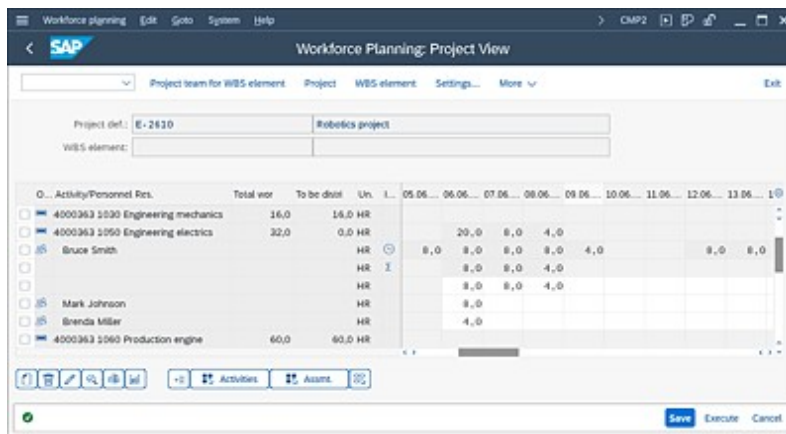


Figure 2.23 Workforce Planning from the Project View

In some companies, it's not a project manager who uses Transaction CMP2 for workforce planning; instead, the persons responsible for specific work centers do this planning. They can use Transaction CMP3 (Work Center View) to distribute work to the resources of their work center (see [Figure 2.24](#)). Resources and activities are selected by specifying one or more work centers.

[!] Network Lock for Workforce Planning from the Work Center View

You should note that during workforce planning—from a work center view—all activities that have capacity requirements for the selected

work centers in the given period are read, and the corresponding networks are consequently locked. We therefore recommend that you use Transaction CMP3 to explicitly specify those networks as filters for which you want to distribute work.

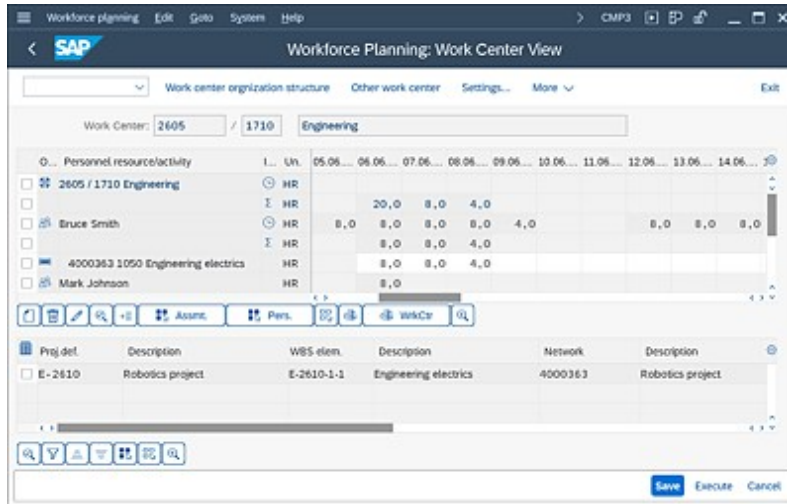


Figure 2.24 Workforce Planning from the Work Center View

After you've performed workforce planning, you can evaluate it using the individual capacity reports or Transaction CMP9. In Transaction CMP9, you can use the information about projects, work centers, or personnel resources for selecting workforce planning. In the evaluation, you can use the exceptions defined in the profile to highlight overloaded resources or activities with work that hasn't yet been completely distributed (see [Figure 2.25](#)).

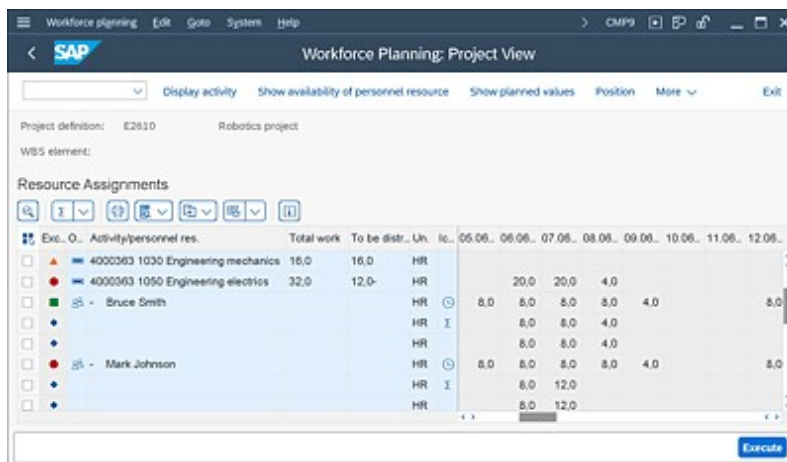


Figure 2.25 Evaluation of Workforce Planning

If activity dates are shifted after a workforce planning has been completed, the **Rescheduling** indicator in the scheduling parameters for the network type ([Section 2.1.2](#)) decides whether the workforce planning is to be shifted as well, or distributed work outside the new activity dates is to be deleted, for example.

In addition to the Project System option for workforce planning just described, you can use SAP Multiresource Scheduling or SAP S/4HANA Cloud for projects, resource management (see [Chapter 7](#), [Section 7.3.2](#)). Both tools provide even more options for managing individual personnel resources for projects. These options are particularly relevant if you need extended or cross-project system functions for workforce planning.

2.2.3 Capacity Leveling

If, during your capacity requirements planning, you find that required resources are overloaded, you'll need to adjust your planning. To do so, you must perform *capacity leveling*. This can be, for example, an adjustment of the time scheduling, that is, chronologically shifting activities or increasing their duration. Capacity leveling can also include the creation of new activities or activity elements with additional work centers or resources. If necessary, you can also change the control key of an internally processed activity, and therefore the activity category, to procure the planned work externally (see [Section 2.2.4](#) and [Section 2.2.5](#)).

In a stricter sense, however, the term *capacity leveling* refers to the usage of graphical or tabular *capacity planning boards*, that is, specific capacity requirements planning tools for fixed chronological planning of capacity requirements. These tools are used primarily in production for planning bottleneck work centers, for example, and are rarely used in companies for project planning.

When using a capacity planning board in capacity leveling, you must first select capacities and activities that have requirements for these capacities. Then, you can plan the requirements to be performed by the planned capacity or by a different one. The planning can be done manually, where either you specify the dates for the planning, or they are specified automatically (e.g., the earliest or latest dates of an activity).

Activities for which you've planned the requirements by using a capacity planning board automatically obtain the status **Scheduled**. All activity fields that are relevant to capacity requirements planning, such as the planned work and duration, the work center, or the activity dates, are locked against being changed due to this status. You can only shift the activity or change other capacity-relevant data again if you undo the planning of an activity in a capacity planning board.

You can use capacity planning boards both for capacity leveling of work center capacities and for scheduling individual capacities of the work centers, such as personnel resources.

Graphical planning boards (see [Figure 2.26](#)) are based on Gantt chart presentations. The graphical area displays the capacity requirements and the periods they cover, as well as existing scheduled capacity requirements, as individual bars on a time axis. The tabular area shows information about the capacities and the requirements sources. Manual requirement planings for capacities can be performed via drag and drop.

If a capacity would be overloaded due to this planning, which is more than permitted according to the definition of the available capacity, you're informed via error messages in a planning log that this planning isn't possible.

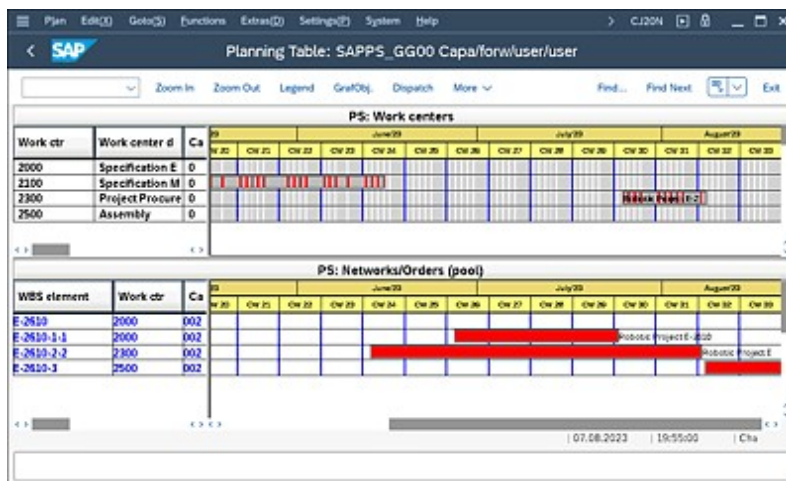


Figure 2.26 Graphical Capacity Planning Board

Tabular planning boards present capacity data, requirements of activities, and additional data of the requirement sources in a tabular format (see [Figure 2.27](#)).

In contrast to graphical planning boards, the availabilities of the capacities can be displayed for the respective periods. This enables you to detect whether the capacity will be overloaded even before planning.

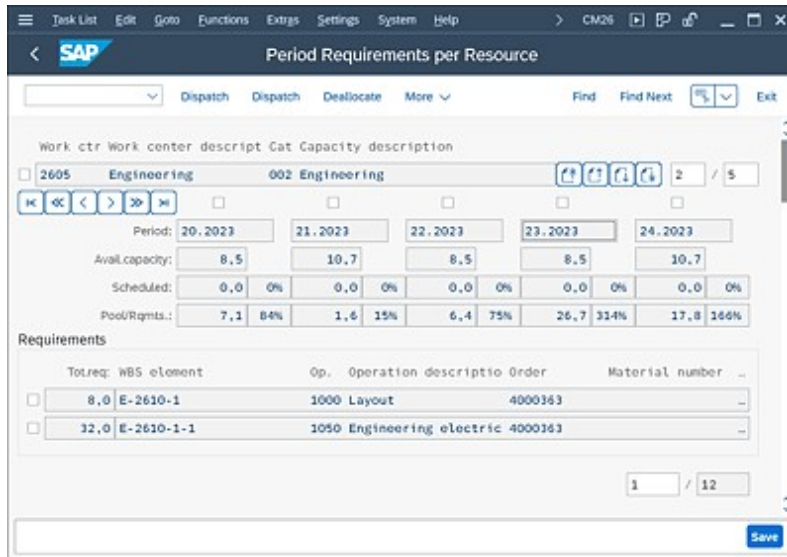


Figure 2.27 Tabular Capacity Planning Board

2.2.4 Externally Processed Activities

Often, not all services necessary for completing a project can be provided by internal company resources. Using externally processed activities (or external elements; see [Chapter 1, Section 1.3.1](#)), you can therefore plan, procure, and monitor services that are to be provided by vendors.

For a manual specification of external activities, you can use describing long texts, documents, or PS texts, and enter a planned quantity and a unit of measure in an activity. For cost planning of the external procurement, you can also specify a price per unit, the relevant currency, and a cost element ([Section 2.4.5](#)). To consider the time frame for the later procurement of the service in the scheduling process, you can store a planned delivery time or duration ([Section 2.1.2](#)) in the activity. You can also specify a preferred vendor.

To automatically create purchase requisitions from the activity data later, you must store a purchasing organization, a purchasing group, and the material group of the external activity in the activity. This organizational

data and the cost element, currency, and unit of measure can be entered in the network profile (Transaction OPUU) as default values (see [Chapter 1, Section 1.3.2](#)).

Instead of manually entering specifications of the external activity, price, planned delivery time, material group, and so forth in the activity, as described previously, you can also refer to *purchasing info records* or *outline agreements* from purchasing. If you store an info record for external processing or an outline agreement in an externally processed activity, the activity automatically uses all necessary purchasing data from these purchasing information sources. This data—except for the quantity—can no longer be changed manually in the activity.

From the activity data, the system can automatically create a purchase requisition. Depending on the setting of the **Res./Purc. Req.** field, this can be done even before the activity is released (**Immediately**), automatically by setting the **Released (From Release)** status, or at a later stage. For the last option, first set the indicator to the **Never** value, and then change the setting to **Immediately** later. The value of the **Res./Purc. Req.** field can be preset via the network profile.

The purchase requisition is automatically filled with all data relevant to the purchase. The system uses the latest end date of the activity as a delivery date in the purchase requisition. You can use a customer enhancement to influence the creation of a purchase requisition from the activity data. If relevant data is changed later on, the purchase requisition is adapted automatically. A manual change of the quantity, material group, and purchasing group taken from the activity isn't possible in the purchase requisition.

From an externally processed activity, you can go to the display of the created purchase requisition at any time. In addition, Project System also provides the Purchase Requisitions for Project report (Transaction ME5J), which enables you to analyze or further process purchase requisitions of one or several projects in parallel (see [Figure 2.28](#)). Project-Oriented Procurement (ProMan) (see [Chapter 4, Section 4.5.3](#)) allows you to evaluate quantity or date information of purchase requisitions and use traffic light functions to highlight deviations from your planning.

The automatically created purchase requisitions are also visible in purchasing and can be further processed by a responsible purchaser. Unless you referred to a purchasing info record or an outline agreement in the activity, the purchaser also selects the vendor. In purchasing, this can be achieved, for example, via a bidding process or an automatic source determination.

If a vendor has been selected and assigned to the purchase requisition, the data of the purchase requisition can be transferred to a purchase order. The purchase order authorizes the vendor to offer the services ordered for your project. The services provided can later be documented via goods or invoice receipts. All purchasing documents are assigned to the activity so that you can not only analyze the planned costs but also the commitments according to the purchase requisition and purchase order, and the actual costs of the external service performed for the activity or the network, respectively. The purchasing process and the corresponding value flows are discussed in detail in [Chapter 4](#).

Purch Req	Item	MBS	Elem	Network	S	A	Material	Short Text	Quantity	UN	M&B Group	Plant	Location	Requirn	Vendor	POrg	Info Record	No. Requirs	
15080004	10			4104036	N	D		External Quality Assurance	1	AU	001	0001	Frank	0001	5500000360			1	
15080004	20			4104036	N			External Engineering	1	EA	001	0001				0001		1	
15080004	40			4104036	N			Transportation	10	EA	L001	0001	Frank	PIO-VEND01	0001	5500000401		1	
15080222	10	E-3610.2.1			N		ST51_RS368	MATNR ST51_RS368	4	EA	01	0001				0001	5300070144		1
15080004	30	E-3610.2.1		4104036	N		555784	Controller (DE)	1	EA	FCMRP1	0001	0001					1	

Figure 2.28 Tabular Presentation of Purchase Requisitions for a Project

In the Customizing section of Project System (Transaction OPTT, see [Figure 2.29](#)), you define the *document type* for networks, which is to be used for creating the purchase requisition, and in the **Acct. assgmt. gen.** field, you specify the *account assignment category* that controls the value flows of the purchase requisition and all subsequent purchasing documents. These settings are consistently implemented for all networks and are independent of the plant or network type.

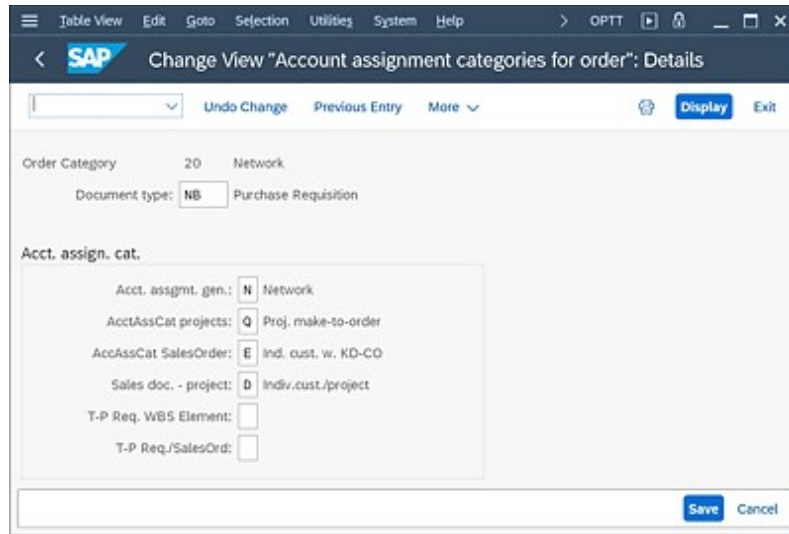


Figure 2.29 Determination of the Account Assignment Categories for Networks

In network type parameters (Transaction OPUV), you can specify per plant and network type whether a separate purchase requisition is to be created for every externally processed activity (and every service activity and every purchased part; see [Section 2.3.1](#)), or whether only one purchase requisition is to be created per network, which then has one item for every external procurement (collective purchase requisition).

You can decide how to best summarize purchase order-relevant items within a project, even across different networks, if necessary. To do that, you must activate the same grouping indicator in the **Collective Purc. Req.** field for all externally processed activities and service activities, and for every purchased part you want to aggregate. Possible grouping indicators have to be defined at the project definition level first.

If you're implementing an external purchasing system, you can specify for combinations of purchasing and material groups that purchase requisitions are transferred directly to the external purchasing system and that any further purchasing processes are performed there. You can also use a customer enhancement to determine criteria for selecting the purchase requisitions to be transferred.

2.2.5 Services

If your company's purchasing department also supports the procurement of services using service specifications and acceptances of services performed, Project System provides service activities and service activity elements for planning and procuring such services. Similar to externally processed activities, services to be provided by external vendors are planned using service activities by specifying purchasing info records or outline agreements, if necessary. For service activities, purchase requisitions can then be created from activity data as well, and purchasing processes can therefore be triggered automatically.

Contrary to an externally processed activity that you simply use to plan and procure an individual external activity, you can use a service activity to plan several vendor services in one step and specify additional information about services that can't yet be defined in detail. When creating a service activity, the system prompts you to create *service specifications* (see [Figure 2.30](#)).

In service specifications, you can create a list of planned services in a hierarchical structure, if necessary. To do this, you can use *service master records* from purchasing that might already store the various data of a service. Using the purchasing condition technique, prices for service master records can then be automatically determined and used for calculating the activity. You can also select services from other service specifications, for example, from existing purchasing documents or other networks or purchase orders, and copy them into your service specifications.

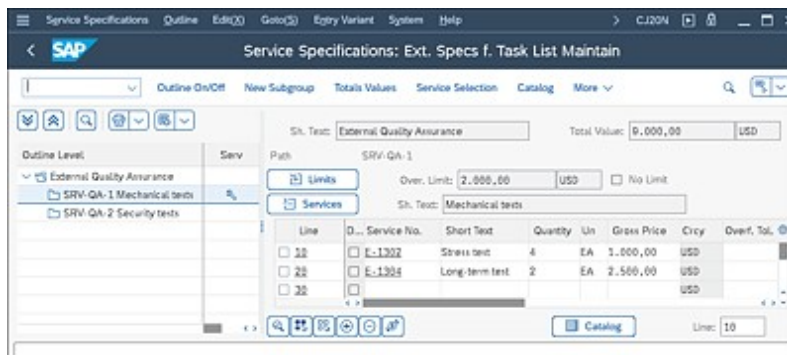


Figure 2.30 Sample Service Specifications

In purchasing, *model service specifications* can be defined that can then serve as a template for creating service specifications in the network activity. In some industries, it's common practice to specify services using standardized text modules. In purchasing, this can be mapped via *standard*

service catalogs. If you refer to a standard service catalog in your service specifications, you can then plan services by selecting individual text modules.

You can also call intranet or external internet catalogs in service specifications to select services from these catalogs and transfer them to the service specifications. This is implemented via the *Open Catalogue Interface (OCI)* ([Section 2.3.1](#)).

Frequently, not all services can be planned in detail before a project starts because the required services may depend on the course of the project, for example. In addition to planned services, you can also specify information about unplanned services in the service specifications. To calculate a service operation, you can store an expected value for unplanned services in the service specifications. This value and the total value of planned services add up to the planned costs of the activity.

In addition, you can limit the value of unplanned services by entering a limit of values in the service specifications. If the vendor later provides services that you didn't explicitly specify in the service specifications, the value of this unplanned service is checked against the limit of values. If the value of the unplanned services exceeds the specified limit, the entered services can't be saved.

Another difference between externally processed activities and service activities can be found in further purchasing management. At first, a vendor selection and the purchase order implementation take place for a purchase requisition of a service activity in purchasing as well. While a goods receipt can be posted to document services for externally processed activities (depending on the account assignment category), service activities *always* require a service entry and an acceptance of services performed. More purchasing management details for service activities are discussed in [Chapter 4, Section 4.4.2](#).

Purchase requisitions due to service activities use the same document type and the same account assignment category as externally processed activities (Transaction OPTT). Depending on the material and purchasing group of the purchase requisition, a transfer to an external purchasing system can be performed as well. In the network profile (Transaction OPUU), you can store default values for service operations in the activity, which cover the cost

type of the planned services, the material and purchasing group, and the unit of measure.

[AT A GLANCE] Planning Internal and External Resources Using Networks

Using networks, you can plan internal and external resources for completing your projects. Internal resources are planned based on work centers (capacity requirements planning). If you want, however, the planning can be carried out in greater detail up to workforce planning. Using externally processed and service activities or activity elements, respectively, you can plan the use of external resources and trigger their procurement via purchasing.

2.3 Material Planning

The completion of many projects requires material. Within the scope of your project planning using Project System, you can plan for material that is required, and its procurement, consumption, and delivery. Using the robotics project as an example, different assemblies, such as parts of the motor, casing, or electronics, must be provided for a final assembly of the robot. If the material isn't available in stock, purchasing processes or the in-house production of the material must be triggered. If necessary, the required material needs to be delivered to the location where the final assembly takes place or to the customer.

Using WBS elements, you can plan costs for procuring material and assign various documents such as material reservations, purchase requisitions, purchase orders, goods receipts, and issues to WBS elements. An integrated material planning where data is automatically exchanged between a project and purchasing or production, however, is only available if you use networks. In this case, manual costs planning and manual assignment of documents to WBS elements are no longer necessary.

2.3.1 Assigning Material Components

To plan material via networks, you must assign *material components* to the network activities. Material components are summaries of specific information, such as the specification of the material (e.g., by specifying a material number), the required amount and the unit of measure, the requirements date, the price per unit, the material and purchasing groups for purchased parts, and so on (see [Figure 2.31](#)). You can also implement custom fields in a separate tab using the `BADI_MAT_CUST_SCR` BAdI or the field enhancement concept in SAP Fiori, and define a field selection in the Customizing section of Project System. You can either enter the requirements date of a material component manually as a fixed date, or it can be derived from the dates of the activity to which the component is assigned ([Section 2.1.2](#)).

The screenshot shows the 'Change: Network: General Data' dialog box in SAP. The 'Purch. Data' tab is selected. Key fields include: Activity (4104286), Material (555784), Item (0019), Item Category (L), Purchase Req. (15083004), Requirement Qty. (1 EA), Reqs. date (15.05.2023), Procurement Type (PReq - Reservation for WBS Element), Price/currency (500.00 USD), and Del. time (1 day). The dialog also features navigation buttons and a status bar at the bottom.

Figure 2.31 Detail Screen of a Material Component

In particular, a material component includes an *item category* that plays an important role in determining the procurement type and the stock management of the material. In Project System, the main item categories used are **N** (non-stock item) and **L** (stock item) in the **Item Category** field.

Using the item category **N**, you can plan the direct procurement of a material via purchasing. As with the external procurement of services via an externally processed activity ([Section 2.2.4](#)), the system uses the component data to automatically create a purchase requisition for a non-stock item as well—depending on the **Res./Purc. Req.** indicator—and thus triggers a purchasing management. If you enter a material number in the material component to specify the material, other purchasing data required for creating the purchase requisition can be transferred from the material master data. You can also plan and procure a non-stock item although there is no material master record for this material.

If the vendor delivers a non-stock item within the implementation phase of a project, it's typically documented by a *goods receipt*. When goods are received, however, a non-stock item isn't posted to a stock location, that is, no stock is created. Instead, a direct consumption posting is performed by the network activity. A stock management for non-stock items isn't possible; consequently, material components of the item category **N** can't be managed in the plant stock or in an individual stock.

All documents—the purchase requisition, the purchase order, as well as the goods and invoice receipt of a non-stock item—are assigned to the activity. Therefore, in an activity-assigned network, you can analyze the planned, commitment, and actual costs for the procurement and the material consumption on the activity level (see [Chapter 4, Section 4.5.1](#)).

In contrast to the non-stock items, stock management is provided for stock items (item category **L**). Moreover, stock items aren't directly procured via purchasing, but via material requirements planning (MRP) of a company. If you assign a material component with the item category **L** to an activity, you must also specify a material number so that the system can derive the control data required for MRP from the material master record. Stock items can be managed in the plant stock or in individual stocks.

The simplest procurement type for a stock item is the creation of a reservation. Depending on the setting of the **Res./Purc. Req.** field, this can be either **Immediately**, **From Release**, or **Never**, that is, never automatically but only manually after the release. The reservation is displayed in MRP under a unique reservation number as a requirement in order to provide the material in the planned quantity on the planned requirements date.

[+] **Reservation Numbers for Networks**

The system issues one reservation number per network. The reservations of the individual material components of a network are distinguished via an up to four-digit item number within the network reservation number. Therefore, only 9999 material components can be planned per network.

After the creation of a reservation, the responsible MRP controller needs to trigger the procurement of the material if it's not available in stock on the requirements date. For purchased parts, the procurement can be handled by purchasing; for material produced in-house, the procurement can be handled by the internal company production. After the material has been procured, it can be posted in stock. In the last step, a *goods issue* can be posted with a reference to the original reservation. The goods issue documents that the material has been taken from stock and consumed by the network activity.

Even in the project planning phase, you can use the availability check for stock items to determine whether the material can be provided on the requirements date ([Section 2.3.4](#)).

Stock items that you assign with a negative required quantity to an activity are referred to as *assemblies*. While a positive quantity represents a material requirement, the negative quantity of an assembly documents that the network provides material. From the point of view of MRP, assemblies represent planned additions to a stock. You can implement assemblies if you use networks instead of production orders for producing individual materials, and if this requires multilevel production processes and you want to make the corresponding material movements as transparent as possible in the MRP.

[+] Integration with Production Planning and Detailed Scheduling

For extended scenarios for production and procurement planning, taking into account material requirements from projects, you can use the integration with production planning and detailed scheduling (PP/DS) in SAP S/4HANA. In this context, networks are automatically mapped as project orders in the PP/DS production data structures (PDS). Material requirements from the networks can thus be passed on as requirements to production and procurement planning in PP/DS.

In contrast to normal production planning, planning in PP/DS can take available capacities and material into account at the same time. Scheduling changes to project orders as a result of planning and optimization in PP/DS are finally automatically transferred back into the networks. For more information on restrictions to the integration with project orders, see SAP Note 708517.

Other item categories you can implement in Project System, in addition to the two item categories **N** and **L**, are **T** (text item), **R** (variable-size item), and **C** (planning element). Material components of the item category **T** are for information only and are used, for example, after a bill of material (BOM) explosion. Material components of the item category **R** provide similar procurement and stock management options as stock items. The required quantity of variable-size items, the *variable-size quantity*, is derived

from sizes such as the length, width, and height of a material. Therefore, instead of manually entering an individual required quantity directly, you have to specify sizes for material components of the item category **R**. You can use item category **C** for components that have been copied from catalogs to avoid a retroactive copying of those components in the editing transactions of the system.

Basically, the SAP S/4HANA system provides different options for material stock management. One possibility is the usage of *collective stock*, an anonymous plant stock. All projects and orders requiring a material managed in a collective stock can take this material from the plant stock. A previous assignment of the stocks and stock costs to the consumers isn't possible for a collective stock.

Another option of material stock management is the use of *individual stocks*. In this case, material stocks are explicitly managed with a reference to a sales order item (sales order stock) or a WBS element (project stock). Without a previous transfer, material managed in an individual stock can only be taken for the corresponding sales order item or the WBS element, respectively, or objects assigned to these. Depending on the system settings, the value of material in an individual stock can be reported as stock costs on the object keeping stock records ([Section 2.3.2](#)).

After you've assigned a material component to an activity, you need to specify the *procurement type*. For stock and non-stock items, different procurement types are available. For non-stock items, you can choose between the following two procurement options (see [Figure 2.32](#)):

- **Purc. req f. network (purchase requisition for network)**
A direct procurement of the material is triggered. The material is delivered by the vendor to the company to be consumed by the activity.
- **Third-party order**
A direct procurement is triggered as well; however, the material isn't delivered by the vendor to the company, but instead it's delivered directly to a customer, to another vendor, or to any other delivery address.

The screenshot shows a 'Purchase Requisition' window. At the top, there is a title bar with a menu icon on the left and a close icon on the right. Below the title bar, the form contains the following fields:

- 'Material:' with the value 'MDQ-TMPL-04'
- 'Description:' with the value 'Battery 9V 1.1Ah'
- A 'Choose' section with two radio buttons:
 - 'Purc. req f. network' (selected)
 - 'Third-party order' (unselected)

At the bottom right of the form, there is a 'Continue' button. A horizontal scrollbar is visible below the 'Choose' section.

Figure 2.32 Selection of the Procurement Type for a Non-Stock Item

If you select the **Third-party order** procurement type for a non-stock item, you need to specify a *delivery address* that is transferred together with the other relevant data of the material component to the purchase requisition and later to the purchase order. You can either enter the required address data manually in a delivery address, or reference an address, customer, or vendor number (see [Figure 2.33](#)).

The screenshot shows a 'Delivery address for item 0030 MDQ-TMPL-04 / 0060' window. The form contains the following fields:

- 'Address number:' (empty)
- 'Customer:' with the value 'US-BP01' and a search icon
- 'Supplier:' (empty)
- 'Address number:' (empty)
- An 'Address' section with the following fields:
 - 'Title:' (empty)
 - 'Name:' with the value 'US-BP01'
 - 'Name 2:' (empty)
 - 'Name 3:' (empty)
 - 'Name 4:' (empty)
 - 'Street:' with the value '2255 US-BP01 Street'
 - 'House Number:' (empty)
 - 'City:' with the value 'US-BP01 City'
 - 'Postal Code:' with the value '22551'
 - 'Country/Reg.:' with the value 'US' and 'USA' next to it
 - 'Region:' (empty)
 - 'Language:' with the value 'EN' and 'English' next to it

At the bottom of the form, there are icons for a checkmark, a copy icon, a refresh icon, and a 'Repeat on' button with a close icon.

Figure 2.33 Delivery Address

The system takes the address data from central address management, from the sales and distribution customer master record, or from the vendor master record of the purchasing department. If the same delivery address is used frequently for the third-party orders of a project, you can set the **Repeat On** indicator when you create the first delivery address. However, if required, you can also assign material components that don't explicitly have the **Third-party order** procurement type to delivery addresses.

The following procurement types can generally be used for stock items; procurement types that differ only regarding stock management are listed together in the following overview:

- **Reservation for network/Reservation WBS element/Reservation sales document**
These three procurement types only create a reservation. If you use the first type, the material component is managed in the collective stock. If you use either of the other two types, the reservation references the project or the sales order stock.
- **Purchase requisition + Reservation WBS element/Purchase requisition + Reservation sales document**
In addition to a reservation, these two procurement types create a purchase requisition at the same time, whether or not a stock exists. You can manage the material component in the project or in the sales order stock. The purchase requisition is assigned to the object holding the stock.
- **Third-party requisition WBS element/Third-party requisition sales document**
A third-party order is created. Depending on which of the two types you select, the purchase requisition references the project or the sales order stock.
- **Preliminary purchase requisition WBS element/Preliminary purchase requisition sales document**
An advance procurement of purchased parts via purchasing is triggered with a reference to the project or sales order stock.
- **Planned independent requirements/Planned independent requirements WBS element/Planned independent requirements sales document**

An advance procurement for material produced in-house is triggered with a reference to the plant, project, or sales order stock.

The preceding advance procurement types require additional explanations. For material with very long replenishment lead times, it may be necessary within the project implementation to trigger its procurement although the actual consumers (i.e., an appropriate network activity or production order) don't yet exist. To do this, assign the required material as a material component with an advance procurement type to the project. Once the actual consumers exist, just reassign the material to them, but this time with a simple reservation as a procurement type. By referencing the reservation, you can ensure that the procured material is taken from stock and consumed. For more information regarding the process of advance procurements, see [Chapter 4, Section 4.5.1](#).

You should note that not all the procurement types for the stock items listed earlier are always available (see [Figure 2.34](#)). They can be used if the following prerequisites are met:

- To create a purchase requisition for a material component, in addition to its reservation, the material must permit external procurement (see the **Procurement Type** field of the **MRP 2** view in the material master).
- To use procurement types with a reference to the plant stock, the material must permit collective stock management.
- For a procurement to be affected with a reference to a project or sales order stock, the material must permit individual stock management.

The stock management options of a material are controlled via the **Individual/Collective** field of the **MRP 4** view in the material master. For material components that you've transferred from a BOM, you can also overwrite the material master settings for procurement and stock options in the BOM, if necessary.

The screenshot shows a 'Purchase Requisition' window. At the top, there is a title bar with a hamburger menu icon on the left and a close 'X' icon on the right. Below the title bar, the 'Material' field is filled with 'SG-CFP-AP' and the 'Description' field is filled with 'Adapter'. A 'Choose' section is centered, containing five radio button options: 'Reserv for network', 'Reserv. WBS element' (which is selected with a blue dot), 'PReq+Res - WBS elem.', 'Prelim. PReq-WBS el', and '3rd party req. WBSel'. At the bottom right of the window, there is a 'Continue' button. The window has a standard Windows-style border with a scrollbar at the bottom.

Figure 2.34 Selection of the Procurement Type for a Stock Item

- Procurement types with a reference to the project stock are only available if the project definition allows for project stock management (see [Chapter 1](#), [Section 1.2.1](#), and [Section 2.3.2](#)).
- For you to select a procurement type with a reference to sales order stock, the network header must be assigned to a sales order item. In addition, the item category must enable stock management for the sales order item.

You can specify the procurement type of a material component manually—the system only offers the procurement types that are possible due to the settings in the material master or the BOM item, project definition, or sales order item—or you can use a *procurement indicator*. Procurement indicators are defined in the Customizing section of Project System using Transaction OPS8 (see [Figure 2.35](#)).

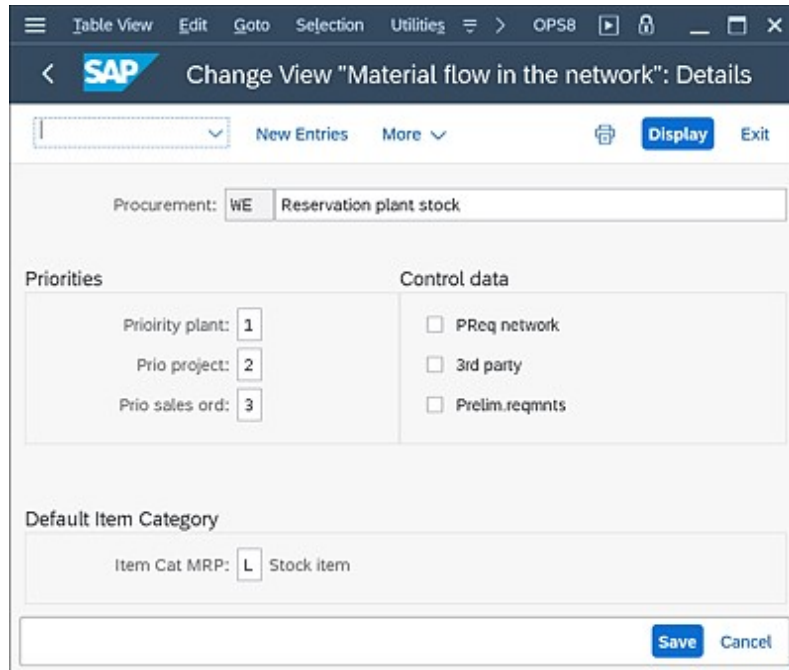


Figure 2.35 Defining a Procurement Indicator

In a procurement indicator, you can specify the item category. You can also use the indicator's purchase requisition network (**PReq network**), **3rd party**, and preliminary requirements (**Prelim.reqmnts**), as well as a prioritization of stock management (**Priorities**) to suggest the procurement type via a procurement indicator. The **PReq network** indicator causes a reservation and a purchase requisition to be created at the same time for material components carried in individual stock. By entering a procurement indicator in the network profile, you can use this indicator as a default value for every assignment of a material component.

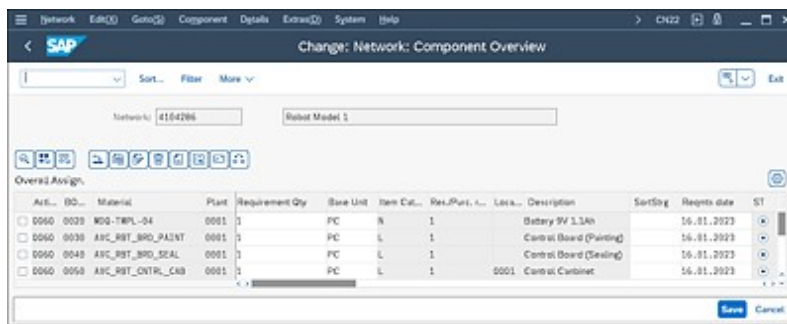
A manual selection of the item category and the procurement type for a material component isn't necessary if you use procurement indicators. If this is still permitted, however, you can also manually change a procurement type later.

Various options are available for the assignment of material components to network activities, which will be discussed in the following sections.

Manual Assignment

In every processing transaction for networks, you can manually assign material components to activities, regardless of the activity category. Depending on the transaction, you can make this assignment individually, for example, via drag and drop from a templates area, or in a table (see [Figure 2.36](#)).

If you don't work with procurement indicators, you must manually select the item category and the procurement type during this assignment. For stock items, you must also specify a material number before you can select the procurement type. If a third-party order is created later for the material component, a dialog displays where you should specify the delivery address.



The screenshot shows the SAP 'Change: Network: Component Overview' interface. It features a search bar with 'Network: 4104286' and 'Relevant Model: 5'. Below this is a table titled 'Overview Assign.' with columns for 'Act.', 'BO...', 'Material', 'Plant', 'Requirement Qty', 'Base Unit', 'Item Cat.', 'Req.Pur. A.', 'Loc.', 'Description', 'SortSeq', 'Receipt date', and 'ST'. The table contains four rows of material components, each with a checkbox in the 'Act.' column.

Act.	BO...	Material	Plant	Requirement Qty	Base Unit	Item Cat.	Req.Pur. A.	Loc.	Description	SortSeq	Receipt date	ST
<input type="checkbox"/>	0060	0020	MOQ-TWPL-04	0001	1	PC	N	1	Battery 9V 1.5Ah		16.01.2023	
<input type="checkbox"/>	0060	0030	AHC_RBT_BRD_PAINT	0001	1	PC	L	1	Control Board (Painting)		16.01.2023	
<input type="checkbox"/>	0060	0040	AHC_RBT_BRD_SEAL	0001	1	PC	L	1	Control Board (Sealing)		16.01.2023	
<input type="checkbox"/>	0060	0050	AHC_RBT_CNTRL_CAB	0001	1	PC	L	1	0001 Control Cabinet		16.01.2023	

Figure 2.36 Tabular Overview of Material Components

Finally, for every material component, you enter the data necessary for planning and later procurement, unless this data is automatically transferred from the material master record or purchasing info records. In the detail screen of a material component on the procurement parameters (**Proc. Param**) tab, you'll find the relevant material master data, such as the individual/collective stock or procurement indicator. This tab also shows the account assignment category, the consumption posting indicator, and the special stock indicator as well as the predefined movement type. If you want, you can go directly to the material master data display from the tabular overview of the material components.

If necessary, you can also use the OCI for a manual assignment of material components. Using this interface, you can employ the tabular overview of the material components of an activity to call an external catalog for selecting material. The external catalog can be a company-internal intranet catalog or a catalog of a fixed vendor that is accessible via the internet.

After you've called a catalog and selected the material from this catalog, you can use the interface to transfer the data on the selected material to the SAP S/4HANA system and thereby add material components to an activity. If an appropriate material number for the catalog material can be detected in the SAP S/4HANA system in an appropriate mapping process, the material component can be assigned as a stock item; otherwise, it's assigned as a non-stock item. Furthermore, the additional item category **C** is available for copied components. This item category prevents copying the component.

A prerequisite for using the OCI is that you define the external catalog and its call structure, that is, the URL and the corresponding parameters regarding user and password, for example, in Customizing, and then assign the catalog to the network. You can assign several catalogs to one network type. In this case, when you call the catalog interface in the application, a dialog opens and prompts you to select the catalog.

In Customizing, you also need to define the mapping of the catalog HTML fields to the fields of the material component in the SAP system. You might also have to specify conversions between catalog data and the field values in the SAP S/4HANA system. If necessary, you can also define conversion modules for determining material numbers, for example.

In the SAP system, complex product structures can be mapped using BOMs. Depending on its usage, a BOM contains a list of all materials required, for example, for the engineering, producing, or selling of a product. A *material BOM* is essentially identified via the product's material number. The individual list elements for material listed in a BOM are referred to as *BOM items*, and, besides the appropriate material number, they include information about the required quantity, an item category, and other various kinds of information. [Figure 2.37](#) shows an example of the material BOM for building the robot.

There can also be a BOM for the material of a BOM item (*assembly*); BOMs can be defined on multiple levels. In Project System, you can use BOMs to assign BOM items as material components to network activities. This assignment can be handled manually or automated using *BOM transfers*.

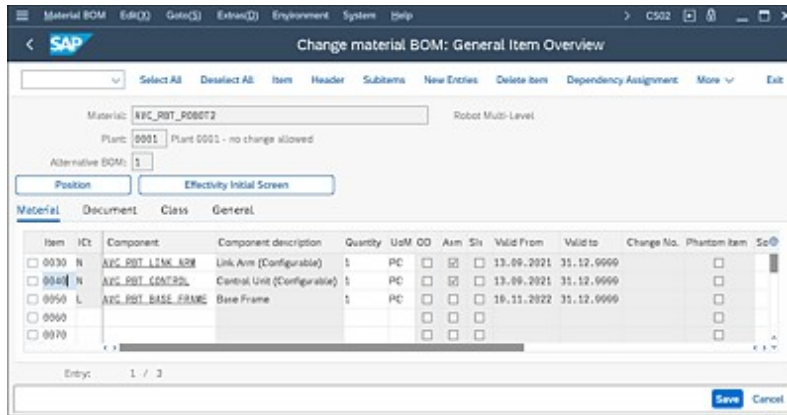


Figure 2.37 Material BOM

For a manual assignment of BOM items, you need to call the **Explode BOM** function in the component overview of an activity. A dialog box is then displayed in which you can specify the BOM and the required quantity, as well as determine whether the BOM is to be exploded on one level or on several levels. A list of all BOM items is then displayed, from which you can select the items to be assigned to the activity. With the assignment, the system finally receives the material number, the quantity, and the item category, for example, from the BOM items.

[+] BOM Explosion and Text Items

You can also first assign the BOM header material to the activity. After the BOM explosion of this component, the system automatically sets the item category **T** (text item) for this component. The material component is thus no longer relevant for procurement; however, the information—from which the BOM items were assigned—is still visible.

A typical characteristic of many projects is their uniqueness. In sales and distribution projects, for example, the list of required material components can vary from one project to another due to the customer-specific requirements. Instead of creating a new BOM and thus possibly a new material master for every project, you can define *WBS BOMs*. A WBS BOM is a BOM that, in addition to the material number of the header material, is identified via a WBS element ID. Therefore, for the same material number,

you can create different BOMs that can be distinguished by different WBS element IDs.

When creating WBS BOMs, you can use other BOMs, for example, material or WBS BOMs, as a template (see [Figure 2.38](#)).

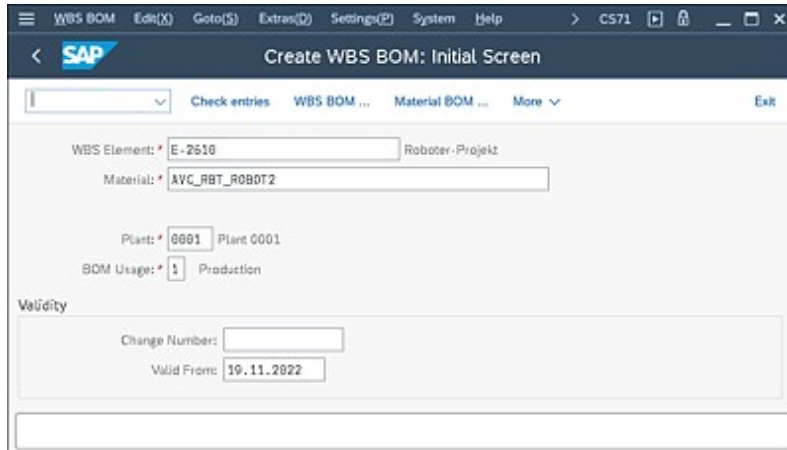


Figure 2.38 Creating a WBS BOM

Then, you can adapt the WBS BOM to the requirements of the respective project by deleting items, adding new BOM items, or changing item data such as the quantity, for example. You can use WBS BOMs not only for the highest level of a BOM structure but also for inferior levels as well. As with material BOMs, you can assign items from WBS BOMs to activities either manually via the BOM explosion or automatically via the BOM transfer.

Bill of Material Transfer

Using Bill of Material Transfer (Transaction CN33), you can automate the assignment of BOM items to network activities. Using the BOM transfer particularly makes sense if you need to assign a lot of material components to different activities, or if the BOM structure might change in the course of project planning, and you want to avoid a duplication of changes (in the BOM and in the project).

The automated assignment of BOM items to network activities is typically performed via the reference point (**Ref. point**) field that you can find in internally processed activities on the **Assignments** tab and in the BOM items in the **Basic Data** detail screen. If the value of the field in the BOM item is

identical to the one of the activity, the BOM transfer can automatically assign the item to the activity.

The possible values of the **Ref. point** field must first be defined in the Customizing section of Project System. To do this, create an alphanumeric key with a maximum of 20 digits, and for every key, specify a descriptive text for information that can later be called via the (F4) help when maintaining the reference points in the BOM or the network.

In the activities, you can also enter a reference point that represents several reference points of BOM items. You can do this by defining a key that ends with an asterisk (*). The reference point **130*** shown in [Figure 2.39](#), for example, represents the reference points **1301** and **1302**.

Finally, you need to specify that the values of the reference point field of BOM items and activities will be compared during a BOM transfer. To do that, in Customizing Transaction CN38, enter the technical name of the reference point field for the objects BOM items and network activities (see [Figure 2.40](#)).

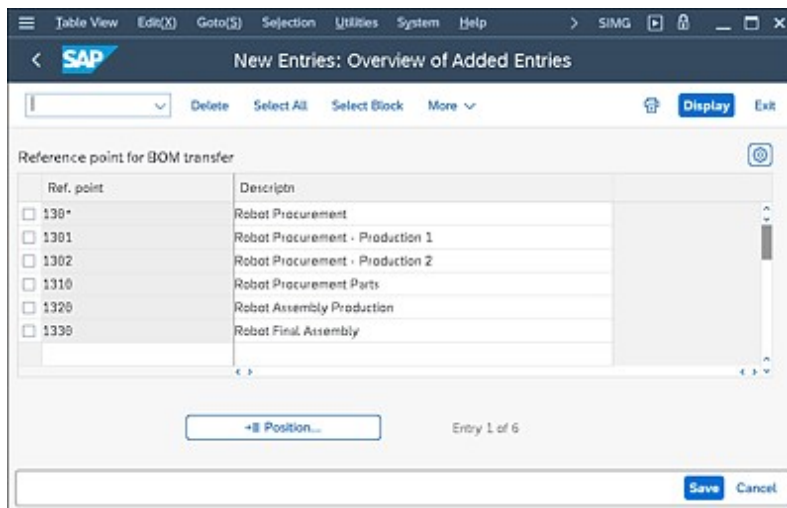


Figure 2.39 Definition of Reference Points

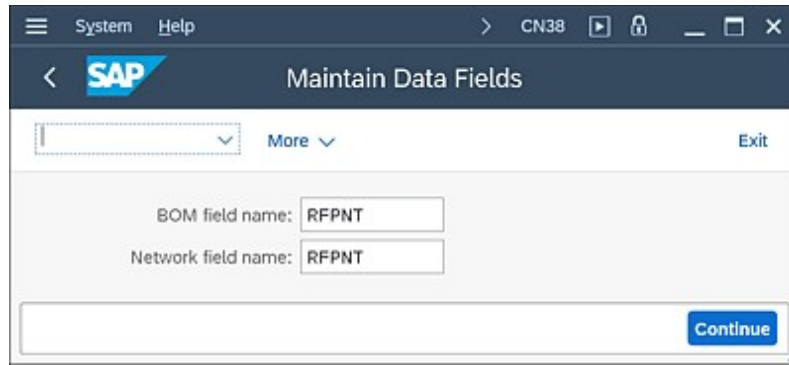


Figure 2.40 Specification of the Reference Point Field as Relevant to the BOM Transfer

After you've defined the reference points in Customizing, you must enter these in the detail data of the relevant BOM items and activities. If you're using standard networks as templates, you can already enter reference points in the activities of the standard networks.

[+] Using Alternative Fields to Control the BOM Transfer

If you want, you can also specify other fields from activities and BOM items as transfer criteria, provided they have the same data structure. Prior to the introduction of the **Ref. point** field, for example, the **Sort String** field of the BOM items and a user field of the activities were often used.

If you call Transaction CN33 (Bill of Material Transfer), first select the projects to which material components are to be assigned and the BOM items that are to be used for the assignment (see [Figure 2.41](#)).

The screenshot shows the SAP 'Bill of Material Transfer' interface. At the top, there's a menu bar with 'Execute', 'Selection Parameters', 'Transfer', and 'More'. Below that, the 'Selection of activities' section contains input fields for 'Project definition' (filled with 'E-2610'), 'WBS Element', 'Sales Document', 'Item', 'Network', and 'To'. The 'Selection profile' section has a 'Profile' field. The 'Selection of BOM items' section includes 'Sales Document', 'Item', 'Material' (filled with 'AVC_RBT_RCB0T2'), 'Plant' (filled with '0001'), 'Valid from' (filled with '19.11.2022'), 'BOM Usage' (filled with '1'), 'Change Number', 'Alternative BOM', and a checkbox for 'Const. change number'.

Figure 2.41 Initial Bill of Material Transfer Screen

For the BOM transfer, you can use material or WBS BOMs. If necessary, you can also assign sales order BOMs, which are identified, in addition to a material number, according to a sales order item. By specifying parameters for the BOM transfer, you can control, for example, whether the BOM is to be exploded on multiple levels, or in which stocks the material components are to be managed; or, you can define additional filter criteria for selecting the BOM items (see [Figure 2.42](#)). If you want to avoid a manual parameter entry, you can define *BOM transfer profiles* in the Customizing section of Project System that contain all controlling parameters (except for the stock management information; this could also be determined via the **Procurement** indicator as assigned to the network profile). The profile can then be selected in the initial screen of the BOM transfer.

The screenshot shows the 'Selection Parameters' dialog box. It has a title bar with a menu icon and a close button. The main area is divided into 'General' and 'Constraints' sections. The 'General' section contains the following fields: 'Profile' (empty), 'Plant' (0001), 'BOM Usage' (1), 'BOM Application' (empty), and 'Requirement Quantity' (1,000). The 'Constraints' section contains three radio buttons: 'Material BOM' (selected), 'Sales order BOM', and 'WBS BOM'. Below these are several checkboxes: 'Multilevel', 'All items', 'External data', 'Alternative priority', 'Preliminary reqmts', 'Availability check', and 'No dialog'. At the bottom of the dialog, there are fields for 'Display log from' (19.11.2022), 'Check Reg. Date', 'Offset in Days', 'Plant stock', 'Project stock', and 'Sales order stock'. The 'Confirm' and 'Cancel' buttons are located at the bottom right.

Figure 2.42 Parameters of the BOM Transfer

If you then perform the BOM transfer, the system automatically assigns all BOM items to activities that have the same reference point (see [Figure 2.43](#)). If you set the **All items** indicator in the BOM selection parameters, you additionally get an overview of the items that can't be also assigned due to missing reference points. In this case, you can still manually assign these positions to network activities before saving. If a unique automatic assignment isn't possible because several of the selected activities have the same reference point, for example, the system issues an error message.

A significant advantage of the BOM transfer is that you can adapt the material planning of your projects very efficiently to later BOM changes. If you've assigned BOM items to network activities using the BOM transfer, and the BOM is changed at a later stage (items are deleted, new items are added, or item data is changed), you can repeat the BOM transfer for the changed BOM and the relevant networks. The system doesn't make a duplicate assignment, but only determines the BOM changes and suggests appropriate adjustments to the material components.

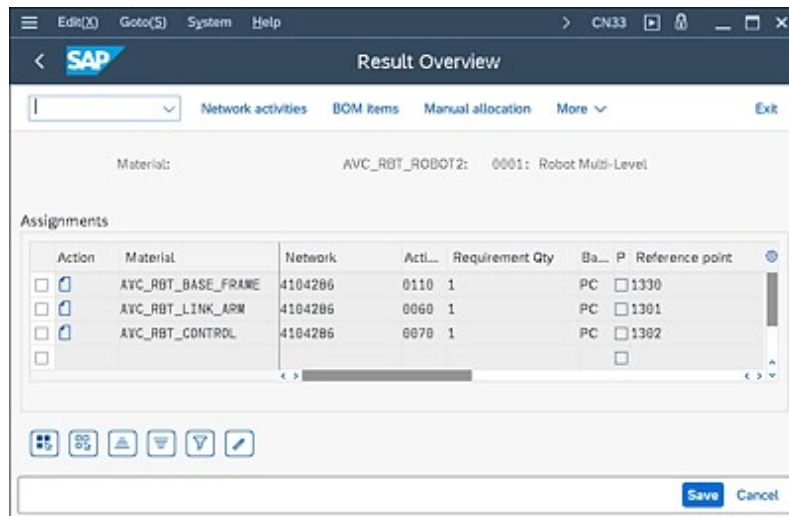


Figure 2.43 Example BOM Transfer Result

In addition to the material assignment functions presented here, there are a number of other ways to plan material components in networks. For example, as part of the design phase in product lifecycle management (PLM), you can use integrated product and process engineering (iPPE) or the visual enterprise manufacturing planner to manually or automatically assign material components from product structures to activities in a network.

2.3.2 Project Stock

The project stock is a form of individual stock management where material stocks with a reference to WBS elements can be managed as individual stock segments. Using the **Non-Valuated Stock**, **Valuated Stock**, or **No Project Stock** options in the basic data of the project definition, you specify for a project whether non-valuated or valuated project stock management of material will be possible, or whether individual project stocks can't be used (see [Chapter 1, Section 1.2.1](#)).

When the non-valuated project stock is used, every WBS element of the project represents a separate stock segment from the logistics point of view. Material movements with a reference to non-valuated project stock take place without being valuated. For example, when a material managed in a project stock is consumed by a network activity (goods issue for

reservation), this doesn't cause actual costs for the activity, and no postings are made in financial accounting.

The calculation of apportioned networks determines that no planned costs for material components will be managed in the non-valuated project stock. The stockholding WBS element is debited with the actual costs for the external procurement only when the goods or invoice receipt for purchased parts is posted to the project stock. The cost flows in material procurements (in-house production and external procurement) with a reference to the non-valuated project stock are discussed in detail in [Chapter 4, Section 4.5.1](#).

[!] Project Controlling with Non-Valuated Project Stock

When using non-valuated project stock, the planned and actual costs for the material consumption aren't completely disclosed for the network activities or the assigned production orders.

If you implement the non-valuated project stock, a meaningful cost object controlling is only possible on the level of the stockholding WBS elements or the entire project after the period-end closing.

By implementing planning networks (see [Chapter 1, Section 1.3.2](#)), you can also determine planned costs for material components managed in the non-valuated stock. Because these planned costs don't raise the assigned values of the higher-level WBS elements, this prevents duplicate assigned values due to the planned material costs for the activity and the actual costs for the WBS element or production order.

As an alternative to the non-valuated project stock, the valuated project stock is available. When using the valuated project stock, an accounting document reflecting the corresponding value flow is created with every material movement referencing the project stock. The network costing can determine planned costs for material components to be managed in the valuated project stock. The later consumption of the material by the activity results in actual costs for the activity and in the corresponding postings in financial controlling. Purchasing documents and production orders created in the course of material procurement for the project stock cause commitment, stock, and actual costs for the stockholding WBS element. The value flows

for material procurements referencing valuated project stocks are discussed in detail in [Chapter 4, Section 4.5.1](#).

Decision support for working with valuated and non-valuated project stocks can be found in SAP Library.

Basically, a project stock is an individual stock per WBS element. Therefore, if necessary, you can manage a separate material stock for every subtree and separately value the procurement and stock costs for the stockholding WBS elements. While this is certainly positive from a controlling point of view, stock management per WBS element has disadvantages from a logistics point of view. Because the individual stock segments are managed separately from an MRP point of view, a MRP process (see [Chapter 4, Section 4.5.1](#)) creates separate purchase requisitions or planned orders for every stock segment, regardless of whether there is enough material available in another stock segment. If the same material is also required for other stock segments, however, it may make more sense to create a single purchase requisition or a single planned order covering the entire required quantity instead of triggering separate procurement processes for every stock segment. This enables you to negotiate better conditions with the vendor, for example, or to optimize the material production. To avoid the logistic disadvantages of individual stock management, you can use *requirement grouping* in Project System.

In the simplest case, you use requirement grouping by setting the **Automatic Requirement Grouping** indicator in the project definition before saving it for the first time, or by storing the indicator in the project profile as a default value already. The top WBS element is then automatically identified in the **Basic Data** as a *grouping WBS element*. If the requirement grouping isn't to take place for the top WBS element, you can also identify any other WBS element as a grouping WBS element before saving. Instead of managing a separate stock for every WBS element, automatic grouping causes all requirements and stocks of the project referencing the project stock to be managed exclusively on the level of this grouping WBS element. This means, in MRP, only one WBS element is used as an individual stock segment, and all purchase requisitions, orders, or production orders referencing the project stock are assigned to this WBS element.

If you want to use several WBS elements of a project for a requirement grouping or make a cross-project requirement grouping, you need to use a

manual requirement grouping. For a manual requirement grouping, on the **Basic Data** tab you identify those WBS elements for which you want to group requirements as grouping WBS elements. Then, you assign the WBS elements the stocks that are to be grouped to the various grouping WBS elements. This assignment can be performed individually (Transaction GRM4) or, using appropriate selection conditions, for several WBS elements (Transaction GRM3).

If you want, you can also make the manual requirement grouping depend on the MRP group of the material (see the **MRP 1** view in the material master). First, select option **2 (Grouping WBS Element for Selected MRP Groups)** in the **Grouping WBS element** field of the WBS elements used to group the requirements and stocks. Then these grouping WBS elements of type 2 are assigned the MRP groups, the materials of which are to be grouped (Transaction GRM5). Finally, you assign the relevant WBS elements to the grouping WBS elements using Transaction GRM3 or Transaction GRM4. Transaction GRM8 combines the functions of Transaction GRM4 and Transaction GRM5 to provide an improved user experience.

For the requirements and stocks of a material to be grouped automatically or manually, various prerequisites have to be met:

- The material must be manageable in an individual stock.
- You need to identify the MRP group of the material as relevant for a requirements grouping in the Customizing of Project System.
- The project must permit a valuated project stock (exception: the use of extended manufacturing scenarios, see [Section 2.3.3](#)).
- To finally enable requirements that aren't needed on exactly the same day to be grouped in a material planning process, the material should permit a period lot-sizing process (**MRP Lot Size** field of the **MRP 1** view in the material master).

[Figure 2.44](#) again illustrates the difference between material planning with and without requirement grouping. No requirement grouping is used for sample project **E-2810**. Requirements for material **AVC_RBT_BASE_FRAME** from different project parts are managed in separate stocks (**E-2810-2-2** and **E-2810-2-3**). Although the material is even required on the same requirements date in both project parts, requirements

planning has created separate purchase requisitions as planning-related procurement elements.

In project E-2910, a requirement grouping is set on the level of WBS element E-2910. The requirements for material **AVC_RBT_BASE_FRAME** from different project parts are now managed in common stock. The material provides a period lot-sizing process. Therefore, requirements planning has created only one procurement element for the total quantity of both requirements—although their requirements dates are different.

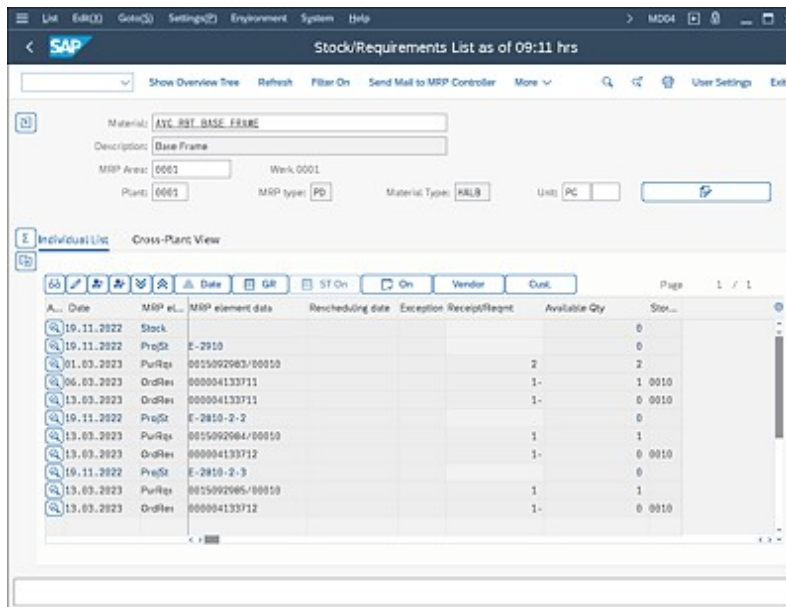


Figure 2.44 Material Planning with and without Requirement Grouping

2.3.3 Project Manufacturing Management and Optimization

The *Project Manufacturing Management and Optimization* (PMMO) component represents an extension of the standard functions in the environment of project-based manufacturing processes. Using PMMO, you can combine the advantages of optimized material procurement based on cross-project requirement grouping with the benefits of detailed controlling of procurement costs on individual WBS elements. PMMO is the successor of the *Grouping, Pegging, Distribution* (GPD) component and offers an extended range of functions compared to GPD. For information on the

difference between GPD and PMMO and how you can perform a migration between the two solutions, see SAP Note 2933435 and SAP Note 2928343.

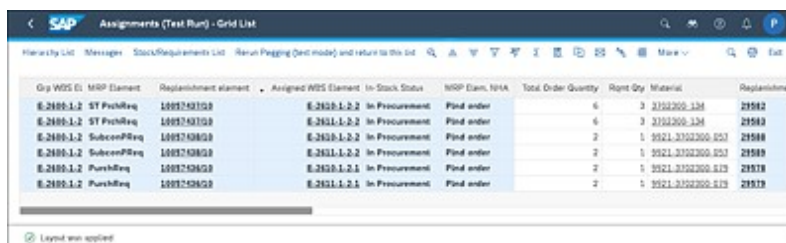
PMMO is based on the following three steps:

1. Requirement grouping
2. Pegging (pegged requirements display)
3. Distribution

Requirement grouping has already been explained in the previous section and is used to group material requirements from several WBS elements (across projects or plants) into one or more MRP WBS elements for joint stock management and MRP, thus achieving greater efficiency and cost savings in material procurement. However, PMMO uses the non-valuated project stock for which requirement grouping is made possible within PMMO.

Pegging establishes a relationship between the grouped requirement replenishment elements, that is, planned orders, purchase requisitions, production orders, purchase orders, and those WBS elements that contain the original requirements. This relationship is then used in the cost distribution process to distribute the costs of the MRP WBS elements back to the individual WBS elements.

Transaction PMMO_PEGGING is available for performing or scheduling a pegging run. [Figure 2.45](#) shows a sample result of a pegging run.

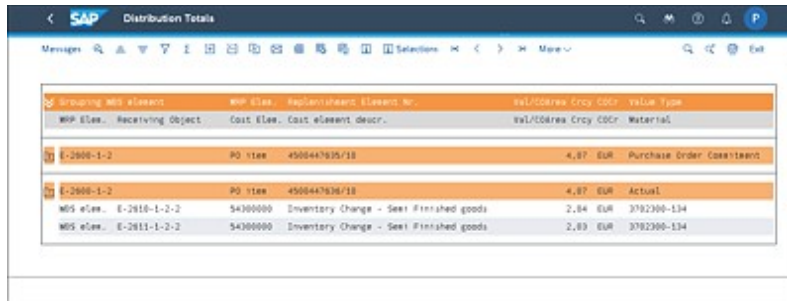


The screenshot shows the SAP 'Assignments (Test Run) - Grid List' interface. The table displays the results of a pegging run, with columns for 'Org WBS El.', 'MRP Element', 'Replenishment element', 'Assigned WBS Element', 'In-Stock Status', 'MRP Elem. N/A', 'Total Order Quantity', 'Pegged Qty', 'Material', and 'Replenishment'. The data is as follows:

Org WBS El.	MRP Element	Replenishment element	Assigned WBS Element	In-Stock Status	MRP Elem. N/A	Total Order Quantity	Pegged Qty	Material	Replenishment
E.2105.1.2	ST PchReq	109743020	E.2105.1.2.2	In Procurement	Final order	6	3	2102300.134	21042
E.2105.1.2	ST PchReq	109743020	E.2105.1.2.2	In Procurement	Final order	6	3	2102300.134	21043
E.2105.1.2	SubconPReq	109743020	E.2105.1.2.2	In Procurement	Final order	2	1	1021.2102300.057	21048
E.2105.1.2	SubconPReq	109743020	E.2105.1.2.2	In Procurement	Final order	2	1	1021.2102300.057	21049
E.2105.1.2	PurchReq	109743020	E.2105.1.2.1	In Procurement	Final order	2	1	1021.2102300.019	21078
E.2105.1.2	PurchReq	109743020	E.2105.1.2.1	In Procurement	Final order	2	1	1021.2102300.019	21079

Figure 2.45 Results List of a Pegging Run

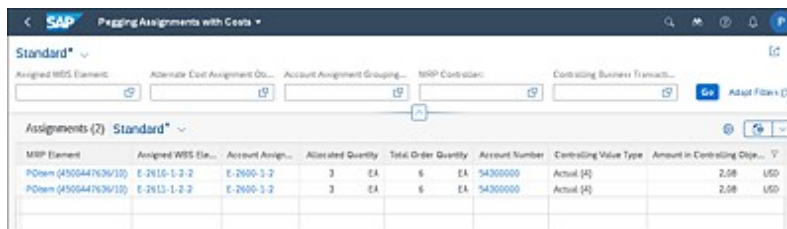
Following pegging, you can use distribution (Transaction PMMO_DISTRIBUTION) to assign the actual and commitment costs, as well as down payments to vendors, of the requirement replenishment elements to the WBS elements that triggered the original requirements. The result of a distribution run is shown as an example in [Figure 2.46](#).



Shipping MRP Element	MRP Ele.	Replacement Element No.	Val/Code/Crey/CDR	Value	Type
MRP Ele. - Receiving Object	Cost Ele.	Cost Element descr.	Val/Code/Crey/CDR	Material	
E-2808-1-2	PO Item	4508447825/18		4,87	EUR Purchase Order Commitment
E-2808-1-2	PO Item	4508447826/18		4,87	EUR Actual
MRP Ele. - E-2810-1-2-2	54300000	Inventory Change - Semi Finished goods		2,84	EUR 3782300-134
MRP Ele. - E-2811-1-2-2	54300000	Inventory Change - Semi Finished goods		2,83	EUR 3782300-134

Figure 2.46 Distribution Run

Using the Pegging Assignments with Costs app (F5486), you can also view the result of PMMO pegging assignments along with PMMO cost distributions (see [Figure 2.47](#)).



MRP Element	Assigned MRP Ele.	Account Assign.	Allocated Quantity	Total Order Quantity	Account Number	Controlling Value Type	Amount in Controlling Clie.			
POItem (4508447825/18)	E-2810-1-2-2	E-2800-1-2	3	EA	6	EA	54300000	Actual (H)	2,88	USD
POItem (4508447826/18)	E-2811-1-2-2	E-2800-1-2	3	EA	6	EA	54300000	Actual (H)	2,88	USD

Figure 2.47 Pegging Assignments with Costs App

To use PMMO, you must first activate it in Customizing. Another requirement is that you define in Customizing which material movement types are relevant for PMMO. Finally, you need to define profiles to control pegging and distribution runs in the PMMO Implementation Guide, and make some technical settings.

Note that PMMO offers a variety of other functions for controlling and evaluation as well as for customer-specific extensions. Therefore, for details on PMMO, you should also read the SAP documentation.

2.3.4 Availability Check

The requirement dates of material components can either be specified manually or derived from the activity dates. Using the availability check, you can check during your material planning if the material components of item category L are presumably available on the planned requirements dates,

or if there will be a lack of material in the project due to missing stocks and long replenishment lead times, for example.

You can manually trigger an availability check for individual material components or for the entire network from every editing transaction for networks. In the **Project Information System: Structures** component (see [Chapter 6, Section 6.1](#)), you can run an availability check for several networks simultaneously. Depending on the settings of the *check control*, you can also run an availability check automatically on every save after creation, release, or relevant change.

If the availability check detects that a material probably can't be provided on the planned requirements date, the relevant material components are identified as *missing parts*. Furthermore, the system sets the **FMAT (Missing Material Availability)** status on the network header level.

The availability check for material components is controlled by a *scope of check* that you can define using Transaction OPJJ in the Customizing section of Project System (see [Figure 2.48](#)). The scope of check defines, for example, if the check is to be run on the plant or storage location level and which special stocks (quality inspection stock, safety stocks, etc.) are to be considered. The **Without Replenishment Lead Time** indicator in the **Change View "Scope of Availability Check": Details** screen controls whether the replenishment lead time that you can store in the material master record of a material is to be considered in the availability check. If the indicator isn't set, the availability check can suggest dates for missing parts on which the material can be provided.

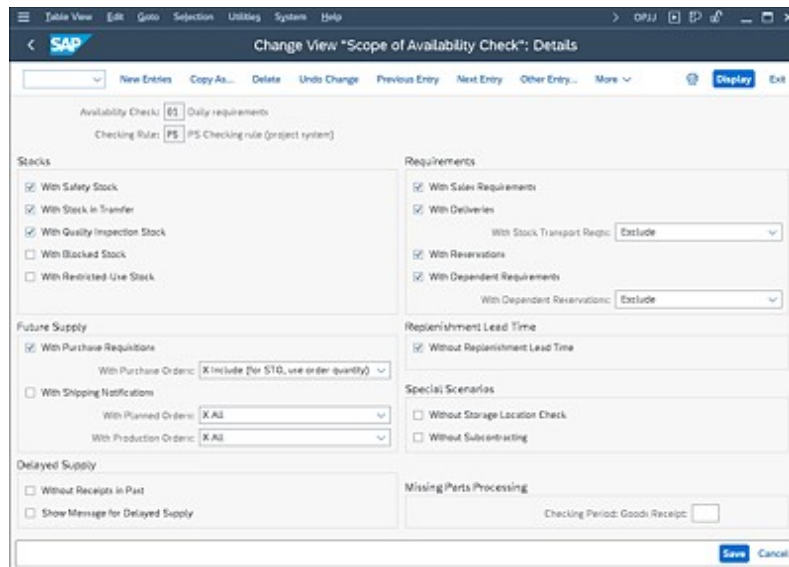


Figure 2.48 Scope of an Availability Check

In the scope of availability check, you can also define the planned goods receipts and issues to be considered in the availability check. Planned goods receipts can be, for example, purchase requisitions, orders, or planned or production orders that presumably cause a goods receipt before the requirements date of the material component. Planned goods issues represent reservations or planned independent requirements, for example, before the requirements date of the component.

In an availability check, the scope of check is determined for every material component using a combination of the value of the **Availability Check** field in the material master record (**MRP 3** view) and a *checking rule*. The checking rule is stored in the *check control* (see [Figure 2.49](#)).

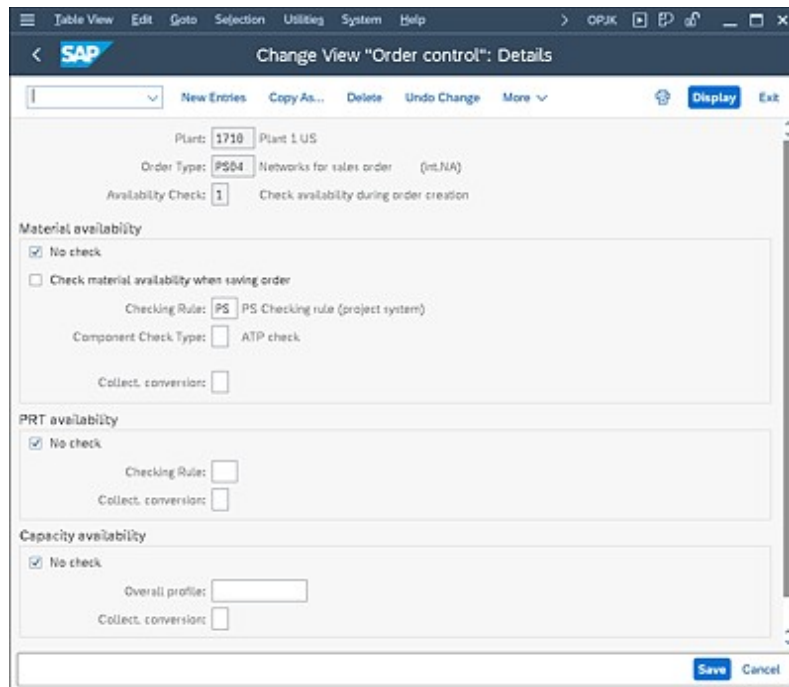


Figure 2.49 Definition of a Check Control

Using the **Cross-Project Mat.** field (**MRP 3** view) in the material master record for components carried in an individual stock, you can also control whether the availability check is run only in the respective individual stock segment, or whether all individual stock segments plus the plant stock are included in the check.

Checking rules and the check control are created in the Customizing section of Project System. The check control (Transaction OPJK) is defined based on the plant, the network type, and the **Created** and **Released** statuses. In addition to the checking rule, the check control contains settings for automatically running the availability check and controls, for example, whether a release of activities is possible despite lacking material availability, whether it requires user intervention, or whether it's even forbidden.

If you use standard networks as templates for operative networks (see [Chapter 1, Section 1.3.3](#)) and if operative networks constantly require the same material, you can assign the required material components to the corresponding activities of the existing standard networks. However, the assignment of material components to the standard networks is different from the assignment to activities of operative networks described previously.

In a first step, one or more material BOMs are assigned to the header of a standard network. In a second step, from the assigned material BOMs, you then select those items that are later needed in the operative network and assign them to the relevant activities of the standard network (see [Figure 2.50](#)). A material that you haven't assigned to any activity of the standard network isn't copied to an operative network.

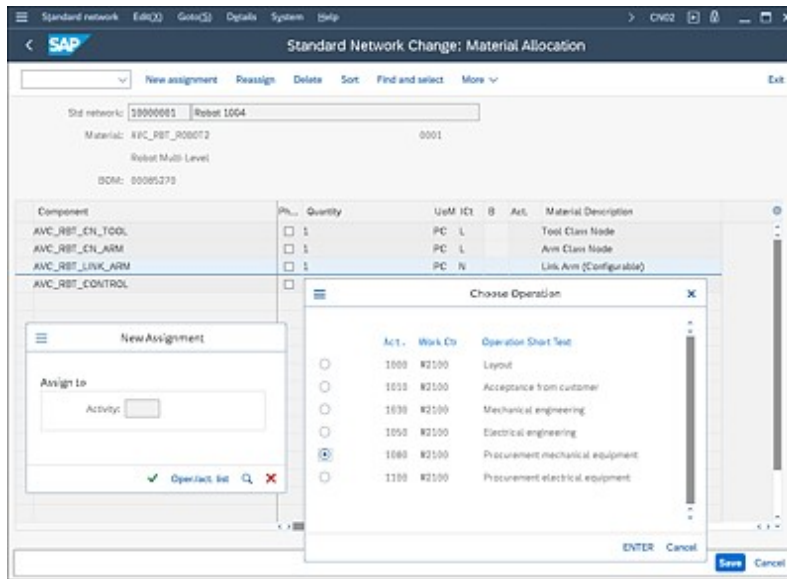


Figure 2.50 Assignment of Material Components to Activities of a Standard Network

[+] BOM Explosion in Standard Networks

If a material BOM contains dummy assemblies, these are exploded so that their items can be assigned to standard network activities.

Otherwise, the material BOM explosion takes place on only one level in the standard network.

If you want to assign materials to standard network activities that aren't used in any material BOM, you can first create a separate BOM for the standard network header. You then add the required materials as items to this *standard BOM* and then assign them to the standard network activities. A standard BOM can only be used in the standard network in which it was created.

[AT A GLANCE] Material Planning

The material for projects is planned by assigning it in the form of material components to network activities. During this assignment, you specify how the material is procured later and—in the case of stock items—in which stocks it's managed. The project stock allows you to manage individual stocks for material with a reference to WBS elements as individual stock segments. There are different options for assigning material components. You can also assign material components to activities in standard networks.

2.4 Planning Costs and Statistical Key Figures

Based on the resource and material planning using networks, as described earlier, the system can automatically calculate the planned costs for the procurement and the consumption of resources and material. This form of cost planning is referred to as *network costing*, which is discussed in detail in [Section 2.4.5](#).

If you only use WBSs for mapping projects, you manually plan costs on the WBS element level for the later performance of the individual project parts.

Manual cost planning using WBS elements can also make sense, although you're using networks if these networks are exclusively used for time scheduling, or if you use cost planning on the WBS element level only for a preliminary planning, for example, and want to detail it later via network costing. You can use several options for cost planning with WBS elements, which are discussed in [Section 2.4.1](#) through [Section 2.4.4](#). A significant difference between these options is the level of detail in the planning. Two important criteria for a cost planning's level of detail are the characteristics **By Cost Element** and **By Period**.

If a cost planning references one or more cost elements, this type of cost planning is referred to as a planning *by cost element*. Cost elements are defined in the cost element accounting of controlling and correspond to the cost-relevant chart of accounts items. Using cost elements, you can structure and classify the consumption of production factors that is valued with regard to the business purpose. Using cost element reports (see [Chapter 6, Section 6.2.2](#)), hierarchy reports (see [Chapter 6, Section 6.2.1](#)), or various SAP Fiori apps (see [Chapter 6, Section 6.2.4](#)) for reporting, you can analyze costs planned by cost elements with regard to their business purpose-related usage.

[+] Cost Planning Options by Cost Element

For cost planning by cost elements for WBS elements, you can use unit costing ([Section 2.4.2](#)), detailed planning ([Section 2.4.3](#)), table `ACDOCP-`

based planning forms ([Section 2.4.8](#)), and Easy Cost Planning ([Section 2.4.4](#)) in Project System. Calculations using networks ([Section 2.4.5](#)) are always performed by cost element as well.

If cost planning references the period of the projected cost to be incurred, this is referred to as period-based cost planning. Cost planning by period allows you to analyze planned costs for a specific period (e.g., monthly) in reporting and to compare them to the actual costs incurred during a period.

[+] Cost Planning Options by Period

Options of cost planning by period in Project System include detailed planning ([Section 2.4.3](#)), table `ACDOCP`-based planning forms ([Section 2.4.8](#)), and network costing ([Section 2.4.5](#)). Easy Cost Planning is only conditionally period-specific ([Section 2.4.4](#)); the other cost planning forms in Project System are period-independent or only reference fiscal years, but not individual periods of a fiscal year.

When you plan costs for WBS elements, you reference a CO version. When using planning functions that use database table `ACDOCP`, no CO version is required. The planned values are stored in this database table with reference to plan categories ([Section 2.4.8](#)). CO versions can be defined in Customizing and contain a number of control parameters for their usages in controlling and in Project System (see [Figure 2.51](#)).

Depending on the form of cost planning used, the CO version is either preset in Customizing, or you select it manually when entering the cost planning. CO versions enable you to plan several different costs for a single WBS element. In an early planning phase of your project, for example, you can select a rough form of cost planning and save the corresponding planned costs in CO version 1. Later, during detailed planning, you can use a more detailed cost planning form to store the planned values in CO version 0. In reporting, you can then compare your rough planning values to those of the detailed planning. The most detailed planned values of a project should be saved to CO version 0 because the actual costs are also stored in this version. The planned costs of network costing are saved to version 0 by default.

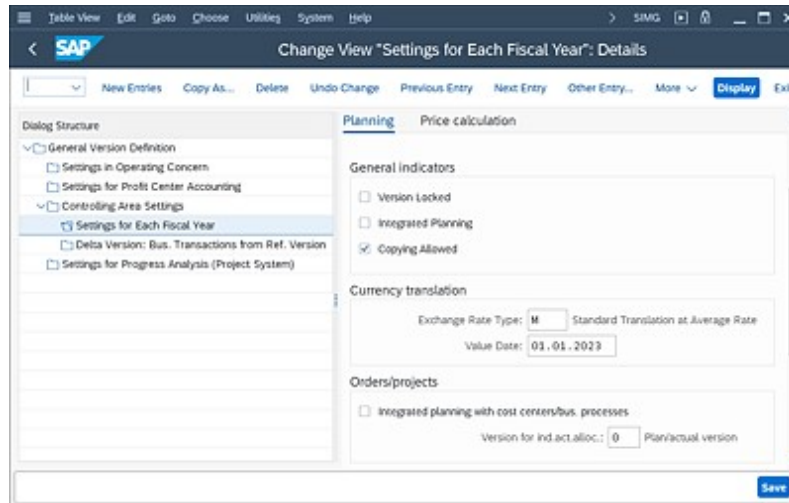


Figure 2.51 CO Version Settings Dependent on Fiscal Year and Controlling Area

Using the copy functions (Transactions CJ9BS, CJ9B, CJ9FS, and CJ9F), you can copy the planned values of a CO version to another CO version and further process them there, independent of the original CO version. Using Transactions CJ9CS and CJ9C, you can also transfer the actual costs of WBS elements from version 0 as planned costs to a CO version.

The manual cost planning for WBS elements requires the definition of a *planning profile* in the Customizing section of Project System (see [Figure 2.52](#)). A planning profile contains control parameters for the different cost planning options for WBS elements. The planning profile specifies, for example, if a manual cost planning is to be permitted only for WBS elements with the operative indicator **Planning elements** set (see [Chapter 1, Section 1.2.1](#)) or for all WBS elements. The planning profile to be used is entered in the project definition of a project. In the project profile, you can store a default value for the planning profile of projects.

Depending on the form of cost planning used, more settings are necessary in Customizing. These settings and the relevant control parameters of the planning profiles are discussed in the following sections about the different cost planning forms.

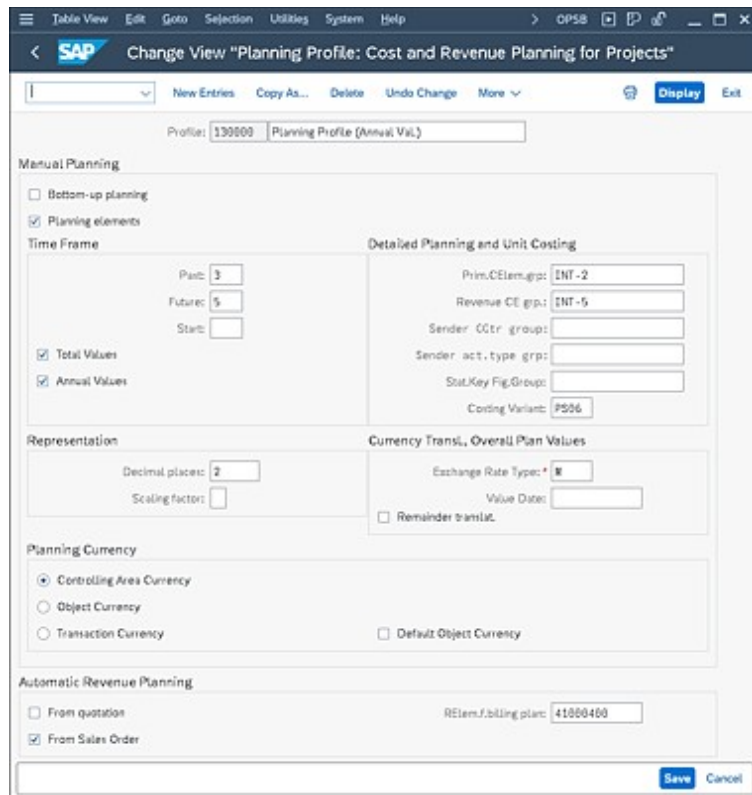


Figure 2.52 Definition of a Planning Profile

If, in addition to the costs, you also want to plan other elements with quantity or time units, for example, you can use the statistical key figure planning function in Project System, which is described in greater detail in [Section 2.4.7](#).

2.4.1 Hierarchical Cost Planning

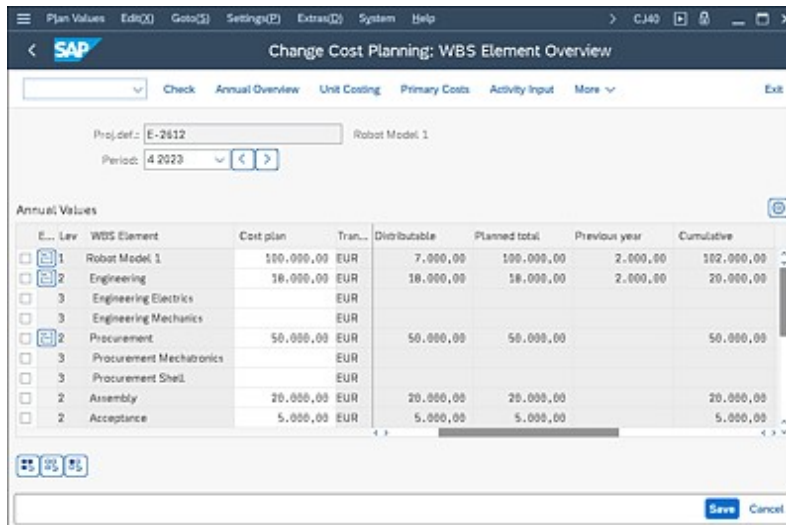
Hierarchical cost planning on the WBS element level, which is sometimes also referred to as *overall planning* or *structure planning*, is the roughest form of cost planning. It's not based on cost elements or on dates. However, hierarchical cost planning requires the least planning effort of all planning forms. Depending on the planning profile settings, you can use hierarchical cost planning to plan *total values* (planned values without a reference to fiscal years) or planned values for individual fiscal years. The planning profile then also controls the time horizon to be available for the fiscal year

planning. If you want, you can also use the hierarchical cost planning to plan both total values and values referencing fiscal years.

[+] Restrictions of Hierarchical Cost Planning

A distribution of planned costs to the periods of a fiscal year isn't possible using hierarchical cost planning. In hierarchical cost planning, you manually determine the fiscal years for which you want to plan the costs. They aren't derived from the planned dates of the projects. In addition, the values of hierarchical cost planning don't reference cost elements, so this form of cost planning isn't performed by cost elements.

You perform cost planning by entering total or fiscal year values in the **Cost plan** column of the table displayed by Transaction CJ40 for those WBS elements that permit cost planning (see [Figure 2.53](#)). More columns (views) inform you about the hierarchical distribution of planned values, planned costs that were planned via other cost planning forms, or planned values of the previous fiscal year or sum of all fiscal year values, respectively.



The screenshot shows the SAP 'Change Cost Planning: WBS Element Overview' interface. The project is 'E-2612' and the period is '4 2023'. The table below displays the planned costs for various WBS elements.

E... Lev	WBS Element	Cost plan	Tran...	Distributable	Planned total	Previous year	Cumulative
1	Robot Model 1	100,000,00	EUR	7,000,00	100,000,00	2,000,00	102,000,00
2	Engineering	18,000,00	EUR	18,000,00	18,000,00	2,000,00	20,000,00
3	Engineering Electrics		EUR				
3	Engineering Mechanics		EUR				
2	Procurement	50,000,00	EUR	50,000,00	50,000,00		50,000,00
3	Procurement Mechatronics		EUR				
3	Procurement Shell		EUR				
2	Assembly	20,000,00	EUR	20,000,00	20,000,00		20,000,00
2	Acceptance	5,000,00	EUR	5,000,00	5,000,00		5,000,00

Figure 2.53 Hierarchical Cost Planning

The **Planned total** view shows the total of all planned costs for a WBS element in the respective CO version and the corresponding fiscal year, regardless of the cost planning form via which they were entered. In particular, the planned total also includes the planned costs of additive orders

([Section 2.4.6](#)) and networks or network activities ([Section 2.4.5](#)) that are assigned to the WBS element.

If you want, you can transfer view values as hierarchical planned values for selected WBS elements using the **Copy View** function. You can determine the percentage of these values to be copied and whether they are to be added to the original values or transferred as new values. The **Revaluate** function enables you to increase or reduce planned values of selected WBS elements by a specific percentage or amount.

Using the **Total-up** function, you can derive the hierarchical planned values of WBS elements from the total of planned values of the inferior WBS elements. By setting the **Bottom-up Planning** indicator in the planning profile, this function can also be run automatically when saving hierarchical cost planning.

Depending on the planning profile settings, you can use hierarchical cost planning to plan values in the project controlling area currency, the object currency of the individual WBS elements, or in a freely selectable currency (transaction currency). In the last case, you can store a default value for this currency in the initial screen. When saving, the planned values are automatically converted to the controlling area and respective object currencies as well, and saved to the database in all three currencies if the **All Currencies** indicator is set in the controlling area. For total values, conversion details such as the exchange rate type are controlled via the planning profile. For annual values, the exchange rate type is determined from the fiscal year–dependent settings of the CO version.

You can save the planned values of hierarchical cost planning without checking them, or you can perform a check first. The check ensures that the total values of the individual WBS elements are at least as high as the total of their annual values and that the planned values of WBS elements are higher than or equal to the planned values of the hierarchically inferior WBS elements.

If you want, you can define a user status (see [Chapter 1, Section 1.6](#)) that permits the business process **Write Plan Line Items**. In this case, after setting this status in the project, every change to hierarchical cost planning is stored in a separate document (plan line item) together with information about the date and the changing user, so it can be easily traced later.

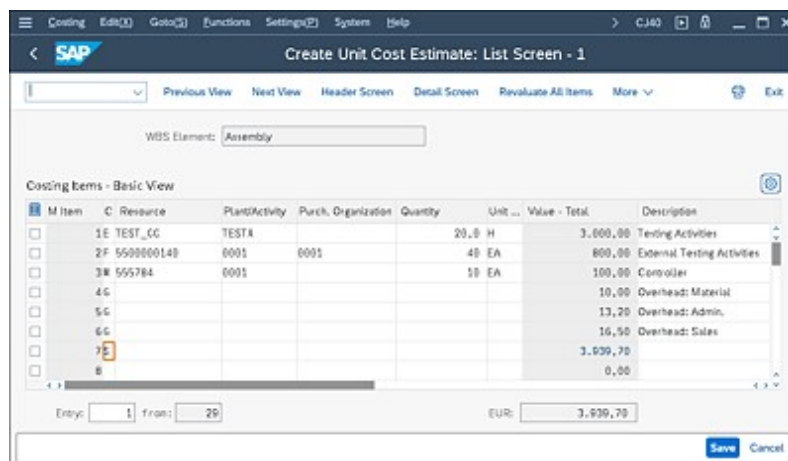
2.4.2 Unit Costing

In Transaction CJ40, you can also create unit costings for planning costs for WBS elements. With unit costing, you can use prices for material, external and internal services from materials management, or purchasing, respectively, for the cost planning of your projects, or refer to controlling rates for planning costs for internal activities. Unit costing for WBS elements is cost element-specific but not date-specific. As with hierarchical cost planning, the planned values of unit costing can be entered based on the planning profile settings either with a reference to individual fiscal years or independent of fiscal years as total values.

[+] Restrictions of Unit Costing

When using unit costing for planning costs for WBS elements, a distribution of values to interim periods also isn't feasible. For unit costing dependent on the fiscal year, the fiscal years aren't derived from the planned dates of the projects, but instead must be selected manually.

When you create a unit costing for a WBS element in Transaction CJ40, you first get an empty list in which you can enter costing items line by line (see [Figure 2.54](#)). When creating a costing item, you first specify an item category. This item category now determines which data you need to enter for cost planning and which data is automatically determined by the system. In the following text, some of the most important item categories are described.



The screenshot shows the SAP interface for Transaction CJ40, titled 'Create Unit Cost Estimate: List Screen - 1'. The WBS Element is set to 'Assembly'. The table below lists the costing items:

M Item	C Resource	Plant/Activity	Purch. Organization	Quantity	Unit ...	Value - Total	Description
<input type="checkbox"/>	1E TEST_CC	TESTA		20.0	H	3,000,00	Testing Activities
<input type="checkbox"/>	2F 5500000140	0001	0001	40	EA	800,00	External Testing Activities
<input type="checkbox"/>	3M 555784	0001			SB EA	100,00	Controller
<input type="checkbox"/>	4G					10,00	Overhead: Material
<input type="checkbox"/>	5G					13,20	Overhead: Admin.
<input type="checkbox"/>	6G					16,50	Overhead: Sales
<input type="checkbox"/>	7E					3,030,70	
<input type="checkbox"/>	8					0,00	

At the bottom of the screen, the entry is set to 1, from 20, and the total value is EUR: 3,930,70. There are 'Save' and 'Cancel' buttons at the bottom right.

Figure 2.54 Unit Costing of a WBS Element

Item category **E (Internal Activity)** is for planning costs for services that are to be provided by cost centers for a WBS element. In a costing item for the item category **E**, you enter a cost center, the corresponding activity type, and the quantity of the planned activity input.

From the cost center accounting of controlling, the system then automatically determines the *price* of the combination of activity type and cost center and thus values the planned quantity. From the master record of the activity type, the system uses the cost element for which the planned values are reported, as well as the text and the unit of measure for the activity.

Using costing items of item categories **F (External Activity)** or **L (Subcontracting)**, you can plan costs for external activities or subcontracting, respectively. For this purpose, you specify a purchasing info record, a plant, a purchasing organization, the planned quantity, and the cost element. From this data, the system automatically determines a price, the unit of measure, and the text, and then calculates the appropriate item value.

Service costs are planned using item category **N (Service)**. Using the quantity and service you specify, the system determines the price, the unit of measure, and the text, and calculates the item value. The cost element is transferred from the master record of the service.

Material costs can be planned in unit costing using item category **M (Material)**. Specify the material number, the plant, and the planned quantity, and the system uses this data to determine the price, the unit of measure and the text for the material. The cost element for the item value is derived via the automatic account determination.

If data, such as activity type and prices, purchasing info records, or material master records, aren't available, you can freely plan costs in unit costing via item category **V (Variable Item)**. You manually enter a planned quantity, price, cost element, and descriptive text, if you like. The system then only determines the item value by multiplying the price and the quantity.

Because the individual costing items always reference a cost element, the system can also calculate overhead rates for unit costing. The overhead calculation is controlled by the costing sheet of the respective WBS elements (see [Chapter 5, Section 5.3](#)) and takes place automatically when saving the unit costing. If you want, however, you can trigger the overhead calculation

when creating a unit costing. In unit costings, overhead rates are reported as items of item category **G (Overhead Rate)**.

If you also implement activity-based costing or template allocation (see [Chapter 5, Section 5.4](#)) for clearing overhead costs, you can use item categories **X (Manual Process Costs)** and **P (Process Costs Determined)** in unit costing.

When you save the unit costing for a WBS element, the total of the unit costing is displayed in Transaction CJ40 in the **Unit Costing** view and is included in the value of the view **Planned Total** for the corresponding WBS element. Plan line items can't be saved for unit costing.

Unit costing for WBS elements is controlled by the *costing variant* you define in the planning profile. Costing variants for unit costing for WBS elements can be defined via Transaction OKKT in the Customizing section of Project System. A costing variant references a *costing type* and a *valuation variant*. The costing type determines the technical properties of costing and usually doesn't require any additional settings in Project System.

The valuation variant of a costing variant uses strategies to control the rates and prices to be applied for determining the planned costs of internal activities, external activities, and material in unit costing. [Figure 2.55](#) shows an example of a possible strategy for determining prices for internal activities. Using the **CO Version Plan/Actual** field, you can control the CO version from which the prices are to be retrieved.

For calculating the overhead rates for WBS elements, the system always uses the costing sheet in the master data of the respective WBS elements. The costing sheet you can specify in a valuation variant therefore isn't applicable in unit costing for WBS elements.

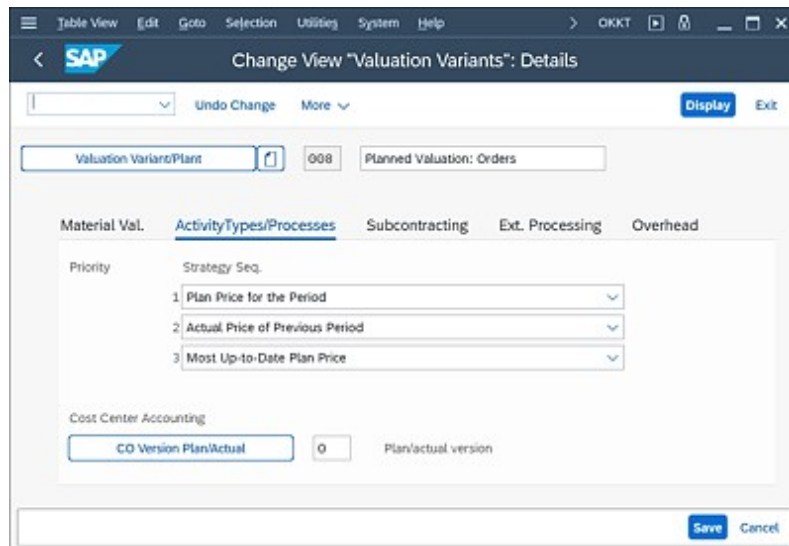


Figure 2.55 Defining a Strategy for Determining Prices in a Valuation Variant

2.4.3 Detailed Planning

Detailed planning for WBS elements is a form of cost planning that considers both cost elements and dates. In detailed planning for costs on the WBS element level, we distinguish between *cost element planning* and *activity input planning*. You can call detailed planning (cost element and activity input planning) via Transaction CJ40 or directly via Transaction CJR2. Like cost element and activity input planning, you can use detailed planning for planning controlling resources or for payment scheduling as well.

In cost element planning, you select those cost elements from a list (typically primary cost elements) for which you want to plan costs and then enter a planned amount for a fiscal year or a specific consolidation period (see [Figure 2.56](#)).

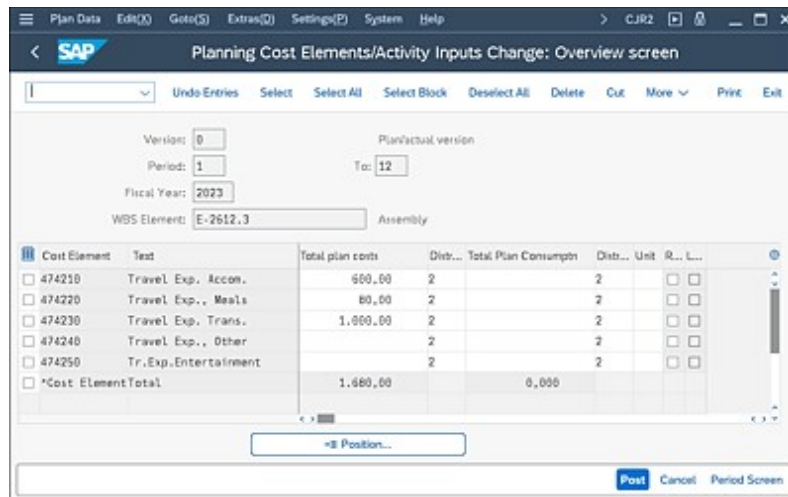


Figure 2.56 Cost Element Planning in the Overview Screen

This amount can be distributed to individual periods in the period screen of cost element planning. If a cost element permits the management of quantity information, you can enter a planned quantity in addition to the planned amount in cost element planning; this planned amount can later be used, for example, for a quantity-dependent application of overhead.

Using distribution keys, the system can perform the distribution to separate periods automatically. The standard distribution key 1, for example, equally distributes to all periods, while key 7 results in a distribution based on the calendar days of the respective periods. The standard version provides a number of distribution keys. Via the (F1) help for the distribution key (**Distr...**) field, you can display examples of the various distribution keys. If you want, you can also define your own distribution keys in Customizing Transaction KP80 by storing a factor for every period that determines the division of the values.

In the activity input planning, you can plan activities that you want to use from cost centers in the course of the project. Enter the cost centers, the respective activity types, and the planned quantities (see [Figure 2.57](#)).

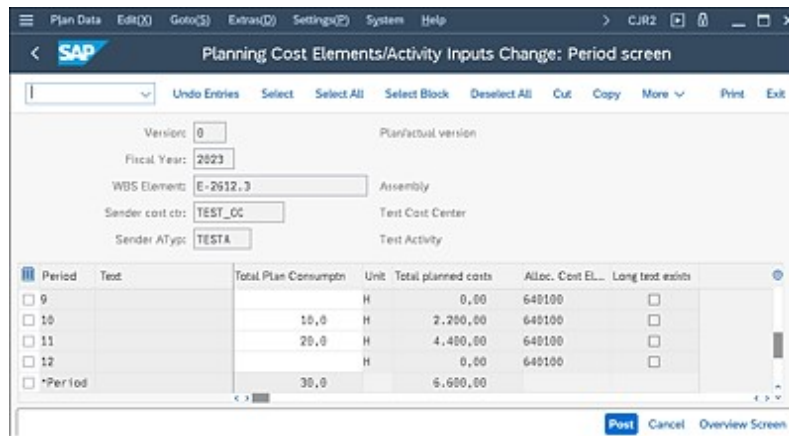


Figure 2.57 Activity Input Planning in the Period Screen

From the cost center accounting of controlling, the system then automatically determines the prices of the individual combinations of cost centers and activity types during the respective periods and thereby calculates the planned costs. The system uses the prices from the CO version that you entered in the fiscal year/dependent data of the CO version of your cost planning. The relevant cost elements are transferred automatically from the master record of the activity types. Just like in cost element planning, you can manually distribute the values to different periods or automate this process using distribution keys.

[+] Restrictions in Detailed Planning

In the detailed planning, you need to determine the cost planning periods; so, the cost element and activity input periods aren't derived from the planned dates of the WBS elements. Therefore, date shifts of projects or project parts don't automatically affect the cost distribution of a detailed planning.

A special function that you can implement when using the activity input planning is *integrated planning*. In integrated planning of activity input, not only are the planned costs determined for the WBS elements, but your planned activity input is immediately reported in cost center accounting as scheduled activities for the affected cost centers and can be factored into your company's cost center planning. You also have the option of a planned settlement for cost centers or business processes if you use integrated

planning. To use integrated cost planning, you need to set the **Integrated Planning** indicator in the relevant WBS elements (this can be predefined via the project profile), and the CO version must explicitly permit integrated planning in the detail screen of the fiscal year–dependent data.

Because the detailed planning—both as cost element and as activity input planning—always references cost elements, you can also plan overhead rates using the planned data. In contrast to unit costing for WBS elements, this isn't handled automatically when saving cost planning, but must be manually triggered via Transaction CJ46 or Transaction CJ47. The calculation of the overhead rates is controlled via the costing sheets of the individual WBS elements.

Just as in hierarchical cost planning, plan line items are also written in detailed planning if this is explicitly permitted by the status of the respective WBS elements. Using these plan line items, you can later analyze every detailed planning change separately. In integrated planning, plan line items are automatically written, whether a status permits this business process or not.

Planning layouts specify the individual entry screens of detailed planning. SAP S/4HANA provides various planning layouts. If you want, however, you can define your own planning layouts in Customizing. You can use the Report Painter tool to create planning layouts (see [Chapter 6, Section 6.2](#)).

The planning layouts for the different masks of the cost element and activity input planning are grouped in a *planner profile* (see [Figure 2.58](#)). You can use predefined planner profiles or create your own profiles in Customizing. The planner profile also controls whether integration with Microsoft Excel is possible.

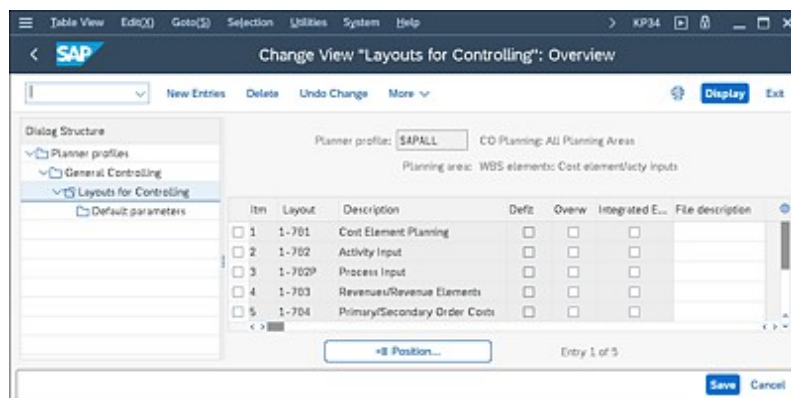


Figure 2.58 Definition of the SAPALL Planner Profile

If you start the detailed planning from Transaction CJ40, the **SAP101** planner profile and the planning layouts it contains are automatically used for the cost element and activity input planning. The cost elements, cost centers, and activity types available in detailed planning via Transaction CJ40 can be controlled via the planning profile of the project definition. In the planning profile, store the corresponding cost element, cost center, and activity type groups, which you can define in advance using Transactions KAH1, KSH1, and KLH1.

If you use Transaction CJR2 for the detailed planning, you can manually select the planner profile via the settings. Using the **PPP** parameter, you can also store the planner profile to be used in Transaction CJR2 in the SAP user data. In the initial screen of Transaction CJR2, you can select the planning layout you want to use for planning. If you haven't set default parameters in the planner profile, you'll have to manually specify information about the CO version, the periods, the cost elements, or the cost centers and activity types of cost planning later. In addition, you must specify the WBS elements for which you want to plan costs. Instead of specifying single WBS elements or intervals of WBS elements, you can also enter a WBS element group if it has been previously defined in Transaction CJSJG.

For the use of total cost planning and detailed planning in SAP S/4HANA, also refer to SAP Note 2270407.

2.4.4 Easy Cost Planning

Easy Cost Planning is another function that enables you to plan costs for WBS elements or network activities. Similar to unit costing, Easy Cost Planning uses existing controlling, purchasing, or materials management data in the form of costing items. However, if you want to repeatedly calculate similar costs, Easy Cost Planning allows you to previously define *costing models* (planning templates) and thereby considerably simplifies entering the required costing data. Cost planning using Easy Cost Planning takes into account cost elements.

[+] Easy Cost Planning and Planning Periods

Easy Cost Planning determines the period of the planned costs of a project element from the basic start date of the element. If the planned duration of an element spans several periods, the planned costs aren't distributed automatically. The planned costs are reported in the period containing the basic start date of the element. If the basic start date of the element shifts, you simply need to call Easy Cost Planning again to automatically adapt the period of the planned costs to the period of the new basic start date. If you want to distribute the costs across several periods, you must manually store a latest end date for the items in Easy Cost Planning and adapt that date in the case of retroactive scheduling changes.

Easy Cost Planning for a project can be started from Project Builder or by using Transaction CJ9ECP. In the left-hand area of Easy Cost Planning, you'll find the costing structure, that is, the hierarchical structure of the WBS. Depending on the structure tree setting in Project Builder, Easy Cost Planning displays the identifications or the names of the project elements. If you select an element in the costing structure that permits cost planning, you can calculate costs for this element in the right-hand area.

There are two different methods of calculation. One option is to display an *item view* and to create a list of costing items as in unit costing for WBS elements ([Section 2.4.2](#)). Depending on the respective item category, you need to manually specify information about cost centers, activity types, material numbers, purchasing info records, cost elements, and so on. When this data is transferred, the system automatically uses the costing sheets in the respective project elements to calculate overhead rates and then display the planned costs in the costing structure.

If the same data continues to be relevant for the costing items, you can previously store it in the planning templates. Instead of manually creating costing items and specifying quantities, cost elements, cost centers, activity types, and so on, you can simply reference these planning templates in Easy Cost Planning and automatically derive all necessary costing data. The derivation of the costing data isn't static but dynamic, using formulas and activation conditions that you can define in the planning template. Therefore, if you've assigned a planning template to a WBS element in Easy Cost

Planning, you first need to specify all parameters that are used in the formulas and conditions of the planning template to derive the relevant costing items and the quantities contained therein. This parameter specification is referred to as *characteristic valuation*. If you want, you can also enter a descriptive text for the assignment of a value to the characteristics. [Figure 2.59](#) presents an example of using a planning template in Easy Cost Planning.

In this example, assigning the value **2** to the **Component Quantity** characteristic results in automatic planning of the costs for procuring four times the quantity of batteries due to the settings of the planning template. In addition, four hours of internal work are costed based on the value entered and the template settings. All other necessary data for the variable item, such as the material number or the activity type, was stored in the planning template.

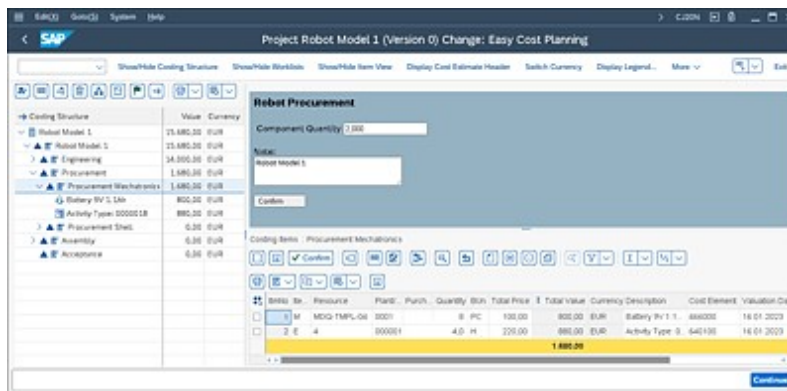


Figure 2.59 Cost Planning Using Easy Cost Planning

Using the **Subdivide Cost Estimate** function, you can assign several planning templates to a project element. If you want, you can also manually supplement the costing items derived from the planning templates in the item view with new items. In an Easy Cost Planning worklist, you can store frequently used planning templates as a default quantity and further simplify cost planning.

Planning templates or costing models are defined in three steps using Transaction CKCM (see [Figure 2.60](#)):

1. Define the characteristics and their possible values that you want to use in the characteristic valuation and in the definition of formula and conditions. Using these

characteristics, the system automatically creates an input screen that can later be used for a characteristic valuation in Easy Cost Planning.

2. Adjust this HTML-based input screen to your specific requirements, if necessary.
3. Define the *derivation rules* that specify how to automatically determine costing items from the characteristic values (see [Figure 2.61](#)). In this step, you first create all costing items that can show up in the calculation, and then for every item, you determine the conditions that should cause the item to actually be included in a calculation via the **Activation** field.

There is a dedicated editor for defining the conditions; in particular, you can use the planning template characteristics for defining the conditions.

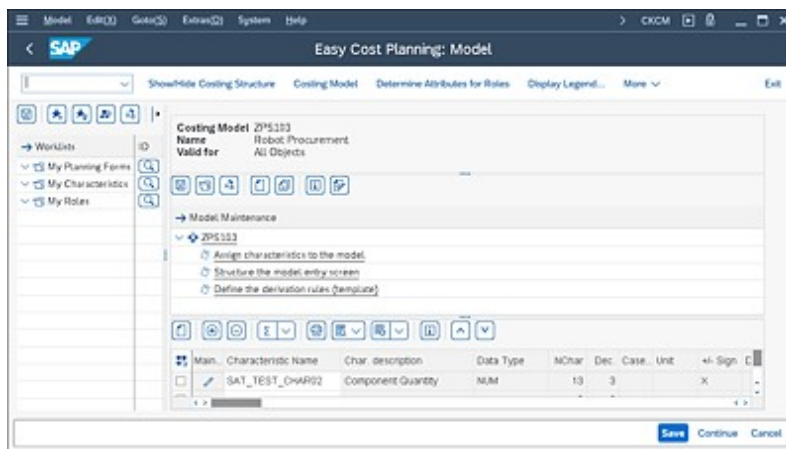


Figure 2.60 Definition of Planning Templates for Easy Cost Planning

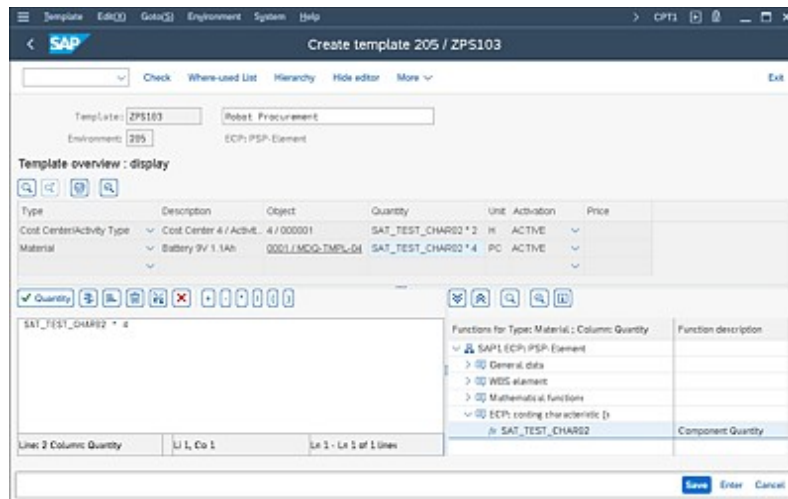


Figure 2.61 Definition of a Derivation Rule

[+] Using Characteristics in Planning Templates

If you've already defined appropriate characteristics in the central logistic functions, (e.g., for classification purposes), you can use these when defining planning templates. If characteristics should only be used for planning templates, you can store class 051 as a constraint in these characteristics.

You also specify the item category for the individual costing items and—depending on the item category—the required costing data such as cost center, activity type, material number, and so on. For the **Quantity** and **Price** fields, you can enter fixed values or defined formulas. Formulas are defined via a formula editor where you can use the characteristics of the planning template again.

Just like unit costing for WBS elements, costing using Easy Cost Planning is controlled via the costing variant you stored in the planning profile. The valuation variant within the costing variant employs strategies for controlling the rates and prices to be used for internal and external activities or material, for example, when calculating the individual item values ([Section 2.4.2](#)). In Customizing, depending on the controlling area, you also specify the CO version in which to save the planned values of the Easy Cost Planning. If necessary, you can also allow for revenue planning using Easy Cost Planning in Customizing. You can then enter variable items for revenue

elements in Easy Cost Planning for billing elements. If you want to use Easy Cost Planning for network activities, you must explicitly activate this function via the respective Customizing activity in the Customizing section of Project System.

You can also use Easy Cost Planning for cost planning in several CO versions. To do this, you must store not only the standard CO version for Easy Cost Planning in Customizing but also the CO versions in which you want to allow an additional cost planning via Easy Cost Planning (see [Figure 2.62](#)).

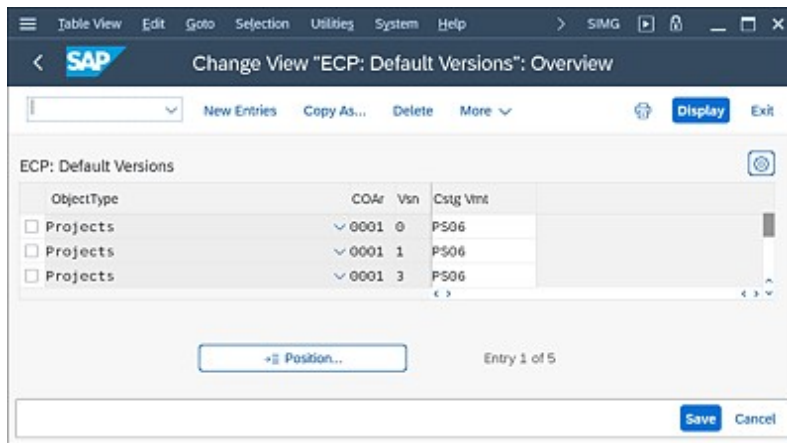


Figure 2.62 Defining Alternative CO Versions for Easy Cost Planning

After you've specified the alternative CO versions for Easy Cost Planning, enable the Easy Cost Planning in several CO versions using Transaction RCNPRECP. If you now start Easy Cost Planning for a project, a dialog is displayed where you can select the CO version in which you want to plan the costs. If you want, you can also copy Easy Cost Planning planned data from one CO version to another.

Following are Easy Cost Planning functions that aren't available in the other forms of cost planning for WBS elements:

- **Usage in simulation versions**
Easy Cost Planning can be implemented for the cost planning in simulation versions.
- **Copying**
When creating a project using a template of another operative

project, the Easy Cost Planning planned data can be copied as well if necessary.

- **Execution services**

During the implementation phase of projects, you can use *execution services* to post activity allocations, purchase requisitions, or goods issues, for example, for WBS elements, directly in Easy Cost Planning. The system suggests the Easy Cost Planning planned data for creating the respective documents (see [Chapter 4, Section 4.2.3](#)).

2.4.5 Network Costing

If you use networks for structuring your projects, the network costing function is available for automatically determining planned costs using the activity, activity element, and material component data. Similar to unit costing for WBS elements or Easy Cost Planning, network costing also uses existing data from controlling, purchasing, or materials management for calculating the planned costs. The planned costs always reference cost elements and dates, which means that network costing is a cost element- and period-specific type of planning.

[+] Network Costing and Planning Periods

During network costing, the periods of the planned costs can be derived automatically from the basic dates of the activities, activity elements, and requirement dates of material components. If activities or activity elements span several periods, the system can also distribute the planned costs across these periods. If the dates of network objects are shifted, the distributions of the respective planned costs can be automatically adapted as well.

You can trigger network costing manually from various processing transactions for networks. Depending on the network header settings, network costing can be executed automatically on every save after the network creation or the network release if there was a relevant change to the

network. The network costing can then be fully run for all network objects; otherwise, it only recalculates the changed objects (*update*).

To calculate several networks simultaneously, Project System provides Transaction CJ9K. In the initial screen of this transaction, you can select multiple networks and then trigger the calculation of planned costs either directly or via a background job. If the same networks are to be calculated repeatedly, you can save your selection as variants. The usage of asynchronous network costing is particularly necessary if you want to use networks for planning not only costs but also payments.

The calculation of planned costs will now be described for the different network objects. It's valid for all activities and activity elements that the system only calculates planned costs for these objects if the control key explicitly permits it (i.e., if the **Calculate** indicator is set in the respective control key of the activities and activity elements). A similar indicator can also be found in the detail screen of material components. The system will only determine planned costs for the corresponding component during the network costing if this indicator has been set.

For planning costs for internal activities, you need to store a work center, an activity type, and planned work in an internally processed activity (or an internal element). For the combination of the activity type in the activity and the cost center specified in the costing data of the work center ([Section 2.2.1](#)), the system determines a price for every relevant period, and a cost element from the master record of the activity type. You can use a customer enhancement to apply deviating prices for calculating the planned costs. The formula in the work center costing data controls the quantity with which to multiply the price for calculating the planned costs. Usually, work centers use standard formula `SAP008`, which uses the planned work in the activity for this calculation. The chronological distribution of the costs is determined via the distribution key in the activity or in the work center ([Section 2.2.1](#)). If you haven't stored a distribution key in the activity or in the work center, the system distributes the planned costs equally across the earliest dates of the activity.

In internally processed activities, on the **Assignment** tab, you'll find the **Material Planning** field. During an early project planning phase, you can enter an estimated or empirical value for the later consumption of material in this field. The cost element of this material planning value must have been

entered in the network profile of the network. In a later planning phase, the system automatically reduces the material forecast value in reporting by the value of the material components you assign to the activity.

If you use purchasing info records in an externally processed activity (or external element) for specifying the activity to be procured, the system automatically determines a price per unit for this activity and also suggests a planned quantity. The network costing calculates the planned costs for procuring the external activity by multiplying the price and the planned quantity. If you haven't specified any purchasing info record, you need to manually enter a price for calculating the planned costs in the activity. The corresponding cost element can be stored as a default value in the network profile or can be changed in the activity. The period of the planned costs is calculated by the network costing using the latest end date of the activity.

A more detailed form of cost planning for externally processed activities is the use of *invoicing plans*. If you create an invoicing plan for an externally processed activity, you can distribute the planned costs for procuring the external activity to different dates and thus to different periods (see [Figure 2.63](#)).

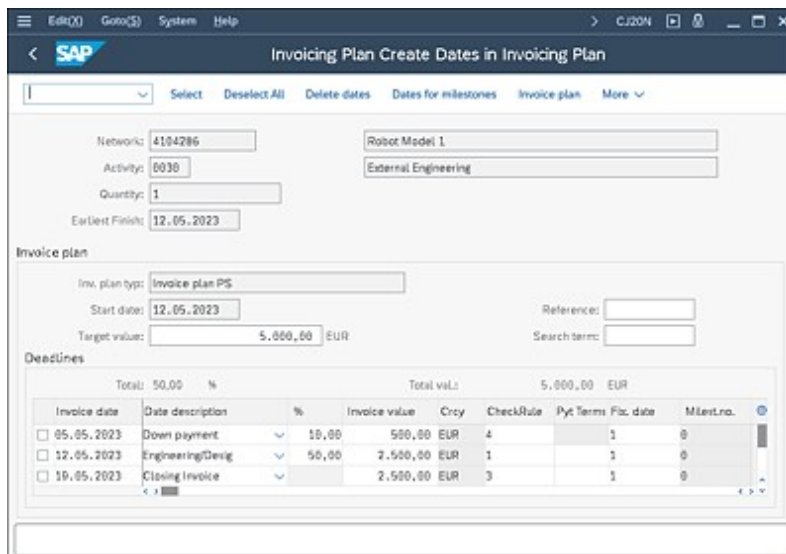


Figure 2.63 Invoicing Plan

In particular, you can also plan outgoing payments, for example, down payments, in invoicing plans using the provided *invoicing rules*. Although payment data isn't relevant to costs using asynchronous network costing, the

outgoing payments planned in the invoicing plan are passed on to the PS Cash Management detailed to a daily level for an accurate payment planning (see [Chapter 6, Section 6.2.5](#)). The individual dates in an invoicing plan, the distribution of costs or payments to the various dates, and the invoicing rules to be used can be specified manually, derived via milestones, or transferred from an invoicing plan template.

For deriving the invoice plan data from milestones, the milestones must have the **Sales Document Date** indicator set. During the transfer, the system copies the planned milestone date and the percentage you entered in the milestone to the invoicing plan. With every change to the milestone dates, the invoicing plan dates are automatically adapted. If you specified a usage in the milestone, the system can also determine an invoicing rule. A prerequisite to the automatic determination of the invoicing rule from the milestone usage is that the invoicing plan type and an appropriate date category are stored in the usage definition. In the Customizing of invoicing plans, you can then specify which invoicing rule is to be used for the combination of invoicing plan type and date category.

You can also create invoicing plans using a template. For a template, you can use invoicing plans of other activities or material components, or you can use default invoicing plans defined in the Customizing that the system could derive via the invoicing plan type for the network profile. Starting from the earliest end date of the activity, the system calculates the individual dates of the invoicing plan using the start date and the date intervals of the template. If the end date of the activity is shifted, the invoicing plan dates are shifted as well.

[+] Fixed Dates in the Invoicing Plan

If the dates of an invoicing plan are to be fixed (i.e., independent of project date shifts), you can't work with templates or derive the dates from the milestones but must enter the dates manually in the invoicing plan. During network costing, the data in the invoicing plans overrides the data of the activity itself.

The planned costs for service activities (or service activity elements) are typically composed of the planned costs of the planned services and the

expected value of the unplanned activities in the service specifications of the activities. The value of planned activities is calculated from the service conditions of the specified activities and the planned quantity in the service specifications. The cost element for the planned services is specified in the activities or stored as a default value in the network profile. The system determines the periods of the planned costs from the latest end dates of the service activities. As with externally processed activities, you can implement invoicing plans for detailed cost or payment planning.

Using general costs activities (or cost activity elements), you can plan additional costs that aren't calculated from the data of other activity categories or assigned material components, such as travel costs or primary costs for activities that aren't procured via purchasing. In the easiest case, you enter an amount and a cost element as a planned value in a general costs activity. The cost element can also be stored as a default value in the network profile.

If you want to plan costs for different cost elements using a general costs activity, you can create a unit costing for the activity. As with unit costings for WBS elements ([Section 2.4.2](#)), in a unit costing for the activity, you can create a table of different costing items for general costs activity. In particular, you can use the item category **V (Variable Item)** to manually enter cost elements and corresponding planned costs (prices and quantities). The planned costs of unit costing override the costs planned manually in the detail screen of general costs activity.

The system automatically determines the periods of the costs planned manually or via unit costing from the basic dates of the general costs activity. If you stored a distribution key in the activity, this key determines the chronological position and the distribution of the planned costs across the duration of the activity. If you haven't entered a distribution key, the system distributes the planned costs equally across the earliest dates of the activity. For detailed time scheduling of the cost or payment flows, you can also implement invoicing plans for general costs activities as well. Note, however, that you can't use an invoicing plan and unit costing simultaneously for a general costs activity.

If you assigned material components to activities, the system can use the component data during network costing to automatically calculate planned costs for the later material consumption. The calculation of material costs

depends on the item category and the type of stock management for the material components ([Section 2.3](#)).

For non-stock items without a reference to a material master record or a purchasing info record, you can manually specify a price per unit. The system then calculates the planned costs by multiplying the price with the planned quantity. If you entered a material number for the non-stock item, the system can retrieve the price from the material master record. If you specified a purchasing info record in the component, the price is determined using this purchasing info record. If you want, you can also create an invoicing plan for a non-stock item for more detailed planning. The data from the invoicing plans overrides the other data of the material components.

For stock items, network costing calculates the planned costs from the planned quantity and a price per unit, which is determined from the material master record. For material components managed in the non-valuation project stock, the system only reports planned costs if you use a planning network. For the stock items of a valuation project stock, you can also create unit costing for a component and therefore calculate the production costs for internally produced material, for example, if no appropriate price for this material is available in the system.

The system determines the period of the planned costs for material components from the requirements date of the components or from the invoicing plans you assigned to the material components. The cost elements are typically detected automatically via the account determination or transferred from the unit costings of the material components.

[+] Network Costing and CO Versions

By default, the planned costs of network costing are saved to CO version 0. If you want to, however, you can copy the planned data to another CO version using Transactions CJ9F or CJ9FS. You can also use BAdI `BADI_NW_CO_VERS_CK` to save the network costing data directly to a CO version other than 0.

In network costing, the overhead rates are automatically calculated in the plan as well. The calculation is controlled by the costing sheets in the activities (see [Chapter 5, Section 5.3](#)). Similar to unit costing or Easy Cost

Planning, network costing is controlled via a costing variant. The valuation variant contained in the costing variant uses strategies to define how the prices for internal activities, external activities, and materials that are required for the calculation are to be determined. The costing variants used for calculating a planned and an actual network are specified in the network header or stored as default values in **Network Type Parameters**.

Using the **Activity Account Assignment** indicator in **Network Type Parameters**, you decide whether the planned costs—and the later actual costs—are separately managed on every single activity or activity element, or whether the planned costs of a network are only reported as a total on the network header level. Normally, it makes sense to use activity-assigned networks because they are conducive to a more detailed analysis of planned and actual costs. In addition, you can assign the activities of activity-assigned networks to different WBS elements and assess the aggregated costs of the assigned activities on the WBS element level. Header-assigned networks are typically used in sales and distribution projects where controlling takes place on the sales order item level. Cost integration with the networks is achieved via an account assignment to network headers. We don't recommend an activity assignment of a header-assigned network to different WBS elements.

No plan line items can be created for planned data from network costings. Therefore, direct integrated planning or planned settlement isn't possible for networks. However, it's possible to achieve indirect integrated planning and planned settlement for networks that are assigned to plan-integrated WBS elements ([Section 2.4.3](#)). You can achieve this indirect integrated planning using Transaction CJ9Q or CJ9QS to roll up the planned costs of networks or network activities to the WBS elements to which they are assigned. If the WBS elements are plan-integrated, the system writes plan line items for the WBS elements during the rollup and automatically forwards the planned data for the internal activities as scheduled activities to the corresponding cost centers. You can also use the plan line items for a planned settlement on the WBS elements level.

However, note the following restrictions for the integrated planning of networks:

- The rollup of planned network data can't be performed in CO version 0 because the planned costs would then be reported twice

on the WBS elements level ([Section 2.4.6](#)).

- Overhead rates aren't rolled up to the WBS elements. However, you can manually apply the overhead for the WBS elements in the CO version used via Transactions CJ46 and CJ47.
- If the planned values of the networks change, you need to reuse Transactions CJ9Q or CJ9QS if you want to adapt the planned data on the WBS elements level.

Compared to the manual cost planning forms for WBS elements, using network costing has many advantages:

- Because network costing is always cost element-specific, the system can automatically calculate overhead rates during network costing.
- Network costing is also period-specific, where the periods of the planned costs are directly derived from the dates of the network objects, so the date shifts directly affect the periods of cost planning.
- Invoicing plans and unit costings provide different possibilities for detailing your cost planning. Invoicing plans even enable payment planning to the day. If you copy activities or networks, all data required for calculating the planned costs is copied as well. You only need to perform network costing for the new objects to determine the planned costs. In this respect, network costing is a copyable form of cost planning.
- You can also implement network costing for simulation versions.

2.4.6 Planned Costs of Assigned Orders

WBS elements you identified as account assignment elements not only can be assigned activities or entire networks but also other order categories of the SAP system, such as internal orders, service and maintenance orders, or production orders. The assignment can be stored manually in the respective orders or created automatically. Internal orders, for example, can be created during claim management and assigned to a WBS element (see [Chapter 4](#),

[Section 4.8](#)). Maintenance orders can derive the assignment to WBS elements from functional locations, provided you've already stored WBS elements there. Alternatively, you can also use the order assignment to project function, for example, to assign maintenance orders to WBS elements. Production orders referencing project stocks are automatically assigned to the stockholding WBS elements.

Depending on the order category, you have different options for order cost planning. For internal orders, for example, you could use similar forms of cost planning as for WBS elements. The planned costs of service, maintenance, and production orders, however, are calculated in a similar way as the planned costs of networks. In contrast to networks, however, planned costs for production orders are always managed on the level of the respective order headers. An assessment on the level of the individual activities within these orders is therefore impossible. As for networks, you can also use activity-assigned orders for service and maintenance orders. In Customizing, depending on the respective plant and order type, you define whether header account assignment or activity account assignment is used for an order. For activity-assigned orders, you can specify the assignment to WBS elements separately on the level of the individual activities of the service and maintenance orders.

In the Project System Customizing, you can use Transaction OPSV to control how the planned costs of assigned orders are to be handled on the WBS element level (see [Figure 2.64](#)). Using the **Append.** indicator in this table, you specify whether or not the planned costs for orders are to be added to the planned costs of the WBS elements.

If the **Append.** indicator is set for a specific combination of order category, order type, and controlling area, these are called *appended orders*. The planned costs of these orders are rolled up additively to the assigned WBS elements and thus increase the planned total of these WBS elements. This setting is particularly relevant if you want to budget the WBS elements, and the planned total is instructive—you have to know how much to budget for—when assigning budgets (see [Chapter 3, Section 3.1](#)).

Orders for which the **Append.** indicator isn't set are referred to as *non-appended orders*. Your planned values aren't rolled up to the assigned WBS elements and thus don't increase their planned total. If you work with budgeting in Project System, you might have to consider the planned costs

of non-appended orders manually when assigning budgets. For production orders, for example, using non-appended orders makes sense if the planned costs for production are already reported for assigned activities on the WBS element level due to material components.

The **Assign Funds in Plan** indicator in the order value updating table for the project controls when the values of assigned orders should represent allotments against the budget of WBS elements. This indicator is discussed in detail in [Chapter 3, Section 3.1.5](#).

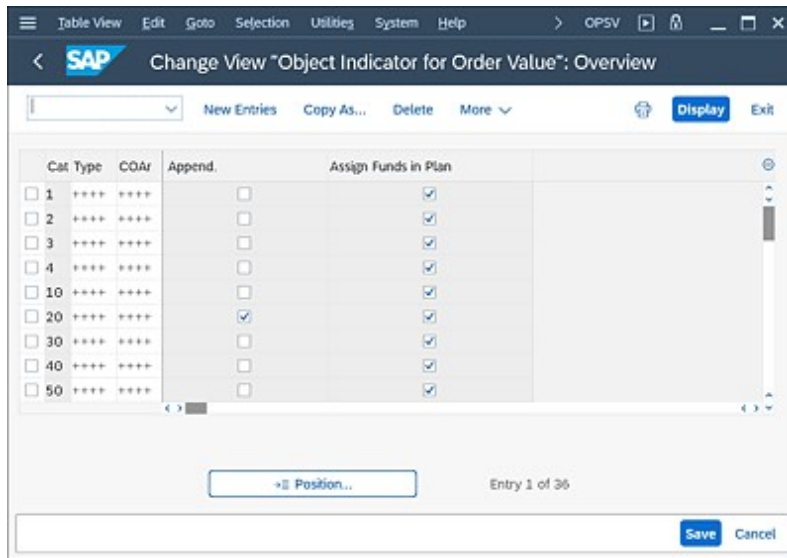


Figure 2.64 Definition of Order Value Update for the Project

2.4.7 Planning Statistical Key Figures

Statistical key figures enable you to plan and monitor specific units within projects, such as the mileage spent, number of project team members, and so on. You can use Transactions KK01, KK02 (Individual Processing), and KAK2 (List Maintenance) to create and edit statistical key figures. The master data of a statistical key figure merely contains an ID and a name, the unit in which the key figure is maintained, its assignment to a controlling area, and the key figure type. The key figure type determines whether the key figure values should be the same for the month of entry and all subsequent months of the current fiscal year (fixed value), as would be the case for the number of project team members, or whether the values apply

only to the month of entry (totals value), as, for example, in a monthly planning of miles to be driven.

You can use Transaction CJS2 to plan statistical key figures at the level of WBS elements, while Transaction CJK2 allows you to plan statistical key figures at the level of networks, activities, and activity elements.

The actual planning process is similar to detailed cost planning ([Section 2.4.3](#)). In the initial screen, you must define the CO version and the planning period, the project elements to be planned, and the statistical key figures. After that, an overview screen allows you to store a current planned value and, if necessary, a maximum planned value for the entire period. Both the distribution key and key figure type then determine how to distribute the planned values across the planning period. However, you can also call a period screen to change the distribution of planned values across individual periods. Similar to detailed planning, the planner profile and the planning layouts determine the appearance and functional scope of the different entry screens for planning statistical key figures.

In addition to planning statistical key figures, you can also enter actual data of statistical key figures for released project elements and compare this data with the planned values in reporting. Transaction KB31N enables you to do so.

If required, you can even use statistical key figures for calculations in the context of period-end closings. For example, statistical key figures may be useful to determine periodic transfers or template allocations (see [Chapter 5, Section 5.4](#)).

2.4.8 Planning Forms Based on Table ACDOCP

The previously described cost planning forms store the planned data in special controlling database tables. However, similar to the central database table for actual data—table `ACDOCA` (see [Chapter 4](#))—SAP S/4HANA also has a central planning data table: database table `ACDOCP`. Compared to classic database tables, this SAP HANA–optimized table also allows the storage of various kinds of additional information, such as further organizational units, profitability characteristics, or values in parallel currencies. Based on table

ACDOCP, there are also new SAP Fiori or even SAP Analytics Cloud reports as well as additional project planning options available, which are presented in this section.

The planned values from Easy Cost Planning for projects and from the network costing can also be stored in table ACDOCP, in addition to saving them in the controlling tables. For the values from cost element and activity type planning, there is a copy program that you can use to transfer the data from the controlling tables to table ACDOCP:

R_FINS_PLAN_TRANS_CO_ERP_2_S4H (Transfer CO Plan Data from CO Tables to Table ACDOCP). Conversely, you can also transfer project plan data from table ACDOCP to the cost element/activity input planning of WBS elements using program R_FINS_PLAN_TRANS_CO_S4H_2_ERP (Transfer CO Plan Data from Table ACDOCP to CO Tables). This may be necessary if you want to use the data in downstream processes that are based purely on the controlling tables.

Planned data is always stored in table ACDOCP with a reference to cost elements or general ledger accounts and periods. Planning based on table ACDOCP is therefore always by cost element and period.

Unlike the previously described planning options, where the planned values are always stored with a reference to CO versions, table ACDOCP–based planning functions use plan categories to distinguish between different planning forms and statuses. You can create planning categories in the Customizing section for controlling using the **Maintain Category for Planning** Customizing activity (see [Figure 2.65](#)). When you create a plan category, in addition to the identification and description, you also specify an application type and, if necessary, a usage. The application type and usage control other functions of a plan category, for example, whether values for this category can only be filled via certain types of applications or whether importing or copying the data is possible. To use a conversion to parallel currencies, you need to enter an exchange rate type.

To save the planned data from Easy Cost Planning in table ACDOCP, you must create plan categories for the application type **Project management** and the usage **Easy Cost Planning for Projects**. In the Customizing section for easy costs planning, you can then assign combinations of controlling areas and CO versions to these categories and thus determine for which combinations the planned values should also be written to table ACDOCP (see [Figure 2.66](#)).

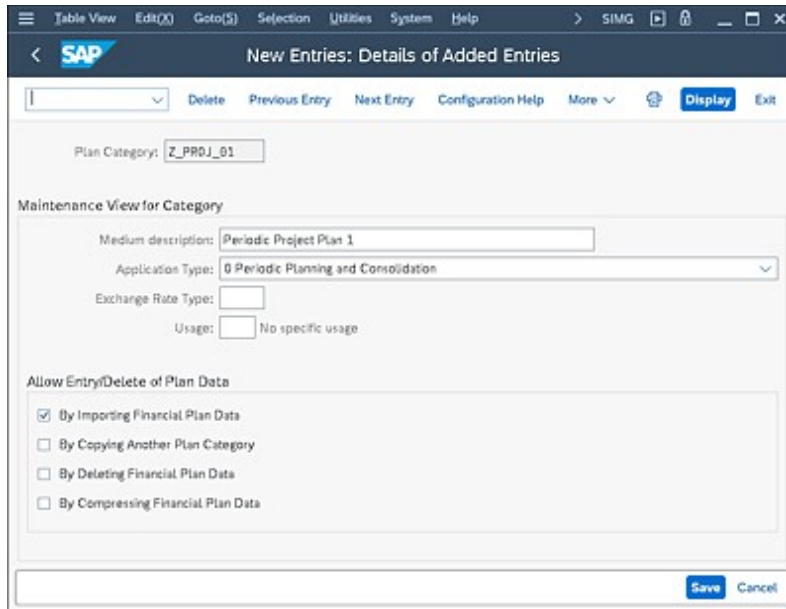


Figure 2.65 Definition of a Plan Category

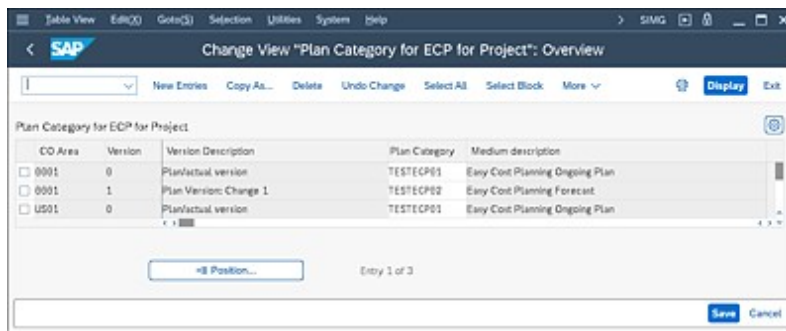


Figure 2.66 Assignment of Plan Categories to CO Versions of Easy Cost Planning

To use table `ACDOCP` in the context of network costing, you must first create a plan category for the application type **Project management** and the usage **Network costing**. In the application-specific Customizing for controlling planning, in IMG activity **Maintain Categories for Project Management – Network Costing**, you can then mark this **Plan Category** as relevant for current planned costs (see [Figure 2.67](#)).

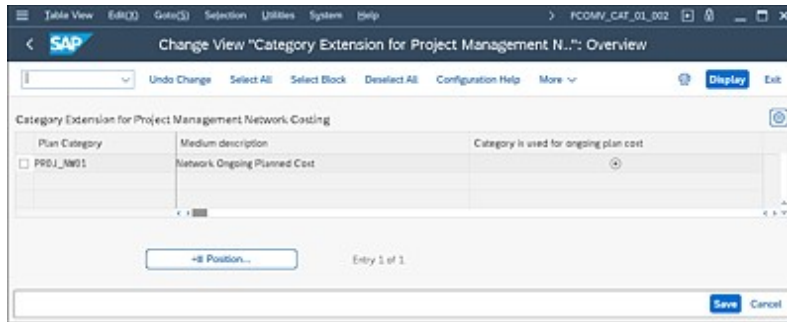


Figure 2.67 Defining a Plan Category for Network Costing

To use table `ACDOCP` for the SAP Analytics Cloud planning and data import options presented next, you must create plan categories for the **Periodic Planning and Consolidation** application type without a specific usage.

A special application type is the **Virtual Plan Category** type. This application type can't itself be used for direct planning, but it's used to logically combine multiple plan categories for evaluation purposes. Customizing Transaction `FCOMV_CAT_ASSGMT` allows you to assign several source categories to virtual plan categories for this purpose. The definition of virtual plan categories is particularly useful in Project System if, for example, you want to evaluate manually planned costs on WBS elements together with the calculated costs of assigned orders in table `ACDOCP` by selecting a single plan category.

SAP Analytics Cloud

For table `ACDOCP`-based cost planning on WBS elements, you can use functions and special content in SAP Analytics Cloud. Project planning is part of the SAP business content Integrated Financial Planning for SAP S/4HANA. The `SAP_FI_IFP_IM_OPEX_ProjExpenses` planning story, which is provided as an example, enables you to plan activity inputs and outputs on WBS elements based on actual values from previous periods. The planning of the activity inputs is also integrated into cost center planning, which you can carry out in SAP Analytics Cloud. Of course, you can also configure your own content and thus adapt the planning functions to your own requirements.

For planning itself, you must first import the WBS elements and other master data that you need for planning. You can then use table views based

on planning models to enter planned values for WBS elements. Depending on the definition of the planning model, you can use functions such as copying, aggregation or disaggregation of data, formulas, or different versions. [Figure 2.68](#) shows an example of project planning in SAP Analytics Cloud. After you've completed planning, you can publish the planned data and transfer it back to the SAP S/4HANA system, where the planned data is then stored in table `ACDOCP`.

Robotics - Planning		Date	2020	2021	Q1 (2021)	Q2 (2021)	Q3 (2021)	Q4 (2021)
Project	Accounts							
▼ Robotic Project E-2002	► Project Cost	16,579,334	10,046,813	8,532,724	2,243,306	1,515,479	1,917,317	858,822
Specification	► Project Cost	807,860	807,860	--	--	--	--	--
Construction	▼ Project Cost	15,771,474	9,238,954	8,181,944	2,243,306	1,515,479	505,159	--
	Salary - Standard	495,814	343,409	212,405	90,030	91,832	30,343	--
	Salaries - Exempt	4,792,259	3,502,712	1,289,588	882,723	455,249	151,716	--
	Material - Components	35,490	35,490	--	--	--	--	--
	Material - Service	8,305	8,305	--	--	--	--	--
	External Design Services	4,135	4,135	--	--	--	--	--
	Engineering	14,587	14,587	--	--	--	--	--
	Prototyping	951	951	--	--	--	--	--
	External Services	1,860,323	1,049,809	914,513	390,934	391,834	130,649	--
	Misc	9,917,582	4,324,562	1,589,820	919,297	512,042	170,681	--
	Internal	76,509	76,509	--	--	--	--	--
	Others	327,263	374,844	152,419	69,322	69,322	21,774	--
Procurement	► Project Cost	2,371,955	3,175	2,370,780	--	--	1,612,158	858,822

Figure 2.68 Project Planning in SAP Analytics Cloud

Import Financial Plan Data App

Another way to store planned costs for WBS elements in table `ACDOCP` is to import comma-separated values (CSV) files using the SAP Fiori app called Import Financial Plan Data (F1711; see [Figure 2.69](#)). In this app, you can first download a template for planning on WBS elements and then use it for your planning via Microsoft Excel, for example. If you then enter the CSV file with your planned data in the app, the app first checks the consistency and completeness of the data and informs you about the number of new or changed data records. However, the consistency check doesn't include a check against the status or, for example, the master data indicator **Planning element** of the WBS elements. After a successful check, you can finally trigger the import and analyze the result directly if required. When importing planned data, the system automatically determines additional fields, such as profit centers or the chart of accounts, and performs conversions into additional currencies.

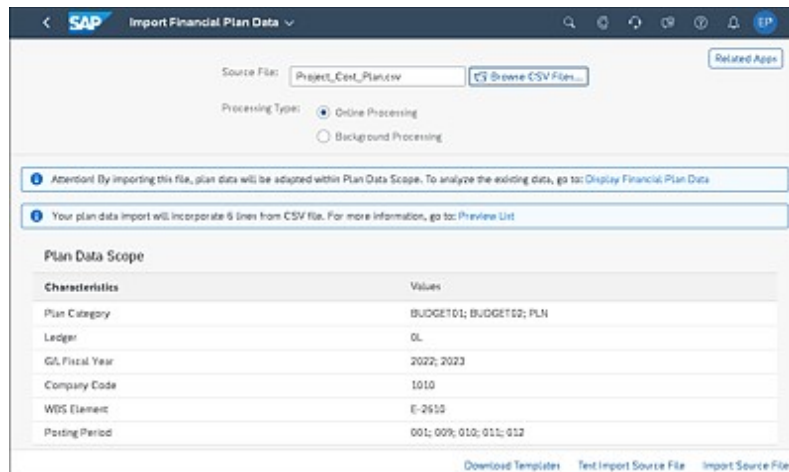


Figure 2.69 Importing Project Plan Data App

[!] Table ACDOCP Plan Values in Downstream Processes

Note that the planned values of table `ACDOCP` can't be evaluated using hierarchy/cost element reports, the classic plan line-item reports, or the structure/project structure overview. Instead, new SAP Fiori-based reports or standard content in SAP Analytics Cloud, for example, are available for table `ACDOCP`-based plan data for analysis purposes (see [Chapter 6](#)).

Furthermore, not all downstream processes can use planned values from table `ACDOCP`. For example, you can't roll up these planned values to investment management or transfer them as budget values (see [Chapter 3](#)). Various period-end closing activities, such as the calculation of planned overhead based on costing sheets, interest calculation, results analysis, incoming order determination, cost forecasting, or planned settlements (see [Chapter 5](#)) of projects; don't currently support planned data from table `ACDOCP`. However, you can transfer the planned values from table `ACDOCP` to the cost element/activity input planning of WBS elements as described previously and thus use the planned data in the classic reports and downstream processes as well.

[AT A GLANCE] Project Cost Planning

Depending on your requirements, you can use different cost planning options for projects in Project System. If you work with networks, the system can automatically calculate the planned costs using the data of activities, activity elements, and material components, and report them separately per activity or activity element, respectively.

If you only work with WBS elements, hierarchical cost planning, unit costing, detailed planning, and Easy Cost Planning or the usage of SAP Analytics Cloud represent various manual forms of cost planning. The planning of statistical key figures not only enables you to plan the costs but also other key figures for projects.

2.5 Revenue Planning

For some project types, particularly for sales and distribution projects, revenue planning, in addition to the cost planning, is important to make assumptions about the later profits or profitability of a project during the planning phase. For projects, you can plan revenues on the WBS elements level or, if you use the integration into sales and distribution, using sales documents linked to projects. WBS elements for which you want to plan revenues must be identified as billing elements (see [Chapter 1, Section 1.2.1](#)). Revenue planning on the network level isn't possible.

Similar to cost planning using WBS elements, there are different possibilities with different levels of detail for revenue planning as well. If you want, you can also perform several revenue plans for one billing element and save them in different CO versions.

2.5.1 Hierarchical Planning

Using Transaction CJ42, you can perform a hierarchical revenue planning for billing elements of a project. For this reason, there are similar functions as in the hierarchical cost planning ([Section 2.4.1](#)). This form of revenue planning doesn't reference any revenue element and is therefore not revenue element specific. Depending on the planning profile settings of the project, you can plan the revenues as total values or with a reference to individual fiscal years, or both. A distribution of the revenues to individual periods of a fiscal year isn't possible in the hierarchical revenue planning.

2.5.2 Detailed Planning

The detailed planning of revenues enables you to plan values for different revenue elements and to distribute these values to individual periods of a fiscal year either manually or automatically using distribution keys. This form of revenue planning is specific to both the revenue element and the

period. The periods of planned revenues, however, can't be derived from the planned dates of the billing elements but must be specified manually.

For the detailed planning of revenues, there are the same functions as for cost element planning ([Section 2.4.3](#)). In particular, this form of revenue planning is again controlled by planning layouts and planner profiles. You can perform the detailed planning of revenues via Transaction CJ42 or by calling Transaction CJR2. In the planning profile, you determine the revenue element group that is to be available during the detailed planning via Transaction CJ42. To plan revenues using Transaction CJR2, your user must be assigned to a planner profile with an appropriate planning layout for revenue planning. Furthermore, you can also use the table `ACDOCP`-based functions explained in [Section 2.4.8](#) for revenue element and period-based planning of revenues on WBS elements.

2.5.3 Billing Plan

Using a billing plan, you can make very detailed planning—similar to invoicing plans. A billing plan always references a revenue element that you must store in the planning profile of the project. If you want, you can also use billing plans for planning incoming payments to the day. The update of planned data always references CO version 0. In contrast to hierarchical planning or detailed planning, you can use billing plans for revenue planning in simulation versions.

In a billing plan, you distribute a target value (i.e., the entire total revenue) to different dates. To do this, you create the different items within a billing plan, each including information about the planned date, amount, or percentage, respectively, of the target value, and the *billing rule* to be used. Using the billing rule, you can control whether an item is relevant to revenue, that is, updated in the revenue plan, or just relevant to down payments. Items that are relevant to down payments are updated to the day, along with the other items in the financial plan of a project in PS Cash Management (see [Chapter 6, Section 6.2.5](#)).

You can manually create the items of a billing plan. The dates of the manually created items are handled as fixed dates; that is, changes to dates regarding the project don't affect the dates of the billing plan in this case.

However, you can also create the items automatically by transferring milestone data or referencing a template.

When transferring milestone dates, the system copies the milestone dates and the billing percentage stored in the milestone to the billing plan and might also suggest a billing rule. The billing rule is then determined from the combination of billing plan type and date category stored in the usage of the milestone. If the milestone dates change, the dates of the billing plan are also adapted automatically when saving the project. A prerequisite for transferring milestone dates is that the **Sales Document Date** indicator is set in the relevant milestones (see [Chapter 1](#), [Section 1.4](#)).

If you create a billing plan referencing a template, the system determines the dates and the percentage distribution of the amounts for the billing plan from the item data of the template. The system adjusts the dates to the start date and the percentage distribution of the amounts to the target value. When dates of the billing element are changed, the dates of the billing plan are automatically adjusted after scheduling, if you worked with a template. You can use other billing plans as templates or define default billing plans in the Customizing section of Project System.

In nearly every processing transaction of WBSs, for example, in Project Builder, you can assign billing plans to billing elements of a project. If you want, you can also implement billing plans in simulation versions for revenue planning. A special possibility of creating billing plans for WBS elements is to use sales pricing, which is discussed in [Section 2.5.4](#). The billing plans that you assign to WBS elements are exclusively for planning revenues and possibly payments; they can't be used for automatic invoice creation.

However, you can also create billing plans in sales and distribution for customer quotation or sales order, provided the respective item category permits this (see [Figure 2.70](#)). If the sales document item is assigned to a billing element, the planned data of the billing plan is automatically updated to the revenue planning or cash flow planning of the billing element and can therefore be analyzed on the WBS element level. A prerequisite is that you must have enabled the update of data from quotations or orders in the planning profile of the project.

In contrast to the billing plans for WBS elements, the items of a billing plan for a sales document item can also be used for billing during the project implementation. The actual revenues are then automatically transferred to the billing element. If you created items of a billing plan using milestone data, you can use the milestone billing function (see [Chapter 4, Section 4.6.1](#)).

[!] Prioritization of Billing Plans

Note that the values from billing plans for WBS elements override the values from sales documents. If you want to use billing plans for WBS elements only for a forecast or as a template for billing plans in sales documents, you should delete them after creating the appropriate sales documents.

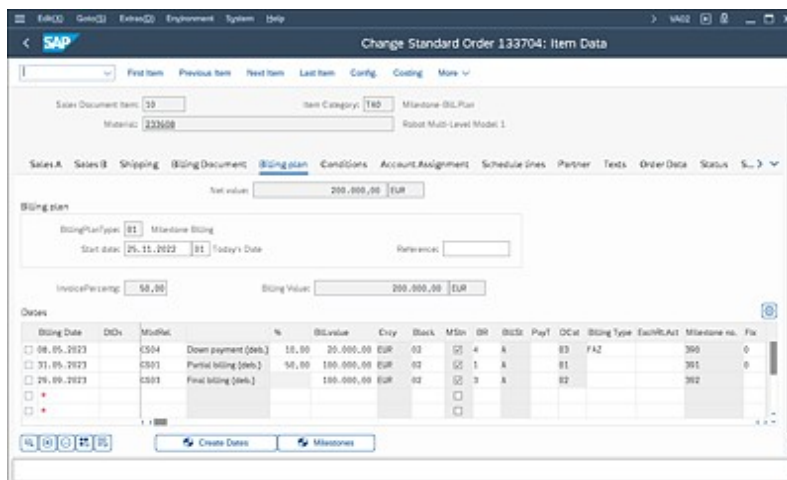


Figure 2.70 Billing Plan of a Sales Document Item

Even if you didn't create billing plans in a sales document item, you can update planned revenues from the sales document items to the revenue planning of the billing elements to which the items are assigned. The system then determines the value and the revenue element via the conditions of the items, and the billing dates from the respective delivery scheduling data.

2.5.4 Sales Pricing

Using sales pricing for sales and distribution projects, you can derive and save prices for the services or material produced for the project from the planned data of these projects. Typically, the data of sales pricing is used particularly for the creation of quotations and revenue planning of sales and distribution projects for which sales prices can't be determined based on standard prices. If you can use existing standard prices and fixed conditions for sales and distribution projects, sales pricing usually isn't required. In this case, the quotation isn't created via sales pricing, but directly in sales and distribution.

Project System provides two options for creating sales pricings: use Transaction DP81 to create sales pricings for projects that were created due to a customer inquiry and are linked to this inquiry, or use Project Builder or Transaction DP82 to create sales pricings for projects that don't reference a customer inquiry. These two options are explained in the following text.

During a presales phase, special documents can be created in sales and distribution in which customer inquiries about the price or availability of services or material can be saved. These documents are referred to as *customer inquiries* and are essentially requests for submitting a quotation to the customer.

If you created a project for the creation of quotations in Project System, you can assign sales document items to WBS elements of this project and thus establish a link between the sales document items and the project. If you now create a sales pricing for the project or a sales document item via Transaction DP81, the system can use both the sales and distribution data in the sales document and the planned data of the project.

During sales pricing, a two-step aggregation of the planned data of the project takes place (planned costs, statistical key figures, planned material and activities, etc.). A dynamic item processor (DIP) profile controls which planned data is considered during sales pricing, as well as how and according to which criteria the data is aggregated. This DIP profile must be stored in the detailed data of the sales document items.

The result of the first aggregation step is presented in the **Sales price basis** view, as shown in [Figure 2.71](#).

Description	S.	Locked	Transfer amount	Currency	Transfer quantity	UM	Transfe...	Net value	Currency
E-2610 Robot Model 1			203.712,00	EUR	***	***	71,40	203.712,00	EUR
E-2610 Robot Model 1			203.712,00	EUR	***	***	71,40	203.712,00	EUR
Insurance			0,00	EUR	***	***	0,00	0,00	EUR
Internal acty alloc., product			1.760,00	EUR	8,0	H	100,00	1.760,00	EUR
Internal acty alloc., setup			168.000,00	EUR	480,0	H	100,00	168.000,00	EUR
Overhead: Production			33.952,00	EUR	***	***	100,00	33.952,00	EUR

Description	Status	Locked	Original amount	Transfer amount	Crcy	Aind	Ap/Am	Net value	Crcy
E-2610 Robot Model 1			285.312,00	203.712,00	EUR			203.712,00	EUR
Insurance			81.600,00	0,00	EUR			0,00	EUR
Internal acty alloc., production hours			1.760,00	1.760,00	EUR			1.760,00	EUR
Internal acty alloc., setup			168.000,00	168.000,00	EUR			168.000,00	EUR
Overhead: Production			33.952,00	33.952,00	EUR			33.952,00	EUR

Figure 2.71 Sales Price Basis View of a Sales Pricing

In this example, the planned costs of a project were aggregated according to their cost elements. In addition to the aggregation itself, the DIP profile controls how the aggregated values (dynamic items) are presented in the upper area of this view. The lower area of the **Sales price basis** view has more details about the aggregated items. In particular, the lower area allows for a manual change to items by an amount, quantity, or percentage. If you change items, the amount transferred to the sales pricing deviates from the original amount.

During the second aggregation step, the aggregated and possibly manually changed items of the sales price basis are automatically linked to material numbers. Depending on the DIP profile settings, these can be, for example, material numbers from material components of the project, or fixed material numbers stored in the DIP profile for project activities or for the material to be produced using the project. The material numbers are sorted and grouped into sales document items. Using the *pricing* function of sales and distribution, the system can now determine a sales price for the individual items using the material numbers and the sales and distribution data of the inquiry (customer number, sales organization, etc.). The sales document items and the corresponding sales prices are shown in the **Sales price** view. The **Sales price** view corresponds to a customer view of sales pricing.

[Figure 2.72](#) shows an example of a **Sales price** view. The upper area shows the hierarchy of all sales document items.

The lower area lists details about the sales prices of the items, that is, the conditions determined by the system during pricing. If you want, you can adjust the sales price of an item by adding more conditions. In a sales pricing, you can toggle between the **Sales price** view and the **Sales price basis** view at any time to implement changes.

The sales pricing data can be used for different purposes:

- You can save the data to a document and add descriptive document text. Thus, you can create and compare several different sales pricings for a project.
- You can create a billing plan, which is automatically assigned to the billing element of the billing structure used in the sales pricing. As a target value of this billing plan, the system suggests the total value of sales prices.
- You can create a customer quotation. The system then automatically uses the link to the inquiry, the account assignment to the project, and particularly the items and sales prices determined using the sales pricing. The quotation can be further processed in sales and distribution and then later serve as a basis for creating a customer sales order.

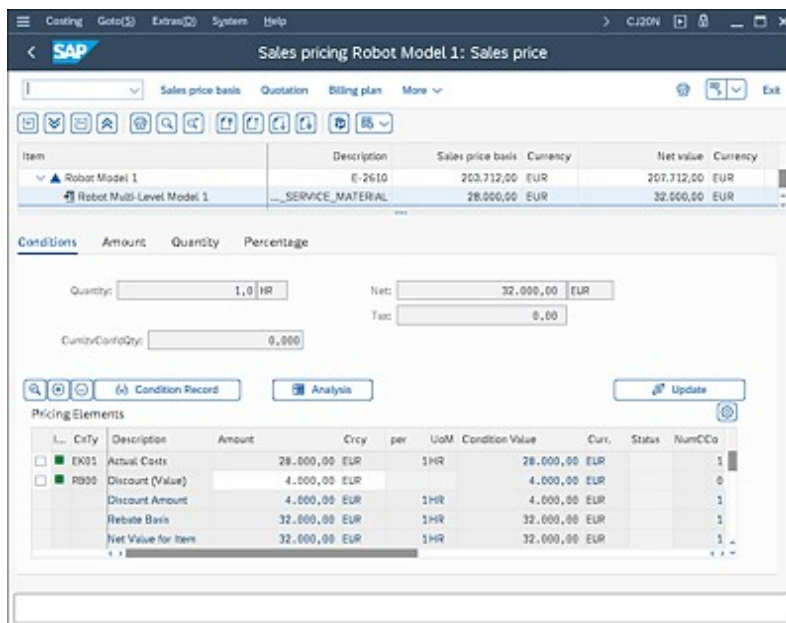


Figure 2.72 Sales Price View of a Sales Pricing

You can also perform sales pricings for projects without an inquiry, if necessary. The sales and distribution data required for a sales pricing must then be stored in the project definition. The sales organization, the distribution channel, the division, and the DIP profile can be entered as default values in the project profile or manually in the control parameters of the project definition, if necessary. For specifying the customer, an appropriate partner determination procedure must be entered on the project definition level that enables you to enter a customer number on the **Partner** tab of the project definition (see [Chapter 1, Section 1.2.1](#)). Sales pricings for projects that don't reference any inquiries can be created using Project Builder or directly via Transaction DP82.

During the quotation phase of sales and distribution projects, you can use simulation versions (see [Chapter 1, Section 1.9.2](#)) to create several structures for a project; to plan different dates, capacity requirements, and costs for the later implementation; and to compare this planning. In particular, you can also use the data of the simulation versions for sales pricings and the creation of quotations. A prerequisite for this is that the project definition and the billing element already exist as operative objects.

Sales pricings are basically controlled by the DIP profile of the sales document items or the project definition. You create DIP profiles in the Customizing section of Project System using Transaction ODP1. In addition to using DIP profiles for creating sales calculations, they can be used for resource-related billing (see [Chapter 4, Section 4.6.2](#)) or a results analysis (see [Chapter 5, Section 5.6](#)). Therefore, the settings of the DIP profile are specified with a reference to one of these usages (see [Figure 2.73](#)).

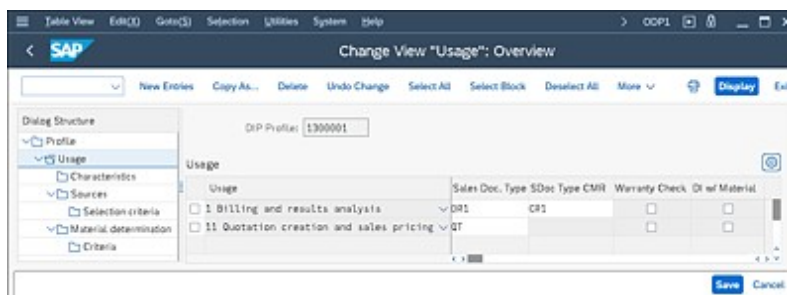


Figure 2.73 Definition of DIP Profiles

If you use it for controlling the sales pricing, first store the document type using those quotations that can be created from the sales pricing. Then,

decide which characteristics are relevant for determining the dynamic items and the material numbers. In addition, specify how the first aggregation step is to be performed and presented in the **Sales price** view using these characteristics. Possible characteristics are cost element, object number, cost center, activity type, and so on. If you want, however, you can use a customer enhancement to consider additional characteristics as well.

Then you specify the sources from which the sales pricing can retrieve values. For every source, you can define additional selection criteria or determine standard percentages. Possible sources are, for example, Easy Cost Planning, planned costs, totals records, and statistical key figures. Using a customer enhancement, you can also define additional sources.

[+] Further Information on DIP Profiles

A very detailed documentation of the definition of DIP profiles, their various application areas, and the available customer enhancements can be found as an attachment to SAP Note 301117.

Via the material determination of a DIP profile, you control the aggregation of the dynamic items to material numbers. You can manually enter the material numbers in the table for material determination; however, you can also transfer material numbers from material components of the projects. The material numbers to actually be determined during sales pricing are controlled using selection criteria that you define for the individual material numbers.

[AT A GLANCE] Revenue Planning of Projects

Similar to cost planning, Project System also provides several possibilities for planning revenues for WBS elements. By linking sales document items to WBS elements, you can plan revenues in sales and distribution as well, which can then be updated as planned revenues to projects. Using sales pricing, you can create customer quotations directly in Project System using the planned data of projects.

2.6 Summary

This chapter dealt with the different project planning functions of Project System. For WBS elements, there are functions for date planning, cost planning, and revenue planning. Networks provide functions for scheduling, resource and material planning, and network costing. If you use both WBS elements and networks for structuring projects, planned data can be exchanged between the WBS elements and the assigned networks or network activities.

3 Budget

Within the approval phase, funds for project execution are made available through budgeting. The budget management functionality of Project System enables you to monitor assigned funds and prevent budget overruns.

Companies often use the term *budget* very differently. It therefore makes sense to first explain what we mean by budget in the context in which it's used in Project System and to differentiate it from the terms *planned costs* and *actual costs*.

In the planning phase of a project, you can estimate or calculate the costs for the subsequent execution and save these costs as *planned costs* for the different project objects. Depending on which form of cost planning you use for this, the planned costs in this case are stored as total values, with reference to fiscal years or individual periods, by cost element, or without any reference to a cost element. If required, you can also enter several different planned costs for the same object and store them in different CO versions or plan categories.

You can compare the planned costs against the *actual costs* in the implementation phase of a project. The actual costs correspond to the funds that are actually required to execute individual parts of the project based on services used by the cost centers of your own company or by suppliers, materials consumed, overhead costs allocated, and so on. Actual costs are updated in Project System by the account assignment of corresponding documents on project objects and always referring to cost elements.

You document an approved cost structure for executing the different parts of the project by distributing the budget to work breakdown structure (WBS) elements of a project. A project is typically budgeted in its approval phase, that is, before the project implementation is even started. In Project System,

budget doesn't refer to individual cost elements and therefore represents the approved framework for all costs of the project, including both the primary and secondary costs (an exception in this case is *exempt cost elements*, see [Section 3.1.5](#)). Although you can still change the budget values of a project retroactively, unlike CO versions or plan categories for planning costs, there is only one relevant budget value for an object at any time.

In reporting, you can evaluate the budget values and planned and actual costs together. After you budget a project, you generally use the *availability control* function to automatically calculate assigned *funds* for the budget of a WBS element and to prevent budget overruns. In this sense, budget not only is an approved cost structure but also represents a binding budget for a project.

You can either perform budgeting and budget monitoring via the functions of Project System or you can use an integration of Project System with investment management to manage budgets across projects. These two options are discussed in [Section 3.1](#) and [Section 3.2](#).

Another option for cross-project budgeting is to integrate with Portfolio and Project Management (PPM) functionality in SAP S/4HANA, as discussed in [Chapter 7](#), along with integration scenarios with Project System.

[+] **Budget and Networks**

Note that budgets can only be assigned to WBS elements in Project System; networks can't be budgeted. However, the costs of networks or network activities, to which WBS elements are assigned, are included in the assigned funds for the budget of the WBS elements and are taken into account for the availability control.

3.1 Budgeting Functions in Project System

Depending on your requirements, you can use different functions in Project System to manage your project budgets. In this case, the management of budgets for individual projects is controlled by the budget profile in the

project definition of the projects. [Figure 3.1](#) shows an example of defining a budget profile.

You can define budget profiles in the Customizing section of Project System using Transaction OPS9 and store them as default values in project profiles. The individual settings options for a budget profile, along with the different functions of budget management, are explained in the following sections.

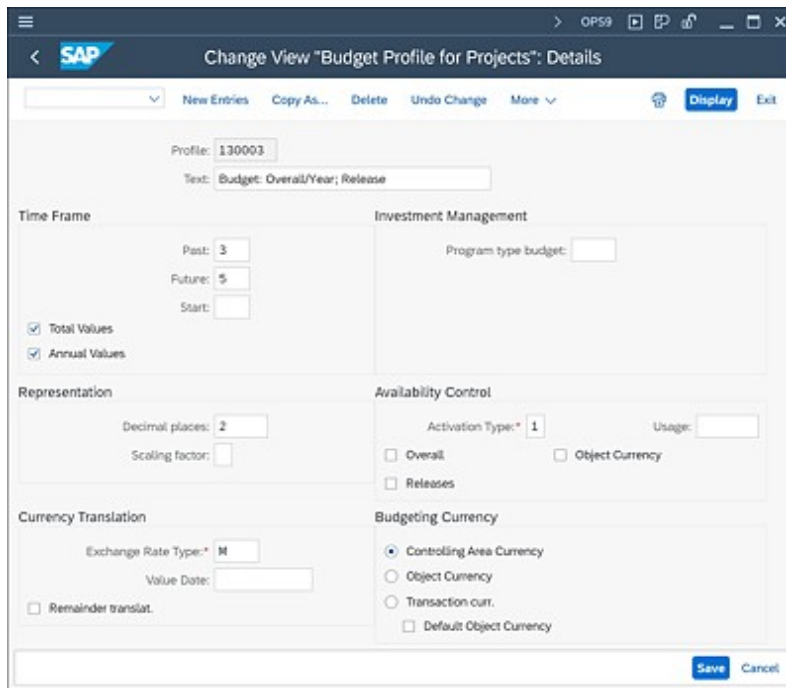


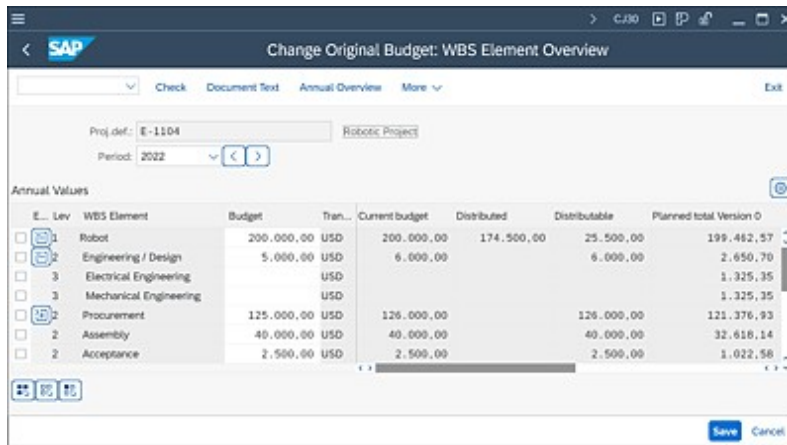
Figure 3.1 Defining a Budget Profile

3.1.1 Original Budget

The first step in managing a budget for a project is to allocate an *original budget* in Transaction CJ30 (see [Figure 3.2](#)). All WBS elements of a project are displayed in tables in this transaction.

In the **Budget** column (view), you can enter the values for the original budget of the individual WBS elements; however, the budgeting for a project is usually preceded by cost planning, which acts as an indicator for allocating budgets. The planned costs of the WBS elements are therefore displayed in the **Planned Total** view in Transaction CJ30, and you can copy these planned costs as the original budget using the **Copy View** function,

which you can call from the transaction menu. You can use the percentage rate in this case to specify whether you want the planned costs to be copied completely, partially, or at more than 100%. In the transaction settings, you define which CO version should be used to display the planned total. In addition, you can use the **Revalue** function to increase or decrease budget values of selected WBS elements by a certain percentage or amount.



The screenshot shows the SAP 'Change Original Budget: WBS Element Overview' window. The window title is 'Change Original Budget: WBS Element Overview'. The project definition is 'E-1104' and the period is '2022'. The table below shows the budget distribution for various WBS elements.

E... Lev	WBS Element	Budget	Tran...	Current budget	Distributed	Distributable	Planned total Version 0
1	Robot	200,000,00 USD		200,000,00	174,500,00	25,500,00	199,462,57
2	Engineering / Design	5,000,00 USD		6,000,00		6,000,00	2,650,70
3	Electrical Engineering	USD					1,325,35
3	Mechanical Engineering	USD					1,325,35
2	Procurement	125,000,00 USD		126,000,00		126,000,00	121,376,93
2	Assembly	40,000,00 USD		40,000,00		40,000,00	32,618,14
2	Acceptance	2,500,00 USD		2,500,00		2,500,00	1,022,58

Figure 3.2 Distributing the Original Budget

[+] Planned Total of a WBS Element

The planned total of a WBS element is calculated via the total values from hierarchical cost planning, detailed planning, unit costing, and Easy Cost Planning, along with the values of all assigned additive orders and networks or activities of a CO version.

The budgeting of a project must be hierarchically consistent by the time the availability control is activated. This means that the system checks within a project structure to verify whether the budget values of WBS elements of a lower level exceed the budget value of the WBS element for the next highest level.

You can analyze the hierarchical distribution of the budget values manually within the project structure using the **Distributed** and **Distributable** views or activate an automatic check in Transaction CJ30. A project is typically budgeted top-down. This means that the person responsible for the budget successively distributes the original budget of the highest WBS element to the WBS elements of lower levels. In contrast to this method, however, you

can also use the **Total Up** function to derive the original budget of WBS elements from the budget values already distributed on WBS elements of lower levels and therefore ensure hierarchical consistency.

[+] **Top-Down Distribution of a Budget**

You do *not* have to split the budget of a WBS element completely onto lower-level WBS elements, but you can also distribute parts of the budget further, or you can abandon the distribution of the budget altogether. This means that you don't have to perform budgeting to the lowest level of a project.

Depending on which settings you've selected in the budget profile of a project, you can enter the original budget of the project as overall values or as fiscal year–dependent values. Alternatively, you can enter both overall and original budgets with reference to fiscal years for WBS elements. With fiscal year–dependent budgeting, the budget profile also controls the interval that should be possible for budgeting. With the **Copy View** function, you can use budget values from a previous year (**Previous Year** view) as a template for the budget values of a fiscal year if required.

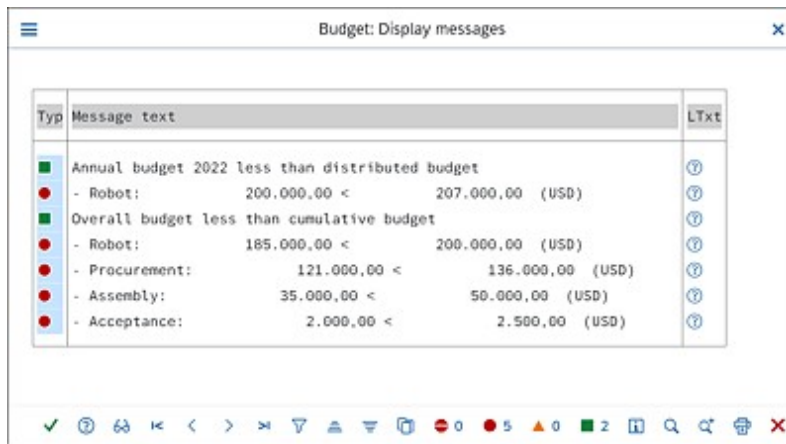
If you allow both overall values and fiscal year–dependent values for the distribution of original budgets, then the overall budget of a WBS element must be greater than or equal to the total of its individual fiscal year budgets by the time the availability control is activated. You can manually check this using the **Cumulative** view (total fiscal year values) and **Remainder** view (difference from overall value and total fiscal year values) for each WBS element. Alternatively, you can activate an automatic check.

[Figure 3.3](#) shows the results of a check in which the distribution of an original budget is inconsistent. The first error message indicates a hierarchically inconsistent distribution: a higher budget was distributed than available in a fiscal year. The other error messages refer to the fact that in total more fiscal year budgets were distributed than overall budgets.

Using the budget profile, you also control the currencies in which the WBS elements can be budgeted. You can allow the uniform CO area currency and the object currency of the individual WBS elements in the project or a transaction currency of your own choice for budgeting. However, the budget

values entered are always converted into object and controlling area currencies of the WBS elements. The annual values in this case are converted using the rate type that was defined in the fiscal year–dependent values of CO version 0. The total values are converted based on the budget profile settings.

Depending on the budget profile settings, you can run the hierarchical consistency check and the cumulative annual values check against the overall budget of a WBS element either in the CO area currency or in the object currency of the WBS elements, but you should note that consistency checks in the object currency can only be run for projects in which the object currency within the project structure is uniform.



The screenshot shows a dialog box titled "Budget: Display messages" with a table of error messages. The table has three columns: "Typ", "Message text", and "LText". The messages are as follows:

Typ	Message text	LText
■	Annual budget 2022 less than distributed budget	?
●	- Robot: 200.000,00 < 207.000,00 (USD)	?
■	Overall budget less than cumulative budget	?
●	- Robot: 185.000,00 < 200.000,00 (USD)	?
●	- Procurement: 121.000,00 < 136.000,00 (USD)	?
●	- Assembly: 35.000,00 < 50.000,00 (USD)	?
●	- Acceptance: 2.000,00 < 2.500,00 (USD)	?

Figure 3.3 Error Messages for Inconsistent Budget Distribution

When you save the distribution of the original budget, the system creates a unique document (*budget line item*) with additional information about the document date and the name of the person who created the document.

Before you save the distribution, you can enter more detailed document texts for the entire budget distribution or for individual WBS elements, which you can then evaluate later in reporting or in Transaction CJ30, along with the other data for the budget line item.

Provided you don't use the special **Save without Checking** function for saving the budget values, the system also automatically performs the checks for hierarchical consistency and for consistency of the overall value and cumulative values when you save; this prevents inconsistent budget values from being saved. After you save the distribution of the original budget, all budgeted WBS elements are automatically assigned the **BUDG** (budgeted)

status. This status prevents the budgeted WBS elements from being deleted directly and from hierarchical changes to these WBS elements and all lower-level objects.

3.1.2 Budget Updates

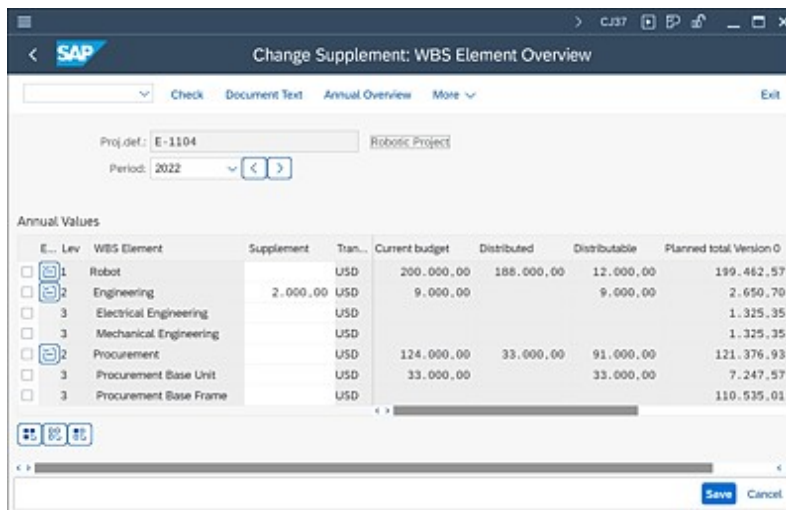
In the course of a project, you may need to change the project budget of individual WBS elements. You can use Transaction CJ30 for this and adjust the original budget accordingly. When you save the budget, a new budget line item that allows the subsequent change to be analyzed is then created. However, instead of changing the original budget, it generally makes more sense to use *budget updates*. In this context, a distinction is made between *budget supplements*, *budget returns*, and *budget transfers*. Based on the budget updates and the original budget of WBS elements, the system then calculates a current budget for each WBS element.

When you work with budget updates instead of changing the original budget, the initial, original budget remains unchanged. You can therefore compare the original budget with the current budget at any time in reporting. In suitable budget reports, you can analyze how the current budget was achieved based on supplements, returns, or transfers. Because the line-item documents of budget updates always contain information on the senders and recipients of budget values, you can also retroactively trace the flow of budget values. To prevent changes to the original budget values, thereby forcing the use of budget updates, you can define a user status that doesn't allow the budgeting business transaction, but does allow business transactions for updating a budget (see [Chapter 1, Section 1.6](#)).

Transactions CJ36 (to project) and CJ37 (in project) are available in Project System to enter budget supplements. You can enter the amounts for WBS elements by which the current budget of these WBS elements is to be increased in both transactions. You can post supplements for individual fiscal years or overall values. When you save the supplements, the system performs corresponding consistency checks exactly as it does when you distribute an original budget. You can also enter document texts that are then saved in a budget line item with the other data of the budget supplement.

The difference between Transaction CJ36 and Transaction CJ37 is that with a supplement in the project (Transaction CJ37; see [Figure 3.4](#)), the increase in the current budget of a WBS element results in the distributable budget of the higher-level WBS element being reduced accordingly. If there is no more distributable budget available on the higher-level WBS element, then you can't post a supplement on the lower-level WBS element within the project due to the hierarchical consistency check. With supplements in a project, you can only supplement as much budget as is still available for distribution at the higher level.

In contrast, with a supplement to the project (Transaction CJ36), the increase in the current budget of a WBS element automatically results in the current budget of the hierarchically higher-level WBS element being increased by the same amount. This occurs regardless of whether a distributable budget existed on this WBS element. The distributable budget of the higher-level WBS elements therefore remains constant. A supplement to the project therefore results in an additional budget being made available for a project externally.



E.. Lev	WBS Element	Supplement	Tran..	Current budget	Distributed	Distributable	Planned total Version 0
1	Robot		USD	200.000,00	188.000,00	12.000,00	199.462,57
2	Engineering	2.000,00	USD	9.000,00		9.000,00	2.650,70
3	Electrical Engineering		USD				1.325,35
3	Mechanical Engineering		USD				1.325,35
2	Procurement		USD	124.000,00	33.000,00	91.000,00	121.376,93
3	Procurement Base Unit		USD	33.000,00		33.000,00	7.247,57
3	Procurement Base Frame		USD				110.535,01

Figure 3.4 Supplement in the Project

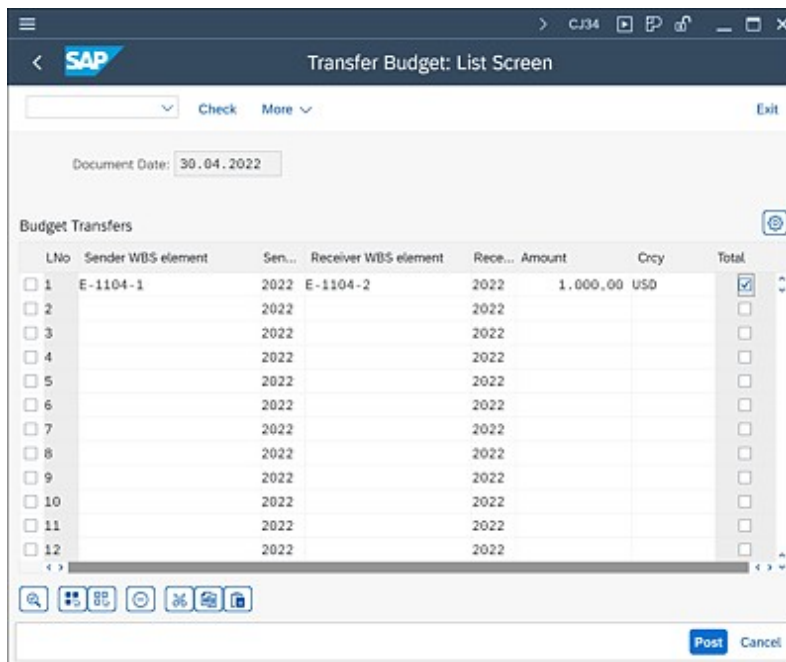
Like budget supplements, you can also enter budget returns using Transactions CJ35 (from project) and CJ38 (in project). You use budget returns to reduce the current budget of WBS elements by a certain amount; however, a budget return must not impair the consistency of the budget values. When you post a return in project for a WBS element, this automatically increases the distributable budget of the higher-level WBS

element. When you enter a return from project for a WBS element, the current budgets of the higher-level WBS elements are also automatically reduced; that is, they're extracted from the entire project budget.

You can use budget transfers for different purposes, for example, to move a budget from one WBS element to another WBS element (see [Figure 3.5](#)).

The WBS elements here can even belong to different projects. If the WBS elements belong to the same project, then they must nevertheless not be within the same hierarchy branch. The system also automatically makes transfers between WBS elements of lower hierarchy levels to the WBS element of higher hierarchy levels.

You can perform transfers for overall values or individual fiscal years. You can also transfer a budget of a WBS element for a fiscal year to another WBS element and another fiscal year if required. Finally, you can also transfer budget values of a fiscal year to another fiscal year for a WBS element (*advance* or *carryforward*). For each transfer, you can enter a document text that is saved in a budget line item with the relevant data of the transfer.



The screenshot shows the SAP 'Transfer Budget: List Screen' interface. At the top, there is a navigation bar with the SAP logo and the title 'Transfer Budget: List Screen'. Below this, there are buttons for 'Check', 'More', and 'Exit'. A 'Document Date' field is set to '30.04.2022'. The main area is titled 'Budget Transfers' and contains a table with the following columns: LNo, Sender WBS element, Sen..., Receiver WBS element, Rece..., Amount, CrCY, and Total. The first row is selected, showing a transfer of 1,000.00 USD from WBS element E-1104-1 to E-1104-2 for the year 2022. The table has 12 rows in total. At the bottom, there are icons for search, print, and other functions, along with 'Post' and 'Cancel' buttons.

LNo	Sender WBS element	Sen...	Receiver WBS element	Rece...	Amount	CrCY	Total
<input checked="" type="checkbox"/> 1	E-1104-1	2022	E-1104-2	2022	1,000.00	USD	<input checked="" type="checkbox"/>
<input type="checkbox"/> 2		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 3		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 4		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 5		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 6		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 7		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 8		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 9		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 10		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 11		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 12		2022		2022			<input type="checkbox"/>

Figure 3.5 Budget Transfer

3.1.3 Budget Release

In some cases, it's useful to separate the distribution of budget values from the actual release of budgets for executing projects or individual parts of a project. This is also frequently necessary if budgeting with reference to fiscal years isn't detailed enough and the budgets are to be made available successively within a fiscal year. However, bear in mind that you need to carry out an additional step to release budgets when managing project budgets.

In Project System, you can use Transaction CJ32 to enter released budget values for WBS elements of a project. Similar to the distribution of original budgets, you can release overall or fiscal year values depending on the settings of the budget profile. You can enter amounts manually in the **Release** column or use the **Copy View** function to copy values from other views, such as the values of the **Current budget** or **Planned total** views (see [Figure 3.6](#)). In this case, you can select at what percent you want the values to be copied and whether the values are to be added to existing releases or whether they should overwrite existing values.

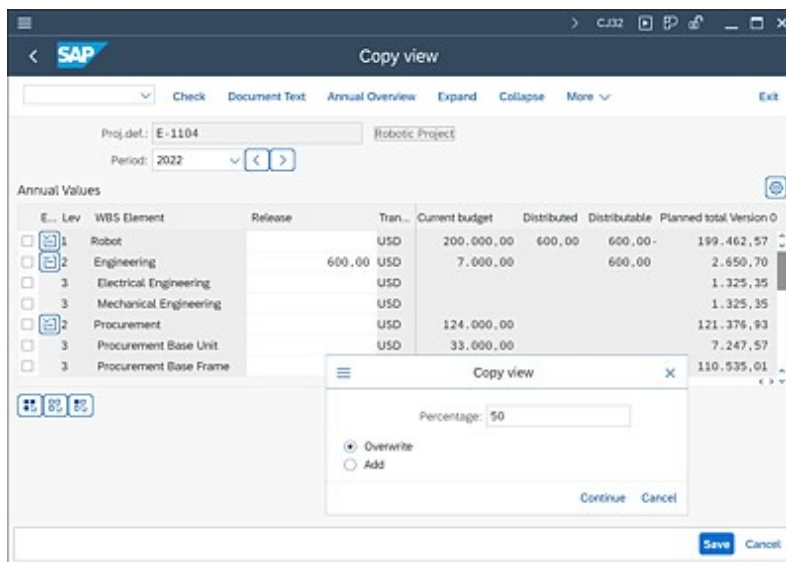


Figure 3.6 Budget Release Using the Copy View Function

You can also activate a check manually or automatically for releases when you save them. The check ensures that the releases of WBS elements don't overrun the releases of the higher-level WBS elements (hierarchical consistency). Each WBS element is also checked to ensure that the released

budget doesn't exceed the current budget. If you're working with both overall values and fiscal year values, then the release of the overall values must ultimately be greater than or equal to the total of the annual releases. Each budget release is documented by a budget line item, to which you can add a descriptive document text before you save the release.

You can also enter releases simultaneously for several projects in Transaction IMCBR3. You can copy the budget or planned values in full or with a release percentage weighted as a released budget. If required, you can perform this mass release for the total values and all fiscal year values simultaneously or restrict the mass release to an individual fiscal year.

For a customized budgeting solution, you can also use function module `KBPP_EXTERN_UPDATE_CO`, which has been released by SAP. For more information, see SAP Notes 2249740 and 625613.

[AT A GLANCE] Budget Values in Project System

A distinction is made in Project System among an original budget, the current budget, and, if necessary, budget releases. In addition to the currency in which they were entered, all budget values are also saved to the database in the object currency of the individual WBS elements and in the controlling area currency of the project.

3.1.4 Budget Carryforward

In Transaction CJCO, you can transfer a budget that wasn't consumed for a project within one fiscal year into the following fiscal year. The system uses the difference of the fiscal year budget and the distributed values and actual costs to calculate the budget amount that is carried forward from one fiscal year into the next fiscal year for each WBS element. These actual costs include the costs of the WBS element with budget carried forward, the actual costs of all assigned orders and networks, and the actual costs of lower-level WBS elements without a separate budget. Note that the planned costs of apportioned orders and networks aren't deducted from the fiscal year budget when the carryforward is calculated. Budgets are typically carried forward as part of a company's year-end closing. Because commitments are ignored

when the budget values to be carried forward are calculated, you should use a commitment carryforward in Transaction CJCF before you carry forward budgets.

You can also carry forward the budget for a project several times. If, in the old fiscal year, actual costs were posted to the project at a later stage, then a new budget carryforward results in the budget—which was already carried forward into the next year—being posted back to the previous year.

However, in this case, only the maximum amount of budget that was previously carried forward in total into the next year can be posted back to the previous year. If necessary, you can also carry the budget forward in the form of a test run and use detailed lists to first analyze the planned carryforwards before you start an actual update run.

Other tools available for managing project budgets in Project System include the following:

- Plan/Budget Consistency Check for Projects (Transaction IMCOC3)
- Transfer Plan to Project Budget (Transaction IMCCP3)
- Adjust Plan/Budget to Agree with Assigned Values for Projects (Transaction IMPBA3)
- Currency Recalculation of Plan/Budget for Projects (Transaction IMCRC3)

[+] Restrictions of Transaction IMPBA3

Note that the **Adjust Plan/Budget to Agree with Assigned Values for Projects** function ignores statuses that don't allow changes to planning or budgeting. The transaction for adjusting plans/budgets to assigned values for projects is therefore not available in the SAP menu; you can only start it by calling Transaction IMPBA3 directly.

For more information about the functions of the transactions listed previously and each consistency check executed, see the program documentation, which you can call from the transactions.

3.1.5 Availability Control

A main goal of managing budgets for projects is to be able to compare the approved budget with the costs of the individual project structure elements—that is, their approved cost structures, the planned commitment, and actual costs based on purchase orders and activity inputs or material withdrawals, for example. For this reason, different standard reports are available in the reporting area of Project System.

However, availability control also enables the system to determine relevant funds automatically in the background and to compare these assigned funds with the corresponding budget values. By doing so, the availability control can warn you of imminent budget overruns before they occur or even notify you of the allotment of excess funds on WBS elements when they are created.

As soon as the availability control for a project is active, the system performs different steps for postings on a WBS element of the project or for postings to assigned apportioned orders, networks, or network activities. The system first determines the relevant WBS elements of the project carrying the budget. If a posting is made on a WBS element that doesn't have its own budget, then the system searches successively for a WBS element carrying a budget at the higher level.

The system then determines the associated funds for the WBS elements carrying budget. The assigned value of a WBS element carrying budget consists of the following:

- Actual costs or statistical costs and commitments on the WBS element carrying budget
- Actual costs and statistical actual costs as well as commitments of lower-level WBS elements without their own budget
- The maximum from the planned and actual costs and the commitments of assigned apportioned networks and orders

The individual contributions to the assigned values of a WBS element carrying budget warrants further explanation. Actual costs resulting from goods withdrawals and documents from financial accounting or controlling, for example, belong to the actual costs that are included in the calculation of assigned funds. In particular, debits due to settlements are also included in

the calculation of the assigned value. Credits caused by settlements are only considered if the settlement took place on a budget-controlled object. Commitments are created due to purchase requisitions, purchase orders, or funds reservations.

Values of assigned orders or networks are either already included in the calculation of assigned values with the **Created** status or included once the orders have been released. You can use the **Assign Funds in Plan** indicator in the Define Order Value Updating for Orders for Projects table (Transaction OPSV) in Customizing of Project System to determine which of the two statuses for which you want the values to be included in the assigned funds calculation. In this case, you can implement the setting based on the order category, order type, and controlling area of the orders.

[+] Assigned Values of Networks and Orders

With the exception of planning networks, the values of assigned orders or networks are included in the calculation of assigned values by the time the **Released** status is assigned. In particular, the planned values from CO version 0 of assigned apportioned orders represent funds against the budget of WBS elements. The planned values of material components for valuated stock aren't included in the total of assigned values, however.

If you want to exclude certain costs (e.g., overhead costs) as assigned values, then you can enter the corresponding cost elements as *exempt cost elements* based on the controlling area in Transaction OPTK in the Customizing section of Project System. These exempt cost elements are therefore not checked as assigned values against the budget of WBS elements. Revenues are generally ignored when assigned values are determined.

In addition, you can use the business add-in (BAdI) `BADI_AVC_EXCL` to exclude various postings, such as certain settlements, from the calculation of assigned values. For more information on this option, see SAP Note 2239872.

After the system has determined the relevant WBS elements carrying budget and calculated the corresponding assigned values due to a posting on a project, a check takes place in the last step of the availability control. This

check compares the available budget of WBS elements carrying budget with their assigned funds.

If the availability control determines that certain tolerance limits you defined are exceeded by assigned values, then the system performs one of the following three actions:

- **Warning**
When the user who made the posting on the project saves the data, he receives a warning message that refers to the exceeded tolerance limit. The user can now either save the corresponding document or postpone the document for the time being if necessary to consult with the project manager first.
- **Warning and email to project manager**
The user who makes the posting receives a warning message and decides whether or not to save the posting document. When the document is saved, the system generates an email to the person responsible for the WBS element carrying budget for which the limit was exceeded and to the person responsible specified in the project definition. The email contains information about the WBS element in question, the level by which the tolerance limit has been exceeded, the business transaction that triggered the action, and its document number.
- **Error message**
With this action, documents that would lead to the specified tolerance limits being exceeded aren't saved. The user receives a corresponding error message.

First, consider what effects the use of the error message action could have internally (e.g., when you enter invoices in financial accounting). In general, the error message action is only used for selected business processes.

You define the tolerance limits and the relevant action that the system should take when the tolerance limits are exceeded in the Define Tolerance Limits Customizing transaction based on the budget profile and the *transaction groups* (see [Figure 3.7](#)). Business transaction groups in this case represent the groupings of business transactions.

The **Financial accounting document** business transaction group therefore covers postings in financial accounting, the **Budgeting** business transaction group covers subsequent budget changes, and so on. The **Orders for project** business transaction group covers planning cost changes of assigned, apportioned orders and also the assignment of orders with assigned values. Postings on assigned orders (e.g., the account assignment of a purchase order), however, are checked in the business transaction group (**Purchase order**) provided for the posting.

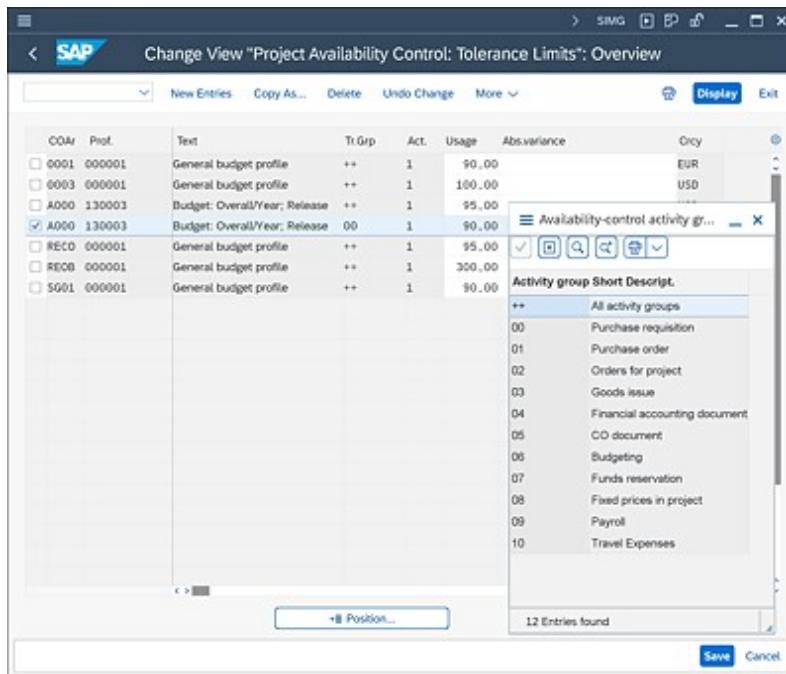


Figure 3.7 Defining the Tolerance Limits of Availability Control Based on Activity Groups

The **All activity groups** business transaction group is used to define actions for a tolerance limit for all activity groups for which you don't want to specifically implement other settings. However, if you implement settings for an activity group of a tolerance group, then these have priority over the settings of the **All activity groups** business transaction group. Only the activities for which you defined tolerance limits and actions in the Define Tolerance Limits table are taken into account during the availability control check.

[+] Assigned Values of Goods Receipts

Although the business transaction of the goods receipt generates assigned values, you should note that it's ignored during the availability control check. Therefore, use the **Purchase order** business transaction group for the check and, if necessary, don't allow account assignments to be changed for the goods receipt posting.

The tolerance limit settings for projects with the budget profile **130003** illustrated in the example in [Figure 3.7](#) result in a warning message (Action 1) being issued each time a purchase requisition is posted (activity group 00), which leads to more than 90% of the available budget being consumed. If purchase requisitions exceed the available budget, the system reacts by issuing an error message and therefore prevents the purchase requisitions from being posted (Action 3). All other activities only result in a warning message being issued and an email being sent to the corresponding person responsible in the project (Action 2) if the budget is exceeded. Using `BADI_BADI_AVC_TOL_LIMIT`, you can define the system behavior. For this purpose, you specify both percentage and absolute tolerance limits. For more information on this, see SAP Notes 2249403 and 2241745.

For the availability control, you specify in the budget profile of a project which budget is to be used as the basis for the check, in which currency you want the availability control to be implemented, and when the availability control should be activated. Depending on the budget profile settings, you can perform the availability control check against the current, still distributable total or annual budget, or (if you're working with budget releases) against the released, overall, or annual budget that can still be distributed.

Just as with the consistency checks for budgeting, you can also carry out the availability control either in the controlling area currency of the project or in the object currency of the WBS elements. However, the latter only works if the object currency within the project is uniform; in other words, it's identical for all WBS elements of a project. Using the object currency for the availability control is particularly relevant in the following situations:

- If you've also carried out the budgeting in the object currency
- If the postings on the project will mainly be entered later in the object currencies or in foreign currencies

- If you anticipate widely fluctuating exchange rates between the object and foreign and controlling area currencies

You can use two options to activate the availability control for a project. If you select setting **1 (Automatic Activation During Budget Allocation)** in the **Activation Type** field of the budget profile (refer to [Figure 3.1](#)), then the availability control for a project is automatically activated when you enter a relevant budget. If you want the availability control to check funds against the current budget, then the activation already takes place when the original budget is distributed. If you want the check to reference the released budget, then the availability control is only activated automatically once you've released the budget.

[+] Automatic Activation during Budget Allocation for WBS Elements without Budget

Suppose you want to use activation type **1** but also plan on activating the availability control, even though you don't yet want to distribute or release any budget. In this case, perform budgeting or release a budget (the availability control is activated) and then immediately return the budget again (the availability control remains active).

Alternatively, you can use a customer enhancement to activate availability control on projects even before the first budgeting. For more details, see SAP Notes 2249464 and 599813.

If you select activation type **2 (Background Activation)** in the budget profile, then either you can manually activate the availability control in the background, or this can be done automatically by the system. You can manually activate the availability control of a project in Transaction CJBV. To activate the availability control automatically, define a job in Transaction CJBV for all relevant projects that regularly checks in the background whether the funds of the projects exceed the usage level specified in the budget profile. If this is the case, then the availability control is activated automatically for the corresponding projects.

If you don't want to use the availability control function for managing budgets for projects, then you can select activation type **0 (Cannot Be Activated)** in the budget profile. Selecting this setting means that you can't

activate an availability control manually or automatically. However, you may also need to deactivate an availability control that is already active. To do this, you can use Transaction CJBW in the Project System menu. If you only want to exclude individual WBS elements of a project from the availability control, then you can define a user status that doesn't allow the **Availability control** business process (see [Chapter 1, Section 1.6](#)) and set it in the corresponding WBS elements.

In Transaction CJ30 or Transaction CJ31, you can call information about the availability control and conduct a detailed analysis of the budget values already available and still distributable, as well as all relevant Customizing settings (see [Figure 3.8](#)).

If, in the case of an active availability control, you make changes later to the relevant Customizing settings of the budget profile, tolerance limits, exempt cost elements, or the order value update for the project, then you should reconstruct the availability control for all affected projects in Transaction CJBN. You'll find more useful information about availability control in SAP Notes 178837, 165085, and 33091.

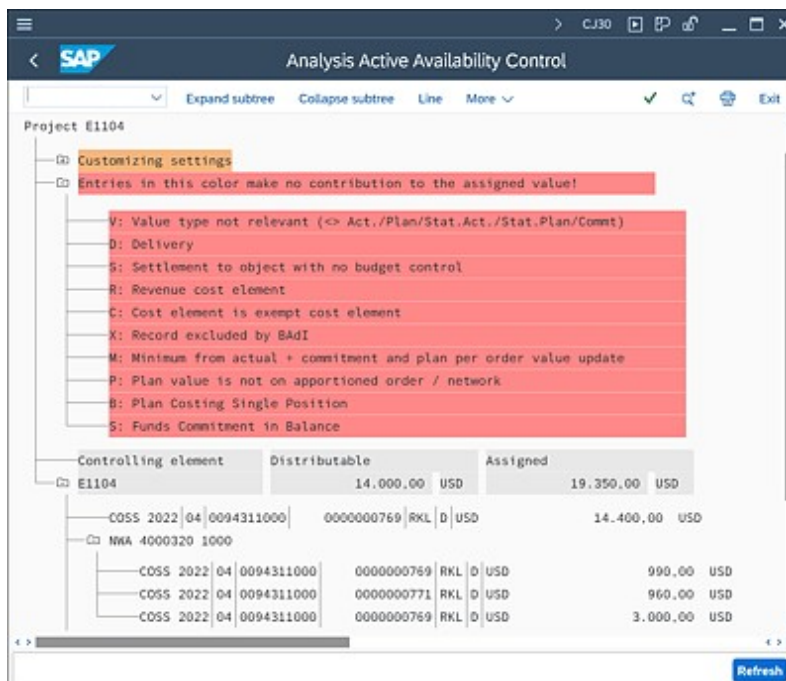


Figure 3.8 Analysis of Availability Control in Transaction CJ30

[AT A GLANCE] Budgeting Functions in Project System

In Project System, you can distribute budget values hierarchically to the WBS elements of your projects. Depending on the requirements, you can distribute budgets as overall budgets, fiscal year budgets, or releases of less than one year. You can use budget updates to make subsequent changes to your budgeting. The availability control ensures that the system automatically issues warning or error messages or sends email to the relevant project managers when specific tolerance limits of the budget values are exceeded.

3.2 Integration with Investment Management

If several projects split budgets or if you want other plans that aren't mapped using projects to be taken into account when budgets are allocated, then an isolated consideration of individual project budgets isn't sufficient.

However, you can't manage a budget across projects simply by using the aforementioned Project System tools. Nevertheless, by using the integration of Project System with investment management in the SAP S/4HANA system, not only can you plan, distribute, and monitor the budgets of projects, but you can also do this simultaneously for the budget values for internal or maintenance orders at a higher level.

Investment programs in investment management form the basis for the comprehensive planning and budgeting of costs for a company's plans or investments. When you create investment programs, you make an assignment to a *program type* in each case through which the system automatically derives default values and control parameters. Investment programs consist of an *investment program definition* with general specifications and default values for the entire program and hierarchically arranged *investment program positions*.

You can structure investment programs based on any criteria, such as geographical factors, the size of the plan, or the organizational setup of your company. After you create the structure of an investment program, you can use this structure to plan costs hierarchically and to allocate budgets.

[Figure 3.9](#) shows an example of the structure of an investment program and budget values that were distributed at different levels for the programs involved.

The screenshot shows the SAP Investment Program Structure for H1000/H1000/2022. The interface includes a menu bar with options like Create, Delete, Expand, Collapse, Select/Deselect, Reassign, and More. Below the menu is a search bar and an Exit button. The main area displays a tree structure of investment positions with associated budget and distributed budget values.

Position	Description	Budget	Distributed budget
H1000	RoboTec	2.156.000,00	2.156.000,00
H1010	R&D	656.000,00	656.000,00
H1110	Production Systems	160.000,00	0,00
H1120	Robotic Systems	496.000,00	496.000,00
1000	Industrial robots	80.000,00	0,00
1200	Software	48.000,00	0,00
1210	Robot controllers	32.000,00	0,00
1220	Robot periphery	320.000,00	0,00
1230	Robot bundles	16.000,00	0,00
H1020	Administration and Finance	840.000,00	840.000,00
H1030	Marketing and Sales	320.000,00	320.000,00
H1040	Service	340.000,00	340.000,00

Figure 3.9 Investment Program

Maintenance orders, internal orders, and projects that you assign to investment program positions are called *investment measures*. Investment measures are used for the detailed planning of plans or investments but are also used in particular for their operational execution.

In reporting in investment management, different controlling data of investment measures can be analyzed in aggregated format at the investment program positions level. Investment measures are created and edited in the corresponding applications. For example, you create and edit maintenance orders in plant maintenance, internal orders in controlling, and projects in Project System.

Even before you create investment measures in the relevant applications, you can create *appropriation requests* in investment management to map project proposals, investment requirements, development ideas, or other plans in the stages before their possible implementation in the system. You can define numerous pieces of investment-relevant information and documents in an appropriation request. In particular, you can create several variants within an appropriation request to map different implementation options and plan their costs, for example. As for investment measures, you can also assign investment program positions to appropriation requests.

Using statuses and workflows, you can map multilevel approval processes for appropriation requests in investment management. After you approve an appropriation request, you can transfer this to the investment measure. For

projects, you can therefore use appropriation requests to enter project proposals, plan their costs, initiate approval processes, and, finally, create operative projects from the appropriation requests.

[+] Creating Projects from Appropriation Requests

When you create projects from appropriation requests, you can use operative and standard WBSs as a template. However, networks assigned to templates aren't copied in this case. When you transfer an appropriation request into a project, the project receives various sets of master data, the assignment to investment program positions, and the planned costs of the appropriation request.

After you've assigned appropriation requests and investment measures to investment program positions, you can roll up their planned costs to the relevant investment program positions in Transaction IM34 in investment management. Therefore, you don't have to plan costs twice (i.e., at the appropriation requests level and at the investment program positions level). However, you can also plan costs directly on the program positions or change uploaded planned costs (Transaction IM35) if required.

The cost planning of investment programs is generally used as the basis for a budgeting process in investment management. A first step in this case involves allocating budget values at the level of the different positions of an investment program. A second step entails distributing the budget values of a program position in investment management to the assigned investment measures.

You perform the budgeting of program positions in Transaction IM32 in investment management similarly to the budgeting of projects in Project System. In investment management, contrary to Project System, however, you can differentiate between budgets according to different budget types (e.g., costs that can be capitalized or additional costs that can't be capitalized). However, by separately using budget types when managing budgets, you prevent budget values from being distributed from program positions to assigned investment measures. We therefore won't discuss the use of budget types any further in the following sections.

Depending on the settings of the investment program, you can distribute the overall values or budget values with reference to the fiscal years manually or by copying planned values. This allows the system to ensure the hierarchical consistency of the budget distribution. You can make necessary budget changes of an investment program in the form of budget supplements (Transaction IM30) or returns (Transaction IM38; refer to [Section 3.1.2](#)).

Following the budgeting of the program positions, you can now distribute the budget values of the positions further to each assigned investment measure; you can do this in Transaction IM52 in investment management. You can distribute the budget values manually or use the planned values of the individual investment measures as a template. If required, you can also use Transaction IM52 to post budget supplements or returns between investment program positions and the assigned investment measures. In Project System, the budget distributed to a project this way can now be used to distribute it further to lower-level WBS elements within the project structure (refer to [Section 3.1.1](#)).

The linking of budget values of an investment program position with the budget values of assigned investment measures is controlled by the budget distribution of overall values (**Budg.dist. ovrl**) and budget distribution of annual values (**Budg.dist annl**) indicators in the master data of the investment program position. Both indicators have the following significance:

- If the **Budg.dist. ovrl** and **Budg.dist annl** indicators are set in an investment program position, then the assigned investment measures can only receive your overall budget and your fiscal year budget through the distribution of budget values of the program position. For the projects, the budget values can then be distributed further within the hierarchical project structure.
- If only the **Budg.dist. ovrl** indicator is set, then the assigned investment measures can only receive your overall budget from the higher-level program position. However, you can distribute the annual budgets at the investment-measure level (regardless of the fiscal year-dependent values of the program position). Only the **Budg.dist annl** indicator—that is, a distribution of annual budgets without a simultaneous distribution of overall budgets—can't be set.

If neither of the two indicators is set in an investment program position, then you can budget the assigned investment measures separately. Although you can compare the budget values of the program position and the assigned measures with each other in reporting in investment management, an automatic check doesn't take place to determine whether the budget values of the measures exceed the budget of the program position.

The operative processing of investments or plans, and therefore also the corresponding postings, are performed at the investment-measure level and can be monitored there using an active availability control. For this reason, an active availability control isn't possible for investment program positions. However, by setting the **Budg.dist. ovrl** indicator in the master data of a program position, you can ensure that the budget values of the assigned measures in total can't exceed the budget of the program position. In principle, this corresponds to a type of availability control for investment programs in terms of assigned investment measures.

To ensure that the data can be exchanged between maintenance, internal orders, and projects on the one hand and investment programs on the other (rollup of planned costs, budget distribution, aggregated evaluations in investment management, etc.), you must create corresponding assignments. Investment program positions are assigned for projects at the WBS element level. You can create the assignments between the WBS elements and program positions both in investment management and Project System in the maintenance transactions for WBSs (see [Figure 3.10](#)).

To create assignments, you must meet several prerequisites. Program positions must allow an assignment. In the master data of a program position, you can decide whether assignments can be made to appropriation requests, orders, or projects. However, investment measures can only be assigned to *end-node positions*. These are program positions for which no other program positions are assigned at a lower level.

The screenshot shows a SAP transaction window titled "E-1104 - Assignment to investment program position". The window contains three input fields: "Investment program:" with the value "H1000", "Position ID:" with the value "1000", and "Approval year:" with the value "2022". At the bottom of the window, there is a button labeled "Multiple assignment" with a red "X" icon to its right, indicating that multiple assignments are not allowed for this configuration.

Figure 3.10 Assigning a WBS Element to an Investment Program Position

A project is typically only assigned to one investment program position. In this case, you make the assignment at the top WBS element level of the project. As part of budget distribution in investment management, this WBS element then receives a budget from the higher-level program position. The project manager can then distribute this budget further to the lower-level WBS elements of the project ([Section 3.1.1](#)).

However, you may want a project to receive a budget from different “buckets,” which means that it’s assigned to several investment program positions. In this case, you can choose between two options for the assignment:

- **Multiple assignments**

In the maintenance transactions of Project System, you can assign a WBS element (e.g., the top WBS element) to several different program positions and consequently compare each assignment by specifying a percentage.

However, you only use these types of multiple assignments to ensure that the planned, actual, and budget values of the project (taking into account the weighting percentage rates) can be evaluated on the different program positions along with the values of other assigned investment measures. Nevertheless, if you use a multiple assignment, then you can’t distribute the budget from the assigned investment program positions at a later stage.

- **Assigning several WBS elements of a project**

If you also want to distribute budget values of different program positions on the project, then your second option is to assign different WBS elements of a project to each program position.

These WBS elements don’t necessarily have to be WBS elements of the highest level of the project. Furthermore, they don’t have to be on the same level within the project structure. However, you can only assign a WBS element to an investment program position if a higher-level or lower-level WBS element isn’t yet assigned to a program position.

If you distribute a budget of different investment program positions to each assigned WBS element, then the system

automatically rolls up the budget values to the higher-level WBS elements. This ensures that the hierarchical consistency of the budget values is maintained within the project structure. The project manager can then distribute the budget further to lower-level WBS elements if required.

If the **Budg.dist. ovrl** indicator or the **Budg.dist annl** indicator is set in an investment program position, then the assigned WBS elements can only receive a budget through the budget distribution of the program position. After you assign the WBS elements, you can no longer assign budgets separately in Project System. As long as the WBS elements haven't yet received any budget from the program position, the lower-level WBS elements can't yet receive any budget in a hierarchically consistent format either. To prevent a WBS element from receiving a budget in Project System before it has already been assigned to an investment program position, you can make a mandatory assignment to an investment program position for WBS elements before the first budgeting.

You can do this in two different ways:

- You can control the relevant fields for an assignment as required fields by using the field selection for WBS elements (see [Chapter 1, Section 1.8.1](#)). Because you don't want all WBS elements to be assigned to program positions, you must specify suitable influencing fields and values when you define the field selection.
The assignment is generally made at the top WBS element level of a project. Therefore, to do this, you specify the **Investment Program** field as the mandatory field in the field selection based on the influencing **Level** field and the value **1**.
- You can enter a program type in the budget profile of a project to make a mandatory assignment to an investment program position for WBS elements (refer to [Figure 3.1](#)). This entry ensures that the project is only budgeted after a WBS element of the project has been assigned to an investment program for this program type.

[+] **Displaying the Assignment Fields**

The fields for assigning investment program positions aren't displayed by default in the detail screen of the WBS elements. However, when you define your own tabs (see [Chapter 1, Section 1.8.2](#)), you can also include these fields in the detail screen of WBS elements.

The integration of Project System with investment management can be used not only for pure exchange of data between projects and investment programs but also for project settlement. Here, the goal is to allocate the costs collected on a project for *assets under construction* (AuC) or *completed assets* from asset accounting. You can define *investment profiles* in investment management Customizing for this purpose and enter these profiles in the master data of WBS elements. WBS elements or projects in which investment profiles are defined are also called *investment projects*. [Chapter 5, Section 5.9](#), explains in detail how investment profiles are defined and used, as well as discusses in depth the processes for settling projects specifically available for investment projects.

[AT A GLANCE] Budget Management across Projects in Investment Management

You can use investment management functions to manage budgets across projects at the investment program level. By assigning projects to investment programs, the planned costs of the projects from CO versions can be rolled up into investment management, and budgets from investment management can be distributed to the projects.

3.3 Summary

By distributing budgets to projects, in addition to the planned costs, you can manage an approved cost structure for your projects and monitor funds against this cost structure by using availability control. In addition to using Project System functions to manage budgets, you can also use the integration with investment management to manage budgets across projects.

4 Project Execution

In the execution phase, you can compare the previously planned dates, resource and material requirements, and costs and revenues with the corresponding actual data and thereby monitor the execution and progress of your projects.

In the execution phase of projects (depending on the type of project), activities are performed by resources within your company; external resources are involved in the execution; material is purchased, produced in-house, consumed, and delivered; invoices from suppliers are entered; invoices are sent to customers; various internal cost allocations are made; and so on. Although many of these processes are triggered in projects, they are processed across different departments.

Due to the integration of Project System into other applications of the SAP system, you can update almost all project-related data automatically on the relevant projects or evaluate this data in the reporting of the projects regardless of whether the corresponding documents are created in purchasing, production, sales, or external and internal accounting. Therefore, this data doesn't need to be entered several times. In particular, you can compare the actual data of the project execution with the relevant planning data at the project level. In reporting, you can use progress analysis or special tools to identify variances in the project planning when needed, such as Project-Oriented Procurement (ProMan) or progress tracking.

In SAP S/4HANA, internal and external accounting have been combined into a single-circuit system and use the Universal Journal, eliminating the need for reconciliation as in the two-circuit system in SAP ERP. For this purpose, cost elements are now part of the chart of accounts and are maintained together with general ledger accounts (see SAP Note 2270419). Furthermore, all actual costs for value types 4 and 11 are stored in a common, SAP HANA-optimized database table called table `ACDOCA` (see

SAP Note 2270404). The general ledger in SAP S/4HANA is also based on the Universal Journal, and line items are stored in new database table `ACDOCA` (see SAP Note 2270339).

We discuss the different aspects and processes for implementing a project in this chapter. Note that the individual sections aren't in any chronological order; instead, they are sorted by topic because different processes are typically executed in parallel in the execution phase of projects. When constructing the robot, for example, the engineers can start with the first assembly activities, use materials, and confirm their time data while missing material is procured in purchasing and invoices are created in financial accounting for materials already delivered.

4.1 Actual Dates

You can use actual dates to document the period required to implement a work package in projects. Different functions are available for entering actual dates depending on whether you use work breakdown structures (WBS) or networks to structure your projects.

4.1.1 Actual Dates of WBS Elements

You can enter actual dates for WBS elements in WBS. A distinction is made in this case between the actual start and actual finish date of a WBS element. The actual start date documents when the execution of the WBS element begins, and the actual finish date records when it ends. The setting of an actual start date for a WBS element is automatically documented by the **PCNF (Partially Confirmed)** system status at the WBS element level. If you also set an actual finish date, the WBS element is automatically assigned the status **CONF (Confirmed)**. If the **CONF** status is active in a WBS element, then a warning is issued each time you make a subsequent change to the actual dates of this WBS element. Provisional actual dates for WBS elements only result from actual dates of assigned activities, so they can't be entered manually for WBS elements.

You must fulfill several prerequisites to enter actual dates for WBS elements. To define an actual start date in a WBS element, the WBS element must have the **PREL (Partially Released)** or **REL (Released)** status, and no other status can prevent the setting of the actual date. Setting an actual finish date for a WBS element requires the status to be **REL**; all lower-level WBS elements and, if necessary, the assigned activities must have the **CONF** status.

You can use three options to enter actual dates at the WBS elements level:

- **Manual entry**
Manually enter actual dates for WBS elements. Similar to the manual planning of dates, you enter the actual dates in a table or, if required, in a graphic in the detail screen of the WBS elements, depending on the relevant editing transaction.
- **Extrapolation**
Use the **Extrapolate Dates** function to calculate actual dates from the actual dates of the lower-level WBS elements.
- **Determination of actual dates**
Use the **Determine Actual Dates** function to derive the actual dates of WBS elements from the actual dates of the assigned activities.

Actual dates of WBS elements can't be derived automatically from financial accounting, controlling, or purchasing documents, for example. Instead, the relevant project manager has the responsibility of entering actual dates for WBS elements.

4.1.2 Actual Dates of Activities

Actual dates of activities (or activity elements) are typically entered using confirmations ([Section 4.3](#)). In this case, you differentiate between the actual dates from partial confirmations, which are practically interpreted as provisional actual start dates and actual finish dates, and the actual dates from final confirmations, which represent the actual execution period. The actual dates of confirmations for an activity are automatically updated in the activity, provided you haven't explicitly prohibited this in the confirmation.

The actual start date of an activity is determined from the earliest actual start date of all confirmations of the activity. Similarly, the actual finish date is determined from the latest actual finish date of all confirmations. If required, you can also change the actual dates manually at the activity level. Actual dates of activities can't be derived automatically from material documents or vendor invoices, for example. The **REL (Released)** status is required for creating confirmations for an activity and entering actual dates.

Note that the actual dates of network activities can affect the subsequent schedulings of the network. If an activity has the **CONF** system status due to a final confirmation, then the system automatically sets the planned dates of the earliest and latest date of the activity on the actual dates of the activity. If the activity has relationships to other activities, then the planned dates of these activities would also be adapted according to the scheduling logic if rescheduling were performed (see [Chapter 2, Section 2.1.2](#)).

If an activity has the **PCNF** status due to partial confirmations, then the **Shift network** indicator determines in the scheduling parameters how the actual dates of the activity are to be handled for a subsequent scheduling. If the **Shift network** indicator is set, then the system calculates the earliest and latest date according to the normal scheduling logic. However, in this case, the system uses the planned duration as the relevant duration for the scheduling minus the duration already confirmed. This setting can be useful if, for example, you've already done some work before the originally planned period but want to prevent all subsequent activities from also being scheduled much too early.

[Figure 4.1](#) shows a corresponding example. A partially confirmed activity called **Electrical Engineering** is assigned to the WBS element of the same name. It was documented in the partial confirmation that three days were already worked (see actual date bar of the activity in [Figure 4.1](#)—the lowest date bar), but this work was started a week earlier than originally planned (to compare, see the forecast date bar of the activity—the highest date bar in the lower part of the screen). Subsequent scheduling that resulted in the **Shift network** indicator being set has calculated the new start date of the activity (see the basic date bar of the activity—the middle date bar in the lower part of the screen) according to the normal scheduling logic. However, the original duration minus the duration already worked was used as the duration for the scheduling. At the WBS element level, the actual date of the

activity is shown as a provisional actual date (thinner, bright date bar in the upper part of the screen).

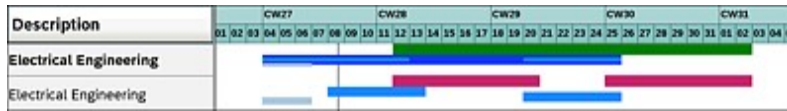


Figure 4.1 Scheduling a Partially Confirmed Activity in Which the Shift Network Indicator Is Set

If the **Shift network** indicator isn't set for a rescheduling, then the system automatically sets the earliest start of a partially confirmed activity on the actual start date of the activity. As the duration, the system uses the planned duration for scheduling the earliest finish date and uses the planned duration minus the duration already confirmed for scheduling the latest date.

[Figure 4.2](#) shows an example of the partially confirmed **Electrical Engineering** activity. The basic dates displayed in [Figure 4.2](#) (middle date bar in the lower part of the screen) now result from a scheduling for which the **Shift network** indicator wasn't set. Compare the basic dates with the scheduling dates displayed in [Figure 4.1](#).

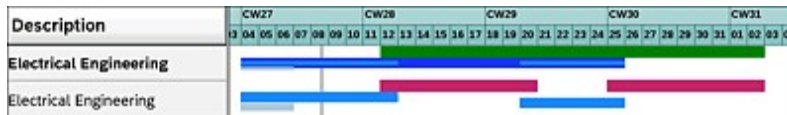


Figure 4.2 Scheduling a Partially Confirmed Activity in Which the Shift Network Indicator Isn't Set

In addition to entering actual data, you can also specify forecast data in a partial confirmation. Therefore, in addition to the actual start and finish dates, you can also specify a *forecast remaining duration* or a *forecast finish* for performing the activity. This forecast data is automatically taken into account for subsequent scheduling. If you've specified a forecast remaining duration, then this duration is used for rescheduling. If you entered a forecast finish date when partially confirming an activity, then the system automatically sets the finish dates of the activity to this date for a rescheduling.

If you don't want actual dates from confirmations to affect subsequent scheduling, then you can prevent the actual dates of the confirmations from being updated on the activities by setting the **No Date Update** indicator in the confirmations or confirmation parameters. You can also use a

corresponding field selection to prevent a forecast remaining duration or a forecast finish date from being entered in the confirmations.

4.1.3 Actual Dates of Milestones

To document that milestones of a project have been reached, you can enter an actual date for these milestones. You must do this manually for milestones that are assigned to WBS elements. You can enter actual dates for milestones on activities manually or derive them from confirmations of activities. To copy the actual finish date of a confirmation as the actual date of a milestone, the confirmation parameters must allow this (**Milestone automatic** indicator; see [Section 4.3](#)), and the degree of processing of the confirmation must be greater than or equal to the percentage of completion that the milestone represents (**Perc of Compl.** field in the milestone). You can use actual dates of activity milestones to unlock billing items within milestone billing and therefore control the creation of invoices ([Section 4.6.1](#)).

The SAP Fiori app called Confirm Project Milestone (F0295) is another option for manually entering a milestone actual date (see [Figure 4.3](#)). By means of this app, you can confirm actual dates for milestones via a tablet or smartphone when you're in the field. You can call the app directly from the SAP Fiori launchpad, from the Milestone Overview app (F1975), or from the milestone objects page. In contrast to manual entry of actual dates of milestones in SAP ERP transactions, in this app you don't need to access the milestone confirmation via the project structure; you can directly search for a milestone to open its confirmation.

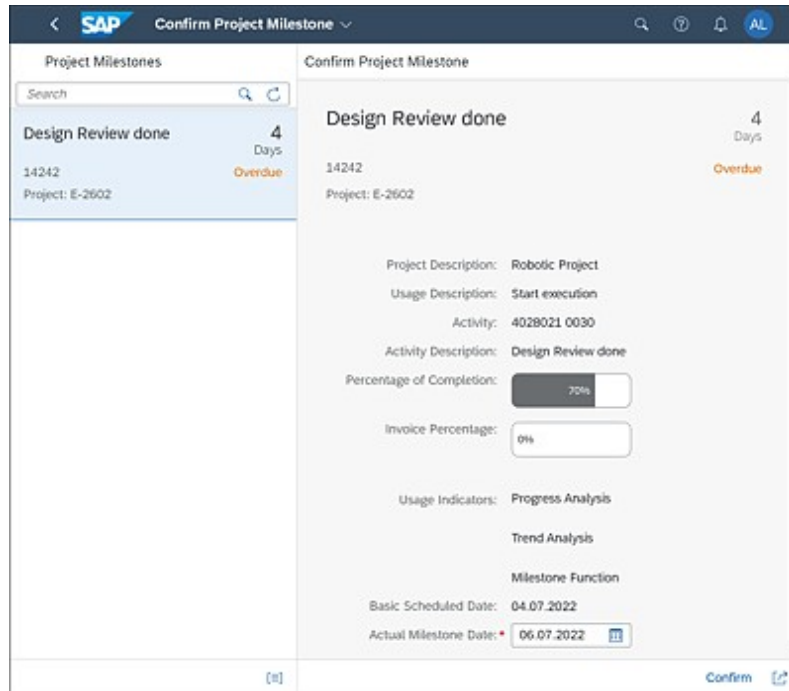


Figure 4.3 Confirm Project Milestone App for Entering Actual Dates of Milestones

[+] Relationship between Planned and Actual Dates

Note that the planned dates of milestones are automatically set on the actual dates of the milestones. If you want to perform a planned/actual comparison of milestone dates, then you must use project versions or forecast dates (see [Chapter 2, Section 2.1](#)).

4.2 Account Assignment of Documents

Costs, revenues, or perhaps even payments on projects are updated on WBS elements and network activities or on activity elements by using the account assignment of corresponding documents (i.e., activity allocations, invoices, goods receipts and issues, billing documents, down payments, etc.). If you've assigned orders such as plant maintenance, production, and internal orders to projects, then documents can also be assigned to these orders. In reporting, you can analyze the corresponding costs of the assigned orders in an aggregated format at the level of the project, but the project isn't updated automatically. However, you can settle the costs of the assigned orders to the project as part of period-end closing (see [Chapter 5, Section 5.9](#)) if required.

To perform the account assignment of documents to WBS elements or network activities, the status of the objects must allow a corresponding account assignment. Although you can assign purchase requisitions or purchase orders by default to projects in the **CRTD (Created)** system status, you can't post goods or invoice receipts. For the account assignment of documents that results in actual costs, the status in the relevant account assignment objects of Project System must be **REL (Released)**.

Furthermore, the master data of WBS elements must also allow an account assignment of documents. If required, you can use the **Account Assignment Element** operative indicator to determine whether you want an account assignment to be possible for each WBS element (see [Chapter 1, Section 1.2.1](#)).

4.2.1 Commitments Management

When you update data on projects due to the account assignment of documents, you differentiate between actual costs and commitments.

Whereas actual costs indicate the actual consumption of goods and services in figures, commitments simply correspond to obligations based on purchase requisitions, purchase orders, or funds commitments. By using commitments, you can proactively analyze liabilities that may result in

actual costs at a later stage; however, commitments aren't yet entered for accounting purposes. If you activated the availability control (see [Chapter 3, Section 3.1.5](#)), then commitments are taken into account as funds of the budget of WBS elements. In other words, commitments bind funds in advance for the subsequent actual costs.

To enable the system to update commitments on Project System projects, you must activate the commitments management for projects. You can do this for the relevant controlling areas in Customizing by using Transaction OKKP (see [Figure 4.4](#)). In reporting of Project System, depending on the settings of the reports, you can analyze commitments separately according to purchase requisition commitments, purchase order commitments, or commitments for funds commitments (see [Chapter 6, Section 6.2](#)).

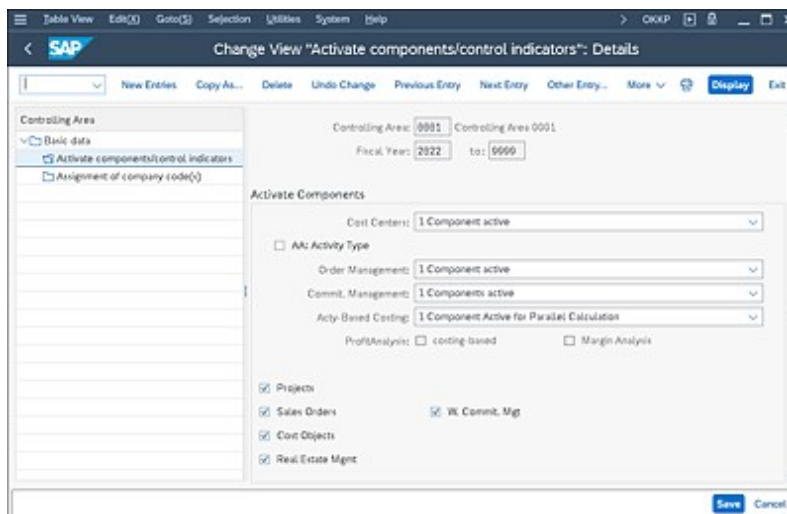


Figure 4.4 Activating Commitments Management

As soon as commitments management is active, the system uses the (remaining) quantity and the price for each unit of measure to calculate a purchase requisition commitment for the planned delivery date for each purchase requisition that you assign to a project. The system also updates this purchase requisition commitment on the project. Purchase requisitions can be created manually in purchasing and assigned to a WBS element, or they can be created automatically based on externally processed and service activities or externally procured material components of a network. The purchase requisition commitment is (according to the relevant account assignment) shown separately on the WBS elements, network headers, or activities. Purchase requisitions that are automatically created within

material requirements planning (MRP) runs are an exception in this case; that is, they don't lead to corresponding purchase requisition commitments. Only the purchased orders for these purchase requisitions result in the commitments being displayed.

[+] **Displaying Commitments**

For header-assigned networks, the commitments are displayed on the network header; for activity-assigned networks, they are displayed at the level of individual activities. Commitments for material components are updated on the corresponding network headers or activities for non-stock items. Commitments for stock items can only be displayed in Project System if they are managed in the individual requirements stock. The commitments are then updated on the relevant individual stock segments.

If you create a purchase order for a purchase requisition that is assigned to a project, then the purchase requisition commitment is reduced in accordance with the quantity transferred in the purchase order. If the entire quantity of the purchase requisition is copied into the purchase order, then the purchase requisition commitment is also reduced completely. Using the value of the purchase order, the system simultaneously determines a purchase order commitment and updates it on the corresponding account assignment objects, from which it can be evaluated in the delivery date period of the purchase order.

Based on the **Goods Issue** indicator for the purchase order, the purchase order commitment is reduced, and the corresponding actual costs are updated by posting either a goods receipt or the invoice receipt that refers to the purchase order. If only a portion of the quantity or values of the purchase order is posted in this case, a portion of the purchase order commitment will be converted into actual values. The purchase order commitment is reduced entirely if you post a complete goods receipt or invoice receipt or you manually set a **Delivery Completed** indicator to document that no more deliveries are expected even though the quantity or value of the purchase order hasn't yet been reached. As long as you haven't yet posted a goods or invoice receipt for the purchase order item, you can lock the item or, in

certain circumstances, delete it. In both cases, the purchase order commitment of the item is reduced completely.

You can use Transaction FMZ1 (Create Funds Commitment) in Project System to create funds commitments if you want to reserve funds for later costs but are still unsure of which business transactions will result in these costs. The amount of a funds commitment is shown as a corresponding commitment on the WBS element, network, or activity to which you've assigned the funds commitment. In addition, the funds commitment amount is taken into account when the assigned values are being calculated and is therefore included in the availability control of projects. You can either reduce the commitments for funds commitments manually by entering the corresponding reduction amounts in Transaction FMZ6, or this can occur automatically when vendor invoices are entered in financial accounting if the corresponding funds commitment is specified in the account assignment block of the invoice.

For certain processes—and currently only for WBS elements in Project System—an alternative option for entering anticipated actual costs is available with the *predictive accounting* function. Unlike commitments management, where commitment values are written to separate tables, predictive accounting uses database table `ACDOCA` in the same way as actual costs, but writes the values to a special extension ledger, the prediction ledger. Predictive accounting therefore posts preview documents for the subsequent actual cost documents to predict what the actual posting documents and thus the resulting actual costs for the subsequent processes will look like.

For more information on predictive accounting and its current limitations, see SAP Note 2778793.

4.2.2 Manual Account Assignment

In contrast to externally processed activities and service activities or material components in networks, purchasing documents or allocation costs documents can't be created automatically for WBSs. Instead, you have to create these documents manually in Project System, purchasing, controlling, or financial accounting and assign them to WBS elements. For statistical

WBS elements (see [Chapter 1, Section 1.2.1](#)), you must also always specify another account assignment object in these documents in addition to the WBS element because updating statistical WBS elements isn't cost-effective and only occurs for information purposes.

The following list contains examples of some transactions from different applications of the SAP S/4HANA system that may be relevant within the execution phase of projects and that you can use to enter documents and then assign them to WBS elements:

- Create Purchase Requisition (Transaction ME51N)
- Create Purchase Order (Transaction ME21N)
- Activity Allocation (Transaction KB21N)
- Goods Movements (Transaction MIGO)
- Vendor Invoices (Transaction FB60)

Additional functions are available in financial accounting to manage documents relating to a project in the form of *debit and credit down payment chains*. These functions are usually used for long-term construction projects for which various down payment invoices, final invoices, and deductions are supposed to be entered and monitored. Employees can also enter times for WBS elements in the cross-application time sheet (CATS; see [Section 4.3.3](#)). The transfer of this time data into controlling then generates an activity allocation between the cost center of the employees and the corresponding WBS elements.

In addition to creating these documents directly in SAP S/4HANA, there is now also a variety of integration scenarios in which the documents are created from other systems and assigned to project objects in the process. For example, you can enter travel expense receipts in SAP Concur with reference to WBS elements, transfer the receipts automatically to SAP S/4HANA, and monitor the corresponding costs on the project there. Similarly, project-relevant purchase orders can also be created via SAP Ariba, or the services of service providers for projects can be recorded in SAP Fieldglass.

Special SAP Master Data Integration services are available for distributing the master data of project elements relevant to account assignment—WBS

elements, networks or network activities, and activity elements—to other systems.

4.2.3 Execution Services

If you used Easy Cost Planning to plan your costs at the WBS elements level (see [Chapter 2, Section 2.4.4](#)), then you can post different documents, such as internal activity allocations, purchase requisitions, or goods issues, directly from Easy Cost Planning after you release the WBS elements. The main advantages of this option are that you don't have to know how to use several different transactions to create these documents and you can use the planning data of the various costing items as a template. Consequently, you can reduce the overall time and effort required to create these documents and prevent errors from occurring when you enter the required data. Posting a document from Easy Cost Planning is called *execution service*.

Depending on which execution service you select from the list of available execution services in Easy Cost Planning, the system only proposes the data from relevant costing items in each case. If you select the **Goods Issue** execution service, for example, only data of the items for item category **M (Material)** is offered, and so on. From the proposed items, you can now only select the specific items for which you want to perform the execution service. If necessary, you can still change the proposed data or supplement missing data before you make a posting.

When you make a posting, a corresponding document is created and automatically assigned to the selected WBS element. If warnings are issued or errors occur when you post a document, then you can analyze the corresponding messages in a log. You can use a document overview to display a list of the documents already posted using the execution service and, if required, go directly to the display of the documents or perform cancellations. [Figure 4.5](#) shows an example of the **Internal Activity Allocation** execution service being used on the **Engineering Mechanics** WBS element of the robotics project. Two activity allocations that have already been posted are displayed in the document overview.

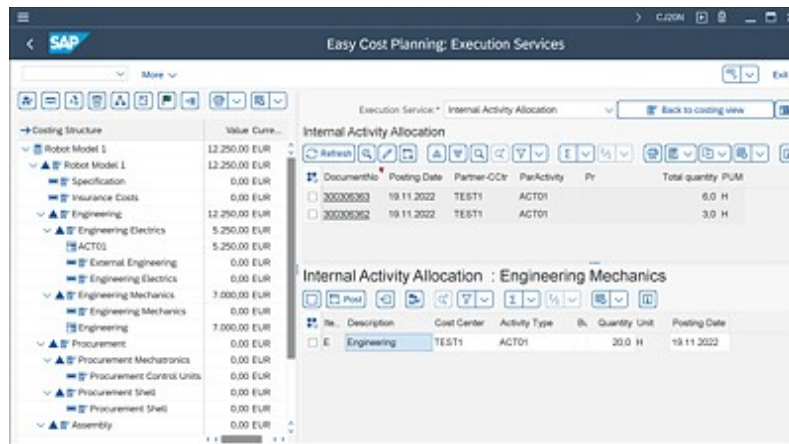


Figure 4.5 Execution Service for an Internal Activity Allocation

To use execution services, you must first define an execution service profile in the Customizing section of Project System and assign the relevant project profiles (see [Figure 4.6](#)). In the execution service profile, you first define which execution services should be available when using the profile. The following execution services are available for selection:

- **Internal Activity Allocation**
- **Purchase Requisition**
- **Purchase Order**
- **Reservation**
- **Goods Issue**

You then implement additional detailed settings on the selected execution services (see [Figure 4.7](#)). For example, for the **Purchase Requisition** execution service, you define the document type you want to be used for creating purchase requisitions for WBS elements. For the **Goods Issue** execution service, you specify the movement type to be used, and so on.

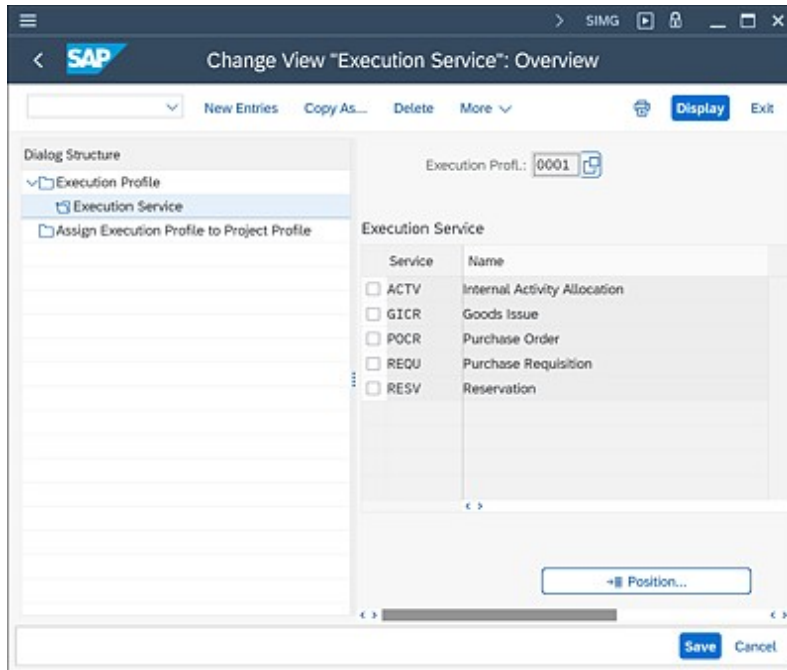


Figure 4.6 Defining an Execution Service Profile

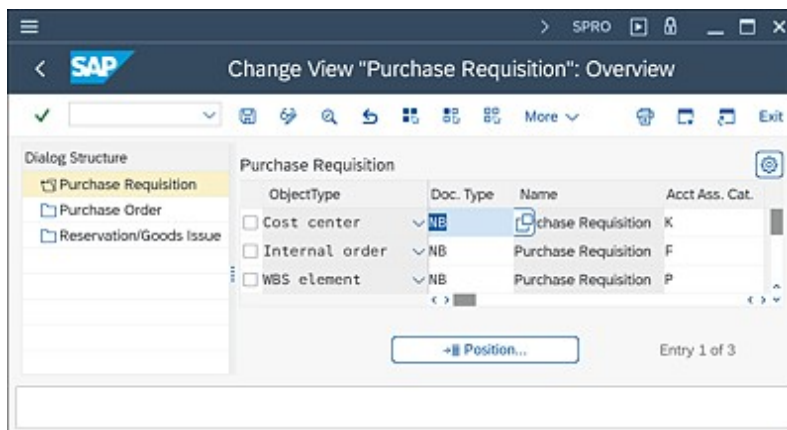


Figure 4.7 Defining the Settings for Execution Services

4.3 Confirmations

You can use confirmations to document the processing status of activities or activity elements and, if required, also specify forecast data for their continued progress. Because confirmations can affect actual dates (and possibly planned dates) of projects and capacity requirements, actual costs, status and milestone information, and possibly even goods movements or billing documents, they play an important role in the execution phase of projects with networks. To enter confirmations for an activity (or an activity element), the activity must be released and the control key of the activity must allow a confirmation (see [Chapter 1, Section 1.3.2](#)). In the Customizing section of Project System, you must also have defined *confirmation parameters*, which control the properties of the confirmations.

[+] Confirmations and Locks

Confirmations have an immediate effect on network data. Therefore, note that when you enter a confirmation for an activity or activity element, the entire network is always automatically locked.

Where confirmations are concerned, we generally differentiate between *partial confirmations* and *final confirmations*. If you want to document that a portion of the planned services of an activity was already performed, but you still expect additional confirmations for this activity later on, then you enter a partial confirmation for this activity. A partial confirmation is a confirmation for which the **FinalConf** indicator isn't set (see [Figure 4.8](#)). Partial confirmations set the **PCNF (Partially Confirmed)** status in the confirmed activity.

The *degree of processing* of a partial confirmation indicates to what percent the activity has already been processed and can be used within progress analysis to determine the percentage of completion ([Section 4.7.2](#)). The system automatically calculates the degree of processing from the proportion of the actual total amount of work that has already been confirmed for an activity to its planned or forecast total work. However, you can also define

an alternative degree of processing manually in the confirmation if required. In the example shown in [Figure 4.8](#), the degree of processing for the **Engineering mechanics** activity results from the ratio of the actual work (10 HR + 1 HR) and the forecast total work (10 HR + 5 HR + 1 HR).

You can enter the work center, actual work, and forecast work (remaining work) in a partial confirmation to document which work center has performed which degree of work and to forecast how much work you still expect has to be performed. Based on the total amount of work already confirmed and the planned or forecast total amount of work, the system can propose the remaining work that is still to be completed. If you activated the calculation of capacity requirements, then the remaining work is taken into account as a (remaining) capacity requirement in the capacity planning. By setting the **Completed** indicator in a partial confirmation, you can indicate that no more remaining work is required.

The screenshot displays the SAP 'Enter Network Confirmation: Actual Data' interface. It includes the following sections and data:

- Activity:** 1030, Engineering mechanics
- Work Center:** 2605, 1710, Engineering
- Processing:** Processing %: 94%, FinalConf: , No date update: , Completed: , Clear Open Reserv.:
- Costs:** Posting Date: 25.08.2022, Business Proces: Complete, Activity Type: 11, Process Qty: , Acctindicator: , Remaining Proc.:
- Activity Table:**

Start	Finish	Duration	Work
Date	Date	Time	UoM
Earl.sched: 06.06.2023	09.06.2023	3,0 DAY	16,0 HR
Ltst.sched: 07.06.2023	12.06.2023		
Actual: 01.08.2022	25.08.2022	19 DAY	5,0 HR

Confirm.

Actual: 25.08.2022, Forecast: 25.08.2022, Work: 10,0 HR, 1,0 HR

Figure 4.8 Detail Screen of a (Partial) Confirmation

[+] Dependency of Fields in Confirmations

The fields for the degree of processing, actual work, and remaining work and the work planned and forecast in total are connected.

Depending on which field or fields you specify for a confirmation, the system automatically calculates the value of the other fields. You can also enter values for all three editable fields manually. If the degree of processing differs from the value calculated by the system, the system then issues a warning message.

You specify the execution period of the relevant partial activities in the **Actual Start** and **Finish** fields of a partial confirmation. If you want to document that activities were not only performed on workdays, then you can also specify an **Actual Duration**. If the **No Date Update** indicator isn't set in a confirmation, then the actual dates are forwarded to the activity. If the activity is assigned to a WBS element, then the actual dates are incorporated into the provisional actual dates of the WBS element ([Section 4.1.1](#)). If milestones are assigned to the activity, then the milestones can use the actual finish date of the confirmation as the actual date ([Section 4.1.3](#)) so that billing items in sales orders are unlocked ([Section 4.6.1](#)).

The actual dates of the activity are derived from the earliest actual start date and the latest finish date of all confirmations for this activity. Depending on the settings in the scheduling parameters, the actual dates of partially confirmed activities can then have different effects on subsequent scheduling ([Section 4.1.2](#)). In a partial confirmation, you can also forecast a finish date for performing the activity or a residual remaining duration if required. The forecast data is then taken into account the next time the network is scheduled.

By setting the **FinalConf** indicator in a confirmation, you document that an activity has been processed completely (for which the degree of processing is 100%) and you don't expect any more confirmations. However, if another confirmation is entered for an activity that has been finally confirmed, then the system issues a warning message. This is controlled by the **CONF (Confirmed)** status that the system automatically sets in the activity when a final confirmation is made.

As with a partial confirmation, you can also enter actual work and actual dates in a final confirmation. But because a final confirmation represents the complete processing of an activity, you can't (in contrast to partial confirmations) enter forecast data for the continued progress of the activity

or for residual remaining work. The final confirmation of an activity results in the scheduled dates of the activity being automatically adjusted on the actual dates ([Section 4.1.2](#)). If a WBS element or milestones are assigned to the activity, then the actual dates of the final confirmation can also be transferred to these objects. In addition, the system automatically sets the remaining capacity requirement of an activity that has been finally confirmed to zero, even if the work originally planned or forecast may not have been fully confirmed.

You can use short and long texts in partial and final confirmations to enter more detailed descriptions for the confirmed activities. If a variance from the planned performance occurred when the activity was performed, then in addition to a corresponding description, you can specify the reason for the variance, for example, machine breakdown, operating errors, and so on. The reason for a variance in a confirmation can be used for evaluation purposes; furthermore, by specifying the reason for a variance, the user status of the activity is changed automatically so that milestone functions of assigned milestones can be triggered. To use variance reasons, you must have already defined this in the Customizing section of Project System using Transaction OPK5. If you want a reason for the variance to initiate a status change in the activity, then you must specify which system or user status is to be set when defining the variance reason. You can also change the status of an activity in a confirmation manually, without referring to a variance reason, by branching from the confirmation into the status management of the activity and setting the required status.

Based on the confirmations of an activity, not only are actual or forecast dates forwarded to the activity, the status of which may be changed and the remaining capacity requirement adjusted, but actual costs of performed work are also automatically updated on the activity. To ensure that the system can calculate the actual costs for confirmed work, you must specify a work center, activity type, and the corresponding actual work in the confirmation, provided this data isn't already proposed based on the planning data. When you save the confirmation, the system uses the combination of the activity type you specified and the cost center of the work center to automatically calculate an activity price that can be used to estimate the confirmed work. The actual costing variant of the network controls which strategy is to be used to calculate the price (see [Chapter 2, Section 2.4.5](#)). After you save the confirmation, the system writes an accounting document that is assigned to

an activity. This document results in the actual costs of the confirmed work being added to the activity (price multiplied by the actual work) and the same amount being simultaneously reduced in the cost center of the work center.

If material components are assigned to an activity, then you can branch from a confirmation for this activity into a list of assigned material components (stock items) and make goods issue postings to document the consumption of components. When you save a confirmation, the system writes a corresponding activity-assigned material document that results in actual costs on the activity. The goods issue for the non-valuated project stock is an exception ([Section 4.5.1](#)). The actual costs are calculated from the withdrawn quantities and the price of the relevant material. The actual costing variant of the network controls which strategy is used to calculate the price (see [Chapter 2, Section 2.4.5](#)). For material components that were identified for a *backflush*, the system automatically posts goods issues amounting to the planned quantities for a final confirmation. If you enter a final confirmation and all assigned material components haven't yet been withdrawn, then the system can automatically clear the reservations that are still open when you set the **Clear Open Reservs.** indicator in the confirmation.

The accounting documents for posting the actual costs based on confirmed work and the material documents based on material withdrawals are posted with the relevant confirmation document. If errors occur, then you can eliminate the reason for the errors or cancel the confirmation. For performance reasons, you can also separate the actual cost calculation and the posting of backflushes from the posting of the confirmation document and perform these later in the background. If problems occur, then you must postprocess the incorrect data records. You control the separation of backflushing processes by using process controls that you can define in the Customizing section of Project System and then enter the confirmation parameters.

You can also specify a personnel number and, if necessary, a wage type, for a confirmation. Your confirmation data can then be transferred to time management and subsequently used there for evaluation purposes or for calculating incentive wages. By setting the **No HR Update** indicator, you

can also prevent confirmation data from being forwarded to time management.

If, in addition to having planned activity work at the work center level of the activity within the capacity planning, you've performed a distribution to capacity splits, for example, to individual personnel resources (see [Chapter 2, Section 2.2.2](#)), then you can also confirm the individual capacity splits separately. SAP Note 543362 elaborates on the effects of split confirmations and any additional activity confirmations on the activity data.

If necessary, you can also cancel an entered confirmation by using Transaction CN29. If you entered several confirmations, then you receive a list of the confirmations from which you can select the confirmation that you want to cancel. When you cancel a confirmation, you can enter a long text with details about the reason for the cancellation. With the exception of the set user status, canceling a confirmation results in all confirmed data being undone at the level of the activity; however, for performance reasons, you can also perform a *vague cancellation* of confirmations. Although the posting of actual costs, actual work, capacity requirements, and material movements is undone consistently, forecast data and statuses aren't adjusted. For more information about vague cancellations, see SAP Note 304989.

Before you can enter confirmations for activities, activity elements, or capacity splits, you must define confirmation parameters in Customizing of Project System (Transaction OPST, Confirmation Parameters) for the combination of the network type and the plant of the relevant networks (see [Figure 4.9](#)).

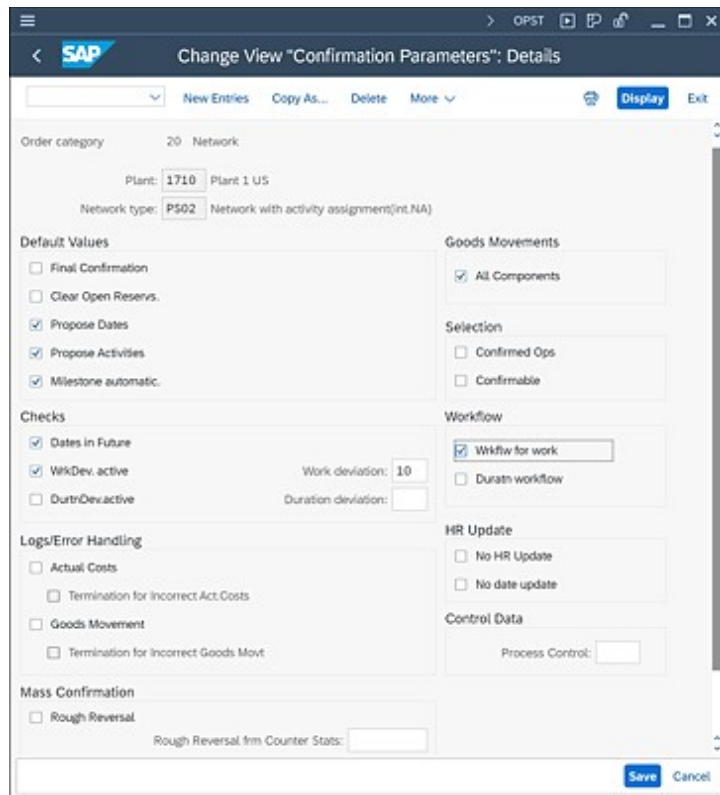


Figure 4.9 Defining Confirmation Parameters

You can use confirmation parameters to control which data and controlling indicators you want the system to propose when you create a confirmation, whether confirmation processes are executed online or in the background, and how errors that occur when actual costs and goods movements are posted should be handled. In addition, you use confirmation parameters to control different checks for confirmation data.

You can use the **Dates in Future** indicator in the confirmation parameters to specify whether future dates can also be confirmed or only dates up to the current date in each case. If you set the **WrkDev. active** (consider permissible deviations of the work) indicator in the confirmation parameters, then the system issues a warning message each time you want to save a confirmation for which the total from the actual and remaining work exceeds the planned work.

If you want to have a limited overrun of the planned work without a warning message being issued, you can enter a percentage amount in the **Work deviation** field of the confirmation parameters. This is the percentage by which the planned work can be exceeded without a warning message being

issued. If a confirmation is saved despite the defined tolerance limits being exceeded and despite a warning message, then the system can (due to the **Wrkflw for work** indicator in the confirmation parameters) automatically trigger a workflow, which informs the person responsible for the network of this deviation. Warning messages and workflows can also be created in the same way if there are deviations in the entered actual and remaining durations of the original planned duration for an activity.

You can also define a *field selection* for confirmations in Customizing of confirmations in Project System. You can use the field selection to do the following:

- Control which fields you want completely hidden for a confirmation
- Control which fields are only supposed to be displayed but can't be changed by users
- Control which fields are ready for input
- If necessary, control which fields must always be filled before you save the confirmation

If required, you can make the field selection settings dependent on the relevant network type, network profile, work center, or control key of the activity.

Because confirmations are integral for executing a project with networks, there are many different ways in which you can enter confirmations. In addition to individual, collective and summary confirmations or the use of the CATS, which are presented in detail in the following subsections, there are other options available for confirming activities or activity elements.

You can use the standard interface `KK4` to connect external *plant data collection* (PDC) systems to Project System and thus transfer data from external systems to the SAP S/4HANA system for confirmation purposes. For plausibility checks, transaction data can also be made available to the PDC system using the same interface.

The *Business Application Programming Interface* (BAPI) `AddConfirmation` is available for importing confirmation data into Project System. Using this

BAPI, you can develop your own interfaces for data exchanges with other systems or, for example, internet applications.

Finally, you can also use the Progress Analysis Workbench to enter confirmations for activities and activity elements ([Section 4.7.2](#)).

4.3.1 Individual Confirmations

You can use individual confirmations to create partial or final confirmations for individual activities, activity elements, or capacity splits in a network. The entry is made in a detail screen (see [Figure 4.8](#)). You can create individual confirmations using Transaction CN25. If you only want to specify a network number in the initial screen of this transaction, then you receive a selection list of activities or activity elements for the network first. In the confirmation parameters, you can specify whether confirmed activities and confirmable activities should be included in this list. *Confirmable activities* are activities whose control keys allow, though don't necessarily provide for, confirmations (see [Chapter 1, Section 1.3.2](#)).

As the person responsible for the network, you can also create individual confirmations in various maintenance transactions for networks, for example, in Project Builder or Project Planning Board. You can also create individual confirmations using **Project Information System: Structures** in Project System (see [Chapter 6, Section 6.1](#)) or in capacity reports (see [Chapter 6, Section 6.3.3](#)).

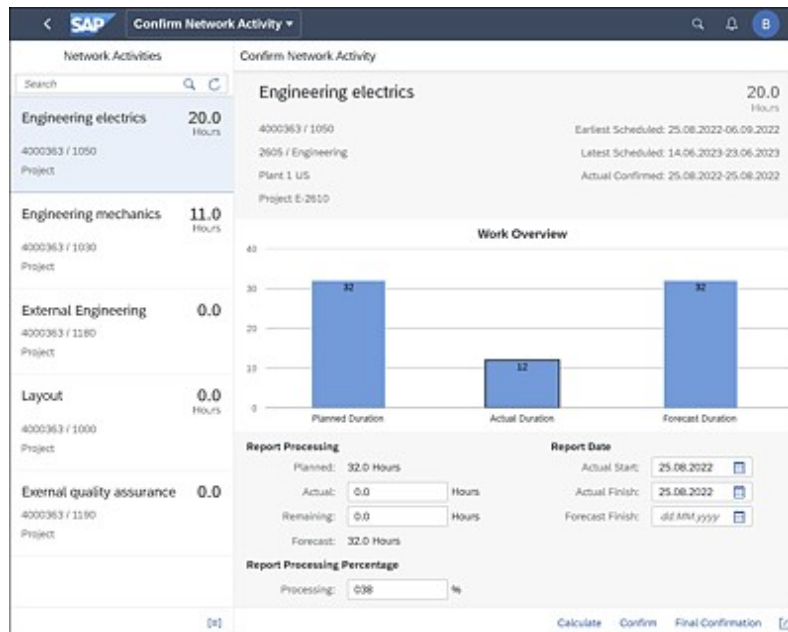


Figure 4.10 Confirm Network Activity App

You can use the Confirm Network Activity app (F0296) as a mobile confirmation option for activities. The app is called either directly from the SAP Fiori launchpad or from the Overview of Network Activities (F1970) and Network Activity apps. [Figure 4.10](#) shows an example of an activity confirmation using the Confirm Network Activity app. Note that not all fields and functions of the confirmation are available here.

4.3.2 Collective and Summary Confirmations

If you want confirmations for several activities or different networks to be entered simultaneously (e.g., by a central administrator), collective confirmations are available for this in Project System. When you use collective confirmations, you enter the confirmation data in tables (see [Figure 4.11](#)). You can also branch to the detail screen of a confirmation if necessary. In the default area of a collective confirmation, you can enter values for the individual columns of the collective confirmation, which the system transfers to the data entry section as default values for all activities.

C.	Network	Act.	Elem.	Cat.	Spl.	Confirm.	Pers. No.	Wkg.	Work Ctr	Pnt	ActTyp	CM Postg Date	Bus. Proce	
<input checked="" type="checkbox"/>	4000363	1030	8345	2605	1710	11	25.08.2022	31	5,0	HR	11,0	HR	01.08.2022	01.08.2022
<input checked="" type="checkbox"/>	4000363	1000	8343	2610	1710	11	25.08.2022	100	11,0	HR		HR	05.08.2022	05.08.2022
<input checked="" type="checkbox"/>	4000363	1180	8429		1710		25.08.2022					HR	05.08.2022	10.08.2022
<input checked="" type="checkbox"/>	4000363	1050	8348	2615	1710	11	25.08.2022	38	12,0	HR	20,0	HR	25.08.2022	25.08.2022
<input checked="" type="checkbox"/>	4000363	1190	8430		1710		25.08.2022					HR	01.08.2022	25.08.2022
<input checked="" type="checkbox"/>	4000363	1030	8345	2605	1710	11	25.08.2022	31		HR	11,0	HR	25.08.2022	25.08.2022

Figure 4.11 Collective Confirmation of Activities

If you've entered activities or activity elements in a table of a collective confirmation, then you can save the list for these objects as a *pool of confirmations*. With subsequent collective confirmations, you can constantly refer to this pool of confirmations and avoid having to enter the activities or activity elements manually each time. You can enter collective confirmations by using Transaction CN27 or in **Project Information System: Structures** (see [Chapter 6, Section 6.1](#)).

You can also send *confirmation workflows* in **Project Information System: Structures**. To do this, you select the activities or activity elements that are to be confirmed from a report and send this list as a pool of confirmations to the project member responsible. The project member then receives a work item for entering the actual data, which the project member can use to branch directly into the collective confirmation of the pool of confirmations.

You can use a *summary confirmation* to simultaneously confirm all activity elements of an activity that haven't yet been confirmed manually. To do this, select the corresponding activity in Transaction CN25, go to the summary confirmation, and enter a degree of processing. The degree of processing is forwarded to the assigned activity elements and used to calculate the confirmation data; however, the activity isn't confirmed by a summary confirmation per se.

4.3.3 Cross-Application Time Sheet

Many companies use the *cross-application time sheet* (CATS) as a key transaction for entering the time data of their employees. The time sheet enables employees to enter their own working times. However, particular employees (e.g., cost and work center supervisors or administrators assigned to enter employee time data), can also use CATS to enter working times for a group of employees. The time data entered using CATS can then be transferred into other applications, such as controlling or Project System, and consequently generate internal activity allocations or confirmations automatically. To document when and for what purpose work was performed, the working times in CATS must be assigned *working time attributes* (in particular, account assignment objects) that establish how the data is processed further in the SAP S/4HANA system.

If you've performed work for a network activity, then in CATS, you'll enter how many working hours you performed on the relevant days and the activity ID (see [Figure 4.12](#)). If required, you can add descriptive texts or forecasts for still outstanding work to your details, or you can document that the activity is to be confirmed. Depending on the settings of CATS, the system can automatically add additional information, such as activity or attendance types, to your details.

The time data entered for the network activity is first saved in a separate CATS database table and can't be displayed yet in the project. Once the data has been transferred into Project System, the data from CATS is used to generate the individual confirmations that refer to the network activity. The individual confirmations result in the creation of a corresponding accounting document and the activity debited with the actual costs of the work.

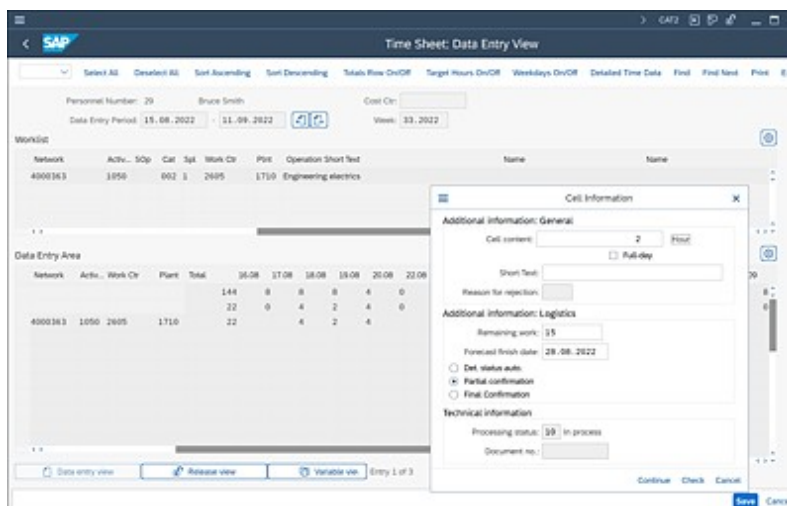


Figure 4.12 Entering Time Data Using CATS Classic

You can also enter working times for maintenance orders or service orders in the same way in CATS. The transfer of data into the corresponding target applications results in confirmations for these orders. You can also transfer time data into human resources (HR) to enter attendances and absences, travel activities, or to create remuneration documents. In addition, you can enter time data or statistical key figures relating to costs centers, costs objects, business processes, internal or sales orders, and particularly WBS elements in CATS. In these cases, the working time data is transferred into controlling, which leads to the corresponding activity allocations being created. You can also use CATS to enter suppliers' services. This data is then transferred into the services area of materials management, and service entry sheets are created ([Section 4.4.2](#)).

The data is transferred into the relevant target components via transfer reports. The following transfer reports are available, among others:

- **RCATSTPS**
This report (Transaction CAT5) is used to transfer data into Project System.
- **RCATSTCO**
This report (Transaction CAT7) is used to transfer data into controlling.
- **RCATSTAL**
This cross-component report (Transaction CATA) is used, in particular, to transfer common data into HR, controlling, plant maintenance, customer service, and Project System (however, you can only transfer data separately into materials management using Transaction CATM).

The transfer reports are usually scheduled as background jobs, which means that the working time data is transferred automatically to the target components at regular intervals.

Depending on the CATS settings, there may be two additional steps to perform between entering the time data and transferring it: the time data is explicitly released by the person who entered it and the project manager

approves it. The approval procedure can be supported by an approval workflow from CATS.

There are different application interfaces you can use to enter time data with CATS:

- CATS classic (Transaction CAT2) or CATS for service providers (Transactions CATSXT and CATSXT_ADMIN) can be used directly in the SAP system.
- CATS regular/Record Working Time (Web Dynpro) or the My Timesheet app (F3074) is used for browser-based entry of time data.
- Customer enhancements are used to make various changes to the different application interfaces. To enter time data via mobile end devices—for example, a smartphone—you can download a mobile application from the SAP Store if required.

You can make it easier for employees to enter time data in CATS by using *worklists*. A worklist is a default area in CATS in which time data and working time attributes are automatically imported and can be copied into the data entry section of CATS using a copy function.

The worklist can be filled by account assignment objects or working time attributes that were entered earlier by the employee, by pools of confirmations that you created in Project System, or by capacity requirements on the work center to which the employee is assigned. In particular, data for workforce planning on personnel resources (see [Chapter 2, Section 2.2.2](#)) can also be copied automatically into the worklist of CATS of the corresponding people. You can also use a customer enhancement or a business add-in (BAI) to combine worklists.

Time data is always entered using CATS with reference to a personnel number. Therefore, to use CATS, corresponding personnel numbers for internal and external employees who want to enter working times through CATS must be available in the SAP system. External employees who want to enter activities using CATS are normally grouped under one or a few personnel numbers.

You can create the personnel numbers manually in the SAP system as *HR mini master records*. You need at least infotypes 0001 (Organizational

Assignment) and 0002 (Personal Data) to do this; we also recommend that you use infotype 0315 (Time Sheet Defaults). If you're using HR management in SAP S/4HANA, then you can also copy the required data directly from HR. As a result, additional data such as infotype 0007 (Planned Working Time) of the employees can also be used in CATS for information purposes or for performing checks.

Before you can use CATS, you must have defined data entry profiles in Customizing of the cross-application components. Data entry profiles control the interface and functions of CATS (see [Figure 4.13](#)).

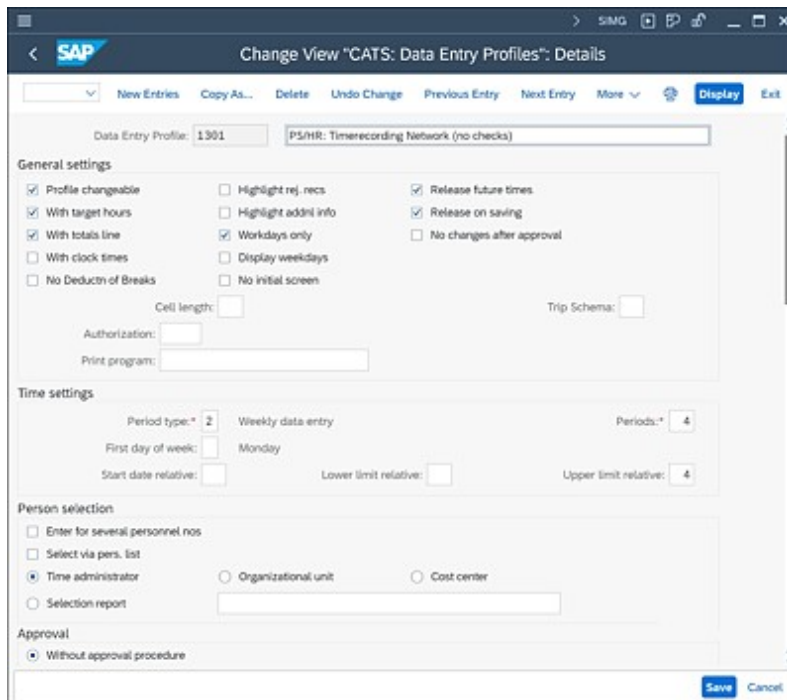


Figure 4.13 Definition of a Data Entry Profile

You can manually define the data entry profile together with the personnel number when you access CATS. However, the initial screen is usually skipped, and a personnel number and data entry profile are firmly assigned directly to the SAP users using the `PER` and `CVR` user parameters.

Depending on the data entry profile, you can also define a field selection in Customizing for the data entry section or the worklist of CATS. You can use the field selection to control which working time attributes the employees can or must enter. You can use various customer enhancements and BAdIs to adapt the interface and functions of CATS to meet your own requirements.

<https://t.me/PrMaB2>

Customizing of CATS contains a detailed description of the possible enhancements.

4.4 External Procurement of Services

This section describes purchasing processes that were automatically triggered due to purchase requisitions of externally processed activities and service activities or elements. Similar processes can be run for WBS elements in purchasing when you manually assign purchasing documents to WBS elements ([Section 4.2](#)).

4.4.1 Externally Processed Activities

A purchase requisition or a new item within a purchase requisition can be created automatically for an externally processed activity (and also for an externally processed element) depending on the setting of the **Res./Purc. Req.** indicator. In the process, the system checks whether all the data (i.e., the material group, purchasing group, unit of measure, etc.) required for creating the purchase requisition or purchase requisition item can be copied from the activity data. If the data can't be copied, then the system issues an error message, and you must add the missing data to the activity.

You can use a customer enhancement to make further adjustments automatically to different data of the purchase requisition when you save the purchase requisition. Subsequent changes to the activity also directly affect the purchase requisition. Due to the purchase requisition, commitments are shown on the activity (or on the network header in the case of a header-assigned network).

You can directly process the purchase requisition further in purchasing. If you haven't already made reference to a purchasing info record or an outline agreement in the activity, and you know the supplier, then you must first select the supplier. You can do this using an automatic source determination, for example, in which the system searches for suitable source list entries, quota arrangements, info records, or outline agreements for the external service and then proposes one or several suppliers. You can also carry out bid invitations if required. In purchasing, requests for quotations (RFQs) are sent to different suppliers, their bids are entered and compared with one

another, and a supplier is ultimately selected. If necessary, you can also assign a fixed supplier to the purchase requisition manually.

The purchase requisition data can then be used by purchasing to create a purchase order. The purchase order is assigned to the same activity, and, consequently, the purchase requisition commitment is reduced on the activity, and a corresponding purchase order commitment is simultaneously increased ([Section 4.2.1](#)). The **Purchase Order Exists** indicator is also automatically set in the activity. Unlike the purchase requisition, which only represents an internal document that can't be used outside the company, the purchase order is the request directed to an external supplier to deliver an external service by the specified delivery date; consequently, a purchase order also has an external effect. In purchasing, you can link the added processing of the purchase requisition and the creation of the purchase order to *release procedures*, which are automated approval processes.

If a purchase order exists for an externally processed activity and if you subsequently make a purchase order–related change to the activity—for example, you change the delivery date, the activity quantity, or the activity type—then the purchase order isn't adjusted automatically. However, you can activate a workflow in the **Parameters for Network Type** (see [Chapter 1, Section 1.3.2](#)), which you can use each time you make a purchase order–related change to inform the responsible purchaser of this change and to allow the purchaser to change the purchase order directly (see [Figure 4.14](#)).

Special functions are available in purchasing to monitor purchase order handling further. In particular, you can also use progress tracking to monitor purchase order–related events ([Section 4.7.3](#)). Depending on which account assignment category you defined in the Customizing section of Project System for procuring activities externally for networks, the activity performed by the supplier can be documented using a goods receipt or an invoice receipt. If the account assignment category allows for a valued goods receipt, then posting a goods receipt for the purchase order results in actual costs on the activity based on the net price of the purchase order. Otherwise, actual costs are only updated on the activity once the invoice is received. The purchase order commitment of the activity is reduced accordingly in each case ([Section 4.2.1](#)). If there are price differences in the

purchase order net price when the invoice is received or checked, then the resulting costs can be shown on the activity.

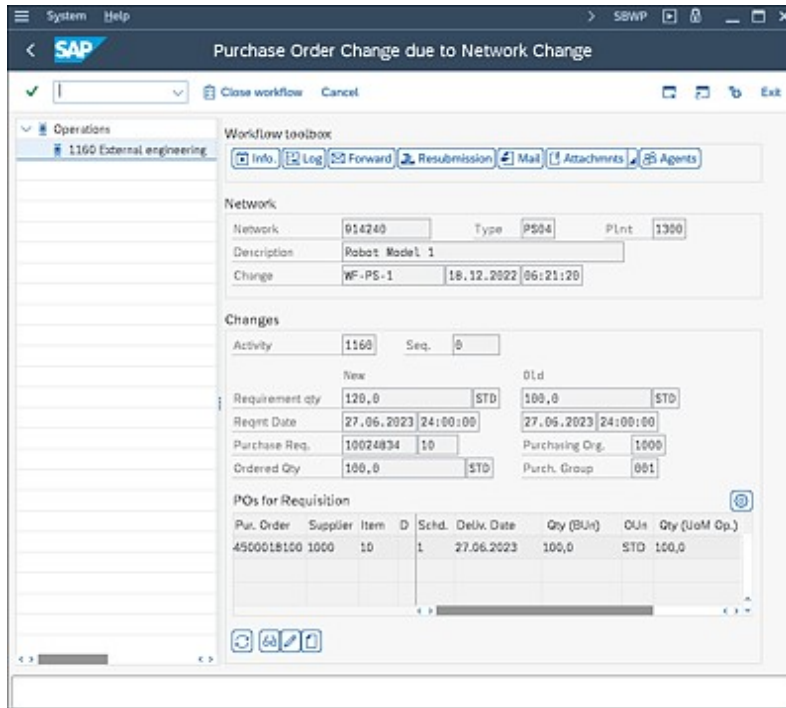


Figure 4.14 Workflow after a Purchase Order–Related Change to an Externally Processed Element

[+] Advantages and Restrictions of Valuated Goods Receipts

The advantage of using a valuated goods receipt is that you can already see the actual costs when the activity is performed regardless of when the supplier sends you an invoice. You should note, however, that the costs aren't checked against the budget of WBS elements due to a goods receipt posting (see [Chapter 3, Section 3.1.5](#)).

4.4.2 Services

A purchase requisition that was automatically created as a result of a service activity (or service element; see [Chapter 2, Section 2.2.5](#)) triggers similar purchasing processes as the purchase requisitions of an externally processed activity. You can assign suppliers to the purchase requisition manually, the system can determine a supplier automatically by using the source

determination, or you can perform bidding procedures. You can use the purchase requisition data to create a purchase order and consequently commission the services of suppliers. The purchase requisition and purchase order are each assigned to the activity and result in the commitments being increased and decreased accordingly.

Subsequent changes to the activity have a direct effect on the purchase requisition but not on the purchase order. However, if the activity date, amount, or type changes, then the purchaser responsible can be automatically informed of these purchase order–related changes. Note that subsequent changes to the services specifications of a service activity aren't sufficient to trigger the standard workflow when purchase order–related changes are implemented.

Unlike purchasing processes for an externally processed activity, a *service entry* and *service acceptance* always take place for service activities. In a service entry, an employee or the supplier documents which planned or unplanned services were performed in relation to the purchase order. If the value of the unplanned services exceeds the limit you allowed for in the activity (see [Chapter 2, Section 2.2.5](#)), then the system issues an error message for the service entry. Service entries are executed by using service entry sheets (see [Figure 4.15](#)). These entry sheets can be created directly in Transaction ML81N or via CATS and then transferred to materials management ([Section 4.3.3](#)).

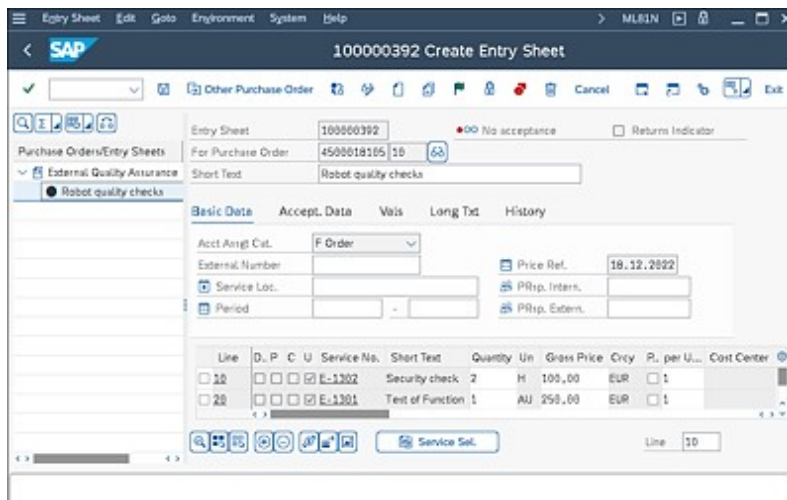


Figure 4.15 Service Entry Sheet

After services have been documented in the service entry sheet, they must be checked and accepted by one or more of the people responsible, depending on the system setting. Once this service has been accepted, the system creates a material document (similar to the goods receipt posting for externally processed activities), which results in actual costs and a reduction in the purchase order commitment on the activity. An invoice verification can then be performed on the activity for adjustment postings if necessary.

4.5 Material Procurement and Delivery

[Chapter 2](#), [Section 2.3.1](#), described how material components could be assigned to network activities to plan the procurement and subsequent consumption of materials in the project. The item category and procurement type for the assignment specified how a material is to be procured and in which stock the stock items are to be managed. The following section explains how the different procurement types are executed and, in particular, the associated value flows for the project.

If material has to be delivered to the customer or construction site during project execution, then delivery notes can be created for the required shipping tasks in Project System. This option, known as a *delivery from project*, is discussed in [Section 4.5.2](#). Finally, [Section 4.5.3](#) introduces ProMan, a tool that you can use to monitor logistical data of all project-related procurement measures.

4.5.1 Material Procurement Processes

Assigning the required material to activities in the form of material components is the starting point for procuring material for network activities. Depending on the setting of the **Res./Purc. Req.** indicator for a material component, the procurement of the material can be triggered automatically if the status is **Created**, triggered for a release, or triggered manually at a later stage.

Non-Stock Items

Similar to external processing, purchasing processing is triggered for non-stock items ([Section 4.4.1](#)). Based on the purchase requisition for the material component, this means that a vendor selection takes place in purchasing. A purchase order is created, and a goods receipt or invoice receipt is entered. Non-stock items and externally processed activities use, in particular, the same account assignment category to ensure that the value

flow is also processed in the same way. Purchase requisitions and purchase orders are therefore assigned to the activity to which the non-stock item is assigned and produce corresponding commitments on the activity (or on the network header for header-assigned networks). The goods or invoice receipts are also assigned to the activity and result in actual costs and a simultaneous reduction of the commitment. Non-stock items are procured directly through purchasing (direct procurement) and not through MRP.

Non-stock items aren't managed in a stock (either plant stock or individual requirements stock). Therefore, no inventory costs are incurred. The goods and invoice receipt of a non-stock item corresponds directly to the material consumed being posted by the activity.

Stock Items

Many different procurement types are available for stock items depending on the material master data, the project settings, and so on (see [Chapter 2, Section 2.3.1](#)). In the simplest scenario, only a reservation is created for a stock item in Project System; this reservation represents a request to MRP to procure the material in the required quantity by the planned requirements date. Depending on whether you selected the **Reservation for Network**, **Reservation WBS Element**, or **Reservation Sales Document** procurement type, the reservation refers to the plant stock, a stock-managing WBS element, or a sales order item as an individual requirements stock segment. The task of MRP is to ensure the availability of the material.

The MRP controller can use an MRP run to calculate material shortages and for the system to generate procurement proposals automatically if requirements aren't covered by the available stock and the fixed purchasing or the previously planned production receipts. Depending on the material and planning run settings, procurement proposals can be purchase requisitions or planned orders (planned procurement elements). Based on the lot-sizing procedure selected, you can calculate the quantities and dates of the procurement elements in such a way that you can combine requirements for different dates to optimize the in-house production costs or, due to greater order quantities, improve purchasing conditions. This procurement quantity calculation is performed separately for each stock segment (see [Chapter 2, Section 2.3.2](#)).

If you selected the **Purch. requisition + Reservation** procurement type for a material component, then in addition to creating the reservation, the system generates a purchase requisition for the material (regardless of whether sufficient stock is available). Therefore, an MRP run is generally unnecessary for this procurement type.

If a valid bill of materials (BOM) (assembly) exists for a material, then this is exploded within a multilevel planning run, and procurement proposals are also created for the BOM items (dependent requirements); this action triggers the related procurement. If the assembly is managed in the project stock, then the dependent requirements are also managed in this stock (if this is allowed by the settings in the material master and the BOM items). If there is a valid WBS BOM for the assembly, then this is used instead of the material BOM to explode the BOMs.

You can perform planning runs for all stock segments simultaneously but also separately for individual requirements stock segments, such as individual stock-managing WBS elements (Transaction MD51; see [Figure 4.16](#)).

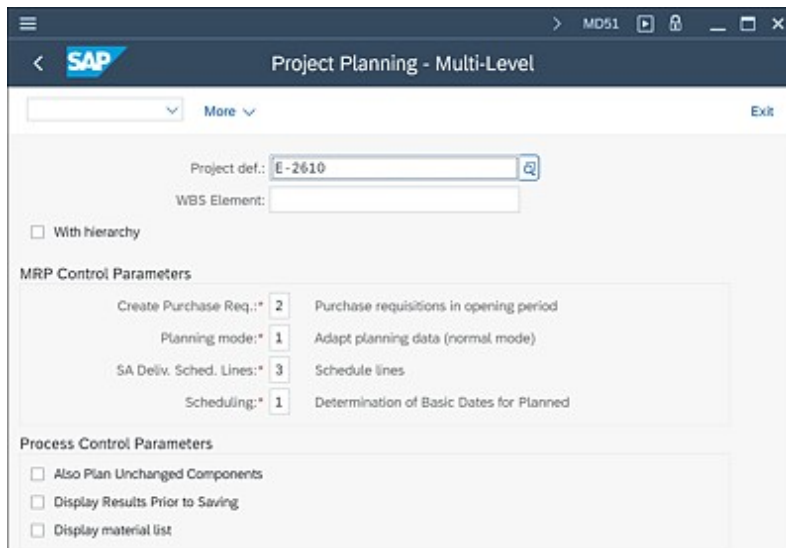


Figure 4.16 Initial Screen of Material Requirements Planning for Project Stock

If a planning run identifies critical situations (e.g., if the start date of a planned order was scheduled in the past), then the system creates exception messages that inform the MRP controller of this situation. The MRP controller can then postprocess the data manually. However, automatic adjustments to project data, such as changing the requirements date of a

material component, don't take place in the planning run or as part of further processing.

You can convert the planned procurement elements created by a planning run into exact procurement elements. You convert purchase requisitions into purchase orders in purchasing and planned orders into production orders in production. If the planned order refers to a WBS element as a stock segment and there is a separate project routing for the material and the WBS element, then this project-specific routing is used to create the production order. The exact procurement elements refer to the same stock segments as the planned procurement elements. In purchasing or production, you can now process the procured materials further. If the required material is finally delivered or goods were produced in-house, then the material is posted into the stock provided and is now available for consumption. In the last step of this process, the material can be withdrawn by the activity, and this withdrawal can be documented using a goods issue that refers to the reservation number of the material component.

The value flow of the procurement process just described will now be explained in an example of procuring a material produced in-house using valuated project stock. Based on the assignment of a stock item to an activity that refers to the valuated project stock, the system shows planned costs for the subsequent consumption of the material. The planned costs are calculated within the network costing on the basis of the planned quantity and requirements date of the component (see [Chapter 2, Section 2.4.5](#)). The costing variant in the network header is used for this calculation. The creation of the reservation for the material component and also the subsequent planning run don't result in any changes to the project's costs.

If a material is to be produced in-house, then the planning run creates a planned order that can be converted into a production order. The production order is assigned to the stock-managing WBS element and can therefore be evaluated with the project in reporting of Project System. The production order contains planned costs for producing the material and a planned reduction of the same amount to ensure that a change to the total planned costs does occur on the stock-managing WBS element. Confirmations of work performed on the production order result in actual costs on the order that you can also analyze at aggregated levels on the stock-managing WBS element.

If the material production was completed and a goods receipt posting of the material performed in the project stock, then the stock-managing WBS element is credited with the costs for the material stock in the form of statistical actual costs (value type 11), and the production order is debited by the same amount. The following strategy is used to evaluate the material in the stock and therefore calculate the inventory costs:

1. If you already posted a goods receipt for the material in the project stock, then this standard price of the individual requirements stock segment is used. If required, you can manually change the standard price of the material for the individual requirements stock segment in Transaction MR21.
2. The evaluation that you make available in customer enhancement `COPCP002` is used.
3. The system transfers the evaluation from a marked costing of a sales order item assigned to the WBS element, an activated production lot costing, or a unit costing that you've created for the material component in the network.
4. The production order costing is used to calculate the evaluation.
5. The price in the material master determines evaluation.

If there are still variances on the order after the material has been delivered to the project stock and the production order has been reduced accordingly, then you can settle these variances to the stock-managing WBS element or directly to profitability analysis during period-end closing.

The consumption of the material by the network activity—the goods issue for the reservation—ultimately results in the activity being credited with actual costs in accordance with the evaluation of the material and the inventory costs being simultaneously reduced at the level of the WBS element.

[+] Prerequisites for Displaying Inventory Costs

To enable the inventory costs to be shown on the stock-managing WBS element as statistical actual costs, you must create the relevant material

stock account of financial accounting and the cost element for type 90. The general ledger account determination can be controlled separately from the collective stock by using separate valuation classes for the project stock in the material master data.

When you externally procure a stock item for the valuated project stock, the purchase requisition, purchase order, and goods receipt of the material are assigned to the stock-managing WBS element, which results in commitments and inventory costs on the WBS element. Depending on the price control, the inventory costs are calculated based on the standard price or moving average price. If differences occur with the order value, then these can be shown as price differences on the stock-managing WBS element with a corresponding account control. The final consumption of the delivered material by the activity results in actual costs on the activity and reduces the inventory stock at the level of the WBS element accordingly. If you created the purchase requisition using a planning run, then a purchase requisition commitment isn't created for performance reasons. In this case, only the purchase order results in a commitment being created on the stock-managing WBS element.

If you require dependent requirements for the in-house production of a material that is managed in the valuated project stock, then these requirements (provided they allow individual requirements management) are also managed in the project stock. The planned costs for the consumption of dependent requirements are shown as planned costs at the level of the production order. Within the framework of procuring individual requirements and dependent requirements, resulting purchase requisitions, purchase orders, production orders, and goods receipts automatically refer to the stock-managing WBS element and result in commitments and, in particular, inventory costs on the WBS element, as explained earlier. The consumption of dependent requirements by the production order results in actual costs on the order. The inventory costs for the dependent requirements are simultaneously reduced at the level of the stock-managing WBS element.

[AT A GLANCE] Value Flow for Valuated Project Stock

When you use the valuated project stock, material movements for the individual requirements stock are managed based on quantities and

values. Planned and actual costs for the consumption of the material are shown on the consuming object (network activity or production order). The inventory costs of the material and, if necessary, commitments for its external procurement, are posted on the stock element (WBS element).

The logistical process of procuring material for non-valuated project stock (external procurement and in-house production) is utterly the same as using valuated project stock. Unlike valuated project stock, material movements are entered based on quantities, not values. This means that no planned or actual costs are shown for the consumption of individual requirements materials at the level of the consumer (activity or production order). Planned costs for material that is managed in non-valuated project stock can only be shown on planning networks because planning networks don't affect assigned funds and therefore prevent assigned values from being displayed twice.

If necessary, commitments are posted at the level of the stock element (the WBS element) due to purchase orders. However, the goods receipt of an externally procured material or of a dependent requirement in the non-valuated project stock doesn't result in inventory costs; instead—as for direct procurement of material for the WBS element—the goods receipt results in actual costs on the stock-managing WBS element. The goods receipt of a material produced in-house in the non-valuated project stock doesn't result in a value flow; therefore, no changes are made to the costs, either on the stock-managing WBS element or the supplying production order. As part of period-end closing, the actual costs of the production order are finally settled to the WBS element, based on internal activities and material withdrawals from the general plant stock.

As is the case when you use valuated project stock, both a quantity and value flow take place for stock items that are managed in collective stock (**Reservation for Network** procurement type) each time goods are moved. Therefore, you can determine planned and actual costs for the consumption of material managed in collective stock at the level of the consumer (network activity or production order). However, because materials managed in collective stock are procured for a general stock—that is, without reference to a WBS element as the individual requirements stock segment—the costs that are incurred as part of the procurement, and in particular the

inventory costs, can't be assigned directly to any project and therefore can't be shown at the project level.

Advance Procurement

If you have material produced in-house with a very long in-house production time or purchased parts for which bidding procedures must be performed within purchasing processes, then you may need to trigger the procurement of the material for projects even though the actual consumers—that is, the corresponding network activities or production orders—haven't yet been created in the SAP S/4HANA system. These consumers are only created later as part of the project detail using subnetworks or based on planning runs in MRP; however, if the activities or orders for which material is required to implement them don't yet exist, then you can't assign material components to these either, and therefore you can't plan the consumption of the required material yet. Nevertheless, you can use advance procurement to trigger the procurement of material without having to plan the consumption of the material beforehand.

To perform the advance procurement of a material, you have to assign the material as a stock item to an existing activity of the project structure and select the **Prelim. PReq** procurement type for purchased parts and the **PlndIndepReq** procurement type for material produced in-house. Because it's not yet clear at this stage where the material will actually be consumed, no planned costs are shown for these components.

A preliminary purchase requisition triggers a purchasing process. From the point of view of planning, the preliminary purchase requisition is fixed and isn't deleted by material planning runs. The planned independent requirements for the advance procurement of material produced in-house results in the production of the material being triggered by the next MRP run. You can then post the material delivered and produced in-house in a stock.

As soon as you've created the activities or orders for your project that will consume the material you procured in advance, you can assign the material to these objects once again. However, this time, you must use a simple reservation as the procurement type—one that relates to the same stock segment in which the material procured in advance is also managed. You can

use this reservation to finally withdraw the material procured in advance from the stock. When you use the collective stock or valuated individual requirements stock, the planned and actual costs for consumption can be shown on the consuming object, that is, the network activity or production order.

4.5.2 Delivery from Project

If parts of the project aren't carried out in house, but rather in a different location (e.g., on-site at the customer location), and material is required for this purpose, then you must plan and implement corresponding deliveries. The SAP S/4HANA system supports you with various shipping functions for picking, packaging, and transporting the material. In order to enable corresponding tasks to be performed in shipping, delivery notes that contain a list of the material to be delivered must be created. The creation of these types of delivery notes in Project System for material in projects or assigned production orders is called *delivery from project*.

To create a delivery, the system requires information about the shipping point, ship-to party, planned goods issue date, and sales area. You must specify this *general data* manually if the system can't derive it from assigned sales order items or *delivery information*. Delivery information (see [Figure 4.17](#)) can be assigned to WBS elements, activities, network headers (for header-assigned networks), and material components and can be created directly in maintenance transactions for projects or centrally using Transaction CNL1.

When you create a delivery from a project (Transaction CNS0), you first select the material components to be delivered by specifying a project, WBS element, network, or assigned sales order and suitable filter criteria. With the exception of assemblies (see [Chapter 2, Section 2.3.1](#)), you can select all stock items that are assigned to a network activity of the project or to a production order for the project. The components can be produced in-house or procured externally and managed in a collective sales order or project stock.

The system uses the planned goods issue date in the general data of the delivery to calculate the availability of the selected material components and

proposes a delivery quantity for each component (see [Figure 4.18](#)).

Delivery Info for 4133729 0010

Delivery info.: ZCNS0_PROJE1

Delivery data

Project def.:* PROJECTE

GR via delivery

Shipping Point: 0001 Shipping Point 0001

Planned GI date: 21.05.2021

Delivery Date: 29.05.2021

Ship-to Party: 13043 BP Multi Addresses DE 01

Organizational data

Sales Org.: 0001 Sales Org. 0001

Distr. Channel: 01 Distribtn Channel 01

Division: 00 Engine - 1010

✓ Copy

Figure 4.17 Delivery Information of a Network Activity

Delivery from Project: Item Details

Material: E-1501 Engine unit: 5 KW 380V AC

Delivery date: 12.08.2023 Goods Issue: 12.08.2023

Quantities

Del. quantity	1	PC
Reqmt Qty	1	PC
Withdrawal Qty	0	
Qty in delivery	0	
Open quantity	1	
Aval. open qty	1	

Assignment

Network	014240
Activity	1000
WBS Element	E-2615-2
Special Stock	0

General data

Reqmt Date	08.08.2023	Stor. Loc.	0001
Item	0010	Batch	
Item Category	L	Sort String	

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Figure 4.18 Calculating the Delivery Quantity of a Material Component

The proposed delivery quantity is each available quantity of a component that is still open; the open quantity results from the difference in the

requirement quantity and the already withdrawn quantity or the quantity in the delivery. You can check the different pieces of quantity information in the detail screen of a material component for the delivery. As soon as you've saved a delivery for a project, you can use the document directly in shipping for all other follow-up actions. In Project System, you can analyze deliveries from projects using Transaction CNS0 or ProMan.

4.5.3 ProMan

When you use the aforementioned procurement processes for material or services (including external services) for a project, this results in a whole range of logistical data in Project System, purchasing, production, shipping, and so on. You can use Project-Oriented Procurement (ProMan) (Transaction CNMM) to evaluate this data centrally in a transaction. Traffic lights in ProMan indicate exceptional situations, for example, overdue purchase orders or missing material stocks. You can also execute different procurement tasks directly in ProMan if required.

When you call ProMan, you first specify the project for which you want to analyze procurement measures. You can restrict the data selection further by specifying additional filter criteria in the initial screen of ProMan. In the main screen of ProMan, you see the project structure on the left and the different tabs (views) on the right, and data for the objects selected in the project structure is displayed in tables (see [Figure 4.19](#)). In the project structure, you can either select one object or several similar objects simultaneously, such as all material components of a network.

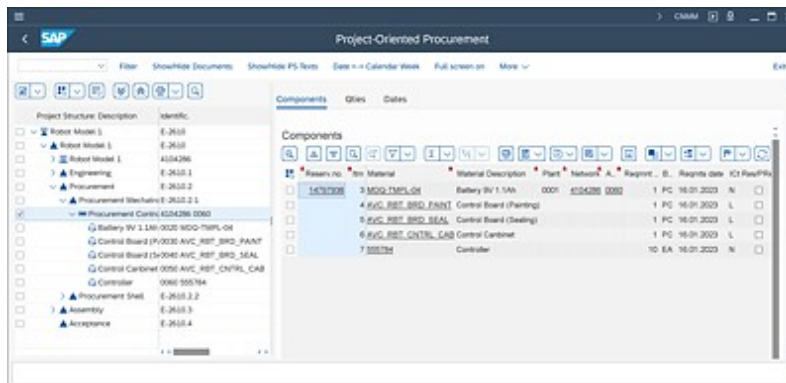


Figure 4.19 Project Structure and Components View of ProMan

To enable data from documents and orders to be analyzed in ProMan, you must link these objects to the selected project. You can do this by assigning them automatically or manually to the project or by assigning them to a stock-managing WBS element. Consequently, data for dependent requirements in production orders can be analyzed in ProMan if these requirements are managed in the project stock. However, if the dependent requirements are managed in collective stock, then there is no longer a link to the project, and the data for the dependent requirements is therefore not displayed in the ProMan views.

The following list contains the different views in ProMan with some selected data in each of these views:

- **Components**
Reservation number, material number, network activity, requirement quantity, and date.
- **Activities/elements**
Network activity or activity element, activity quantity, information record, supplier, **Purchase Requisition Exists** indicator.
- **Orders/documents**
Purchase requisition; purchase order; planned and production orders; material documents; **Completed**, **Cancelled**, and **Delivery Completed** indicators; and so on.
- **Quantities**
Quantities in purchase requisition, purchase order, planned or production order, and material documents.
- **Dates**
Requirement date, delivery date in purchase requisition and purchase order, posting date of material documents, and scheduled dates of planned and production orders.
- **Stock**
Unrestricted use stock, quality inspection stock, and blocked stock of material.
- **Deliveries**
Reservation number, delivery from project, delivery quantity, and material provision date.

- **Progress tracking**
Progress tracking information ([Section 4.7.3](#)).
- **Customer enhancements**
Customer-defined fields (BAdI `BADI_CNMM_CUST_ENH_SCR`).

The display of views in tables allow you to perform different functions and adjustments, such as calculate totals or subtotals, print data, use filter and sort criteria, and so on. You can then store any changes to the interface in your own layouts.

Underlined data in the different views is called a *hotspot*, which enables you to go to the details of the data when you click on it. Examples of hotspots in ProMan are reservations, purchase requisitions, purchase orders, material documents, deliveries, planned and production orders, material masters, and project structure data. For more detailed analysis, you can also branch from ProMan to the requirements/stock list of the material or to order reports.

In addition to analyzing data, you can also use ProMan to execute different procurement tasks. You can execute the following functions in ProMan (the possible functions depend on which object you've selected in the project structure and in which view):

- Generate purchase requisitions or reservations
- Perform planning runs
- Group purchase requisitions
- Create purchase orders
- Post goods receipts and issues
- Make transfers between stock types
- Generate deliveries

After you've executed a function in ProMan, you can refresh the views and then check the result of the function directly in ProMan. In addition to this, you can change the assignment of material components via drag and drop in the structure tree; this is similar to the process in Project Builder.

You can use ProMan fully without having to perform any prior Customizing activities; however, if necessary, you can define ProMan profiles and exception profiles in Customizing. You can use a ProMan profile, which you

can select in the initial screen of ProMan, to control which documents and orders are read by the database and which views you want to be displayed in ProMan (see [Figure 4.20](#)).

In addition, the ProMan profile refers to an exception profile. Exception profiles define when you want the relevant traffic lights in ProMan to indicate exceptional situations. You can even define the conditions for displaying traffic lights by using the same functions as those used for defining substitutions or validations (see [Chapter 1, Section 1.8.4](#) and [Section 1.8.5](#)).

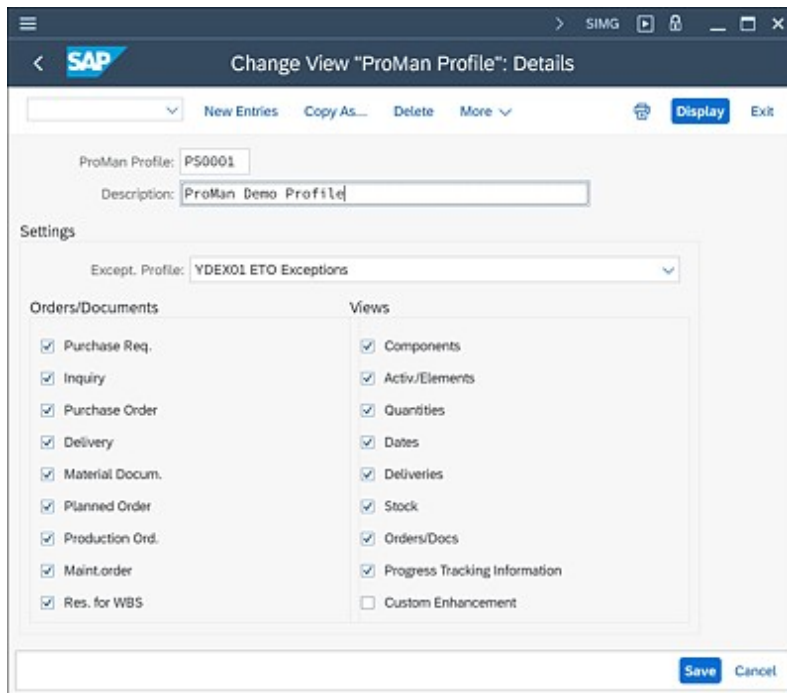


Figure 4.20 Defining a ProMan Profile

4.6 Billing

You bill a project using corresponding functions from sales based on sales order items that are assigned to WBS elements of the project. Due to this assignment, the resulting payment flows and actual revenues of billing documents are updated on the billing elements of the project and can therefore be compared to the planned revenues (see [Chapter 2, Section 2.5](#)). Two functions for controlling billing processes in sales using project data are explained in the following sections: the *milestone billing* and *resource-related billing* of projects.

4.6.1 Milestone Billing

When you create a billing plan for a sales order item, you can derive the billing date, billing percentage, and the billing rules from the milestones of a project (see [Chapter 2, Section 2.5.3](#)). As long as the milestones of the project haven't yet been reached, the corresponding items of the billing plan are used exclusively for revenue and payment planning. In other words, they are locked for billing. However, a lock can be automatically released if the milestone of the corresponding invoice date receives an actual date. You can either set this actual date manually in the milestone, or, if it's an activity milestone, it can be set automatically due to an activity confirmation ([Section 4.1.3](#)). A billing run in sales then automatically generates down payment requests or invoices based on the unlocked items in the billing plan. If the sales order item is assigned to a WBS element, then the resulting actual revenues or down payment requests are updated in the project. This process is called *milestone billing* and is illustrated next using the example of the robotics project.

Let's suppose that the customer agreed to a down payment of 10% of the target value of 200,000 USD at the start of the project, a partial invoice of 30% when an agreed-upon project goal is reached, and a final invoice when the project is completed. Corresponding milestones called **Down Payment**, **Partial Payment**, and **Final Invoice** were defined in the project and copied

to the billing plan of the sales order. In Project System, planned revenues of 60,000 USD for the planned date of the **Partial Invoice** milestone and additional planned revenues of 140,000 USD for the planned date of the **Final Invoice** milestone are shown in revenue reports. In payment reports of PS Cash Management (see [Chapter 6, Section 6.2.5](#)), you can also analyze the planned down payment (billing rule 4) of 20,000 USD, taking into account the payment conditions for the planned date of the **Down Payment** milestone.

An activity confirmation creates an actual date in the **Down Payment** milestone and documents the fact that the milestone has been reached. The actual date is automatically forwarded to the billing plan of the sales order and unlocks the down payment item. The billing of the sales order in sales results in a down payment request (FAZ document type) of the agreed-upon amount being automatically created for the unlocked item (see [Figure 4.21](#)).

The amount is shown as a down payment request in the payment reports in Project System. If the customer's down payment is entered in financial accounting for the down payment request, then you can also analyze this using the payment reports of Project System. The amount of the down payment request is reduced accordingly.

If the **Partial Invoice** milestone is also reached during the course of the project, then the second item of the billing plan is automatically unlocked due to the actual date of the milestone. The billing of the sales order now creates a partial invoice (controlled by billing rule 1 of the item). The down payment made by the customer can be settled proportionately or completely (see [Figure 4.22](#)). Actual revenues in the amount of the partial invoice are now shown on the billing element of the project in the revenue reports of Project System. You can use payment reports in Project System to track the invoice-related payment made by the customer that has been entered in financial accounting.

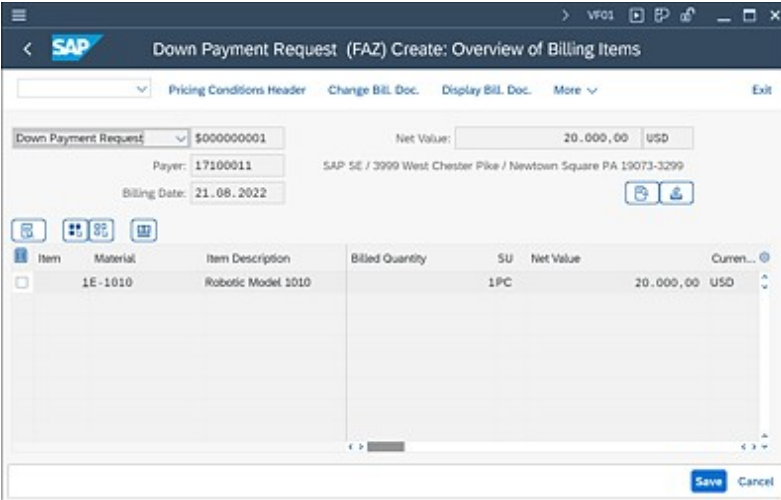


Figure 4.21 Creating a Down Payment Request

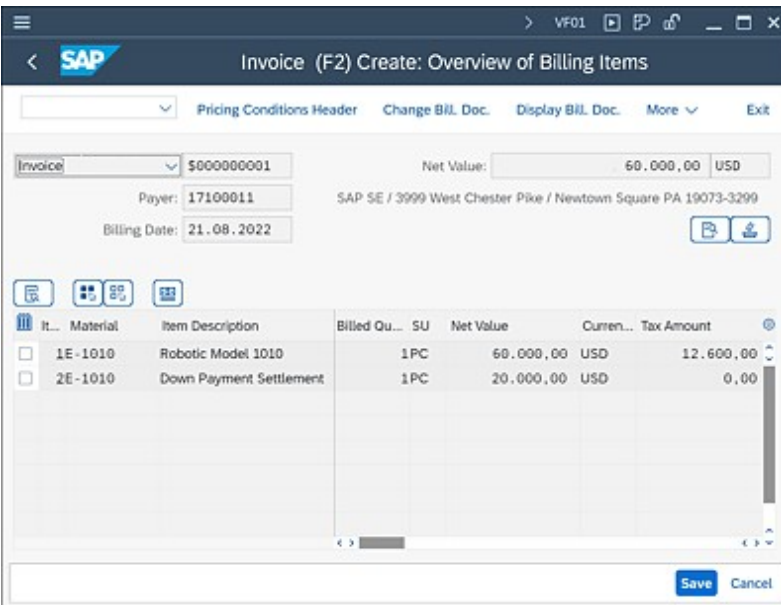


Figure 4.22 Creating a (Partial) Invoice with Down Payment Settlement

If the last **Final Invoice** milestone is reached in the project and the corresponding item is unlocked in the billing plan, then the billing of the sales order creates an invoice in which all the customer's down payments, which haven't yet been settled, are deducted from the receivables. Based on this final invoice, the remaining actual revenues are posted on the project and can be analyzed in reporting. The actual receipt of payment is also shown later in the Project System payment reports.

4.6.2 Resource-Related Billing

If the required services and materials for implementing the project haven't yet been established before the start of the project, then you can't agree on any fixed prices for the project processes with the customer. In these cases, you can't bill fixed amounts in the way you could in the preceding example. Instead, you can create a billing using the actual costs of the project. For the billing, you use billing requests in which you can verify for the customer the services performed, material consumed, and additional costs incurred. This form of billing is called *resource-related billing*.

Like sales pricing (see [Chapter 2, Section 2.5.4](#)), resource-related billing is also controlled by a dynamic item processor (DIP) profile that is stored in the sales order item assigned to the project. The DIP profile controls how the actual data of the project or the relevant billing structure for individual items of a billing request are to be summarized. Using SAP S/4HANA, you can also use actual costs from the Universal Journal as a source in the DIP profile of resource-related billing. For more information about defining DIP profiles, see [Chapter 2, Section 2.5.4](#), and SAP Note 301117. When you start the resource-related billing for the sales order item (Transaction DP91), you can analyze and, if necessary, still change the two-tier summarization of the actual data in the **Expenses** view and **Sales price** view.

The **Expenses** view contains hierarchically structured actual data, such as actual costs or statistical key figures entered in the project execution, summarized as dynamic items in accordance with the DIP profile settings. In the **Expenses** view, you can now decide which of the dynamic items are to be billed, temporarily postponed, or not included in the billing request (see [Figure 4.23](#)).

In a second summarization stage, the DIP profile converts the dynamic items for material numbers. These can be material numbers of the consumed material components of the project or material numbers of defined material master records specifically used for the purpose of confirming an activity. Pricing occurs automatically based on these material numbers and, if necessary, on sales order data, such as the customer number, sales organization, and so on.

Description	St.	Loc.	Amt to be billed	Curr.	Qty to be billed	UM	% to be billed	Net value	Currency
236141			7.800,00	EUR	14,612	HR	96,96	7.800,00	EUR
236143/1			7.800,00	EUR	14,612	HR	96,96	7.800,00	EUR
All costs			7.800,00	EUR	14,612	HR	96,96	7.800,00	EUR
Secondary costs			7.800,00	EUR	14,612	HR	96,96	7.800,00	EUR
Engineering costs			4.000,00	EUR	4,709	HR	95,78	4.000,00	EUR
Management costs			3.800,00	EUR	9,823	HR	98,23	3.800,00	EUR

Description	S.	Lo.	Original amount	Amt already billed	Open amount	Amt to be billed	Amount postponed
Secondary costs			8.044,75	0,00	8.044,75	7.800,00	100,00
Engineering costs			4.176,25	0,00	4.176,25	4.000,00	100,00
Management costs			3.868,50	0,00	3.868,50	3.800,00	

Figure 4.23 Expenses View of a Resource-Related Billing

The **Sales price** view displays the hierarchically structured material numbers that are combined for individual sales document items. In the **Sales price** view, you can also analyze the conditions of the different sales document items determined via the pricing and change or add additional conditions (see [Figure 4.24](#)). You can now create a billing request that includes the summarized items and any items you adapted. The billing of the request in sales finally posts the corresponding actual revenues on the project.

You can combine the milestone billing (based on a billing plan in the sales order) and the resource-related billing of the sales order. Consequently, by using milestones in the project, you can control when resource-related billings are possible and whether resource-related down payment requests (billing rule 4) or billing requests (billing rule 1) are created in the process. This includes all combinations of fixed down payments, fixed billing documents, resource-related down payments, and resource-related billing documents.

The screenshot displays the SAP Billing request interface for a resource-related billing document. The main table lists items with their descriptions, amounts, and currencies. Below this, a summary table shows the net amount and tax. The Pricing Elements table provides a detailed breakdown of the net value, including taxes and discounts.

Item	Description	Amount to be billed	Currency	Net value	Currency
Debit Memo Request	Debit Memo Request	7.800,00	EUR	7.800,00	EUR
Produkt	S-1300	7.800,00	EUR	7.800,00	EUR
Internal services	S-1311	7.800,00	EUR	7.800,00	EUR

Conditions	Amount	Quantity	Percentage		
City	1,0	HR	Net	7.800,00	EUR
			Tax	1.482,00	

N.	Cnty	Name	Amount	Cncy	per	U...	Condition value	Curr.	Status	NumC...	OUin	CConDe	Un	Co
		Net Value 2	7.800,00	EUR	1HR		7.800,00	EUR			1HR		1HR	
		Net Value 3	7.800,00	EUR	1HR		7.800,00	EUR			1HR		1HR	
		AZNR Down Pay/Settlement	0,00	EUR			0,00	EUR			0		0	
		MIST Output Tax	19.000	%			1.482,00	EUR			0		0	
		Total	9.282,00	EUR	1HR		9.282,00	EUR			1HR		1HR	
		SKTD Cash Discount	3.000	%			278,46	EUR			0		0	
		MK15 Factoring Disc. Tax	19.000	%			0,00	EUR			0		0	

Figure 4.24 Sales Price View of Resource-Related Billing

In international companies, employees from different company codes are commonly involved in the project execution. The costs between the company codes are normally settled on a resource-related basis. Let's look at an example of a cross-EUR-company code process for the robotics project.

The robot is to be built and sold in Germany, but parts of the construction are to be carried out by employees in the United States. Therefore, the project structure contains branches for both the company codes of Germany and the United States. In the company code for Germany (the requesting company code), a purchase order is created for the construction and assigned to the corresponding part of the project. In the company code for the United States (the delivering company code), a sales order is created because of the purchase order and assigned to the branch of the project for the US company code.

In the course of the project execution, the employees in the United States post their activities on the branch of the project provided for this purpose. The actual costs that result from these postings can now be billed on a resource-related basis with reference to the sales order. The billing leads to actual revenues on the branch for the company code for the United States. In contrast, the corresponding invoice receipt in the company code for Germany results in actual costs on the object to which the purchase order was also assigned.

The source **Intercompany-Line Items** is available for defining DIP profiles (see [Chapter 2, Section 2.5.4](#)). With this source, you can use an alternative option to the one explained previously to map the resource-related billing of project activities between company codes. In this case, rather than a sales order being created for each individual project, it's only created once (or once for each fiscal year) in the delivering company code, with the requesting company code as the customer. Only structures for the requesting company code are required within the projects themselves in this scenario. Employees of the delivering company code can also use these structures to directly post the activities they have performed. These cross-company code activities are automatically collected in the new source. A resource-related billing in Transaction DP93 based on the cross-company code activities finally performs all the required adjustment postings in accounting and posts revenues for the delivering company code. For more detailed information on resource-related billing between company codes and the necessary settings in Customizing, see the appendix of SAP Note 1461090.

4.7 Project Progress

With very complex projects in particular, it's important to provide the project and subproject managers with tools that they can use to monitor the progress of the project efficiently and to identify variances in the project planning as soon as possible. In addition to the different reports from reporting (see [Chapter 6](#)), Project System has its own functions for this purpose: milestone trend analysis, progress analysis, and progress tracking. These functions are explained in the following sections.

4.7.1 Milestone Trend Analysis

Milestone trend analysis is used to display the date situation of important project events simply and clearly, which enables you to immediately identify any variances in your planning and trends of such variances. To do this, the planned and actual dates of the milestones relevant to project progress are compared graphically or in tables at different times in the milestone trend analysis.

[Figure 4.25](#) shows an example graphic display of a milestone trend analysis. On the vertical timeline, you can see the dates of the different milestones; on the horizontal timeline, you can see the period when the milestones had these dates. A horizontal curve for a milestone therefore means that its dates haven't changed over the course of time; that is, progress is being made on schedule. Conversely, an ascending curve indicates that a deadline has been delayed, whereas a descending curve shows that a milestone has been reached early compared to the original planning. You can perform milestone trend analyses using Transaction CNMT or in the Project Planning Board (Transaction CJ2B).

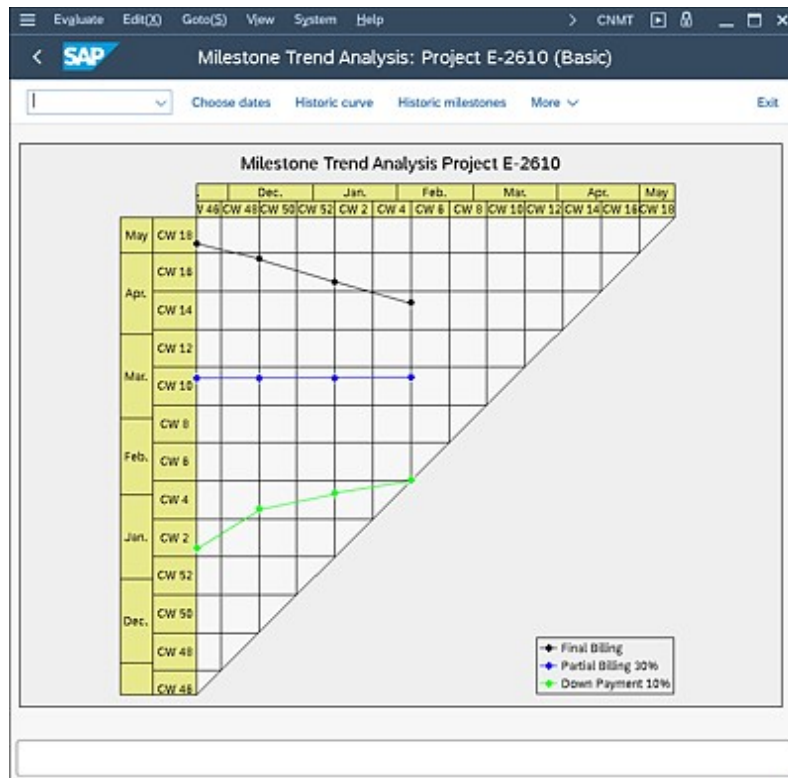


Figure 4.25 Milestone Trend Analysis

To perform a milestone trend analysis, the projects that you want to analyze must contain milestones for which the **Trend Analysis** indicator is set or was set earlier on the project (see [Chapter 1, Section 1.4](#)). The **Historic curve** view of the milestone trend analysis shows the dates over time of the milestones for which the **Trend Analysis** indicator is currently set. The **Historical milestones** view also displays milestone dates, but it displays those for which the indicator isn't currently set, but it was set at an earlier time.

The second prerequisite for the milestone trend analysis is that you must create project versions (see [Chapter 1, Section 1.9.1](#)) to retain the dates of the milestones for the different times in the system. Note that, in this case, you must set the **MTA Relevant** indicator for the project versions to ensure that they can be used for a milestone trend analysis.

4.7.2 Progress Analysis

You can use *progress analysis* to compare the actual status of a project with the planned project progress to enable you to determine any schedule or cost variances early on and take any necessary measures (i.e., stop the project, allocate more budget, change scheduling, etc.) to control the situation. You can analyze the progress for individual parts of the project or on an aggregated basis for the entire project, whereby the different parts of the project can be weighted very differently.

The progress analysis determines the following key figures for this in both aggregated and non-aggregated forms and makes them available in a special progress version:

- Planned percentage of completion (POC [planned])
- Actual percentage of completion (POC [actual])
- Budgeted cost of work scheduled (BCWS)
- Budgeted cost of work performed (BCWP)

The costs of work are an expression of the value of the relevant percentage of completion in each case and are calculated from the product of a percentage of completion and a reference factor (overall costs) that reflects the total value of the work to be performed. This reference factor can be displayed by the planned costs or the budget. The following therefore applies:

$$BCWS = POC (planned) \times overall\ costs$$
$$BCWP = POC (actual) \times overall\ costs$$

In business literature, planned and actual earned values are generally known as the BCWS, and BCWP values. BCWS is the abbreviation for *budgeted cost of work scheduled*, while BCWP stands for *budgeted cost of work performed*.

To make statements on the cost variances, another key figure is used, namely the actual costs incurred. These are frequently called *actual cost of work performed* (ACWP) values in the literature within the progress analysis.

You can now calculate schedule variances (SV) and cost variances (CV) from these key figures as follows:

$$SV = BCWP - BCWS$$

$$CV = BCWP - ACWP$$

The SV value is a measurement for a schedule deviation in your project. If SV is positive, this means that the value of the current progress exceeds the planned value; therefore, your project is progressing “faster” than planned. However, if SV is negative, there is a scheduling delay in your project; you haven’t yet reached the level of progress originally planned by this date.

The CV value reflects the cost variances. If the CV value is positive, this means that the value of the current project progress is greater than the resulting actual costs that were used for it. However, if CV is negative, more actual costs have been incurred in your project than should be the case due to the actual project progress.

The CV can also be expressed by the cost performance index (CPI), as follows:

$$CPI = BCWP \div ACWP$$

The CPI indicates how the value of your actual project progress behaves in relation to the actual costs. If you adopt a continuous development of a project corresponding to the CPI value, then forecasts for the anticipated expected costs value (ECV) total costs are also made using the following formula:

$$ECV = Total\ planned\ costs \div CPI$$

If required, you can also analyze CVs and SVs separately for different cost elements. This can be useful if you want to look at the development of internal or external services or the use of material separately.

The planned and actual degrees of completion are the starting points for calculating CVs and SVs. You can determine these degrees of completion using *measurement methods*. The following measurement methods are available by default:

- **Start-finish 0–100**

The percentage of completion is 0% until such time as the finish date of the object has been reached. The value then changes from 0% to 100%. The planned finish date is used for the planned percentage of completion, and the actual finish date is used for the

actual percentage of completion. This method is only useful for objects for which the duration is shorter than the period between two progress analyses and for which a more specific method can't be used.

- **Start-finish 20–80**

When the planned or actual start date is reached, the planned or actual percentage of completion is set to 20%. When the finish date is reached, the percentage of completion increases to 100%. An average value is achieved by using 20% as the initial value (considered across several evaluation periods). However, you should only use this method if the duration of the object isn't too long, and a more specific method can't be used.

- **Time proportionality**

With this method, the percentage of completion increases in proportion to the duration of the object, taking into account the relevant factory calendar. The system uses the planned start and finish dates for the planned percentage of completion, the actual start and finish dates for the actual percentage of completion, or, in the case of a **Partially Confirmed** status, the actual start date and the planned duration of the object. This method is useful if you can assume a linear increase in the progress of the project.

- **Milestones**

The percentage of completion for WBS elements and activities is copied from the corresponding field of assigned milestones that are identified as being relevant for the progress analysis (see [Chapter 1, Section 1.4](#)). The system takes into account the planned date of the milestone for the planned percentage of completion and the actual date for the actual percentage of completion. The milestone technique can be useful if you can define objective criteria for achieving milestones.

The progress version for each of the preceding methods decides whether the forecast or basic dates are used to determine the planned degrees of completion. Other standard methods include the following:

- **Cost proportional**

You use this method to calculate the planned percentage of

completion of an object from the ratio of cumulative planned costs up to the period of the progress analysis and the overall planned costs of the object; the actual percentage of completion results from the ratio of the actual costs to the overall planned costs. In terms of which controlling version of the planned costs is to be used, you specify this in the progress version. You can only use this method in planned data if you've performed a cost planning by period. This method is useful for objects for which progress can be derived from cost development; these can typically be general cost activities, externally processed activities, or assigned production orders.

- **Quantity proportional**

You determine the degrees of completion with this method as you do with the cost-proportional method. However, instead of cost information, you use a statistical key figure here to calculate the degrees of completion. To use this method, you must have defined a suitable statistical key figure of the **Totals values** type and assigned it to the method. In addition, you must perform planning by period for the key figure and post actual values for this key figure within the execution phase. This method is useful if you can derive the progress of an object by preferably using quantities such as the number of services performed or the number of products completed.

- **Secondary proportionality (apportioned effort)**

This method copies the percentage of completion of one object from the percentage of completion of another reference object. Therefore, a prerequisite for using this method is that a fixed relationship can be assumed between the progress of the object and the reference object stored in the object (e.g., quality inspection and production).

- **Degree of processing from confirmation**

This method copies the actual percentage of completion from the degree of processing of confirmed activities or activity elements ([Section 4.3](#)). You can only use this method when you use networks or to determine actual degrees of completion. Because the degree of processing is usually derived from the confirmed

work, this method is useful if you can measure the progress of the object on the internal work performed because this is often the case for internally processed activities.

- **Estimates**

You manually specify the percentage of completion for individual periods of the object using this method. To prevent an early overestimate of the actual progress when determining estimates, you can store a maximum percentage of completion in this measurement method (generally 80%) that can only be exceeded once an actual finish date has been entered. This method is often used for WBS elements whose percentage of completion doesn't increase in a linear direction and can't be derived from assigned activities or milestones.

- **Actual = planned**

This method, which you can only use for the actual percentage of completion, copies the planned percentage of completion as the actual percentage of completion.

You can use different methods to determine the planned and actual degrees of completion. However, it generally makes sense to use the same method in the planned and actual data to compare the progress data better (the **Degree of processing** method is an exception here).

We recommend that you determine the degrees of completion for WBS elements with assigned activities at the level of the activities and aggregate these degrees of completion on the WBS elements using suitable weighting factors, such as the planned costs of the activities, for example.

When you perform a progress analysis, the system determines the measurement methods to be used for the individual objects according to the following strategy:

1. You determine the method using a BAdI. (You can find more information on this BAdI and a sample implementation in SAP Note 549097).
2. You explicitly store one measurement method and one progress version in the object.

3. The progress version involves the planned method being copied as the actual method and vice versa (this isn't possible for the **Estimates** and **Secondary proportionality** methods).
4. You enter a measurement method in Customizing as the default value for the object type.
5. The system uses the 0–100 method.

You can't assign measurement methods to assigned orders manually. Instead, you can only store a default value in Customizing.

Progress Analysis Customizing Settings

Corresponding measurement methods for determining degrees of completion using the methods described previously are already defined in the Customizing section of Project System in the standard system. You can define additional measurement methods if required. [Figure 4.26](#) shows an example of defining your own measurement method. The start-finish rule is used as the measurement technique in this example. However, unlike the 20–80 method, a start percentage of completion of 50% is used here.

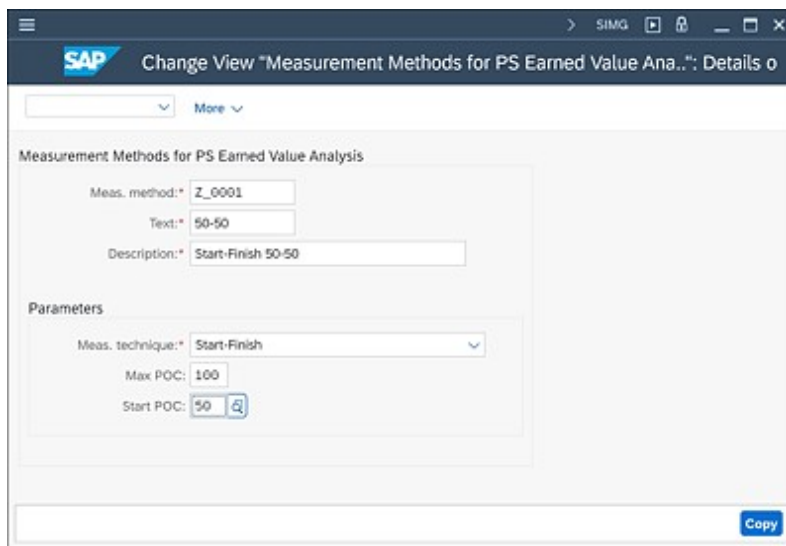


Figure 4.26 Defining a Measurement Method

You can use the **Max POC** (maximum percentage of completion) field to define a percentage of completion that must not be exceeded as long as a finish date hasn't been set. A maximum percentage of completion is relevant

for the Degree of processing, Time, Cost, Quantity, Secondary proportionality, and, in particular, Estimates method.

The measurement techniques are defined as fixed techniques in the SAP S/4HANA system. However, you can also determine customer-specific percentages of completion using the **Individual (User Exit)** measurement technique and customer enhancement CNEX0031.

Depending on the controlling area, progress version, and object type or order type, you can store default values for the measurement methods in the Customizing section of Project System, which are used to determine planned and actual percentages of completion (see [Figure 4.27](#)).

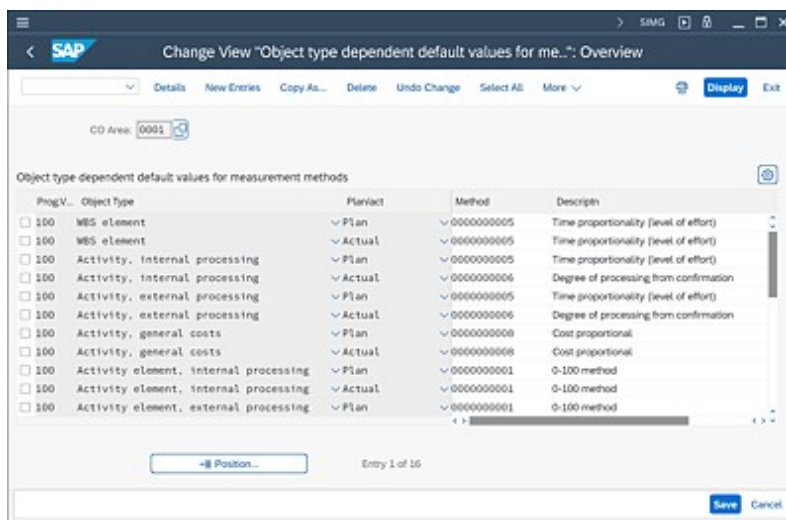


Figure 4.27 Defining the Default Values for the Measurement Methods of Different Object Types

When you perform a progress analysis, the percentages of completion are updated in a progress version in the form of statistical key figures. Progress key figures are already delivered by default for aggregated and non-aggregated percentages of completion and for percentages of completion relevant to the results analysis. You can also define your own progress key figures if required. In the Customizing section of Project System, you must assign the progress key figures to controlling areas and to the relevant usages.

A progress version is a CO version with the exclusive use of progress analysis. [Figure 4.28](#) shows the definition of a progress version in the Customizing section of Project System. When you perform progress analysis, you specify the progress version in which you want the progress

data to be saved. If you don't derive the measurement methods of objects using a BAdI, then you must also store a progress version in the objects, either to be able to enter a measurement method manually or to derive the measurement method using default values from Customizing.

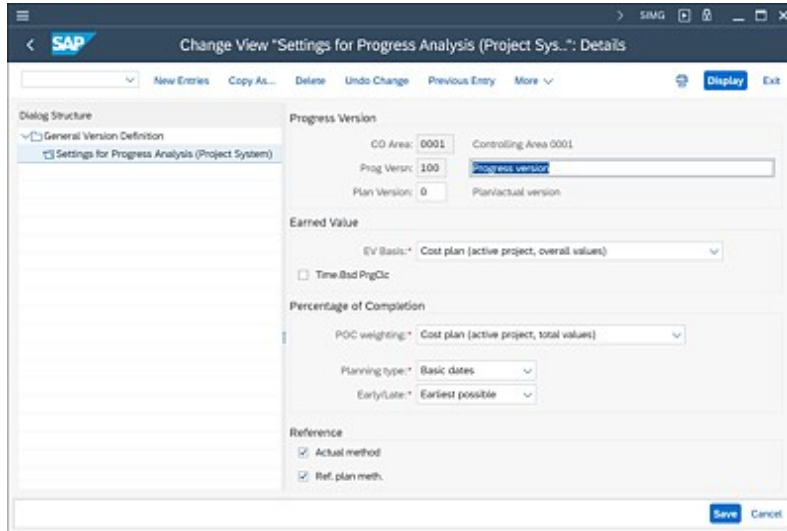


Figure 4.28 Defining a Progress Version

You also specify the following control parameters in the progress version:

- **EV Basis**
Reference factor for calculating the earned values from the percentages of completion (planned costs or budget values).
- **POC weighting**
Value for weighting the percentages of completion when aggregating data at the next highest level (e.g., planned costs).
- **Planning type and Early/Late**
Set of dates to be used for methods that depend on planned dates.
- **Reference**
Controls whether the planned method should be copied to the actual method and vice versa if each of the other methods weren't explicitly entered.

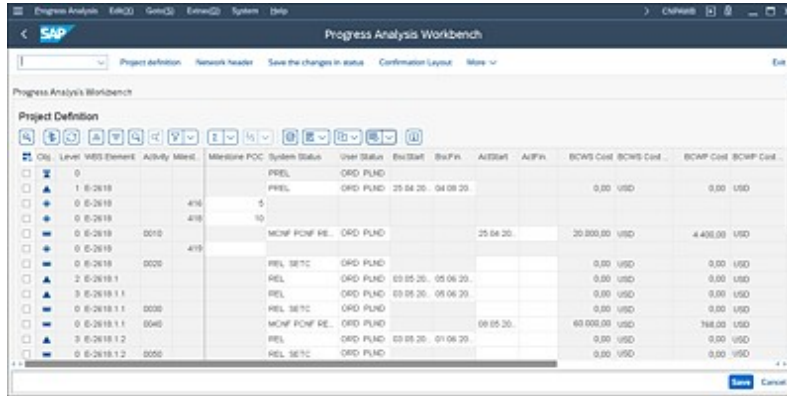
Performing and Evaluating Progress Analysis

You can use Transactions CNE1 (Individual Processing) and CNE2 (Collective Processing) to perform the progress analysis. When you start the progress analysis in individual or collective processing, in addition to selecting the objects, flow control, and progress version in the initial screen, you also specify the periods up to which the actual values are to be taken into account. When you use the time proportionality method, you can also enter a specific date instead of the period to calculate the percentages of completion based on precise dates. When you perform the progress analysis, the system determines measurement methods for the selected objects, calculates the percentages of completion in non-aggregated and aggregated format for the cost element groups provided, and updates these percentages of completion in the progress version as statistical key figures. The system then calculates the earned values based on the percentages of completion and writes these values into the progress version. You can also enter multiple progress versions in the initial screens of Transactions CNE1 and CNE2. Because the project structure is read only once during execution, the calculation of progress values for multiple progress versions and thus different measurement methods can be accelerated.

As part of progress value determination, you can also make adjustment postings for past periods (e.g., if planned costs are changed) that, along with the original earned values, will lead to *adjusted progress values* in the progress version. You can analyze the original progress values and the adjusted values separately. Because the percentages of completion can also be used as part of the results analysis (see [Chapter 5, Section 5.6](#)) in addition to the aggregated and non-aggregated percentages of completion, a percentage of completion is also updated as a separate statistical key figure for the results analysis. SAP Note 189230 contains some information that you may find useful when troubleshooting within your progress analysis.

After you perform the progress analysis, you can analyze the data in the Project Planning Board, using special progress reports, or in the Progress Analysis Workbench (see [Figure 4.29](#)). However, in addition to using the Progress Analysis Workbench for the common analysis of progress data, statuses, dates, costs, and different master data of projects, you can also use it to change data. Consequently, the many functions you can perform in the Progress Analysis Workbench include confirming activity elements, setting different system and user statuses, entering planned and actual dates of WBS elements, changing user fields and customer-specific fields, and, in

particular, maintaining percentages of completion in tables. You can also export data from the Progress Analysis Workbench to Microsoft Excel; enter percentages of completion or dates for WBS elements, activities, and milestones there; and then import the data back into the SAP S/4HANA system.



The screenshot shows the SAP Progress Analysis Workbench interface. The window title is 'Progress Analysis Workbench'. Below the title bar, there are tabs for 'Project definition', 'Network header', 'Save the changes in status', 'Confirmation Layout', and 'More'. The main area is titled 'Progress Analysis's Workbench' and contains a 'Project Definition' section with a toolbar. Below this is a table with the following columns: Obj, Level, WBS Element, Activity, Milest., Milestone POC, System Status, User Status, Exec Start, Bu/Fn, ActStart, Act/Fn, BCWS Cost, BCWS Cost., BCWP Cost, and BCWP Cost. The table contains several rows of data, including project levels (0, 1, 2, 3) and WBS elements (0, 1, 2, 3) with their respective activities, milestones, and costs.

Figure 4.29 Progress Analysis Workbench

In the Progress Analysis Workbench, you can choose between the flat, tabular display shown in [Figure 4.29](#) and a structure tree display to navigate to and edit individual objects. In addition, you can also easily toggle between a **Standard Layout** and a **Confirmation Layout**. The **Confirmation Layout** contains fewer fields than the **Standard Layout** and is therefore less complex when it comes to entering data.

4.7.3 Progress Tracking

The use of progress tracking in Project System is relevant for projects for which the punctual procurement and delivery of material components play a key role for the execution of the project. You can use progress tracking to track any events for the material components in the projects and, if required, enhance these events with status information and additional deadline information. The events may have equivalent events in the SAP S/4HANA system documents, such as a purchase order or goods issue and receipt, but they can also be defined completely independent of the SAP S/4HANA system.

In purchasing, you can use the progress tracking function to track the scheduled dates of purchase orders. Therefore, you must distinguish between the two progress tracking objects: *material component* and *purchase order*. Other progress tracking objects are *WBS elements* and *network activities*. It makes sense to use progress tracking for WBS elements and network activities, for example, if you want to keep your project structures as small as possible and at the same time require the detailed tracking of dates for scheduled events. For each progress tracking object, separate transactions and Customizing activities are available. The following sections describe the progress tracking process for material components as an example.

When you perform progress tracking for material components (Transaction COMPXPD), you first select the material components for which you want to process or analyze events in progress tracking. This is a two-step selection process. If you're performing the progress tracking for a component for the first time, then you must assign the events for which you want to analyze dates to the material component first. To do this, you can create new events for the components directly in the progress tracking or use *standard events* and *event scenarios* that you've already defined in the Customizing section of Project System. If required, you can also automate the assignment of events using a BAdI.

You can now enter up to four dates for each event of a material component: an original, planned, forecast, and actual date. You can enter these dates in progress tracking manually or by using a mass change, copy them from other components using copy functions, or calculate them using scheduling in progress tracking. In particular, you can also determine the dates automatically from SAP S/4HANA system documents using a BAdI.

You can then analyze the event dates of the different material components in progress tracking. In this case, traffic lights can indicate if there are any variances (e.g., between the planned and forecast dates of an event) or if planned dates have been overrun even though a corresponding actual date for the event of a component wasn't entered (see [Figure 4.30](#)).

If you want to analyze the dates of material components in greater detail, then you can assign subitems to the components and enter event dates for each subitem. You can also store status information with descriptive texts for each material component.

To use progress tracking, you must define a progress-tracking profile in the Customizing section of Project System (see [Figure 4.31](#)). You can use this profile, which you must enter in the initial screen of progress tracking, to control which date types (original, planned, forecast, or actual) are to be displayed for events, which variances should be highlighted by traffic lights, and the details for scheduling event dates.

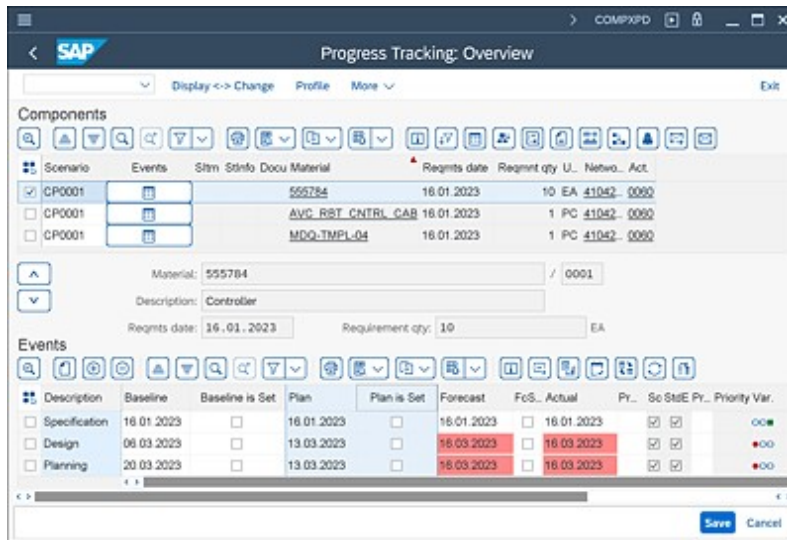


Figure 4.30 Entering Data in Progress Tracking

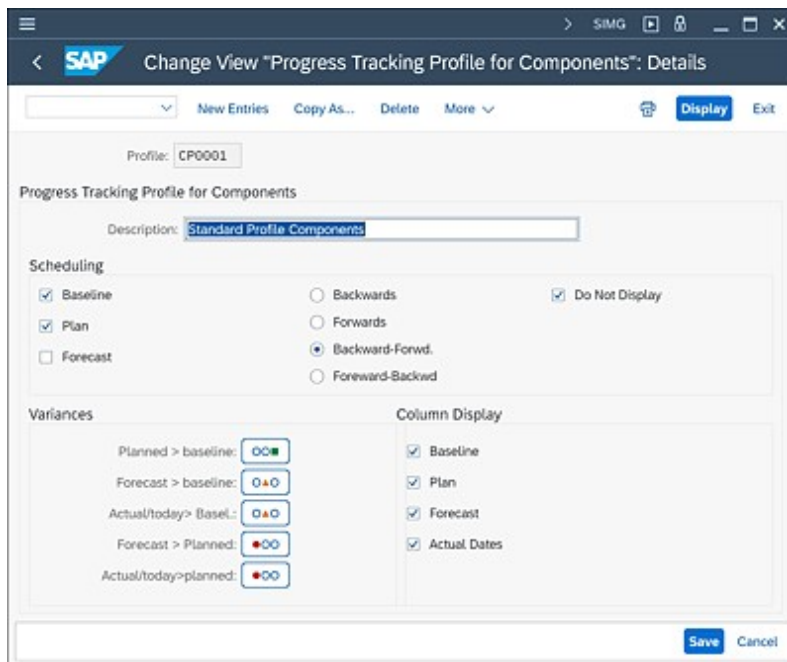


Figure 4.31 Defining a Progress Tracking Profile

You generally also have to define standard events and event scenarios in progress tracking Customizing to assign these events to material components in progress tracking at a later stage. In the simplest scenario, a standard event only consists of a key and a text. If you derive the event dates using a BAdI execution, then you can also specify whether a derived date in the application should be modifiable for a standard event. After you define a standard scenario, you can define a sequence of standard events for the scenario (see [Figure 4.32](#)). You can use time intervals between two events, which you can then use in progress tracking to schedule event dates. If you also want to store status information in progress tracking for material components, then you must also define status infotypes in Customizing, which are used to structure the statuses. You can also use these infotypes to conduct an authorization check of the status information.

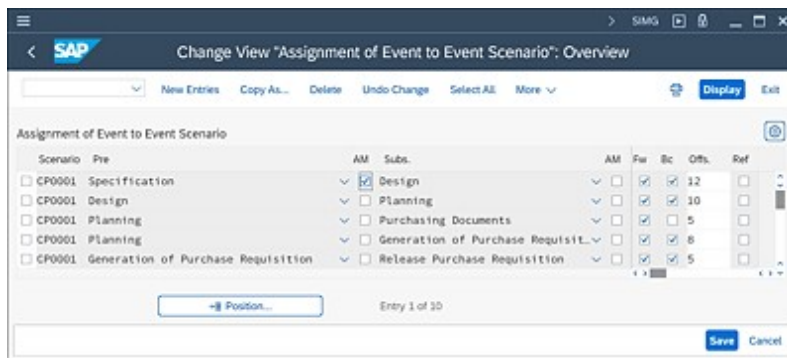


Figure 4.32 Assigning Standard Events to a Scenario

You can use the `EXP_UPDATE` BAdI to adapt the functions of progress tracking to meet your own requirements. This BAdI consists of methods that you can use to assign event scenarios or events to components automatically or to influence the time intervals for scheduling. In particular, you can use a method of this BAdI to derive event dates automatically for material components from purchase requisitions, purchase orders, goods movements, and so on. You can also use the `EXP_ENHANCE` BAdI to add customer-specific functions and adapt the user interface.

4.8 Claim Management

You can use claim management to document unforeseen project events or variances in project planning as claims for a project. You can also initiate required activities and tasks in a claim and track the related processes or calculate the costs that result from a variance and integrate them into the cost planning of the project in question. In reporting, you can use specific reports to evaluate claims. The **Internal Claim** and **External Claim** notification types are delivered by default for claim management. You can also create your own notification types for claim management in the Customizing section of Project System.

Examples of why you might want to create internal claims include internal, unforeseen capacity and material bottlenecks, necessary adjustments to specifications and project planning data, unexpected deadline delays, and problems with partners or suppliers during project processing. You can use external claims to document subsequent requests or complaints made by customers or other companies involved in implementing the project. These are just some examples for using claims; theoretically, the functions of claim management aren't defined using special scenarios.

You can create, edit, and display claims in the SAP S/4HANA system using Transactions CLM1, CLM2, and CLM3, respectively. You can use Transactions CLM10 (Claim Overview) and CLM11 (Claim Hierarchy) to evaluate claims. In addition, SAP Fiori apps Project Claim Overview (F6497) and Project Claim are available for a browser-based evaluation of claim data. You can use standard workflows of claim management to inform the corresponding people responsible that a claim has been created and to optimize processes for further processing or approval of claims. In addition, an OData API is available for reading claim data (see [Appendix A](#)).

When you create a claim in the SAP S/4HANA system, you must first specify the notification type of the claim and the partner type of the notification that determines the additional partner data (e.g., customer or supplier numbers) that can be specified in the claim. You then enter a description for the claim in the detail screen of the claim. You can enter

more detailed explanations for the claim in different long texts that can vary in terms of the long text type.

You can use a filter function for long text types to enable you to select specific information at a later time. Examples of long text types are **Causes Long Text** or **Consequences Long Text**. However, you can define the description of a maximum of four long text types in Customizing. By linking claim management to document management and the Business Document Service (BDS) of the SAP S/4HANA system, you can also link any other documents to the claim.

You can also enter additional information in a claim, which includes details about the partners involved (customers, suppliers, users responsible, etc.), relevant documents from purchasing or sales, system and user statuses, and activities and tasks. Contrary to activities, you can enter a partner and status for each task. For example, you can enter a WBS element in a claim and, as a result, create the reference to a project (see [Figure 4.33](#)).

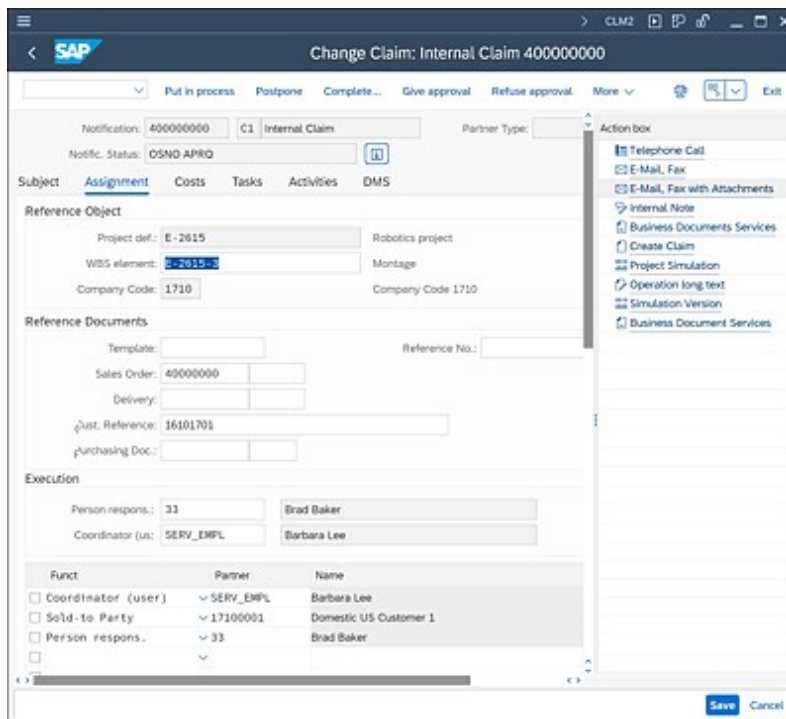


Figure 4.33 Internal Claim

When processing the claim, you can use an *action box* to execute various function modules depending on the status of the claim and the settings in the claim Customizing. For example, some of these function modules could

include starting and documenting calls, sending faxes and email, or creating other claims or simulation versions (see [Chapter 1, Section 1.9.2](#)). The system can automatically log activities that you executed from the action box as an activity or task in the claim. In Customizing, you can adjust the action box to reflect your own needs and add other activities.

You can also store information about the expected costs to be incurred due to a variance. In the simplest case, you only enter an estimated amount in the claim. Alternatively, you can also create a detailed costing in the claim and copy the calculated total amount as the estimated costs. If you created a costing in the claim, then you can also integrate this costing into the cost planning of the project in question. This cost integration is technically implemented using a cost collector, that is, an internal order.

When you save the claim, the system automatically creates an internal order called **Notification** followed by the name of the claim and copies the estimated costs of the claim into the internal order as planned costs. At the same time, the assignment of the claim is also copied to the WBS element in the cost collector and the organizational data of the internal order using this assignment is derived. Assigning the internal order to the WBS element means that you can now also analyze the planned costs in reporting of the project. On the cost collector, you can also post actual costs incurred due to variances; however, in this case, you normally have to settle the internal order. Alternatively, you can also post the actual costs directly to the project. Nevertheless, a planned/actual comparison is then no longer possible at the cost collector level; instead, it's only possible at the project level.

The **MKOS (Cost Collector Created)** system status automatically documents the creation of the cost collector in the claim. If the estimated costs subsequently change in the claim, then the planned costs of the internal order are also automatically adjusted. If you want to prevent the planned costs of the internal order from being changed manually (i.e., regardless of the claim), then you must define a user status for the internal order that won't allow the **Unit Costing Planning** and **Primary Costs Planning** business processes. This status doesn't affect a change to the planned costs caused by changes to the estimated costs of the claim because the business process **Primary Costs Unit Costing** is used for costing the claim. Setting or undoing the **DLFL (Deletion Flag)** status in the claim automatically results in the status also being set or undone in the internal order.

To ensure that the system creates a cost collector when you save a claim, various prerequisites must be met in the claim and the relevant WBS element. For example, you must enter a WBS in the claim, the estimated costs of the claim must be calculated using costing, and, if the claim requires approval, the claim must be approved. Furthermore, the WBS element must be an account assignment element and have the **PREL (Partially Released)** or **REL (Released)** status. If profit center accounting is active and you want to create business area balance sheets in the company code of the WBS element, then you must also enter a profit center and business area in the WBS element.

Another prerequisite for creating a cost collector automatically is that you create an implementation of the `NOTIF_COST_CUS_CHECK` BAdI and set the `E_CREATE_COST_COLLECTOR` indicator to X in the `CHECK` method. If required, you can program additional conditions in the method to create a cost collector. The controlling properties of the internal order are defined by a *controlling scenario*, which you must assign to the relevant notification types in claim-specific Customizing. For this reason, a controlling scenario is delivered with the standard system. The cost collector is always created as an internal order for the CL01 order type. With the exception of the status profile, you shouldn't make any changes to this order type. In the Define Order Value Updating for Orders for Projects Customizing table, you can use this order type as a reference to decide whether the planned costs of the cost collector should be added to the planned total of the WBS element.

Customizing claims entails general notification Customizing and claim-specific Customizing. In general notification Customizing, you can create new notification types or make adjustments to both of the standard **Internal** and **External Claim** notification types. In terms of a message type, you can define in general notification Customizing which partners, reasons, activities, or tasks can be entered in a claim or which function modules can be executed from the action box. In addition to the cost collector settings described previously, claim-specific Customizing involves defining the long text types that can be used to structure information in the claim.

4.9 Summary

In the execution phase of projects, various documents are produced in the SAP S/4HANA system due to project-related business transactions. These documents are assigned to the corresponding projects, which consequently results in commitments, costs, revenues, and payments being updated on the projects. To monitor projects or parts of projects over time, you must enter actual dates for WBS elements and activities and then compare these actual dates to the planned dates. Tools for analyzing the progress of projects support you in identifying cost and schedule variances in your planning.

5 Period-End Closing

To determine all relevant data for a period and make it available for enterprise controlling, you need to perform various periodic activities during project planning and execution.

[Chapter 2](#) and [Chapter 4](#) explained how project costs and revenues could be planned and posted. However, the planning data based on detailed planning and even the actual costs based on the direct assignment of internal activity allocations, material documents, or invoices are usually incomplete. In most cases, you have to take into account portions of overhead costs from cost centers that aren't directly related to the services rendered (e.g., administrative cost centers). Adjustment postings may have to be made for allocated activities due to changed prices. Interest profits and losses may have to be considered as well, particularly for cost-intensive projects lasting several years. To make your project data available for the relevant enterprise controlling analyses, you may also want to add key figures (e.g., forecast data, etc.) to your data. Finally, projects often serve to collect costs and revenues only on a temporary basis and forward the costs and revenues collected in a period to other receivers.

Project System provides various functions for handling all of these tasks. These functions are normally executed periodically. In this chapter, we'll discuss several general aspects pertaining to the execution of the relevant functions before we delve into the various period-end closing activities that can be executed for projects.

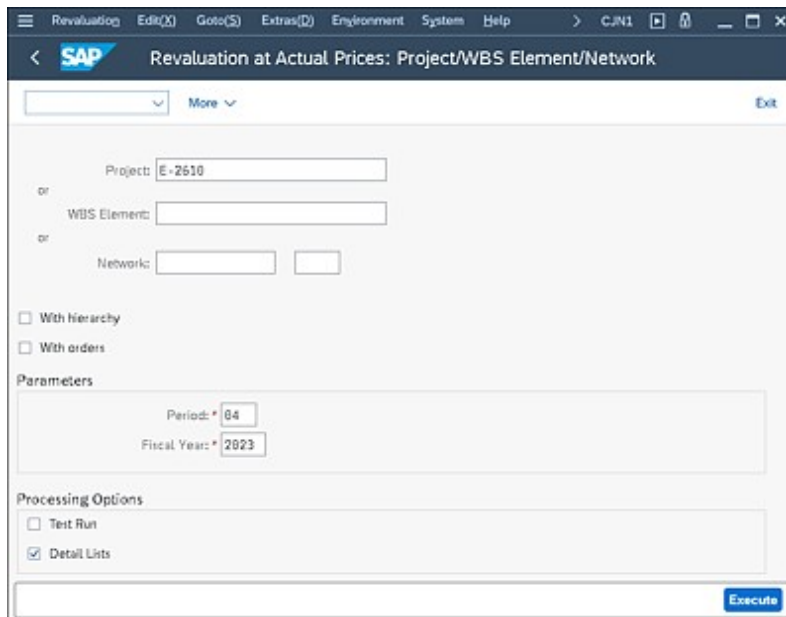
[+] Planned and Actual Periodic Activities

Planned periodic activities are often referred to as *allocations*, whereas actual periodic activities fall under the general term of *period-end*

closing. SAP Note 701077 has a range of useful information about periodic activities in Project System.

5.1 Processing Types

The various period-end closing activities can be executed for each project or each part of a project individually in *individual processing* or for several projects at the same time in *collective processing*. [Figure 5.1](#) shows a typical initial screen for individual processing.



The screenshot shows the SAP interface for 'Revaluation at Actual Prices: Project/WBS Element/Network'. The window title is 'SAP Revaluation at Actual Prices: Project/WBS Element/Network'. The main area contains several input fields and checkboxes:

- Project:** E-2610
- WBS Element:** (empty)
- Network:** (empty)
- With hierarchy
- With orders
- Parameters:**
 - Period: * 84
 - Fiscal Year: * 2023
- Processing Options:**
 - Test Run
 - Detail Lists

An 'Execute' button is located at the bottom right of the form.

Figure 5.1 Initial Screen for Revaluation at Actual Prices in Individual Processing

By specifying the project definition, you can select all work breakdown structure (WBS) elements for this project simultaneously. If you enter a WBS element instead of the project definition, then the **With hierarchy** indicator determines whether the WBS element is to be selected on its own or whether all lower-level WBS elements in the hierarchy are to be selected. The **With orders** indicator determines whether the assigned networks and orders should also be included in the selection.

Depending on the transaction, the initial screen may also include other fields, for example, fields that allow you to control which periods and

parameters are to be used for process control. The settings for process control allow you to define whether a test run or a detailed list is to be created at the end of execution, for example. With a test run, you can analyze the result of the execution without the data being updated.

To use collective processing, you must first define *selection variants*, that is, lists of all projects or parts of projects that should be taken into account. This can be done via Transaction CJ8V. You can also use dynamic selections and status selection profiles as filter criteria for object selection (see [Chapter 6, Section 6.1](#)). In the variant attributes, you must specify at least one meaning for the selection variants before you save.

[+] Defining Selection Variants

Selection variants are a generic function in SAP systems, which can be used for many purposes (collective processing, calling reports, etc.). You can use the variant attributes to make settings for the display and ready-for-input status of fields, for example. Specifically, you can select certain fields as selection variables. The value of the field is then automatically filled at runtime with variable date calculation (e.g., with the current date), user-specific fixed values, or fixed values that you maintain centrally in table TVARVC.

In overhead cost controlling, you can also use the Schedule Product Costing Jobs app (F3767) to run various periodic activities as background jobs. Especially for projects, the app includes job templates for actual overhead calculation and settlement. You can use this SAP Fiori app to calculate and post actual values as well as to reverse postings.

As a rule, the period-end closing of projects can't be viewed in isolation from other periodic activities in your company. Instead, it depends on other business transactions, such as price calculation in cost center accounting. You must adhere to certain sequences. For example, the actual costs must be calculated in cost center accounting before the actual costs of your projects can be revaluated, which, in turn, must happen before you can calculate the overhead costs based on your actual costs.

To plan and monitor the process of period-end closing, which may be a cross-departmental process, there are various options available to you rather

than individual transactions for individual periodic activities:

- **Schedule Manager**
The Schedule Manager is part of the SAP S/4HANA compatibility scope, which comes with limited usage rights. You must therefore migrate from the Schedule Manager to an alternative function before the compatibility package license expires (SAP Note 3003364).
- **Standard closing cockpit**
The functions of the standard closing cockpit aren't part of the target architecture in financial accounting (SAP Note 2332547).
- **SAP Financial Closing cockpit for SAP S/4HANA**
This is an alternative to the standard closing cockpit with enhanced functionality.
- **SAP S/4HANA Cloud for advanced financial closing**
This cloud solution is based on SAP Business Technology Platform (SAP BTP; see [Chapter 7, Section 7.3](#)) for planning, execution, and analysis of enterprise-wide period-end closing tasks.

[Figure 5.2](#) shows the example of a closing structure in the SAP Financial Closing cockpit for SAP S/4HANA (Transaction FCLOCOC) with a task for period-end closing for projects. You can create the task lists of the closing structure yourself or import them, for example, from the Schedule Manager of a connected system. Tasks within the structure represent the chronologically organized activities of a period-end closing and can be represented, for example, in the form of transactions, programs, flow definitions, or other task types.

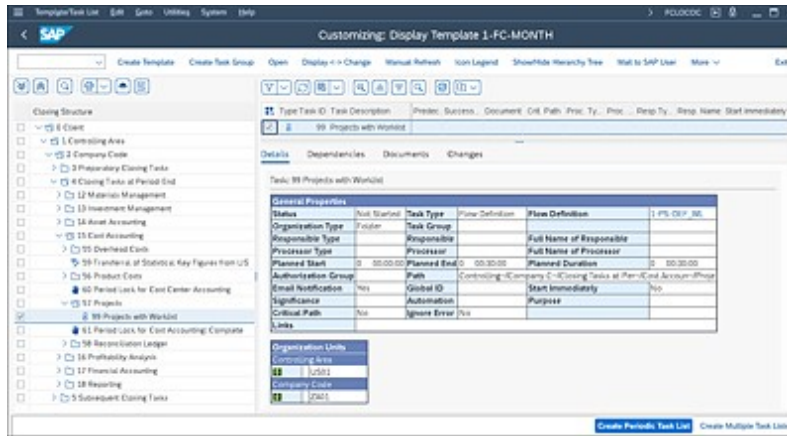


Figure 5.2 Closing Structure Template in the SAP Financial Closing Cockpit for SAP S/4HANA

Figure 5.3 shows the flow definition of an exemplary period-end closing for projects. Using the Workflow Builder, you can define the sequence of periodic activities in the form of individual steps in a flow definition and, if required, integrate the sending of information to users or even user decisions.

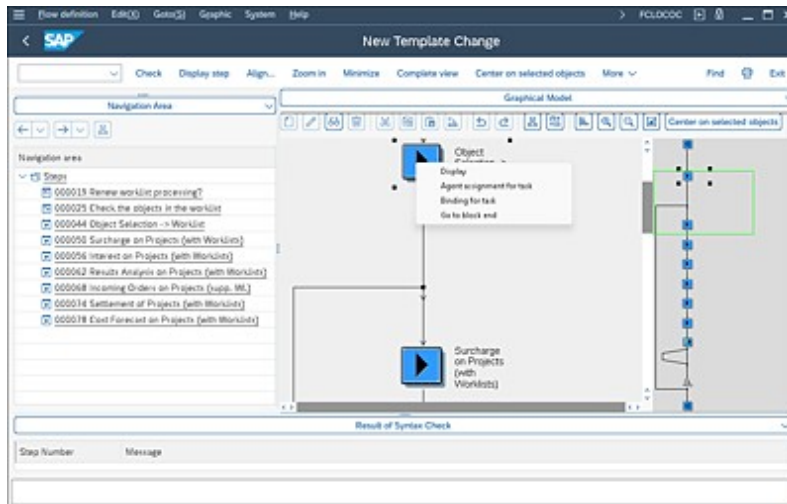


Figure 5.3 Flow Definition for the Period-End Closing of Projects

The various functions available for period-end closing in Project System are discussed in detail throughout this chapter. The screenshots for the individual functions refer to the transactions for individual processing.

5.2 Revaluation at Actual Prices

If your projects incorporate activities of cost centers or business processes during the project execution phase (e.g., via confirmations or the assignment of activity allocations internal to WBS elements), then relevant prices based on the activity type are used for the revaluation of the activities and the calculation of the corresponding cost flows.

Some companies use *actual price calculation* to calculate the price of the individual activity types iteratively for the valuation of actual activities as part of the period-end closing. Actual prices are calculated based on the relationship between the actual costs and the actual service rendered by the cost center or business process. Depending on the procedure used, the costs and activities of the individual periods are analyzed separately (periodically differentiated price), as total values (average price), or as values cumulated up to the analysis period (cumulated price).

However, because the actual price calculation isn't executed until the period-end closing, the iteratively calculated actual price isn't available when the actual activity is posted. Therefore, the activities are normally valued with planned prices initially. After the actual prices are calculated, you can make the relevant adjustment postings (i.e., execute a revaluation at actual prices for your projects).

5.2.1 Prerequisites for Revaluation at Actual Prices

To use the **Revaluation at Actual Prices** function, various prerequisites must be fulfilled. Internal activity allocations must have been executed or process costs posted for a project. In Customizing, you must have defined whether and how the revaluation is to be executed using the **Revaluation** indicator in the fiscal year-dependent parameters of the CO version (or the relevant actual version). The indicator can be set in one of three ways:

- **0 (no revaluation)**
No revaluation takes place. This usually means that all actual

activities are valued with the planned price.

- **1 (revaluation with own business transaction)**
Revaluations are possible and are executed as differences based on the original allocation with a separate business transaction (**Actual Price Calculation**). The original allocations remain unchanged. As a result, you can trace the deviation between the valuations at the actual price and the planned price.
- **2 (revaluation in the original business transaction)**
Revaluations are possible and result in a change to the original allocations. The differences between the valuations at the actual price and the planned price can't be traced with this setting. Changing the existing allocation records is particularly useful if no planned price exists, and, therefore, no valuation has taken place with the original posting.

As a final prerequisite for revaluation at actual prices, an actual cost calculation must be executed in cost center accounting or activity-based costing (Transactions KSII or CPII). The actual price calculation is largely controlled by the **Methods** indicator in the fiscal year–dependent parameters of the CO version and the **Price indicator** of the actual allocation price, which is copied as a default value from the master data of the relevant activity type.

5.2.2 Executing the Revaluation at Actual Prices

You can use Transactions CJN1 (Revaluation Actual Prices, Individual Process) and CJN2 (Revaluation Actual Prices, Collective Process) to revalue WBSs and networks in Project System. Earlier, [Figure 5.1](#) showed the initial screen of individual processing. In addition to selecting the objects, you specify the **Period** and the **Fiscal Year** for revaluation here and the relevant indicators for process control. If you repeat the revaluation for a period, then only the differences that arise due to subsequent price changes are posted. If necessary, you can also cancel the revaluations executed in the update run. The original activity allocations remain unchanged.

If no activities were included in the period, if no actual price exists, or if the project was already valuated with the current actual price, then no posting occurs. If the status of the project or the cost center to be credited prevents posting, then the system issues an error message to that effect.

5.2.3 Dependencies of the Revaluation of Actual Prices

It's generally useful to set period locks for the actual project costs for the **Actual Activity Allocations (RKL)** and **Indirect Actual Activity Allocations (RKIL)** activities (Transaction OKP1) before you execute the revaluation at actual prices. After you execute the revaluation at actual prices, you can also set a period lock for the **Revaluation** activity (RKLN) if necessary.

[!] Overhead Restrictions When Using Revaluation at Actual Prices

Note that when you use the revaluation at actual prices as part of the application of overhead ([Section 5.3](#)), no percentage overhead rates can be calculated on the basis of costs for cost element category 43 (**Internal Activity Allocations**). Because the revaluation would lead to changed costs of these cost elements, you would need to execute a new application of overhead, which would lead to changed costs for the credited cost center. This would result in a recursion.

Note also the sequence in which you execute the overhead application, settlement ([Section 5.9](#)), actual price calculation, and revaluation. You may have to execute settlements again before and after the revaluation at actual prices (or after a reversal of revaluation) to ensure that the settlement receiver receives consistent revaluation data. In the SAP Library, you'll find an example of revaluation at actual prices with a repeated settlement. Here, the connection between settlements to cost centers, price calculation, and revaluation is discussed in detail.

5.3 Overhead Rates

Not all cost centers in a company can allocate their costs to specific projects or other controlling objects via activity allocations, distributions, or assessments. Administrative cost centers, for example, don't generally have a direct relationship with a project; this means that an activity-related allocation of costs isn't possible for these cost centers. Instead, these costs centers are credited, and the project is simultaneously debited, usually via applications of overhead. The calculation of overhead rates is based on the costs or quantities that were posted to the project with reference to the relevant cost elements, such as labor or material costs.

5.3.1 Prerequisites for the Allocation of Overhead Rates

The calculation of overhead rates is controlled by a *costing sheet*, which must be entered in the relevant WBS elements, network activities, or, in the case of header-assigned networks, network headers. For WBS elements, you can define a default value for the costing sheet in the project profile. In the network header, the costing sheet is derived from the valuation variant of the costing variant of the network, but it can also be changed manually. If you assign activities to a WBS element, then these activities use the same costing sheet as the WBS element. Otherwise, they use the costing sheet of the network header as a default value.

You define costing sheets in the Customizing settings of Project System. A costing sheet consists of a key and a description to which rows are assigned respectively (see [Figure 5.4](#)).

A row in a costing sheet may contain either a **Base** (base row) or an **Overhead**, together with a **Credit** and an indication of which rows are to be used to calculate the overhead rate and the credit. You can also use totals rows in a costing sheet to give subtotals and sum totals. The rows are processed from top to bottom for the overhead calculation.

You use the base rows within a costing sheet to determine which cost elements are to be used as a basis for calculating the overhead costs. Bases are also defined in Customizing. Depending on the controlling area, you can assign individual cost elements or cost element intervals to a base. If necessary, you can also assign individual origins or origin intervals to distinguish between the costs of different materials. To do this, an origin must be defined in the costing view of the material master.

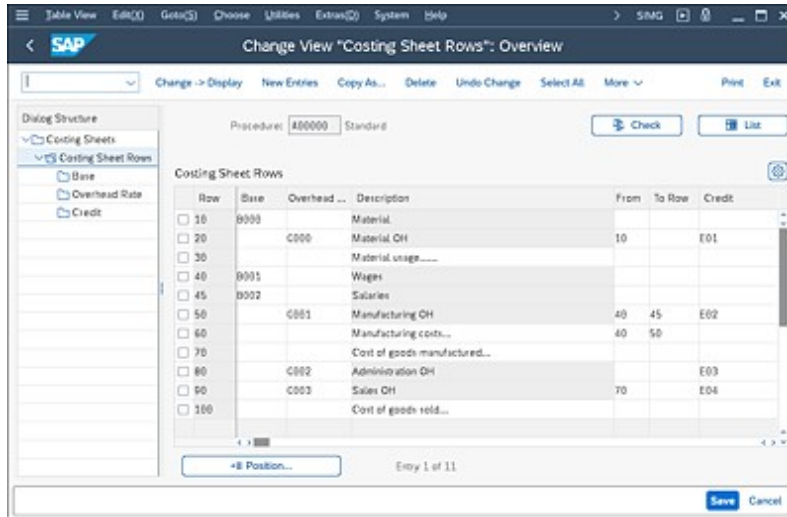


Figure 5.4 Definition of a Costing Sheet

The overhead rate in a row of a costing sheet determines the rate at which the overhead is applied. An overhead rate may be defined as a percentage (calculated on the basis of the costs of the cost elements to which the overhead is to be applied), or it may be quantity based if the cost elements of the base rows allow you to enter absolute quantities. Percentage- or quantity-based overhead rates can be defined on the basis of validity periods, the overhead type (planned, actual, or commitment), or, for example, organizational units and master data belonging to the objects to which the overhead is to be applied (see [Figure 5.5](#)). The **Dependency** you assign to the overhead rate (**O/H Rate**) determines which columns are available when defining various percentages or amounts for each unit of measure. You can define your own dependencies in Customizing if necessary.

The credit that you enter in an overhead row of the costing sheet determines which objects (cost centers, internal orders, or business processes) are to be credited by the calculated overhead value and which overhead cost element (cost element category 41) is to be used to allocate the overhead (see

Figure 5.6). You can also define validity periods in the credit definition and, if necessary, determine which percentages of the credit are to be posted as fixed or variable proportions.

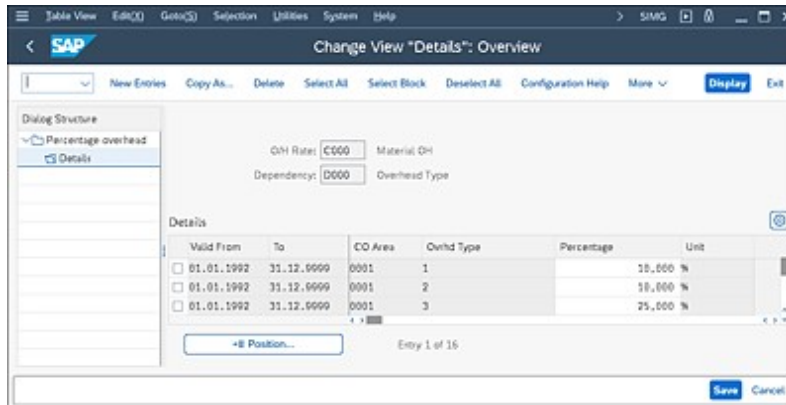


Figure 5.5 Definition of an Overhead

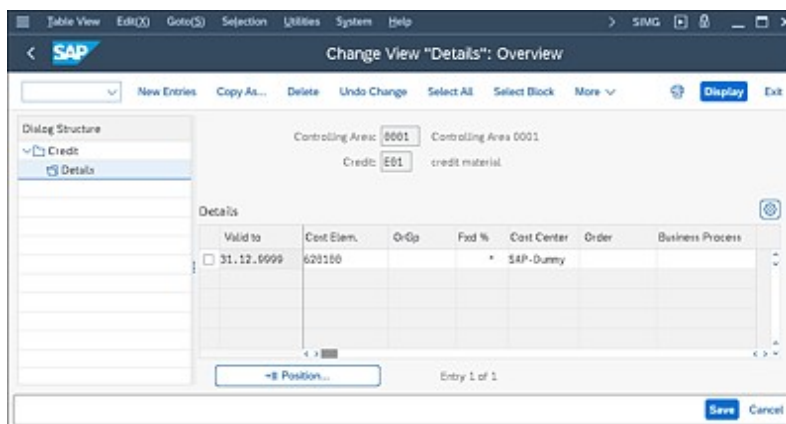


Figure 5.6 Definition of a Credit

5.3.2 Executing the Application of Overhead

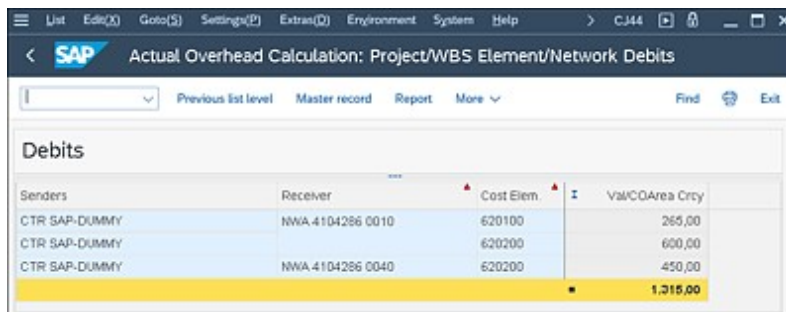
You can execute an application of overhead for planned costs (Transactions CJ46 and CJ47), as well as for actual costs of a project (Transactions CJ44 and CJ45), and, if necessary, based on commitments (Transactions CJO8 and CJO9). However, a credit is only executed for the calculation of actual overhead rates. The calculation of planned overhead rates is automatically executed in the planned costs of a project as part of network costing, as part of unit costing for WBS elements, or when you use Easy Cost Planning to plan costs. In the actual costs for a project, however, the calculation must be

explicitly triggered as part of the period-end closing or scheduled as a regular background job.

In addition to selecting the objects and defining the process control, you must also specify the period for which the application of overhead is to be executed on the initial screen of the overhead calculation. For actual costs, the overhead rates are calculated for the specified period only. For planned costs, you can also specify a range of periods for processing; however, all periods in the range must be within the same fiscal year.

You can repeat the overhead rate calculation for a project any number of times. In this case, the system only determines the differences between the current and previous runs and posts these differences to the object. The difference amount may be a positive or a negative value. If necessary, you can also execute a reversal of the application of overhead.

If errors occur during execution (e.g., due to the status of the objects, invalid costing sheets, or missing percentages), then you can analyze these sources of errors in an error log. Provided that you've enabled the output of detailed lists in process control, you can also display a list with details of the amounts for each sender and receiver and the overhead cost element used (see [Figure 5.7](#)).



Senders	Receiver	Cost Elem.	Val/COArea Crpy
CTR SAP-DUMMY	NWA 4104286 0010	620100	265,00
CTR SAP-DUMMY		620200	600,00
CTR SAP-DUMMY	NWA 4104286 0040	620200	450,00
			1,315,00

Figure 5.7 Actual Overhead Calculation of Network Activities and Activity Elements

5.4 Template Allocations

With the application of overhead described in the previous section, all overhead costs are allocated using quantity-based or percentage overhead rates based on the quantities or costs of selected cost elements. Template allocation, on the other hand, enables a much more differentiated calculation and allocation of overhead costs. With template allocation, you first use suitable *functions* to calculate quantities that were used by the senders (i.e., the cost centers or business processes) in the project. The costs to be allocated are then calculated by valuating these quantities with the prices that have been defined.

[+] Advantages of Template Allocation

Because you can access almost any function module and table field in the SAP S/4HANA system when defining functions for the template allocation, overhead costs can be allocated according to cause when you use template allocation.

5.4.1 Prerequisites for Template Allocation

To execute a template allocation for projects, you must first define appropriate templates in Customizing with Transactions CPT1 or CPT2. A template contains a list of the senders whose costs are to be allocated and the relevant functions and formulas that determine how the quantities are to be calculated, which are valuated with prices later to allocate costs. If necessary, you can use methods (i.e., logical conditions) to dynamically control the determination of the senders and the activation of the individual rows of a template. Special editors are provided in template maintenance to help you define formulas and methods. By specifying an allocation time in a template, you can determine whether the costs should be allocated periodically or whether an allocation can only be executed once for the start or end period of the object, for example.

Figure 5.8 shows an example of a template for the allocation of overhead costs among networks. In this example, the quantity is determined by the number of network activities, and the sender is a business process.

You always create a template with reference to an *environment*. This environment contains the functions that you can use to define the template. The two environments **004 (Network)** and **005 (WBS Element)** are provided for the definition of projects. These comprise diverse functions as standard. However, you can also add new functions if necessary (Transaction CTU6). These may be standard functions defined by SAP. Alternatively, you can define your own functions that access table fields of the SAP S/4HANA system, standard function modules, or user-defined ABAP function modules.

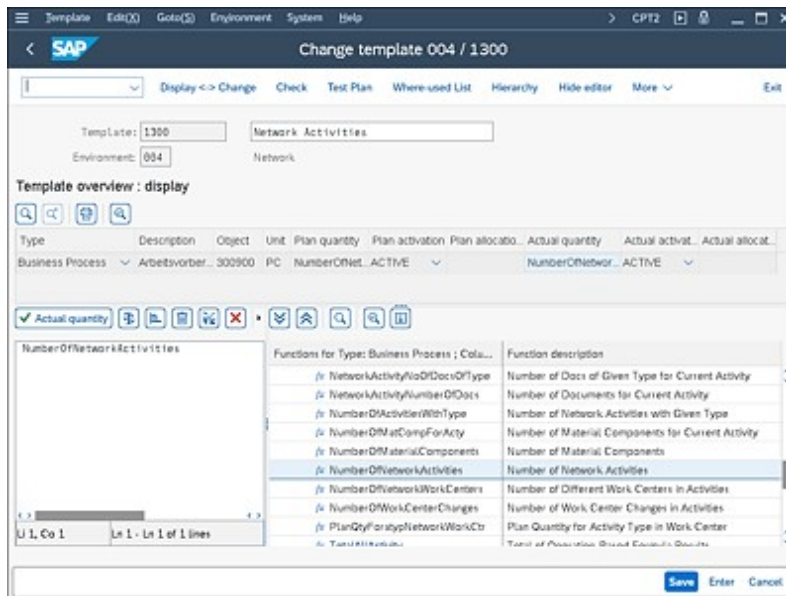


Figure 5.8 Sample Definition of a Template

After you've defined a template, you must assign it to one or more combinations of *costing sheet* and *overhead key (determination rule)* in Customizing Transaction KTPF. You also need to define the combination of costing sheet and overhead key in the master data of the relevant WBS elements, activities, or network headers. When you execute a template allocation for a project, the system can then use this combination to automatically determine the relevant template. The overhead key in the master data of the objects and in the determination rule is used exclusively for the assignment of objects with the same costing sheet to various

templates. You can define any overhead key in Project System Customizing settings.

To ensure that the template allocation can also calculate the costs to be allocated using the quantities that were calculated via the functions and formulas of the template, you must also define the prices in accounting with which the quantities are to be valued. For the allocation of costs from cost centers, you can define the prices based on activity types, for example, with Transaction KP26 for the planned data of a project or with Transaction KBK6 for the actual data of a project. For the allocation of costs from business processes, you can define the prices with Transaction CP26 for the planned project data and Transaction KBC6 in the actual data of a project, for example.

5.4.2 Executing Template Allocation

You can execute a template allocation for planned costs (Transactions CPUK and CPUL) and actual costs (Transactions CPTK and CPTL) of projects. The calculation of planned template allocation is automatically executed in projects as part of network costing, unit costing for WBS elements, or Easy Cost Planning to plan costs. For actual costs of projects, however, the calculation must be explicitly triggered as part of the period-end closing.

On the initial screen of the template allocation, you select the objects and specify the periods of a fiscal year for which the allocation is to be executed. You can execute the template allocation for several periods simultaneously for both planned and actual costs.

In the results display of the template allocation, you can analyze the amounts of the allocated costs and the relevant sender and receiver objects in each case (see [Figure 5.9](#)). If you've executed template allocation for several periods, then you can navigate to a period screen and display the distribution of the allocations among the various periods. If problems occur during template allocation, then you can navigate to a log showing the relevant messages, that is, warning or error messages. If necessary, you can also display the sender and receiver master data or access the *template evaluation*.

Receiver Object	Sender object	Alloc. CElem	Total fixed/avar. qty	UoM	TS Fx+Vbl value	CAC	CO princ	Template
NWA 4134334 0010	BPR 300900	640150	132	PC		264,00	EUR	1300
NWA 4134334 0010					*	264,00	EUR	
NWA 4134334 0040	BPR 300900	640150	168	PC		336,00	EUR	1300
NWA 4134334 0040					*	336,00	EUR	
					**	600,00	EUR	

Figure 5.9 Result of a Template Allocation for Actual Costs of a Project

From the template evaluation, you can branch to all relevant details of the template used. For example, you can find out which functions and formulas were used to execute the quantity calculation or which method activated an allocation row. If you executed a template allocation for several periods, then you can use the template evaluation to analyze each period separately.

5.5 Interest Calculation

In Project System, you can calculate interest based on your costs, revenue data, or payment flows, and you can post costs to your projects for interest losses or revenue for interest profits. The interest calculation function is available for both the planned and actual data of a project.

Both planned and actual interest calculation take the form of a *balance interest* calculation. With this type of calculation, the balance of costs, revenues, or payment data is first calculated, and then the interest is calculated in the balancing objects (e.g., certain WBS elements of your project). The interest is cumulated over the interest period and posted to the balancing object. Where possible, the balances calculated by the system are accurate up to the day. The relevant date is the posting date of the document or, in the case of payments, the payment date. Because interest is taken into account in balancing, compound interest can also be calculated.

The *interest profile* used determines which objects are to be considered as balancing objects. The system uses the *interest indicator* to determine which interest rate is relevant and which accounts are to be used for posting the interest. The combination of interest profile and interest indicator determines which value categories (i.e., which cost elements and commitment items) are to be included in the balancing and interest calculation. You can control and evaluate the interest calculation of different value categories (e.g., costs, revenues, and payments) separately.

[+] Interest Calculation of Investment Projects

For investment projects, special interest calculation is used. For WBS elements with an investment profile, all costs, revenues, or payments that are already activated in the asset under construction (AuC) are taken into account independent from the individual value categories.

The transaction currency of the interest calculation is identical to the controlling area currency, which means that the interest is posted to your projects in the controlling area currency.

5.5.1 Prerequisites for Interest Calculation for Projects

Before you can use the interest calculation for projects, you must make some settings in Customizing. If you have additional requirements for planned or actual interest calculation, you can also define customer enhancements, for example, to influence the values and line items for which interest is to be calculated and the interest that has actually been calculated.

Interest Indicators and Interest Rates

Figure 5.10 shows the definition of interest indicators (Transaction OPIE) in the Customizing settings. Interest indicators for projects can only have interest calculation type S (balance interest calculation). Interest calculation type P (item interest calculation), whereby interest is calculated for each payment item, isn't available for projects.

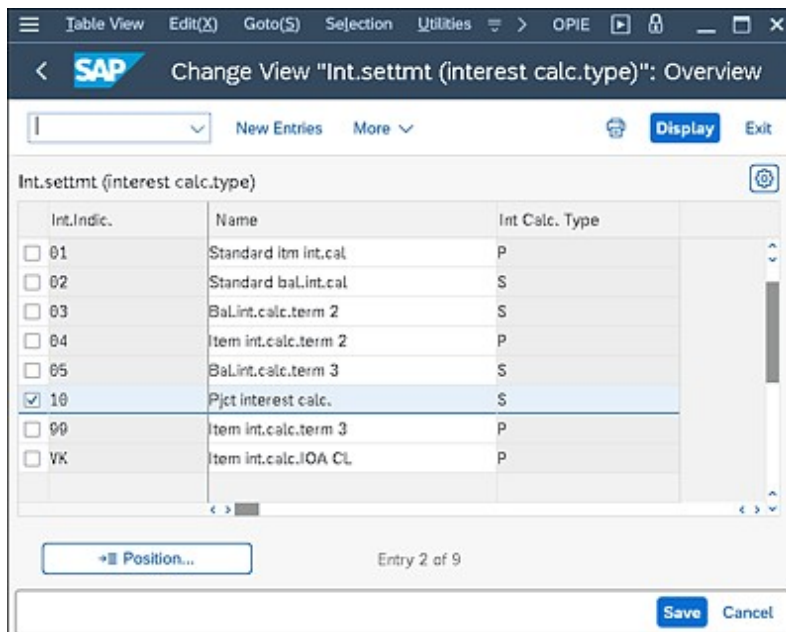


Figure 5.10 Definition of Interest Indicators

With the interest indicators, you define general and time-dependent terms and the interest rate that is to be used for the interest calculation. In the general conditions (Transaction OPIH), you define the calendar type (e.g., a banking calendar or the Gregorian calendar) on which the interest calculation is based. The calendar type determines the number of interest days per month and year that are used, for example, to calculate a daily

interest rate based on an annual interest rate. A banking calendar always consists of 30 days per month, whereas the Gregorian calendar always uses the exact number of days per month.

In addition, you can define a minimum amount for the interest (and other control data) in the general conditions. An interest calculation will then only be executed as of this minimum amount. In the time-dependent terms, you define which interest rate is to be used based on the interest indicator, currency, transaction type (debit or credit interest), and the **Effective From** and **Amount From** fields. The interest rate can be derived from reference interest rates (e.g., a discount rate) or defined manually.

Interest Profile

Interest profiles are defined in Customizing and can be defined as a default value in the project profile. When you execute the interest calculation, a logical inheritance of the interest profiles occurs. In other words, an object that doesn't have its own interest profile uses the interest profile of the higher-level object, and so on. However, if an object has its own interest profile, then this interest profile is also used.

The interest profile determines which objects are to be included as balancing objects in the interest calculation. [Figure 5.11](#) shows the definition of an interest profile.

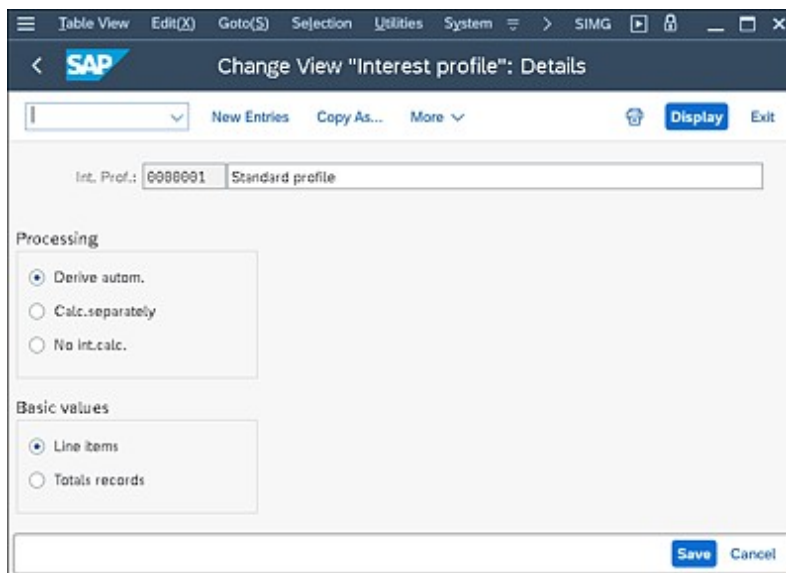


Figure 5.11 Sample Definition of an Interest Profile

The settings for (hierarchy) processing in the interest profile have several effects. To start, if you select **Derive autom.** as the processing type in the interest profile, then the processing logic depends on the project type. The following project types are available:

- **Investment projects**
In the case of WBS elements with an investment profile (investment projects), only the costs that are already activated in an AuC are taken into account in the interest calculation. If you want to also take into account the costs of assigned networks and orders, then you must first settle their costs to the WBS element. Planned interest calculation isn't possible for investment projects.
- **Customer projects**
For projects with billing elements (customer projects), the system takes into account the billing element and all lower-level objects in the billing hierarchy in the interest calculation. Balancing and posting of the calculated interest then takes place in the billing element. But if the billing element or a lower-level WBS element has an investment profile, then the logic of the investment projects applies to these objects.
- **Cost projects**
For objects that don't have an investment profile and aren't subordinate to a billing element (cost projects), balancing and posting of the interest occurs separately in the individual account assignment objects (in WBS elements, network headers or activities, or assigned orders).

When interest is calculated for objects that have an interest profile with the **Calc.separately** indicator, lower-level objects are ignored. Logical inheritance doesn't occur with this interest profile. You can also use this indicator to override the automatic derivation of hierarchy processing. The **No int.calc.** indicator allows you to do the same thing; interest isn't calculated for objects that have an interest profile in which this indicator is set.

You also make the settings for the **Basic values** for the interest calculation in the interest profile. The two possible values have the following effects:

- **Line items**
The interest calculation is exact to the day with reference to the posting or payment date of the line items. With this option, postings in periods for which interest has already been calculated (value dates in the past) and changes to the interest rate within a period (interest rate changes) can be taken into account.
- **Totals records**
As a basis for interest calculation, total values are created for each period and dated to the middle of the period to calculate the interest. With this setting, the interest calculation isn't exact to the day. However, performance is better in this instance than it would be if line items were used as the base values for the interest calculation.

[+] **Special Characteristics of Line Items and Total Values**

Line items are always used for the first actual interest calculation; however, in subsequent interest calculation runs, only the line items of the last four periods before the last run are selected. Independent of the settings in the interest profile, totals records are used for any periods prior to the last four periods. With the planned interest calculation, line items can only be used for planned payments. But for any line items to be written for planned payments, you must first configure a number range for exact-to-the-day payment planning (activity FIPA) in Customizing (Transaction KANK). The system always uses totals records for the interest calculation for planned costs and revenues.

With reference to the interest profile, you must make detailed settings in Customizing. [Figure 5.12](#) shows the relevant transaction, which is Transaction OPIB. In the detailed settings, you create a reference between the interest profile and the interest indicator you want to use.

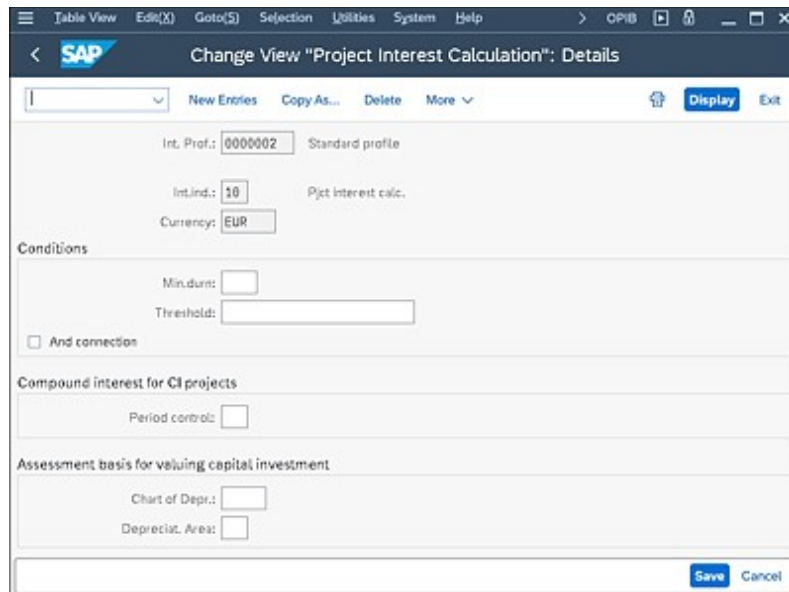


Figure 5.12 Detailed Settings of an Interest Profile

You can also define conditions (minimum durations or threshold values) to determine exactly when an interest calculation is to be executed. For investment projects, you also need to define which valuation area should be used as an assessment basis for the interest calculation, and, if applicable, you use the **Period control** field to determine when compound interest is to be calculated (e.g., once a quarter rather than at each interest calculation run).

Finally, you need to define (in Customizing) which values are to be used as a basis for calculating the interest. To do this, you require value categories, which include all relevant cost and revenue elements and commitment items. For each value category, you can then define the interest relevance depending on the interest profile and interest indicator in Customizing Transaction OPIC.

Update Control

You use update control to determine the cost elements in controlling in which the interest is to be updated. For technical reasons, an update to the profit and loss (P&L) account in financial accounting takes place first, which is controlled by *posting specifications*. The definition of cost elements for

the relevant general ledger accounts ensures that the update to controlling will occur directly.

[Figure 5.13](#) shows the definition of posting specifications. Depending on the two business transactions of *interest earned* and *interest paid posting*, and, if necessary, depending on the interest indicator, company code, and business area, you define (using account symbols for encryption) which P&L accounts in the relevant chart of accounts in financial accounting are to be used in each case for debit and credit. If you don't require a differentiation based on business areas, for example, then you can define the wildcard character + in the relevant field. By defining cost elements for the general ledger accounts that are used for the debit posting for interest paid and the credit posting for interest earned, you ensure that the interest is posted to these cost elements in controlling. If you use PS Cash Management, then you must ensure that no commitment items for financial Transaction 30 are assigned to the general ledger accounts in your posting specifications to prevent an update to PS Cash Management.

[!] Balances in Financial Accounting and Controlling

You must enter a credit and debit account in the posting specifications for both interest earned and interest paid. This gives a balance of zero in financial accounting. However, to prevent a balance of zero in controlling, you must not define any cost elements for the general ledger accounts for the debit postings for interest earned or the credit postings for interest paid.

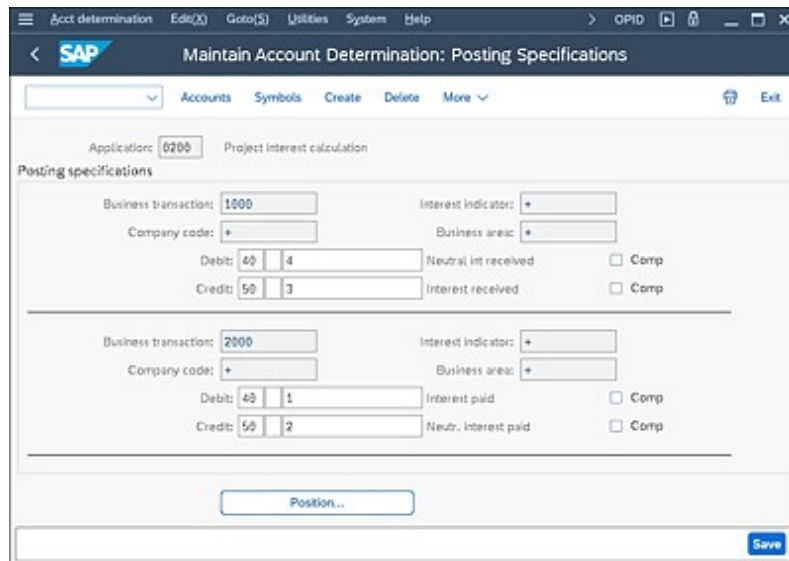


Figure 5.13 Definition of Posting Specifications

Finally, you must assign the relevant activities KZRI (**Actual Interest Calculation**) and KZRP (**Planned Interest Calculation**) to a number range in Customizing.

5.5.2 Executing the Interest Calculation for Projects

For the interest calculation of projects, you can use Transactions CJZ3 and CJZ5 for planned data and Transactions CJZ2 and CJZ1 for actual data. The initial screens for the actual and planned interest calculation show some differences.

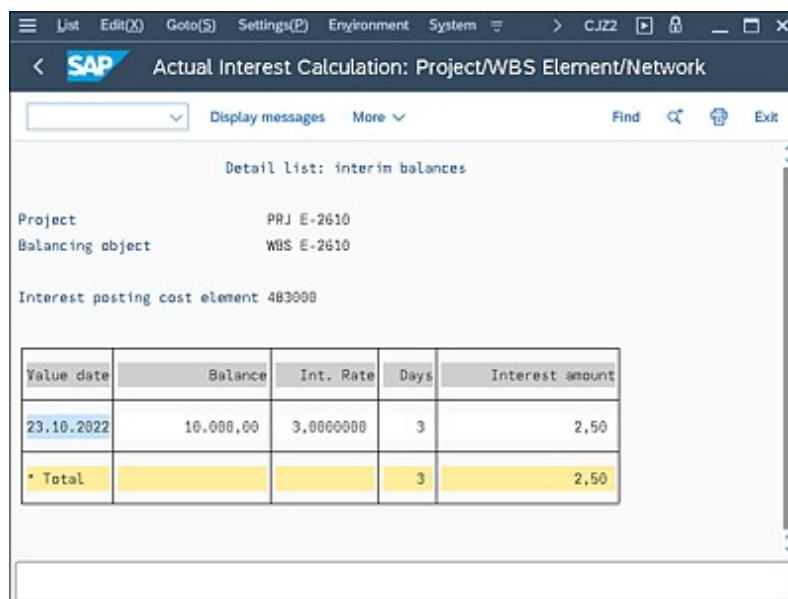
With actual interest calculation, you select the relevant objects, specify the parameters for process control, and specify the period up to which the interest calculation is to be executed. You can also select a limit for a specific day from the menu.

With planned interest calculation, you can either specify the period for the interest calculation (which has advantages in terms of performance) or—if you don't select a restriction—execute an interest run for the entire period. The start of the period is determined on the base date of the first costs incurred, and the end of the period is determined on the basis of the scheduling data of the objects. You also must specify the CO version that will serve as a basis for the interest calculation on the initial screen.

When you execute the interest calculation, the system proceeds as follows:

1. The system uses hierarchy processing to determine the relevant balancing objects based on the project type and the interest profile used. The interest profile may be logically inherited in this case.
2. Balancing occurs for the relevant periods at the level of the balancing objects for the value categories selected as relevant in Customizing. If necessary, subtotals may be created for a specific day or period.
3. The system uses the interest indicator to calculate the interest rate and uses update control to determine the costs elements for updating the interest.
4. The system calculates the interest and posts it to the balancing object. A source document is written, which can be evaluated in the information system.

After the interest calculation is executed, you can display logs for error messages and for the update. After an update run, you can analyze the list of objects and interest-relevant line items that were included in the balancing and can view the interim balances with information about the interest rate, number of interest days, and calculated interest (see [Figure 5.14](#)).



The screenshot shows the SAP interface for 'Actual Interest Calculation: Project/WBS Element/Network'. The window title is 'SAP Actual Interest Calculation: Project/WBS Element/Network'. Below the title bar, there are menu options: 'List', 'Edit(X)', 'Goto(S)', 'Settings(P)', 'Environment', 'System', and a search bar with 'CJZ2'. The main content area displays 'Detail list: interim balances' with the following information:

- Project: PRJ E-2610
- Balancing object: WBS E-2610
- Interest posting cost element: 483000

A table with the following data is displayed:

Value date	Balance	Int. Rate	Days	Interest amount
23.10.2022	10.000,00	3,0000000	3	2,50
* Total			3	2,50

Figure 5.14 Displaying the Interim Balances of an Actual Interest Calculation

You can also cancel the interest runs by using the transactions specified earlier. Although all previous interest postings for the specified period are canceled in the planned interest calculation, only the most recent interest run is canceled in the actual interest calculation.

[AT A GLANCE] Determination of Accounting Data Related to a Specific Period

By using functions for revaluation of actual prices, overhead allocation, template allocation, and interest calculation, you can correct the accounting data of your projects or determine overhead rates or interest profit and losses. In this way, you can ensure that all relevant costs and revenues for your projects are available for further allocations or period-end closing activities at the end of the period.

5.6 Results Analysis

The results analysis reevaluates the costs and revenues for your projects. Depending on the method used, inventory values, reserves, cost of sales, and calculated revenue affecting income can be calculated as part of the results analysis. With the settlement of this results analysis data ([Section 5.9](#)), adjustment postings can be made in financial accounting and in profitability analysis, and the values in financial accounting and profitability analysis can be reconciled, respectively.

The calculation of the results analysis data depends both on the results analysis method (i.e., the formula for calculating the results analysis data) and the status of the object in which the results analysis is executed (control of the creation and cancellation of inventories and reserves).

The objective of results analysis and the specified dependencies are illustrated by the following example. A sales and distribution project (e.g., the construction and sale of a manufacturing robot) is spread over four periods. The planned costs $C(p)$ are \$80,000 against a planned revenue $R(p)$ of \$120,000. The customer has agreed to milestone billing of 50% of the target revenue for the second period, an additional 25% for the third period, and a final invoice for the remainder in the fourth period.

At the end of each period, you execute the results analysis with two different methods for different purposes. First, you need to calculate the reserves for unrealized costs or any impending losses. In addition, you should ensure that interim profits are calculated for the planned milestone billings of your project if the revenue exceeds the calculated cost of sales. You therefore select **Revenue-based Method with Profit Realization** and settle the results analysis values to profitability analysis.

As a second results analysis method, select **Cost-based POC Method**, which allows you to calculate the revenue affecting net income—which is based on the actual costs and, where relevant, the revenue in excess of billings—and to identify unrealized profits. Because unrealized profits may not be reported in balance sheets in some countries, such as Germany, you

can use this results analysis data only for internal controlling purposes in Project System in such cases.

Following the revenue-based method with profit realization, the calculated cost of sales $C(c)$ and the calculated revenue affecting income $R(c)$ are determined as follows:

$$C(c) = C(p) \times R(a) \div R(p)$$

where $R(a) = \text{Actual revenue}$

$$R(c) = R(a)$$

Capitalized costs $C(z)$ are calculated as follows if the actual costs $C(a)$ are greater than the calculated costs:

$$C(z) = C(a) - C(c) \text{ if } C(a) > C(c)$$

Conversely, if the cost of sales is greater than the actual costs, then reserves are calculated as follows for unrealized costs $C(u)$:

$$C(u) = C(c) - C(a) \text{ if } C(c) > C(a)$$

With the cost-based percentage of completion (POC) method, the planned costs and revenues are weighted with the ratio of actual to planned costs to calculate the costs and revenues affecting income. The following formulas are used:

$$C(c) = C(a)$$
$$R(c) = R(p) \times C(a) \div C(p)$$

If the actual revenue is less than the calculated revenue, then a revenue in excess of billings $R(z)$ is calculated as follows:

$$R(z) = R(c) - R(a) \text{ if } R(c) > R(a)$$

However, if the actual revenue is greater than the calculated revenue, then the system calculates a revenue surplus $R(r)$ as follows:

$$R(r) = R(a) - R(c) \text{ if } R(a) > R(c)$$

The use of the formulas and rules of these two results analysis methods are now illustrated using the aforementioned sales and distribution project as an example.

In Period 1, the project is released, and actual costs of \$20,000 are incurred, but no actual revenue is earned. The revenue-based method with profit

realization thus gives a calculated revenue equal to the actual revenue and a calculated cost of sales of zero. The settlement to profitability analysis in results analysis version 0 produces the following values in the profitability analysis:

Actual revenue: 0
Calculated cost of sales: 0
Result: 0

The **Released** status also causes capitalized costs to the order of $C(b) = \$20,000$ to be created and posted to financial accounting as part of settlement to profitability analysis. This produces the following display in the P&L statement:

Expense: \$20,000 (actual costs)
Revenue: \$20,000 (increased inventory)

With the cost-based POC method, the calculated cost of sales is equal to the actual costs. For the revenue affecting income:

$$R(c) = \$120,000 \times \$20,000 \div \$80,000 = \$30,000$$

This gives a revenue in excess of billings $R(z)$ of \$30,000. If you were to settle the results analysis data to profitability analysis (which is a purely hypothetical analysis because only the data of results analysis version 0 is settled to profitability analysis), then the following picture would emerge in the profitability analysis and in the P&L statement:

Calculated revenue: \$30,000
Cost of sales: \$20,000
Result: \$10,000
Expense: \$20,000 (actual costs) + \$10,000 (profit)
Revenue: \$0 (actual revenue) + \$30,000 (revenue in excess of billings)

In Period 2, an additional \$30,000 is posted to the project as actual costs, which means that the actual costs have increased to $C(a) = \$50,000$ in total. In addition, the agreed-upon milestone billing is executed in the amount of \$60,000. The revenue-based method with profit realization gives the following figures:

$$C(c) = \$80,000 \times \$60,000 \div \$120,000 = \$40,000$$
$$R(c) = \$60,000$$

$$C(z) = \$50,000 - \$40,000 = \$10,000$$

The settlement to profitability analysis transfers the difference values compared with the previous period and gives the following new values in the profitability analysis and in the P&L statement:

Actual revenue: \$60,000

Calculated cost of sales: \$40,000

Result: \$20,000

Expense: \$50,000 (actual costs) + \$20,000 (profit)

Revenue: \$60,000 (actual revenue) + \$10,000 (increased inventory)

If you use the cost-based POC method, then the following results analysis values are calculated:

$$C(c) = \$50,000$$

$$E(c) = \$120,000 \times \$50,000 \div \$80,000 = \$75,000$$

$$R(z) = \$75,000 - \$60,000 = \$15,000$$

A hypothetical settlement would give the following values in profitability analysis and financial accounting:

Calculated revenue: \$75,000

Calculated cost of sales: \$50,000

Result: \$25,000

Expense: \$50,000 (actual costs) + \$25,000 (profit)

Revenue: \$60,000 (actual revenue) + \$15,000 (revenue in excess of billings)

In Period 3, additional actual costs of just \$5,000 arise. The second milestone billing of \$30,000 results in a total actual revenue of \$90,000 in this period.

The revenue-based method then calculates the following values affecting net income:

$$C(c) = \$80,000 \times \$90,000 \div \$120,000 = \$60,000$$

$$R(c) = \$90,000$$

Due to the relatively small increase in costs and the second milestone billing, the calculated cost of sales is now higher than the actual costs. Therefore, the capitalized costs are canceled, and reserves for unrealized costs are calculated instead:

$$C(u) = \$60,000 - \$55,000 = \$5,000$$

The following values are shown in profitability analysis and financial accounting after settlement:

Actual revenue: \$90,000

Calculated cost of sales: \$60,000

Result: \$30,000

Expense: \$55,000 (actual costs)

+ \$5,000 (reserves)

+ \$30,000 (profit)

Revenue: \$90,000 (actual revenue)

The results analysis according to the cost-based POC method produces the following values:

$$C(c) = \$55,000$$

$$R(c) = \$120,000 \times \$55,000 \div \$80,000 = \$82,500$$

In contrast to Period 2, the actual revenue is now greater than the calculated revenue, which means that a revenue surplus in the form of reserves is created as follows:

$$C(u) = \$90,000 - \$82,500 = \$7,500$$

A profitability analysis settlement would give the following results:

Calculated revenue: \$82,500

Calculated cost of sales: \$55,000

Result: \$27,500

Expense: \$55,000 (actual costs)

+ \$7,500 (revenue surplus)

+ \$27,500 (profit)

Revenue: \$90,000 (actual revenue)

In Period 4, additional actual costs of \$30,000 are posted to the project, with the result that the planned costs are exceeded by \$5,000. The final settlement results in the agreed target revenue of \$120,000. You complete the project. Due to the status change, any inventories and reserves are canceled in the results analysis.

Because the actual costs exceed the planned costs, the actual costs are taken as the cost of sales in the revenue-based method. Due to the status, the

existing reserves are canceled. After settlement to profitability analysis, the following values are shown in the profitability analysis in financial accounting:

Actual revenue: \$120,000

Calculated cost of sales: \$85,000

Result: \$35,000

Expense: \$85,000 (actual costs) + \$35,000 (profit)

Revenue: \$120,000 (actual revenue)

In the cost-based POC method, the calculated revenue is now set as equal to the actual revenue. A settlement to profitability analysis would produce the same results in profitability analysis and financial accounting as the cost-based method.

In addition to the results analysis methods outlined previously, a range of other methods is provided in the standard system, which you can also use for results analysis. The selection of a results analysis method depends on various business-related factors, such as the required results analysis data (are inventory costs and reserves required?), how is it to be used (i.e., for internal information purposes or in the financial statements), and the relevant legal requirements.

The results analysis methods provided in the standard system are listed here (you'll find a detailed description of these methods with explicit examples in the SAP Library):

- (01) Revenue-based method with profit realization
- (02) Revenue-based method without profit realization
- (03) Cost-based POC method
- (04) Quantity-based method
- (05) Quantity-based POC method
- (06) POC method on basis of revenue planned by period
- (07) POC method on basis of project progress value determination
- (08) Derivation of cost of sales from "old" resource-related billing of controlling line items
- (09) Completed contract method

- (10) Inventory determination, without planned costs, without milestone billing
- (11) Inventory determination, without planned costs, with milestone billing
- (12) Inventory determination, reserves for follow-up costs, without milestone billing
- (13) Inventory determination “WIP at actual costs” for objects not carrying revenue
- (14) Derivation of cost of sales from resource-related billing of dynamic items
- (15) Derivation of revenue from resource-related billing and simulation of dynamic items

5.6.1 Prerequisites for the Results Analysis

The results analysis method, the status dependencies of the inventories and reserves, and other settings to control the results analysis are all found in *valuation methods* in Customizing. The valuation method is determined by the *results analysis keys* of the relevant objects and the *results analysis version* that you specify when you execute the results analysis. Updating of the results analysis data into Project System, profitability analysis, and financial accounting is controlled by results analysis cost elements, line IDs, rules for updating the results analysis cost elements, and posting rules. We'll now briefly discuss the relevant Customizing activities.

A valuation can only be determined and a results analysis can only be executed for WBS elements that have a results analysis key. However, the costs of lower-level objects can also be automatically factored into the results analysis in projects. You can use various predefined results analysis keys provided in the standard system. You can also enter results analysis keys manually in WBS elements, define them as a default value in the project profile, or use strategies to derive them along with the settlement rule ([Section 5.9.1](#)).

The values from the results analysis are updated to the analyzed WBS elements using results analysis cost elements, that is, cost elements of cost

element type 31. The results analysis data is evaluated in the cost reports of Project System using the relevant results analysis cost elements.

When you execute results analysis, you specify a results analysis version, into which the data from the results analysis is updated. Because the determination of the valuation method also depends on the results analysis version, you can perform several results analyses with various methods for the same object and save the data from the results analysis to a separate CO version. However, only the values of results analysis version 0 can be settled to the profitability analysis.

[Figure 5.15](#) shows an example of the definition of a results analysis version in Transaction OKG2 in Customizing.

You can use the **Version Relevant to Settlement** and **Transfer to Financial Accounting** indicators in the results analysis version to control the relevance of the results analysis data for settlement and the simultaneous automatic transfer to financial accounting. If profit center accounting is active, then a posting for the profit center defined in the master data of the settlement object is executed simultaneously, provided that the **Transfer to Financial Accounting** indicator is set in the results analysis version. In the **Extended Control** settings of the results analysis version, you can determine whether the version is also to be used for a planned results analysis.

Additional indicators are provided in extended control, for example, for defining whether the creation and consumption of inventories or reserves by various cost elements is to be updated, whether line items are to be created during the results analysis, or (if the non-valuated project stock is used) whether work in process can be calculated separately for assigned orders depending on their results analysis keys. For performance reasons, line items aren't often written during the results analysis.

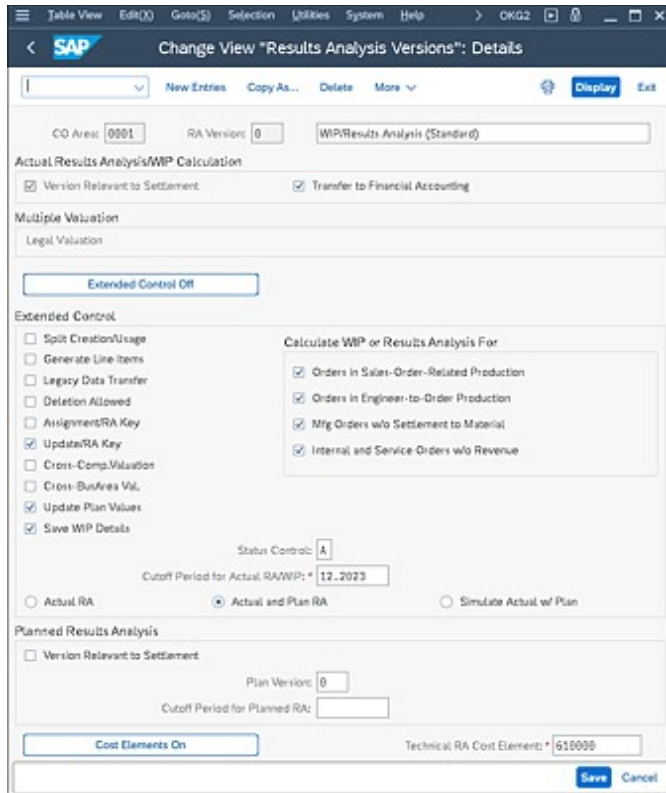


Figure 5.15 Definition of a Results Analysis Version

The results analysis version, together with the results analysis key, indicates a valuation method. The results analysis method that is to be used for the results analysis is defined in the valuation method. A results analysis method is defined in the various valuation methods that are provided in the standard system. When defining valuation methods, a distinction is made between maintenance with and maintenance without expert mode. [Figure 5.16](#) shows the maintenance of a valuation method without use of the expert mode in Transaction OKG3 in Customizing.

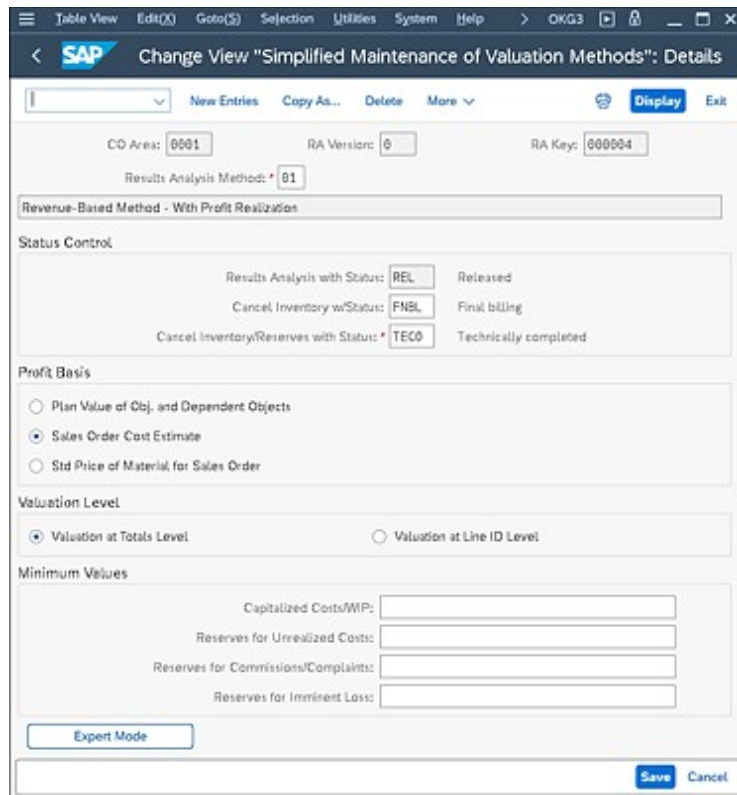


Figure 5.16 Definition of a Valuation Method

In addition to the results analysis method, you can define the status here for which inventories and reserves are to be canceled. Inventories and reserves are always created once the status changes to **Released**. By specifying a profit basis, you can control which planned costs are to serve as a basis for the results analysis.

You can also define the valuation level (summary allocation of the results analysis data in accordance with the default settings in expert mode or allocation by line ID) and the minimum values required for the update of inventories and reserves.

[Figure 5.17](#) shows the expert mode for defining valuation methods. Depending on the status, you can define additional detailed settings here for valuation and for the cancellation of reserves and inventories or for calculating planned values as a basis for the results analysis. By using the indicators for the extended control of the results analysis, you can define which periods should be taken into account in the results analysis or which procedure should be used to handle manually entered results analysis data, for example.

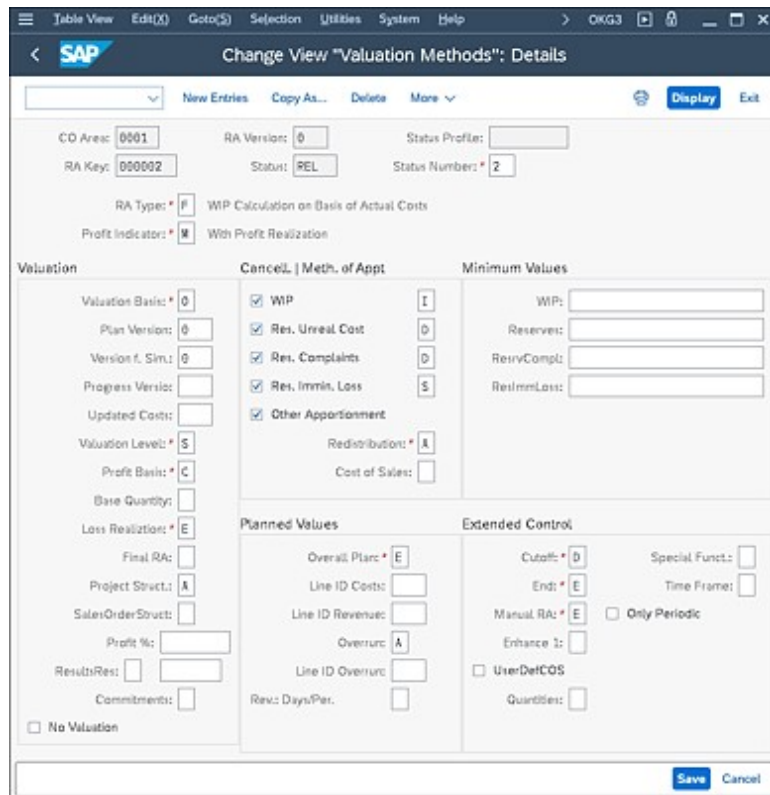


Figure 5.17 Expert Mode of a Valuation Method

Note, in particular, the **Project Struct.** indicator provided in expert mode for the valuation method. The most important values of this indicator are explained in the following list:

- **A**
This is used by default, that is, if you use the simple maintenance option for defining a valuation method. When you use this indicator, a results analysis is only possible for billing elements of a project. During the results analysis, the values of all lower-level WBS elements and all assigned networks and orders are automatically summarized at the billing elements level for the purpose of results analysis. One advantage of this scenario is that you only have to settle the billing elements because the results analysis data of these WBS elements incorporates the values of all lower-level objects.

[!] Using Project Structure Indicator A

The following must be ensured if you use project structure indicator **A**:

- A results analysis key must only be defined in the billing elements for which you want to determine results analysis data and not in pure planning or account assignment elements.
- A settlement must only be executed for the highest billing element in which data was used for the results analysis. Therefore, you can use an appropriate strategy to derive the settlement rules ([Section 5.9.1](#)).
- The project structure should not contain other billing elements above or below the billing elements for which you want to execute a results analysis.
- **B**
Use this value if the project structure also contains billing elements at levels below the highest level and if you're interested in both the overall result of the project and the result of the individual levels. In this scenario, results analysis data is updated for each billing element for which a results analysis key is defined. To determine the results analysis data, all planned data and actual data of this element and the lower-level objects are taken into account. Thus, as with indicator **A**, you have a complete result for the highest billing element in the structure. However, only the difference between the results analysis data of this element and the results analysis data of the lower-level elements is updated in the highest billing element.
- **T**
For projects with a cross-company code structure, we recommend that you establish separate results analysis data for the billing structures of each company code. To do this, you can use indicator **T** in expert mode. When you use this indicator, data is similarly summarized in the relevant billing elements. However, in contrast to indicator **B**, the values of the lower-level billing elements and

their assigned WBS elements and orders are ignored in the summarization.

- **E**
Use this indicator if you want to determine separate results analysis data for each individual WBS element of a project in isolation. In this case, only the values in the WBS element to be analyzed and the values of the assigned orders are summarized for the results analysis. WBS elements located at lower levels in the hierarchy, and their assigned orders are ignored.
- **C, Q, U**
For information about using these indicators, refer, for example, to the (F1) help of the **Project Struct.** field in a valuation method in expert mode.

Line IDs allow you to classify results analysis data in accordance with financial accounting requirements. Various line IDs are provided in the SAP standard system. If necessary, you can also create your own line IDs based on the controlling area in Customizing (see [Figure 5.18](#)).

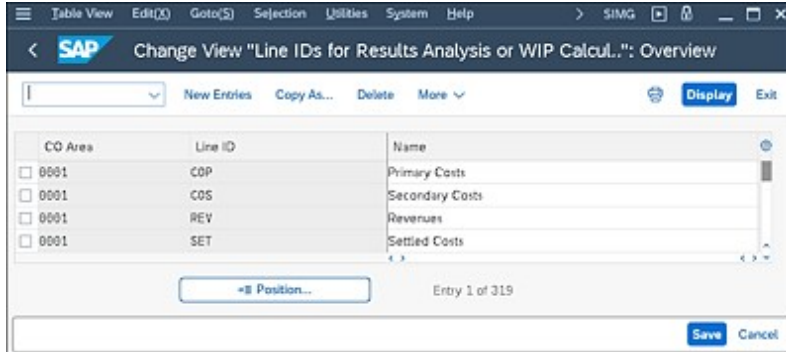


Figure 5.18 Defining Line IDs

In Transaction OKG5 in Customizing, you must assign to the line IDs all cost elements under which debits and credits are posted and that should be taken into account in the results analysis. [Figure 5.19](#) shows the relationship between cost elements and line IDs. You can make each assignment dependent on the results analysis version, fixed and variable portions, the debit and credit indicator, or a validity period, for example. For subsequent posting in financial accounting, you must determine for each assignment whether the cost elements must be capitalized, don't have to be capitalized,

or can be capitalized. In addition, you can determine what percentage of each assignment can't be capitalized and, if necessary, which portion can be capitalized.

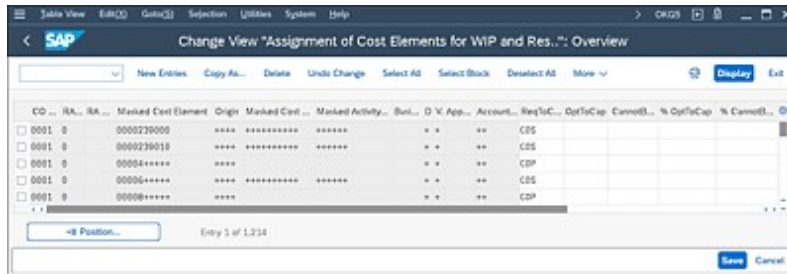


Figure 5.19 Assignment of Cost Elements to Line IDs

The next Customizing activity requires you to define the results analysis cost elements under which the results analysis data is to be updated in Transaction OKG4 (see [Figure 5.20](#)).

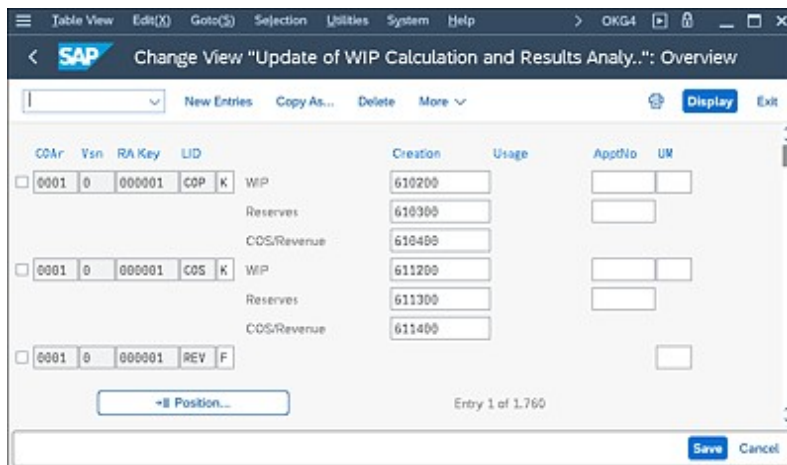


Figure 5.20 Defining Update Rules

First, assign each line ID to a category, which determines how the results analysis data can be grouped, for example, according to inventory, reserve, direct costs, revenue, and so on. Depending on the category, you can then assign various cost element types for each grouping to the line IDs.

Finally, use Transaction OKG8 in Customizing to define posting rules to control the transfer of the results analysis data to financial accounting (see [Figure 5.21](#)).

CO Area	Company	RA Version	RA category	Bal.Creatio...	Cost Element	Record number	P&L Acct	Bal.SheetAcct	Accounting Princ...
<input type="checkbox"/>	0001	0001	0	WIPR		0	891000	791000	
<input type="checkbox"/>	0001	0001	0	RUCR		0	230000	89510	
<input type="checkbox"/>	0001	0001	0	PCCR		0	891000	791000	
<input type="checkbox"/>	0001	0001	0	RML		0	230010	89520	
<input type="checkbox"/>	0001	0001	0	PDC1		0	800300	140080	
<input type="checkbox"/>	0001	0001	0	PDCS		0	800300	140080	
<input type="checkbox"/>	0001	0001	0	PDCR		0	800310	793010	

Figure 5.21 Defining Posting Rules

A posting rule consists of the assignment of individual results analysis cost elements or entire results analysis categories to a P&L account and a balance sheet account. Results analysis categories correspond to the assignments of cost elements to line IDs that you've already made in Transaction OKG5, for example, **WIP (Work in Progress, Requires Capitalization)**.

5.6.2 Executing the Results Analysis

Before you perform an actual results analysis for a project, you should set a lock period to ensure that all results analysis data determined up to and including the lock period isn't changed by the results analysis. This is of particular relevance if you can no longer make any postings to financial accounting for these periods. The standard system is preconfigured in such a way that the lock period for all valuation methods is always the prior period to the results analysis period. However, you can change this setting, if necessary, in expert mode and define a different lock period in the results analysis version.

You can perform planned results analysis with Transactions KKA2P and KKAJP. For the actual results analysis, use Transactions KKA2 and KKAJ. In Transaction KKG2, you can also manually enter the cost of sales for a project depending on the settings. On the results analysis initial screen, select the relevant WBS elements, the results analysis period, and the relevant results analysis version. When you execute the results analysis, the system uses the results analysis version and the results analysis key of the objects to determine which valuation method is to be used to analyze the data. The results analysis data is then calculated on the basis of the status of

the WBS elements that are to be analyzed. Depending on the settings of the valuation method, you may also be able to enter additional results analysis data manually.

[+] Time-Dependent System Statuses

Because the time of the results analysis may differ from the time for which a status that is relevant for the results analysis has been set, the assignment of the results analysis data to the relevant periods may be incorrect in the results analysis. To avoid this potential problem, activate time dependency for the system status in Customizing. The system then stores the date for which the status was set (e.g., for the status **Released**, **Technically Completed**, or **Final Billing**) and takes this into account in the results analysis. For the planned results analysis, you can also plan the time of a status change.

With flexible error management, which you can define in Customizing, you can influence the messages that may be issued when you execute the results analysis. You can, for example, convert the **Warning** message type into an error message for certain results or vice versa, or you can suppress messages completely. [Figure 5.22](#) shows the result of a results analysis.

Make sure that you save the result so that the results analysis data is updated. If the controlling area currency differs from the company code currency, then the results analysis is executed in both currencies. In this case, you need to save the results twice so that the data is updated. The results analysis data isn't posted to the profitability analysis or financial accounting until project settlement ([Section 5.9](#)).

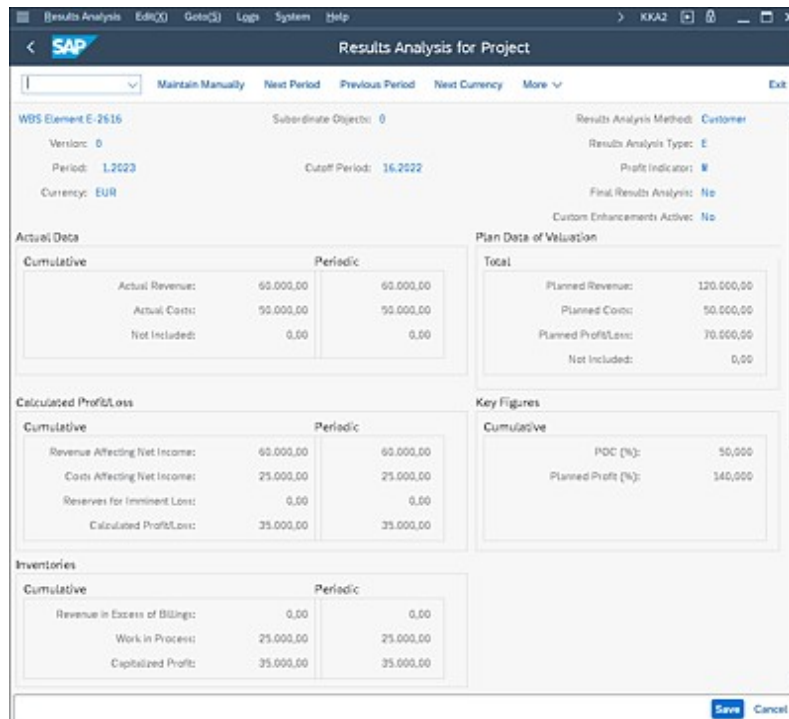


Figure 5.22 Result of a Results Analysis

5.6.3 Event-Based Revenue Recognition

The previously presented functions for calculating a results analysis and updating results analysis data are typically performed as part of the period-end closing process for projects. The corresponding results analysis data, their reconciliation with financial accounting, and the corresponding information in profitability analysis are therefore only available at the end of the period.

In event-based revenue recognition, costs and revenues for project-related activities are recognized as they occur. Cost postings are compared with revenues for the period and immediately recognized as expenses, while revenues are immediately posted to a P&L account. Revenue recognition and adjustment postings are generated simultaneously with the activities. For this reason, periodic reconciliation runs aren't necessary. Costs and revenues are always compared to the reported profit and are always up to date. (We'll discuss exceptions later in this section). So, you can create P&L statements or cost of sales reports at any time.

In event-based revenue recognition, when you post a document, for example, a time confirmation or a billing document with reference to a WBS element, the system always creates two separate posting documents—one for the costs or revenues and another for the revenue recognition. Furthermore, for each revenue recognition posting, other attributes relevant for profitability analysis, such as the customer number from the billing rule of the relevant billing WBS element, are derived and written to the Universal Journal (table ACDOCA). For this purpose, the Universal Journal contains not only general ledger fields and controlling fields for real or statistical account assignment elements but also a large number of profitability fields (see [Figure 5.23](#)), thus enabling direct margin analyses.

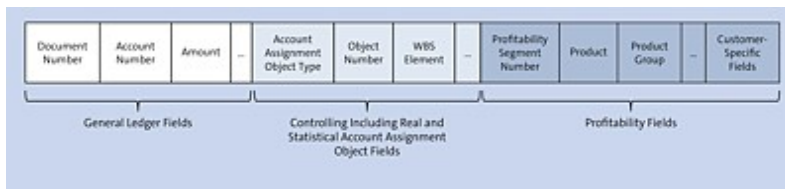


Figure 5.23 Schematic Structure of the Universal Journal (Table ACDOCA)

In some cases, however, you may want to enter temporary adjustments and reserves. This can be the case, for example, if time confirmations can't be entered promptly or if you already know that there will be a reduction in revenue at the end of the project because you won't receive the full planned revenue. While the temporary adjustments are overwritten as part of a revaluation, you'll also have to manually reverse the reserves you've manually entered once the reserved amounts have been realized. This means that you have to perform a revaluation when making manual adjustments to profit realization, as well as for other processes without an original document, such as changes to the planned values of a fixed-price project. A number of SAP Fiori apps are available for analyzing, adjusting, and revaluating event-based revenue recognition for projects. You can use the Run Revenue Recognition – Projects app (F4277) to (periodically) recalculate revenue recognition values of projects.

You can enter the settings for event-based revenue recognition in Customizing via the following path: **Controlling • Product Cost Controlling • Cost Object Controlling • Product Cost by Sales Order • Period-End Closing • Event-Based Revenue Recognition**. For more information on use cases of event-based revenue recognition, its limitations,

<https://t.me/PrMaB2>

and details on switching to event-based results analysis, see the SAP Library and SAP Note 2349278.

5.7 Project-Related Incoming Orders

For sales and distribution projects, you can use project-related incoming order determination to calculate additional controlling key figures for *incoming orders*, *order history*, *open order values*, and *open order value reduction*, as well as to evaluate these in Project System reporting or settle them to profitability analysis. This makes them available for analysis in company-wide profitability and sales accounting.

Based on the key figures from incoming order determination, you can forecast the results for your sales and distribution projects in terms of costs, revenues, and, in some cases, quantities. Evaluation of the order history allows you to trace how the results of your projects change due to newly received sales orders, changes to orders, or rejections.

We'll now use the simple example of our robotics project to explain how project-related incoming order determination works and how it's used. Costs were planned by cost element for the project, amounting to \$80,000.

The assignment of a sales order item to the project results in an update of the planned revenue to the amount of \$120,000. Accordingly, the project-related incoming order determination shows corresponding costs and revenue for the open order values of \$80,000 and \$120,000, respectively, for special cost elements of the incoming orders in the category **Incoming Orders: New Order (IONO)**.

Over the course of the project, actual costs of \$40,000 are posted to the project and billing amounts to \$60,000. In the results analysis, \$40,000 is posted as the cost of sales and \$60,000 as revenue affecting income if you use a revenue-based method, for example (see the example in [Section 5.6](#)).

A new project-related sales order determination shows the analyzed values in the **OBRB** category (**Order Balance: Reduction by Billing Documents**). The new open order values for the costs and revenue of the project are based on the original open order values minus the reduction amounts—in this case, minus the results analysis data:

$$\text{Open order value (revenue)} = \$120,000 - \$60,000 = \$60,000$$

$$\text{Open order value (costs)} = \$80,000 - \$40,000 = \$40,000$$

Other changes occur as the project progresses. First, additional actual costs of \$5,000 and actual revenue of \$30,000 are posted to the project. In addition, a new sales order item is assigned to the project, which results in additional planned revenue of \$30,000. The planned costs of the project are then also increased by \$15,000. The results analysis for the project then calculates the cost of sales as \$57,000 and revenue affecting income of \$90,000. The subsequent project-related incoming order determination then shows revenue of \$30,000 and costs of \$15,000 as the difference because of the previous execution under the **Incoming Orders: Changed Order (IOCO)** category. The changes to the results analysis values, that is, \$30,000 for the revenue affecting income and \$17,000 for the cost of sales, are, in turn, used as reduction amounts under the **OBRB** category. The new open order values for the project are therefore as follows:

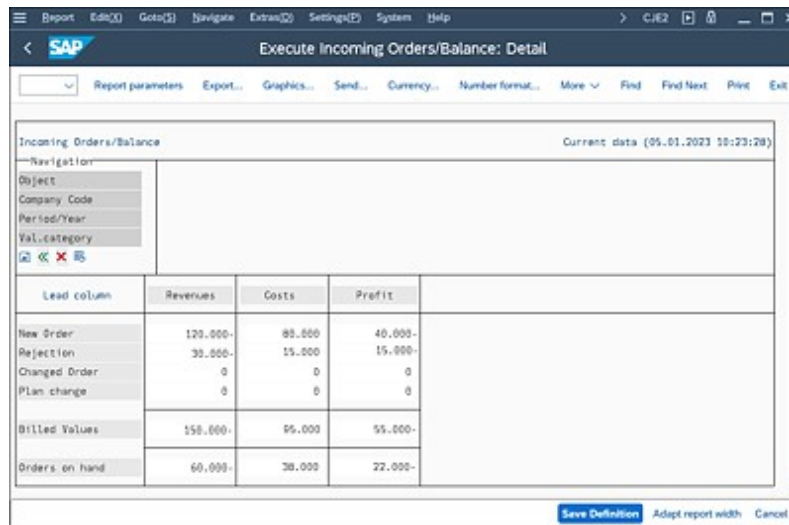
$$\begin{aligned} \text{Open order value (revenues)} &= \$120,000 - \$90,000 + \$30,000 \\ &= \$60,000 \\ \text{Open order value (costs)} &= \$80,000 - \$57,000 + \$15,000 \\ &= \$38,000 \end{aligned}$$

[Figure 5.24](#) shows the Incoming Orders/Balance hierarchy report (see also [Chapter 6, Section 6.2.1](#)), with the values from the preceding example.

When the incoming order data is determined, a distinction is made between WBS elements that are fully invoiced and those that aren't. As long as a billing element doesn't have the system status **FNBL (Final Billing)**, the open order values are calculated as follows:

$$\begin{aligned} \text{Open order value (revenue)} &= \\ &\text{Incoming orders (revenue)} - \text{Revenue affecting income} \\ \text{Open order value (costs)} &= \\ &\text{Incoming orders (costs)} - \text{Cost of sales} \end{aligned}$$

Incoming orders are determined on the basis of the revenues planned by revenue element in the billing element and the costs planned by cost element in the objects of the billing structure of the WBS element. As illustrated previously, the reduction amounts for the orders on hand are calculated on the basis of the analyzed actual data of results analysis version 0. If you haven't yet executed a results analysis, then the reduction amount is zero, and the open order values are therefore equal to the incoming orders.



The screenshot shows the SAP 'Execute Incoming Orders/Balance: Detail' report. The report title is 'Execute Incoming Orders/Balance: Detail' and the current data is from 05.01.2023 10:23:28. The report displays a table with the following data:

Lead column	Revenues	Costs	Profit
New Order	120.000-	80.000	40.000-
Rejection	30.000-	15.000	15.000-
Changed Order	0	0	0
Plan change	0	0	0
Billed Values	150.000-	95.000	55.000-
Orders on hand	60.000-	38.000	22.000-

Figure 5.24 Evaluation of Project-Related Incoming Orders

If a billing element has the **Final Billing** status, then both the incoming orders and the reduction amounts are calculated from the analyzed actual data of results analysis version 0. In other words, the reduction amounts are equal to the incoming order data in this case, and the open order values are thus equal to zero.

If the actual revenue exceeds the planned revenue, then the incoming order revenue is equal to the actual revenue regardless of the status of the billing element. Similarly, if the actual costs exceed the planned costs, then the incoming order costs are equal to the actual costs.

5.7.1 Prerequisites for Project-Related Incoming Order Determination

As an initial prerequisite for using project-related incoming order determination, you must create secondary cost elements under which costs, revenues, and, if necessary, quantities for incoming orders are to be updated. Use the following cost element categories:

- **50 Incoming orders: sales revenues**
- **51 Incoming orders: other revenues**
- **52 Incoming orders: costs**

If the project-related incoming orders are to be settled to profitability analysis at a later stage, it's often useful to classify the incoming order cost elements in accordance with the value fields in profitability analysis.

Next, you must assign the relevant cost elements of the costs and revenues and the results analysis cost elements to the incoming order cost elements in the Customizing settings. You can make this assignment for cost element intervals or cost element groups based on the controlling area and results analysis key ([Section 5.6.1](#)). For the subsequent evaluation, you must assign the incoming order cost elements to corresponding value categories in Transaction OPI2 (see [Chapter 6, Section 6.2.1](#)).

If you want to settle the data from project-related incoming order determination in profitability analysis, then you'll need a suitable profitability analysis transfer structure, which determines the mapping of the incoming order cost elements to value categories of the profitability analysis when settlement occurs ([Section 5.9.1](#)). In addition, the operating concern to which the data is to be settled must include the characteristic **SORHIST**, and a number range for the **I Order-Rel. Project** activity type must be maintained. You can define a number range in Transaction KEN1 in the profitability analysis Customizing settings. You assign the **SORHIST** characteristic to an operating concern in Transaction KEQ3. The indicator has the following four possible categories:

- **AENA (new order)**
This category comprises cost element categories **50**, **51**, and **52**, and is created when sales order items are created for billing elements.
- **AEGA (order change)**
This category only contains cost element category **50**, and is created if changes are made to conditions or quantities in relevant sales orders.
- **AEAB (cancellation)**
This category comprises cost element categories **50**, **51**, and **52**, and is created when sales order items are cancelled for billing elements.
- **AEPA (plan change)**
This category comprises the two cost element categories **51** and

52, and is created when relevant changes are made to the cost structure of the project.

For project-related incoming order determination, you must also make settings in Project System Customizing for the relevant results analysis keys (see [Figure 5.25](#)).

For example, you use the indicators in the **Hierarchy level in billing structure** section of a results analysis key to determine whether the entire order history is to be determined for the project as a whole or for the individual billing elements. However, the **Order Change** and **Plan Change** categories of the order history are always determined at the individual billing elements level. You also specify the CO version of which the data is to serve as the basis for the incoming order determination.

The screenshot shows the SAP Change View 'Incoming Orders: Settings for Key': Details. The interface includes a menu bar with options like 'Table View', 'Edit(X)', 'Goto(S)', 'Selection', 'Utilities', and 'System'. Below the menu, there are buttons for 'New Entries', 'Copy As...', 'More', 'Display', and 'Exit'. The main form area contains the following fields and options:

- RA Key: 000001 (Results Analysis (Int. Orders/Projects))
- CO Area: 0001 (Controlling Area 0001)
- Hierarchy level in billing structure: Project def., Billing element
- Valuation basis: CO version: 0 (Plan/factual version), Resource-reBilling

At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 5.25 Settings for a Results Analysis Key

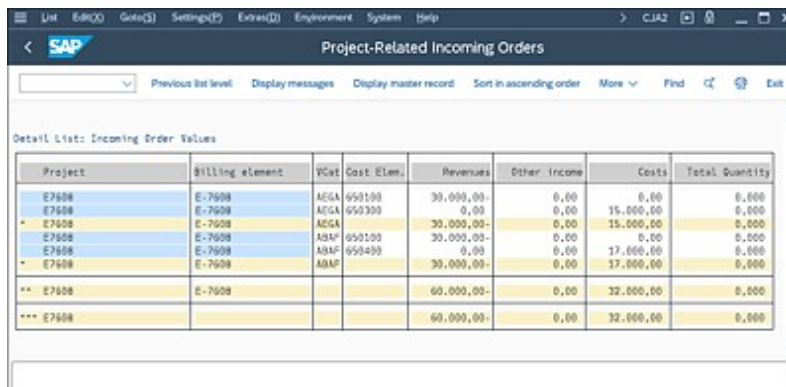
The billing elements in which you want to calculate the key figures for incoming orders must also meet certain requirements. First, the billing elements must have a results analysis key and must be released so that the **Automat. WIP/Results Analysis** business process is permitted. In addition, sales order values must have been updated under value type **29** in the billing elements. This update can occur via a sales order item assigned to the project or, if necessary, with a Business Application Programming Interface (BAPI) from an external system. The planning profile of the project should also

allow for an update of the planned revenue of the sales order to the project (see [Chapter 2, Section 2.5.3](#)).

5.7.2 Executing the Project-Related Sales Order Determination

Typically, you execute the determination of project-related sales orders immediately after the results analysis for projects. You can use Transactions CJA2 and CJA1 in Project System to do so. On the initial screen, you select the relevant objects by specifying sales orders, projects, or individual WBS elements, and you specify the period for which an order determination is to be executed and the process control.

When you execute the project-related incoming order determination, the results analysis key of the billing elements and their status (final billing or not final billing) determine how the **Open Order Value** and **Incoming Orders** key figures are calculated. [Figure 5.26](#) shows the detailed list of a project-related incoming order determination.



The screenshot displays the SAP 'Project-Related Incoming Orders' report. The table below represents the data shown in the report.

Project	Billing element	VCat	Cost Elem.	Revenues	Other Income	Costs	Total Quantity
E7608	E-7608	AEGA	950100	30,000,00	0,00	0,00	0,000
E7608	E-7608	AEGA	950300	0,00	0,00	15,000,00	0,000
* E7608	E-7608	AEGA		30,000,00-	0,00	15,000,00	0,000
E7608	E-7608	ABAF	950100	30,000,00-	0,00	0,00	0,000
E7608	E-7608	ABAF	950400	0,00	0,00	17,000,00	0,000
* E7608	E-7608	ABAF		30,000,00-	0,00	17,000,00	0,000
** E7608	E-7608			60,000,00-	0,00	32,000,00	0,000
*** E7608				60,000,00-	0,00	32,000,00	0,000

Figure 5.26 Detail List of a Project-Related Incoming Order Determination

You can evaluate the calculated key figures in reporting, in which the Incoming Orders/Balance hierarchy report is available as standard for this purpose (refer to [Figure 5.24](#)). If necessary, you can also settle the calculated key figures to profitability analysis and then evaluate them using the relevant reports at the operating concern level.

You can also execute an incoming order determination several times for the same period; however, when the key figures are calculated on the basis of

the planning data, generally only the changes since the previous execution are considered. Note that when the incoming orders are determined all incoming orders between the last execution and the current execution are considered, regardless of the period for which the changes were made.

If necessary, you can also cancel a project-related incoming order determination. This may be necessary if you want to subsequently delete the billing indicator or the results analysis key from a WBS element for which you've already determined incoming orders. It might also be useful to cancel the incoming order determination and execute it a second time if you executed several incoming order determinations within a period but are interested in the overall changes to the key figures when compared with the previous period.

5.8 Cost Forecast

In previous chapters, we discussed how you can plan the costs of projects and how commitments and actual costs can be posted to projects as part of the execution phase. However, if deviations in the form of delays, expected overtime, and so on occur during the execution of your projects, then an analysis of the current planned and actual costs and commitments won't suffice if you want to make meaningful forecasts on how the costs of your projects will develop. The objective of the *cost forecast* is to calculate the *cost to complete* (estimate to completion) for each cost element for future periods based on the planned, commitment, actual, and, in particular, forecast data of the networks. The cost to complete is copied with the commitments and actual costs of CO version 0 into one or more special forecast versions, which can be used as default values for a realistic prediction of costs.

The cost to complete is calculated as follows when you execute the cost forecast. For internal processing activities, the calculation of the cost to complete depends on the status of the activities and when they occur relative to the key date of the cost forecast. If an internal processing activity hasn't yet been confirmed, which means that it doesn't yet have an actual date, then the cost forecast assumes that all the planned work still has to be completed. For an activity that occurs after the key date, the cost to complete is based on the normal costing for the activity. For an activity that is completed before the key date, the system uses the key date period to value all the planned work.

If part of the planned work of an activity occurs before the key date and part occurs after, then the system allocates all the work to the period between the key date and the planned end date, taking into account the distribution key, and calculates the period-based cost to complete for this period. In all three cases, the *estimated costs at completion* correspond to the cost to complete.

For a partially confirmed internal processing activity, the cost to complete is calculated from the forecasted remaining work (see [Chapter 4, Section 4.3](#)), distributed across the period between the planned actual date and end date of the activities. The end date is based on the forecasted end date or forecasted

remaining duration or on the calculated end date (see [Chapter 4, Section 4.1.2](#)). The estimated costs at completion are based on the total actual costs of the confirmed activities and the cost to complete. If an internal processing activity has been finally confirmed, then the cost to complete for the activity is zero. The estimated costs at completion correspond to the actual costs of the activity.

With externally processed activities and service activities, calculation of the cost to complete depends on whether purchase requisitions and purchase orders have been created. If no purchase requisitions or purchase orders have been entered for an activity, then the time at which the activity takes place, relative to the key date of the cost forecast, becomes significant again. If the planned start date is after the cost forecast key date, then the cost to complete is calculated using the normal costing for the activity. If the start date is before the key date, then the planned costs are revaluated in the key date period. If an invoicing plan is used, then the planned costs for dates before the key date are moved to the key date, whereas costs for dates after the key date are copied unchanged. Because no actual costs or commitments exist yet, the estimated costs at completion correspond to the cost to complete in each case.

If a purchase requisition or purchase order exists for an activity, then the cost to complete is set to zero (even if an invoicing plan is used). The estimated costs at completion are based on the total actual costs or commitments for the activity.

For general costs activities, the calculation of the cost to complete depends on whether actual costs have been posted. For a general costs activity without actual costs, the calculation of the cost to complete depends on when the activity occurs relative to the key date of the cost forecast. In this case, the logic used for internal processing activities that haven't yet been confirmed is employed. If you used an invoicing plan for cost planning, then the planned costs for dates before the key date are set to the key date, whereas costs for dates after the key date are copied unchanged as the cost to complete. The estimated costs at completion correspond to the cost to complete.

If actual costs have already been posted to a general costs activity, then the cost to complete is based on the difference between the planned and actual costs of the activity. The distribution key is used for distribution across the

period between the key date of the cost forecast and the end date of the activity. If the actual costs exceed the planned costs, then the value of the cost to complete is zero. The estimated costs at completion are based on the total of the actual costs plus the cost to complete.

The calculation of the cost to complete for material components depends on the item category of the component (see [Chapter 2, Section 2.3.1](#)). For non-stock items, the planned costs of the component are factored into the calculation of the cost to complete for the activity. If a purchase requisition, purchase order, or goods receipt/invoice receipt exists for the component, then only the commitments or actual costs are used for the calculation.

For stock items, you need to distinguish between components for which a goods issue has been posted and those without a goods issue. If a goods issue hasn't yet been posted, then the cost of completion for the activity is calculated from the planned costs of the component. The period for the planned costs determination is based either on the requirements date, if this is after the cost forecast key date, or, if not, on the cost forecast key date. The estimated costs at completion for the component correspond to the cost to complete. If a goods issue has been posted for a component, then the cost forecast first calculates the difference between the planned quantity and the quantity issued and then calculates the cost to complete for the open quantity. In this case, the estimated costs at completion are equal to the total of the actual costs and the cost to complete.

5.8.1 Prerequisites for and Restrictions of the Cost Forecast

It's only useful to use the cost forecast if you use networks and WBSs. The networks must be activity assigned and must be both appended and apportioned (i.e., planning networks used solely for planning purposes are ignored). Moreover, only the CO version 0 values of costing-relevant activities that are assigned to a WBS element are considered.

The cost to complete for project stock-related material components can't be calculated as part of the cost forecast. Only plant stock-related stock items are included in the cost forecast calculation, whereas the planning data of WBS elements is ignored in the cost forecast. However, the commitment costs and actual costs of the WBS elements are copied, together with the

values of the assigned networks, into the forecast version and can therefore be taken into account when calculating the estimated costs at completion.

To update the cost to complete and copy the commitments and actual costs, you require a forecast version, which you must specify when you execute the cost forecast. Version 110 is available by default. However, you can also create your own CO versions in Customizing for the cost forecast (see [Chapter 2, Section 2.4](#)), which must then have the exclusive usage **Forecast Costs**.

To factor in date changes due to confirmations, it usually makes sense to execute rescheduling before the cost forecast. The cost of completion is then calculated on the basis of your current time scheduling. Before you execute the cost forecast, you should also have executed the overhead calculation for the commitment values and actual values so that all commitments and actual costs are copied into the forecast version. However, you don't have to manually execute a planned application of overhead because planned overheads are automatically calculated as part of the cost forecast.

5.8.2 Executing and Evaluating the Cost Forecast

You can use Transactions CJ9L and CJ9M to execute a cost forecast. In addition to selecting the objects and selecting process control, you also enter the key date for calculating the cost of completion and the forecast version. When you execute the cost forecast, the system calculates the cost of completion for the selected objects based on the key date and copies this cost of completion to the forecast version. The system also copies the commitments and actual costs to the forecast version so that they can be used to calculate the estimated costs at completion.

[Figure 5.27](#) shows an example of the result of a cost forecast (as you can see, only the result of an individual activity of a project is displayed in the detailed list of the cost forecast). In this example, planned costs are shown for an internal processing activity for periods **10** to **11**. Due to a partial confirmation in period **10** and the forecasted remaining duration in the confirmation, the cost forecast also calculates a cost to complete for period **12**. In addition, due to the forecasted remaining work, the estimated costs at completion differ significantly from the planned costs.

The screenshot shows the SAP Cost Forecast: Value List interface. The table displays a hierarchy of cost elements for project E-2016. The columns are: Period, PYear, CElem, Plan costs, Actual costs, Commitment, Updated res.cst, and Updt'd ovrl costs. The data is organized into several levels of detail, including summary rows and detailed rows for specific periods and cost elements.

Period	PYear	CElem	Plan costs	Actual costs	Commitment	Updated res.cst	Updt'd ovrl costs
* 014302 0010 E-2016			14,175.01	1,000.00	0.00	17,010.00	18,015.00
* 014302 0020 E-2016							
10	2022	020000	5,000.00	800.00	0.00	1,650.00	2,450.00
10	2022	052200	250.00	0.00	0.00	82.50	82.50
10	2022	055300	1,050.00	0.00	0.00	345.50	345.50
10	2022	055400	787.50	0.00	0.00	250.00	250.00
11	2022	020000	5,000.00	0.00	0.00	5,775.29	5,775.29
11	2022	052200	250.00	0.00	0.00	288.81	288.81
11	2022	055300	1,050.00	0.00	0.00	1,213.00	1,213.00
11	2022	055400	787.50	0.00	0.00	909.75	909.75
12	2022	020000	0.00	0.00	0.00	5,773.80	5,773.80
12	2022	052200	0.00	0.00	0.00	288.80	288.80
12	2022	055300	0.00	0.00	0.00	1,212.50	1,212.50
12	2022	055400	0.00	0.00	0.00	909.37	909.37
* 014302 0020			14,175.00	800.00	0.00	18,711.00	19,513.00
** 014302			28,350.01	1,800.00	0.00	35,721.00	37,521.00

Figure 5.27 Result of a Cost Forecast

The forecast (12CTC1) hierarchy report (Transaction CJE0) is available as standard for analysis of the cost to complete and the commitments and actual costs at the time of the cost forecast. Because the values are calculated by cost element, however, you can also define your own cost element reports to evaluate the cost forecast (see [Chapter 6, Section 6.2.2](#)).

[AT A GLANCE] Determination of Further Period-Based Project Key Figures

Using results analysis, incoming order calculations, and cost forecasting, you can perform period-end revaluations of your projects' accounting data and determine additional metrics such as capitalizable costs and reserves, new orders and backlog, and updated remaining and total costs.

5.9 Settlement

In general, project structures serve only as temporary cost objects. In other words, the costs that are posted during the execution phase of a project are typically allocated to one or more other receivers as part of the period-end closing; that is, they are *settled*. The costs are allocated to various receivers in accordance with the purpose of the settlement. The following list describes some examples of project settlement:

- **Settlement to profitability analysis**
You can use the results analysis to calculate inventory costs or reserves for a project, for example ([Section 5.6](#)). The settlement of these analyzed costs to profitability analysis means that the information is made available to profitability analysis for detailed enterprise controlling while automatic adjustment postings can be made concurrently in financial accounting.
- **Settlement to asset accounting**
For investment projects, cost portions—which can or must be capitalized—can be settled to AuC or completed assets. In asset accounting, you can then use these values for relevant depreciations, for example.
- **Settlement to cost centers**
When you settle the costs of projects to cost centers, you can use these values in cost center accounting, for example, for price calculation.

In addition to the preceding settlement receivers, you can also settle project costs to other orders, projects, cost objects, sales order items, or general ledger accounts, for example, depending on your enterprise controlling requirements. You use *settlement rules* to determine which portions of which costs can be settled to which receivers with which amounts. These rules must be defined in the relevant senders, that is, in WBS elements or network activities, for example.

Although settlements are generally only executed for actual data of projects, you can also settle planning data to cost centers, business processes, or (if

you've previously executed a planned results analysis) to profitability analysis for plan-integrated WBS elements. Then you can use the planning data in cost center accounting or activity-based costing for planned price calculation, for example. Planning data belonging to projects that aren't plan-integrated can also be transferred to the results analysis without settlement. This occurs via a *planning data transfer* from WBS elements with a results analysis key.

5.9.1 Prerequisites for Project Settlements

Various prerequisites must be fulfilled in Project System Customizing and in the master data of the relevant projects before project settlements can be executed.

For the costs of a WBS element, network header, or activity to be settled, a settlement rule must be defined in the relevant object. A settlement rule consists of control parameters—in particular, a *settlement profile*—and between 1 and 999 *distribution rules*. [Figure 5.28](#) shows an example of the distribution rules of a WBS element.

Cat	Settlement Receiver	Receiver Short Text	%	Equivalence No.	Settlement Type	Source Assignment	No.	From Period	From Fiscal Yr	To Period	To Fiscal Yr
CTR	SAP-OLWBV	SAP dummy	100,00		PRE	BES	1				
CTR	SAP-OLWBV	SAP dummy	100,00		PRE	LEI	2				
FRK	4000000045-0	Assembly	100,00	0	RUC		3	0		0	
FRK	1000000030-0	Q1.Rv/D4.01		1	FUL	WRT	4				

Figure 5.28 Distribution Rules of a Settlement Rule

In a distribution rule, you have to first define the settlement receiver. You can also execute settlements to various receivers by creating several distribution rules within a settlement rule. The settlement profile determines which settlement receivers can be used in the settlement rule.

Next, you can define which portions of the costs are to be settled to the settlement rules receiver. Costs can be distributed as a *percentage*, using *equivalence numbers*, or by *amount*. With a settlement by amount, the amount rule category determines whether the specified amount is to be

settled periodically or whether the amount simply represents the upper limit for all settlements. In the first case, a negative balance may occur in the object due to the settlement by amount, whereas in the second case, only the actual debit's settled periodically as a maximum.

In addition, costs are often supposed to be distributed among various receivers based on the specific cost elements. To do this, you can define a *source assignment* in a distribution rule (depending on the parameters of the settlement rule), which refers to a cost element interval or cost element group. The distribution rule then only applies to debits for these cost elements. This means that debits, which can or must be capitalized, can be settled to asset accounting while the other cost portions are settled to cost centers for investment projects, for example. In asset accounting, valuation areas can be used to make a further distinction between cost portions that can or can't be capitalized based on the purpose of the valuation if required. The system posts portions of a valuation area that can't be capitalized as nonoperating expenses.

The settlement type of a distribution rule controls additional details of the settlement to the receiver. The following settlement types are available:

- **PER (periodic settlement)**
During settlement, only the costs of the relevant settlement period are settled in accordance with the settlement rule.
- **FUL (full settlement)**
With full settlement, both the costs of the settlement period and the unsettled costs from previous periods are settled.

For investment projects, that is, for WBS elements with an investment profile, the following additional settlement types are also available:

- **AUC (capitalization of AuCs)**
This settlement type is used to settle the costs of WBS elements to AuCs. Distribution rules for the **AUC** settlement type can't be created manually. Instead, they are automatically created during the first settlement, provided that an AuC exists for the WBS element.
- **PRE (preliminary settlement)**
Distribution rules for the **PRE** settlement type are used for

settlement before the distribution rules for settlement type **AUC**. With settlement type **PRE**, you can therefore settle cost portions that aren't to be capitalized.

If necessary, you can also enter a validity period for distribution rules, which is taken into account when settlement is executed. After a distribution rule is used in a settlement, only the end date of the validity period can be changed.

The parameters for the settlement rule essentially consist of the settlement profile, an allocation structure, and, if necessary, a source and profitability analysis transfer structure. You must define all of these profiles in advance in the Customizing settings.

The settlement profile (see [Figure 5.29](#)) is the central profile for settlement.

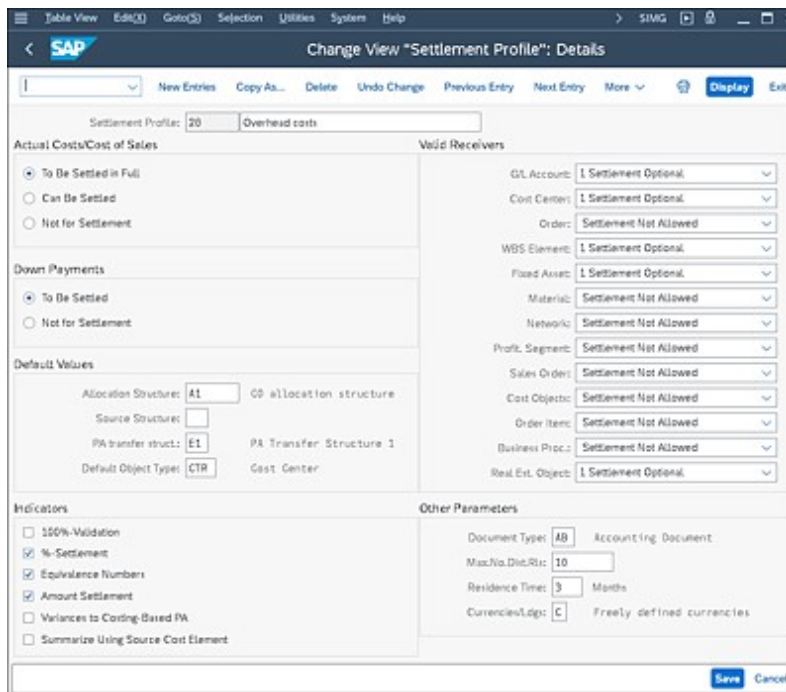


Figure 5.29 Definition of a Settlement Profile

In a settlement profile, you define, for example, which receiver types can or must be used in the settlement rule and how costs are to be distributed. By setting the **To Be Settled in Full** indicator, you ensure that an object can only be completed or flagged for deletion if its balance is zero. In addition to other control indicators, you can also define default values for the other profiles of the parameters of a settlement rule in a settlement profile.

The allocation structure (also referred to in some cases as *settlement structure* in Customizing) determines which (source) cost elements are to be settled under which (settlement) cost elements to the relevant receiver types. An allocation structure therefore consists of one or more assignments. Each assignment refers to source cost elements (i.e., an interval of cost elements or a cost element group under which debits may be posted) and to settlement cost elements (see [Figure 5.30](#)) under which the debits can be allocated during settlement.

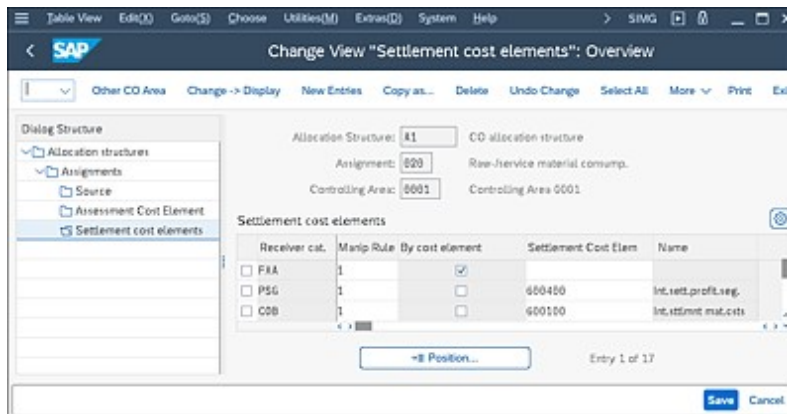


Figure 5.30 Defining the Settlement Cost Elements in an Allocation Structure

Settlement cost elements are defined on the basis of the individual settlement receivers. If necessary, the source cost elements can be retained during the settlement to the receivers. To do this, set the **By cost element** indicator for the relevant receiver types in the allocation structure. For performance reasons, a settlement using a smaller number of settlement cost elements is often preferred to a settlement by cost elements.

[!] Definition of Allocation Structures

When defining an allocation structure, note that the structure includes all source cost elements under which debits may be posted and that each of these source cost elements may appear only once within the allocation structure.

A source structure consists of one or more source assignments. An assignment includes the debit cost elements that are to be settled in accordance with the same distribution rules during settlement. When you enter a distribution rule, you can restrict its validity to the cost elements in a

source assignment by specifying this assignment. In the example shown previously in [Figure 5.28](#), all costs of the **BES** and **LEI** source assignments are settled to a cost center, whereas all other costs are settled to the AuC or the completed asset.

You only require a profitability analysis transfer structure as part of project settlement if you want to settle costs to profitability analysis. Because data in the results analysis has a reference to value fields, you use the profitability analysis transfer structure to determine which cost elements are to be assigned to which value fields. You have to create one or more assignments in a profitability analysis transfer structure for this purpose. Each assignment refers to source cost elements (a cost element interval or cost element group) and to a value field. If necessary, you can also define various value fields within an assignment for fixed and variable portions.

[!] Defining Profitability Analysis Transfer Structures

If you execute a results analysis before project settlement to profitability analysis, then you must ensure that the profitability analysis transfer structure incorporates all relevant results analysis cost elements.

There are various options for creating settlement rules for WBS elements and network headers or activities. You can define the settlement profile and thus also all relevant settlement parameters as default values for WBS elements in the project profile for networks in the network type. If the same distribution rules are to be used for all WBS elements and, if necessary, for all networks in a project, then you can define these distribution rules at the project definition level when you create the project (with or without a template). When you save, this settlement rule is accepted by all WBS elements and, depending on the settings in the network parameters, by the assigned networks. When you create new WBS elements or networks for the project, the settlement rule from the project definition is also copied to these elements or networks.

Another efficient method for creating settlement rules for WBS elements and networks is to use strategies to determine settlement rules.

Figure 5.31 shows the definition of a strategy to generate a settlement rule for WBS elements. You can use this strategy to determine the settlement profile, the results analysis key (Section 5.6.1), and the receivers of the settlement rule. The receivers are also defined by specifying the account assignment category in the strategy.

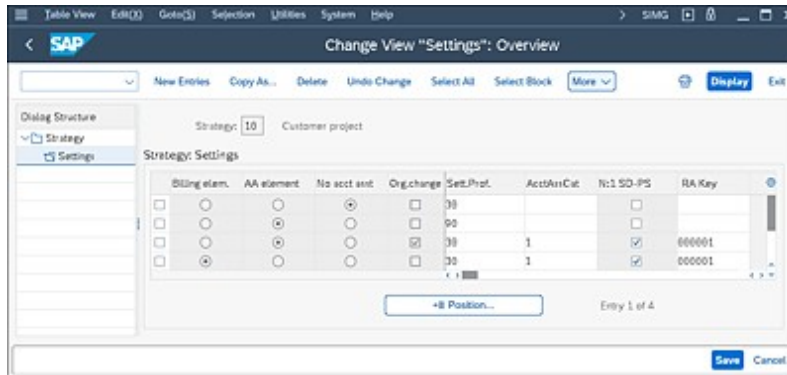


Figure 5.31 Definition of a Strategy for Generating Settlement Rules for WBS Elements

The following account assignment categories can be used when defining a strategy:

- **Blank: No receiver**
No distribution rule is generated.
- **1: Profitability segment**
A distribution rule is created for a profitability segment in profitability analysis. The characteristic values in this case are derived from the WBS element and the sales document items that are assigned to the WBS element. If several sales document items are assigned to a WBS element, then the indicator **N:1 SD-PS** in the strategy determines whether a settlement rule is to be generated.
- **2: Requesting cost center**
A distribution rule is generated with the **Cost Center** receiver type. The system copies the requesting cost center of the WBS element as the receiver cost center.
- **3: Responsible cost center**
A distribution rule is generated with the **Cost Center** receiver type. The system copies the responsible cost center of the WBS element as the receiver cost center.

- **4: Copy rule from higher-level object**
The WBS element copies the settlement rule of the higher-level WBS element or the project definition.

[+] Copy Rule from Higher-Level Object

If the copy rule from higher-level object option is used, then a settlement rule is only generated by default if the WBS element didn't previously have a settlement rule. However, you can also use a BAdI to pass on settlement rules to WBS elements with existing settlement rules.

You can define the determination of the account assignment category, the settlement profile, and, if necessary, the results analysis key separately within a strategy for billing elements, account assignment elements, and WBS elements that prohibit billing or account assignment. In addition, the **Org.change** indicator allows you to determine that the settings you make are only valid if the current WBS element and the object that is directly above this in the hierarchy differ in their assignment to a company code, business area, or profit center.

When you've defined a strategy in Project System Customizing settings, you must assign this setting to the relevant project profiles. Finally, you must generate the settlement rules for WBS elements. To do this, access Transactions CJB2 (Individual Processing) or CJB1 (Collective Processing), select the relevant objects, and execute settlement rule generation. The system uses the project profile to determine the relevant strategy, generates settlement rules (if possible), and, if necessary, generates results analysis keys for the selected WBS elements.

You can use a BAdI for greater control of the generation of settlement rules in Transactions CJB1 or CJB2. For example, you can adjust the determination of strategies to meet your own requirements or restrict the selection of sales document items for customer projects. You can then display additional information about the generation of the settlement rules in a log and, if necessary, in a detailed list.

[+] Avoiding Generated Settlement Rules

Note that automatic generation of settlement rules with Transactions CJB1 or CJB2 isn't possible for investment projects. If you also want to prevent the generation of settlement rules for other WBS elements, then you can define a user status that prevents the **Automatically Generated Settlement Rules (SRGN)** business process. This has no effect on the manual creation of settlement rules.

For WBS elements, you can also influence the settlement profile, source structure, profitability analysis transfer structure, and allocation structure using suitable substitutions (see [Chapter 1, Section 1.8.4](#)). For example, you can very easily define different settlement scenarios for investment and noninvestment WBS elements within a project without much manual adjustment effort. You can also use validations to define your own consistency checks for these settlement parameters depending on the master data of WBS elements and thus avoid errors during settlement (see [Chapter 1, Section 1.8.5](#)).

You can also define strategies to determine settlement rules for networks in the Customizing settings. In a strategy for a network, you define the sequence in which the system should execute various types of strategies to determine settlement rules (see [Figure 5.32](#)). You can use the following types of strategies to determine which settlement rules to use:

- **Manual maintenance of settlement rule**
- **Automatic generation of settlement rule**
- **Generate settlement to WBS element**
- **Copy settlement rule of the WBS element**
- **Copy settlement rule of the project definition**
- **No settlement rule**

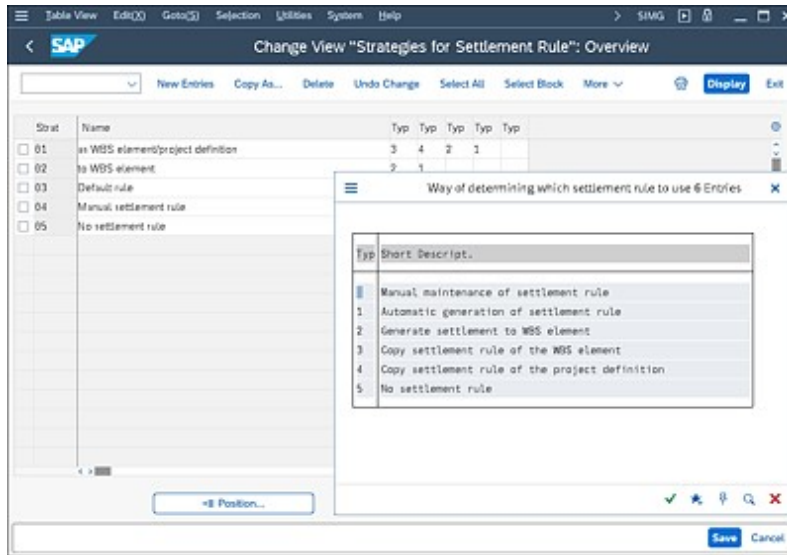


Figure 5.32 Defining Strategies for Generating Settlement Rules for Networks

With the **Automatic generation of settlement rule** type, the system uses a *default rule* as a settlement rule. You define which rule is to be used in **Parameters for Network Type**. The default rules provided are preconfigured by SAP and can't be changed. One possible default rule for networks is **Network: To Sales Ord./WBS Element**, which results in a settlement to an assigned sales order item or a WBS element.

You also define the strategy that is to be used to determine settlement rules for networks in **Parameters for Network Type**. However, in contrast to WBS elements, you don't have to execute any additional transactions to generate the settlement rules for networks using strategies.

Sometimes, it doesn't make sense to enter default distribution rules in the project definition or to generate settlement rules automatically. You must then manually create distribution rules for the relevant operational objects. To do this, you can navigate from the object master data to distribution rule maintenance (see [Figure 5.28](#)) and, if necessary, from there to maintenance of the settlement parameters. As soon as a settlement rule exists for an object, it's documented for the object as system status **SETC** (settlement rule created).

You can use report **RKASELRULES_PR** for an overview of the settlement rules of projects. On the initial screen of this report, you use selection variants to determine which projects are to be analyzed. If necessary, you

can use details of the settlement parameters and settlement receivers as additional selection criteria. After you execute the report, it returns a table listing the distribution rules of the selected object. You can then navigate to the master data of the sender and receiver or to the settlement rules display.

Furthermore, the new Transaction CNSETTLRULE (Overview of Project Settlement Rules) is also available for cross-project evaluation. It allows you to analyze details of the settlement rules together with master data of the project elements in a table and to branch to further details if required (see SAP Note 2316217).

5.9.2 Executing Project Settlements

For individual and collective processing of project settlements, you can use Transactions CJ9E or CJ9G for planned settlement and Transactions CJ88 or CJ8G for actual settlement in Project System.

[Figure 5.33](#) shows the initial screen for individual processing of actual settlement for a project.

The screenshot displays the SAP transaction screen for 'Actual Settlement: Project/WBS Element/Network'. The interface includes a menu bar at the top with options like 'Settlement', 'Edit(X)', 'Goto(S)', 'Extras(O)', 'Environment', 'System', and 'Help'. Below the menu, there are navigation buttons for 'More' and 'Exit'. The main area contains several input fields: 'Project' (with value 'E-2616'), 'WBS Element', and 'Network'. There are also checkboxes for 'With hierarchy' and 'With orders'. A 'Parameters' section includes 'Settlement Period' (10), 'Fiscal Year' (2022), 'Posting Period', and 'Asset Value Date'. A 'Processing Options' section has 'Test Run' checked, 'Detail List', and 'Check Trans. Data'. A 'Layouts' button is also present. At the bottom right, there is an 'Execute' button.

Figure 5.33 Initial Screen of the Actual Settlement of a Project

In addition to selecting the relevant objects and specifying process control, you define the period for which you want the settlement to be executed on

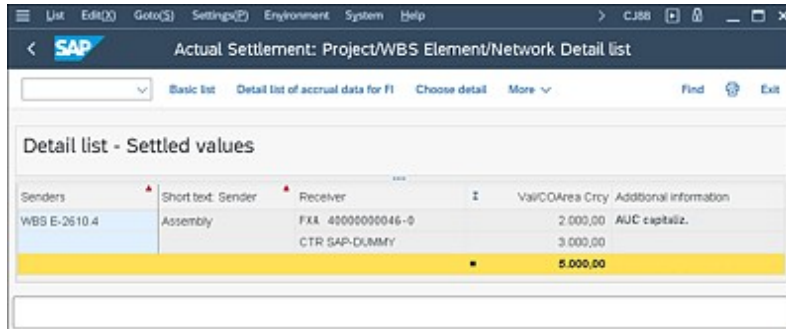
the initial screen. Depending on the settlement type of the relevant distribution rules, the settlement either takes account of debits from the specified settlement period only or factors in costs from previous periods. If the settlements aren't to be posted to the settlement period, for example because this period is already locked against posting—then you can specify a later period as the posting period, provided that this is still in the same fiscal year as the settlement period.

On the initial project settlement screen, you also enter a **Processing Type**, which controls additional details of the settlement process. The following processing types are typically used:

- **1: Automatic**
With this processing type, distribution rules with settlement type **PER** are executed before settlement rules with settlement type **FUL**. For investment projects, settlements to assets with settlement type **FUL** are only taken into account after the relevant WBS elements are completed.
- **2: By Period**
With this processing type, only distribution rules with settlement types **PER**, **PRE**, and **AUC** are taken into account. Settlement to AuCs will be carried out last.
- **3: Partial Capitalization**
With this processing type, distribution rules for assets with settlement type **FUL** are used if the WBS element isn't completed.
- **4: Full Settlement**
This processing type is used for settlement rules with distribution rules of settlement type **PER** only to check whether a balance still exists in the object after settlement due to debits in previous periods. If so, the system issues an error message, and you must execute settlement for the previous periods first.

Finally, if you also want to settle data from project-related incoming orders to the results analysis as part of settlement, then you can use the two processing types **Project-Related Incoming Orders** and **Automatically Include Incoming Orders**.

When you execute project settlement, you can then analyze the result in a basic list and, depending on the process control settings, in a detailed list (see [Figure 5.34](#)). You can navigate from the detailed list to the display of the sender and receiver master data or to the display of the settlement rules if necessary. If errors occurred during the execution, for example, because the status of an object prevented settlement or settlement rules were missing—then you can display the relevant messages.



The screenshot shows the SAP interface for 'Actual Settlement: Project/WBS Element/Network Detail list'. The window title is 'SAP Actual Settlement: Project/WBS Element/Network Detail list'. Below the title bar, there are navigation options: 'Basic list', 'Detail list of accrual data for F1', 'Choose detail', and 'More'. There are also 'Find' and 'Exit' buttons. The main content area is titled 'Detail list - Settled values' and contains a table with the following data:

Senders	Short text: Sender	Receiver	Val/COArea Crcty	Additional information
WBS E-2610.4	Assembly	FXA 4000000046-0	2.000,00	AUC capitaliz.
		CTR SAP-DUMMY	3.000,00	
				5.000,00

Figure 5.34 Detailed List of an Actual Settlement

You can repeat project settlement for the same period any number of times. In this case, the system only takes into account the postings that have been made since the last settlement. You can also cancel settlements in individual and collective processing; however, a cancellation run only cancels the most recent settlement. If, for example, you executed several settlements for a period and now want to cancel project settlement for the entire settlement period, then you must execute several cancellation runs.

5.9.3 Settlement of Investment Projects

For investment projects, you must take into account several special features regarding project settlement. If you assign an investment profile to a WBS element, the system may (depending on the investment profile settings) automatically generate one or more AuCs when the WBS element is released. Data belonging to the WBS element, such as the name or the requesting cost center, is copied to the AuC. You define investment profiles in investment management Customizing using Transaction OITA (see [Figure 5.35](#)).

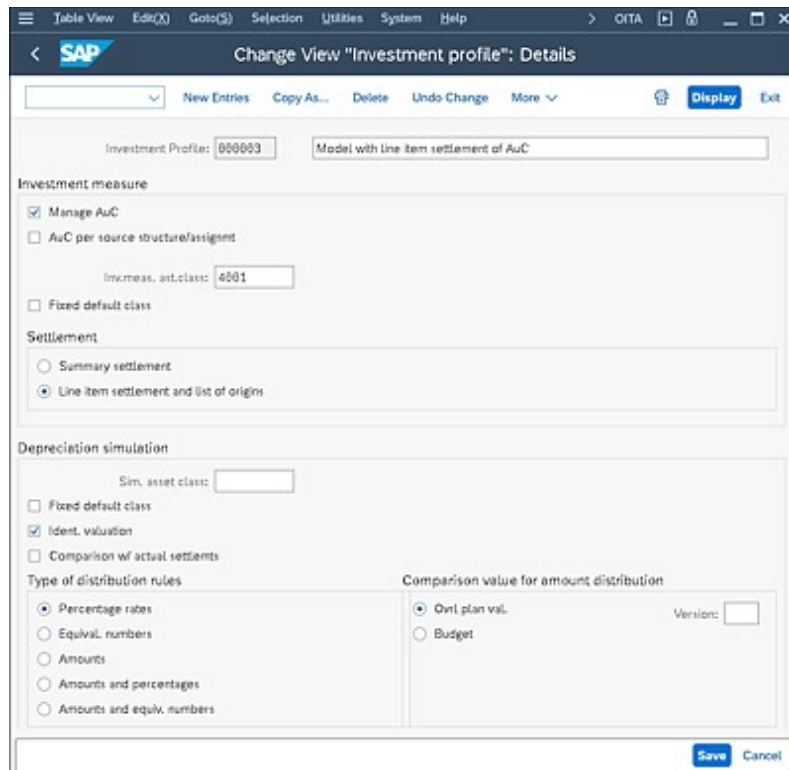


Figure 5.35 Definition of an Investment Profile

With the first settlement of the WBS element, the system automatically generates a distribution rule for settlement type **AUC** for settlement to the assigned AuC. If you don't want to settle all costs of the WBS element to this AuC, then you must manually enter additional distribution rules for the debits to other receivers that aren't to be capitalized. Use settlement type **PRE** to ensure that these distribution rules are taken into account before settlement to AuCs as part of project settlement. You can use an appropriate source structure to distinguish between the cost portions that are to be capitalized and those that aren't, as shown earlier in [Figure 5.28](#).

Once the AuC phase is completed, create a completed asset. You can do this in the asset accounting transactions or directly when maintaining the WBS element. Next, define a distribution rule in the WBS element with settlement type **FUL** for the cost portions to be capitalized, and enter the completed asset as the settlement receiver. Note, however, that this distribution rule is only taken into account in the project settlement if you've selected **Partial Capitalization** or **Automatic** as the processing type and completed the relevant WBS elements—in other words, if you've set the system status to **TECO**.

When the WBS elements have been completed, the debits that have been settled to the AuCs are automatically reposted to the completed assets at the same time that the full settlement to the asset takes place. However, other debits can still be posted to the WBS elements. The relevant cost portions are then settled to the asset as part of the next project settlement.

You can also execute line item settlement for investment projects, provided that this is permitted by the investment profile. With line-item settlement, you can create a separate, specific distribution rule for each debit posted (i.e., for each line item). Therefore, an exact data origin can be determined for each line item, from the completed asset to the original debit account assigned to the investment project. You can also define a general settlement rule in addition to your line-item settlement rules. The system then uses this rule for all line items for which no separate settlement rule has been assigned. You can enter line-item distribution rules in Transaction CJIC.

Although *direct settlements* are generally used for sales and distribution projects or overhead cost projects, *multilevel settlement* may be useful for investment projects. With direct settlements, the sender objects settle their debits to the relevant receivers directly. With a multilevel settlement for investment projects, you first settle all costs to the WBS elements with an investment profile and then settle all debits from these WBS elements to AuCs, assets, and other receivers. The system uses the settlement rules to automatically determine whether a direct settlement or a multilevel settlement should be executed in each case. This means that you only need to execute one settlement run, even in the case of a multilevel settlement. This multilevel settlement of investment projects may be necessary especially if you use assigned networks or orders without an investment profile because these can't automatically settle their costs to AuCs. Multilevel settlement may also be useful if you want to archive and delete assigned orders during the AuC phase of projects lasting several years. For reasons of traceability, this isn't possible if you settle the orders to AuCs directly.

If you use multilevel settlement, look at the dependencies explained in the next section. You should also note the special features related to the interest calculation for investment projects ([Section 5.5](#)).

5.9.4 Project Settlement Dependencies

To ensure that a project settlement can take into account all debits belonging to a period, you must first execute all relevant period-end closing activities. In particular, you must execute the overhead allocation and template allocation. If you use revaluation at actual prices, interest calculation, and results analysis, then you should also execute these period-end closing activities before project settlement. A settlement must be executed before and after revaluation in certain cases ([Section 5.2.3](#)). If you determine project-related incoming orders ([Section 5.7](#)), then you must execute a separate settlement of this data based on the processing type you use for settlement.

Consider the particular problems associated with the hierarchically aggregated display of values in the Project System reports after a multilevel project settlement. To ensure that no incorrect data is displayed in a WBS element in the structure overview or in hierarchy reports after a multilevel settlement (see [Chapter 6](#), [Section 6.1](#) and [Section 6.2.1](#)), the system executes an *elimination of internal business volume*. An elimination of internal business volume means that the system generates internal allocation records that remove the settlements posted in a WBS element. Consequently, no duplicate actual costs from settlement and from the aggregation of values are displayed for this WBS element.

To ensure that values can be displayed correctly in the structure overview and in hierarchy reports with the elimination of internal business volume, note the following points in relation to multilevel settlement:

- Always settle the WBS elements to higher-level WBS elements that are directly above them in the hierarchy and not to lower-level WBS elements or to WBS elements that are several levels higher.
- Always settle assigned network headers, activities, and orders to the assigned WBS element.
- Don't subsequently change the hierarchical position of the settled objects.

For more details about the elimination of internal business volume after multilevel settlement, see SAP Note 51971.

5.10 Summary

Project System comprises a range of functions that help you make adjustment postings based on changed actual prices, applications of overhead, and interest calculations as part of period-end closing for your projects. With the results analysis and determination of project-related incoming orders, you can calculate additional key figures and make these available for enterprise controlling. The cost forecast provides information about the expected cost to complete and costs at completion for your projects and also takes into account the forecast data from confirmations. Finally, you can use project settlement to allocate the costs and revenue data for your projects to other receivers in the SAP S/4HANA system.

6 Reporting

Flexible and clear reporting of all project-related data is integral to project management. Project System provides accounting and logistics reports of different levels of detail for this very purpose.

To monitor and control projects, you need reports that enable you to provide information about the current cost, revenue, schedule, and capacity situation of your projects. For this reason, different standard reports are available via reporting in Project System. If required, you can customize these reports or define your own reports. Reporting in Project System is roughly divided between **Project Information System: Structures** and **Project Information System: Financials**. Other reports are also available for special logistical evaluations and for analyzing project progress as well as overview and object page apps for SAP Fiori-based analyses of master data. This chapter will describe the different evaluation options you can use in Project System. In addition to the reporting options presented here, you can also use other, special analysis tools.

Companies using SAP Business Warehouse (SAP BW) for reporting purposes can access predefined business content for Project System. This business content includes, for example, various extractors, update rules, characteristics and indicators, InfoCubes, queries, and roles.

You can find details about the content for Project System in the SAP Library for BI Content under the following keywords:

- **Product Lifecycle Management • Program and Project Management**
- **SAP ERP Central Components • Financials • Controlling • Overhead Cost Controlling • Overhead Cost Projects**

SAP Analytics Cloud is another option that can be used not only for planning projects (see [Chapter 2, Section 2.4.8](#)) but also for analyzing project data. Using the OData services of Project System (see [Appendix A](#)) and, if required, services and content from other applications, you can define and use your own reports in SAP Analytics Cloud according to your requirements. The data to be analyzed can remain in the original system (live connection) or be replicated to SAP Analytics Cloud.

[+] Further Information about SAP Analytics Cloud

You can find more information on SAP Analytics Cloud in *SAP Analytics Cloud* by Abassin Sidiq (SAP PRESS, 2022), available at <https://www.sap-press.com/5415>.

6.1 Project Information System: Structures and Overview Apps

The focus of **Project Information System: Structures** is on evaluating master data, schedules, and statuses of project objects; however, it can also show cost and revenue data. In **Project Information System: Structures**, you differentiate between the structure or project overviews and individual overviews. Whereas individual reports only allow you to evaluate one document or object type at a time (i.e., only work breakdown structure [WBS] elements or only activities), you can use the structure/project structure overview to evaluate several object types simultaneously. Before we describe the structure/project structure overview and individual overviews in more detail, we'll first deal with the data selection that is common to all reports of **Project Information System: Structures** (and also **Project Information System: Financials**).

[Figure 6.1](#) shows the initial screen of a report in **Project Information System: Structures** in Project System. You can determine areas in the selection area of the initial screen for which you want to evaluate data. These areas include individual values or whole intervals of project definitions, WBS elements, networks and orders, and so on. You can use indicators to

specify whether the data you want to select from the database for your evaluation is data of operational objects or data of versions, standard structures, or previously archived objects.

The *database profile* that you use influences the appearance of an initial screen and the selection options available there, but it especially influences the selection of data. You can assign a database profile as a parameter value for the **PDB** parameter ID in the user master data (Transaction SU01) or as a default value in a *PS info profile*. If the database profile allows this, you can make changes to the database profile temporarily when you call a report, or you can select a different database profile.

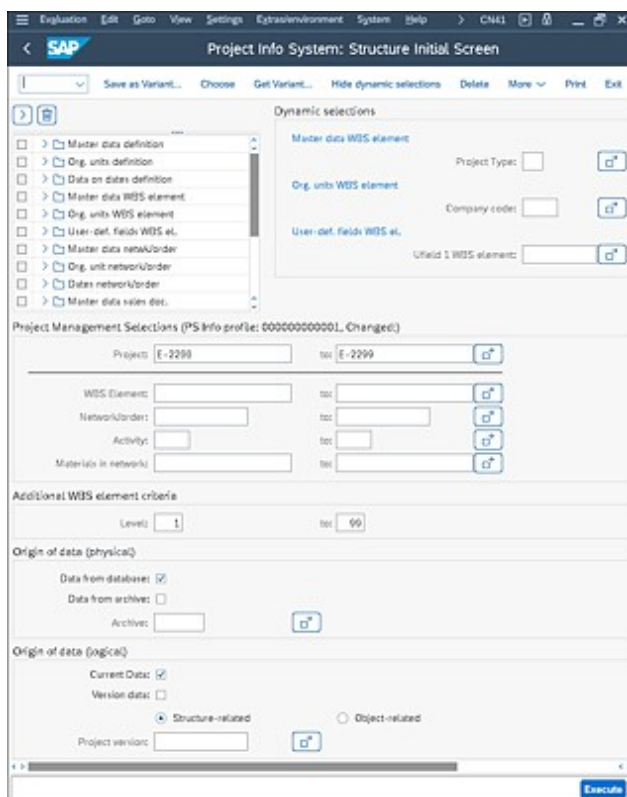


Figure 6.1 Initial Screen of the Structure Overview with an Active Dynamic Selection

[Figure 6.2](#) illustrates how a database profile is defined in Customizing Transaction OPTX. You can use the database profile to specify which objects and data are to be read from the database and which project view should be used to define how that data is displayed in the report in accordance with the project structure or arranged on the basis of the project cost centers responsible, for example. SAP Note 423830 contains a detailed

description of the different indicators for a database profile and their interdependencies.

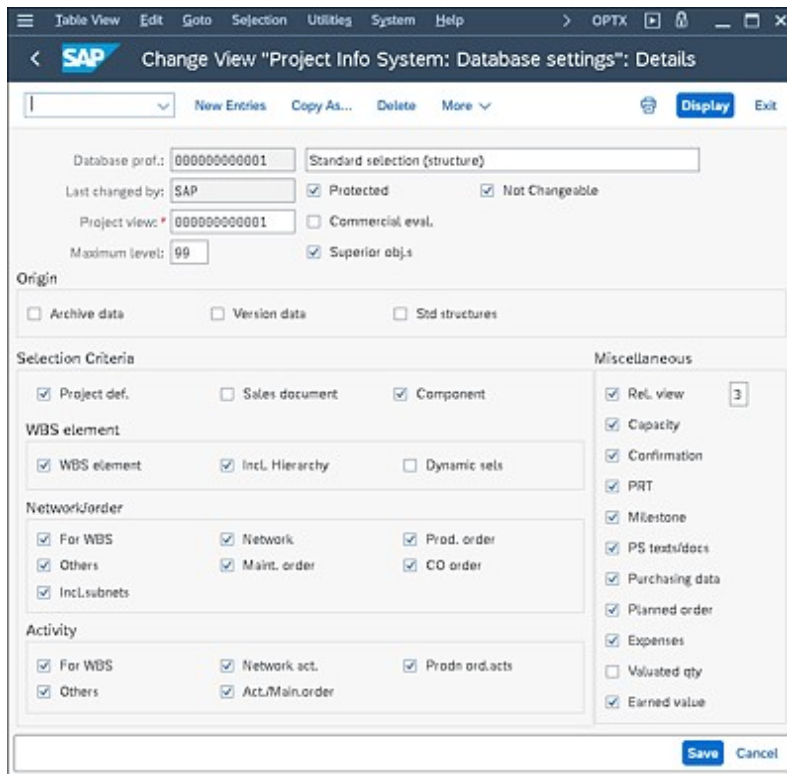


Figure 6.2 Defining a Database Profile

You can use *dynamic selection* and *status selection profiles* to further restrict the object selection you made in the initial screen of a report. [Figure 6.2](#) shows a dynamic selection of the object selection according to the project type, the company code, and a user field of WBS elements. The specifications in dynamic selections act as filters for selecting objects from the database. With a suitable dynamic selection, you can reduce the amount of data selected and thereby influence the performance of the evaluation considerably. You can define which fields should be available for the dynamic selection. To do this, you need to create a selection view for the PSJ logical database with the CUS origin in Transaction SE36. Note that the definition of your own selection view for the dynamic selection is cross-client.

In addition to the field values of dynamic selection, you can also use statuses as filter criteria for selecting objects. To do this, you must first define a status selection profile in the Customizing section of Project System using

Transaction BS42. You store different rows consisting of system or user statuses in a status selection profile (see [Chapter 1, Section 1.6](#)). You can use NOT, AND, or OR conditions for each row to specify how you want the combination of these statuses to be used as a filter. In the initial screen of a report, you can then select the status selection profile for the different object types as an additional restriction for selecting data from the database.

[+] **Dynamic Selection Using Status Combination Codes**

You can use status combination codes (see [Chapter 1, Section 1.6](#)) as an alternative to status selection profiles as filter criteria in the dynamic selection process when selecting objects. Because status combination codes are stored in the master data of project objects instead of a separate database table—as is the case with the actual statuses—using status combination codes as filter criteria instead of status selection profiles leads to a considerable increase in system performance during object selection processes in reporting.

If you made a more complex selection in the initial screen of a report, then you can save this selection as a *selection variant*. When you then call the report again at a later time and want to make the same selection, you don't have to enter all the selection criteria again manually. Instead, you only need to select the selection variant you saved.

[!] **Properties Data Selection**

You generally can't select any other data from the database within the evaluations. In other words, your data selection determines which data is available for the evaluation. Similarly, you can't further restrict the amount of data selected within the report; instead, you can only influence the display of this data by using field selections or filter functions. This means that the data selection you make in the initial screen of a report also influences the performance of the evaluation considerably.

You can also save the data of **Project Information System: Structures** reports as *selection versions*. When you call a report, you can then decide

whether you want to select the current data from the database or the data of a selection version for the evaluation. You can create any number of selection versions and, if required, assign them a validity period. If the data sets for evaluation are very large, then you can also schedule the creation of a selection version in the initial screen of a report as a background job. In this case, the system could automatically execute the data selection at night, for example. When creating a selection version, you can specify a number of days after which the system is to delete the version automatically. You can also delete the selection versions manually.

In addition to using the database profile to control the data selected, you can use the **Project View** field of the database profile to determine the hierarchy that will be used to display data when you call hierarchically arranged **Project Information System: Structures** and **Project Information System: Financials** reports. Some of the following project views are delivered in the standard system:

- Project structure
- Profit center
- Cost centers
- Investment programs
- Sales view
- Characteristics hierarchy from summarization ([Section 6.4](#))

You can also create your own project views for predefined hierarchy types in Customizing Transaction OPUR. In addition, you can use a customer enhancement to define a hierarchy structure for project views for hierarchy type 99.

[+] Project View Properties

You can't select any more data from the database in the project view. Instead, you can only define how the data in the information system will be displayed. The data in structure reports is hierarchically displayed most effectively when you use the project structure as a project view.

For more information about data selections in the reports of Project System, also refer to SAP Notes 107605 and 700697.

6.1.1 Structure/Project Structure Overview

You can use the *structure overview* and *project structure overview* to simultaneously evaluate the data of all project objects and orders, as well as the sales documents assigned to them (customer inquiries, customer quotations, and sales orders).

Structure Overview

[Figure 6.3](#) shows the evaluation of a project in the structure overview (Transaction CN41). The display of data and different functions of this report are determined by a *PS info profile* that you can either assign to users using the *PFL* parameter ID or manually select when you call the report. The PS info profile is essentially an overall profile in which several subprofiles are combined. Some PS info profiles and all required subprofiles are delivered in the standard system. You can also define your own PS info profiles using Transaction OPSM in the Customizing section of Project System or branch directly to the editing area of lower-level profiles from a PS info profile.

Task	Project object	Object type	Finish	Project cost, sdt. 000	Actual costs	Mark (A)	Status
0	E-2610	Project definition	05.05.21 02.12.21	357.214,70 EUR	28.695,00 EUR	66,0 H	PREL // STAS
0	E-2610	WBS element	05.05.21 02.12.21	357.214,70 EUR	28.695,00 EUR	66,0 H	PREL PCDF SCPT NSCH
0	00000000305	Milestone	14.11.21 14.11.21				
0	00000000362	Milestone	08.05.21				
0	4164286	Network	05.04.21 21.11.21	9.200,00 EUR	14.365,00 EUR	45,0 H	ACAS WABC PCDF PRC
0	4164286 0010	Int. Processed Act	21.11.21 21.11.21	7.200,00 EUR	14.365,00 EUR	45,0 H	CMP WDFP REL SETC
0	00000000306	Milestone	21.11.21 21.11.21				
0	FuncDesc	PS text					
0	4164286 0020	General Costs Act	21.11.21	2.000,00 EUR	0,00 EUR		WDFP PCDF REL SETC
0	E-2610.1	WBS element	05.01.21 02.12.21	57.565,00 EUR	12.330,00 EUR	21,0 H	PREL
0	E-2610.2	WBS element	08.02.21	181.310,70 EUR	0,00 EUR	0,0 H	CRFD
0	E-2610.3	WBS element	05.04.21	100.179,00 EUR	0,00 EUR	0,0 H	CRFD NSCH STUP
0	E-2610.4	WBS element	05.05.21	0,00 EUR	0,00 EUR		CRFD NSCH

Figure 6.3 Evaluating a Project in the Structure Overview

[Figure 6.4](#) illustrates how a PS info profile is defined. You can use the fields in the **Action selection** section of the PS info profile to specify which action

you want the system to execute when you double-click on an object or data field in the report. Possible actions might include branching to the display, changing the object, or displaying the long text or change documents for the object. The **Structure Overview** profile in the PS info profile controls how the structure overview is displayed. This profile contains lower-level profiles that define the display, sorting, grouping, filtering, and highlighting by colors of objects (exceptions) and indicators that determine how the data is aggregated and displayed.

You can change many of the settings in the report itself:

- You can use a field selection to determine which fields are displayed.
- You can click to change the sequence of field columns and their width.
- You can define filters and, if required, sorting, grouping, and summarization criteria or determine whether you want the values to be displayed in aggregated or non-aggregated format. Grouping, sorting, and summarization are only possible in the structure overview if you remove the hierarchical display of objects.
- You can also define specific exceptions in the report using traffic lights or colored highlighting, for example, to indicate that planned dates have been overrun or to emphasize objects with special characteristics.

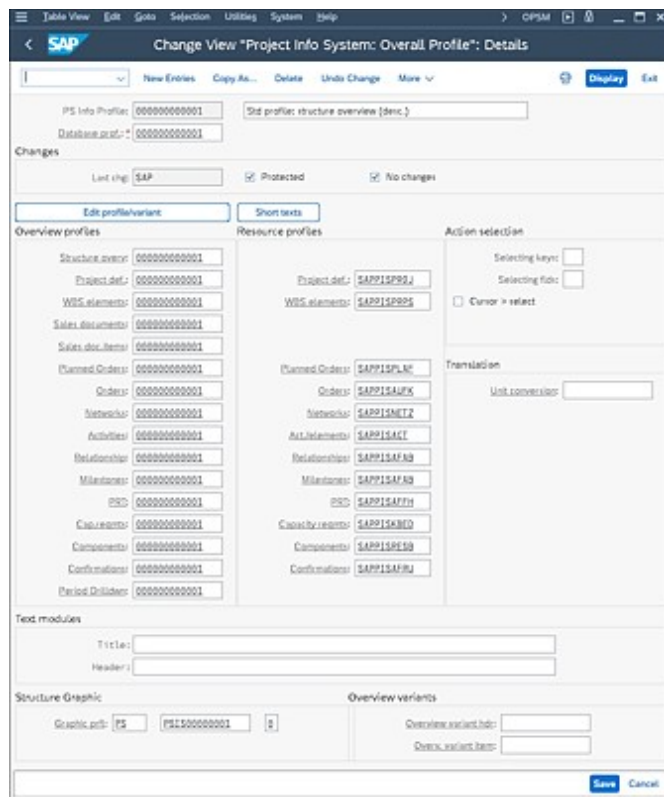


Figure 6.4 Defining a PS Info Profile

If the PS info profile or the corresponding subprofiles allow this, you can save changes that you made in the report as changes in the Customizing profiles and also generate new profiles in the report.

In addition to the different options you can use for adjusting data in the report and printing report data, you can use the following functions in the structure overview:

- Display, change, mass change, and create objects
- Confirm activities, create and send pools of confirmations
- Perform availability checks for material components
- Update data (refresh)
- Graphically display data as structure, network, Gantt chart, and portfolio graphics or display total curves and histogram displays
- Send report data, and export the data into Microsoft Excel format
- Use periodic displays of costs, commitments, or revenues

- Branch to individual overviews, **Project Information System: Financials** reports, or logistical reports, such as capacity reports or reports for displaying reservations, purchase requisitions, or purchase orders for a selected object

To better compare data with each other (e.g., planned quantities or amounts with the actual values), you can also select difference columns in the structure overview and display the difference as absolute amounts or percentages. When you evaluate project or simulation versions in the structure overview, you can also compare the version data and the operative data row by row.

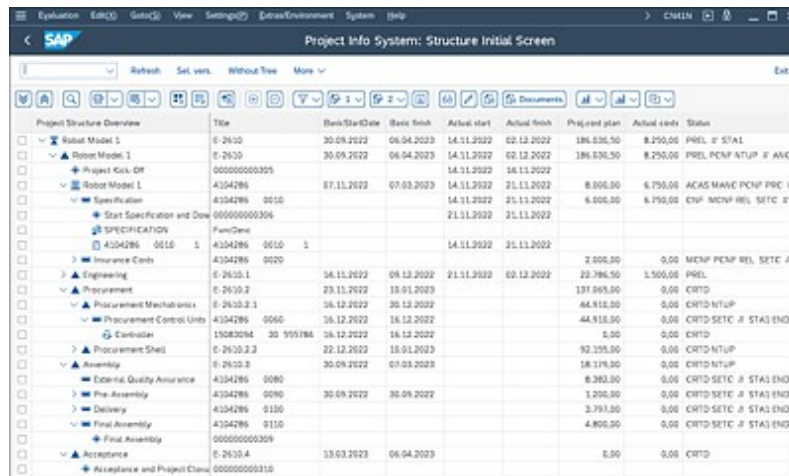
[+] Using Structure Overviews

Due to the wide range of functions of the structure overview, the option to evaluate structure, schedule, and controlling data of all project-related objects simultaneously and, in particular, to branch to the editing area of all objects, the structure overview of some companies is used as the main transaction for managing projects.

Project Structure Overview

Just as in the structure overview, in the project structure overview (Transaction CN41N), you can simultaneously evaluate data for project definitions, WBS elements, assigned networks and orders, and different sales documents. Whereas the interface of the structure overview is based on a classic display, the SAP List Viewer (ALV) interface is used to display objects and data in the project structure overview (see [Figure 6.5](#)).

The advantage of the interface of the project structure overview is that you can make changes to the selection of columns and their sequence and width easily and then save these changes as *layouts*. You can save as many layouts as you wish and later select which layout you want to use to display the data. When you save a layout and set the **User-Specific** indicator for this layout, only you can select or change this layout; otherwise, all users would be able to use your layout. If you identify a layout as an initial layout, then this layout is used instead of the standard layout the next time you call the report.



The screenshot displays the SAP Project Info System: Structure Initial Screen. The main area shows a 'Project Structure Overview' table with columns for Title, Basic Start Date, Basic Finish, Actual Start, Actual Finish, Project Plan, Actual Costs, and Status. The table lists various project components such as Robot Model 1, Insurance Costs, Engineering, Procurement, and Assembly, each with associated dates and financial values.

Title	Basic Start Date	Basic Finish	Actual Start	Actual Finish	Project Plan	Actual Costs	Status
Robot Model 1	E-2630	30.09.2022	06.04.2023	14.11.2022	02.12.2022	186.520,50	8.250,00 PREL # STA1
Robot Model 1	E-2630	30.09.2022	06.04.2023	14.11.2022	02.12.2022	186.520,50	8.250,00 PREL PCNF ATUP # ANC
Project Kcs, DF	000000000305			14.11.2022	16.11.2022		
Robot Model 1	4304286	0610	07.11.2022	07.03.2023	14.11.2022	31.11.2022	8.900,00 6.750,00 ACAS MAHC PCNF PRC
Specification	4304286	0610			14.11.2022	31.11.2022	8.900,00 6.750,00 ENP MDNF REL SETC #
Start Specification and Dev	000000000306				21.11.2022	31.11.2022	
SPECIFICATION	FunCms						
4304286 0610	4304286 0610			14.11.2022	31.11.2022		
Insurance Costs	4304286	0020				2.000,00	0,00 MENP PEMP REL SETC #
Engineering	E-2630.1	14.11.2022	09.12.2022	21.11.2022	03.12.2022	22.784,50	1.500,00 PREL
Procurement	E-2630.2	23.11.2022	10.01.2023			131.065,00	0,00 CRTD
Procurement Mechanisms	E-2630.2.1	16.12.2022	30.12.2022			44.910,00	0,00 CRTD NTUP
Procurement Control Units	4304286	0060	16.12.2022	16.12.2022		44.910,00	0,00 CRTD SETC # STA1 END
Control Unit	19083094	30 995786	16.12.2022	16.12.2022		0,00	0,00 CRTD
Procurement Shell	E-2630.2.3	22.12.2022	10.01.2023			92.125,00	0,00 CRTD NTUP
Assembly	E-2630.3	30.09.2022	07.03.2023			18.179,00	0,00 CRTD NTUP
External Quality Assurance	4304286	0080				8.382,00	0,00 CRTD SETC # STA1 END
Pre-Assembly	4304286	0090	30.09.2022	30.09.2022		1.200,00	0,00 CRTD SETC # STA1 END
Delivery	4304286	0100				3.793,00	0,00 CRTD SETC # STA1 END
Final Assembly	4304286	0110				4.800,00	0,00 CRTD SETC # STA1 END
Final Assembly	000000000309						
Acceptance	E-2630.4	13.03.2023	06.04.2023			0,00	0,00 CRTD
Acceptance and Project Close	000000000310						

Figure 6.5 Evaluating a Project in the Project Structure Overview

The project structure overview, nevertheless, has nowhere near the range of functions that the structure overview has to offer. The following list identifies the functions of the project structure overview:

- Display with or without hierarchy tree
- Print preview and print current view or the complete hierarchy
- Filter functions
- Display and change objects, display long texts
- Refresh data
- Graphically display data as structure or network graphics
- Export data, for example, as a file to XLS in DOC, RTF, TXT, HTML, or HTM formats

[+] Object Currency in the Structure and Project Structure Overview

By means of a customer enhancement, you can release the display of accounting data in the object currency in the structure and project structure overview as well as in the project planning table and the evaluation of the progress analysis. As a result, all relevant fields are available not only in the controlling area currency but also in the respective object currency and can be added accordingly to the layout of reports or to field selection. The aggregation of data in the object

currency only takes place as long as the object currency is uniform within the structure.

6.1.2 Individual Overviews

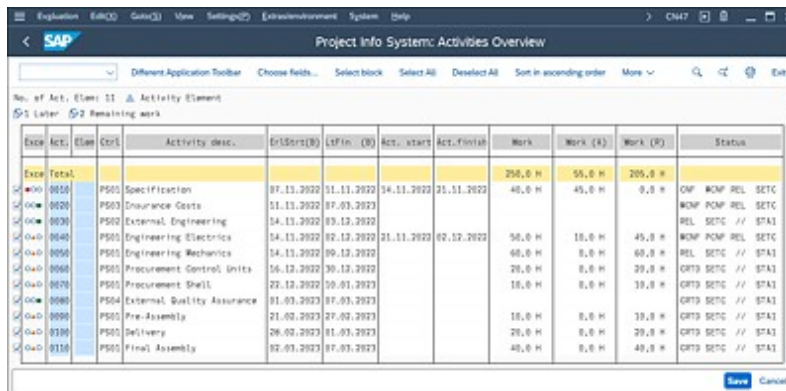
You can use individual overviews to evaluate data for individual documents or object types. As with the structure and project structure overviews, two different interfaces are also available for you to use with the individual overviews. You can use enhanced individual overviews that are based on a classic display of data or you can also use ALV-based individual overviews for your evaluation purposes.

The following individual overviews are all available in **Project Information System: Structures** (the transaction codes shown here refer to the enhanced and ALV-based overviews):

- Project Definitions (Transactions CN42/CN42N)
- WBS Elements (Transactions CN43/CN43N)
- Planned Orders (Transactions CN44/CN44N)
- Orders (Transactions CN45/CN45N)
- Networks (Transactions CN46/CN46N)
- Activities/Elements (Transactions CN47/CN47N)
- Confirmations (Transactions CN48/CN48N)
- Relationships (Transactions CN49/CN49N)
- Capacity Requirements (Transactions CN50/CN50N)
- Production Resources and Tools (Transactions CN51/CN51N)
- Material Components (Transactions CN52/CN52N)
- Milestones (Transactions CN53/CN53N)
- Sales Documents (Transactions CNS54/CN54N)
- Sales Document Items (Transactions CNS55/CN55N)
- Change Documents for Project/Network (Transaction CN60)

Contrary to the individual overviews, the partner overview (Transaction CNPAR), which you can use to analyze the partners (see [Chapter 2, Section 1.2](#)) for project definitions and WBS elements, is only available as an ALV-based report; compared to the individual overviews, the ALV-based partner overview has an extremely limited range of functions and only a few Customizing options.

The way the data is displayed in the enhanced individual overviews is based on the PS info profile and the lower-level profiles. [Figure 6.6](#) shows the evaluation of activities using the enhanced Transaction CN47 (Activities/Elements) individual overview. The enhanced individual overviews essentially contain the same functions as in the structure overview ([Section 6.1.1](#)). However, unlike the structure overview, no cost, revenue, budget, or commitment data is shown in the individual overviews; nevertheless, you can branch to the reports of **Project Information System: Financials** from an individual overview if required.



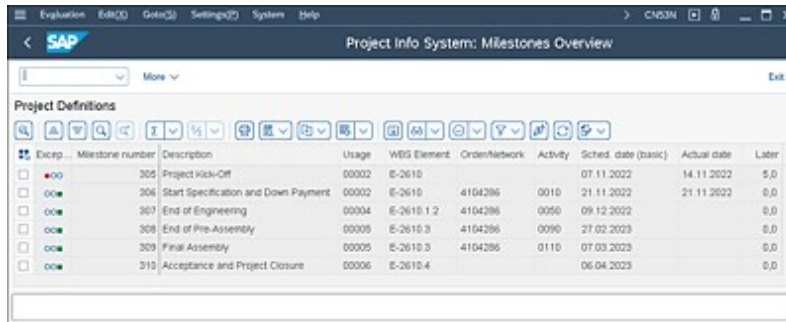
Exec	Act.	Elem	Ctrl	Activity desc.	GrStots(B)	LtFin. (B)	Act. start	Act. finish	Work	Work (A)	Work (P)	Status
Exec	Total								250,0 H	55,0 H	205,0 H	
0000	0050	PS05		Specification		07.13.2022	11.11.2022	14.11.2022	40,0 H	45,0 H	0,0 H	OMP WOMP REL SETC
0000	0020	PS03		Insurance Costs		11.13.2022	07.03.2023					WOMP PCMP REL SETC
0000	0030	PS02		External Engineering		14.13.2022	03.12.2022					REL SETC // STAI
0000	0040	PS05		Engineering Electronics		14.13.2022	02.12.2022	21.11.2022	50,0 H	10,0 H	40,0 H	WOMP PCMP REL SETC
0000	0050	PS05		Engineering Mechanics		14.13.2022	09.12.2022		60,0 H	0,0 H	60,0 H	REL SETC // STAI
0000	0060	PS05		Procurement Control Units		16.12.2022	30.12.2022		20,0 H	0,0 H	20,0 H	GRTS SETC // STAI
0000	0070	PS05		Procurement Shell		22.12.2022	10.01.2023		10,0 H	0,0 H	10,0 H	GRTS SETC // STAI
0000	0080	PS04		External Quality Assurance		01.03.2023	07.03.2023					GRTS SETC // STAI
0000	0090	PS05		Pre-Assembly		21.02.2023	27.02.2023		10,0 H	0,0 H	10,0 H	GRTS SETC // STAI
0000	0100	PS05		Delivery		28.02.2023	01.03.2023		20,0 H	0,0 H	20,0 H	GRTS SETC // STAI
0000	0110	PS05		Final Assembly		02.03.2023	07.03.2023		40,0 H	0,0 H	40,0 H	GRTS SETC // STAI

Figure 6.6 Enhanced Individual Overview

[Figure 6.7](#) shows the evaluation of the milestones ALV-based individual overview. Just as with the project structure overview, you can customize the interface very easily and save and manage this as layouts ([Section 6.1.1](#)).

Compared to the project structure overview, however, you have many more Customizing options available with individual overviews. Some of these options include sorting, direct display in Microsoft Excel, different display options (column optimization, striped pattern, etc.), or the formation of totals, subtotals, mean values, or exceptionally high or low values. Similar to the enhanced individual overviews, you can also use filters and exceptions to

export data in different file formats, display or change objects, and update the displayed data.



The screenshot shows the SAP Project Info System: Milestones Overview. It displays a table with the following data:

Discp...	Milestone number	Description	Usage	WBS Element	Ordn/Network	Activity	Sched. date (basic)	Actual date	Later
<input type="checkbox"/>	305	Project Kick-Off	00002	E-2610			07.11.2022	14.11.2022	5,0
<input type="checkbox"/>	306	Start Specification and Down Payment	00002	E-2610	4104286	0010	21.11.2022	21.11.2022	0,0
<input type="checkbox"/>	307	End of Engineering	00004	E-2610.1.2	4104286	0050	09.12.2022		0,0
<input type="checkbox"/>	308	End of Pre-Assembly	00005	E-2610.3	4104286	0090	27.02.2023		0,0
<input type="checkbox"/>	309	Final Assembly	00005	E-2610.3	4104286	0110	07.03.2023		0,0
<input type="checkbox"/>	310	Acceptance and Project Closure	00006	E-2610.4			06.04.2023		0,0

Figure 6.7 ALV-Based Individual Overview

However, ALV-based individual overviews don't offer all the functions available in enhanced individual overviews. For example, you can't send the data of these individual overviews to other users by SAP mail; you can't create any new objects; and from **Project Information System: Financials**, you can only assign hierarchy reports (drilldown reports), not cost element reports, to the individual overviews. In addition, some settings are deleted when you refresh the data. The SAP Library and SAP Note 353255 contain detailed information about the functions and restrictions of ALV-based individual overviews.

6.1.3 Overview Apps

In addition to the SAP GUI-based individual overviews, the following SAP Fiori overview apps are also available for evaluating master data of various objects in Project System (see also [Chapter 1, Section 1.1.3](#)):

- Project Definition Overview (F1976)
- WBS Element Overview (F1974)
- Network Overview (F1973)
- Network Activity Overview (F1970)
- Milestone Overview (F1975)
- Material Component Overview (F1971)
- Project Claim Overview (F6497)

The overviews are based on SAP Fiori element list reports, which provide a uniform structure and set of functions. [Figure 6.8](#) shows the WBS element overview, which will now be explained in more detail as an example.

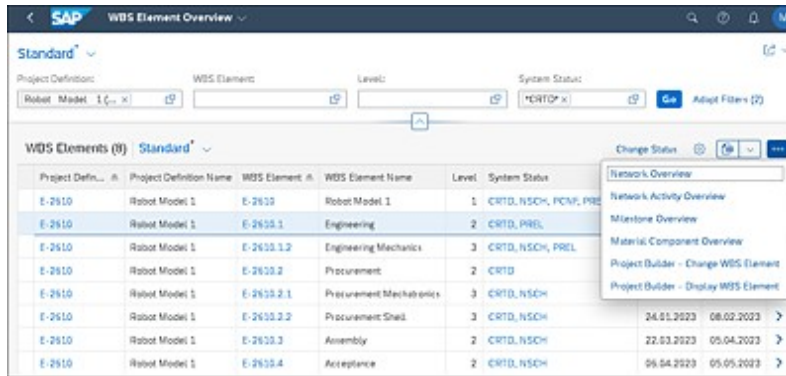


Figure 6.8 Example of an SAP Fiori Overview App

In the filter area, you can limit the list of WBS elements by entering suitable master data fields according to your requirements. In addition to fields such as the identification of WBS elements or projects, organizational assignments, or user fields, you can also use the status information as a filter. You can save your filter settings as views and thus speed up access to regularly needed information.

In the table section, the WBS elements are displayed in a flat list. Using the settings, you can define the selection and order of columns, sorting and grouping, as well as other filters. You can also save these settings as views. If required, you can export the list for further use in spreadsheets, for example.

In addition, various navigation options are available. The **Details** icon at the end of each row takes you to the object page of the object, where you can evaluate the data of the object itself as well as assigned objects, if applicable (see also [Chapter 1, Section 1.1.3](#)). Fields such as the **Project Definition** in the list are implemented as links that allow you to navigate to the object's object page, other SAP Fiori apps, or transactions related to the object.

If you've selected a WBS element in the list, you can also navigate to other overview apps, such as Network Activity Overview. The WBS element is passed on as a filter, so that only the activities assigned to the WBS element are displayed.

Finally, depending on the overview app, you may be able to perform actions for a selected object. For example, for a selected WBS element, you can go directly to the SAP Fiori app to change the WBS element status.

For technical information about implementing the overviews, such as the required catalogs and roles, see the SAP Fiori apps reference library.

[+] **Core Data Services**

SAP Fiori-based reports are based on core data services (CDS). CDS allow you to create complex data models directly at the database level, enabling you in particular to take advantage of the SAP HANA database. Using released CDS views from Project System, accounting, and other applications, you can also create your own reports according to your requirements.

[AT A GLANCE] **Project Information System: Structures and Overview Apps**

The structure or project structure overview in **Project Information System: Structures** provides a hierarchical overview of both logistics and controlling data for your projects and assigned objects. Individual overviews are used for an evaluation of individual object types in tables with the focus on master data, statuses, and logistical information. You can flexibly adapt the reports in **Project Information System: Structures** and use various functions for detailed analyses or also for editing objects. SAP Fiori overview apps additionally provide a very simplified, user-friendly, browser-based way to evaluate the master data of project objects.

6.2 Project Information System: Financials

You can use **Project Information System: Financials** reports to evaluate planned and actual costs, commitments, budget values, and payments. The reports are differentiated by hierarchy, cost element, and line-item reports. These three report types each differ in the functions available for displaying and evaluating data, in the data that can be evaluated, and especially in the level of detail that you can use for your evaluations.

For a direct evaluation of planned and actual costs from accounting tables `ACDOCP` and `ACDOCA` (see [Chapter 2, Section 2.4.8](#); and [Chapter 4, Section 4.2](#)), SAP Fiori-based reports and analytical apps are also available in Project System and accounting. The different report types are explained in the following sections.

The common factor for all the **Project Information System: Financials** reports is that, as with the structure reports, you must define the amount of data to be read from the database. You do this in the initial screen using the selection screen, dynamic selection, status selection profiles, and particularly the database profile ([Section 6.1](#)).

Depending on the report, however, you can also specify other selection criteria, such as fiscal years, periods, CO versions or cost element intervals, or groups in the initial screen of **Project Information System: Financials** reports. You can save selections that are more complex in the form of selection variants that you can use when you call reports at a later stage. When you select large sets of data, you can also execute the reports in the background.

6.2.1 Hierarchy Reports

Hierarchy reports are based on drilldown reporting functions in the SAP S/4HANA system and can therefore also be described as *drilldown reports*. Table `RPSCO` is the project information database in which you save all project-related controlling and payment data summarized as *value*

categories, forms the basis for evaluations using hierarchy reports. You must implement some settings in the SAP S/4HANA system before you use hierarchy reports for the first time in Project System.

Prerequisites for Using Hierarchy Reports

Value categories are groupings of cost elements or commitment items ([Section 6.2.5](#)). Value categories aren't just required for evaluations using hierarchy reports but are also needed for calculating interest on projects (see [Chapter 5, Section 5.5](#)). You need to define suitable value categories and assign these categories to all the relevant cost elements and commitment items even before you perform postings on projects.

You can use Transaction OPI1 to define value categories. In addition to a key and short text, you specify the debit type for each value category, for example, costs and outgoing payments or revenues and incoming payments. You can then use Transactions OPI2 and OPI4 to assign cost element intervals/groups or commitment item intervals to the value categories. You can run a consistency check on your assignments using Transaction CJVC.

You can also use value categories to update quantity information in project information database table `RPSQT`. You can then use this quantity information for evaluations in progress reports of Project System, for example (see [Chapter 4, Section 4.7.2](#)). To enable quantities to be updated in this database, in addition to the debit type, you must also have assigned a unit of measure to the relevant value categories.

Instead of creating value categories manually and assigning all relevant cost elements and commitment items in advance, you can set the **Automatic Value Categories** indicator in the update control of project information database table `RPSCO`. This indicator causes a separate value category with the same name to be created automatically for each newly posted cost element or commitment item; however, you should note that creating value categories automatically can negatively affect performance when you post data (due to the high number of value categories that may be created) and evaluate data.

[+] [Defining Value Categories](#)

For performance reasons, we recommend that you combine several cost elements or commitment items in value categories; however, in this case, you can't evaluate data at the level of individual cost elements or commitment items using hierarchy reports. If you subsequently change the assignments for value categories, then you must reconstruct the project information database using Transaction CJEN.

SAP currently delivers different standard hierarchy reports for evaluating costs, budgets, revenues, project results, and forecast data or payments that you can import from client 000 using Customizing Transaction CJEQ if necessary. You can also define your own hierarchy reports depending on your requirements. A customer enhancement is also available for making your own adjustments. Before we explain the different functions that you can use within hierarchy reports for evaluating project data, we'll address the technical principles of hierarchy reports first for clarification purposes.

Principles of Hierarchy Reports

You can use two different interfaces (output types) to evaluate data using hierarchy reports: a *graphical report output* and the display as a *classic drilldown report*. Depending on the report definition, the output type is fixed or can be selected manually in the initial screen of the report. You'll usually use classic drilldown reports if you require high performance for evaluating large data sets. You'll use the graphical report output especially if you want to display different list types simultaneously or if you want to use your own HTML templates for the report header.

[Figure 6.9](#) shows the graphical report output of the standard Plan/Actual/Commitment/Rem.Plan/Assigned report. The data displayed in a hierarchy report is based on *characteristics* and *key figures*. Characteristics are object, period and fiscal year, value category, currency, results analysis category (see [Chapter 5, Section 5.6](#)), and business transaction. The data of project information database table `RPSCO` can differ according to the different values of these characteristics. The relevant combinations of characteristic values in the data set also have specific values. These data values (i.e., planned, budget, commitment, costs, revenue, and financial values, and possibly the values calculated from these values in a report using formulas) are called key figures.

The screenshot shows the SAP 'Execute Drilldown Report' interface. The report title is 'Plan/Actual/Commitment/Rem. Plan/Assigned'. The current data is for 21.11.2022 13:42:34. The table displays a hierarchy of data with columns for Plan-Overall, Actual-Overall, Commitment-Overall, Residual Plan-Overall, Assigned-Overall, and Available-Overall. The data is organized into a tree structure with expandable nodes.

Navigation	Object	Plan-Overall	Actual-Overall	Commitment-Overall	Residual Plan-Overall	Assigned-Overall	Available-Overall
Object	Robot Model 1	178.031	3.500	0	178.531	178.031	0
Period/Year	Engineering	WBS 0-2610.1	22.787	3.500	0	21.287	22.787
Project def.	Engineering Electric	WBS 0-2610.1.1	13.787	3.500	0	12.287	13.787
Val. category	Engineering Mechanics	WBS 0-2610.1.2	9.000	0	0	9.000	9.000
Object type	Procurement	WBS 0-2610.2	137.065	0	0	137.065	137.065
Business function	Procurement Mechabio	WBS 0-2610.2.1	46.910	0	0	46.910	46.910
	Procurement Shell	WBS 0-2610.2.2	92.155	0	0	92.155	92.155
	Assembly	WBS 0-2610.3	18.179	0	0	18.179	18.179
Result		178.031	3.500	0	178.531	178.031	0

Figure 6.9 Graphical Report Output of a Hierarchy Report

[+] Residual Order Plan Key Figure

The residual order plan is calculated at the WBS element level when you call the report and results from the total of the apportioned planned values of assigned orders or networks minus their actual and commitment values (however, this value that is calculated for each order is only factored in the total if the value is positive).

A *form* and an assigned *report definition* control how the data (i.e., characteristics and key figures) is displayed in a hierarchy report. You can't use ad hoc reports (i.e., reports without a form) in Project System. You use a form for the **Two Axes (Matrix)** form type to control the basic structure of rows and columns in a report.

You differentiate between displays in the form of to list types: a *detail list* and a *drilldown list*. [Figure 6.10](#) shows an example of how a detail list of the **12KST1C** standard form is defined. In the detail list of this example, different values of the fiscal year characteristic are used as rows, and key figures are displayed as columns. A global variable is used to define the rows here. Fixed values and values calculated based on formulas are used as key figures. For more details about controlling the values displayed in columns, see [Section 6.2.2](#).

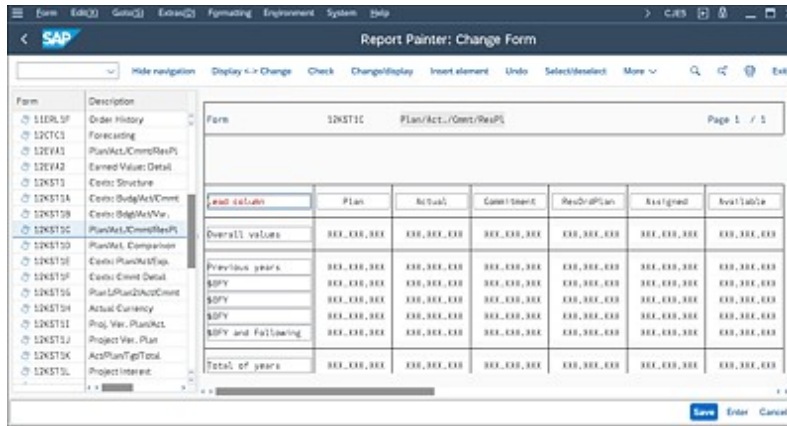


Figure 6.10 Defining a Detail List of a Form

Figure 6.11 shows an example of a drilldown list for the 12KSTC1 form. This drilldown list displays characteristics and their values flexibly as rows, whereas the columns are formed by key figures for different characteristic values of the fiscal year characteristic. The fiscal year here is again defined by a variable.

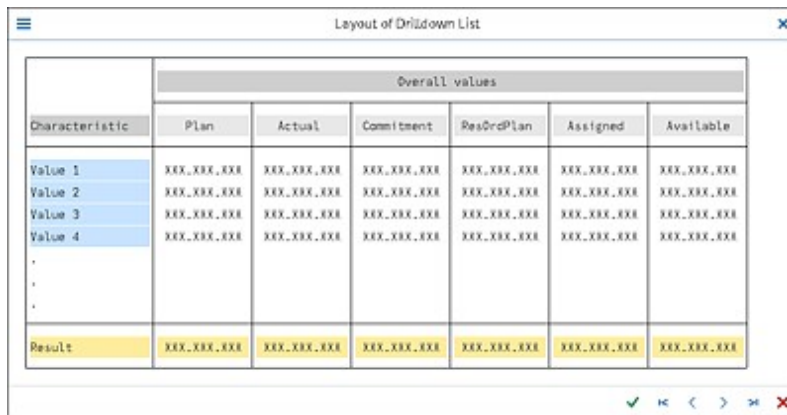


Figure 6.11 Defining a Drilldown List

[+] Evaluating Versions in Hierarchy Reports

Note that you can only evaluate data from project or simulation versions in a hierarchy report if you selected the version key characteristic in the general selections of the corresponding form.

A form only defines the general structure of the detail and drilldown lists of a hierarchy report; however, the report definition that was created with reference to the form determines its contents. For this reason, the report

definition specifies which characteristics can be used for the evaluation (the object characteristic is always included in this case). You can store fixed values in the report definition or make entries in the initial screen of the report for local variables that are used in the form. Settings for the output type and other different display options are also specified in the report definition. [Figure 6.12](#) shows the report definition for the 12KST1C form.

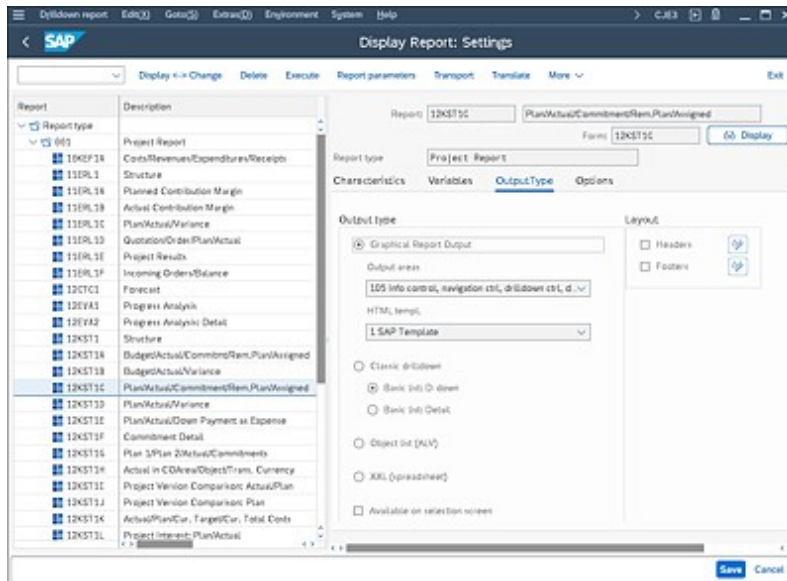


Figure 6.12 Report Definition of a Hierarchy Report

Hierarchy reports also allow you to branch to other hierarchy, cost element, or line-item reports of Project System for more detailed evaluations. The corresponding report-report interfaces must be set up for this under the **Report Assignment** menu path in the Customizing section of Project System. You can import report-report interfaces for the standard reports from client 000 or define your own report assignments. Note that you can only branch to reports of the same level of detail or to more detailed reports. For example, you can't branch to a hierarchy report from a line-item report.

[+] Creating Your Own Hierarchy Reports

If you want to create your own hierarchy report, you must first create a suitable form and then a report definition for this form. In this case, we recommend that you use the standard forms and report definitions as templates. If required, you can also set up your own suitable report-report interfaces.

You can use Transactions CJE4, CJE5, and CJE6 to create, change, and display forms. You can edit forms using *Report Painter* functions (see also [Section 6.2.2](#)). You can use Transactions CJE1, CJE2, and CJE3 to create, edit, or display report definitions. In Transaction CJE0, you can execute user-defined hierarchy reports directly. You can also integrate your reports into the SAP menu or user menus.

Evaluations Using Hierarchy Reports

The drilldown list of a hierarchy report was shown earlier in [Figure 6.9](#) in which different cost data for the different project objects is displayed in aggregated format. The characteristics assigned to the report definition are displayed in the navigation area. Instead of evaluating the key figures for the object characteristic, you can also select another characteristic for a drilldown from the navigation area. For example, you can display the distribution of the values to the different value categories or for the period or fiscal year.

When you switch a drilldown, you can either drill down through all the values displayed in the report to a different characteristic, or you can select a specific characteristic value and only do a drilldown switch (Drilldown) for the values of this characteristic value. We can illustrate this using the example shown earlier in [Figure 6.9](#). Very high (aggregated) planned costs are shown at the level of the **Procurement** WBS element. You now only want to evaluate the values of this WBS element further and therefore drill down to the **Period/Year** characteristic for the **Procurement** WBS element. You'll notice that the highest planned costs of the WBS element are shown for period 12. To determine the value categories that the planned costs of the **Procurement** WBS element are distributed to in period 12, you drill down to the **Val.category** for this period. [Figure 6.13](#) shows the results of this double drilldown.

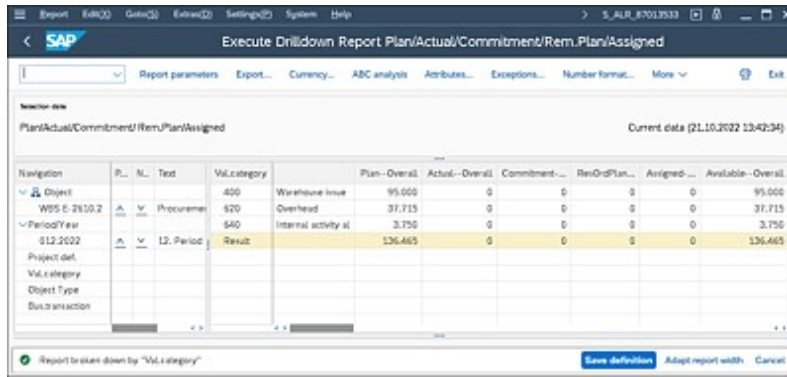


Figure 6.13 Drilldown in a Hierarchy Report

In a classic drilldown report, you can toggle between the drilldown lists and the detail list and call graphics of selected key figures (see [Figure 6.14](#)). In the graphical report output, you can simultaneously display drilldown and detail lists and, if required, a graphic display of key figures depending on the settings of the report definition.

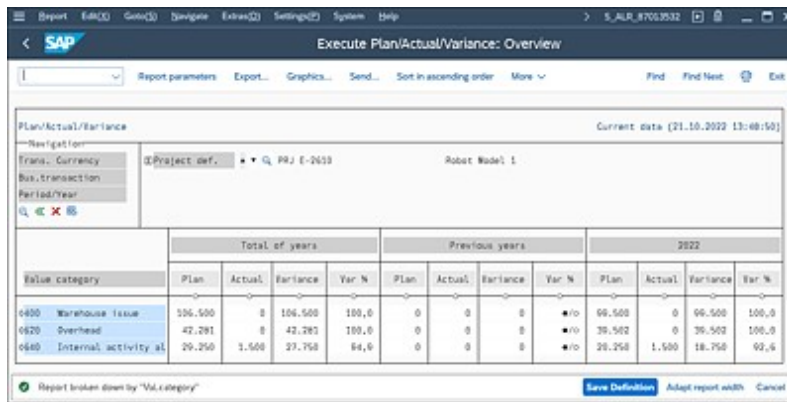


Figure 6.14 Detail View of a Hierarchy Report in the Classical Display

Other functions available in hierarchy reports include the following:

- Exporting and printing out data (e.g., you can only print report data from the graphical report output on a limited basis in the classical display of data)
- Converting values into other currencies
- Highlighting (coloring) data if values exceed or fall short of threshold values (exceptions)
- Sorting values in the form of ranking lists, and defining conditions for displaying values

- Maintaining and displaying comments for the report
- Branching to the master data display of objects and calling other reports

Depending on the output type, hierarchy reports also contain other functions. For example, you can send the data of a classic drilldown report directly to other users via SAP mail. The graphical report output, on the other hand, allows you to customize the column display and screen layout much more flexibly.

Note that you can't refresh the data within hierarchy reports. This means that when you make changes to the data after you call a report, you must exit the report and call it again to evaluate the current data. You can also save the data of the report before you exit it. The next time you call the report, you can then choose between a new selection of the current data and an evaluation of the report data you saved.

Unlike the **Project Information System: Structures** reports, for example, you can only save one data set in each case for the report data of hierarchy reports. If you save the data again, then the previously saved report data is overwritten. For more information about hierarchy reports, see SAP Note 668240.

6.2.2 Cost Element Reports

You can use cost element reports of Project System to evaluate costs, commitments, and revenues of projects and assigned networks or orders. You define cost element reports in the Report Painter; therefore, they are also referred to as *Report Painter reports*.

[Figure 6.15](#) shows an example of the evaluation of project data using the standard report Act/Com/Total/Plan in CO Area Currency.

[+] Values in Cost Element Reports

Evaluations using cost element reports are based on totals records for cost elements. Therefore, you can't evaluate values that don't have a

reference to cost elements, such as hierarchical costs or revenue plans, budgets, or payments, in cost element reports.

Ist/Obl./Summe/Plan		As of: 01.10.2022		Page: 2 / 6	
		Column: 1 / 4			
Object: WBS E-2610.1		Engineering			
Name of Person Resp.					
From Fiscal Year: 2022		To Fiscal Year: 2024			
From Period: 1		To Period: 12			
Alle Kostenarten		Ist	Oblige	Summe	Plan
400000	Consumption, raw material 1				4.500,00
420100	Overhead: Material				450,00
420300	Overhead: Administration				504,00
420400	Overhead: Sales				742,50
440100	I&M Production hours	1.500,00		1.500,00	16.500,00
=		1.500,00		1.500,00	22.796,50

Figure 6.15 Evaluating Project Data Using a Cost Element Report

Prerequisites and Principles of Cost Element Reports

Different cost element reports are delivered in the standard system. If required, you can import these reports from client 000 using Customizing Transaction OKSR and then generate them in Transaction OKS7. If, for the sake of clarification, in addition to evaluating data at the level of individual cost elements, you want to evaluate subtotals for individual intervals of cost elements, then you have to create suitable cost element groups in Transaction KAH1. You can arrange cost element groups hierarchically here in the form of nodes, whereby a two-tier structuring of cost element groups will typically suffice. You can then select the cost element group to be evaluated from the initial screen of a cost element report. The report now displays a separate row for each cost element and a node of the cost element group, for which the total of the cost elements contained there is displayed for this node.

[+] Selecting Cost Elements

Note that the report only displays values for the cost elements that you specified in the initial screen as a cost element group or cost element interval, regardless of whether postings were made for other cost

elements. If you leave the selection of the cost element group or cost element interval blank, then all posted cost elements are displayed.

Evaluations using cost element reports in Project System are based on a logical combination of several database tables (`COSP`, `COSS`, `COEP`, etc.). The tables are combined in Project System by logical reporting table `CCSS` stored in table `T804E`. You can view the list of combined database tables using the Data Browser (Transaction SE16) by first selecting table `T804E` and then reporting table `CCSS`. However, the cost element reports use only a subset of, rather than all, characteristics, key figures, and combinations of characteristics and key figures (*basic key figures* or predefined columns) of reporting table `CCSS`. This subset is known as the *library*. All Report Painter reports must be assigned to a library and can only use the selected subset on characteristics, key figures, and basic key figures of the assigned library. The cost element reports of Project System are assigned to the 6P3 library by default.

You may want to toggle between different cost element reports while evaluating project data. In this case, you can use report groups to avoid having to select data from the database each time. Report groups are collections of reports from one library that access the same data but display it in different ways.

[+] Assigning a Cost Element Report to Libraries and Report Groups

Each cost element report must be assigned to a library and a report group. A report group can also contain several reports; however, these report groups must all use the same library.

If you want to evaluate the data using a cost element report, then you execute the corresponding report group. This simultaneously selects the data from the database for all reports. If several reports are assigned to the report group, you can toggle between the different reports without having to reselect the data each time. The standard Report Painter reports of Project System are assigned to report groups with IDs that begin with 6PP. Cost element reports also exist in Project System for report groups, for example,

beginning with 6P0. These are reports that you can only edit with the Report Writer.

You can define reports using the Report Painter. [Figure 6.16](#) shows the definition of a report using an example of the standard cost element report Act/Com/Total/Plan in CO Area Currency. The cost element characteristic is used as rows of the report. The columns in this example are formed by basic key figures and key figures calculated using formulas. The display of rows, columns, and other display options are controlled by the layout of a report or report section.

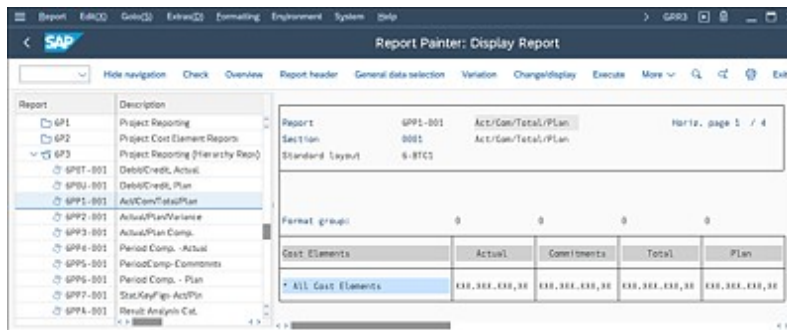


Figure 6.16 Definition of a Cost Element Report in the Report Painter

When you define columns consisting of key figures with characteristics, the specified values of these characteristics determine which values of the key figures you actually want to be selected for the display (see [Figure 6.17](#)). For example, you can use the values of the **Value Type** characteristic to decide whether planned or actual costs, commitments, or statistical actual costs are to be displayed in a column.

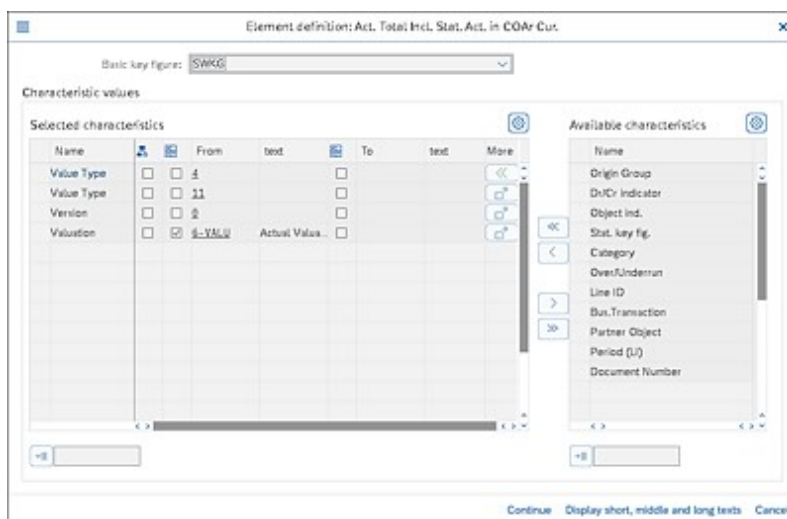


Figure 6.17 Definition of the Actual Column Using a Basic Key Figure

With the **Version** characteristic, you can determine the CO version from which the data is to be selected and so on. Predefined key figures that contain useful combinations from a basic key figure and one or several characteristics are also delivered in the standard system.

In addition to defining rows and columns, the general selections of a report define the characteristics to be used for the selection of data for the report. [Figure 6.18](#) shows an example of general selections.

You can also use the characteristics of general selections for variations. *Variation* means that you can use the different characteristic values for navigation purposes within the report as part of an evaluation. Depending on which characteristic value or combination of characteristic values you select in the report, only data for these values is displayed.

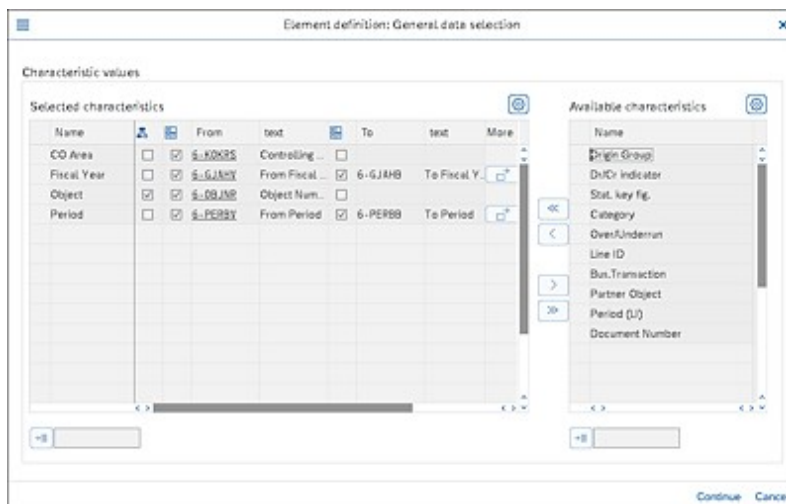


Figure 6.18 Defining General Selections

[+] Defining Cost Element Reports

When you create your own cost element report, you first need to specify the library. You then define the structure of the rows and columns, specify the general selections, and, if necessary, choose any variations. Finally, you must assign the report to a report group. If required, you can also define report-report interfaces for cost element reports.

You can use the default reports in the standard system as templates.

You can use Report Painter Transactions GRR1, GRR2, and GRR3 to create, change, and display cost element reports, respectively. You can also create cost element reports using the Report Writer via Transaction GR31. In addition, you can use Transaction GR51 to create new report groups with reference to a library. In Transaction GR55, you can execute user-defined report groups directly. You can also integrate your reports into the SAP menu or user menus.

Evaluations Using Cost Element Reports

[Figure 6.15](#) showed the evaluation of project data using the Act/Com/Total/Plan in CO Area Currency report. The variation in the left area, for example, allows you to navigate between the different project objects. Two entries are contained in the variation for some WBS elements. Depending on which entry you select, the system either displays the values that were posted directly on the relevant WBS element or the aggregated values of all lower-level objects and of the WBS element itself. The different values are displayed as totals records for the relevant cost elements. If you used cost element groups for the selection, then subtotals would also be displayed.

The following functions are also available in cost element reports:

- Printing, exporting, and sending data
- Converting values into other currencies
- Using threshold values as filters
- Sorting values
- Graphically displaying data
- Displaying data using the Microsoft Excel interface
- Calling other reports
- Refreshing data using menu options

[+] Expert Mode

You can only use some of the preceding functions (in particular, the refreshing of project data) if you've set the **Expert Mode** indicator in the report options.

When you exit a cost element report, you can also save the report data as an extract; you can save any number of extracts for a selection. The next time you call the report, you can then decide in the initial screen using the **Data Source** function whether the data is to be selected from the database again or whether you want to use an extract that already exists for your evaluation. You can delete extracts manually or automatically from the system by specifying an expiry date.

For more information about cost element reports, see SAP Note 668513.

6.2.3 Line-Item Reports

Whereas hierarchy reports only allow you to evaluate project data at the level of value categories, and cost element reports only show totals records for cost elements, you can use line-item reports to evaluate each business transaction that led to a relevant posting.

Prerequisite for Evaluating Data Using Line-Item Reports

To select and evaluate data in line-item reports, corresponding line items must first exist. The following prerequisites must be met for writing line items:

- **Plan**
Plan line items are only supported for certain planning functions (see [Chapter 2, Section 2.4](#)). The object status must also explicitly allow plan line items to be written, or integrated planning must be activated.
- **Budget**
Each budget change is documented by a line item.
- **Commitments**
If commitments management is activated (see [Chapter 4, Section 4.2.1](#)), then all commitments are posted as line items.

- **Actual**
A line item is written for each actual posting. Line items are also created for results analysis transactions and settlement transactions.
- **Payments**
Payments line items are only written in Project System for activated PS Cash Management ([Section 6.2.5](#)). To write plan line items for the payments, you must also assign the business transaction **FIPA** to a number range.

You use the ALV interface for line-item reports. A display variant (layout), which you can select from the initial screen of a line-item report, defines the way data is displayed. In addition to the display variants delivered by default, you can also define your own layouts in the reports. The definition of layouts and their management have already been explained in [Section 6.1](#).

Evaluations Using Line-item Reports

Some of the line-item reports available in the standard system include the following:

- Planned Costs/Revenues (Transactions CJI4, CJI4N)
- Hierarchical Costs/Revenue Planning (Transaction CJI9)
- Budget (Transaction CJI8)
- Commitment (Transaction CJI5)
- Actual Costs/Revenues (Transactions CJI3, CJI3N)
- Results Analysis (Transaction CJIF)
- Line Item Settlement (Transaction CJID)
- Planned Payments (Transaction CJIB)
- Actual Payments/Payment Commitment (Transaction CJIA)

[Figure 6.19](#) shows the evaluation of project line items using the Actual Costs/Revenues report. The line items are displayed as a list that you can flexibly customize using ALV functions (column selection, sorting, filtering, totals and subtotals, minimum/maximum values, display in Microsoft Excel,

etc.). The interface also enables you to print, send, or export the report data by default.

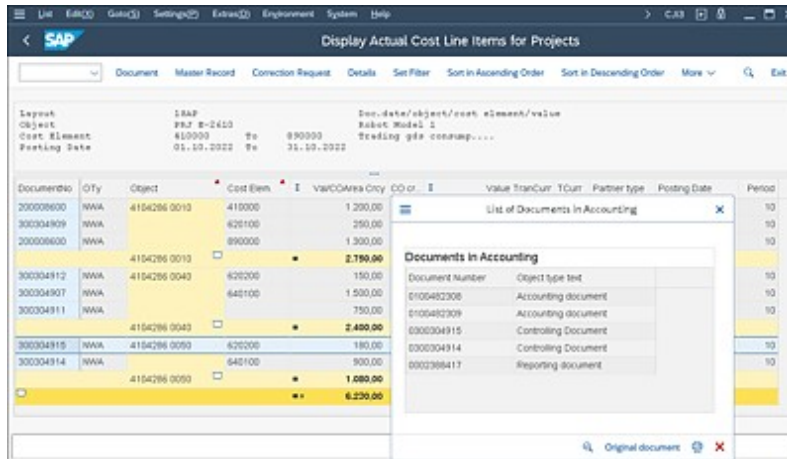


Figure 6.19 Line-Item Report with a Selection of Environment Documents

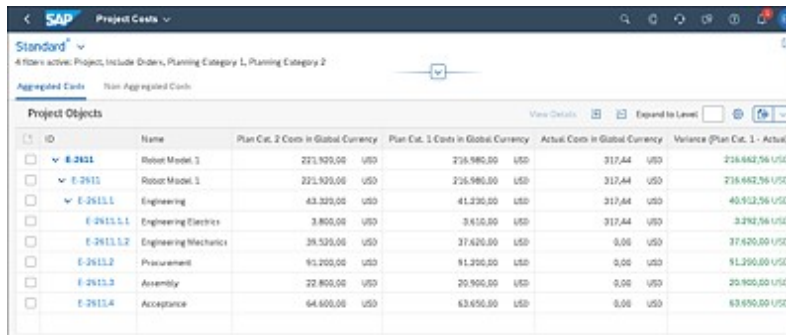
You can simultaneously analyze archived and nonarchived line items for projects in the Actual Costs/Revenues line-item report. This is usually required if you have long-running projects for which you archive line items of past periods before project closure and you still want to access all line items jointly.

The number of line items can become very large in the course of the project and thus impact, for example, the performance of the Actual Costs/Revenues report. Transaction CJI3N and CJ4IN reports for evaluating planned and actual line items therefore provide SAP HANA–optimized selection options. Unlike the original reports, these reports also provide a structure tree for navigating the selected project structures. SAP Note 1698066 provides additional information on these reports.

A very useful function of line-item reports is the ability to branch to the line-item environment. You can use this function to branch to the master data of objects and partner objects, or to display the source document of a line item, for example, the confirmation that led to costs on an activity. In particular, you can also use the menu options to evaluate all the cost accounting documents that were created for the relevant business transaction. Depending on the business transaction, these can be cost accounting, profit center, or financial accounting documents (see [Figure 6.19](#)).

6.2.4 SAP Fiori Reports and Analytical Apps

In addition to the previously described reports, SAP S/4HANA also provides an increasing number of reporting options based on table `ACDOCP` and table `ACDOCA`. [Figure 6.20](#) shows, for example, the cost overview of a project in the corresponding SAP Fiori app. In the filter area, you select the project or a branch to be analyzed and specify which plan categories you want to use for the evaluation (see [Chapter 2, Section 2.4.8](#)). If required, you can also restrict the selection to a posting period or specific general ledger accounts.



ID	Name	Plan Cat. 2 Costs in Global Currency	Plan Cat. 1 Costs in Global Currency	Actual Costs in Global Currency	Variance (Plan Cat. 1 - Actual)
E-2811	Robot Model 1	221,920.00 USD	216,980.00 USD	317.44 USD	216,662.56 USD
E-2811.1	Robot Model 1	221,920.00 USD	216,980.00 USD	317.44 USD	216,662.56 USD
E-2811.1	Engineering	43,320.00 USD	41,230.00 USD	317.44 USD	40,912.56 USD
E-2811.1.1	Engineering Electricals	3,800.00 USD	3,610.00 USD	317.44 USD	3,292.56 USD
E-2811.1.2	Engineering Mechanicals	39,520.00 USD	37,620.00 USD	0.00 USD	37,620.00 USD
E-2811.2	Procurement	91,200.00 USD	91,200.00 USD	0.00 USD	91,200.00 USD
E-2811.3	Assembly	22,800.00 USD	20,900.00 USD	0.00 USD	20,900.00 USD
E-2811.4	Acceptance	64,800.00 USD	63,450.00 USD	0.00 USD	63,450.00 USD

Figure 6.20 Cost Overview: SAP Fiori

When you run the evaluation, the project structure is displayed together with planned and actual total values in the evaluation area. You can choose between two views:

- **Aggregated Costs**
In this view, cost information is presented in an aggregated form at higher levels. This way, you can very easily overview the costs of the whole project or of individual branches.
- **Non-Aggregated Costs**
In this view, costs are displayed only on the actual account assignment objects. This view is particularly useful if you want to understand on which objects any cost variances occurred.

Using the report settings, you can define which columns should be displayed. The **Variances** column shows the difference between planned and actual values. By default, costs are displayed in the controlling area currency. For the evaluation of costs in other currencies, additional columns are available for display. Using the export function, you can also save the

values in a Microsoft Excel format, for example, and then use them in spreadsheet tools for advanced evaluation purposes.

An SAP Fiori-based line-item overview is also available in Project System to analyze the posted actual line items and details of the planned costs (see [Figure 6.21](#)). Using the filter, you first limit the data selection according to your requirements. Then, you can evaluate the selected items graphically or in a table.

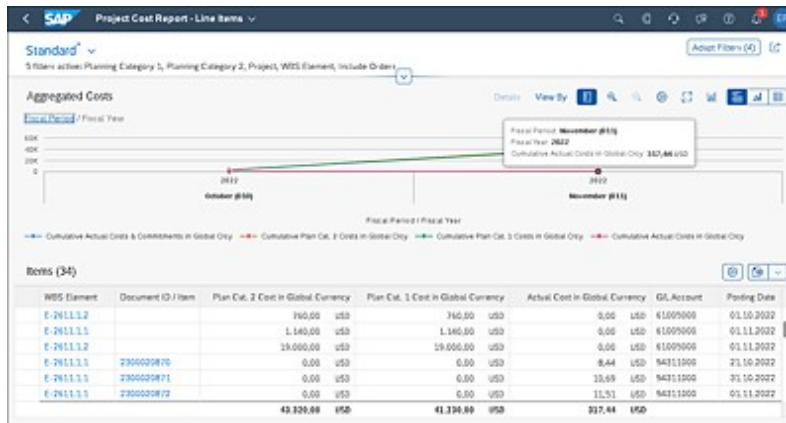


Figure 6.21 Line-Item Analysis: SAP Fiori

In the graphical area, you can change the diagram type, as well as the dimensions and key figures, if necessary. The selection of a graphic element also acts as a filter for the data in the table area. In the table, the individual items, including detailed information on the posting data, are displayed in a flat list. The settings enable you to define the columns to be displayed, their sorting and grouping, and additional filters if required. Here, too, the export function allows you to transfer the data to a Microsoft Excel format, for example. Various fields, such as **WBS Element** or **Document ID / Item**, allow navigation to further details.

In addition to the SAP Fiori reports in Project System just described, you can also use analytical apps from accounting. [Figure 6.22](#) shows an example of the Projects – Plan/Actual report app, which is assigned by default to the role of an overhead accountant (`SAP_BR_OVERHEAD_ACCOUNTANT`). This analytical app offers an extended range of functions for drilling down and analyzing data and is therefore intended for experienced users.

Project	WBS Element	G/L Account	Actual Amount in Company Code Currency	Difference Actual Plan in CC Currency
		50304000 COGS Personnel Time		-118,900.00 EUR
		61009000 Travel Exp Grid Trip		-118,900.00 EUR
		94111000 Person Inv	234,211 EUR	-234,211 EUR
		Total	334,221 EUR	-133,245.78 EUR
		50304000 COGS Personnel Time		-22,800.00 EUR
		61009000 Travel Exp Grid Trip		-22,800.00 EUR
		94111000 Person Inv	234,211 EUR	-234,211 EUR
		Total	334,221 EUR	-45,245.78 EUR
E-2411 Robot Model 1		50304000 COGS Personnel Time		-88,000.00 EUR
		61009000 Travel Exp Grid Trip		-88,000.00 EUR
		Total	-176,000.00 EUR	-176,000.00 EUR
		50304000 COGS Personnel Time		-12,000.00 EUR
		61009000 Travel Exp Grid Trip		-12,000.00 EUR
		Total	-24,000.00 EUR	-24,000.00 EUR
		50304000 COGS Personnel Time		-34,000.00 EUR
		61009000 Travel Exp Grid Trip		-34,000.00 EUR
		Total	-68,000.00 EUR	-68,000.00 EUR
Total			334,221 EUR	-133,245.78 EUR

Figure 6.22 Analytical App for Project Analysis Based on Tables ACDOCP/ACDOCA

Note that the SAP Fiori–based reports and analytical apps just presented retrieve cost data exclusively from tables ACDOCP and ACDOCA. An analysis of the data from the controlling tables, which are used, for example, as part of the cost element or hierarchy reports, or an analysis based on value categories is therefore not possible in these reports.

[AT A GLANCE] Project Information System: Financials

The Project Information System: Financials reports allow you to analyze all project-related accounting data. Depending on the type of reports used, different interfaces, functions, and levels of detail are available for the analysis.

Report-report interfaces allow you to switch from less detailed reports into increasingly detailed report types. For example, you can start analyzing project data using a hierarchy report, analyze selected data further in a cost element report, branch to a line-item report for specific data as needed, and display all relevant environment documents from here if necessary.

6.2.5 PS Cash Management

In addition to evaluating project-related data in terms of costs and revenues, the planning and evaluation of payment flows or receipts and expenditures is also germane to very capital-intensive projects to achieve positive cash flow

and therefore potential profits from interest. To do this, you can use *PS Cash Management* in Project System.

PS Cash Management provides functions you can use both to plan incoming and outgoing payments for your projects and also to evaluate project-related payments and payment obligations. You can update relevant payment data from financial accounting (e.g., incoming and outgoing payments, down payments, and down payment requests), from purchasing (commitments due to purchase requisitions or purchase orders), and from sales (data from customer quotations, sales orders, billing requests, or billing documents) for projects in PS Cash Management.

[+] Specifics of PS Cash Management

Unlike in treasury or in liquidity planner—in which payments are classified according to vendor and customer groups, and payment flows are considered for the entire company—in PS Cash Management, payment data is always planned and evaluated on a project-related basis. Therefore, PS Cash Management is also known as *Project Cash Management*. For further information about PS Cash Management, see SAP Note 417511.

Prerequisites for Using PS Cash Management

To use PS Cash Management, you must make certain settings in the IMG of the SAP S/4HANA system. From a funds perspective, you first require financial management (FM) areas as organizational units for structuring your company. For PS Cash Management, you must then assign company codes to the FM areas. You can assign several company codes to an FM area. Through this assignment, the FM areas are subsequently derived from the relevant company codes of the business transactions. You assign the company codes and define FM areas in general Customizing of the company structure.

You plan and update payment-relevant data in PS Cash Management based on commitment items and their link to general ledger accounts. You therefore use commitment items to structure receipts and expenditures.

[Figure 6.23](#) shows the display of a commitment item in Customizing Transaction FM CIA. The attributes of a commitment item are controlled by the two **Financial Trans.** and **Commitment Item Cat.** fields (attributes). The financial transaction represents business transactions and controls the updating of corresponding payment data.

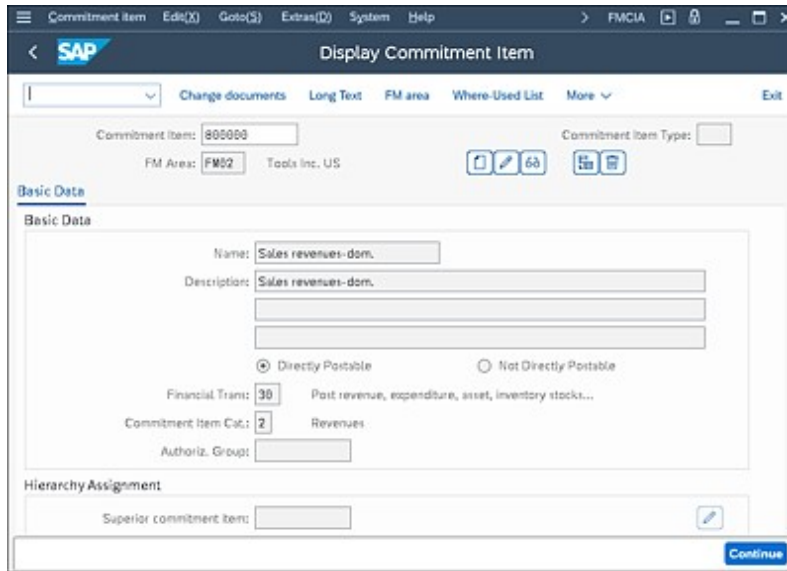


Figure 6.23 Defining a Commitment Item Manually

[+] Financial Transaction for PS Cash Management

You can only update data from business transactions for **Financial Trans. 30 (Post revenue, expenditure, asset, inventory stock, ...)** in PS Cash Management.

You can use commitment item categories to differentiate data according to stock, receipts, or expenditures, for example. To update data with reference to commitment items, you must assign the commitment items to one or several relevant general ledger accounts.

You can create commitment items manually and assign them to general ledger accounts (Transactions FM CIA and FIPOS). You can also create commitment items and assignments automatically (Transaction FIPOS; see [Figure 6.24](#)).

In this case, the system creates default values for commitment items and their attributes using data from general ledger accounts. For example, the

name of a commitment item is copied from the name of the general ledger account, the attributes of the commitment item are derived from the type of general ledger account, and the commitment item is assigned to the general ledger account.

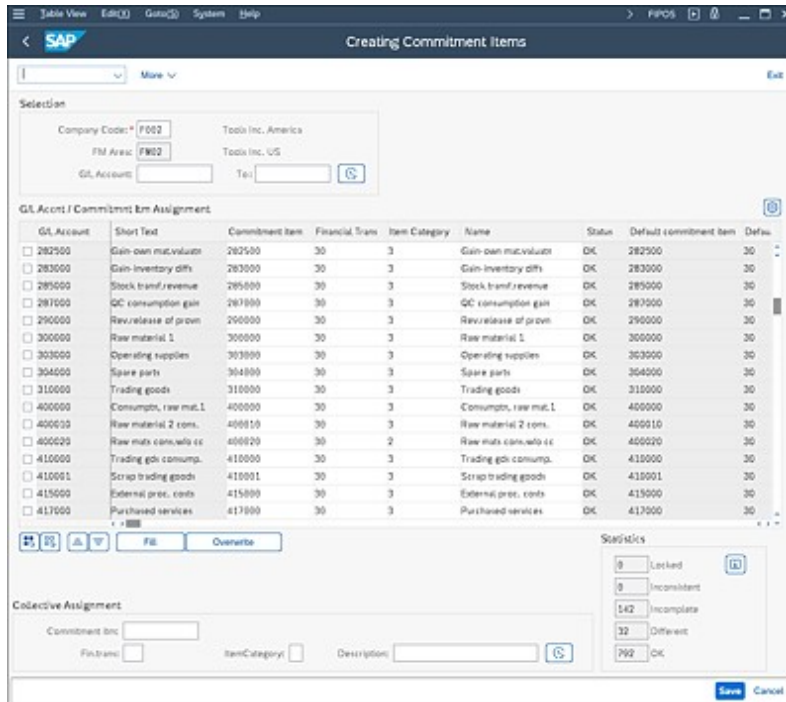


Figure 6.24 Transaction FIPOS for Creating Commitment Items Automatically

Problems that occur when data is being derived or variances occur in the default values for commitment items that already exist are highlighted as statuses. Before you copy the default values, you can still change the commitment items manually if necessary. You can use Transaction FM3N to check assignments of commitment items to general ledger accounts once again. Here, you can display a list of all commitment items without an assignment or, alternatively, display general ledger accounts without a commitment item.

[+] Creating Commitment Items

If you assigned only one company code to an FM area, then we generally recommend that you create and assign commitment items automatically. Note that you assign a commitment item to all relevant general ledger accounts when you set up PS Cash Management. You

should also note that other SAP components (e.g., treasury or funds management) may also use the same commitment items.

To use hierarchy reports to evaluate payment data, you must assign the commitment items to value categories ([Section 6.2.1](#)). To do this, you can use Transaction OPI4. To update payment data at a later stage, you must assign the **KAFM (Payment Data)** activity to a number range. To ensure that line items are written within payment scheduling, you must also have assigned the **FIPA activity (Payment Scheduling)** to a number range. You can make these assignments using Customizing Transaction KANK.

After you've implemented all required settings, you must activate PS Cash Management. In Transaction OPI6 in Customizing, you can perform this activation separately for each company code assigned to an FM area.

[!] Effects When Activating PS Cash Management

After you activate PS Cash Management for a company code, the system updates all project-related and payment-relevant data from business transactions of this company code into PS Cash Management. Additional documents are created in the SAP S/4HANA system, which may affect the performance of the system.

Payment Scheduling

You can use different options to plan the payment flows of your projects. For example, similar to the detailed planning of costs and revenues (see [Chapter 2, Section 2.4.3](#)), you can schedule incoming and outgoing payments manually for commitment items at the level of WBS elements. You can use standard layouts to schedule the payments manually (you may have to import these layouts from client 000 first) or create your own layouts and planner profiles in Customizing. Manual payment scheduling is based on periods, not days.

Planned payments can also be derived from activity data and invoicing plans, billing plans on WBS elements, or customer quotations or sales orders assigned to a project. These forms of payment scheduling are based on days,

for which corresponding terms of payment may also be taken into account. Payment data is only updated for networks if you use activity-assigned networks and asynchronous network costing (Transaction CJ9K) for determining planning data. [Chapter 2](#), [Section 2.4.5](#) and [Section 2.5.3](#), provide more details about costing networks, using invoicing and billing plans, and updating planning data from sales documents.

Updating Commitment and Actual Payment Data

Within the implementation phase of projects, if PS Cash Management is activated, then payments and payment obligations from purchasing and financial accounting are automatically updated into PS Cash Management, provided the corresponding business transactions refer to commitment items for financial transaction 30 and there is an account assignment to WBS elements, activities, or networks and assigned orders. The following credit and debit business transactions are considered:

- Purchase requisitions and purchase orders
- Down payment requests, down payments, and down payment settlements
- Invoice receipts and incoming payments

The data of the different business transactions is updated among different value types. If PS Cash Management isn't activated, then down payments can be evaluated in reports using value type 12. If PS Cash Management is activated, then value type 61 is used. Payment obligations are successively reduced by the corresponding payments. In Project System, you can also perform payment transfers in Transaction FMWA to correct erroneous account assignments.

Note the following special features when updating payment data. As long as you haven't transferred any payments (Transaction CJFN), data of settled invoices and partial payments are displayed under value type 54 (**Invoices**) but not under value type 57 (**Payments**). Cash discount rates of actual payments are only considered after you execute the SAPF181 report in PS Cash Management.

If you subsequently activate PS Cash Management, then you may have to transfer the data from purchasing first and then the data from financial accounting into PS Cash Management. To do this, you can use Transactions OPH4, OPH5, and OPH6. To display the data correctly, you should then reconstruct the project information database using Transaction CJEN.

Evaluations of Payment Data

Hierarchy reports and line-item reports are available by default in Project System for evaluating project-related payment data. Whereas the line-item reports allow you to evaluate the data based on precise days, the evaluation in the hierarchy reports only takes place based on periods. However, you can also go from a hierarchy report to a line-item report for selected data and display all relevant environment documents there, if required. Details about hierarchy and line-item reports were already discussed in [Section 6.2.1](#) and [Section 6.2.3](#).

[Figure 6.25](#) shows an example of an evaluation of payment data for a project using the Receipts/Expenditures: All Fiscal Years hierarchy report.

The screenshot shows the SAP S/4HANA interface for the report 'Execute Receipts/Expenditures: All Fiscal Years: Detail'. The report is displayed in a classic hierarchy view. The table below shows the data for various transaction types across different fiscal years.

	Overall	Prev. years	2022	2023	2024 ff	Total
Expenditures						
Plan Credit Payments	0	0	0	0	0	0
Credit-Side PurchReq	12.614	0	5.604	7.809	0	12.614
Cred.Oblig.Purch.Ore	60	0	60	0	0	60
Cred.Dan Payt Req.	0	0	0	0	0	0
Cred. Dan Payt w/POB	0	0	0	0	0	0
Cred. DP_No PD Ref.	0	0	0	0	0	0
Credit Parked IR	0	0	0	0	0	0
Credit-Side Invoice	0	0	0	0	0	0
CR Side Payment	10.000	0	10.000	0	0	10.000
Cred. Payt Transfer	0	0	0	0	0	0
Receipts						
Plan cut-down payts	120.000	0	120.000	0	120.000	0
Plan Debit Payments	216.000	0	128.000	90.000	0	216.000
Deb. Down Payt Req.	0	0	0	0	0	0
Debit Down Payments	0	0	0	0	0	0
Deb.PyOblig.Invoice	0	0	0	0	0	0
Debit-Side Payment	120.000	0	120.000	0	120.000	0
Deb. Payt Transfer	0	0	0	0	0	0

Figure 6.25 Evaluating Revenues and Expenditures Using the Classic Display of a Hierarchy Report

6.3 Logistical Reports

In [Chapter 4, Section 4.5.3](#), we introduced ProMan, a tool that enables almost all logistical information for project-related procurements to be evaluated within a single transaction. **Project Information System: Structures** (described in [Section 6.1](#)) also contains different reports for evaluating logistical data, such as deadline and quantity information or statuses. You can also use progress tracking (see [Chapter 4, Section 4.7.3](#)) for evaluating dates of material components.

In this section, we'll address additional reports from Project System reporting that you can use to evaluate logistical data of purchasing processes and material procurements. Capacity reports, in particular, are also covered, which you can use to compare the available capacities and capacity requirements of work centers and individual capacities, and consequently to evaluate the capacity load utilization.

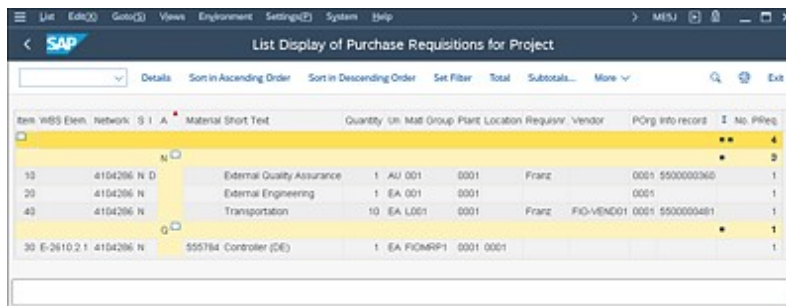
6.3.1 Purchase Requisitions and Purchase Orders for Projects

Transactions ME5J (Purchase Requisitions for Project) and ME2J (Purchase Orders for Project) are specifically available in Project System reporting for evaluating project-related purchasing documents. In the initial screen of these transactions, you first need to determine the selection of the purchase requisitions or purchase orders to be evaluated. You do this by selecting the project objects on which the documents must be assigned, perhaps by dynamic selection and status selection profiles. You can also use information from purchasing documents as additional selection criteria. You can save selections that are more complex as variants.

After you execute the report, data from the selected purchase requisitions or purchase orders is displayed in a list that you can also print out if required. [Figure 6.26](#) shows an example of a list of purchase requisitions in Transaction ME5J.

For more information, you can branch to the display of the relevant purchasing documents. The following functions are also available in the Transaction ME5J report (Purchase Requisitions for Project):

- Branching to the display of material master data, reports for material stock, outline agreements, info records, or vendor evaluations
- Designating purchase requisitions for processing inquiries
- Providing an overview of existing assignments
- Branching to changes in purchase requisitions and the assigned purchase orders



The screenshot shows the SAP interface for Transaction ME5J, titled "List Display of Purchase Requisitions for Project". The table displays the following data:

Item	WBS Elem.	Network	S	A	Material	Short Text	Quantity	UoM	Mat Group	Plant	Location	Requisnr	Vendor	POrd info record	No. POrd	
13	4104206	N	D		External Quality Assurance		1	AU	001	0001		Franz	0001	5900000360	1	
20	4104206	N			External Engineering		1	EA	001	0001				0001	1	
40	4104206	N			Transportation		10	EA	L001	0001		Franz	FIO-VEND01	0001	5900000481	1
30	E-2610.2	1	4104206	N	555784	Controller (DE)	1	EA	FIO-MRP1	0001	0001				1	

Figure 6.26 Table Display of Purchase Requisitions for the Project in Transaction ME5J

When you use the Transaction ME2J report for evaluating purchase orders for your projects, you can use the following functions:

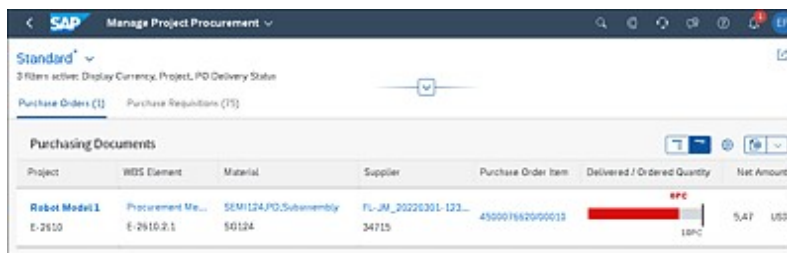
- Branching to purchase order history and changes in purchase orders
- Displaying or maintaining schedule lines
- Displaying services in service items

Project System reporting also contains Transactions ME5K (Purchase Requisitions for Account Assignment), ME2K (Purchase Orders for Account Assignment), and ME3K (Outline Agreements), which you can use for general evaluations of purchasing documents.

For easy monitoring of WBS element–assigned purchase requisitions and purchase orders, you can also use the Manage Project Procurement app (F2930; see [Figure 6.27](#)) in Project System. This list report displays details of purchasing documents on appropriate tabs according to your filter

selection. Graphical elements and color highlighting help you quickly identify time delays in the procurement process or missing delivery quantities.

If necessary, you can navigate to further details of the purchasing documents. Note, however, that the report only displays WBS element–assigned purchasing documents; that is, you can’t evaluate purchase requisitions from networks or other assigned orders here. For extended evaluations, independent of the account assignment category, additional SAP Fiori apps, such as Monitor Purchase Order Items, are available to you in purchasing.



The screenshot shows the SAP Fiori app 'Manage Project Procurement'. The interface includes a search bar, filters, and a table of purchasing documents. The table has columns for Project, WBS Element, Material, Supplier, Purchase Order Item, Delivered / Ordered Quantity, and Net Amount. A red bar indicates a status of 'RFC' (Request for Confirmation) for the selected document.

Project	WBS Element	Material	Supplier	Purchase Order Item	Delivered / Ordered Quantity	Net Amount
Robot Model1 E-2910	Procurement Ma... E-2910-2.1	SEM124/PO.Subassembly 50124	FL-JM_20220301-122... 34715	4500076620500013	<div style="width: 100%; height: 10px; background-color: red;"></div> 100%	5,47 USD

Figure 6.27 Display of Order-Relevant Data in the Manage Project Procurement App

6.3.2 Material Reports

Different overviews are already available in **Project Information System: Structures** for evaluating material-related data ([Section 6.1](#)). You can use the Transactions CN52/CN52N (Material Components) individual overviews of **Project Information System: Structures** to evaluate data for material in networks or in assigned orders. You can use the Transactions CN44/CN44N and Transactions CN45/CN45N individual overviews to evaluate planned and production orders for projects. The following material reports are also available in Project System:

- **Requirement/stock (Transaction MD04)**
You can view this list of the stock situation of material, requirements, and planned activities in the different stock segments.
- **Valuated project stock (Transaction MBBS)**
You can use this report to evaluate material that is managed in valuated project or sales order stocks.

- **Missing parts (Transaction CO24)**
You can use this report to evaluate material components that were identified as missing parts within the availability check (see [Chapter 2, Section 2.3.4](#)).
- **Pegged requirement (Transaction MD09)**
You can use this report for multilevel production processes to determine the original pegged requirement for selected orders or purchase orders.
- **Reservations (Transaction MB25)**
You can use this report to display a list of the reservations for selected materials.
- **Order report (Transaction MD4C)**
You can use this report to monitor the possible multilevel production of material for projects.

6.3.3 Capacity Reports

You can evaluate planned, actual, and remaining capacity requirements of projects using the Capacity Requirements (Transactions CN50/CN50N) individual overviews of **Project Information System: Structures** ([Section 6.1.2](#)); however, these reports only display the capacity requirements of selected objects. You can't use these reports to compare capacity requirements with the available capacities.

Reports from the SAP application for capacity requirements planning are used in Project System to evaluate the capacity load utilization of capacities required in projects. We differentiate between simple capacity evaluations and enhanced capacity evaluations for these reports.

Both report types are controlled using *overall profiles* that are defined in Customizing of capacity planning. These overall profiles are only combinations of lower-level profiles that determine the data selection, evaluation interface, and functions of the capacity reports. Different overall profiles are available for evaluation purposes in the standard system and assigned to transactions of the SAP menu. If required, you can make user-

specific changes to the assignment of transaction codes for overall profiles using parameters.

However, for the simple capacity evaluations, you can also select a different overall profile from the menu in the initial screen or specify the overall profile directly when you can call Transaction CM07. You can't change the overall profile for enhanced capacity evaluations when you call a report. Nevertheless, you can directly select a standard or user-defined profile for the enhanced evaluation when you access Transaction CM25.

[Table 6.1](#) lists some transactions and overall profiles assigned by default and parameters that you can use to change this assignment in the user master data.

Capacity Load (CM01)	SAPX911	CY1
Orders (CM02)	SAPX912	CY2
Pool (CM03)	SAPX913	CY3
Backlog (CM04)	SAPX914	CY4
Overload (CM05)	SAPX915	CY5
Work Center View (CM50)	SAPSF020	CY:
Individual Capacity View (CM51)	SAPSF022	CY~
Order View (CM52)	SAPSF021	CY_
WBS Element/Version (CM53)	SAPPS_G020	CY8
Work Center/Version (CM55)	SAPPS_G021	CY?

Version (CM54)

SAPPS_G022

CY9

Table 6.1 Parameters for Assigning Overall Profiles to Transaction Codes

Capacity Evaluations

In the initial screen of capacity evaluations, you select the work centers and capacity categories that you want to evaluate. The period during which the data is read from the database is fixed in this case by the selection profile stored in the overall profile of the report. Three different overviews that you can toggle among are now available for you to evaluate the capacity load utilization.

[Figure 6.28](#) shows the standard overview of a capacity evaluation. In a standard overview, the capacity requirements on the capacities of the selected work centers are compared in tables periodically (i.e., by day, week, etc., depending on the requirements) with the available capacity of these capacities.

Week	Requirements	AvailCap.	CapLoad	RemAvailCap	Unit
<input type="checkbox"/> 42.2022	0,00	0,00	0 %	0,00	H
<input type="checkbox"/> 43.2022	52,00	64,00	81 %	11,92	H
<input type="checkbox"/> 44.2022	49,56	51,20	97 %	1,64	H
<input type="checkbox"/> 45.2022	65,24	64,00	102 %	1,24	H
<input type="checkbox"/> 46.2022	65,24	64,00	102 %	1,24	H
<input type="checkbox"/> 47.2022	65,24	64,00	102 %	1,24	H
<input type="checkbox"/> 48.2022	65,24	64,00	102 %	1,24	H
<input type="checkbox"/> 49.2022	65,24	64,00	102 %	1,24	H
<input type="checkbox"/> 50.2022	65,24	64,00	102 %	1,24	H
<input type="checkbox"/> 51.2022	65,24	64,00	102 %	1,24	H
Total >>>	558,33	563,20	99 %	4,87	H

Figure 6.28 Standard Overview of a Capacity Evaluation

The difference and the proportion of available capacities and requirements are also displayed in the remaining available capacity (**RemAvailCap**) and capacity load (**CapLoad**) columns. If there is a capacity overload in a period (e.g., the requirements exceed the available capacity), then the corresponding row in the report is highlighted.

To evaluate which objects peg the capacity requirements in the individual periods, you must switch from the standard overview to the **Capacity Details** view. This view lists the pegged requirements of the requirements selected in the standard overview (see [Figure 6.29](#)). You can use a field selection to determine what data is to be displayed for the different pegged requirements. You can also compare columns with each other; for example, you can display the difference and the ratio of two columns. You can also create or cancel confirmations for selected pegged requirements from this view if required.

With the exception of the fixed period column, the columns displayed in the variable overview are completely dependent on the settings of the list profile stored in the overall profile. [Figure 6.30](#) shows a variable overview in which the capacity requirements of work orders (e.g., of production orders and operative networks) and the requirements due to planned orders are listed separately.

Capacity Planning: Detailed Capacity List

Plant: 0001 Plant 0001 - no change allowed
 Work center: 2610 Engineering
 Capacity cat.: 002 Person

Week	P	PeggedRqmt	Op.	Proj. def.	Reqmts	Earl.start	LatestFin.
Total					558,332 H		
43.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
44.2022		4104500	0010	E-2610	41,667 H	24.10.2022	30.12.2022
44.2022		4104500	0020	E-2610	7,895 H	02.11.2022	23.12.2022
45.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
45.2022		4104500	0020	E-2610	13,158 H	02.11.2022	23.12.2022
46.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
46.2022		4104500	0020	E-2610	13,158 H	02.11.2022	23.12.2022
47.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
47.2022		4104500	0020	E-2610	13,158 H	02.11.2022	23.12.2022
48.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
48.2022		4104500	0020	E-2610	13,158 H	02.11.2022	23.12.2022
49.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
49.2022		4104500	0020	E-2610	13,158 H	02.11.2022	23.12.2022
50.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
50.2022		4104500	0020	E-2610	13,158 H	02.11.2022	23.12.2022
51.2022		4104500	0010	E-2610	52,003 H	24.10.2022	30.12.2022
51.2022		4104500	0020	E-2610	13,158 H	02.11.2022	23.12.2022

Figure 6.29 Detail View of a Capacity Evaluation

Capacity Planning: Variable Overview

Version: Overview of order categories
 Unit: H

Week	Wk.orders	Pl.orders	Sum	Avail.cap.	Load in %
42.2022	0,00	0,00	0,00	0,00	0,00
43.2022	52,00	0,00	52,00	64,00	81,38
44.2022	49,56	0,00	49,56	51,20	96,80
45.2022	65,24	0,00	65,24	64,00	101,94
46.2022	65,24	0,00	65,24	64,00	101,94
47.2022	65,24	0,00	65,24	64,00	101,94
48.2022	65,24	0,00	65,24	64,00	101,94
49.2022	65,24	0,00	65,24	64,00	101,94
50.2022	65,24	0,00	65,24	64,00	101,94
51.2022	65,24	0,00	65,24	64,00	101,94

Figure 6.30 Variable Overview of a Capacity Evaluation

The following functions are available for all views of capacity evaluations:

- Printing out and exporting views
- Graphically displaying data
- Refreshing report data
- Performing background processing
- Branching to different environment information, depending on the relevant view in work centers, capacities, pegged requirements, and so on

In the simple capacity evaluations, you can change the profiles that define the attributes of the report, or you can temporarily change the general settings of the report. [Figure 6.31](#) shows the temporary customization options of the report settings.

Note the **Distribution: From work center/operation** indicator, which specifies that the distribution of the capacity requirements over the duration of the pegged requirements is controlled by the distribution key of the operation or work center (see [Chapter 2, Section 2.2.1](#)). If this indicator isn't set, then the distribution keys of the report determine the distribution of the capacity requirements.

The screenshot shows the 'Settings: More' dialog box for Capacity Evaluation. It is organized into several sections:

- General:** Includes checkboxes for 'Cumulate over periods' (unchecked), 'Unit of Measure from Capacity' (unchecked), and 'Reqmts type' (set to '2'). 'Capacity Unit' is 'H' (Hours).
- Hierarchy:** Includes checkboxes for 'Cumulation of Reqmts' and 'Cumulation of Capacity' (both unchecked), and input fields for 'Hierarchy' and 'Plant'.
- Interval to be evaluated:** Includes 'Entry type' (set to 'G' for Number of calendar days), 'Start' (set to '0' on 16.10.2022), and 'Int.finish' (set to '60' on 15.12.2022).
- Distribution:** Includes a checked checkbox for 'From work center/operation'.
- Periods:** Includes radio buttons for 'Day', 'Factory calendar day', 'Week' (selected), 'Month', 'Posting period', and 'Planning Calendar'. It also has input fields for 'Plant', 'Planning Calendar', and 'Duration' (set to '1').
- Available capacity:** Includes an input field for 'Capacity Version'.

At the bottom of the dialog, there are icons for 'Std. distribution' and 'Time periods'.

Figure 6.31 General Settings of a Capacity Evaluation

The simple capacity evaluations also contain different restrictions. For example, you can't evaluate any actual capacity requirements by using these reports. In addition, you can't evaluate capacity splits of capacity requirements to individual people in work centers, for example; however, you can use enhanced capacity evaluations in Project System to evaluate this capacity data.

Enhanced Capacity Evaluations

You select the capacities to be evaluated in the initial screen of the enhanced capacity evaluations. [Figure 6.32](#) shows the standard initial screen of Transaction CM53 (WBS Element/Version). The capacities are selected here by specifying projects. The system uses this selection to determine all work centers of the project and their capacity requirements. The system also determines the requirements of other projects and orders in the case. The subprofiles of the overall profile control whether the standard available capacity of the work centers or the cumulated available capacity of individual capacities for a capacity category is displayed as the available

capacity in the report. In the initial screen, you can temporarily change the settings of periods that are used to read and subsequently display capacity data from the database.

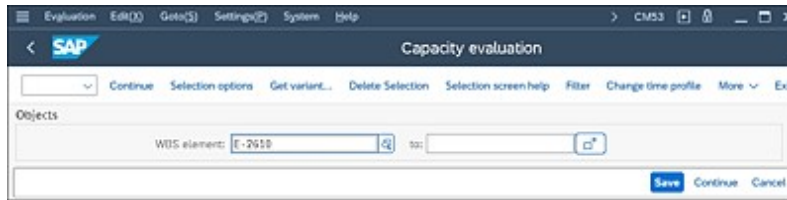


Figure 6.32 Initial Screen of the Enhanced WBS Element/Version Capacity Evaluation

We differentiate between two views in enhanced capacity evaluations. In the *standard overview*, capacity requirements are compared periodically against available capacities. You can use a field selection to decide which columns—for example, which capacity requirements—you want to be displayed. To evaluate the pegged requirements, you must switch to the **Capacity Details** view. You can evaluate the capacity details consecutively for individual periods (**Capa.Detail/Single**) or simultaneously for several periods (**Capa.Detail/Collective**).

You can use the following functions in enhanced capacity evaluations:

- Printing out and exporting data
- Performing field selection
- Sorting, grouping, and summarizing data
- Branching to the display for work center, capacity, personnel data, and, if necessary, pegged requirements

To ensure that you can evaluate actual capacity requirements in enhanced capacity evaluations, the relevant work centers must allow for actual capacity requirements to be determined (see [Chapter 2, Section 2.2.1](#)), and the selection profiles of the corresponding overall profiles must permit actual capacity requirements to be evaluated. You can also customize the list profiles of overall profiles in Customizing in such a way that columns for actual capacity requirements are automatically displayed in the reports (see [Figure 6.33](#)).

You can also use enhanced capacity evaluations to evaluate split requirements to individual people, for example. The Transaction CM51

report (Individual Capacity View) and the SAPSFCG022 overall profile are already available by default for this purpose. If requirements were only created on personnel resources due to network activities, then you can also use the Transaction CMP9 report (Workforce Planning Evaluation) in Project System (see Figure 2.25 in [Chapter 2, Section 2.2.2](#)).

Capacity evaluation: Standard overview

No. of Entries: 7 Pers. No. ICapacity

Plant 0001 Plant 0001
Work center 2610 Engineering
Capacity category 002 Person

Entries	Rem.cap.req.s	Avail.capacity	Rem.a	Rem. avail. capaci	Act.cp.ld	ResCapPlan
Total	362,608 H	371,2 H		8,592 H		371,2 H
42.2022	0,0 H	0,0 H	0,0	0,0 H	0,0	0,0 H
43.2022	52,083 H	64,0 H	81,4	11,917 H	0,0	64,0 H
44.2022	49,561 H	51,2 H	96,8	1,639 H	0,0	51,2 H
45.2022	65,241 H	64,0 H	101,9	1,241 H	0,0	64,0 H
46.2022	65,241 H	64,0 H	101,9	1,241 H	0,0	64,0 H
47.2022	65,241 H	64,0 H	101,9	1,241 H	0,0	64,0 H
48.2022	65,241 H	64,0 H	101,9	1,241 H	0,0	64,0 H

Figure 6.33 Standard Overview of an Enhanced Capacity Evaluation

In contrast to simple capacity evaluations, you can't refresh the report data of enhanced capacity evaluations. To evaluate each current status of a capacity situation, you must therefore exit these reports first and then select the data again. In addition, unlike simple capacity evaluations, in the enhanced evaluations, you can't select other profiles for evaluating data. Furthermore, you can't temporarily change report settings for enhanced capacity evaluations. For example, you can't change the settings of a period split or the summarization using work center hierarchies.

6.4 Project Summarization

You can use the special *project summarization* function in Project System to obtain clear and highly summarized reporting of many projects and orders. When summarizing a project, you need to define your own evaluation or summarization hierarchies consisting of hierarchy nodes, which you can use to evaluate transaction data of projects and orders, such as costs, commitments, revenues, or budget values in aggregated format. [Figure 6.34](#) shows an example of the evaluation of summarized project data using the Costs/Revenues/Expenditures/Receipts hierarchy report. In the example shown here, the summarization takes place on the project type and person responsible hierarchy nodes.

You can use either classification characteristics or master data fields of the objects as hierarchy nodes. In the first case, this is a *project summarization using classifications*, and in the second case, this is a *project summarization using master data*. The type of project summarization (by classification or master data) is controlled by the **Project Summarization via Master Data** characteristics indicator in the project or network profile. However, when you create a project using a template, the system copies the summarization format from the template. If you summarized the template using a classification, and you now want to summarize the new project using master data fields, then you must convert the format of the summarization using report RCJCLMIG. If, as part of the summarization using a classification, you used characteristics as hierarchy nodes and a master data field doesn't exist for these characteristics, then you can use a customer enhancement to ensure that they are included as additional fields when you perform the summarization using master data.

The screenshot shows the SAP 'Execute Drilldown Report Costs/Revenues/Expenditures/Receipts' interface. The report title is 'Execute Drilldown Report Costs/Revenues/Expenditures/Receipts' and the current date is '22.10.2022 10:50:07'. The table displays summarized data for various project categories and individual persons. The columns include 'Object', 'Object', 'Plan Costs--Total', 'Act. Costs--Total', 'Plan. rev.--Total', and 'Act. ...'. The data is organized into a hierarchy starting with 'SUM 0001' (Kostentransaktionskreis) and 'SUM CP' (Customer Projects). Individual persons are listed under 'SUM Person 1' through 'SUM Person 9'. A 'Result' row at the bottom summarizes the total values for the selected categories.

Navigation	Object		Plan Costs--Total	Act. Costs--Total	Plan. rev.--Total	Act. ...
Object	~SUM 0001	Kostentransaktionskreis	9.355.000	7.354.500	4.940.000	
Val.Category	~SUM CP	Customer Projects	3.695.000	3.334.500	4.940.000	
Period/Year	SUM Person 1	Person 1	220.000	210.000	300.000	
Bus.transaction	SUM Person 2	Person 2	310.000	330.000	430.000	
	SUM Person 3	Person 3	80.000	20.000	100.000	
	SUM Person 5	Person 5	360.000	350.000	580.000	
	SUM Person 6	Person 6	670.000	600.000	800.000	
	SUM Person 7	Person 7	550.000	820.000	1.200.000	
	SUM Person 9	Person 9	1.125.000	1.004.500	1.530.000	
	~SUM RD	R&D Projects	5.660.000	4.020.000	0	
	SUM Person 1	Person 1	1.332.000	824.000	0	
	SUM Person 2	Person 2	780.000	120.000	0	
	SUM Person 3	Person 3	218.000	120.000	0	
	SUM Person 5	Person 5	145.000	210.000	0	
	SUM Person 7	Person 7	830.000	832.000	0	
	SUM Person 8	Person 8	2.120.000	1.680.000	0	
	SUM Person 9	Person 9	235.000	234.000	0	
	Result		9.355.000	7.354.500	4.940.000	

Figure 6.34 Evaluation of Summarized Project Data

[+] Recommendation for the Summarization Format

Because a summarization that uses master data fields of objects has several advantages over using the older summarization format (i.e., summarization that uses a classification), SAP recommends that you perform project summarizations that use master data. You can use report RCJCLMIG to convert a summarization that uses classifications to a summarization that uses master data. The following details all relate to project summarization that uses master data.

Before you can use project summarization, you must first define the hierarchy of the nodes in which you want to evaluate the data. You create summarization hierarchies in Transaction KKR0 (see [Figure 6.35](#)). For each summarization hierarchy, you first define which object types are to be taken into account for a summarization. You can activate summarizations in each case for internal orders, plant maintenance and service orders, production orders, projects, and sales orders. However, when you summarize projects, the assigned additive networks and orders are also automatically summarized. For performance reasons, in the next step, you can specify for summarization hierarchies that you want individual totals record tables to be

excluded from a summarization. When defining the scope of data, note the limitations of summarization using Transaction KKRC in SAP S/4HANA, as described in SAP Note 2963339.

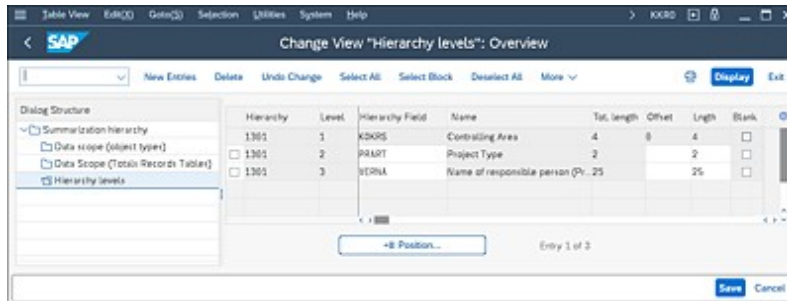


Figure 6.35 Defining a Summarization Hierarchy

Finally, you determine the hierarchy nodes when you define a summarization hierarchy. To do this, you create a maximum of nine hierarchy levels and specify the name of each master data field that you want to be used at this level for summarizing transaction data. In the course of the summarization, the system later accumulates the data of objects with the same field values, whereby the objects and field values must first be determined using an *inheritance*.

The controlling area is always the highest node of a summarization hierarchy. Therefore, you can't perform a summarization across controlling areas. The list of master data fields that you can use as hierarchy nodes is predefined. Nevertheless, you can also use any additional fields as nodes using a customer enhancement.

You can use inheritance (Transaction CJH1) to determine which objects are to be included in a summarization and which master data field values for these objects should be used for the summarization. To do this, in the initial screen of Transaction CJH1 (see [Figure 6.36](#)), you first need to specify the projects for which data is to be summarized later.

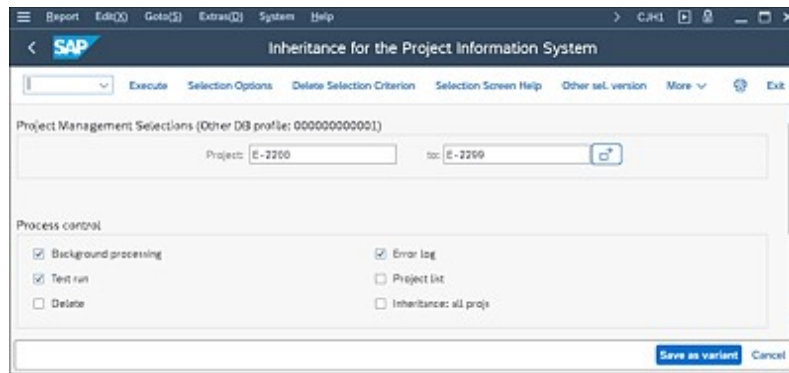


Figure 6.36 Initial Screen of the Inheritance of Project Data

When you then perform the inheritance, the system determines from these projects all those WBS elements for which the **Proj. summarization** indicator (see [Chapter 1, Section 1.2](#)) is set in the master data, and it writes these and the relevant master data field values of these WBS elements into database table `P_SERB`. At the same time, the system performs a logical inheritance of these field values on all lower-level objects, activities, assigned orders, and WBS elements without the **Proj. summarization** indicator and also writes these objects and the inherited field values into database table `P_SERB`. The actual master data of the objects, however, isn't changed by an inheritance.

You can perform the inheritance for different projects consecutively and thereby gradually enhance the data of database table `P_SERB`. If relevant master data changes have emerged, then you must repeat the inheritance to update the table. The objects and field values of database table `P_SERB` are the basis for subsequent data summarizations. You can use Transaction CJH2 to display the results of the inheritance.

After you've performed at least one inheritance, you can summarize the data in Transaction KKRC in a second step. In the initial screen of this transaction (see [Figure 6.37](#)), you specify the summarization hierarchy or the summarization subhierarchy for which a summarization is to take place. You also specify the period for the summarization.

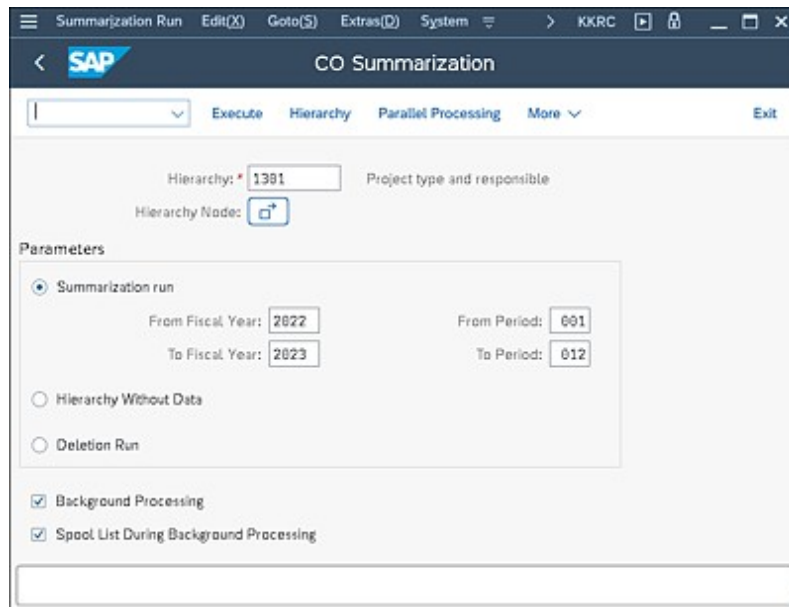


Figure 6.37 Initial Screen of the Summarization of Project Data

When you execute this transaction, the system determines the summarization objects and their master data field values from database table `PSEB`. It also selects their movement data and writes the summarized results on the relevant hierarchy nodes in database table `RPSCO`.

Separate hierarchy reports and cost element reports are available in Project System to evaluate summarized accounting data. In the initial screen of these reports, you specify the summarization hierarchy or the summarization subhierarchy that you want to use to display the data. You must have already performed a summarization for this summarization hierarchy. Depending on the report, you need to specify additional selection criteria, such as an evaluation period or the CO version of the data to be evaluated. For more information about project summarization, refer to SAP Notes 313899 and 701076.

6.5 Summary

Different reports are available in Project System for real-time reporting of all project data. Depending on what data you want to evaluate, you use reports from **Project Information Systems: Structures**, hierarchy, cost elements, and line-item reports from **Project Information System: Financials**, or logistical reports, such as material or capacity evaluations. You can use project summarization to clearly evaluate the data of many projects based on user-defined summarization criteria. An increasing number of SAP Fiori-based reports allow you to analyze project master data, costs, or purchasing documents, for example, in a very user-friendly way.

7 Integration Scenarios

In many enterprises, projects and project portfolios are managed using a variety of programs. This chapter looks at some typical scenarios that illustrate how Project System can be integrated with other programs.

Various interfaces are available for a bidirectional data exchange with other project management tools or generic external programs from within Project System. These interfaces allow you to read, create, change, or delete project data.

In the context of communication between programs or systems, *application programming interfaces* (APIs) are used. Typical use cases of APIs in Project System are, for example, the export of project data for presentation purposes, an initial data transfer into Project System from legacy systems, and the integration of special, often custom tools for individual aspects of project management (creation of material lists, scheduling, offline editing of objects, etc.).

In Project System, you can use two primary types of application interfaces. Both interfaces are based on business object types, by means of which the data of the SAP system is divided into individual components according to specific business criteria. Read and write access to the data of business objects is only possible by means of clearly defined methods or services.

OData APIs are http-based interfaces used for communication between compatible systems. The OData APIs available for SAP applications, as well as their available services and events, are documented in the SAP API Business Hub at <https://api.sap.com>. SAP S/4HANA release 2022 provides read services for project and project structure elements, change services for project definition and work breakdown structure (WBS) elements, and events for WBS elements. The fact that the services of the OData APIs are

called via the HTTP makes these interfaces particularly suitable for integration scenarios with cloud applications.

Business Application Programming Interfaces (BAPIs) are SAP interfaces that provide access to business objects by means of defined methods. You can use the BAPI transaction to view a list of the business object types, the BAPIs available in each case, and detailed documentation for every BAPI in the SAP system. In [Appendix A](#), you'll find an overview of important Project System interfaces.

One area of use for the application interfaces described are integrations to various standard programs, such as for Microsoft Project or Oracle Primavera, which can be obtained from SAP partners or from other providers. Other areas of use include integrations between Project System and other SAP S/4HANA applications. Two of these integration scenarios are described in this chapter in [Section 7.1](#) and in [Section 7.2](#). These applications enable you to add further processes and functions to Project System. [Section 7.3](#) discusses cloud-based solutions that may be relevant in the context of Project System, depending on the nature of the projects.

7.1 Portfolio and Project Management

Portfolio and Project Management (PPM) functionality in SAP S/4HANA consists of the closely integrated components *portfolio management* and *project management*. Portfolio management provides functions for company-wide management, for example, of IT projects, innovation projects, or investment projects. The project management component is another SAP tool for operational project management. The following information deals with the portfolio management and project management components and Project System integration scenarios in particular.

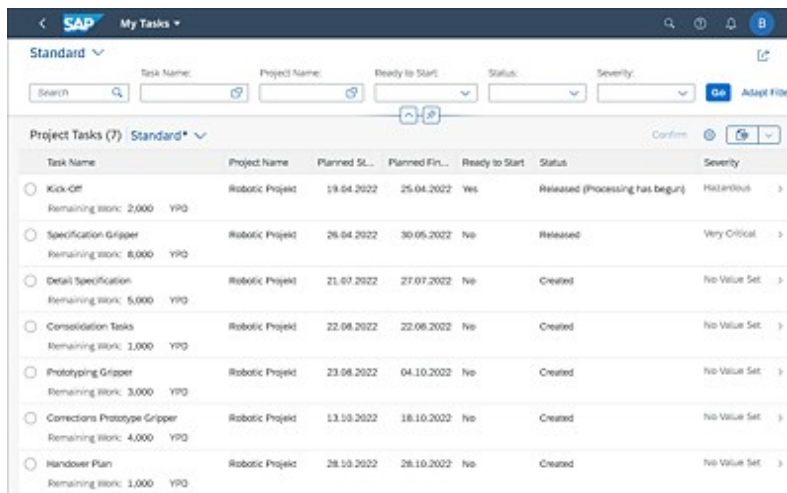
7.1.1 Project Management

Project management's design and functional scope make it particularly suitable for IT, development, and service projects. You can use project management independent of or in combination with Project System. In this

context, different integration scenarios are available. On the one hand, you can use a project in Project System for project accounting of a project management project linked to it; on the other hand, you can use projects simultaneously in Project System and in project management to implement different project views for different user groups.

With SAP S/4HANA, various SAP Fiori apps are available as initial views in project management for project managers and project team members. For example, project managers use the My Projects – Upcoming Milestones app (F2085) or My Projects – Critical app (F2086) to identify projects with upcoming activities and navigate to the appropriate editing views.

Project team members use the My Tasks app (F2150; see [Figure 7.1](#)) or My Checklist Items app (F2166) to get an overview of the activities assigned to them in the project. To confirm tasks, project team members use either the Confirm Project Tasks app (F0284) or the classic Web Dynpro applications.



The screenshot displays the SAP Fiori 'My Tasks' app interface. At the top, there is a search bar and filter options for 'Task Name', 'Project Name', 'Ready to Start', 'Status', and 'Severity'. Below this, a table titled 'Project Tasks (7)' lists various tasks for a 'Robotic Project'. Each task entry includes a radio button for selection, the task name, remaining work, project name, planned start and finish dates, a 'Ready to Start' status, the current task status, and a severity level.

Task Name	Project Name	Planned St...	Planned Fin...	Ready to Start	Status	Severity
<input type="radio"/> Kick-Off Remaining Work: 2,000 YPD	Robotic Project	19.04.2022	25.04.2022	Yes	Released (Processing has begun)	Hazardous
<input type="radio"/> Specification Gripper Remaining Work: 8,000 YPD	Robotic Project	26.04.2022	30.05.2022	No	Released	Very Critical
<input type="radio"/> Detail Specification Remaining Work: 5,000 YPD	Robotic Project	21.07.2022	27.07.2022	No	Created	No Value Set
<input type="radio"/> Consolidation Tasks Remaining Work: 1,000 YPD	Robotic Project	22.08.2022	22.08.2022	No	Created	No Value Set
<input type="radio"/> Prototyping Gripper Remaining Work: 3,000 YPD	Robotic Project	23.08.2022	04.10.2022	No	Created	No Value Set
<input type="radio"/> Corrections Prototype Gripper Remaining Work: 4,000 YPD	Robotic Project	13.10.2022	18.10.2022	No	Created	No Value Set
<input type="radio"/> Handover Plan Remaining Work: 1,000 YPD	Robotic Project	28.10.2022	28.10.2022	No	Created	No Value Set

Figure 7.1 Overview of Tasks Assigned to the Project Team Member in the My Tasks App

Project management includes functions for phase-based and task-based structuring of projects (see [Figure 7.2](#)), time scheduling, and various document management and risk management options. In risk management, project risks and opportunities are documented, evaluated, and analyzed in the form of a risk registry. For each risk, you can carry out a quality-related and quantity-related assessment; this serves as the basis for calculating the risk score and risk level. The selected type of risk management as well as the responsible person can be stored for each risk. As the project progresses,

project risk management documents the status and impact of the risk on the project.

Resource planning in project management is based on roles, which describe the resource requirements of a project, and business partners, who are used as resources for role assignment. Resources can be assigned to these project roles in PPM in different ways: in addition to the direct staffing of roles in a project (e.g., by the project manager), you can also use advanced, cross-project staffing scenarios. In these processes, depending on the status of the role, resource managers are responsible for the role assignment. For this purpose, PPM provides two fast-entry screens: **Resources** and **Assignment Overview**.

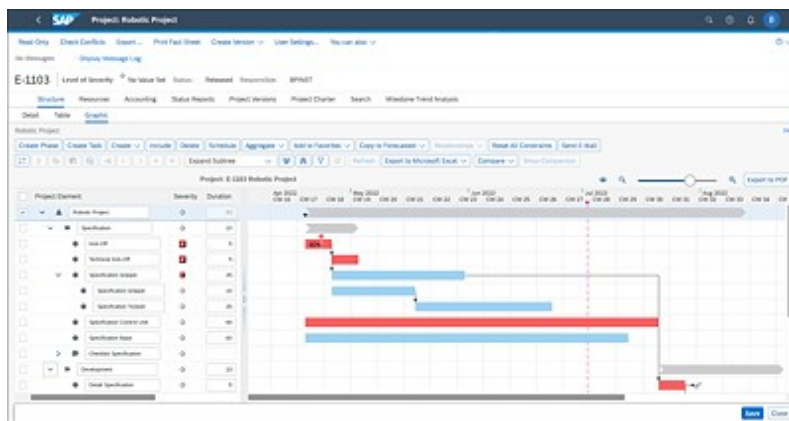


Figure 7.2 Project Structure in Project Management

To simplify the project creation process, you can use project management to define *project templates* and use these to copy operative projects. You can also use it in the project execution process to incorporate simulation versions for what-if scenario analyses. The structure objects of a project in project management can have a status, which you can use to control the lifecycle of the structure objects. The transition from one phase of a project to the next is usually controlled in project management via special approval processes.

In these processes, you can use *checklists* to ensure that all the mandatory conditions for a particular phase of the project are fulfilled. You can also use project status reports and versions to document the progress of a project in project management.

In project management, an authorization concept, which is based on access control lists (ACLs), enables you to easily assign authorizations at the object

level, down to the level of individual documents. Different options to link project management projects with each other and the use of a *multiproject monitor* in PPM also enables you to perform multiproject management in project management. Special project evaluations, predefined business content for SAP Business Warehouse (SAP BW), and a function for connecting project management to alert management allow you to effectively monitor all your project management projects. The messages triggered as part of alert management can be visualized in the Monitor Project Progress app (F2031) together with the schedule and progress of a project. These problems are grouped by different severity types in the app header, where they can be analyzed (see [Figure 7.3](#)).

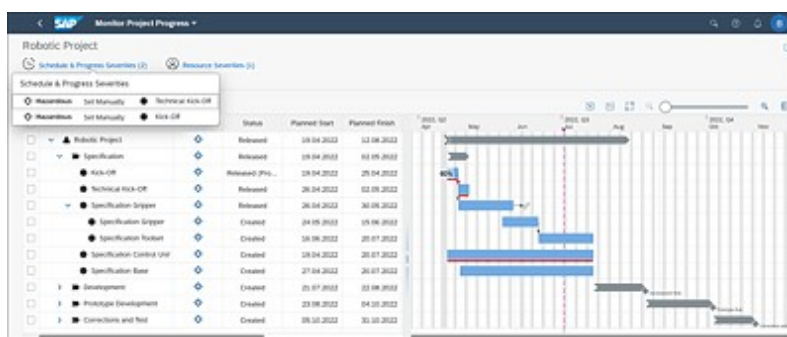
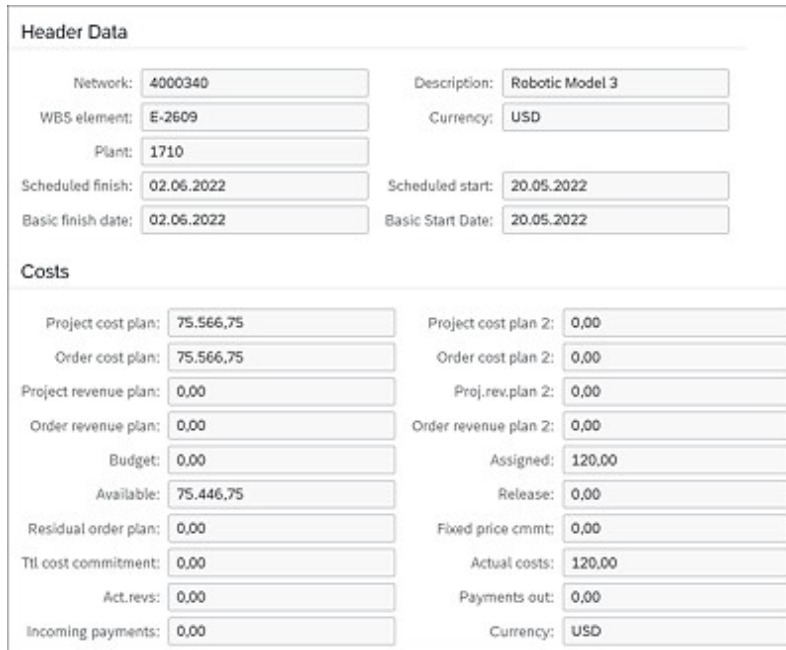


Figure 7.3 Monitor Project Progress App Displaying Various Exceptions

Project management provides additional integration scenarios for the following, among other things: Commercial Project Management (CPM) functionality in SAP S/4HANA for processing service projects, for example, the cross-application time sheet (CATS) for recording time spent on tasks in project management projects; and portfolio management in particular. In addition, *object links* can be used to connect almost all the structure objects of PPM projects with objects of SAP and non-SAP systems.

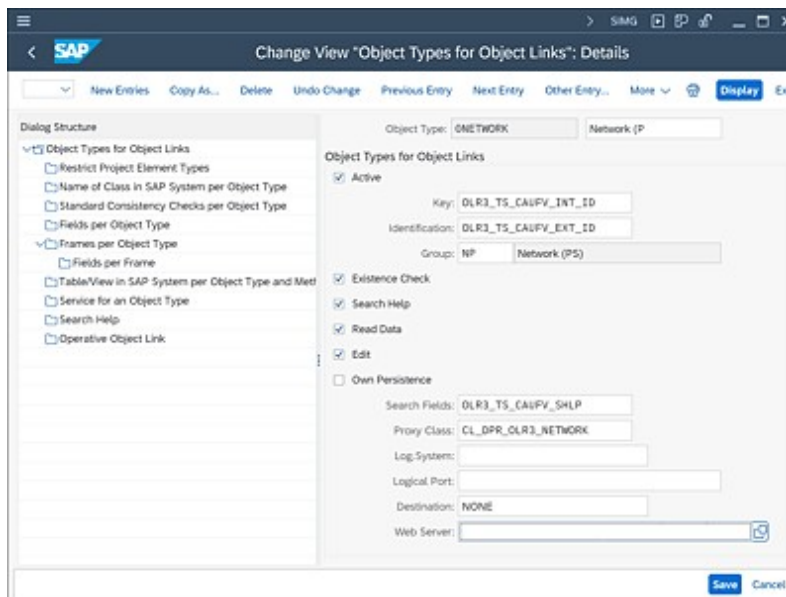
Object links enable you to create links, such as a link between a project management phase and a Project System network. This means that in project management evaluations, you can analyze network data together with the phase data, for example. Moreover, in project management, you can then use network data to identify *threshold value violations* and therefore trigger automatic alert messages. Object links also enable you to analyze network data directly in the specific phase (see [Figure 7.4](#)) and, if necessary, to go directly from project management to the detailed display or to processing transactions for the network.

Customizing of project management is where you define the object links and the remote function call (RFC) connection to the SAP S/4HANA system. The standard version already contains various object links for project management. [Figure 7.5](#) shows an example of an object link definition for networks in Project System.



The screenshot shows the 'Header Data' and 'Costs' sections of a network in SAP. The 'Header Data' section includes fields for Network (4000340), Description (Robotic Model 3), WBS element (E-2609), Currency (USD), Plant (1710), Scheduled finish (02.06.2022), Scheduled start (20.05.2022), Basic finish date (02.06.2022), and Basic Start Date (20.05.2022). The 'Costs' section includes fields for Project cost plan (75.566,75), Order cost plan (75.566,75), Project revenue plan (0,00), Order revenue plan (0,00), Budget (0,00), Available (75.446,75), Residual order plan (0,00), TIL cost commitment (0,00), Act.revs (0,00), Incoming payments (0,00), Project cost plan 2 (0,00), Order cost plan 2 (0,00), Proj.rev.plan 2 (0,00), Order revenue plan 2 (0,00), Assigned (120,00), Release (0,00), Fixed price cmmt (0,00), Actual costs (120,00), Payments out (0,00), and Currency (USD).

Figure 7.4 Display of Network Data in Project Management



The screenshot shows the 'Change View "Object Types for Object Links": Details' dialog in SAP. The 'Object Type' is 'ONETWORK' and the 'Network (P)' is 'Network (P)'. The 'Object Types for Object Links' section is checked 'Active'. The 'Key' is 'DLR3_TS_CAUFV_INT_ID', the 'Identification' is 'DLR3_TS_CAUFV_EXT_ID', and the 'Group' is 'NP' and 'Network (P5)'. The 'Existence Check' is checked, and 'Search Help', 'Read Data', and 'Edit' are also checked. The 'Own Persistence' section is unchecked. The 'Search Fields' is 'DLR3_TS_CAUFV_SHP', the 'Proxy Class' is 'CL_DPR_DLR3_NETWORK', the 'Log System' is empty, the 'Logical Port' is empty, the 'Destination' is 'NONE', and the 'Web Server' is empty. The 'Save' and 'Cancel' buttons are at the bottom right.

Figure 7.5 Definition of an Object Link in PPM Customizing

Special integration scenarios between Project System and project management can be used to exchange controlling data. Because project management doesn't provide any financials functions (apart from a rudimentary cost and revenue planning function that is based on planned resource requirements), you can run projects in Project System parallel to your projects in project management, which hierarchically map all financial aspects of project planning and execution. Specific information on planned activities and their costs and revenue rates can be transferred from project management to Easy Cost Planning (see [Chapter 2, Section 2.4.4](#)) in Project System for this purpose, and, if necessary, additional cost, revenue, and budget data can be added here.

There are various ways, or *controlling methods*, of linking a project management project to a Project System project:

- **Hierarchical controlling (structure element, manually)**
Manually create a WBS in Project System and then assign phases, tasks, and subtasks of a project management project to the WBS elements.
- **Hierarchical controlling (project role, manually)**
Likewise, create a WBS in Project System and then assign roles to the various WBS elements in project management.
- **Hierarchical controlling (structure element, automatically)**
To define a project management project, the system automatically creates a project definition and a billing element in Project System. In accordance with the structure of the project management project, subordinate WBS elements are created for phases, tasks, and subtasks and linked to these. You can define the maximum number of levels by defining a controlling level. All subordinate structure elements of the project management project are then assigned to the WBS elements at the lowest level.
- **Hierarchical controlling (project role, automatically)**
A project definition and a billing element are automatically created at the highest level in Project System. Additional WBS elements are created for every role in the project management project.

You can also use additional controlling methods if you don't require hierarchical controlling for a project management project and instead want to

use internal orders rather than WBS elements as the controlling elements in the SAP S/4HANA system for integrating financials functions.

[+] Manual Changes of Automatically Created Assignments

If necessary, before a project is released in project management, you can make manual changes to the assignments that were created using automatic controlling methods. If you do this, however, you can't revert to the automatic controlling method. From here on, this means that you'll have to create links manually for project elements that were retroactively created in project management.

A project element in project management can be assigned to a maximum of one WBS element. However, a WBS element can be linked to multiple elements in project management, provided that these elements all belong to the same PPM project. In addition, note that you can't assign the project elements of a project in PPM to WBS elements belonging to different projects in Project System; however, different WBS elements can be assigned to project elements of different projects in PPM.

You determine the controlling method, the controlling level, and a controlling scenario (e.g., one that contains data on the costing sheet or the settlement profile of the controlling objects in the SAP S/4HANA system) based on the project type in PPM specified in the Customizing section of the SAP S/4HANA system under the menu item **Integration with Other SAP Components • SAP Portfolio and Project Management • Project Management** (see [Figure 7.6](#)).

Here you'll also find documentation on various BAdIs that are available to you for making customer-specific adaptations in the process of integrating financials functions.

In the Customizing section of project management, you also need to specify when projects and WBS elements should be automatically created and when the cost-relevant data of a project in PPM should be transferred to Project System in accordance with the project type. This process, known as *transfer*, can take place independent of the status of the project in PPM every time the project is saved, automatically every time the project is saved if the **Flagged for Transfer** status is set, or if the **Released** status is set.

The technical process of integrating financials functions is also based on object links. In the standard version, project management comes with the object type `OFIN_INT_ERP_PS`. In this object type, you only have to create the RFC connection to the SAP S/4HANA system of Project System to use the RFC for object links. As soon as an object link is created between a project element in project management and a WBS element, you can display various data of the WBS element directly in the project element in PPM or call various internet services for the WBS element in project management.

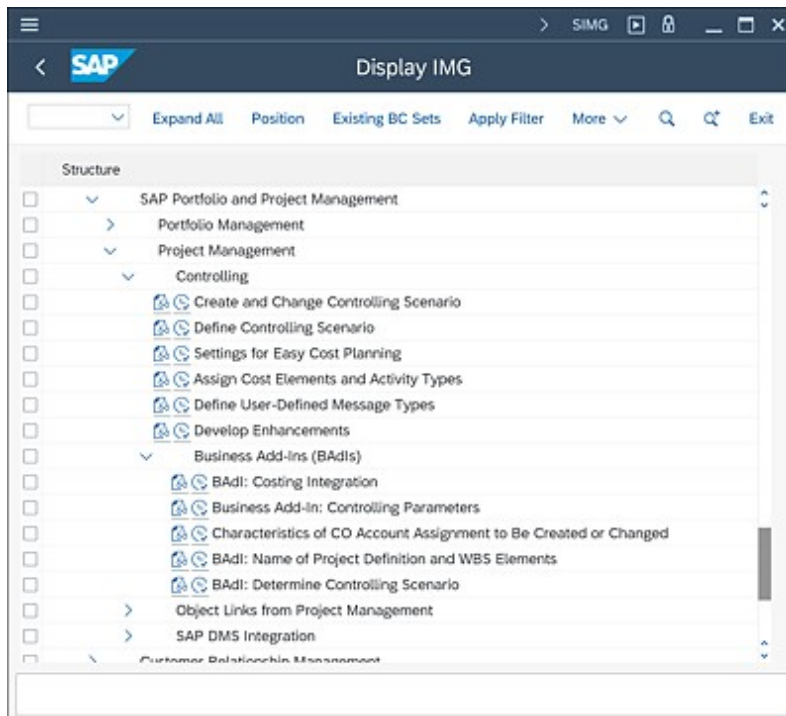


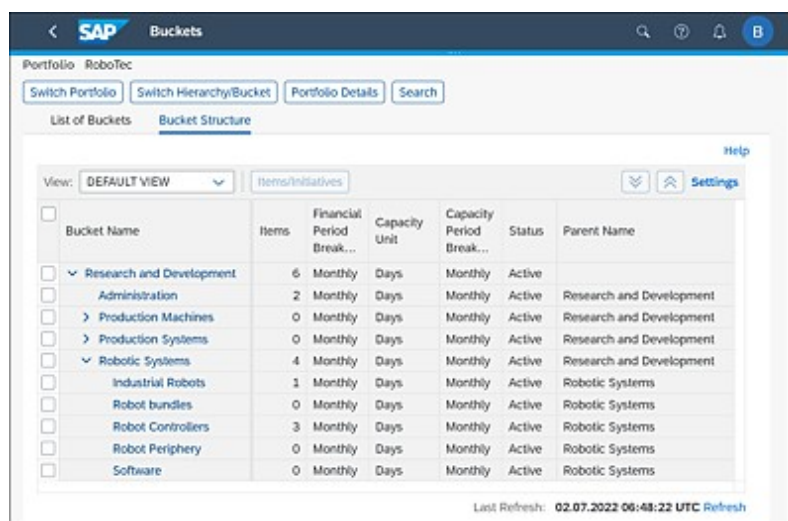
Figure 7.6 Settings for Financials Integration with Project System in the SAP System

7.1.2 Portfolio Management

Although Project System and project management can be used for the detailed planning and operational management of projects, *portfolio management* is used for the strategic analysis and control of entire project portfolios and, in particular, for planning and approving project ideas at an early stage.

To manage project portfolios, you can define various *portfolios* in PPM and hierarchically subdivide these portfolios into *portfolio buckets* (see

Figure 7.7). At the portfolio bucket level, you can already plan costs, budgets, or capacity data, for example. You can then assign *portfolio items* to the portfolio buckets at the lowest level. At an early stage, portfolio items can be used to define project proposals and ideas in PPM and to support selection and approval processes later on. At this stage, created projects and detailed planning are usually not available yet. You can then manually or automatically generate projects in project management or Project System and link them to a portfolio item at a later stage, for example, after the respective approval processes. Synchronization scenarios serve to automatically exchange data between the portfolio item and the linked project. This enables you to monitor and analyze project data in portfolio management using various dashboards, reports, and metrics.



The screenshot shows the SAP Portfolio Management interface for a portfolio named 'RoboTec'. The 'Bucket Structure' tab is active, displaying a hierarchical list of buckets. The table below represents the data shown in the screenshot.

Bucket Name	Items	Financial Period Break...	Capacity Unit	Capacity Period Break...	Status	Parent Name
Research and Development	6	Monthly	Days	Monthly	Active	
Administration	2	Monthly	Days	Monthly	Active	Research and Development
Production Machines	0	Monthly	Days	Monthly	Active	Research and Development
Production Systems	0	Monthly	Days	Monthly	Active	Research and Development
Robotic Systems	4	Monthly	Days	Monthly	Active	Research and Development
Industrial Robots	1	Monthly	Days	Monthly	Active	Robotic Systems
Robot bundles	0	Monthly	Days	Monthly	Active	Robotic Systems
Robot Controllers	3	Monthly	Days	Monthly	Active	Robotic Systems
Robot Periphery	0	Monthly	Days	Monthly	Active	Robotic Systems
Software	0	Monthly	Days	Monthly	Active	Robotic Systems

Figure 7.7 Sample Portfolio Structure in PPM

[+] Classification Hierarchies

For reporting purposes, you can define several alternative portfolio hierarchies called *classification hierarchies*. Portfolio items can then simultaneously be assigned to different portfolio buckets of the classification hierarchies. The percentage distribution that you specify for assignments determines the details of the data aggregation in the classification hierarchies. Typical portfolio structuring options include, for example, structuring by region or by functional or organizational aspects.

Now we'll describe the usage of portfolio items and the integration with projects in Project System via the robotics example.

In your enterprise, several structural measures are supposed to be implemented as investments. One of the investment proposals includes the construction of a new office building. To evaluate this proposal, you first enter a portfolio item in an appropriate portfolio bucket (see [Figure 7.8](#)).

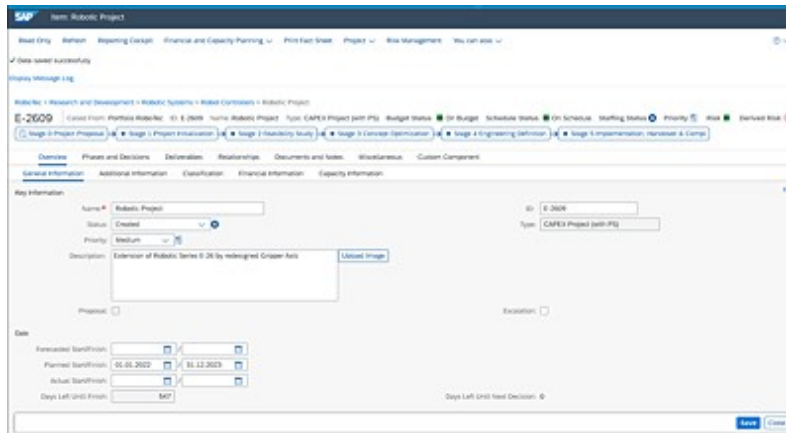


Figure 7.8 Sample Portfolio Item in PPM

In addition to general data for the description and scheduling of this proposal, you also enter various key figures, for example, those to do with risk, feasibility, or the economic benefits of this plan. These key figures were defined for the portfolio as a common basis for later approval processes in your enterprise in advance. *Questionnaires* and *scoring models* can be used to simplify the definition of the key figures and make it more transparent or to automatically derive key figure values from other field values. In addition to various standard key figures, you can also define custom key figure fields and integrate them with PPM. If there are relationships with other objects, then you can define them as dependencies with other portfolio items or by means of object links and documents in the portfolio item. The functions described in [Section 7.1.1](#) are available for risk management.

[+] Initiatives and Collections

Initiatives can be used in PPM to group and manage various portfolio items and projects. Initiatives are usually used for innovation plans in

which the development of new products and their introduction to the market are supposed to be managed together.

An alternative, less strict form of portfolio item groups in PPM is *collections*. Collections merely serve to monitor several portfolio items of different buckets together.

The lifecycle of a portfolio item can be divided into different phases called *decision points*. You schedule the start and end dates and the decision dates for the individual phases of the robotics project. Statuses control the process of the individual phases. At the portfolio item level, you can view information on the current decision point at any time.

In a next step, you perform first rough financial and capacity planning for building the robot at the portfolio item level (see [Figure 7.9](#)). Depending on the settings, planning can be implemented for fiscal years or individual periods, for example. You can define the financial and capacity planning structure freely in PPM Customizing using *views*, *types*, and *groups*. If required, you can also upload (roll up) certain financial and capacity data to the parent portfolio buckets to compare it to the corresponding higher-level planning data.

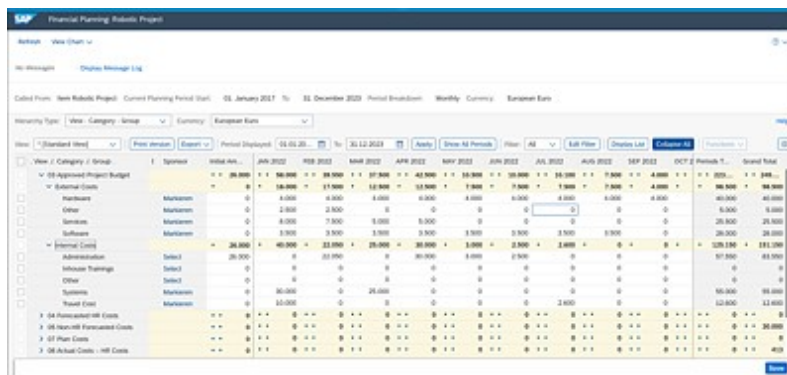


Figure 7.9 Sample Financial Planning at the Portfolio Item Level

After completing the definition of the portfolio item data, the corresponding approval processes can be implemented. PPM supports these approval processes, for example, with status management and workflow, portfolio reviews, and scoreboards. *Portfolio reviews* are used for approval—but also for portfolio item monitoring—and can be carried out periodically (e.g., annually) or ad hoc. After creating a review in PPM, you can assign this review the portfolio item that you want to evaluate. A *reporting cockpit*

provides an overview of the essential key figures and planning data of the review items in tables and diagrams. The *scoreboard* function allows you to have the system create ranking lists of the review portfolio items automatically based on the different scoring models. Scoring models are defined in PPM Customizing and are based on a weighted valuation of the portfolio item key figures.

What-if scenarios within reviews can be used to simulate different key figures, financial data, and capacity data for all or part of the review items. For what-if scenarios, separate reporting cockpits and dashboards are available with which you can compare the simulated key figures and planning data to the original data.

After the adjustment of the manufacturing robot series project has been approved in a portfolio review, you change the status of the portfolio item or of the last decision point accordingly. You create a new operational project in Project System automatically using a customer enhancement or by setting the **Create Project on Saving** indicator and selecting an appropriate project template in the portfolio item overview. You can now have the system automatically create various object links between the project and the portfolio item as well as between the decision points and the project elements, which allows for data exchange, for example, of date information, system status, financial data, or capacity data. The following object links are available:

- Portfolio item → Project
- Decision point → WBS elements or activities
- Object link to financials integration

The exchange of the date or status information can be *bidirectional*, *synchronous*, or *asynchronous*. This enables you, for example, to transfer forecast dates from the portfolio item to the project as well as planned and actual dates from the project to the portfolio item.

[+] Manually Creating Projects and Linking Objects

As an alternative to creating and linking projects from portfolio items automatically, you can also manually create a project in Project System

and link project definition, WBS elements, or activities in PPM to the portfolio item or the decision points.

If an object link to the financials integration between the portfolio item and project exists, then you can exchange financial data between the two objects. To upload accounting data from Project System, use program /RPM/FICO_INT_PLANNING, which you can schedule in PPM as a regular background job, for example (see [Figure 7.10](#)). The data transferred from the project to financial planning of the portfolio item can also be automatically uploaded within the portfolio structure so that it's available in the parent portfolio buckets for reporting purposes.

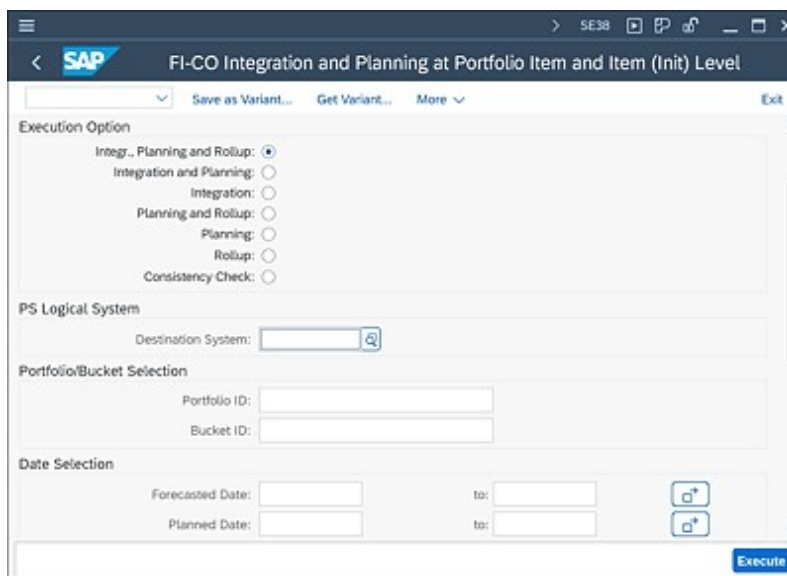


Figure 7.10 Program for the Integration of Accounting Data

You can implement detailed settings for the financials integration in the Customizing of PPM and of the SAP S/4HANA system. In PPM, besides the technical details of the object link, you define, for example, how data of hierarchically subordinate objects in the project and of assigned orders is supposed to be processed. In particular, you define the assignment of the cost and revenue elements in the SAP S/4HANA system for financial views, types, and groups in PPM. If necessary, you can add further details to this assignment by specifying cost centers and activity types. In Customizing of the connected SAP S/4HANA system, you can also determine how already settled values are supposed to be processed in the context of the integration with PPM.

In addition to loading accounting data from Project System to portfolio management, you can also transfer financial data from portfolio items as hierarchically structured planned costs or budgets to the assigned projects. In this way, you can transfer the budget assigned to the exchange of the manufacturing robot in portfolio management from financials planning of the portfolio item to the project. The person responsible for the project can then distribute this budget within the project structure (see [Chapter 3, Section 3.1](#)).

In addition to the financial data, you can also upload capacity data from Project System in portfolio management and compare it to the planned values in PPM. To derive capacity data, however, PPM doesn't directly use the capacity data of projects in Project System (see [Chapter 2, Section 2.2.1](#)) but derives the corresponding values from the transferred accounting data. In PPM Customizing, you assign cost elements, activity types, and cost centers to the respective capacity views, types, and groups.

When uploading accounting data from Project System using program /RPM/FICO_INT_PLANNING, the system automatically transfers the quantity data from the controlling records to the assigned capacity records in PPM. In contrast to the financials integration, you can't download capacity data from portfolio items to the assigned projects in Project System.

Thanks to the integration of the portfolio item with the project, you can now also monitor aggregated project details in portfolio management. If required, you can also directly navigate from a portfolio item to Project System processing or reporting transactions to view further details. Numerous reporting options, such as various dashboards, the reporting cockpit, metrics management, predefined business intelligence (BI) content, and reports, support you in monitoring and controlling your project portfolios in PPM.

7.2 Commercial Project Management

Commercial Project Management (CPM) functionality in SAP S/4HANA complements Project System and also PPM project management and other SAP applications with various functions for optimizing business processes. CPM was specifically developed as a component of SAP S/4HANA for handling customer projects that are focused on professional-service scenarios or construction projects. Various functions of CPM can also be used for other project types and industries, however. CPM comprises three components that are described in more detail in the following sections.

7.2.1 Project Cost and Revenue Planning

The *project cost and revenue planning* component offers another option for financial planning of projects. In contrast to the options outlined in [Chapter 2](#), you can use the financial plan of project cost and revenue planning also in the quotation phase of a customer project for which a project structure for planning may not exist yet. A financial plan of CPM enables you to define your own quotation structure, which can then be used for structured financial planning. If a project structure exists later on, then you can assign the quotation structure to the project structure and transfer the planned values to it. Of course, you can also use a project structure directly for financial planning if it already exists at the time of planning.

Further advantages of CPM project cost and revenue planning include the following:

- Use of SAP Analysis for Microsoft Office and Microsoft Excel as a planning interface to allow you to define your own workbooks and to integrate analysis functions with planning
- A uniform planning tool across all project phases, starting from cost estimations, to detailed project calculations and planning of variance costs, to special functions and workbooks for cost forecast

- Collective planning of quantities, costs, and revenues in one planning interface with embedded analysis functions
- The option to plan based on months, weeks, or days
- Enhanced functions for copying and versioning financial planning data as well as for comparing planned/actual and version values

[Figure 7.11](#) shows an example of project cost and revenue planning using CPM. From the technical perspective, project cost and revenue planning of CPM uses SAP BW integrated planning. In addition to the Microsoft Excel-based user interface, a Web Dynpro planning interface with a reduced range of functions is also available as an alternative.

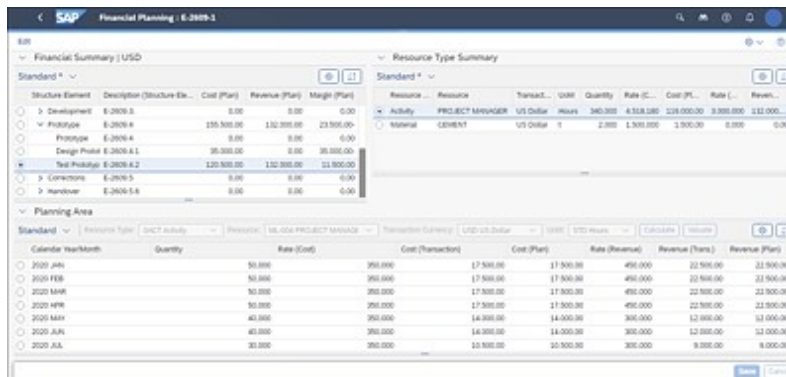


Figure 7.11 Project Cost and Revenue Planning Using CPM

In CPM, the financial planning data isn't directly written to the planning tables of SAP S/4HANA but stored in real-time InfoCubes of SAP BW. If required, you can transfer the planning data to the SAP S/4HANA system for follow-up processes later on, for example, in the form of cost or revenue planning, for quantity or material component updates in networks, or for resource staffing processes to SAP Multiresource Scheduling. Thanks to this flexible technical framework, project cost and revenue planning of CPM provides you with many adaption and enhancement options.

7.2.2 Project Issue and Change Management

The *project issue and change management* component of CPM constitutes a modern, Web Dynpro-based alternative to claim management discussed in

Chapter 4, Section 4.8. The two essential business processes that are supported by this component involve the entry and processing of issues within project processing and the handling and approval of project-related change requests. These two processes, which are often linked with one another, are described in more detail in the following sections.

Entering and Processing Issues

To document and possibly solve difficulties within the flow of a project, you can use *issues* in CPM (see [Figure 7.12](#)).

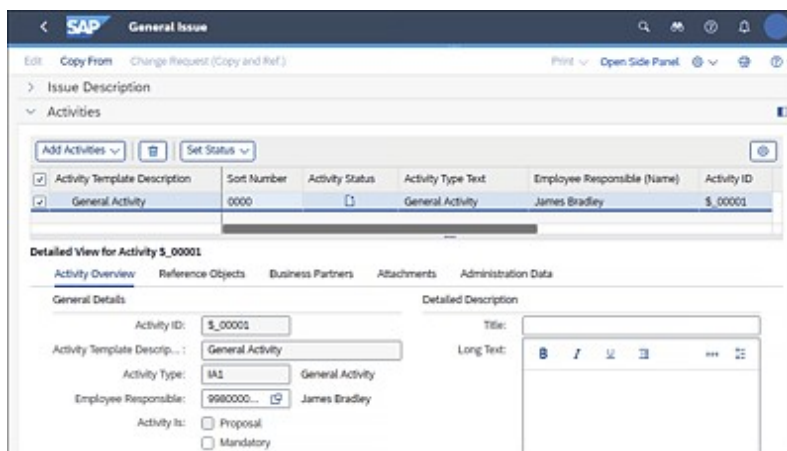


Figure 7.12 Entry of an Activity as a Measure for an Issue

The information that you can store for an issue includes the following:

- General issue details, such as identification, title, description, type, and priority of the issue as well as employee responsible and processing status
- Measures for further processing of the issue, up to solution and completion
- Relevant internal or external business partners and their roles
- Reference objects referring to the issue, for instance, project item or purchasing or sales documents that you want to display or process from the issue
- Document management documents, attachments, or links in the form of URLs

- Possible effects of the issue, such as estimated variance costs or estimated scheduling delay, as well as expected date of solution and a solution proposal itself
- Document history enabling you to track subsequent changes to the issue

[Figure 7.12](#) shows an example of entering an issue and the corresponding measures in CPM. Measures are defined via *activities*. Activities can be created manually, using templates, or automatically. If you assign partners to activities, then you can also use activities to send corresponding notifications via email or define approval processes in the form of workflows, for example.

[+] BRFplus

The rules for automatically creating activities and sending workflows and emails can be configured very flexibly using Business Rules Framework plus (BRFplus).

Change Management

Within the scope of a project, issues or change requests from customers may require changes to a project that can impact the schedule, the resources required, costs, or revenues. By means of change management, you can document these requirements, estimate and evaluate impacts on the project plan, and define approval processes.

Change management occurs with reference to a *change request* in CPM. You can create a change request directly, copy it, or create it based on an issue. In the latter case, you can then copy the data from the issue to the change request and transfer the issue as a reference object. If required, you can also create a collective change request by grouping various change requests to optimize further processing. A change request provides functions and fields that are similar to the issues described previously, for example, assignment of partners, attachments, and reference objects and the use of activities to define measures and approval processes. In a change request, you can also enter cost estimation alternatives.

Cost estimation alternatives in combination with the appropriate workbooks of project cost and revenue planning of CPM enable you to plan changes to the financial planning of your projects or project parts and link them with the change request. In this context, you can also enter multiple cost estimation alternatives for a change request. Later on, you can mark an alternative as ready for approval by setting a status. When a cost estimation alternative is approved, its values can be evaluated together with the other financial planning values in the project cost status reporting of CPM. The approval process is performed via the appropriate activities and BRFplus.

7.2.3 Project Workspace

Many business objects and documents from different applications or systems play a role during the various phases of a customer project. These include, for example, opportunities of SAP Customer Relationship Management (SAP CRM), quotations, orders from sales and distribution, financial plans, projects, issues and change requests, purchase requisitions, orders, and so on. Furthermore, employees with different roles are involved depending on the phase, such as sales employees, project managers, controllers, or (project) purchasers. The third component of CPM, *Project Workspace*, constitutes a user-friendly working environment for all project participants, in which users are provided with information on all relevant objects and documents in an integrated manner. The information users can view depends on their role.

[Figure 7.13](#) shows the initial screen of the Project Workspace via the Multiproject Overview app (F2133). The app already clearly displays various key figures and information for different projects. Before we discuss the Project Workspace and its cross-project and project-specific views in more detail, we'll first take a look at the integration and display of relevant data from SAP CRM, SAP ERP, and PPM using *commercial projects*.

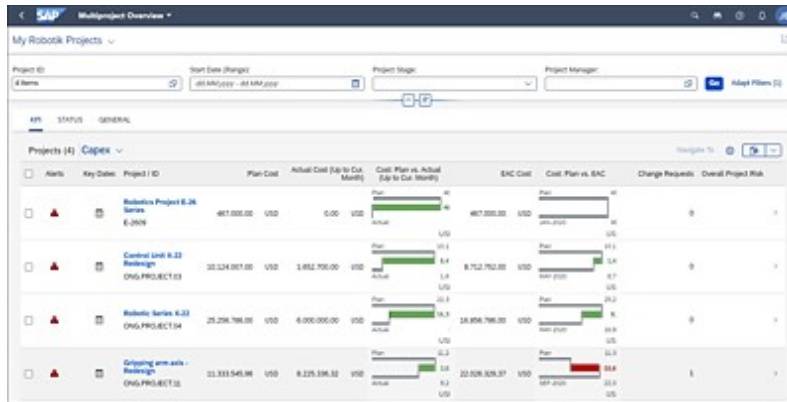


Figure 7.13 Cross-Project View of the Project Workspace in CPM

A commercial project in CPM serves as the link for all business objects that are relevant for a customer project and originate from SAP or non-SAP systems. The commercial project is thus the leading object in CPM. Besides the type of the commercial project, a description, and an ID, you can allocate additional information to a commercial project, such as details of the organizational assignment, start and end dates, the current project phase, or reporting attributes that can be configured freely in CPM Customizing. By means of business add-ins (BAdIs), you can synchronize various pieces of information with the business objects assigned to the master project. For example, you may automatically synchronize the start and end date with the dates of a project definition in Project System or transfer reporting attributes to the customer fields of assigned SAP objects.

The structure of a commercial project is defined by the assigned business objects. The assignment of business objects can be made manually or partly automated. For example, if you assign a project definition to a commercial project, then the subordinate project items or linked sales documents can be assigned automatically to the master project. In CPM, you can add further information and attributes to the assigned business objects as required. In addition, in CPM, you can define different *views* of the commercial project structure. With this structure, you specify the business objects to be displayed and how their hierarchical structure is to be presented. This allows for different Project Workspace views for the sales employees and project managers, for example.

For commercial projects, the CPM Project Workspace provides you with additional functions:

- **Definition of teams and roles**
This is used for the documentation of all relevant project members and their responsibilities. By assigning roles to the team members, you can influence their views and authorizations in the Project Workspace.
- **Rate card editor**
This is used to specify commercial project-specific prices, which are taken into account during pricing of the assigned sales documents.
- **Billing plan manager**
This is used for advanced planning and control of billing events (e.g., collective planning of fixed price and resource-related billing events or usage of delta data records when changes are made to the quantity or amounts of billing-relevant events).
- **Status management**
This provides the option to enter descriptive texts and trends on the current status of individual, freely configurable aspects (e.g., overall status, quality, budget, etc.). You can track the development of the project status via change logs, status reports, and functions for checking or reviewing the status.
- **Alerts framework**
This is used for the flexible definition of exceptional situations that are to be displayed directly in Project Workspace. Examples of alerts that are available to you by default include variances of planned and actual costs, open invoices or overdue customer payments, number of issues or change requests, and so on.

The cross-project view of Project Workspace (see [Figure 7.13](#)) provides an overview of critical key figures of your projects, the current status trends, and relevant alerts and important key dates. Many settings of this view can be adapted in a user-specific manner, for instance, the order in which the master projects are displayed, their grouping in categories, the selection of key figures, and alerts settings.

From the cross-project view, you can now navigate to the commercial Project Workspace. Depending on your role and the authorizations in the project, the system displays different views in the commercial Project

Workspace. [Figure 7.14](#) shows the overview of the commercial Project Workspace as an example.



Figure 7.14 Overview of a Project in the Commercial Project Workspace of CPM

On the left-hand side, you can view the structure of the commercial project with the various business objects. From here, you can navigate within the commercial project structure, view important information on an object, or go directly to the transactions for displaying or processing objects. On the right-hand side, you can find analysis functions that are integrated with the workspace. You're provided with current information on different aspects of the object selected, such as costs, work in process, or project progress (in a tabular or graphical form).

The commercial Project Workspace provides the following default views:

- **Commercial View**
This is used for analyzing assigned sales documents and navigating to their processing area.
- **Procurement View**
This provides an overview of purchasing history, including purchase orders, open purchase requisitions, service entry sheets and invoices, for calling the corresponding transactions.
- **Team Overview**
This allows you to define teams of professionals who perform specific roles and who are responsible for different aspects of the project.
- **Financial Plan**
This view is used for analyzing and creating financial plans ([Section 7.2.1](#)).

- **Issues and Changes**
This provides an overview of all issues and change requests for the master project ([Section 7.2.2](#)).
- **Documents**
This is used for viewing and assigning documents and attachments.
- **Risk Management**
This provides an overview of effects and probabilities of risks.

The flexible layout definition of CPM, embedded analysis functions, and various customer enhancement options allow you to customize the workspace in a variety of ways that are specific to the customer and, in some cases, the user.

7.3 Enhancements on SAP Business Technology Platform

Cloud services and applications on SAP Business Technology Platform (SAP BTP) represent another option for extending Project System with individual functions or even entire business processes.

SAP BTP is a cloud-based platform that comprises an integrated technology portfolio covering data management and analytics, artificial intelligence, application development, and automation and integration. SAP and partners provide various services and applications based on this uniform platform. However, you also have the option to very easily build your own enhancements on SAP BTP and integrate them into your project-related processes. For example, you can design and manage cross-system workflows or software robots to automate your business processes.

For product lifecycle management tasks in development projects, you can use various cloud services from SAP Enterprise Product Development. These include, among others, functions such as the following:

- Orchestrating the collaboration with internal or external parties (e.g., original equipment manufacturers [OEMs]) and the exchange of design documents, as well as the joint processing of product data from bills of materials (BOMs)
- Workflows for a process-driven collaboration
- Management, conversion, and visualization of 3D data
- Collection and analysis of product requirements, as well as requirements management and system modeling
- Integration scenarios with project management

In the context of plant maintenance projects or projects in plants engineering and construction, SAP Business Network for Asset Management provides additional functions such as the following:

- A business network for suppliers, machine manufacturers, operators, and service providers of plants

- Cooperation scenarios for defining, enriching, and sharing asset-related master data, such as asset classifications or characteristics

Especially for the extension of project control functions in SAP S/4HANA Cloud but also for the on-premise version of SAP S/4HANA, SAP S/4HANA Cloud for projects is available on SAP BTP. The functions for collaborative project management and central resource management of this solution will now be explained in greater detail.

7.3.1 Collaborative Project Management

While the focus of SAP Enterprise Product Development collaboration scenarios is on product master data and requirements and that of SAP Business Network for Asset Management on asset-related master data, collaborative project management provides functions for exchanging and jointly editing project-related data.

An example of the use of collaborative project management is the collaboration on a construction project (see [Figure 7.15](#)). In this context, numerous documents must be exchanged between the ordering company and various contractors. Schedules must be coordinated among multiple project members, and issues must be documented and tracked. In the course of project execution, individual tasks are to be defined, if necessary, and assigned to responsible persons of the various companies for their processing.

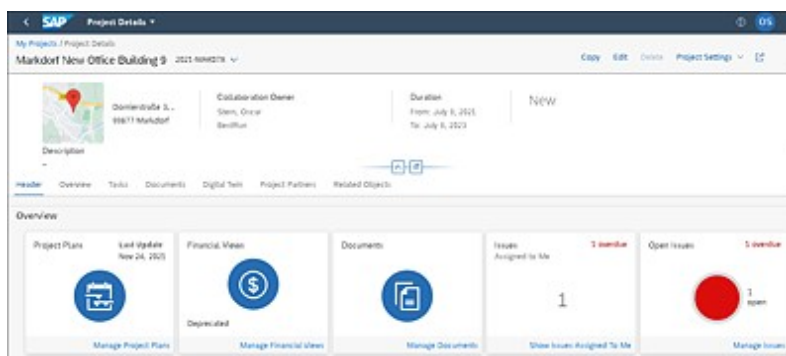


Figure 7.15 Details of a Collaboration Project

To use collaborative project management, the first step is to create a collaboration project in SAP S/4HANA Cloud for projects. Then you can easily invite internal or even external people from project partners. To set the legal framework for collaboration, the system helps you manage legal documents, such as terms of use or privacy statements.

Project partners can be companies that are already part of the SAP S/4HANA Cloud for projects business network or new companies that you explicitly invite to collaborate. Once you've selected a project partner person, the system automatically generates an email with all the relevant information that you can send to the person. If the invitation and the associated legal documents are accepted, the project partner has direct access to the collaboration project.

The access rights to the collaboration project as well as to the different elements of the project can be controlled by assigning authorizations. By using authorization groups and roles, you can very efficiently manage authorizations for entire groups of people but also for individuals.

Once you've created a collaboration project, you can manage project plans, documents, or even digital twins, that is, digital representations of physical entities, such as building or asset components, and share them with other project partners. [Figure 7.15](#), shown earlier, provides an example of the details of a collaboration project.

You can either create project plans directly in SAP S/4HANA Cloud for projects, structure them and plan their dates, or import them. For example, you can upload a WBS from Project System as well as schedules of business partners from other external systems and display them together in a Gantt chart.

You can then add issues to the project elements of the various project plans and assign people or project partners, for example, to document and manage necessary changes. If required, you can also import multiple issues in BIM Collaboration Format (BCF) or export issues to Microsoft Excel.

To control a joint execution of project elements or of issues, you can use tasks that represent individual project-related activities and that you can in turn assign to users or project partners for processing. Using subtasks or an integration with SAP BTP's workflow service, you can further detail and efficiently orchestrate the processing of tasks. You can also very easily link

issues and tasks to related objects from other systems, such as purchase orders or sales orders, and switch to their display or processing if necessary—provided you have the appropriate authorizations.

7.3.2 Resource Management

Especially in personnel-intensive projects, such as consulting projects in the service sector, efficient management of these human resources is of central importance. Important aspects of resource management include the following:

- Allocating the appropriate resources to project requirements in a timely fashion based on the skills and availability of individuals
- Monitoring the utilization of resources
- Supporting the collaboration between project managers, resource management, and the individual resources themselves

SAP S/4HANA Cloud for projects resource management supports you with the following roles and functions.

Project Team Member

As a project team member, such as a consultant, you can maintain your own profile in the My Project Experience app with details of your qualifications and project experience. This will ensure that you can be assigned to projects that match your experience.

In this app, you can also view current assignments to plan your work accordingly. In the **Availability** section, you'll also find information about your workload in the coming months.

Requesting Person

As a requesting person, such as a project manager or project leader, you're responsible for resource requests based on project data and requirements from your projects. Resource requests can be created manually or automated

using APIs. A resource request contains, among other things, information about the project or work package, project role and required skills, start and end dates, and required effort. If necessary, you can also spread the effort across days or weeks in the requested period.

To start the staffing process for a resource request, you need to publish it using an appropriate status. As the person making the request, you can then follow the progress of the staffing process and monitor in the resource request, for example, the project team members assigned to the resource request and the assignment status of the individual assignments.

Resource Management

As a resource manager, you'll undertake the staffing process of published resource requests and monitor the utilization of your resources. The system supports you in filling a resource request by automatically suggesting suitable resources. Among other things, the system takes into account information on the availability as well as the match of skills. If no suitable resource is available in your supplier organization, you can also forward a resource request to another supplier organization. When staffing, you can assign resources directly on a fixed basis or only provisionally at first, for example, to reserve a resource for a project that hasn't yet been confirmed.

Using the Manage Resource Utilization app, you can monitor the utilization of all your resources and also edit assignments if required. [Figure 7.16](#) shows an example of how resource utilization is displayed in this app.

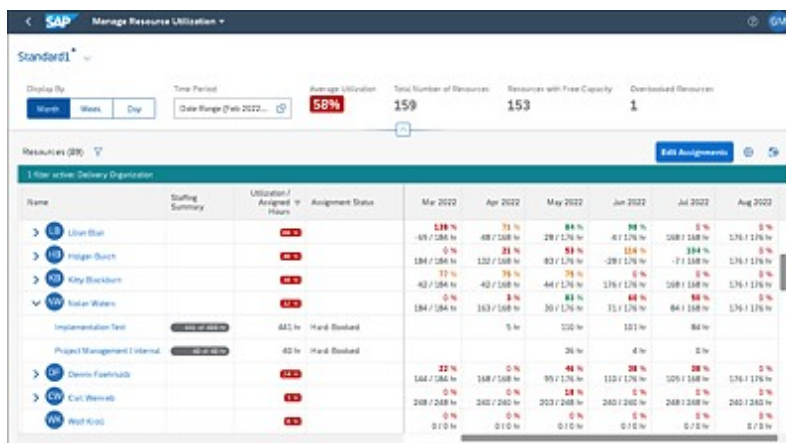


Figure 7.16 Monitoring Resource Utilization Using the Manage Resource Utilization App

7.4 Summary

Project System provides a range of application interfaces for data exchange with external programs. These BAPIs and services can be used to export project data from Project System, modify projects, or create new project objects. Projects in project management can use Project System integration scenarios, for example, for financials integration with the SAP S/4HANA system. The integration of Project System with portfolio management can be used to define, approve, control, and monitor entire project portfolios. CPM complements Project System with various functions and processes, specifically for customer project handling. Integration scenarios with cloud-based applications allow you to add further functional enhancements, such as sharing schedules or collaborating on project execution with external companies.

A Selected Interfaces in Project System

Various interfaces are available in Project System for data exchange with other programs. In addition to the classic Business Application Programming Interfaces (BAPIs), as shown in [Table A.1](#), you can also use various OData-based APIs in SAP S/4HANA release 2022, as shown in [Table A.2](#). For more information about the BAPIs, see Transaction BAPI; for more information about the currently available OData APIs of Project System, go to the SAP API Business Hub at <https://api.sap.com/>.

ProjectDefintionPI	Change CreateFromData CreateSingle Delete ExistenceCheck GetData GetDetail GetGuidFromKey GetKeyFromGuid GetList GetStatus PartnerChangeMultiple PartnerCreateMultiple PartnerGetdetail PartnerGetlist PartnerRemoveMultiple SetStatus Update
--------------------	--

WBSPI	ChangeMultiple CreateMultiple DeleteMultiple ExistenceCheck GetData GetGuidFromKey Getinfo GetKeyFromGuid GetStatus Maintain SaveReplica SetStatus
NetworkPI	ActChangeMultiple ActCreateMultiple ActDeleteMultiple ActElemChangeMultiple ActElemCreateMultiple ActElemDeleteMultiple ActElemGetData ActGetData AddComponent AddConfirmation CancelConfirmation Change CreateFromData Delete ExistenceCheck GetActGuidFromKey GetActKeyFromGuid GetData Getdetail GetDetailComponent GetDetailConfirmation GetElemGuidFromKey GetElemKeyFromGuid

NetworkPI (Cont.)	GetGuidFromKey
	Getinfo
	GetKeyFromGuid
	GetList
	GetListComponent
	GetListConfirmation
	GetProposalConfirmation
	GetStatus
	Maintain
	RemoveComponent
SetStatus	

Table A.1 Selected BAPIs in Project System

Project (API_PROJECT_V3)	Project	Read, Create, Modify, Delete
	ProjectStatus	Read, Modify
	WBSElement	Read, Create, Modify, Delete
	WBSElementStatus	Read, Modify
Project Network (API_PROJECTNETWORK)	ProjectNetwork	Read
	ProjectNetworkActivity	Read

	ProjectNetworkActivityStatus ProjectNetworkStatus ProjectNetworkActivityElement ProjNtwkActivityMilestone ProjNtwkActivityMatlComp ProjNtwkActivityMatlCompStatus ProjNtwkActyRelationship	
Project Claim (API_PROJECTCLAIM)	ProjectClaim	Read

Table A.2 OData APIs in SAP S/4HANA Release 2022

B Selected Project System Database Tables

[Table B.1](#) and [Table B.2](#) provide you with the most critical database tables of Project System and finance.

PROJ	Project definition
PRPS	Work breakdown structure (WBS) element master data
PRTE	Dates for WBS elements
PRHI	WBS hierarchy
AUFK/AFKO	Orders and networks
AFVC/AFVU/AFVV	Network activities
RESB	Reservation/dependent requirements (material components)
MLST	Milestones
VS<table name>_CN	Version master data

Table B.1 Database Tables for Project System Master Data

RPSCO	Project info database (costs, revenues, etc.)
RPSQT	Project info database (quantities, statistical key figures, etc.)
COSP	Primary costs (totals records)
COSS	Secondary costs (totals records)
COSB	Variances/accrual (totals records)
COEP	Actual costs (line items)
COOI	Commitments (line items)
COEJ	Planned costs (line items)
BPGE	Overall budget, overall planned costs
BPJA	Fiscal year budget, fiscal year plan values
QBEW	Project stock evaluation
MSPR	Valuated and non-valuated project stock
ACDOCP	Planning data line items
ACDOCA	Universal Journal entry line items

Table B.2 Database Tables for Project System Transaction Data

C Transactions and Menu Paths

You can reach the Project System menu in the standard SAP menu via the **Logistics** entry as well as via the **Accounting** entry.

You can access the SAP Customizing Implementation Guide using Transaction SPRO or via menu path **Tools • Customizing • IMG • Execute Project**.

C.1 Structures and Master Data

In this section, you'll find an overview of the transactions, Customizing activities, and menu paths for creating and editing project structures and their master data.

C.1.1 Transactions in the SAP Menu

The first list contains the relevant transactions in the SAP menu.

Operative Structures

Project Builder (Transaction CJ20N): Project System • Project • Project Builder

Project Planning Board (Transactions CJ27/CJ2B/CJ2C): Project System • Project • Project Planning Board • Create Project/Change Project/Display Project

Structure Planning (Transactions CJ2D/CJ20/CJ2A): Project System • Project • Special Maintenance Functions • Structure Planning • Create Project/Change Project/Display Project

Work Breakdown Structure (WBS) (Transactions CJ01/CJ02/CJ03): Project System • Project • Special Maintenance Functions • Work Breakdown Structure (WBS) • Create/Change/Display

Project Definition (Transactions CJ06/CJ07/CJ08): Project System • Project • Special Maintenance Functions • Work Breakdown Structure (WBS) • Project Definition • Create/Change/Display

Single Element (Transactions CJ11/CJ12/CJ13): Project System • Project • Special Maintenance Functions • Work Breakdown Structure (WBS) • Single Element • Create/Change/Display

Network (Transactions CN21/CN22/CN23): Project System • Project • Special Maintenance Functions • Network • Create/Change/Display

Mass Change (Transaction CNMASS): Project System • Basic Data • Tools • Mass Change • Execute

Mass Status Change (Transaction CNMASSSTATUS): Project System • Basic Data • Tools • Mass Change • Mass Status Change

Mass Creation of Projects (Transaction CNMASSCREATE): Project System • Basic Data • Tools • Mass Change • Mass Creation of Projects

Data Archiving (Transaction SARA): Tools • Administration • Administration • Data Archiving

Standard Structures and Versions

Standard WBS (Transactions CJ91/CJ92/CJ93): Project System • Basic Data • Templates • Standard WBS • Create/Change/Display

Standard Network (Transactions CN01/CN02/CN03/CN98): Project System • Basic Data • Templates • Standard Network • Create/Change/Display/Delete

Standard Milestone (Transactions CN11/CN12/CN13): Project System • Basic Data • Templates • Standard Milestone • Create/Change/Display

Simulation (Transactions CJV1/CJV2/CJV3/CJV5): Project System • Project • Simulation • Create/Change/Display/Delete

Transfer Project (Transaction CJV4): Project System • Project • Simulation • Transfer Project

Project Version (Transaction CN72): Project System • Project • Project Version • Create

C.1.2 Customizing Activities

The following is an overview of relevant Customizing activities for creating project structures and their master data.

Operative Structures

Create Project Profile (Transaction OPSA): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work Breakdown Structure (WBS) • Create Project Profile

Define Special Characters for Project (Transaction OPSK): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work Breakdown Structure (WBS) • Project Coding Mask • Define Special Characters for Projects

Define Project Coding Mask (Transaction OPSJ): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work Breakdown Structure (WBS) • Project Coding Mask • Define Project Coding Mask

Specify Persons Responsible for WBS Elements (Transaction OPS6): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work Breakdown Structure • Specify Persons Responsible for WBS elements

Create Status Profile (Transaction OK02): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work Breakdown Structure • WBS User Status • Create Status Profile

Process Status Combination Codes: SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work

Breakdown Structure • Process Status Combination Code

Maintain Validations (Transaction OPSI): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work Breakdown Structure • Maintain Validations

Maintain Substitutions (Transaction OPSN): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Work Breakdown Structure • Maintain Substitutions

Define Number Ranges for Network (Transaction CO82): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • Settings for Networks • Set Up Number Ranges for Network

Maintain Network Types (Transaction OPSC): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • Settings for Networks • Maintain Network Types

Specify Parameters for Network Type (Transaction OPUV): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • Settings for Networks • Specify Parameters for Network Type

Maintain Network Profiles (Transaction OPUU): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • Settings for Networks • Maintain Network Profiles

Define Control Key (Transaction OPSU): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • Settings for Network Activities • Define Control Key

Define Parameters for Subnetworks (Transaction OPTP): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • Define Parameters for Subnetworks

Define Milestone Usage: SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Milestones • Define Milestone Usage

Define Profiles for the Project Planning Board (Transaction OPT7): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Project Planning Board • Define Profiles for the Project Planning Board

Configure View Type Clusters: SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • View Types for Project Network Graph • Configure View Type Clusters

Standard Structures and Versions

Set Up Number Ranges for Standard Network (Transaction CNN1): SAP Customizing Implementation Guide • Project System • Structures • Templates • Standard Network • Set Up Number Ranges for Standard Network

Define Parameters for Standard Network (Transaction OP8B): SAP Customizing Implementation Guide • Project System • Structures • Templates • Standard Network • Define Parameters for Standard Network

Maintain Standard Network Profiles (Transaction OPS5): SAP Customizing Implementation Guide • Project System • Structures • Templates • Standard Network • Maintain Standard Network Profiles

Define Status for Standard Networks (Transaction OPUW): SAP Customizing Implementation Guide • Project System • Structures • Templates • Standard Network • Define Status for Standard Networks

Define Milestone Groups for Standard Milestones (Transaction OPT6): SAP Customizing Implementation Guide • Project System • Structures • Templates • Standard Milestone • Define Milestone Groups for Standard Milestones

Stipulate Version Keys for the Simulation (Transaction OPUS): SAP Customizing Implementation Guide • Project System • Simulation • Stipulate Version Keys for the Simulation

Stipulate Simulation Profiles: SAP Customizing Implementation Guide • Project System • Simulation • Stipulate Simulation Profiles

<https://t.me/PrMaB2>

**Create Profile for Project Version (Transaction OPTS): SAP
Customizing Implementation Guide • Project System • Project Versions
• Create Profile for Project Version**

C.2 Planning Functions

The following functions and their Customizing settings are mainly used for project planning in Project System.

C.2.1 Transactions in the SAP Menu

First, this section provides an overview of the transactions that can be used in planning.

Time Scheduling

Basic Dates (Transactions CJ21/CJ22): Project System • Dates • Change/Display Basic Dates

Forecast Dates (Transactions CJ23/CJ24): Project System • Dates • Change/Display Forecast Dates

Project Scheduling (Transaction CJ29): Project System • Dates • Project Scheduling

Overall Network Scheduling (Transaction CJ24): Project System • Dates • Overall Network Scheduling

Overall Network Scheduling (New) (Transaction CJ24N): Project System • Dates • Overall Network Scheduling (New)

Resource Planning

(Project) Work Center (Transactions CNR1/CNR2/CNR3): Project System • Basic Data • Master Data • Work Center • Master Record • Create/Change/Display

Workforce Planning (Transactions CMP2/CMP3/CMP9): Project System • Resources • Workforce Planning • Project View/Work Center View/Evaluation

Capacity Balancing (Transactions CM32/CM26): Project System • Resources • Capacity Requirements Planning • Leveling • Project View • Planning Table (Graphical)/(Tabular)

Material Planning

Single-Level Work Breakdown Structure BOM (Transactions CS71/CS72/CS73): Logistics • Production • Master Data • Bills of Materials • Bill of Materials • WBS BOM • Single-Level • Create/Change/Display

Multilevel Work Breakdown Structure BOM (Transactions CS74/CS75/CS76/CSPB): Logistics • Production • Master Data • Bills of Materials • Bill of Materials • WBS BOM • Multilevel • Create/Change/Display/Project Browser

Bill of Material Transfer (Transaction CN33): Project System • Material • Planning • Bill of Material Transfer

Assign WBS Elements for Grouping (Transactions GRM4/GRM3): Project System • Material • Planning • Requirements Grouping • Assign WBS Elements Individually/Using List

Assign MRP Groups (Transaction GRM5): Project System • Material • Planning • Requirements Grouping • Assign MRP Groups

Maintain Grouping WBS Elements (Transaction GRM8): Project System • Material • Planning • Requirements Grouping • Maintain Grouping WBS Elements

Execute Pegging Run (Transaction PMMO_PEGGING): Logistics • Project Manufacturing Management and Optimization • Pegging • Execute Pegging Run

Execute Distribution Run (Transaction PMMO_DISTRIBUTION): Logistics • Project Manufacturing Management and Optimization • Distribution • Execute Distribution Run

Cost and Revenue Planning

Overall Planning (Transactions CJ40/CJ41): Project System • Financials • Planning • Costs in WBS • Overall • Change/Display

Cost/Activity Inputs (Transactions CJR2/CJR3): Project System • Financials • Planning • Costs in WBS • Costs/Activity Inputs • Change/Display

Models for Easy Cost Planning (Transaction CKCM): Project System • Basic Data • Templates • Models for Easy Cost Planning

(Asynchronous) Network Costing (Transaction CJ9K): Project System • Financials • Planning • Network Costing

Payments in the WBS (Transactions CJ48/CJ49): Project System • Financials • Planning • Payments in the WBS • Change/Display

Revenues in the WBS (Transactions CJ42/CJ43): Project System • Financials • Planning • Revenues in the WBS • Change/Display

Sales Pricing (Transactions DP81/DP82): Project System • Financials • Planning • Sales Pricing/Sales Pricing for Project

Copy Costs and Revenues (Single) (Transactions CJ9BS/CJ9CS/CJ9FS): Project System • Financials • Planning • Copy Costs and Revenues • Copy WBS Plan to Plan/WBS Actual to Plan/Project Costing

Copy Costs and Revenues (Collected) (Transactions CJ9B/CJ9C/CJ9F): Project System • Controlling • Planning • Copy Costs and Revenues • Copy WBS Plan to Plan/WBS Actual in Plan/Project Costing

Roles (Transaction PFCG): Tools • Administration • User Maintenance • Role Administration • Roles

C.2.2 Customizing Activities

The following Customizing activities for the planning functions are available in Project System.

Time Scheduling

Define Scheduling Types (Transaction OPJN): SAP Customizing Implementation Guide • Project System • Dates • Scheduling • Define Scheduling Types

Specify Parameters for Network Scheduling (Transaction OPU6): SAP Customizing Implementation Guide • Project System • Dates • Scheduling • Specify Parameters for Network Scheduling

Define Parameters for WBS Scheduling: SAP Customizing Implementation Guide • Project System • Dates • Date Planning in WBS • Define Parameters for WBS Scheduling

Resource Planning

Specify Work Center Categories (Transaction OP40): SAP Customizing Implementation Guide • Project System • Resources • Work Center • Specify Work Center Categories

Define Capacity Categories: SAP Customizing Implementation Guide • Project System • Resources • Define Capacity Categories

Define Profiles for Workforce Planning for Human Resources (Transaction CMPC): SAP Customizing Implementation Guide • Project System • Resources • Define Profiles for Workforce Planning for Human Resources

Account Assignment Categories and Document Types for Purchase Requisitions (Transaction OPTT): SAP Customizing Implementation Guide • Project System • Structures • Operative Structures • Network • Settings for Network Activities • Account Assignment Categories and Document Types for Purchase Requisitions

Material Planning

Define Procurement Indicators for Material Components (Transaction OPS8): SAP Customizing Implementation Guide • Project System • Material • Procurement • Define Procurement Indicators for Material Components

Catalogs (OCI Interface): SAP Customizing Implementation Guide • Project System • Material • Interface for Procurement Using Catalogs (OCI)

Define Reference Points for Bill of Material Transfer: SAP Customizing Implementation Guide • Project System • Material • Bill of Materials Transfer • Define Reference Points for BOM Transfer

Define Fields in BOM and Activity as Reference Points (Transaction CN38): SAP Customizing Implementation Guide • Project System • Material • Bill of Materials Transfer • Define Fields in BOM and Activity as Reference Points

Define Profiles for Bill of Material Transfer: SAP Customizing Implementation Guide • Project System • Material • Bill of Materials Transfer • Define Profiles for Bill of Material Transfer

Activate MRP Groups for Requirements Grouping: SAP Customizing Implementation Guide • Project System • Material • Procurement • Activate MRP Groups for Requirements Grouping

PMMO Customizing (Transaction PMMO_IMG): SAP Customizing Implementation Guide • Project Manufacturing Management and Optimization

Define Checking Control (Transaction OPJK): SAP Customizing Implementation Guide • Project System • Material • Availability Check • Define Checking Control

Cost and Revenue Planning

Create CO Versions: SAP Customizing Implementation Guide • Project System • Costs • Create CO Versions

Maintain Category for Planning: SAP Customizing Implementation Guide • Controlling • General Controlling • Planning • Maintain Category for Planning

Create/Change Plan Profile (Transaction OPSB): SAP Customizing Implementation Guide • Project System • Costs • Planned Costs • Manual Cost Planning in WBS • Hierarchical Cost Planning • Create/Change Plan Profile

Create Costing Variant for Unit Costing (Transaction OKKT): SAP Customizing Implementation Guide • Project System • Costs • Planned Costs • Manual Cost Planning in WBS • Unit Costing • Create Costing Variant

Easy Cost Planning: SAP Customizing Implementation Guide • Project System • Costs • Planned Costs • Easy Cost Planning and Execution Services • Easy Cost Planning

Define Costing Variants for Network Costing (Transaction OPL1): SAP Customizing Implementation Guide • Project System • Costs • Planned Costs • Automatic Costing in Networks/Activities • Costing • Define Costing Variants

Define Order Value Updating for Orders for Projects (Transaction OPSV): SAP Customizing Implementation Guide • Project System • Costs • Planned Costs • Define Order Value Updating for Orders for Projects

DIP Profile (Transaction ODP1): SAP Customizing Implementation Guide • Project System • Revenues and Earnings • Integration with SD Documents • Creating Quotations and Project Billing • Maintain Profiles for Quotations and Billing

C.3 Budget

When budgeting projects, you can particularly use the transactions, Customizing activities, and menu paths listed here.

C.3.1 Transactions in the SAP Menu

The transactions listed in this section play a specific role in budgeting.

Budgeting in Project System

Original Budget (Transactions CJ30/CJ31): Project System • Financials • Budgeting • Original Budget • Change/Display

Supplement (Transactions CJ37/CJ36): Project System • Financials • Budgeting • Supplement • In Project/To Project

Return (Transactions CJ38/CJ35): Project System • Financials • Budgeting • Return • In Project/From Project

Transfer (Transaction CJ34): Project System • Financials • Budgeting • Transfer

Release (Transactions CJ32/CJ33): Project System • Financials • Budgeting • Release • Change/Display

Mass Release of Budget for Projects (Transaction IMCBR3): Project System • Financials • Budgeting • Tools • Mass Release of Budget for Projects

Availability Control (Transactions CJBV/CVBW): Project System • Financials • Budgeting • Tools • Activate/Deactivate Availability Control

Adopt Plan by Budget for Projects (Transaction IMCCP3): Project System • Financials • Budgeting • Tools • Transfer Plan to Project Budget

Budget Carryforward (Transaction CJCO): Project System • Financials
• Year-End Closing • Budget Carryforward

Integration with Investment Management

Default Plan Values (Transactions IM34): Accounting • Investment Management • Programs • Program Planning • Default Plan Values

Budget Distribution (Transactions IM52/IM53): Accounting • Investment Management • Programs • Budgeting • Budget Distribution
• Edit/Display

C.3.2 Customizing Activities

The following budget management settings can be made in Customizing.

Budgeting in Project System

Maintain Budget Profiles (Transaction OPS9): SAP Customizing Implementation Guide • Project System • Costs • Budget • Maintain Budget Profiles

Define Tolerance Limits: SAP Customizing Implementation Guide • Project System • Costs • Budget • Define Tolerance Limits

Define Exempt Cost Elements (Transaction OPTK): SAP Customizing Implementation Guide • Project System • Costs • Budget • Define Exempt Cost Elements

Reconstruct Availability Control (Transaction CJBN): SAP Customizing Implementation Guide • Project System • Costs • Budget • Reconstruct Availability Control

Integration with Investment Management

Define Program Types: SAP Customizing Implementation Guide • Investment Management • Investment Programs • Master Data • Define Program Types

C.4 Project Execution

In the execution phase of projects, the transactions and menu paths listed in this section are relevant.

C.4.1 Transactions in the SAP Menu

Here you'll first find the transactions relevant for project implementation.

Account Assignment of Documents, Confirmations, and Procurement Processes

Purchase Requisitions (Transactions ME51N/ME52N/ME53N):
Logistics • Materials Management • Purchasing • Purchase Requisition • Create/Change/Display

Create Purchase Order (Transactions ME21N/ME25/ME58/ME59):
Logistics • Materials Management • Purchasing • Purchase Order • Create • Vendor/Supplying Plant Known/Vendor Unknown/Via Requisition Assignment List/Automatically via Purchase Requisition

Goods Receipt (Transaction MIGO): Logistics • Materials Management • Purchasing • Purchase Order • Follow-On Functions • Goods Receipt

Service Entry Sheet (Transaction ML81N): Logistics • Materials Management • Purchasing • Purchase Order • Follow-On Functions • Service Entry Sheet • Maintain

Activity Allocations (Transactions KB21N/KB23N/KB24N): Project System • Financials • Actual Postings • Activity Allocation • Enter/Display/Cancel

Individual Confirmation (Transactions CN25/CN28/CN29): Project System • Progress • Confirmation • Individual Confirmation • Enter/Display/Cancel

Collective Confirmation (Transaction CN27): Project System • Progress • Confirmation • Collective Confirmation

CATS Classic (Transactions CAT2/CAT3): Project System • Progress • Confirmation • Time Sheet • CATS Classic • Record/Display Working Times

CATS for Service Providers (Transactions CATSXT/CATSXT_ADMIN): Project System • Progress • Confirmation • Time Sheet • CATS for Service Providers • Record Own Working Times/Record Working Times

Transfer (Transactions CATA/CAT7/CAT6/CATM/CAT9/CAT5): Project System • Progress • Confirmation • Time Sheet • Transfer • All Components/Accounting/Human Resources/External Services/Plant Maintenance/Project System

MRP Run Project Stock (Transaction MD51): Project System • Material • Planning • MRP Project

Delivery from Project (Transaction CNS0): Project System • Material • Execution • Delivery from Project

ProMan (Transaction CNMM): Project System • Material • Execution • Project-Oriented Procurement (ProMan)

Invoicing, Project Progress, and Claim Management

Invoice (Transactions VF01/VF02/VF03/VF04/VF11): Logistics • Sales and Distribution • Billing • Billing Document • Create/Change/Display/Process Billing Due List/Cancel

Resource-Related Billing Document (Transactions DP91/DP96/DP93): Logistics • Sales and Distribution • Sales • Order • Subsequent Functions • Resource-Related Billing Document/Resource Related Billing Document (Collective Processing)/Billing Between Company Codes

Milestone Trend Analysis (Transaction CNMT): Project System • Information System • Progress • Milestone Trend Analysis

Progress Calculation (Transactions CNE1/CNE2): Project System • Progress • Progress Determination • Individual Processing/Collective Processing

Progress Analysis Workbench (Transaction CNPAWB): Project System • Progress • Progress Analysis Workbench

Progress Tracking (Transactions COMPXPD/WBSXPD/NTWXPD): Project System • Progress • Progress Tracking • Progress Tracking/Progress Tracking for Work Breakdown Structures/Progress Tracking for Networks

Claim (Transactions CLM1/CLM2/CLM3): Project System • Notifications • Claim • Create/Change/Display

Claim Evaluations (Transactions CLM10/CLM11): Project System • Information System • Claim • Overview/Hierarchy

C.4.2 Customizing Activities

In Customizing for Project System, you can make the following settings in particular with regard to the execution of projects.

Account Assignment of Documents, Confirmations, and Procurement Processes

Execution Services: SAP Customizing Implementation Guide • Project System • Costs • Planned Costs • Easy Cost Planning and Execution Services • Execution Services

Define Confirmation Parameters (Transaction OPST): SAP Customizing Implementation Guide • Project System • Confirmation • Define Confirmation Parameters

Time Sheet CATS: SAP Customizing Implementation Guide • Cross-Application Components • Time Sheet

ProMan Profile: SAP Customizing Implementation Guide • Project System • Material • Project-Oriented Procurement (ProMan)

Project Progress and Claim Management

Progress Analysis: SAP Customizing Implementation Guide • Project System • Progress • Progress Analysis

Progress Tracking: SAP Customizing Implementation Guide • Project System • Progress • Progress Tracking

Claim Management: SAP Customizing Implementation Guide • Project System • Claim

C.5 Period-End Closing

The transactions and Customizing activities listed in this section are primarily used for period-end closing.

C.5.1 Transactions in the SAP Menu

We'll start with the list of transactions that are relevant for period-end closing activities.

Schedule Manager (Transaction SCMA): Project System • Financials • Period-End Closing • Schedule Manager

Revaluation of Actual Rates (Transactions CJN1/CJN2): Project System • Financials • Period-End Closing • Single Functions • Revaluation of Actual Rates • Individual Processing/Collective Processing

Commitment and Actual Overheads (Transactions CJO8/CJO9/CJ44/CJ45): Project System • Financials • Period-End Closing • Single Functions • Applied Overhead • Commitments: Individual Processing/Commitments: Collective Processing/Individual Processing, Actual/Collective Processing, Actual

Surcharges Plan (Transactions CJ46/CJ47): Project System • Financials • Planning • Allocations • Overhead • Individual Processing/Collective Processing

Template Allocation Actual (Transactions CPTK/CPTL): Project System • Financials • Period-End Closing • Single Functions • Template Allocation • Individual Processing/Collective Processing

Template Allocation Plan (Transactions CPUK/CPUL): Project System • Financials • Planning • Allocations • Template Allocation • Individual Processing/Collective Processing

Interest Calculation Actual (Transactions CJZ2/CJZ1): Project System • Financials • Period-End Closing • Single Functions • Interest

Calculation • Individual Processing/Collective Processing

Interest Calculation Plan (Transactions CJZ3/CJZ5): Project System • Financials • Planning • Allocations • Interest Calculation • Individual Processing/Collective Processing

Results Analysis Actual (Transactions KKA2/KKAJ): Project System • Financials • Period-End Closing • Single Functions • Results Analysis • Proceed • Individual Processing/Collective Processing

Results Analysis Plan (Transactions KKA2P/KKAJP): Project System • Financials • Planning • Allocations • Results Analysis • Proceed • Individual Processing/Collective Processing

Project-Related Incoming Orders (Transactions CJA2/CJA1): Project System • Financials • Period-End Closing • Single Functions • Incoming Orders • Individual Processing/Collective Processing

Cost Forecast (Transactions CJ9L/CJ9M): Project System • Financials • Period-End Closing • Single Functions • Cost Forecast • Individual Processing/Collective Processing

Settlement Rule (Transactions CJB2/CJB1): Project System • Financials • Period-End Closing • Single Functions • Settlement Rule • Individual Processing/Collective Processing

Project Settlement Rules Overview (Transaction CNSETTLRULE): Project System • Information System • Structures • Overview of Project Settlement Rules

Settlement Actual (Transactions CJ88/CJ8G/CJIC): Project System • Financials • Period-End Closing • Single Functions • Settlement • Individual Processing/Collective Processing/Line Item Apportionment

Settlement Plan (Transactions CJ9E/CJ9G): Project System • Financials • Planning • Allocations • Settlement • Individual Processing/Collective Processing

C.5.2 Customizing Activities

The following customization options for period-end closing are available in Customizing for Project System.

Overhead Calculation: SAP Customizing Implementation Guide • Project System • Costs • Automatic and Periodic Allocations • Overhead Rates

Template Allocations: SAP Customizing Implementation Guide • Project System • Costs • Automatic and Periodic Allocations • Template - Allocation of Overhead

Interest Calculation: SAP Customizing Implementation Guide • Project System • Costs • Automatic and Periodic Allocations • Interest Calculation

Results Analysis: SAP Customizing Implementation Guide • Project System • Revenues and Earnings • Automatic and Periodic Allocations • Results Analysis

Project-Related Incoming Orders: SAP Customizing Implementation Guide • Project System • Revenues and Earnings • Automatic and Periodic Allocations • Incoming Orders

Settlement: SAP Customizing Implementation Guide • Project System • Costs • Automatic and Periodic Allocations • Settlement

C.6 Reporting

Finally, here are the main transactions, Customizing activities, and menu paths available in reporting.

C.6.1 Transactions in the SAP Menu

You can call the transactions listed here in the structures information system, the controlling information system, and for logistics reports.

Information System Structures

(Project) Structure Overview (Transactions CN41N/CN41): Project System • Information System • Structures • Project Structure Overview/Structure Overview

Individual Overviews: Project System • Information System • Structures • Individual Overviews

Enhanced Individual Overviews: Project System • Information System • Structures • Enhanced Individual Overviews

Change documents (Transactions CN60/CJCS/CN61): Project System • Information System • Structures • Change Documents • For Project/Network/For Standard WBS/For Standard Network

Controlling and Summarization Information System

Form (Transactions CJE4/CJE5/CJE6): Project System • Information System • Tools • Hierarchy Reports • Form • Create/Change/Display

(Hierarchy) Report (Transactions CJE1/CJE2/CJE3/CJE0): Project System • Information System • Tools • Hierarchy Reports • Report • Create/Change/Display/Execute

Plan-Related Standard Hierarchy Reports: Project System • Information System • Financials • Costs • Plan-Based • Hierarchical

Budget-Related Standard Hierarchy Reports: Project System • Information System • Financials • Costs • Budget-Related

Revenue/Earnings-Related Standard Hierarchy Reports: Project System • Information System • Financials • Revenues and Earnings • Hierarchical

Report Group (Transactions GR51/GR52/GR53/GR54/GR55): Project System • Information System • Tools • Cost Element Reports • Define • Report Writer • Report Group • Create/Change/Display/Delete/Execute

Cost Element Report (Transactions GRR1/GRR2/GRR3/GR34): Project System • Information System • Tools • Cost Element Reports • Define • Report • Create/Change/Display/Delete

Planned Cost-Related Standard Cost Element Reports: Project System • Information System • Financials • Costs • Plan-Based • By Cost Element

Revenue/Earnings-Related Standard Cost Element Reports: Project System • Information System • Financials • Revenues and Earnings • By Cost Element

Line Item Reports: Project System • Information System • Financials • Line items

Standard Payment Reports: Project System • Information System • Financials • Payments

Summarization (Transactions CJH1/CJH2/KKRC): Project System • Information System • Tools • Summarization • Inheritance/Inheritance Evaluation/Summarization

Standard Summarization Reports: Project System • Information System • Financials • Summarization

Logistic Reports

Purchase Requisitions for Project (Transactions ME5J/ME5K): Project System • Information System • Material • Purchase Requisitions • For Project/For Account Assignment

Purchase Orders for the Project (Transactions ME5J/ME5K): Project System • Information System • Material • Purchase Orders • For Project/For Account Assignment

Material Reports (Transactions CN52N/MD04/CO24/MB25/MD4C/MBBS): Project System • Information System • Material • Material Components/Stock/Requirements/Missing Parts/Reservations/Order Report/Valued Project Stock

Capacity Evaluation Work Center View (Transactions CM01/CM02/CM03/CM04/CM05): Project System • Resources • Capacity Requirements Planning • Evaluation • Work Center View • Load/Orders/Backlog/Overload

Extended Evaluation (Transactions CM50/CM51/CM52): Project System • Resources • Capacity Requirements Planning • Evaluation • Extended Evaluation • Work Center View/Individual Capacity View/Order View

Extended Evaluation Project View (Transactions CM53/CM54/CM55): Project System • Resources • Capacity Requirements Planning • Evaluation • Extended Evaluation • Project View • WBS Element/Version/Version/Work Center/Version

C.6.2 Customizing Activities

You can perform the following Customizing activities for reporting.

Selection

Database Profile (Transaction OPTX): SAP Customizing Implementation Guide • Project System • Information System • Selection • Define Database Selection Profiles

Define Project View for Information System (Transaction OPUR): SAP Customizing Implementation Guide • Project System • Information System • Selection • Define Project View for Information System

Status Selection Profile (Transaction BS42): SAP Customizing Implementation Guide • Project System • Information System • Selection • Define Selection Profiles for Information System

Info System Structures

PS Info Profile (Transaction OPSM): SAP Customizing Implementation Guide • Project System • Information System • Technical Project Reports • Define Overall Profile for Information System

Define Profiles for Calling Overviews (Transaction OPSL): SAP Customizing Implementation Guide • Project System • Information System • Technical Project Reports • Define Profiles for Calling Overviews

Info System Controlling and Summarization

Value Categories: SAP Customizing Implementation Guide • Project System • Costs • Value Categories

Commitment Items: SAP Customizing Implementation Guide • Project System • Payments • Commitment Items

Activate PS Cash Management (Transaction OPI6): SAP Customizing Implementation Guide • Project System • Payments • Activate Project Cash Management in Company Code

Import (Hierarchy) Reports (Transaction CJEQ): SAP Customizing Implementation Guide • Project System • Information System • Info System Costs/Revenues • Hierarchy Report • Import Reports

Import (Cost Element) Reports (Transaction OKSR): SAP Customizing Implementation Guide • Project System • Information System • Costs/Revenues Information System • Cost Element Analysis • Standard Reports • Import Reports

Rebuild Project Information Database (Transactions CJEN): SAP Customizing Implementation Guide • Project System • Information System • Costs/Revenues Information System • Project Info Database (Costs, Revenues, Finances) • Rebuild Project Information Database

Maintain Summarization Hierarchy (Transaction KKR0): SAP Customizing Implementation Guide • Project System • Information System • Responsibility Accounting • Project Summarization • Maintain Summarization Hierarchy

Logistics Reports

Profiles for Capacity Evaluation (Transactions OPA2–OPA6): SAP Customizing Implementation Guide • Production • Capacity Requirements Planning • Evaluation • Profiles • Define Selection Profiles/Options Profiles/List Profiles/Graphic Profiles/Overall Profiles

Profiles for Extended Evaluation (Transactions OPD0–OPD4): SAP Customizing Implementation Guide • Production • Capacity Requirements Planning • Capacity Leveling and Extended Evaluation • Define Overall Profile/Selection Profile/Time Profile/Evaluation Profile/Period Profile

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Workflow Builder [[→ Section 5.1](#)]

Workforce planning [[→ Section 2.2](#)] [[→ Section 6.3](#)] [[→ Section C.2](#)]

for human resources [[→ Section C.2](#)]

for personnel resources [[→ Section 2.2](#)]

project view [[→ Section 2.2](#)]

work center view [[→ Section 2.2](#)]

Working time attribute [[→ Section 4.3](#)]

Worklist [[→ Section 1.7](#)] [[→ Section 4.3](#)]

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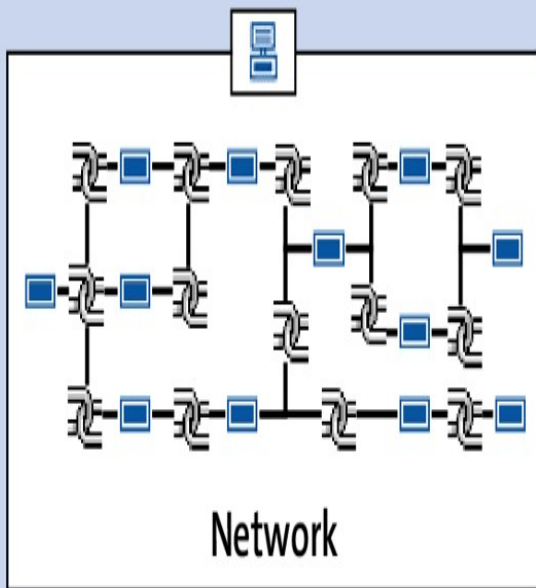
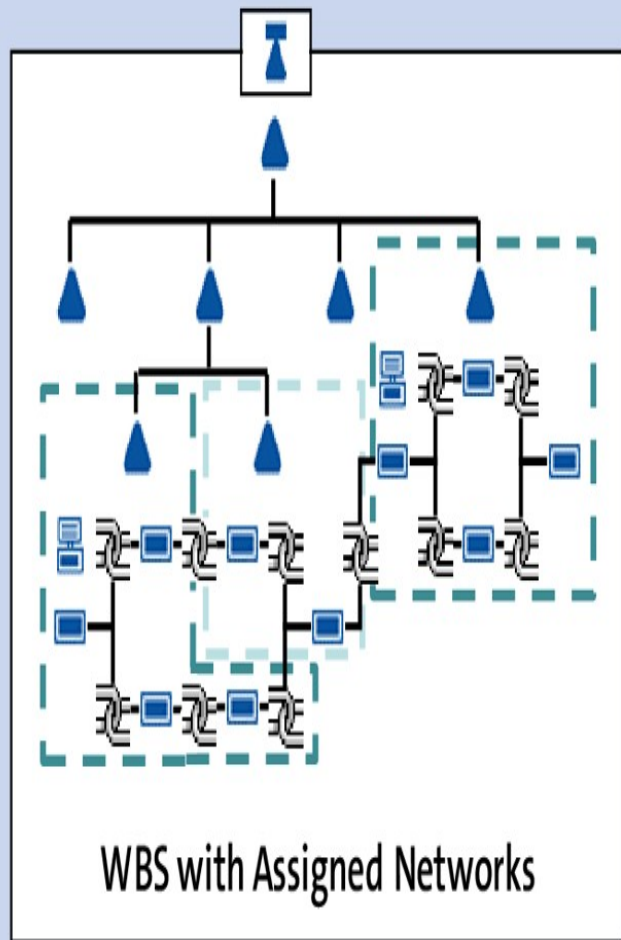
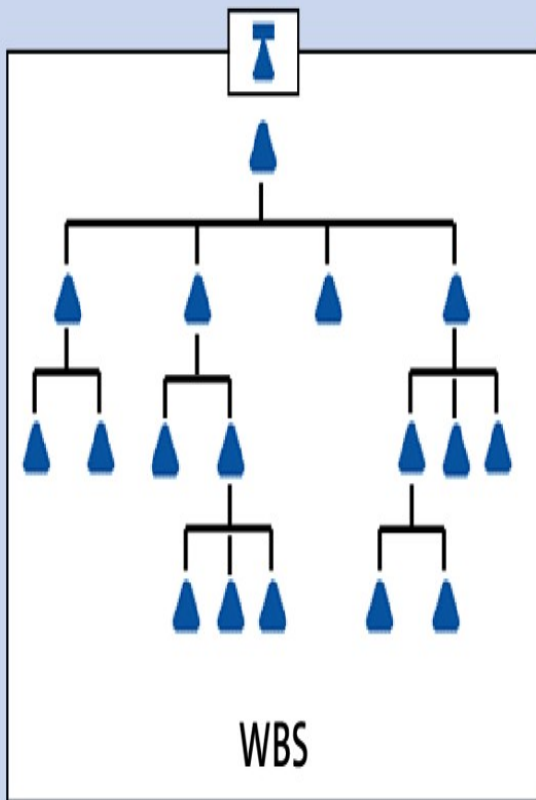
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
-  Project Definition
-  WBS Element
-  Network Header
-  Activity
-  Relationship

Figure 1.1 Usage Options of WBS and Networks to Structure Projects

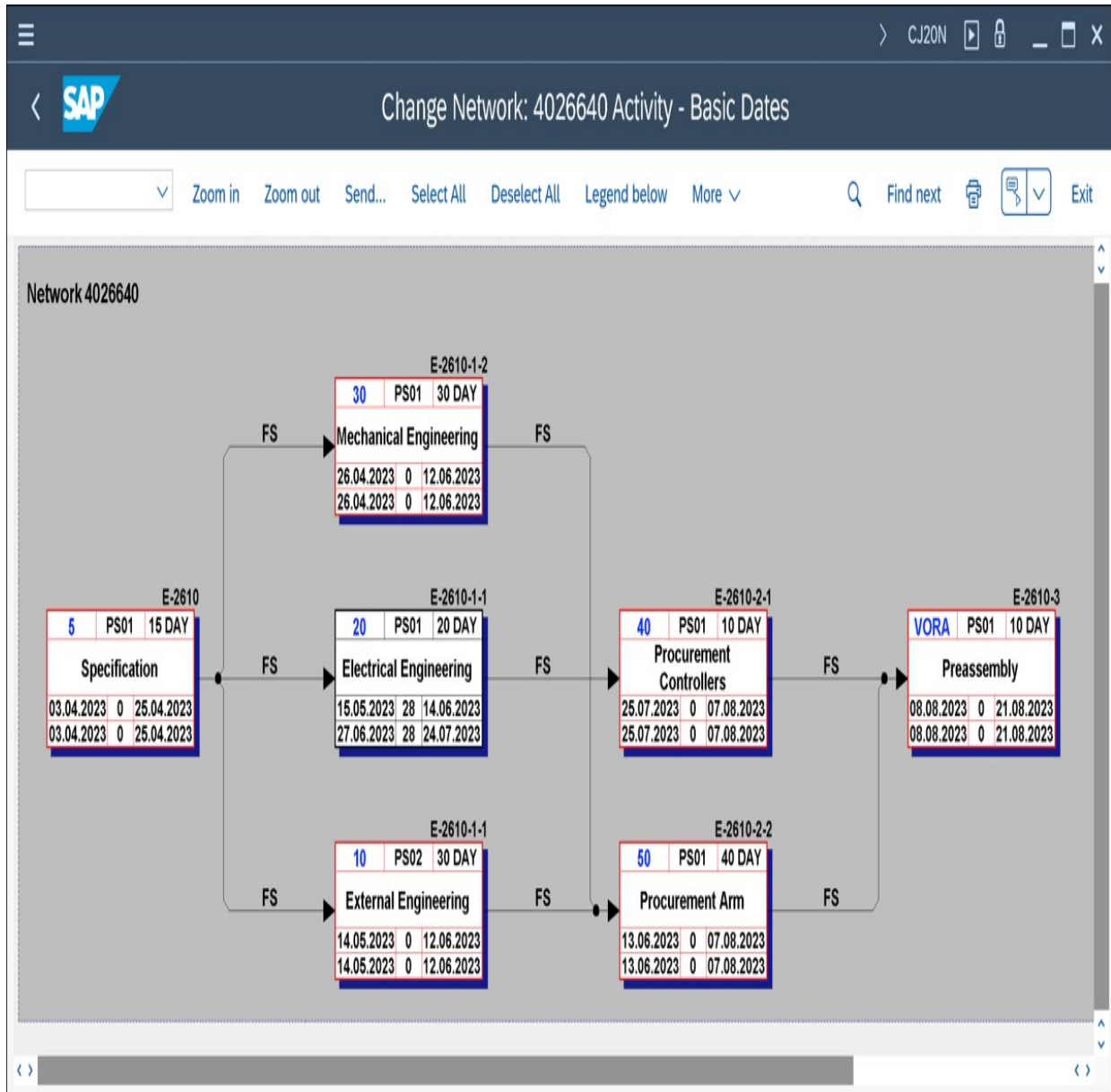


Figure 1.2 Flow Structure of a Network (Network Graphic)

Change WBS Element: Basic Data

System/User status Long Text Settlement rule Depreciation sim. PS texts More ▾ Exit

WBS Element: E-2612.1 Engineering

Basic Data Dates Assignments Control User Fields Admin. Superior Progress Lon... ▾

Field key 0000001

General fields	Numeric fields
Text 1: <input type="text"/>	Quantity 1: <input type="text" value="1"/> EA
Text 2: <input type="text"/>	Quantity 2: <input type="text"/>
Text 3: <input type="text"/>	Value 3: <input type="text"/>
Text 4: <input type="text"/>	Value 4: <input type="text"/>

Dates	Checkboxes
Date 1: <input type="text"/>	Indicator 1 <input type="checkbox"/>
Date 2: <input type="text"/>	Indicator 2 <input type="checkbox"/>

Save Cancel




Figure 1.3 User Fields of a WBS Element

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SAP Home ▾ 🔍 🔔

My Home Project Control - Financials Project Control - Logistics

Control

<p>Project Builder</p> 	<p>Confirm Project Milestone</p> 	<p>Change WBS Element Status</p> 
--	--	--

Insights

<p>Project Definition Overview</p>	<p>WBS Element Overview</p>	<p>Milestone Overview</p>	<p>Project Cost Report Plan/Actual</p>	<p>Manage Project Procurement</p>	<p>Project Claim Overview</p>
------------------------------------	-----------------------------	---------------------------	--	-----------------------------------	-------------------------------

Periodic Activities


<p>Schedule Project Version Creation</p>	<p>Generate Project Settlement Rules</p> 
--	--

Figure 1.4 SAP Fiori Launchpad

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Electrical Engineering

Related Apps

E-2610-1-1

Priority Description: Project Type Description:

Very urgent **WBS element category A**

- General Information Status Project Milestones Networks/Orders Purchase Document Items Network Activities User Fields

Basic Data

Level:
3

Person Responsible:
Responsible B

Applicant:
Requestor B

Project Type Description:
WBS element category A

Priority Description:
Very urgent

Object Class Name:
Overhead costs

Organizational Data

Controlling Area Name:
Kostenrechnungskreis 0001

Company Code Name:
SAP SE

Business Area Name:
Business area 0001

Profit Center Name:
-

Responsible Cost Center Name:
-

Plant Name:
Plant 0001

Cost Center to which costs are posted:
-

Dates

Start Date:
14.05.2023

Finish Date:
24.07.2023

Actual Start Date:
-

Actual Finish Date:
-

Earliest Start Date:
14.05.2023

Earliest Finish Date:
14.06.2023

Latest Start Date:
14.05.2023

Latest Finish Date:
24.07.2023

Control Data

Planning Element:
No

Account Assignment Element:

Figure 1.5 WBS Element Object Page

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SAP Project Builder: Project E-2610

Menu ▾ Display <-> change Project planning board Hierarchy graphic Mass change Easy Cost Planning Sales pricing Services for Object ▾ Exit

Project Structure: Description Identification

▼ Robot Model 1	E-2610
▼ ▲ Robotic Project	E-2610
◆ Start Specification	14065
▼ Robot Project E-2610	4026640
▢ Specification	4026640 0005
▢ Insurance	4026640 0090
▼ ▲ Engineering	E-2610-1
▼ ▲ Electrical Engineering	E-2610-1-1
▢ External Engineering	4026640 0010
▢ Electrical Engineering	4026640 0020
▼ ▲ Mechanical Engineering	E-2610-1-2
▢ Mechanical Engineering	4026640 0030
▼ ▲ Procurement	E-2610-2
▼ ▲ Procurement Controllers	E-2610-2-1
▢ Procurement Controllers	4026640 0040
▼ ▲ Procurement Arm	E-2610-2-2

Worklist Templates

Templates: Name	Project object
> ★ Individual Objects	
> ★ Projects	
> ★ Standard Templates	

Identification and view selection

Project def.: E-2610 Robot Model 1

Detail: [Info]

Overview(s): [Up] [Print]

Basic Data Control Administration Long Text ShortText Collect. PR Indicators User Fields

Status

System Status: PREL [Info]

User status: ZTST

Project coding mask

Mask ID: []

Responsibilities Organization

Pers.Resp.No.: 1 Responsible A CO area: 0001

Applicant no.: 2 Antragsteller B Company code: 0001

Business area: 0001

Plant: 0001

Location: []

Dates

Start date: 03.04.2023

Finish date: 21.08.2023

Factory Calend.: 01

Proj.currency: EUR

* Time unit: DAY

Save Cancel Intermediate Save

Figure 1.6 Project Builder, Launched from the SAP Fiori Launchpad











Name	Planning Element	Account Assignment El...	Billing Element
▼  Robot Model 1	No	No	No
▼  Robot Model 1	Yes	Yes	Yes
▼  Engineering	Yes	Yes	No
 Engineering Electrics	Yes	Yes	No
 Engineering Mechanics	No	Yes	No
▼  Procurement	Yes	Yes	No
 Procurement Mechatronics	No	Yes	No
 Procurement Shell	No	Yes	No
 Assembly	Yes	Yes	No
 Acceptance	No	Yes	No

Figure 1.7 Structure of the Sample Project

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Change Project Definition:

Project def.: E-2610 Robot Model 1

Basic Data | Control | Administration | LongText | ShortText | Collect. PR Indicators | User Fields

Status

System Status: PREL ⓘ
User status: ZTST

Project coding mask

Mask ID: _____

Responsibilities | **Organization**

Pers.Resp.No.: 1 Verantwortlicher A
Applicant no.: 2 Antragsteller B

Dates

Start date: 03.04.2023
Finish date: 21.08.2023
Factory Calend.: 01
Time unit*: DAY
Fcst start date: _____
Finish date (F): _____

Organization

CO area: 0001
Company code: 0001
Business area: 0001
Plant: 0001
Location: _____
Functional Area: _____
Profit Center: _____
Proj.currency: EUR

Save **Cancel**

Figure 1.8 Basic Data of a Project Definition

The screenshot shows the SAP 'Change WBS Element: Basic Data' interface. At the top, the SAP logo and window title are visible. Below the title bar, there is a navigation menu with options like 'System/User status', 'Long Text', 'Settlement rule', 'Depreciation sim.', 'PS texts', and 'More'. The main content area is divided into several sections: 'WBS Element' (E-2610-1) and 'Engineering' (Engineering), 'Basic Data' (selected), 'Dates', 'Assignments', 'Control', 'User Fields', 'Admin.', 'Superior', 'Progress', and 'Lon...'. The 'Basic Data' section contains fields for 'Project Type' (WBS element category A), 'Priority' (Urgent), 'Short ID' (E-2610-1), and 'Proj. summarization' (checkbox). Below this is the 'Status' section with 'System Status' (CRTD) and 'User status' (PREP). The 'Responsibilities' section includes 'Pers.Resp.No.' (1), 'Applicant no.' (2), 'Resp. cost cntr.', 'Req.cost center', and 'Req. co.code'. The 'Operative indicators' section has 'Planning Element' (checked), 'Acct asst elem.' (checked), 'Billing Element' (unchecked), and 'Grouping WBS element' (checkbox). At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 1.9 Basic Data of a WBS Element

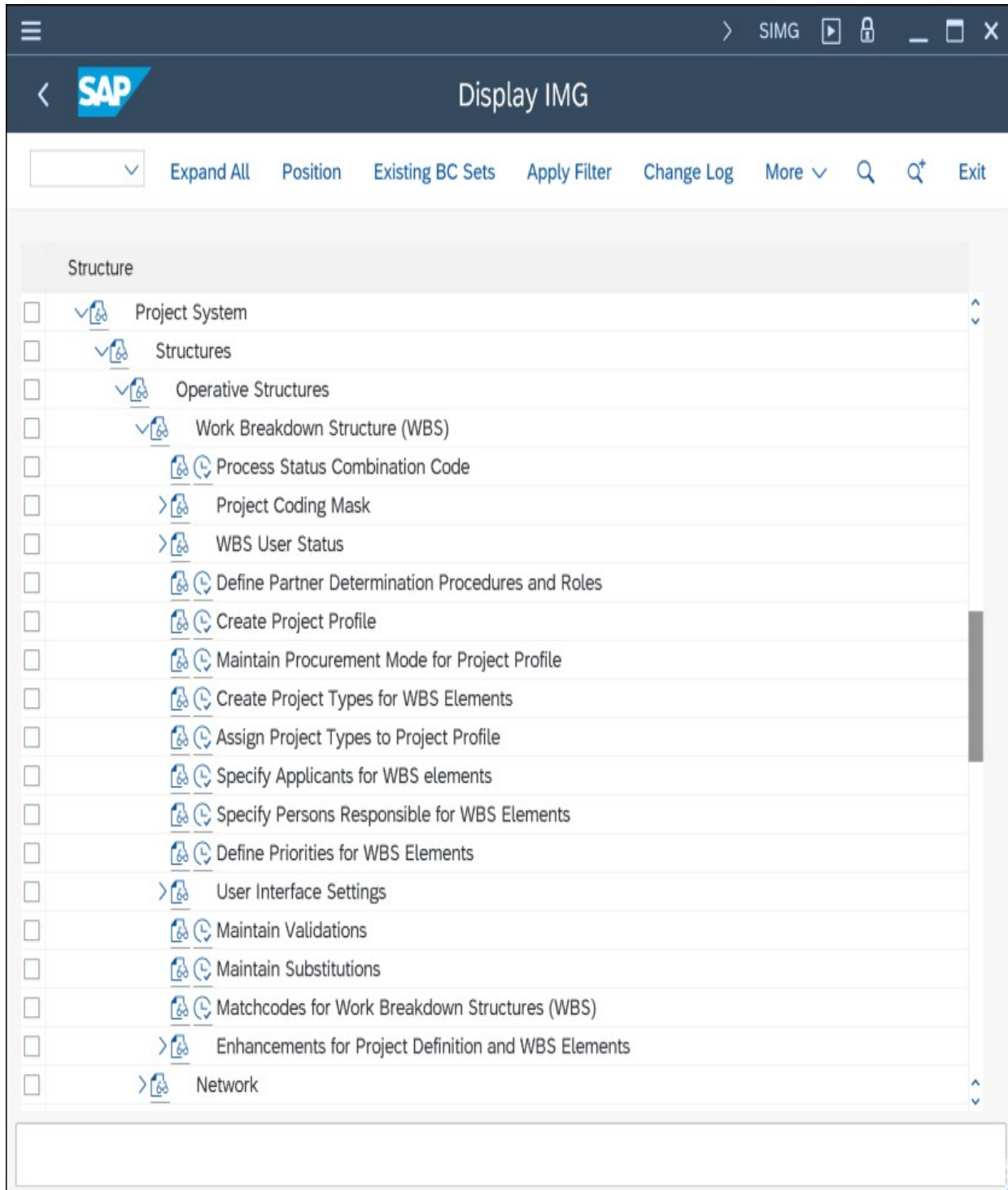


Figure 1.10 Structures Customizing of WBS

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Change View "Project Profile": Details

Proj.Prof.: 1001 **Robotic Modell 1**

Control Organisation Plg board/dates Controlling

Basic Data

Project Type:	01	WBS element category A	<input checked="" type="checkbox"/>	All acct asst elem
Field key - WBS:	0000001	User-defined fields EPPM	<input type="checkbox"/>	Only one root
Field key -PD:	0000001	User-defined fields EPPM	<input type="checkbox"/>	Trsfr to proj.def.
Version prof.:	0000001	Standard version profile	<input checked="" type="checkbox"/>	ChangeDocuments
Simulation prof.:	0000001	Standard Profile PS Simulation	<input checked="" type="checkbox"/>	Proj. summ. MastDa
Display options:	1	Identification using project n	<input type="checkbox"/>	iPPE Proj. Rel.
PartnDet.Proc.	PART	Partner Profile	Level of detail:	10

Validation

Project def.:		<input type="checkbox"/>	Autom. validation
WBS Elements:			

Substitution

Project def.:	ZPSSUB1	PS RAP Substitution Project 1	<input type="checkbox"/>	Autom. substitution
WBS Elements:	ZPSSRW1	PS RAP Substitution WBS 1		

Project Stock

No stock

non-valuated stk Distri. profile:

valuated stock Automatic reqmnts grouping

Status Management

PD sts. profile:	PS000001	Status Profile for Project Def
WBS sts. prof.:	PS000002	Status Profile for WBS Element

ChangeDocuments

Graphic

Master data prf. grp:	PS	Graph.prf1 mstr data:	HIERARCHY_S				
Vertical from level:	<input type="text"/>	SearchTxtIndex1:	<input type="text"/>	SearchTxtIndex2:	<input type="text"/>	SearchTxtIndex3:	<input type="text"/>

Save Cancel

Figure 1.11 Sample Project Profile

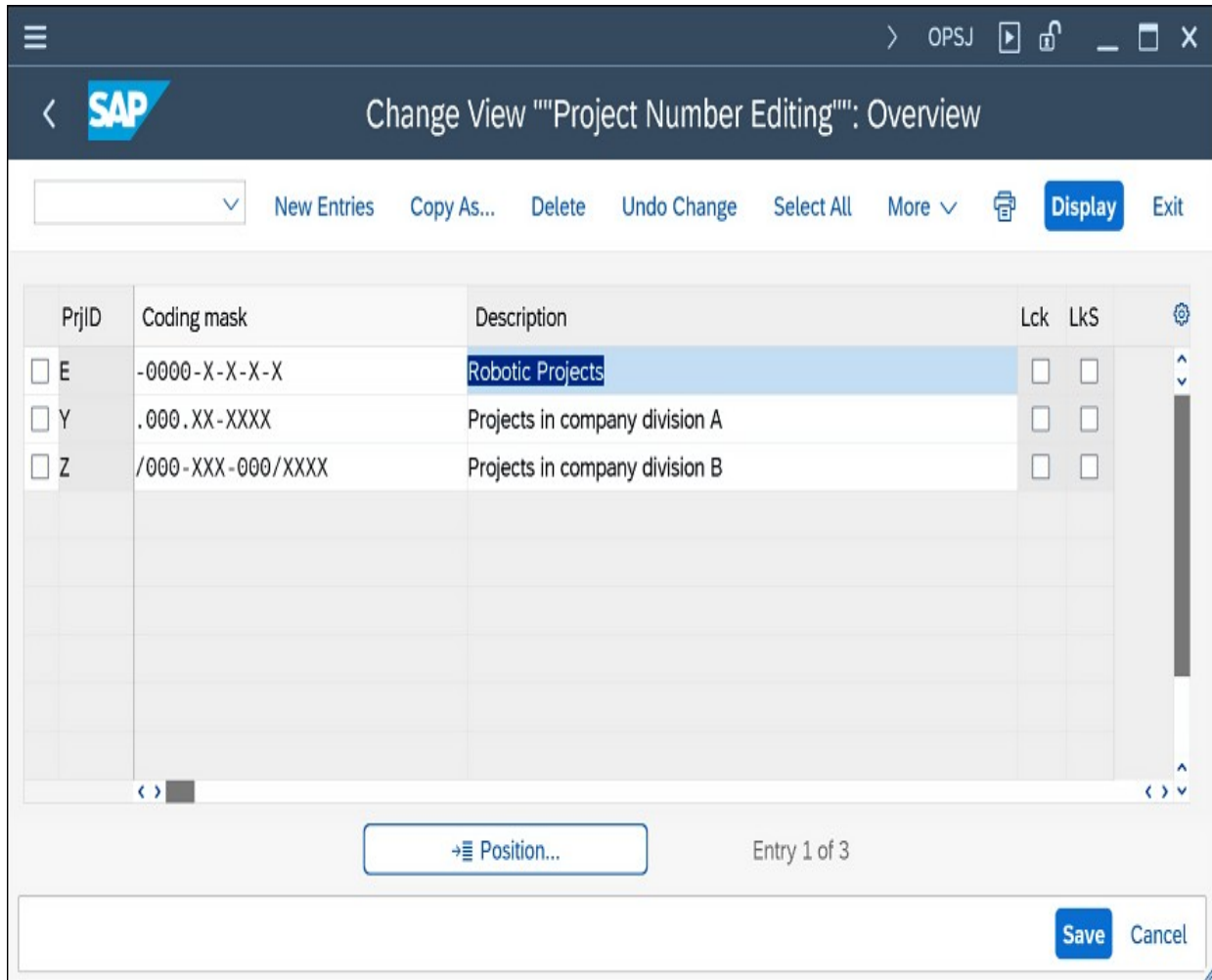


Figure 1.12 Sample Coding Masks

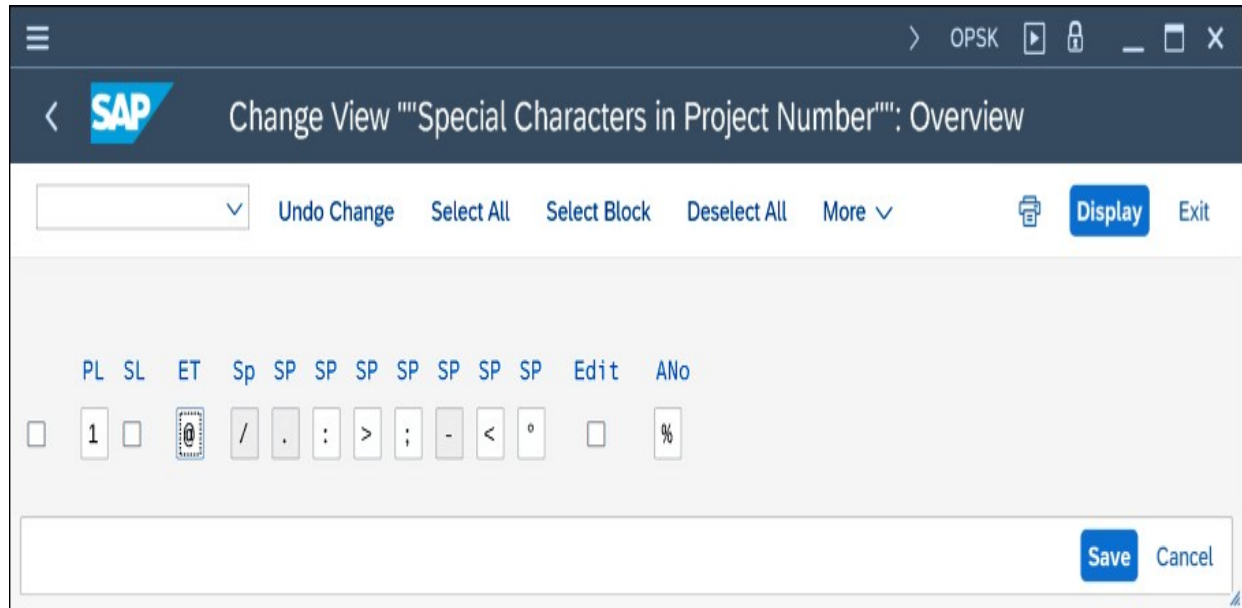


Figure 1.13 Examples of Special Characters

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The screenshot displays the SAP 'Network Change: Header Data' interface, specifically the 'Control' tab. The top navigation bar includes 'Network', 'Edit(X)', 'Goto(S)', 'Details', 'Extras(D)', 'System', and 'Help'. The main header shows the network ID '4104286' and the name 'Robot Model 1'. Below this, a menu bar contains 'Scheduling', 'Assignments', 'Control' (selected), 'Administr.', 'LongText', 'ShortTxs', and 'Custom Fields'. The 'General' section includes fields for 'Network Profile' (0000002), 'Network type' (PS02), 'Plant' (0001), 'MRP controller' (001), 'Priority' (empty), and 'Execution Fact.' (1). The 'Costing' section includes 'Costing Sheet' (PP-PC1), 'Plnd Costing Va' (PS02), 'Act. Costing Va' (PS03), 'Overhead key' (empty), and 'Plan cost calc.' (2). The 'Components' section includes 'Res./Purc. req.' (2). At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 1.14 Control Data of a Network Header

Activity detail data (Basic) X

Activity: 4104286 0010 Specification 📄

Internal Extnl Dates Assignments Long Text User Fields Qualification ShortTxt > ▼

General data

System Status: CNF MCNF REL SETC 📘	Control key: * PS01 <input type="checkbox"/> Subntwk exists
WBS Element: E-2610	<input type="checkbox"/> Project Sum.
Work Center: 2000 / 0001	DistKeyCapRqInt: <input type="text"/>
Work: 40,0 H	Number: <input type="text"/> Percent: <input type="text"/>
Calculation key: 0 Maintain manually ▼	Execution Fact: <input type="text"/>
Activity Type: MNGR	Business Proces: <input type="text"/>
Priority: ▼	Std Text Key: <input type="text"/>
Usage: ▼	

Scheduling

Normal duration: 5,0 DAY <input type="checkbox"/> Flexible	Factory Cal. ID: 01
Min. duration: <input type="text"/> DAY	Red. Strategy: ▼

👍 ⏪ ⏩ ⏴ ⏵ Settlement rule Costs planned/actual X

Figure 1.15 Internally Processed Activity

☰Activity detail data (Basic)✕

Activity:

InternalExtnlDatesAssignmentsLong TextUser FieldsQualificationShortTxt> ▾

External processing

System Status: <input type="text" value="REL SETC"/>	Control key: * <input type="text" value="PS02"/>	<input type="checkbox"/> Subnbwk exists
WBS Element: <input type="text" value="E-2610.1.1"/>	Plant: <input type="text" value="0001"/>	<input type="checkbox"/> Project Sum.
<input type="checkbox"/> Subcontr.		
Info record: <input type="text"/>	Purchasing Org.: <input type="text" value="0001"/>	Material Group: <input type="text" value="001"/>
Vendor: <input type="text"/>	Purch. group: <input type="text" value="001"/>	Sort Term: <input type="text"/>
Outl. agreement: <input type="text"/> / <input type="text"/>		Requisitioner: <input type="text"/>
Price: <input type="text" value="5.000,00"/> <input type="text" value="EUR"/>	per <input type="text" value="1"/>	Recipient: <input type="text"/>
Cost Element: <input type="text" value="400000"/> <input type="checkbox"/> FixPrice		Tracking Number: <input type="text"/>
PL Deliv. Time: <input type="text"/>		
Activity qty: <input type="text" value="1"/> <input type="text" value="EA"/>		Execution Fact: <input type="text"/>
Received: <input type="text" value="0,000"/>	Unloading Point: <input type="text"/>	
Requisition: <input type="text" value="15083094"/> / <input type="text" value="20"/>	<input type="checkbox"/> Purc. ord exists	<input type="checkbox"/> Service exists
Res./Purc. req.: <input type="text" value="3 Immediately"/> ▾		

<><>

<> Pur.req.Invoicing planSettlement ruleCosts planned/actual PS text PS text✕

Figure 1.16 Externally Processed Activity

☰Activity detail data (Basic)✕

Activity:

InternalExtnlDatesAssignmentsLong TextUser FieldsQualificationShortTxt> ▾

External processing

System Status: <input type="text" value="CRTD SETC"/> i	Control key: * <input type="text" value="PS04"/>	<input type="checkbox"/> Subntwk exists
WBS Element: <input type="text" value="E-2610.3"/>	Plant: <input type="text" value="0001"/>	<input type="checkbox"/> Project Sum.
<input type="checkbox"/> Subcontr.		
Info record: <input type="text" value="5500000360"/>	Purchasing Org.: <input type="text" value="0001"/>	Material Group: <input type="text" value="001"/>
Vendor: <input type="text"/>	Purch. group: <input type="text" value="001"/>	Sort Term: <input type="text" value="123"/>
Outl. agreement: <input type="text"/> / <input type="text"/>		Requisitioner: <input type="text"/>
Price: <input type="text" value="6.000,00"/> <input type="text" value="EUR"/>	per <input type="text" value="1"/>	Recipient: <input type="text"/>
Cost Element: <input type="text"/>	<input type="checkbox"/> FixPrice	Tracking Number: <input type="text"/>
PL Deliv. Time: <input type="text" value="0"/>		
Activity qty: <input type="text" value="1"/> <input type="text" value="AU"/>		Execution Fact: <input type="text"/>
	Unloading Point: <input type="text"/>	
Requisition: <input type="text" value="15083094"/> / <input type="text" value="10"/>	<input type="checkbox"/> Purc. ord exists	<input checked="" type="checkbox"/> Service exists P
Res./Purc. req.: <input type="text" value="3 Immediately"/> ▾		

<><>

✓⏪⏩⏴⏵🏠 Pur.req.🏠 ServiceInvoicing planSettlement ruleCosts planned/actual🗨 PS text🗑 PS text✕

Figure 1.17 Service Activity

Activity detail data (Basic) ✕

Activity: 4104286 0020 Insurance Costs 📄

Costs Dates Assignments Long Text User Fields ShortText Progress

Costs

System Status: MCNF PCNF REL SETC ℹ	Control key: * PS03 <input type="checkbox"/> Subntwk exists
WBS Element: E-2610	<input type="checkbox"/> Project Sum.
Company Code: 0001	Factory Cal. ID: 01
Plant: * 0001	Rqstg Cost Cntr: <input type="text"/>
Amount: 2.000,00 USD 📊	Cost Element: * 466000
Distrib. costs: <input type="text"/>	Execution Fact: <input type="text"/>
Normal duration: <input type="text"/> <input type="checkbox"/> Flexible	

⏪ < > ⏩ Invoicing plan Settlement rule Costs planned/actual ✕

Figure 1.18 Cost Activity

Element detail data (Basic) X

Element: 4104286 / 0020 / 0130 Insurance Costs Transportation 📄

Costs Dates Assignments Long Text User Fields ShortTxt Progress

Costs

System Status: REL SETC 📘 Control key: * PS03 Subntwk exists

WBS Element: E-2610 Project Sum.

Company Code: 0001

Plant: * 0001 Rqstg Cost Cntr:

Amount: 400,00 USD 📊 Cost Element: * 466000

Distrib. costs:

Flexible Offset to start:

Offset to fin.:

✅ ⏪ ⏩ ⏴ ⏵ Settlement rule Costs planned/actual X

Figure 1.19 Costs-Type Activity Element

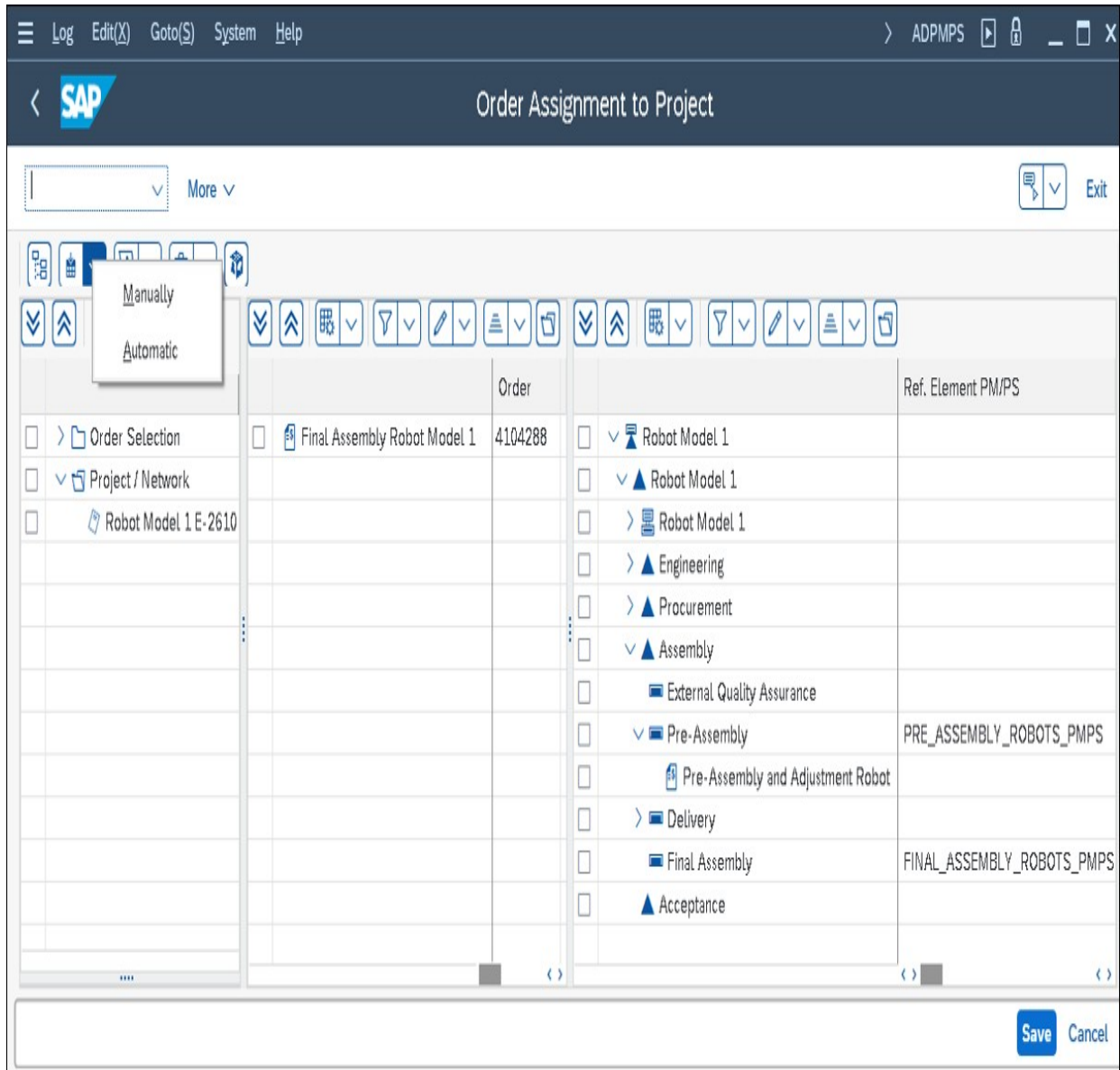


Figure 1.20 Assigning Plant Maintenance Orders to Projects Using Transaction ADPMPS

Table View Edit(X) Goto(S) Selection Utilities System Help > OPSC [Icons]

SAP Change View "Maintain Network Types": Details

[Dropdown] New Entries Copy As... Delete Undo Change More [Print] **Display** Exit

Order category: Network
Order Type: Network with activity assignment(int.NA)

Control indicator

CO partner update:
 Planning

Reorganization

Residence Time1: Months
Residence Time2: Months

Costs

Functional Area:
Object Class:
SettImt Profile: Network

Status management

Status Profile: Project
 Release Immed.

Number range general (processed)

Save Cancel

Figure 1.21 Network Type

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Table View Edit(X) Goto(S) Selection Utilities System Help > OPUV [lock] [min] [max] [close]

SAP Change View "Network type parameters: Overview": Details

[dropdown] New Entries Copy As... Delete More [dropdown] [print] **Display** Exit

Plant: Plant 0001 - no change allowed
Network type: Network with activity assignment(int.NA)

Network type parameters

Strategy: <input type="text"/>	<input type="checkbox"/> Wrkflw PO chg.
Default Rule: <input type="text" value="PS1"/> Networks:to sales ord./WBS el.	<input checked="" type="checkbox"/> ActvtyAcctAsgn.
Red. Strategy: <input type="text"/>	<input type="checkbox"/> Net Order Price
Plnd Costing Va: <input type="text" value="PS02"/> Network: Planned	<input checked="" type="checkbox"/> CollectveRequestn
Act. Costing Va: <input type="text" value="PS03"/> Network: Actual	
Plan Cost Calc.: <input type="text" value="2 Determine plan costs"/>	

Status change documents

Change document

Documents

- OrdStatChangeDc
- OpStatChangeDoc
- MatStatChngDoc
- PRTStatChangeDc

BOM Usage

BOM Application:

Change Management

Change profile: NETWORK GENERAL

PDC active

Save **Cancel**

Figure 1.22 Network Type Parameters

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities System Help > OPUU [Icons] [Close]

Change View "Network Defaults": Details

[Dropdown] New Entries Copy As... Delete Undo Change More [Print] **Display** Exit

Network Profile: 0000002 Network profile w/activity acct. assignm

Network Graphic Activities

Network parameters

Plant:	0001	Plant 0001 - no change allowed
Network type:	PS02	Network with activity assignment(int.NA)
Planner Group:	1	Plannergroup 1
MRP cont.group:	001	PERSON 1
Rel. view:	3	Mixed
Level of detail:	<input type="checkbox"/>	
Comp. increment:	<input type="text"/>	
Op./act. incrm:	0010	
Check. WBS act.:	W	Exit with warning
Overview var.:	<input type="text"/>	
Procurement:	<input type="checkbox"/>	
Field key:	0000001	User-defined fields
Version prof.:	<input type="text"/>	
Std Text Key:	<input type="text"/>	

Res./Purc. req.: 3

- Cap. reqmts
- Entry tool
- Summarization
- Align.Fin. Date
- Proj. summ. MastDa
- iPPE Proj. ReL

Validation

Network header:

Netwk activities:

Substitution

Network header:

Netwk activities:

Save Cancel

Figure 1.23 Sample Network Profile

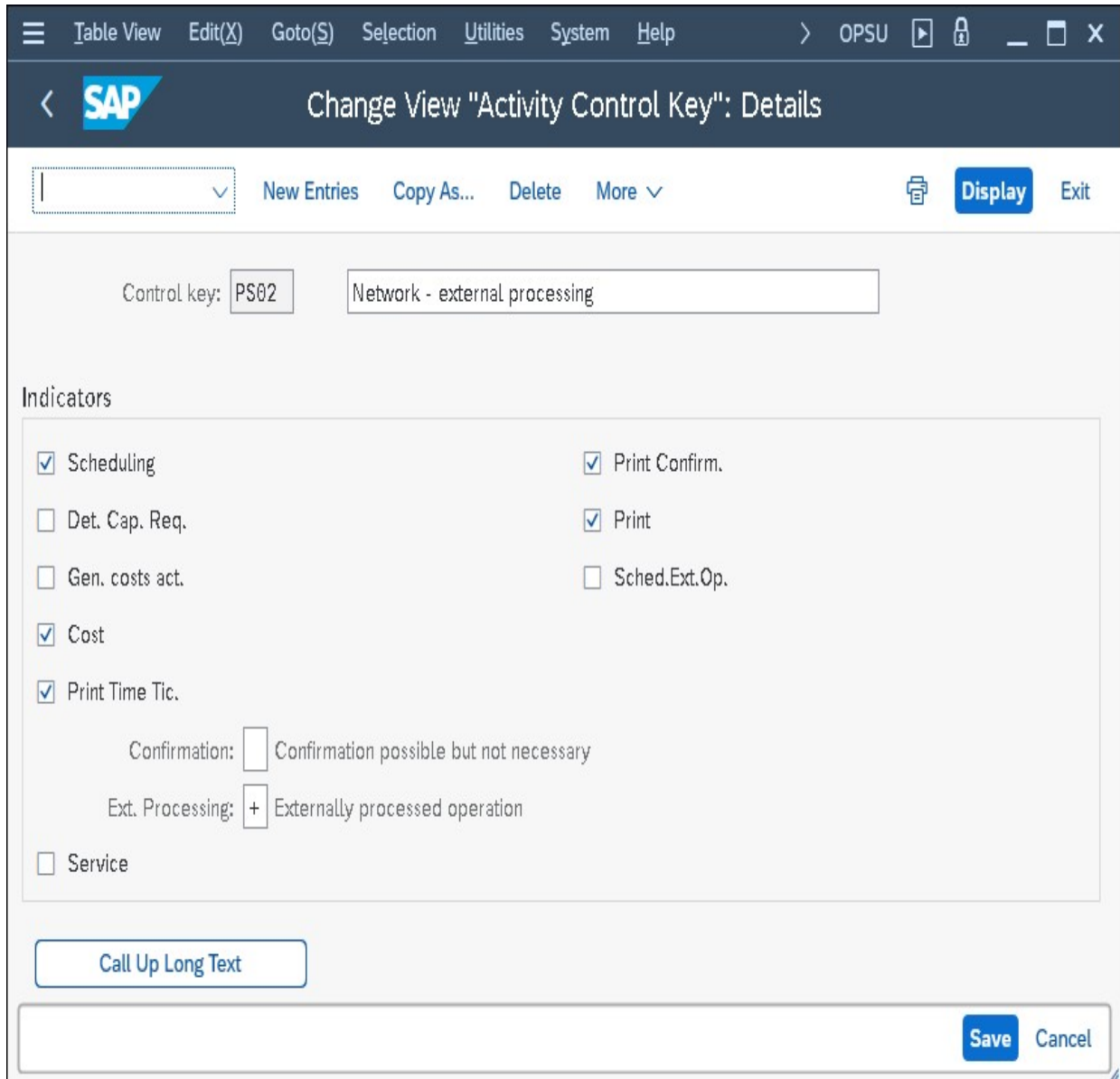


Figure 1.24 Control Key for Externally Processed Activities





Identification	
Milestone no.: <input type="text" value="362"/>	<input type="checkbox"/> LT <input type="text" value="Start Specification"/>
 	
Basic data	
Usage: <input type="text" value="00002"/>	Start specification
WBS Elem.: <input type="text" value="E-2610"/>	<input type="text" value="Robot Model 1"/>
Usage	Percentage of completion
<input checked="" type="checkbox"/> Prog. analysis	Perc of compl.: <input type="text" value="10"/> %
<input type="checkbox"/> Sales doc. date	InvoicePercentg: <input type="text"/>
<input checked="" type="checkbox"/> Trend analysis	
Dates	Reference to WBS date
Basic fix. date: <input type="text" value="08.05.2023"/>	Scheduled: <input type="text" value="08.05.2023"/>
Fcst fixed date: <input type="text"/>	Scheduled: <input type="text"/>
Actual date: <input type="text"/>	<input type="checkbox"/> Offset to fin.
	Offset: <input type="text"/> / <input type="text"/>
	Offset %: <input type="text"/>

Figure 1.25 WBS Milestone

Identification

Milestone:  

Basic Data **Functions** Administr. ShortText

Usage:

Activity:

Milestone functions

Functions Parameter

Function	Syst.Sts	User sts	Change	Once	Activa
<input type="checkbox"/> Release following activities:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/> Release up to stop indicator:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/> Include standard network:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/> Create network:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input checked="" type="checkbox"/> Include subnetwork:	<input type="text" value="REL"/>	<input type="text"/>	<input type="text" value="+"/> +	<input checked="" type="checkbox"/>	<input type="text"/>
<input type="checkbox"/> Start workflow task:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>

Figure 1.26 Functions of Activity Milestones

The screenshot displays the SAP PS Text Details interface. At the top, the SAP logo and 'PS Text Details' are visible. The main title is 'SPECIFICATION' with a 'Draft' status. Below this, there are tabs for 'Header', 'Long Text', 'Attachments and Links', 'Assignments', and 'Administrative Data'. The 'Header' tab is active, showing fields for 'PS Text Description' (filled with 'SPECIFICATION'), 'Text Type' (filled with '01'), and 'Language' (filled with 'English (EN)'). The 'Long Text' section contains the text 'Customer Specification Robot Model 1'. The 'Attachments and Links' section shows one attachment: 'Specification_Robot_Model_1.docx', uploaded by 'MAP_EPPM' on '11.11.2022 08:33:29'. At the bottom right, there are 'Save' and 'Discard Draft' buttons.

Figure 1.27 PS Text in the Project Text App

<https://t.me/PrMaB2>

Extras(D) Edit(X) Goto(S) System Help > CJ20N

SAP Change Status

Status management information First object More ▾

Proj.def.: E-2610 Robot Model 1

WBS Elem.: E-2610 Robot Model 1

Respons.: 0

Proj. Type: 01 WBS element category A

Status Business processes

Syst. Status

X	Status	Text
<input checked="" type="checkbox"/>	CRTD	Created
<input checked="" type="checkbox"/>	PREL	Partially released
<input checked="" type="checkbox"/>	PCNF	Partially confirmed
<input checked="" type="checkbox"/>	NSCH	Not scheduled (forecast dates)

Status with Status Number

X	Status	Text	No.
<input checked="" type="radio"/>	QUOT	Quotation phase	1
<input type="radio"/>	ORD	Order phase	2
<input type="radio"/>	PDEL	Partial delivery	3
<input type="radio"/>	PBIL	Partial billing	4

Status Without Status No.

X	Status	Text
<input type="checkbox"/>	PLND	Planning done

Active Status

Change Docs

Status Profile: Z_000001 Customer Project

Figure 1.28 Details of System and User Statuses

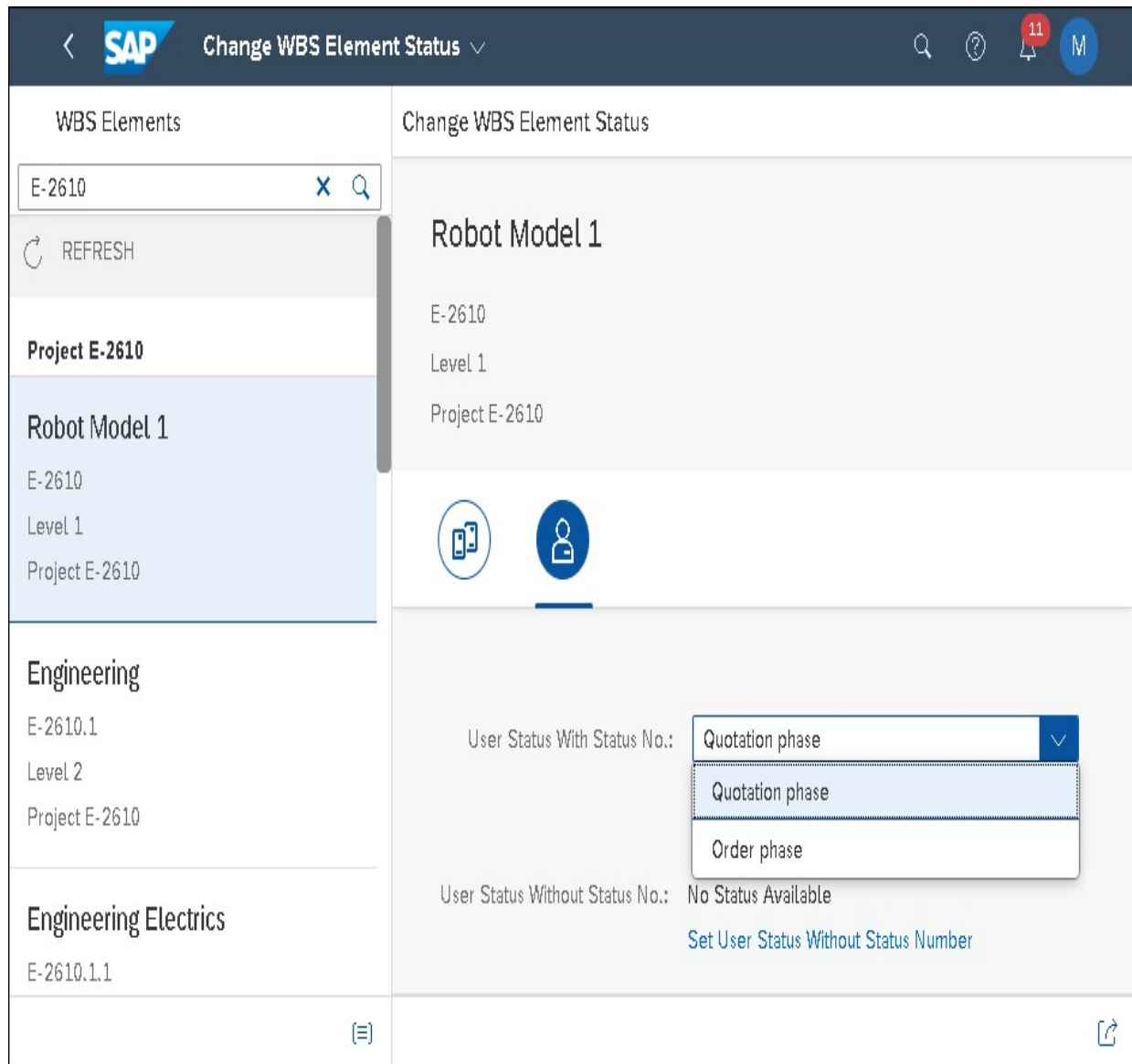


Figure 1.29 Change WBS Element Status App

Status Profile: Z_000001 Customer Project

Maintenance Language: EN English

User Status

Status...	Status	Short Text	Long text	Init. status	Lowest status no.	Highest ...	Position	Priority	Auth. code
	PLND	Planning done	<input type="checkbox"/>	<input type="checkbox"/>					
1	QUOT	Quotation phase	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	2	1	1	
2	ORD	Order phase	<input type="checkbox"/>	<input type="checkbox"/>	2	4	1	1	
3	PDEL	Partial delivery	<input type="checkbox"/>	<input type="checkbox"/>	2	4	1	1	
4	PBIL	Partial billing	<input type="checkbox"/>	<input type="checkbox"/>	3	4	1	1	

→ Position cursor

Save Cancel

Figure 1.30 User Status Profile

The image shows a dialog box titled "Project Builder: User-specific options" with a close button (X) in the top right corner. The dialog is divided into several sections:

- General:** Contains four settings: "Open project with" (dropdown menu set to "Structural display"), "Editing mode" (dropdown menu set to "Change"), "Hierarchy levels" (text input field with "99"), and two checkboxes: "Preview last project" and "Display deleted objects", both of which are unchecked.
- Templates:** Contains four checkboxes: "Individual objects", "Projects", "Standard templates", and "Simulations". The first three are checked, and "Simulations" is unchecked.
- History:** Contains one setting: "Number of Projects" (text input field with "20").
- Performance Improvement Options:** Contains two checkboxes: "Exclude Material Master Data" and "Exclude Purchase Order History", both of which are unchecked.
- Processable objects:** A list of object types with checkboxes: "Simulation" (unchecked), "Project definition" (checked), "WBS element" (checked), "Network" (checked), "Network activity" (checked), "Activity element" (checked), "Material Component" (checked), "Milestone" (checked), "Relationships" (checked), "PS text" (checked), and "Document" (checked).

A "Cancel" button is located in the bottom right corner of the dialog.

Figure 1.31 User-Specific Options in Project Builder

<https://t.me/PrMaB2>

SAP Project Builder: Project E-2610

Display <-> change Project planning board Hierarchy graphic Mass change Easy Cost Planning Sales pricing More ▾

Identification and view selection

Project def.: E-2610 Robot Model 1

Detail: [Icon]

Overview(s): [Icon] [Icon]

Basic Data Control Administration Long Text ShortText Collect. PR Indicators User Fields

Status

System Status: PREL [Icon]

User status: ZTST

Project coding mask

Mask ID: [Input]

Responsibilities Organization

Pers.Resp.No.: 2 Responsible B

Applicant no.: 1 Requestor A

CO area: 0001

Company code: 0001

Business area: 0001

Plant: 0001

Location: [Input]

Functional Area: [Input]

Profit Center: [Input]

Proj.currency: EUR

Dates

Start date: 03.04.2023

Finish date: 21.08.2023

Factory Calend.: 01

Time unit: DAY

Fcst start date: [Input]

Finish date (F): [Input]

Worklist Templates

Worklist: Description	Project object
> ★ Projects	
▼ Last Projects Processed	
🔍 Robot Model 1	E-2610
🔍 Roboter Modell 1	E-2606

Save Cancel Intermediate Save

Figure 1.32 Editing a Project in Project Builder

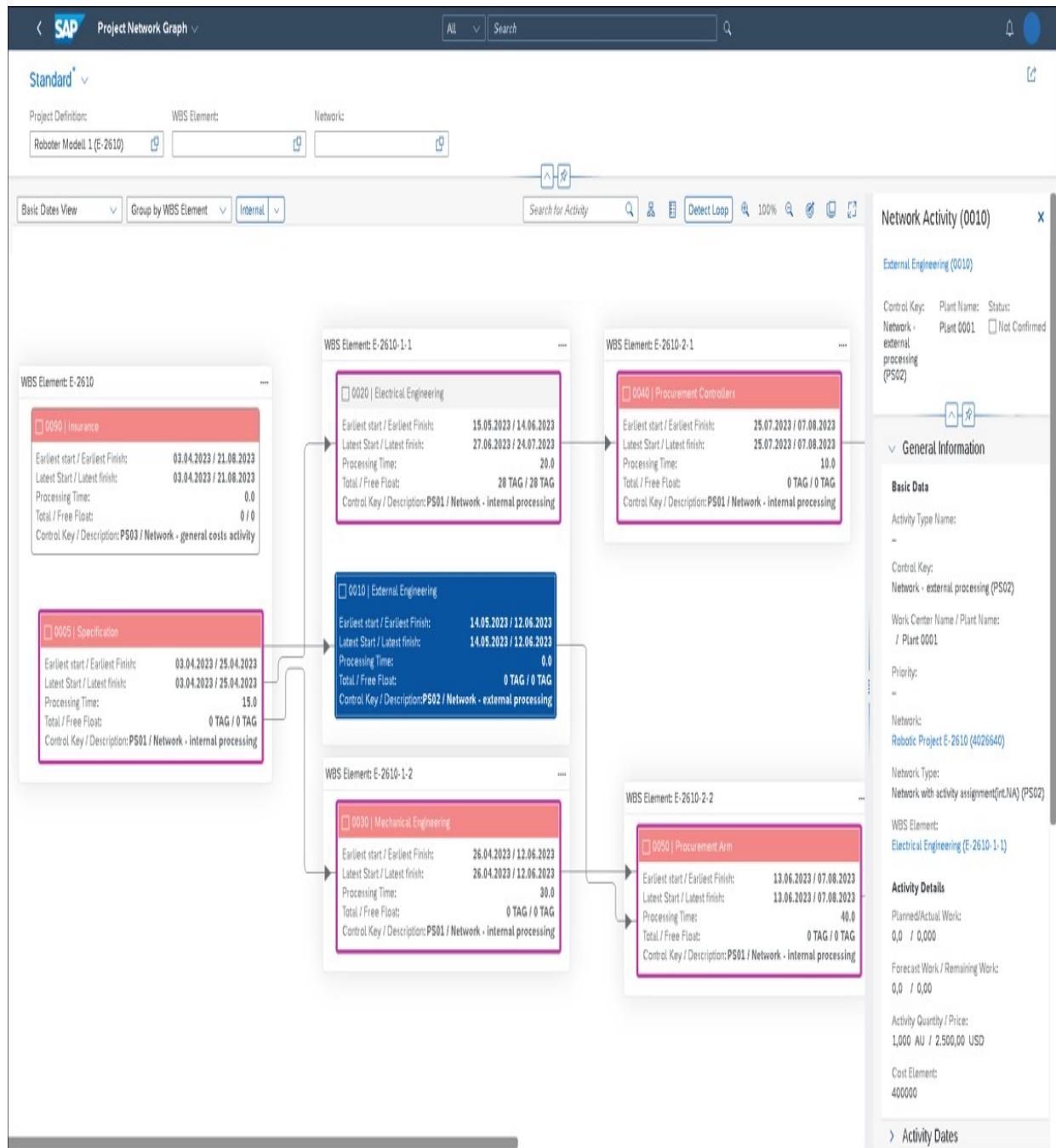


Figure 1.33 Project Network Graph App

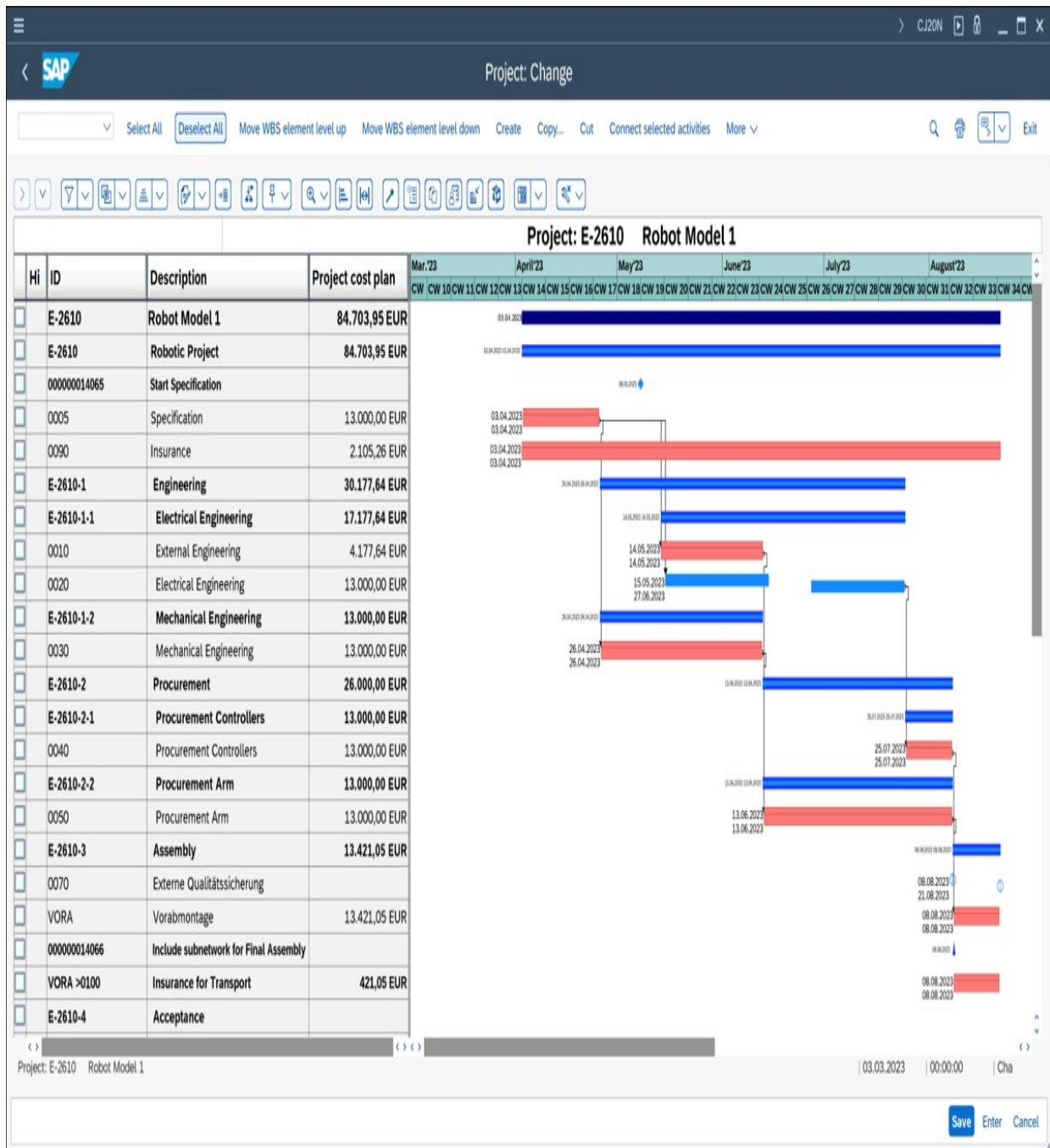


Figure 1.34 Editing a Project in the Project Planning Board

Change View "Project Planning Board: Settings": Details

Plan.board prf: 1001 **Robotic Projects**

General data Table area Diagram area

Default values for activities

Work: 1 Unit for work: D
Duration: 1 Norm.duratr un.: D
Currency: EUR
Print data:
 Always schedule

Show/hide

Show activity
 Displ. subnetw.
 Show act. elem.
 Show milestone
 Show rel.

Cost versions Copy

Version 1: Copy object:
Version 2: Reference user:
Progress Versio:

Earliest/Latest: 1
Set of dates: 1

Graphics profile

Group: PS SAPPs_PSST00 **Planning board assistant**

Changes

By last proces. Custom. only Last changed by: SAP

Save Cancel

Figure 1.35 Sample Planning Board Profile

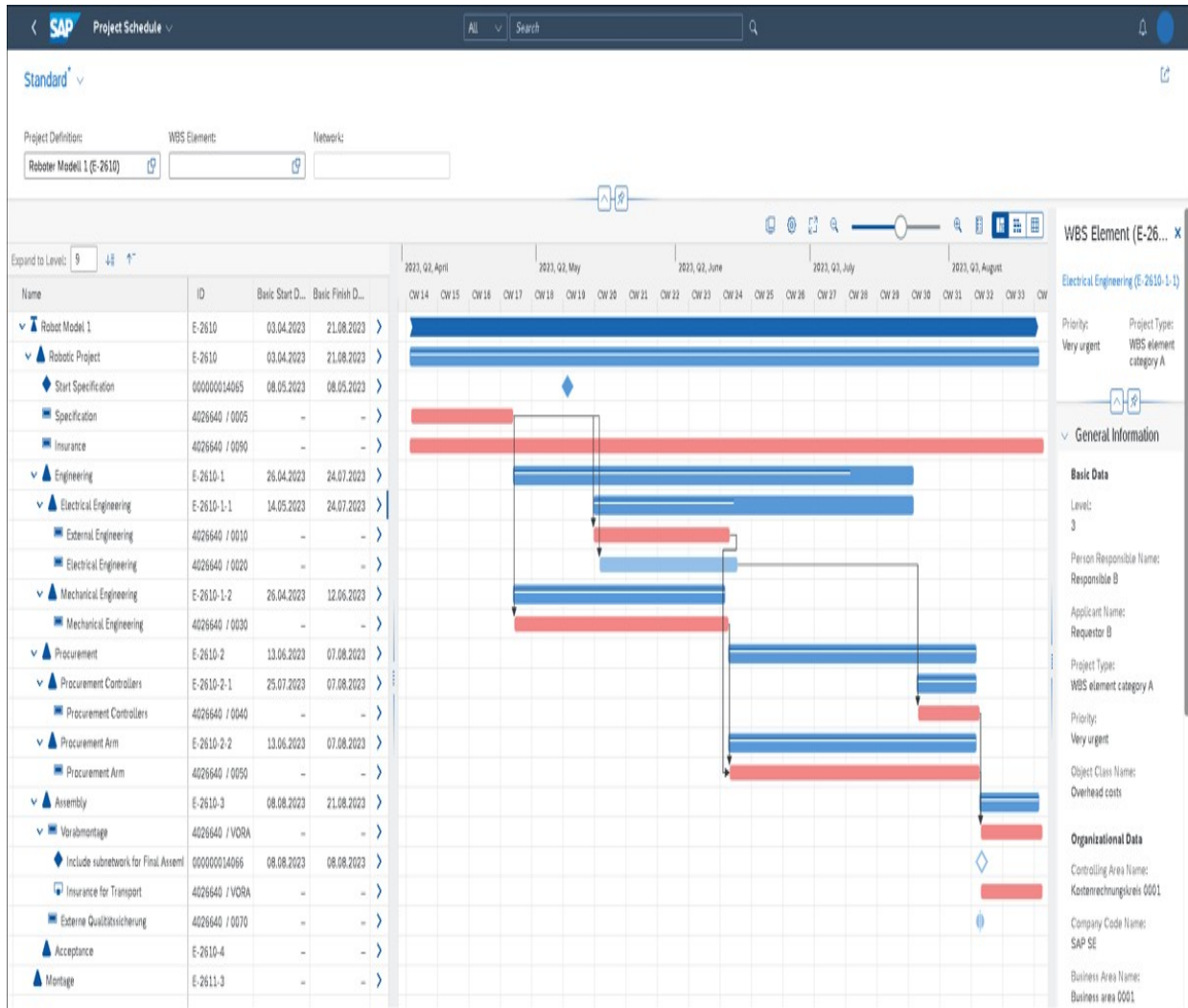


Figure 1.36 Project Schedule App

The screenshot displays the SAP 'Change Structure Planning: Basic dates' interface. At the top, the SAP logo and window title are visible. Below the title bar, there is a navigation menu with options like 'Cut activity', 'Activity...', 'Component overview', 'Relationship overv.', 'Schedule', 'Calculate costs', and 'More'. A search bar and 'Exit' button are also present.

The main content area shows a summary table for the project definition:

Project definition	Description	Start	Finish	Duratn	Tim	Ca l
E-2610	Robot Model 1	03.04.2023	21.08.2023	95,0	DAY	01

Below this, there are tabs for 'WBS basic data', 'Basic dates', 'Forecast dates', 'Actl dates', and 'Activity data'. The 'Basic dates' tab is active, showing a detailed table of activities:

S...	A...	Le...	WBS Element	Activ...	Description	Start date	Fin. date	I...	E...	S...	G...	As...	Erl. start	Earl. fin.	LatestStrt	Li...
<input type="checkbox"/>			1 E-2610		Robotic Project	03.04.2023	21.08.2023						03.04.2023	21.08.2023	03.04.2023	21...
<input type="checkbox"/>			2 E-2610-1		Engineering	26.04.2023	24.07.2023						26.04.2023	10.07.2023	26.04.2023	24...
<input type="checkbox"/>			3 E-2610-1-1		Electrical Engineering	14.05.2023	24.07.2023						14.05.2023	14.06.2023	14.05.2023	24...
<input type="checkbox"/>				0010	External Engineering			<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		14.05.2023	12.06.2023	14.05.2023	12...
<input type="checkbox"/>				0020	Electrical Engineering			<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		15.05.2023	14.06.2023	27.06.2023	24...
<input type="checkbox"/>			3 E-2610-1-2		Mechanical Engineering	26.04.2023	12.06.2023						26.04.2023	12.06.2023	26.04.2023	12...
<input type="checkbox"/>				0030	Mechanical Engineering			<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		26.04.2023	12.06.2023	26.04.2023	12...
<input type="checkbox"/>			2 E-2610-2		Procurement	13.06.2023	07.08.2023						13.06.2023	07.08.2023	13.06.2023	07...
<input type="checkbox"/>			3 E-2610-2-1		Procurement Controllers	25.07.2023	07.08.2023						25.07.2023	07.08.2023	25.07.2023	07...
<input type="checkbox"/>			3 E-2610-2-2		Procurement Arm	13.06.2023	07.08.2023						13.06.2023	07.08.2023	13.06.2023	07...
<input type="checkbox"/>			2 E-2610-3		Assembly	08.08.2023	21.08.2023						08.08.2023	21.08.2023	08.08.2023	21...
<input type="checkbox"/>			2 E-2610-4		Acceptance											

At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 1.37 Editing a Project in Structure Planning

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities System Help > SIMG

New Entries: Details of Added Entries

Proj.Prof.: 0000001 Activity: A Tab page: TAB01 Can switch Cust. off

Tab page settings

Tab page title: Basic, Profile and Organizational Data Active tab page
Icon: ICON_DETAIL First tab page
SAP standard: Basic Data

Detail screens on tab page

	No.	Short description
Screen 1: 2	7	WBS Element: Administrative Data
Screen 2: 4	8	WBS Element: User Fields
Screen 3: 5	9	Superior WBS Elements
Screen 4:	10	Joint Venture Data, WBS Element
Screen 5:	12	Additional Fields for Project Summarization for
	14	WBS Element Dates
	15	Earned Value Analysis WBS Element

Basic Data

Tab page: TAB01 First tab page

Detail screen 1: 2 WBS Element Basic Data
Detail screen 2: 4 WBS Element: Profile Data
Detail screen 3: 5 WBS elements, organization
Detail screen 4: 0
Detail screen 5: 0

Save Cancel

Figure 1.38 Defining a WBS Element Tab in Customizing

The screenshot shows the SAP Mass Maintenance: Table View interface. The top navigation bar includes 'Mass maintenance', 'Edit(X)', 'Goto(S)', 'View', 'System', and 'CNMASS'. The main header displays the SAP logo and the title 'Mass Maintenance: Table View'. Below the header, there are tabs for 'Test Changes', 'Restrictions', 'Old Values', and 'More'. A search icon and a refresh icon are also present. The main content area has a breadcrumb trail: 'Project definitions' > 'WBS elements' > 'Networks' > 'Activities' > 'Activity elements'. A toolbar with various icons is located above the table. The table displays 4 entries with columns: 'WBS Element', 'Ufield Qty 1 WBS', 'Ufield...', and 'Location'. The first two rows are summary rows: 'New Values' with a formula $\Sigma 2 * X$ and 'Replace Only'. The main data table has 8 rows, with the first, third, fifth, and seventh rows selected (checked). The data is as follows:

WBS Element	Ufield Qty 1 WBS	Ufield...	Location
New Values	$\Sigma 2 * X$	EA	CT-02
Replace Only			CT-01
WBS Element	Ufield Qty 1 WBS	Ufield...	Location
<input checked="" type="checkbox"/> E-2610.2		EA	CT-02
E-2610.2			CT-01
<input checked="" type="checkbox"/> E-2610.2.2	2,000	EA	CT-02
E-2610.2.2	1,000		CT-01
<input checked="" type="checkbox"/> E-2610.2.1	2,000	EA	CT-02
E-2610.2.1	1,000		CT-02
<input checked="" type="checkbox"/> E-2610	2,000	EA	0001
E-2610	1,000		0001

At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 1.39 Mass Change of Activities in the Table View

<https://t.me/PrMaB2>

Program Edit(X) Goto(S) System Help > CNMASSTATUS

Mass Status change in Project System

Save as Variant... Dynamic Selections Other sel. version More v Exit

Project Management Selections (Other DB profile: 000000000001)

Project: E-2610 to: []

WBS Element: [] to: []

Network/order: [] to: []

Activity: [] to: []

Additional WBS element criteria

Level: 1 to: 99

Status Selection

System Status:

Select System Status: []

- Use AALK Account assignment locked
- User statu CLSD Closed
- Select Use DSEX Date set by external system
- LKD Locked
- MDLK Master data locked
- S REL Released
- Res TECO Technically completed
- DLFL Deletion Flag

Operation

Execute

Figure 1.40 Selection Screen of Transaction CNMASSSTATUS
for Mass Changes of Statuses

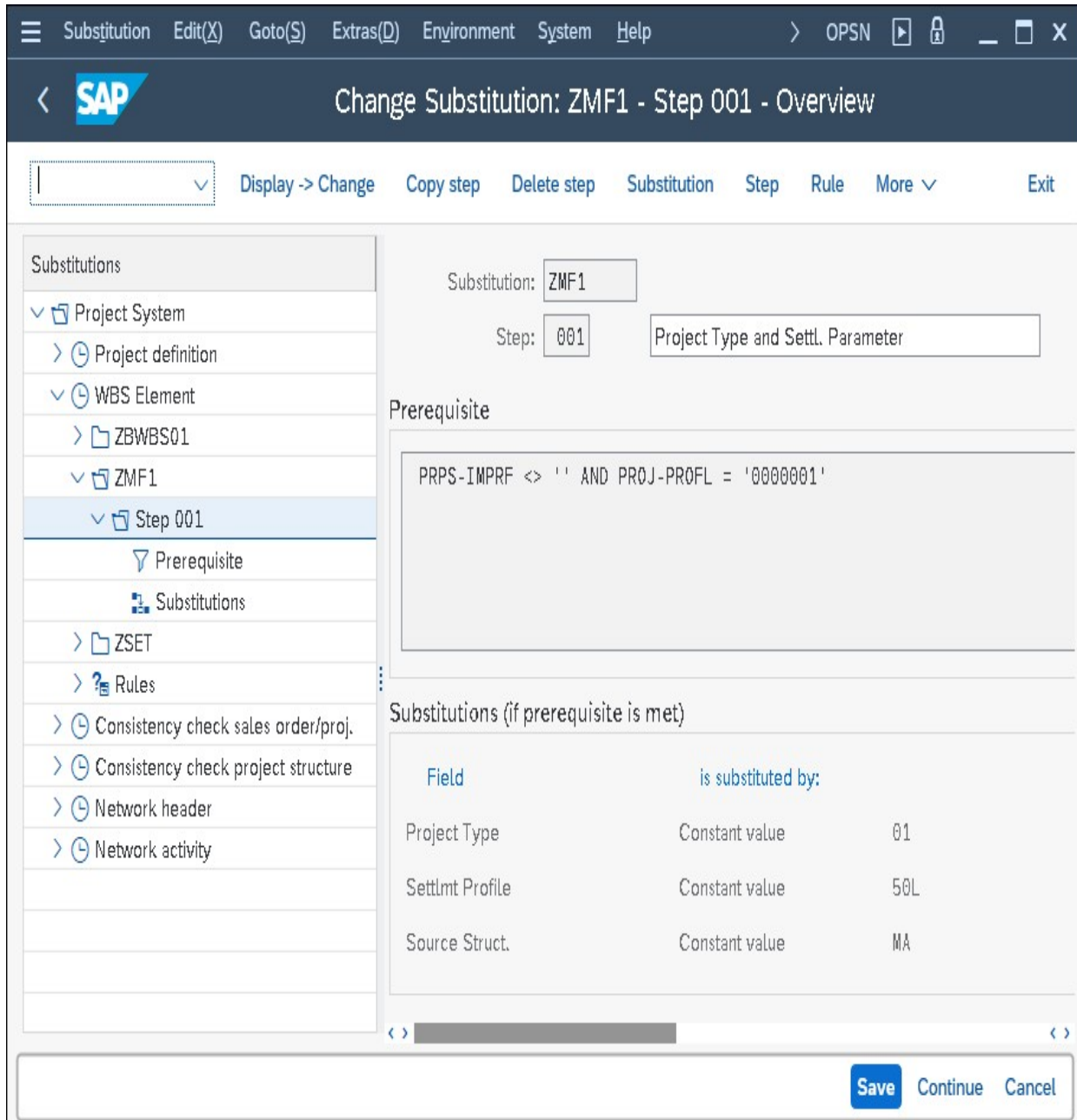


Figure 1.41 Sample Definition of a Substitution in Customizing

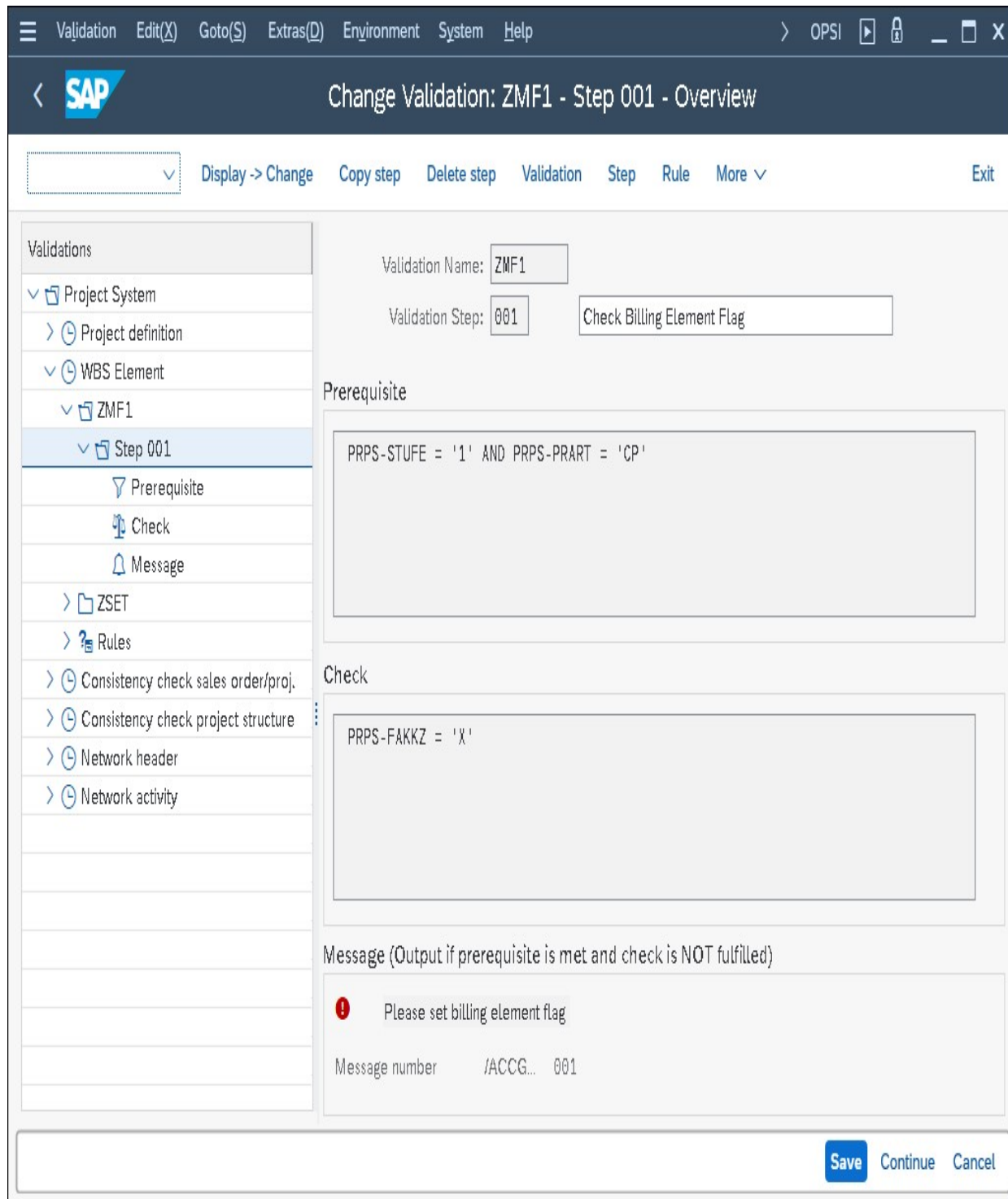


Figure 1.42 Sample Definition of a Validation in Customizing

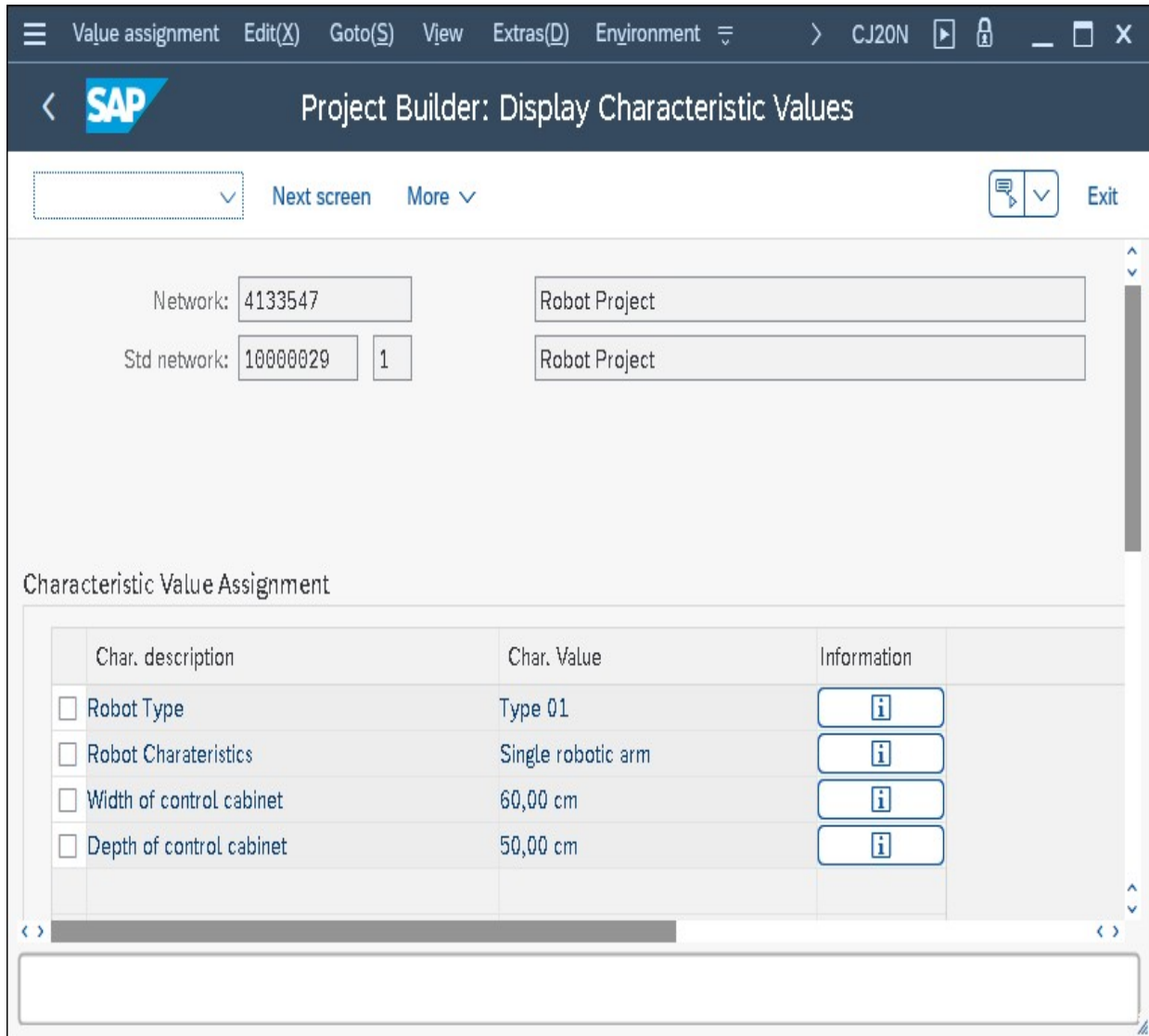


Figure 1.43 Sample Characteristic Value Assignment

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities > OVZG

SAP Change View "Requirements Classes": Details

New Entries Copy As... More Display Exit

Reqmts Class: 212 Netplan/proj.settlmt

Requirements

Avail. Check:
Req. transfer:
Allocation Ind.:
Prod.allocation:
Ind.req.reductn:
No MRP:

Assembly

Assembly Type: 2
Order costing:
Automatic plnng:
Special Stock: E
Order Type: PS04
Avail.components:
Type comp.check:
Online Assembly:
Capacity check:
No update:
OCM:

Configuration

Configuration: +
Cons.of config.:

Costing

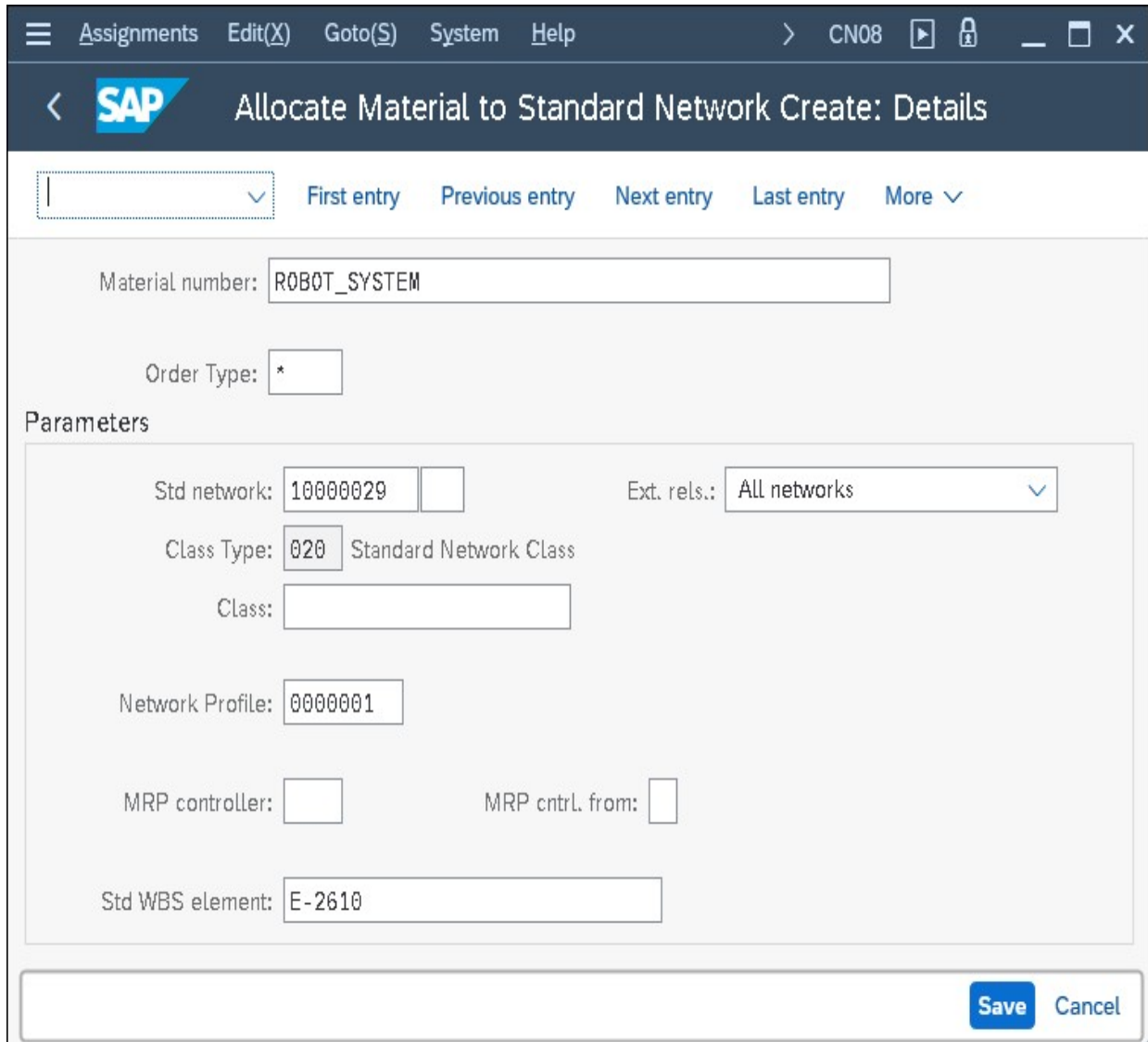
Costing:
Costing ID:
Costing Method:
Costing Variant:
Costing Sheet:
Copy cstg sheet:
CndTypLinItems:
CndTypLinItFix:

Account assignment

Acct Assgmt Cat: D
Valuation:
W/o Val. Strat.:
Settlmt Profile: SD1
Strategy Seq.:
Changeable: 0
RA Key: 000001
Consumption: P
Functional Area:

Save Cancel

Figure 1.44 Standard Requirements Class 212 for Assembly Processing Using Networks



The screenshot displays the SAP transaction CN08, titled "Allocate Material to Standard Network Create: Details". The interface includes a menu bar with options like "Assignments", "Edit(X)", "Goto(S)", "System", and "Help". Below the menu, there are navigation buttons: "First entry", "Previous entry", "Next entry", "Last entry", and "More". The main form contains the following fields:

- Material number:
- Order Type:
- Parameters section:
 - Std network:
 - Ext. rels.:
 - Class Type: Standard Network Class
 - Class:
 - Network Profile:
 - MRP controller:
 - MRP cntrl. from:
 - Std WBS element:

At the bottom right, there are "Save" and "Cancel" buttons.

Figure 1.45 Sample Assignment of a Material Number to a Standard Network in Transaction CN08

Change View "Version profile": Details

Prof.: 0000001

Objects in one version

- Project def.
- Sales order
- WBS element
- Network
- Netwrk activity
- Component
- Relationship
- Element
- PS text
- Milestone
- Costs
- Capacity reqmts

Indicator of a Version

- MTA-Relevant

One entry chosen [View details](#) **Save** Cancel

Figure 1.46 Sample Definition of a Version Profile

The screenshot shows the SAP Administration Data: Display window. The title bar includes the SAP logo and the text "Administration Data: Display". The main content area contains the following fields and options:

- A dropdown menu with a downward arrow.
- Buttons for "Display <-> Change" and "More" with a downward arrow.
- An "Exit" button.
- "Vers. key:" field with the value "M0001".
- "Project def.:" field with the value "E-2610" and a search icon.
- "Description:" field with the value "Roboter Modell 1".
- An "Inactive" checkbox.
- An "Administrative data" section containing:
 - "Created by:" field.
 - "Created on:" field with the value "24.09.2022".
 - "Changed by:" field.
 - "Changed on:" field.
 - "Transferred by:" field.
 - "Transfer date:" field.
 - A "Copied" checkbox.
- At the bottom right, "Save" and "Cancel" buttons.

Figure 1.47 Sample Administration Data of a Simulation Version

Precheck Report for Archiving PS objects

Networks for project:
WBS assign. to ntwk header
WBS assign. to ntwk activity
Project E-2606 To set Deletion Flag is not possible.
Network 000004026740 To set Deletion Flag is possible.

Exception	Project PS Object	PS Object Id.	Description	Related Object	Related Object Id	Message Text
o	E-2606 Network Activity	000004026740 0010	Externe Konstruktion	PURCHASE REQUISITION	0010013739 00010	There is still a purchase requisition commitment for N...
o	E-2606 WBS	E-2606-3	Montage	PM ORDER	000004026741	Order 4026741 Not marked for deletion

Figure 1.48 Sample Message Details in Program PSARCHPRECHECK

Basic Data Dates Assignments Control User fields Administr. Superior Progress Long Text > v

Basic Dates

BscStart:	<input type="text" value="09.01.2023"/>	Duration:	<input type="text" value="80"/>	Erl. start:	<input type="text" value="09.01.2023"/>	LatestStrt:	<input type="text" value="09.01.2023"/>
Bsc Fin:	<input type="text" value="03.05.2023"/>	Un.:	<input type="text" value="DAY"/>	Earl. fin.:	<input type="text" value="03.05.2023"/>	LtstFinish:	<input type="text" value="03.05.2023"/>

Forecast dates

FcstStrt:	<input type="text" value="07.01.2023"/>	Duration:	<input type="text" value="75"/>	Erl. start:	<input type="text"/>	LatestStrt:	<input type="text"/>
FcstFin.:	<input type="text" value="25.04.2023"/>	Unit:	<input type="text" value="DAY"/>	Earl. fin.:	<input type="text"/>	LatestFin.:	<input type="text"/>

Actual dates Calendar

ActStart:	<input type="text"/>	Duration:	<input type="text" value="0"/>	TentActSt.:	<input type="text"/>	Calendar:	<input type="text" value="01"/>
Act.Fin:	<input type="text"/>	Unit:	<input type="text" value="DAY"/>	TentActFin:	<input type="text"/>		

Figure 2.1 Dates Detail Screen of a WBS Element

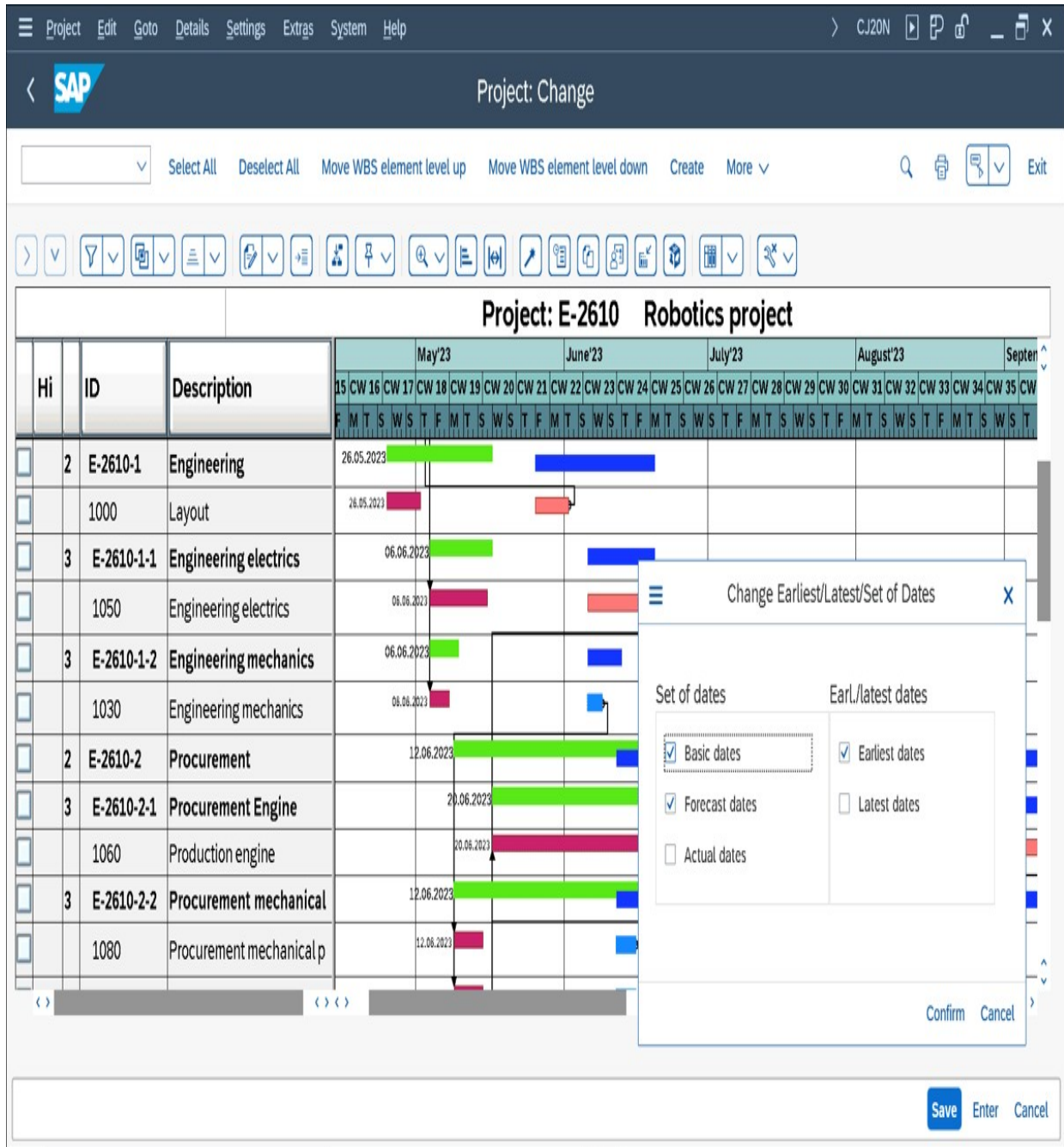


Figure 2.2 Basic and Forecast Dates in the Project Planning Board

Description	January'23				February'23				March'23					
	52	CW 01	CW 02	CW 03	CW 04	CW 05	CW 06	CW 07	CW 08	CW 09	CW 10	CW 11	CW 12	CW 13
Engineering														
Engineering electrics														
Engineering mechanics														

Figure 2.3 Bottom-Up Extrapolation

Description	January'23				February'23				March'23						
	52	CW 01	CW 02	CW 03	CW 04	CW 05	CW 06	CW 07	CW 08	CW 09	CW 10	CW 11	CW 12	CW 13	
Engineering		■													
Engineering			■												
Engineering electrics		■													
Engineering electrics			■												
Engineering mechanics						■									
Engineering mechanics							■								

Figure 2.4 Strict Bottom-Up Extrapolation

Table View Edit Goto Selection Utilities System Help > OPUL [Print] [Lock] [Min] [Max] [Close]

< **SAP** Change View "Reduction levels": Overview

[Search] [New Entries] Copy As... Delete Undo Change More [Display] Exit

Dialog Structure

- Reduction strategy
 - Reduction levels

Plant: 0001 Plant 0001

Reduction Strategy: 01 Standard reduction strategy

Reduction Levels

	R	Red.Act.Dur.
<input type="checkbox"/>	1	20
<input type="checkbox"/>	2	40
<input type="checkbox"/>	3	60
<input type="checkbox"/>	4	80
<input type="checkbox"/>	5	100

< > < >

Entry 1 of 5

Figure 2.5 Reduction Strategy

Internal Extnl Dates Assignments Long Text User Fields Qualification ShortTxt > v

Constraints Float in days

Start:	Cannot start before <input type="checkbox"/>	26.06.2023	00:00:00	Total float: 0
Fin.:	<input type="checkbox"/>		24:00:00	Free float: 0
Early/Late:	<input type="checkbox"/>			

Dates

	Start		Fin.		Duration		Work	
Ear.:	26.06.2023	00:00:00	15.09.2023	24:00:00				
Last:	26.06.2023	00:00:00	15.09.2023	24:00:00	60,0	DAY	60,0	HR
Act:		00:00:00		00:00:00				0,0
			Fcst conf.:	00:00:00	0,0		60,0	
Dispatch.:		00:00:00		00:00:00	0,0			0,0

Figure 2.6 Scheduling Constraint for an Activity

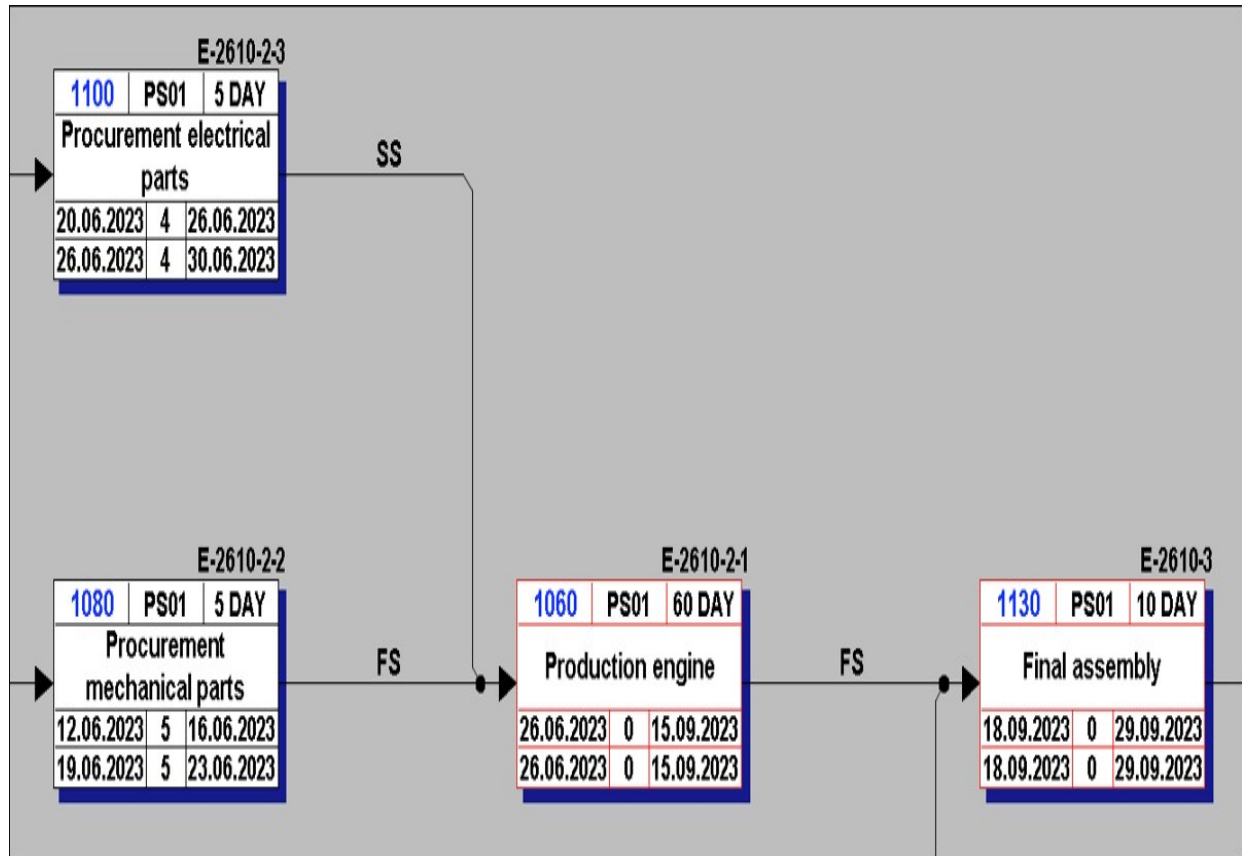


Figure 2.7 Time-Critical Activities and Floats in the Network Graphic

<https://t.me/PrMaB2>

Table View Edit Goto Selection Utilities System Help > OPU6

SAP Change View "Specify scheduling parameters": Details

New Entries Copy As... Delete More ▾ Display Exit

Plant: 0001 Plant 0001
Order type: PS01 Network with header assignment (int. NA):
Prodn Superviso: *

Adjust scheduling

Adjust Dates: Do not adjust basic dates, dep. reqmts to operation dates ▾

Scheduling control for detailed scheduling

Scheduling Type: * Backwards ▾ Automatic Scheduling
Start in the Past: Automatic log
 Scheduling with breaks
 Shift Order
 Latest Staging Date

Reduction

Reduction type: All operations in the order will be reduced ▾
Maximum reduction level: Do not reduce ▾

Save Cancel

Figure 2.8 Network Scheduling Parameters

<https://t.me/PrMaB2>

SAP Change: Network: Scheduling of the Overall Network (Basic)

Execute Scheduling Cost calc. Old/new dates More v Exit

Network: 4027700 Robotic Engineering

To schedule: Networks and maintenance/service orders v

Overall Network Scheduling

	Basic Dates	Scheduled	Act. Dates
Bas. start date:	19.01.2023	19.01.2023	
Basic Fin. Date:	24.03.2023	24.03.2023	

Scheduling type: 2 Backwards

Reduction Ind.: No reduction carried out

Save Cancel

Figure 2.9 Overall Network Scheduling Using Transaction CN24

Program Edit Goto System Help > CN24N

< SAP CN24N: Overall Network Scheduling

BasicDates Forecast Dates Selection Monitor More v Exit

Network Selection

Project:	<input type="text" value="E-2612"/>	to:	<input type="text"/>	<input type="button" value="→"/>
Network Type:	<input type="text" value="PS04"/>	to:	<input type="text"/>	<input type="button" value="→"/>
WBS Element:	<input type="text"/>	to:	<input type="text"/>	<input type="button" value="→"/>
Network:	<input type="text" value="4000380"/>	to:	<input type="text"/>	<input type="button" value="→"/>
Level:	<input type="text"/>	to:	<input type="text"/>	<input type="button" value="→"/>

Networks to Be Scheduled

Selected Networks:

Only Subnetworks:

Dates of Superior Networks

Do Not Copy:

< >

Figure 2.10 Overall Network Scheduling with Selection Options

<https://t.me/PrMaB2>

System Help > CN24N

< SAP CN24N: Subnetwork Monitor

More ▾ Exit

Network: 000004000380 Robotics project
Activity: 1130 Final assembly

Selected Networks

Order	Act.	Operation Short Text	NorDur	Un.	Earliest start date	Latest finish da...	Progress	Conflicts	UpdateReq.	Confirmation
<input type="checkbox"/>	4000380	1120	Procurement hull	5	DAY	17.08.2023	20.11.2023			
<input type="checkbox"/>	4000380	1130	Final assembly	10	DAY	21.11.2023	04.12.2023		●00	●00
<input type="checkbox"/>	4000380	1140	Testing	3	DAY	05.12.2023	07.12.2023			
<input type="checkbox"/>	400000	1150	Adjustment	2	DAY	05.12.2023	07.12.2023			

Bsc start: 14.12.2023 SchedStart: 28.11.2023
Basic fin.: 14.12.2023 Sched.Fin.: 14.12.2023

Subnetwork Overview

Order	Basic fin. date	Bas. start da...	Sched. finish	Sched. st...	Description	Progr	Conflicts	UpdateReq.	Work	ActualWork	Un.
<input type="checkbox"/>	4000381	14.12.2023	28.11.2023	14.12.2023	28.11.2023	Assembly		●00	●00		

Figure 2.11 Subnetwork Monitor

<https://t.me/PrMaB2>

SAP Change View "Control Parameters for WBS Scheduling": Details

New Entries Copy As... Delete More Display Exit

WBS scheduling prof.: 000000000001 Standard profile - time scheduling

Scheduling

Scheduling type: Backwards

Start in past:

Schedul. method: WBS determines dates

Adjust bsc date Autom.schedul.

Automatic log Latest staging

Shift order

Reduction

Max.redn. level: 6

Reduction Type:

Save Cancel

Figure 2.12 Control Parameters for WBS Scheduling

The screenshot shows the SAP 'Change View Work center category' dialog. The title bar includes 'SAP' and 'Change View "Work center category": Overview'. The menu bar contains 'Table View', 'Edit', 'Goto', 'Selection', 'Utilities', 'System', and 'Help'. The toolbar includes 'New Entries', 'Copy As...', 'Delete', 'More', 'Display', and 'Exit'. The 'Dialog Structure' pane on the left shows 'Work center category' expanded to 'Application'. The main table has the following data:

Cat.	Description	Field sel.	Scrn seq.	Change doc	Stat.P...	Color
<input type="checkbox"/> 0005	Plant maintenance	0001	0001	<input type="checkbox"/>		
<input type="checkbox"/> 0006	Project management	0006	0006	<input type="checkbox"/>		
<input type="checkbox"/> 0007	Production line	0007	0007	<input type="checkbox"/>		

At the bottom, there is a 'Position...' button and 'Entry 5 of 14' text. The 'Save' and 'Cancel' buttons are located in the bottom right corner.

Figure 2.13 Definition of Work Center Categories

<https://t.me/PrMaB2>

Change Work Center Capacity: Header

Intervals and Shifts Intervals More Exit

Capacity category: 002

General data

Capacity Responsible: * 001 SAP example
Pooled capacity: Grouping:

Available capacity

Factory Calendar: 01 Germany (Standard)
Active Version:
Capacity Base Unit: * HR Hours

Standard available capacity

Start Time: 08:00:00
End Time: 17:00:00
Length of breaks: 01:00:00
Operating time: 8,00
Capacity Utilization: * 100
No. Ind. Capacities: * 20
Capacity: 160,00 HR


Save Cancel

Figure 2.14 Work Center Capacity

<https://t.me/PrMaB2>

Table View Edit Goto Selection Utilities System Help > OP21

SAP Change View "Formula Definition": Details

New Entries Copy As... Delete More  **Display** Exit

Formula Key:

Formula

Indicators

Generate PRT Allowed For Reqmts.
 Allowed for Calculation Allowed for Scheduling
 Work Center for Capacity Reqmts.

Search Fld. for Param.

Parameter:

Save Cancel

Figure 2.15 Definition of the SAP008 Formula

Table View Edit Goto Selection Utilities System > SIMG

SAP Change View "Names of Distribution Types": Overview

Details New Entries More Display Exit

Distrib.	Description	Strat	Function
<input type="checkbox"/> SAP010	Overall load for earliest start date	S05	S10
<input type="checkbox"/> SAP020	Equal distrib. earliest dates, fact.cal.	S02	S20
<input type="checkbox"/> SAP030	Equal distrib. latest dates, fact. cal.	S08	S20

→ Position... Entry 2 of 8

Save Cancel

Figure 2.16 Definition of Distribution Keys

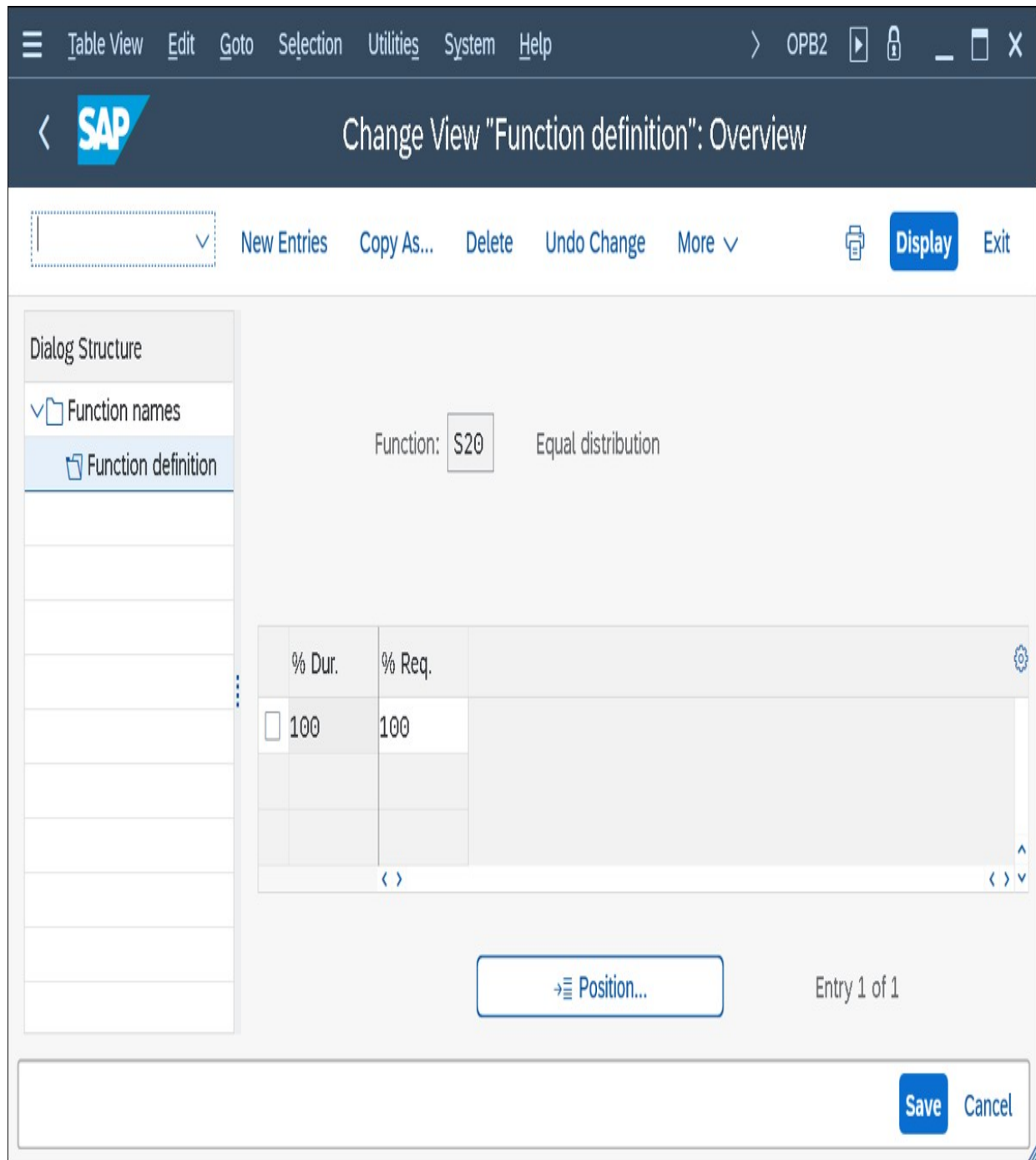


Figure 2.17 Definition of a Distribution Function

The screenshot displays the SAP Change View for 'Distribution Strategy'. The interface includes a top menu bar with options like 'Table View', 'Edit', 'Goto', 'Selection', 'Utilities', and 'System'. Below the menu is a toolbar with 'New Entries', 'Copy As...', 'More', 'Display', and 'Exit'. The main area contains a table with the following data:

Strat	Description	E/L	Type	Basis
<input type="checkbox"/> S01	Earliest dates, continuous, Greg. calend	01	01	01
<input type="checkbox"/> S02	Earliest dates, continuous, fact. calend	01	01	02
<input type="checkbox"/> S03	Earliest dates, continuous, oper. time	01	01	03

Below the table, there is a 'Position...' button and the text 'Entry 1 of 12'. At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 2.18 Definition of a Distribution Strategy

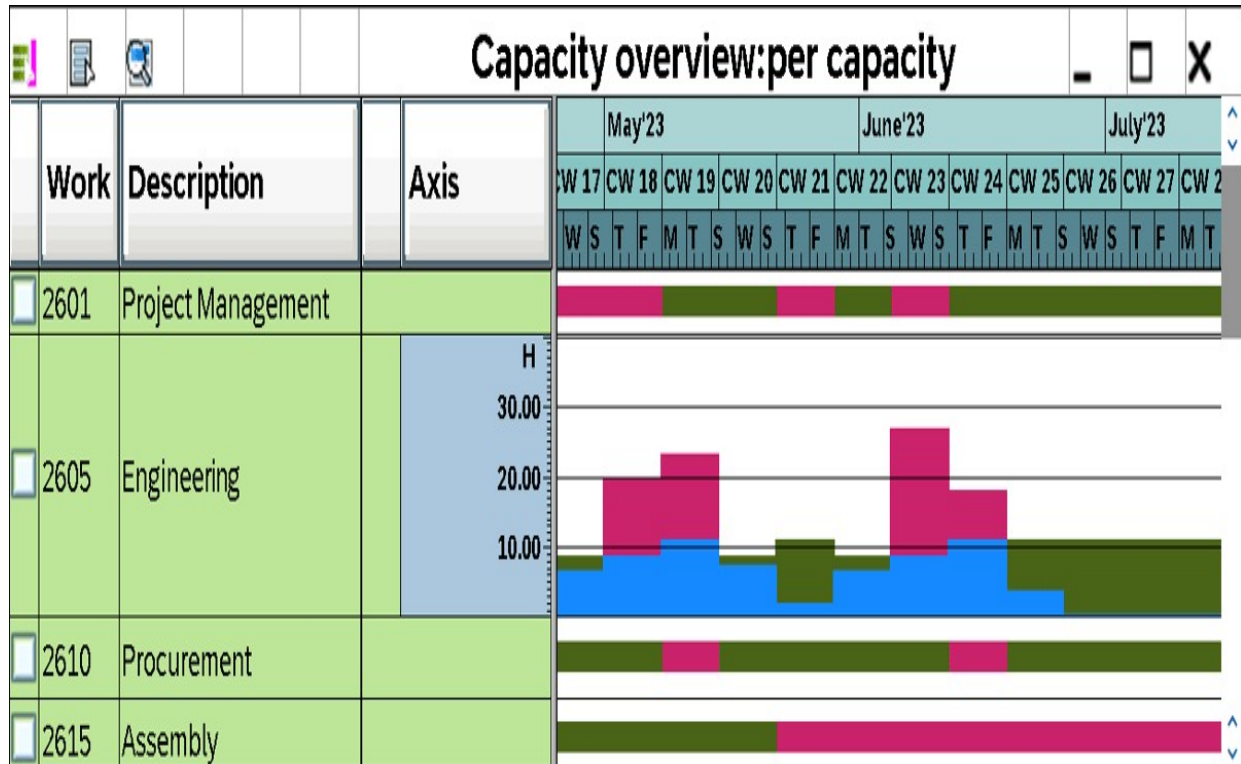


Figure 2.19 Capacity Overview of the Project Planning Board

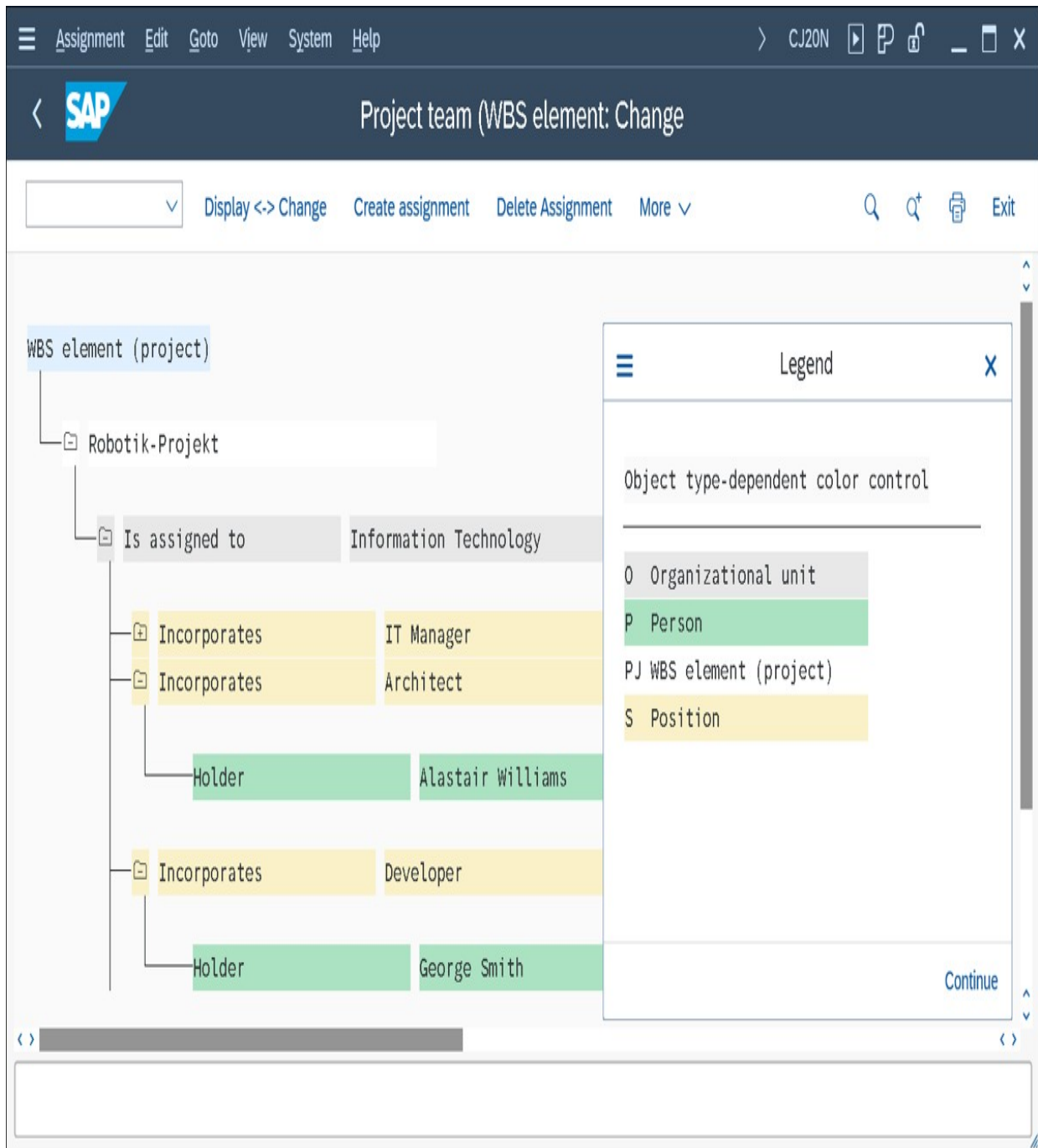


Figure 2.20 Sample Project Organization

Internal Extnl Dates Assignments Long Text User fields Qualification Person assignment Addition... > v

Work Center: 2605 / 1710 Engineering

Capacity cat.: * 002 Person

Person assignment

SpL	Person	D	Date	Time	Work	Un.	Dur.	Un.	Rqmnt	Un.				
<input type="checkbox"/>	1		Smith	<input type="checkbox"/>	06.06.2023	08:00	20,0	HR	9,0	DAY	20,00	HR		
<input type="checkbox"/>	2		Johnson	<input type="checkbox"/>	06.06.2023	08:00	8,0	HR	9,0	DAY	8,00	HR		
<input type="checkbox"/>	3		Miller	<input type="checkbox"/>	06.06.2023	08:00	4,0	HR	9,0	DAY	4,00	HR		
<input type="checkbox"/>	4			<input type="checkbox"/>	06.06.2023	00:08					0,00			
<input type="checkbox"/>	5			<input type="checkbox"/>	06.06.2023	00:08					0,00			
						Remaining:	0,0		0,0		0,00			
						Capacity Requirement:	06.06.2023	00:08	32,0	HR	9	DAY	32,00	HR

Only from w/p Earliest dates/start Number of Persons: 0

Rnk.list

Figure 2.21 Person Assignment Screen of an Internally Processed Activity

<https://t.me/PrMaB2>

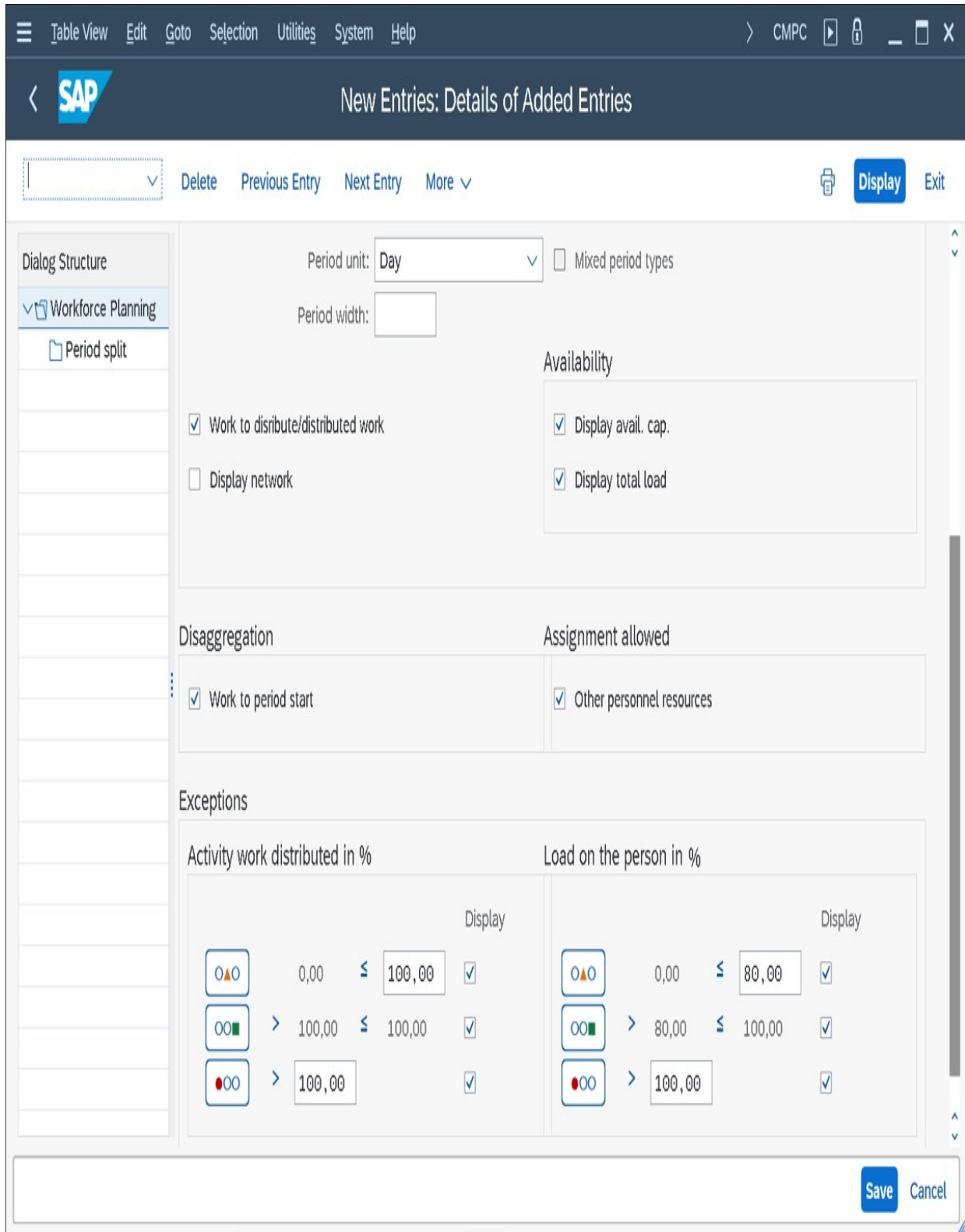


Figure 2.22 Workforce Planning Profile

The screenshot displays the SAP Workforce Planning: Project View interface. At the top, the menu bar includes 'Workforce planning', 'Edit', 'Goto', 'System', and 'Help'. The main header shows the SAP logo and the title 'Workforce Planning: Project View'. Below the header, there are navigation options: 'Project team for WBS element', 'Project', 'WBS element', 'Settings...', 'More', and 'Exit'. The main content area shows the project details: 'Project def.: E-2610' and 'Robotics project'. Below this, there are input fields for 'WBS element:'. The central part of the interface is a resource allocation table with columns for 'O... Activity/Personnel Res.', 'Total wor', 'To be distri', 'Un.', 'I...', and monthly periods from 05.06 to 13.06. The table lists resources such as '4000363 1030 Engineering mechanics', '4000363 1050 Engineering electrics', 'Bruce Smith', 'Mark Johnson', 'Brenda Miller', and '4000363 1060 Production engine'. The bottom of the interface features a toolbar with icons for document, delete, edit, search, and print, along with buttons for 'Activities', 'Assmt.', and a percentage icon. At the very bottom, there is a status bar with a green checkmark and buttons for 'Save', 'Execute', and 'Cancel'.

O... Activity/Personnel Res.	Total wor	To be distri	Un.	I...	05.06...	06.06...	07.06...	08.06...	09.06...	10.06...	11.06...	12.06...	13.06...
4000363 1030 Engineering mechanics	16,0	16,0	HR										
4000363 1050 Engineering electrics	32,0	0,0	HR			20,0	8,0	4,0					
Bruce Smith			HR	⌚	8,0	8,0	8,0	8,0	4,0			8,0	8,0
			HR	Σ		8,0	8,0	4,0					
			HR			8,0	8,0	4,0					
Mark Johnson			HR			8,0							
Brenda Miller			HR			4,0							
4000363 1060 Production engine	60,0	60,0	HR										

Figure 2.23 Workforce Planning from the Project View

Workforce planning Edit Goto System Help > CMP3

SAP Workforce Planning: Work Center View

Work center organization structure Other work center Settings... More v Exit

Work Center: 2605 / 1710 Engineering

O... Personnel resource/activity	I... Un.	05.06....	06.06....	07.06....	08.06....	09.06....	10.06....	11.06....	12.06....	13.06....	14.06....
2605 / 1710 Engineering	HR										
	Σ HR		20,0	8,0	4,0						
Bruce Smith	HR	8,0	8,0	8,0	8,0	4,0			8,0	8,0	8,0
	Σ HR		8,0	8,0	4,0						
4000363 1050 Engineering electrics	HR		8,0	8,0	4,0						
Mark Johnson	HR		8,0								

Assmt. Pers. WkCtr

Proj.def.	Description	WBS elem.	Description	Network	Description
E-2610	Robotics project	E-2610-1-1	Engineering electrics	4000363	Robotics project

Save Execute Cancel

Figure 2.24 Workforce Planning from the Work Center View

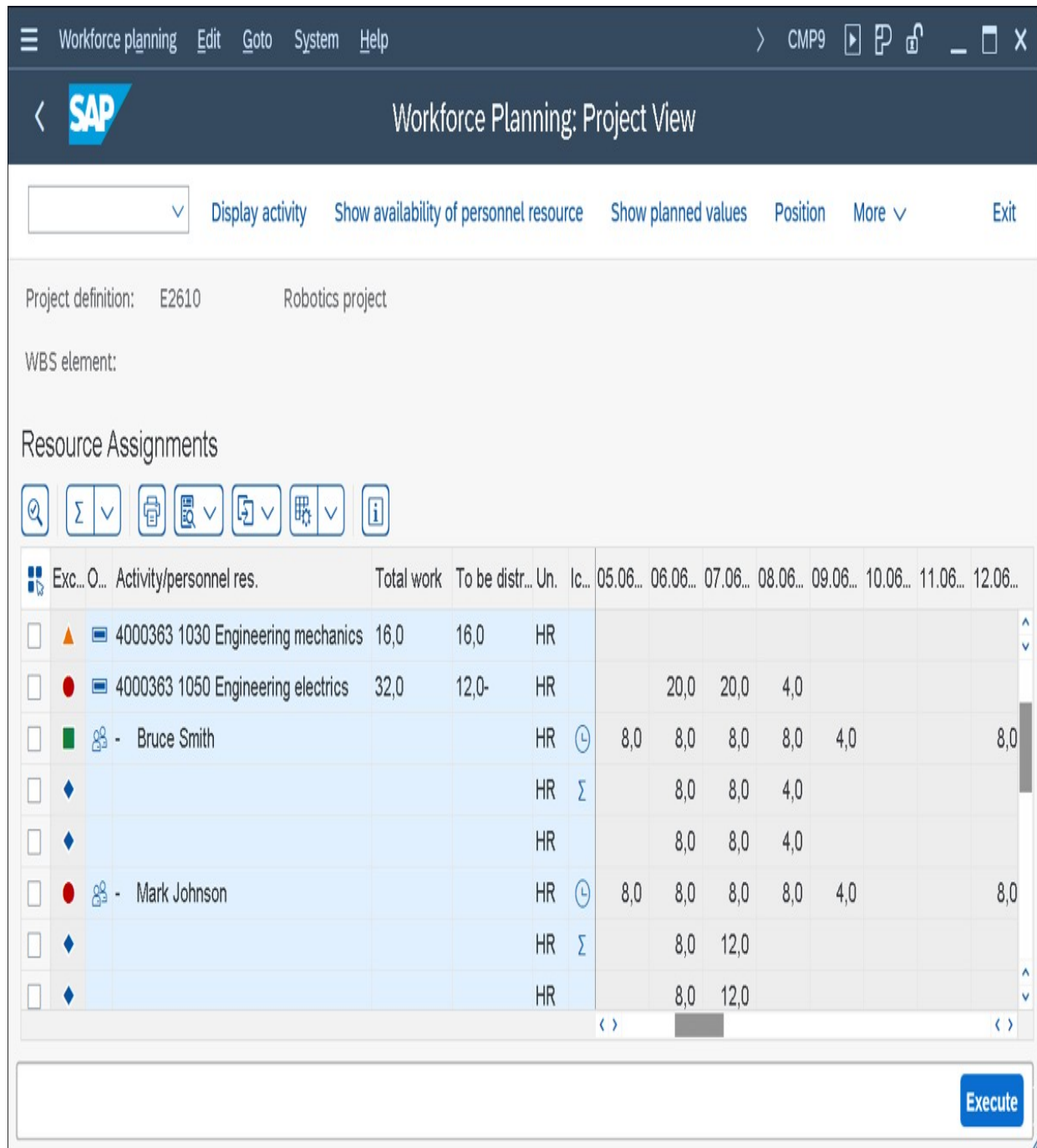


Figure 2.25 Evaluation of Workforce Planning

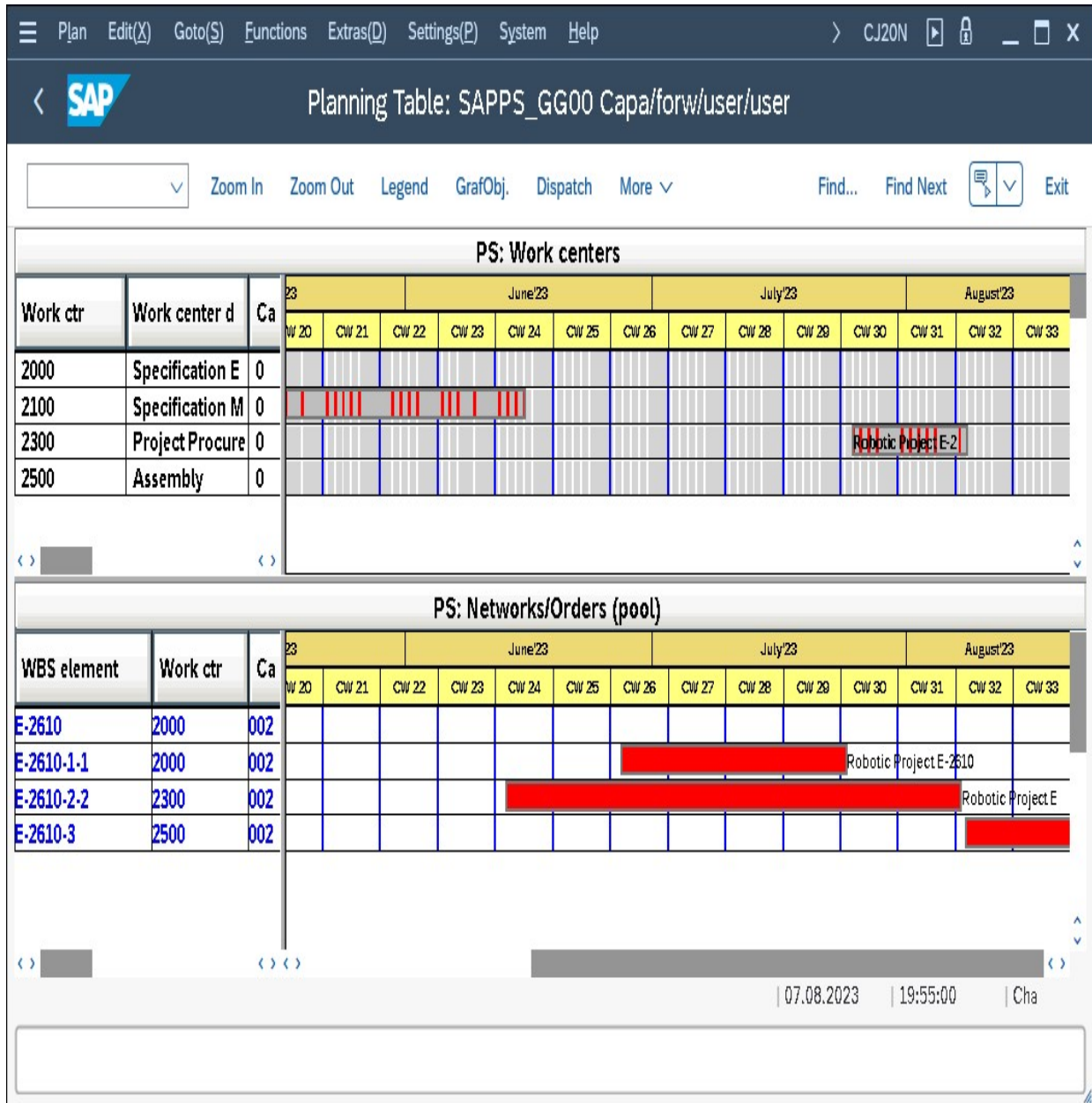


Figure 2.26 Graphical Capacity Planning Board

<https://t.me/PrMaB2>

Task List Edit Goto Functions Extras Settings System Help > CM26

SAP Period Requirements per Resource

Dispatch Dispatch Deallocate More Find Find Next Exit

Work ctr Work center descript Cat Capacity description

2605 Engineering 002 Engineering 2 / 5

Navigation: < << < > >> >

Period:	20.2023	21.2023	22.2023	23.2023	24.2023
Avail.capacity:	8,5	10,7	8,5	8,5	10,7
Scheduled:	0,0 0%	0,0 0%	0,0 0%	0,0 0%	0,0 0%
Pool/Rqmts.:	7,1 84%	1,6 15%	6,4 75%	26,7 314%	17,8 166%

Requirements

Tot.req:	WBS element	Op. Operation descriptio	Order	Material number	...
8,0	E-2610-1	1000 Layout	4000363		...
32,0	E-2610-1-1	1050 Engineering electric	4000363		...

1 / 12

Save

Figure 2.27 Tabular Capacity Planning Board

Purch.Req. Item	WBS Elem.	Network	S I	A	Material	Short Text	Quantity	Un	Matl Group	Plant	Location	Requisnr.	Vendor	POrg	Info record	No. requisns	
[Summary Row]																5	
[Summary Row]																3	
15083094	10	4104286	N	D		External Quality Assurance	1	AU	001	0001			Franz	0001	5500000360	1	
15083094	20	4104286	N			External Engineering	1	EA	001	0001				0001		1	
15083094	40	4104286	N			Transportation	10	EA	L001	0001			Franz	FIO-VEND01	0001	5500000481	1
[Summary Row]																1	
15083222	10	E-2610.2.1		N		ST51_R8368 MATNR ST51_R8368	4	EA	01	0001				0001	5300078144	1	
[Summary Row]																1	
15083094	30	E-2610.2.1	4104286	N		555784 Controller (DE)	1	EA	FIOMRP1	0001	0001					1	

Figure 2.28 Tabular Presentation of Purchase Requisitions for a Project

<https://t.me/PrMaB2>

Table View Edit Goto Selection Utilities System Help > OPTT [lock] [min] [max] [close]

< **SAP** Change View "Account assignment categories for order": Details

[input] Undo Change Previous Entry More ▾ [print] **Display** Exit

Order Category 20 Network

Document type: Purchase Requisition

Acct. assign. cat.

Acct. assgmt. gen.: Network

AcctAssCat projects: Proj. make-to-order

AccAssCat SalesOrder: Ind. cust. w. KD-CO

Sales doc. - project: Indiv.cust./project

T-P Req. WBS Element:

T-P Req./SalesOrd:

[input] **Save** Cancel

Figure 2.29 Determination of the Account Assignment Categories for Networks

The screenshot shows the SAP Service Specifications interface. At the top, the menu bar includes 'Service Specifications', 'Outline', 'Edit(X)', 'Goto(S)', 'Entry Variant', 'System', and 'Help'. The title bar reads 'Service Specifications: Ext. Specs f. Task List Maintain'. Below the title bar, there are navigation options: 'Outline On/Off', 'New Subgroup', 'Totals Values', 'Service Selection', 'Catalog', and 'More'. A search icon and a dropdown menu are also present.

The main area is divided into several sections:

- Outline Level:** A tree view on the left showing 'External Quality Assurance' expanded, with 'SRV-QA-1 Mechanical tests' selected.
- Path:** 'SRV-QA-1' is displayed.
- Sh. Text:** 'External Quality Assurance' is entered in the top field.
- Total Value:** '9.000,00' USD is shown.
- Limits:** 'Over. Limit: 2.000,00 USD' with a 'No Limit' checkbox.
- Services:** 'Sh. Text: Mechanical tests' is entered.
- Table:** A table with columns: Line, D..., Service No., Short Text, Quantity, Un, Gross Price, Crcy, and Overf. Tol. The table contains three rows:

Line	D...	Service No.	Short Text	Quantity	Un	Gross Price	Crcy	Overf. Tol.
10		E-1302	Stress test	4	EA	1.000,00	USD	
20		E-1304	Long-term test	2	EA	2.500,00	USD	
30							USD	
- Bottom Bar:** Includes a 'Catalog' button and a 'Line: 10' field.

Figure 2.30 Sample Service Specifications

Change: Network: General Data

Activity: 4104286 / 0060 Procurement Control Units

Material: 555784 / 0001

Controller

Item: 0010 Item Category: L

General Data Purch. Data Proc.Param LongText Assignmnt

Purchasing Data

Purchase Req.: 15083094 / 30 Manual Reqmt Date CostRel

Requirement Qty: 1 EA Align. Finish Date UnitCost.

Reqmts date: 16.05.2023 Align. to Start Date

Offset:

Procurement Type: PReq + Reservation for WBS Element

Purch. Group: 001 Purch.org.: Price/currency: 500,00 USD

Info record: Price unit: 1 EA FixPrice

Outl. Agreement: / G/L Account: 890000

Vendor: GR proc. time: Del time (days): 1

Material Group: FI0MRP1 Sort String:

Requisitioner: Recipient:

Tracking Number: Unloading Point:

<> <>

Pur.req. Invoicing plan Procurement PS text Parameter effectivity


Figure 2.31 Detail Screen of a Material Component

The image shows a mobile application interface for a 'Purchase Requisition'. At the top, there is a title bar with a hamburger menu icon on the left, the text 'Purchase Requisition' in the center, and a close icon (an 'X') on the right. Below the title bar, there are two input fields: 'Material:' with the value 'MDQ-TMPL-04' and 'Description:' with the value 'Battery 9V 1.1Ah'. Underneath these fields is a section titled 'Choose' which contains two radio button options: 'Purc. req f. network' (which is selected) and 'Third-party order'. At the bottom of the form, there is a horizontal scrollbar and a 'Continue' button in the bottom right corner.

Figure 2.32 Selection of the Procurement Type for a Non-Stock Item

Delivery address for item 0030 MDQ-TMPL-04 / 0060

Address number:

Customer: 

Supplier:

Address number:

Address

Title:

Name:

Name 2:

Name 3:

Name 4:

Street:

House Number:

City:

Postal Code:

Country/Reg.: USA

Region:

Language: English





   Repeat on 

Figure 2.33 Delivery Address

The screenshot shows a 'Purchase Requisition' window with a header bar containing a menu icon, the title 'Purchase Requisition', and a close icon. Below the header, there are two input fields: 'Material:' with the value 'SG-CFP-AP' and 'Description:' with the value 'Adapter'. A section titled 'Choose' contains a list of radio button options: 'Reserv for network', 'Reserv. WBS element' (which is selected and highlighted with a dashed border), 'PReq+Res - WBS elem.', 'Prelim. PReq-WBS el', and '3rd party req. WBSel'. At the bottom of the window, there is a horizontal scrollbar and a 'Continue' button.

Figure 2.34 Selection of the Procurement Type for a Stock Item

<https://t.me/PrMaB2>

The screenshot displays the SAP S/4HANA 'Change View Material flow in the network: Details' screen. The top navigation bar includes 'Table View', 'Edit', 'Goto', 'Selection', 'Utilities', and 'OPS8'. The main title is 'Change View "Material flow in the network": Details'. Below the title, there is a search field, 'New Entries', 'More', a printer icon, a 'Display' button, and an 'Exit' button. The 'Procurement' field is set to 'WE' and 'Reservation plant stock'. The 'Priorities' section contains three input fields: 'Priority plant: 1', 'Prio project: 2', and 'Prio sales ord: 3'. The 'Control data' section has three checkboxes: 'PReq network', '3rd party', and 'Prelim.reqmnts'. The 'Default Item Category' section shows 'Item Cat MRP: L Stock item'. At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 2.35 Defining a Procurement Indicator

The screenshot shows the SAP 'Change: Network: Component Overview' interface. At the top, there is a menu bar with options: Network, Edit(X), Goto(S), Component, Details, Extras(D), System, and Help. The current network is 'CN22'. Below the menu, the SAP logo is visible on the left, and the title 'Change: Network: Component Overview' is centered. A search bar is present with 'Sort...', 'Filter', and 'More' options. On the right, there are icons for search, a dropdown arrow, and an 'Exit' button. Below this, there are two input fields: 'Network: 4104286' and 'Robot Model 1'. A toolbar with various icons (search, print, delete, etc.) is located below the input fields. The main section is titled 'Overall Assign.' and contains a table with the following data:

Acti...	BO...	Material	Plant	Requirement Qty	Base Unit	Item Cat...	Res./Purc. r...	Loca...	Description	SortStrg	Reqmts date	ST
<input type="checkbox"/>	0060	0020	MDQ-TMPL-04	0001	1	PC	N	1	Battery 9V 1.1Ah		16.01.2023	<input type="radio"/>
<input type="checkbox"/>	0060	0030	AVC_RBT_BRD_PAINT	0001	1	PC	L	1	Control Board (Painting)		16.01.2023	<input type="radio"/>
<input type="checkbox"/>	0060	0040	AVC_RBT_BRD_SEAL	0001	1	PC	L	1	Control Board (Sealing)		16.01.2023	<input type="radio"/>
<input type="checkbox"/>	0060	0050	AVC_RBT_CNTRL_CAB	0001	1	PC	L	1	0001 Control Cabinet		16.01.2023	<input type="radio"/>

At the bottom right of the interface, there are 'Save' and 'Cancel' buttons.

Figure 2.36 Tabular Overview of Material Components

Material BOM Edit(X) Goto(S) Extras(D) Environment System Help > CS02

SAP Change material BOM: General Item Overview

Material: AVC_RBT_ROBOT2 Robot Multi-Level
Plant: 0001 Plant 0001 - no change allowed
Alternative BOM: 1

Position Effectivity Initial Screen

Material Document Class General

Item	ICt	Component	Component description	Quantity	UoM	OD	Asm	Sls	Valid From	Valid to	Change No.	Phantom item	So
<input type="checkbox"/>	0030	N	AVC_RBT_LINK_ARM	Link Arm (Configurable)	1	PC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13.09.2021	31.12.9999	<input type="checkbox"/>	
<input type="checkbox"/>	0040	N	AVC_RBT_CONTROL	Control Unit (Configurable)	1	PC	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13.09.2021	31.12.9999	<input type="checkbox"/>	
<input type="checkbox"/>	0050	L	AVC_RBT_BASE_FRAME	Base Frame	1	PC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19.11.2022	31.12.9999	<input type="checkbox"/>	
<input type="checkbox"/>	0060						<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
<input type="checkbox"/>	0070						<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	

Entry: 1 / 3

Save Cancel

Figure 2.37 Material BOM

The screenshot shows the SAP 'Create WBS BOM: Initial Screen' interface. The top navigation bar includes 'WBS BOM', 'Edit(X)', 'Goto(S)', 'Extras(D)', 'Settings(P)', 'System', and 'Help'. The main header displays the SAP logo and the title 'Create WBS BOM: Initial Screen'. Below the header, there is a search bar and a menu with options: 'Check entries', 'WBS BOM ...', 'Material BOM ...', 'More v', and 'Exit'. The main form area contains the following fields:

- WBS Element: * E-2610 (with 'Roboter-Projekt' as a label)
- Material: * AVC_RBT_R0B0T2
- Plant: * 0001 (with 'Plant 0001' as a label)
- BOM Usage: * 1 (with 'Production' as a label)

A 'Validity' section is located below the main fields, containing:

- Change Number: [empty field]
- Valid From: 19.11.2022

At the bottom of the screen, there is a large empty rectangular box.

Figure 2.38 Creating a WBS BOM

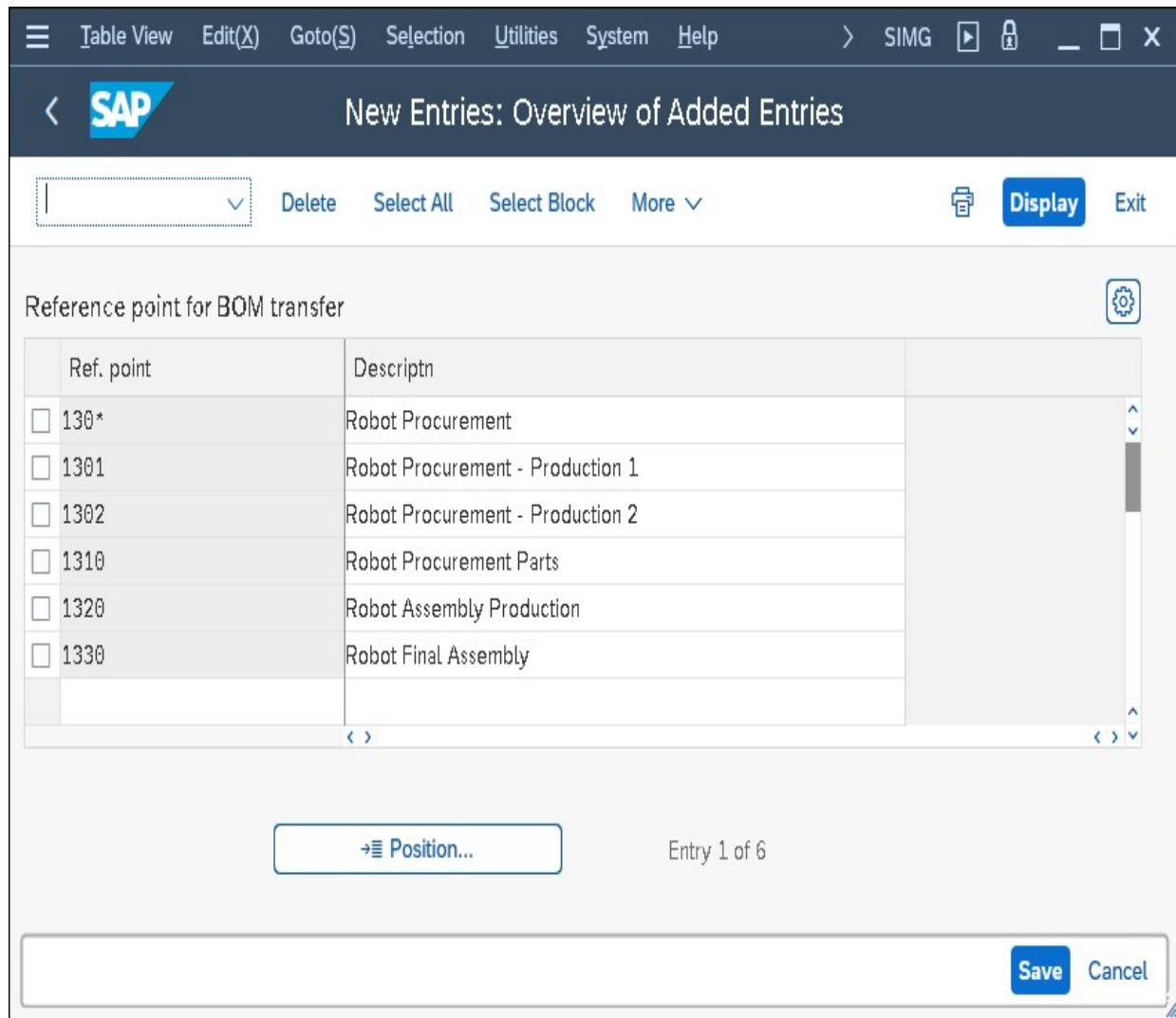


Figure 2.39 Definition of Reference Points

The screenshot shows the SAP 'Maintain Data Fields' interface. At the top, there is a navigation bar with 'System' and 'Help' menus, and a status bar with 'CN38' and window control icons. Below this is a header with the SAP logo and the title 'Maintain Data Fields'. The main area contains a search field with a dropdown arrow, a 'More' dropdown menu, and an 'Exit' button. Two input fields are visible: 'BOM field name:' and 'Network field name:', both containing the text 'RFPNT'. At the bottom right, there is a blue 'Continue' button.

Figure 2.40 Specification of the Reference Point Field as Relevant to the BOM Transfer

Bill of material transfer Edit(X) Goto(S) Environment System > CN33

SAP Bill of Material Transfer

Execute Selection Parameters Transfer More Exit

Selection of activities

Project definition: E-2610

WBS Element: to:

Sales Document: Item:

Network: To:

Selection profile

Profile:

Selection of BOM items

Sales Document: Item:

Material: AVC_RBT_R0B0T2

Plant: 0001 Valid from: * 19.11.2022

BOM Usage: 1 Change Number:

Alternative BOM: Const. change number

Figure 2.41 Initial Bill of Material Transfer Screen

☰ Selection Parameters ✕

Profile:

General Constraints

Plant: Material BOM
BOM Usage: Sales order BOM
BOM Application: WBS BOM
Requirement Quantity:

Multilevel Preliminary reqmts
 All items Availability check
 External data No dialog
 Alternative priority

Plant stock:

Display log from: Project stock:

Check Req. Date Sales order stock:

Offset in Days:

Figure 2.42 Parameters of the BOM Transfer

The screenshot shows the SAP 'Result Overview' window for material AVC_RBT_ROBOT2. The window title is 'Result Overview' and the material is identified as 'Material: AVC_RBT_ROBOT2: 0001: Robot Multi-Level'. The interface includes a menu bar with 'Edit(X)', 'Goto(S)', 'System', and 'Help'. Below the menu bar, there are navigation tabs: 'Network activities', 'BOM items', 'Manual allocation', and 'More'. The main content area displays a table of assignments. The table has columns for 'Action', 'Material', 'Network', 'Acti...', 'Requirement Qty', 'Ba... P', and 'Reference point'. The data rows show three items: AVC_RBT_BASE_FRAME, AVC_RBT_LINK_ARM, and AVC_RBT_CONTROL, each with a requirement quantity of 1 and a reference point of 1330, 1301, and 1302 respectively. The window also features a toolbar with icons for navigation and editing, and a 'Save' button at the bottom right.

Material: AVC_RBT_ROBOT2: 0001: Robot Multi-Level

Assignments

Action	Material	Network	Acti...	Requirement Qty	Ba... P	Reference point
<input type="checkbox"/>	AVC_RBT_BASE_FRAME	4104286	0110	1	PC	1330
<input type="checkbox"/>	AVC_RBT_LINK_ARM	4104286	0060	1	PC	1301
<input type="checkbox"/>	AVC_RBT_CONTROL	4104286	0070	1	PC	1302
<input type="checkbox"/>						

Save Cancel

Figure 2.43 Example BOM Transfer Result

<https://t.me/PrMaB2>

< **SAP** Stock/Requirements List as of 09:11 hrs

▼ Show Overview Tree Refresh Filter On Send Mail to MRP Controller More ▾ 🔍 🔍 🖨 User Settings Exit

Material:
Description:
MRP Area: Werk 0001
Plant: MRP type: Material Type: Unit:

Σ Individual List Cross-Plant View

🔍 ✎ 🗑 📄 ⚙ ⌵ ⬆ ⌵ Date 📅 GR 📅 ST On 🔄 On Vendor Cust. Page 1 / 1

A...	Date	MRP el...	MRP element data	Rescheduling date	Exception	Receipt/Reqmt	Available Qty	Stor...
🔍	19.11.2022	Stock					0	
🔍	19.11.2022	ProjSt	E-2910				0	
🔍	01.03.2023	PurRqs	0015092983/00010			2	2	
🔍	06.03.2023	OrdRes	000004133711			1-	1 0010	
🔍	13.03.2023	OrdRes	000004133711			1-	0 0010	
🔍	19.11.2022	ProjSt	E-2810-2-2				0	
🔍	13.03.2023	PurRqs	0015092984/00010			1	1	
🔍	13.03.2023	OrdRes	000004133712			1-	0 0010	
🔍	19.11.2022	ProjSt	E-2810-2-3				0	
🔍	13.03.2023	PurRqs	0015092985/00010			1	1	
🔍	13.03.2023	OrdRes	000004133712			1-	0 0010	

< > < >

Figure 2.44 Material Planning with and without Requirement Grouping

The screenshot shows the SAP interface for 'Assignments (Test Run) - Grid List'. The table displays procurement assignments with columns for WBS Element, MRP Element, Replenishment element, Assigned WBS Element, In-Stock Status, MRP Elem. NHA, Total Order Quantity, Rqmt Qty, Material, and Replenishme. The data rows show various procurement types (ST PrchReq, SubconPReq, PurchReq) and their corresponding quantities and materials.

Grp WBS El	MRP Element	Replenishment element	Assigned WBS Element	In-Stock Status	MRP Elem. NHA	Total Order Quantity	Rqmt Qty	Material	Replenishme
E-2600-1-2	ST PrchReq	10057437/10	E-2610-1-2-2	In Procurement	Plnd order	6	3	3702300-134	29582
E-2600-1-2	ST PrchReq	10057437/10	E-2611-1-2-2	In Procurement	Plnd order	6	3	3702300-134	29583
E-2600-1-2	SubconPReq	10057438/10	E-2610-1-2-2	In Procurement	Plnd order	2	1	9921-3702300-057	29588
E-2600-1-2	SubconPReq	10057438/10	E-2611-1-2-2	In Procurement	Plnd order	2	1	9921-3702300-057	29589
E-2600-1-2	PurchReq	10057436/10	E-2610-1-2-1	In Procurement	Plnd order	2	1	9921-3702300-079	29578
E-2600-1-2	PurchReq	10057436/10	E-2611-1-2-1	In Procurement	Plnd order	2	1	9921-3702300-079	29579

Layout was applied

Figure 2.45 Results List of a Pegging Run

The screenshot shows the SAP 'Distribution Totals' report interface. The top navigation bar includes the SAP logo, the title 'Distribution Totals', and several utility icons. Below the navigation bar is a toolbar with various icons for filtering and actions, including a search icon and an 'Exit' button. The main content area displays a table with the following data:

Grouping WBS element	MRP Elem.	Replenishment Element Nr.	Val/COArea Crcy COCr	Value Type
MRP Elem. Receiving Object	Cost Elem.	Cost element descr.	Val/COArea Crcy COCr	Material
E-2600-1-2	PO item	4500447635/10	4,07 EUR	Purchase Order Commitment
E-2600-1-2	PO item	4500447636/10	4,07 EUR	Actual
WBS elem. E-2610-1-2-2	54300000	Inventory Change - Semi Finished goods	2,04 EUR	3702300-134
WBS elem. E-2611-1-2-2	54300000	Inventory Change - Semi Finished goods	2,03 EUR	3702300-134

Figure 2.46 Distribution Run

The screenshot displays the SAP 'Pegging Assignments with Costs' application. At the top, there is a navigation bar with the SAP logo and the title 'Pegging Assignments with Costs'. Below this, a filter bar shows 'Standard*' with a dropdown arrow. The main area contains several input fields for 'Assigned WBS Element', 'Alternate Cost Assignment Ob...', 'Account Assignment Grouping...', 'MRP Controller:', and 'Controlling Business Transacti...'. A 'Go' button and 'Adapt Filters (1)' are also present. Below the filters, a section titled 'Assignments (2) Standard*' contains a table with the following data:

MRP Element	Assigned WBS Ele...	Account Assign...	Allocated Quantity	Total Order Quantity	Account Number	Controlling Value Type	Amount in Controlling Obj...
POItem (4500447636/10)	E-2610-1-2-2	E-2600-1-2	3 EA	6 EA	54300000	Actual (4)	2,08 USD
POItem (4500447636/10)	E-2611-1-2-2	E-2600-1-2	3 EA	6 EA	54300000	Actual (4)	2,08 USD

Figure 2.47 Pegging Assignments with Costs App

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The screenshot shows the SAP 'Change View "Scope of Availability Check": Details' dialog box. At the top, there is a menu bar with 'Table View', 'Edit', 'Goto', 'Selection', 'Utilities', 'System', and 'Help'. Below the menu bar, the SAP logo is on the left, and the title 'Change View "Scope of Availability Check": Details' is in the center. A toolbar contains buttons for 'New Entries', 'Copy As...', 'Delete', 'Undo Change', 'Previous Entry', 'Next Entry', 'Other Entry...', 'More', 'Display', and 'Exit'. The main area is divided into several sections: 'Availability Check' (set to '01 Daily requirements') and 'Checking Rule' (set to 'PS PS Checking rule (project system)'). The 'Stocks' section has checkboxes for 'With Safety Stock', 'With Stock in Transfer', 'With Quality Inspection Stock', 'With Blocked Stock', and 'With Restricted-Use Stock'. The 'Requirements' section has checkboxes for 'With Sales Requirements', 'With Deliveries', 'With Reservations', and 'With Dependent Requirements', along with dropdown menus for 'With Stock Transport Reqs:' and 'With Dependent Reservations:'. The 'Future Supply' section has checkboxes for 'With Purchase Requisitions' and 'With Shipping Notifications', and dropdown menus for 'With Purchase Orders:', 'With Planned Orders:', and 'With Production Orders:'. The 'Replenishment Lead Time' section has a checkbox for 'Without Replenishment Lead Time'. The 'Special Scenarios' section has checkboxes for 'Without Storage Location Check' and 'Without Subcontracting'. The 'Delayed Supply' section has checkboxes for 'Without Receipts in Past' and 'Show Message for Delayed Supply'. The 'Missing Parts Processing' section has a text field for 'Checking Period: Goods Receipt:'. At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 2.48 Scope of an Availability Check

Table View Edit Goto Selection Utilities System Help > OPJK [Print] [Lock] [Close] [X]

SAP Change View "Order control": Details

[Search] New Entries Copy As... Delete Undo Change More [Display] Exit

Plant: 1710 Plant 1 US
Order Type: PS04 Networks for sales order (int.NA)
Availability Check: 1 Check availability during order creation

Material availability

No check
 Check material availability when saving order

Checking Rule: PS PS Checking rule (project system)
Component Check Type: ATP check
Collect. conversion:

PRT availability

No check
Checking Rule:
Collect. conversion:

Capacity availability

No check
Overall profile:
Collect. conversion:

[Save] [Cancel]

Figure 2.49 Definition of a Check Control

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Standard network Edit(X) Goto(S) Details System Help > CN02

Standard Network Change: Material Allocation

New assignment Reassign Delete Sort Find and select More Exit

Std network: 10000001 Robot 1004

Material: AVC_RBT_ROBOT2 0001

Robot Multi-Level

BOM: 00085270

Component	Ph...	Quantity	UoM	ICt	B	Act.	Material Description
AVC_RBT_CN_TOOL	<input type="checkbox"/>	1	PC	L			Tool Class Node
AVC_RBT_CN_ARM	<input type="checkbox"/>	1	PC	L			Arm Class Node
AVC_RBT_LINK_ARM	<input type="checkbox"/>	1	PC	N			Link Arm (Configurable)
AVC_RBT_CONTROL	<input type="checkbox"/>						

New Assignment

Assign to

Activity:

✓ Oper./act. list 🔍 ✗

Choose Operation

Act.	Work Ctr	Operation Short Text
<input type="radio"/>	1000 M2100	Layout
<input type="radio"/>	1010 M2100	Acceptance from customer
<input type="radio"/>	1030 M2100	Mechanical engineering
<input type="radio"/>	1050 M2100	Electrical engineering
<input checked="" type="radio"/>	1080 M2100	Procurement mechanical equipment
<input type="radio"/>	1100 M2100	Procurement electrical equipment

ENTER Cancel

Save Cancel

Figure 2.50 Assignment of Material Components to Activities of a Standard Network

Table View Edit Goto Choose Utilities System Help > SIMG [lock] [min] [max] [close]

SAP Change View "Settings for Each Fiscal Year": Details

[dropdown] New Entries Copy As... Delete Undo Change Previous Entry Next Entry Other Entry... More [dropdown] **Display** Exit

Dialog Structure

- General Version Definition
 - Settings in Operating Concern
 - Settings for Profit Center Accounting
- Controlling Area Settings
 - Settings for Each Fiscal Year**
 - Delta Version: Bus. Transactions from Ref. Version
 - Settings for Progress Analysis (Project System)

Planning Price calculation

General indicators

- Version Locked
- Integrated Planning
- Copying Allowed

Currency translation

Exchange Rate Type: Standard Translation at Average Rate

Value Date:

Orders/projects

- Integrated planning with cost centers/bus. processes

Version for ind.act.alloc.: Plan/actual version

Save

Figure 2.51 CO Version Settings Dependent on Fiscal Year and Controlling Area

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Table View Edit Goto Selection Utilities System Help > OPSB [Print] [Lock] [Close]

< **SAP** Change View "Planning Profile: Cost and Revenue Planning for Projects"

[Dropdown] New Entries Copy As... Delete Undo Change More ▾ [Display] Exit

Profile: 130000 Planning Profile (Annual Val.)

Manual Planning

Bottom-up planning
 Planning elements

Time Frame

Past: 3
Future: 5
Start: []

Total Values
 Annual Values

Detailed Planning and Unit Costing

Prim.CElem.grp: INT-2
Revenue CE grp.: INT-5
Sender Cctr group: []
Sender act.type grp: []
Stat.Key Fig.Group: []
Costing Variant: PS06

Representation

Decimal places: 2
Scaling factor: []

Currency Transl., Overall Plan Values

Exchange Rate Type: * M
Value Date: []
 Remainder transl.

Planning Currency

Controlling Area Currency
 Object Currency
 Transaction Currency
 Default Object Currency

Automatic Revenue Planning

From quotation
 From Sales Order

RElem.f.billing plan: 41000400

[Save] [Cancel]

Figure 2.52 Definition of a Planning Profile

The screenshot displays the SAP 'Change Cost Planning: WBS Element Overview' interface. At the top, there is a navigation bar with menu items: Plan Values, Edit(X), Goto(S), Settings(P), Extras(D), System, and Help. The current user is identified as CJ40. Below the navigation bar, the SAP logo is visible on the left, and the title 'Change Cost Planning: WBS Element Overview' is centered. A secondary navigation bar contains options: Check, Annual Overview, Unit Costing, Primary Costs, Activity Input, More, and Exit. The main area shows project details: 'Proj.def.: E-2612' and 'Robot Model 1'. Below this, the 'Period:' is set to '4 2023' with navigation arrows. The 'Annual Values' section contains a table with columns: E... Lev, WBS Element, Cost plan, Tran..., Distributable, Planned total, Previous year, and Cumulative. The table lists hierarchical WBS elements with their respective costs in EUR. At the bottom right, there are 'Save' and 'Cancel' buttons.

E... Lev	WBS Element	Cost plan	Tran...	Distributable	Planned total	Previous year	Cumulative
1	Robot Model 1	100.000,00	EUR	7.000,00	100.000,00	2.000,00	102.000,00
2	Engineering	18.000,00	EUR	18.000,00	18.000,00	2.000,00	20.000,00
3	Engineering Electrics		EUR				
3	Engineering Mechanics		EUR				
2	Procurement	50.000,00	EUR	50.000,00	50.000,00		50.000,00
3	Procurement Mechatronics		EUR				
3	Procurement Shell		EUR				
2	Assembly	20.000,00	EUR	20.000,00	20.000,00		20.000,00
2	Acceptance	5.000,00	EUR	5.000,00	5.000,00		5.000,00

Figure 2.53 Hierarchical Cost Planning

The screenshot displays the SAP 'Create Unit Cost Estimate: List Screen - 1' interface. At the top, the menu bar includes 'Costing', 'Edit(X)', 'Goto(S)', 'Functions', 'Settings(P)', 'System', and 'Help'. The title bar shows 'SAP' and 'Create Unit Cost Estimate: List Screen - 1'. Below the title bar, there are navigation buttons: 'Previous View', 'Next View', 'Header Screen', 'Detail Screen', 'Reevaluate All Items', and 'More'. A search field is present on the left. The main area shows 'WBS Element: Assembly'. Below this, the section 'Costing Items - Basic View' contains a table with the following data:

M Item	C Resource	Plant/Activity	Purch. Organization	Quantity	Unit ...	Value - Total	Description
<input type="checkbox"/>	1E TEST_CC	TESTA		20,0	H	3.000,00	Testing Activities
<input type="checkbox"/>	2F 5500000140	0001	0001	40	EA	800,00	External Testing Activities
<input type="checkbox"/>	3M 555784	0001		10	EA	100,00	Controller
<input type="checkbox"/>	4G					10,00	Overhead: Material
<input type="checkbox"/>	5G					13,20	Overhead: Admin.
<input type="checkbox"/>	6G					16,50	Overhead: Sales
<input type="checkbox"/>	7S					3.939,70	
<input type="checkbox"/>	8					0,00	

At the bottom, there are input fields for 'Entry: 1 from: 29' and 'EUR: 3.939,70'. A 'Save' button and a 'Cancel' button are located at the bottom right.

Figure 2.54 Unit Costing of a WBS Element

<https://t.me/PrMaB2>

Table View Edit Goto Selection Utilities System Help > OKKT [lock] [min] [max] [close]

< **SAP** Change View "Valuation Variants": Details

[dropdown] Undo Change More [dropdown] **Display** Exit

Valuation Variant/Plant [icon] 008 Planned Valuation: Orders

Material Val. ActivityTypes/Processes Subcontracting Ext. Processing Overhead

Priority Strategy Seq.

1 Plan Price for the Period [dropdown]

2 Actual Price of Previous Period [dropdown]

3 Most Up-to-Date Plan Price [dropdown]

Cost Center Accounting

CO Version Plan/Actual [input] 0 Plan/actual version

[dropdown] **Save** Cancel

Figure 2.55 Defining a Strategy for Determining Prices in a Valuation Variant

Version: Plan/actual version

Period: To:

Fiscal Year:

WBS Element: Assembly

Cost Element	Text	Total plan costs	Distr...	Total Plan Consump	Distr...	Unit	R...	L...
<input type="checkbox"/> 474210	Travel Exp. Accom.	600,00	2		2		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 474220	Travel Exp., Meals	80,00	2		2		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 474230	Travel Exp. Trans.	1.000,00	2		2		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 474240	Travel Exp., Other		2		2		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 474250	Tr.Exp.Entertainment		2		2		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> *Cost ElementTotal		1.680,00		0,000				

Figure 2.56 Cost Element Planning in the Overview Screen

Plan Data Edit(X) Goto(S) Extras(D) Settings(P) System Help > CJR2

SAP Planning Cost Elements/Activity Inputs Change: Period screen

Undo Entries Select Select All Select Block Deselect All Cut Copy More Print Exit

Version: 0 Plan/actual version
Fiscal Year: 2023
WBS Element: E-2612.3 Assembly
Sender cost ctr: TEST_CC Test Cost Center
Sender ATyp: TESTA Test Activity

Period	Text	Total Plan Consumptn	Unit	Total planned costs	Alloc. Cost EL...	Long text exists
<input type="checkbox"/> 9			H	0,00	640100	<input type="checkbox"/>
<input type="checkbox"/> 10		10,0	H	2.200,00	640100	<input type="checkbox"/>
<input type="checkbox"/> 11		20,0	H	4.400,00	640100	<input type="checkbox"/>
<input type="checkbox"/> 12			H	0,00	640100	<input type="checkbox"/>
<input type="checkbox"/> *Period		30,0		6.600,00		

Post Cancel Overview Screen

Figure 2.57 Activity Input Planning in the Period Screen

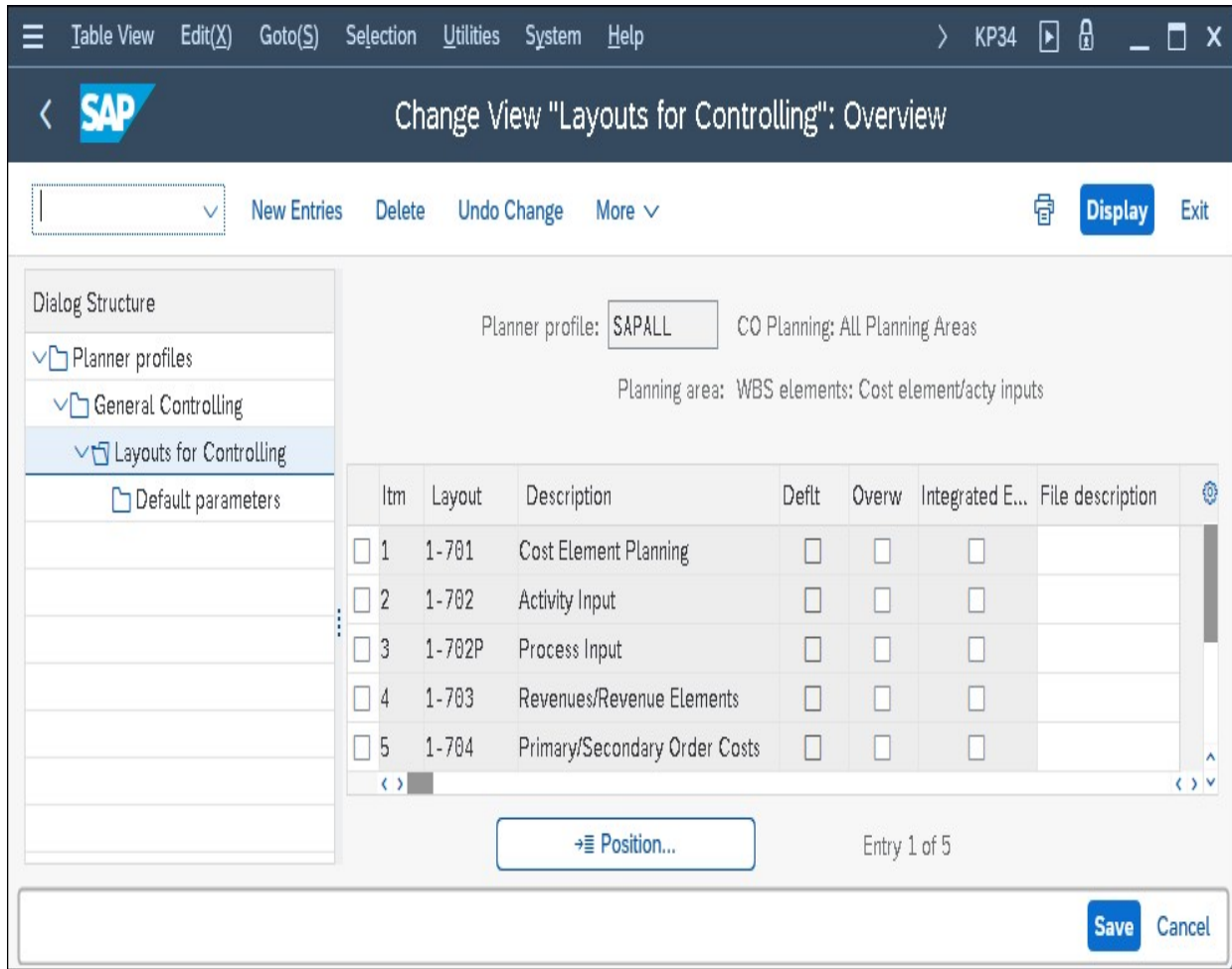


Figure 2.58 Definition of the SAPALL Planner Profile

The screenshot shows the SAP Easy Cost Planning interface for 'Project Robot Model 1 (Version 0) Change: Easy Cost Planning'. The main window is titled 'Robot Procurement' and displays a 'Component Quantity' of 2,000. A 'Note' field contains 'Robot Model 1'. A 'Confirm' button is visible. Below the main window, the 'Costing Items : Procurement Mechatronics' section shows a table of items with columns for Item No., Qty, Resource, Plant, Purch, Quantity, BUn, Total Price, Total Value, Currency, Description, Cost Element, and Valuation Date. The table lists two items: Item 1 (Material) and Item 2 (Activity Type), with a total value of 1,680.00 EUR. A 'Continue' button is located at the bottom right.

Costing Structure	Value	Currency
Robot Model 1	15.680,00	EUR
Robot Model 1	15.680,00	EUR
Engineering	14.000,00	EUR
Procurement	1.680,00	EUR
Procurement Mechatronics	1.680,00	EUR
Battery 9V 1.1Ah	800,00	EUR
Activity Type: 0000018	880,00	EUR
Procurement Shell	0,00	EUR
Assembly	0,00	EUR
Acceptance	0,00	EUR

Item No.	Qty	Resource	Plant	Purch	Quantity	BUn	Total Price	Total Value	Currency	Description	Cost Element	Valuation Date
1	M	MDQ-TMPL-04	0001		8	PC	100,00	800,00	EUR	Battery 9V 1.1...	466000	16.01.2023
2	E	4	000001		4,0	H	220,00	880,00	EUR	Activity Type: 0...	640100	16.01.2023
								1.680,00				

Figure 2.59 Cost Planning Using Easy Cost Planning

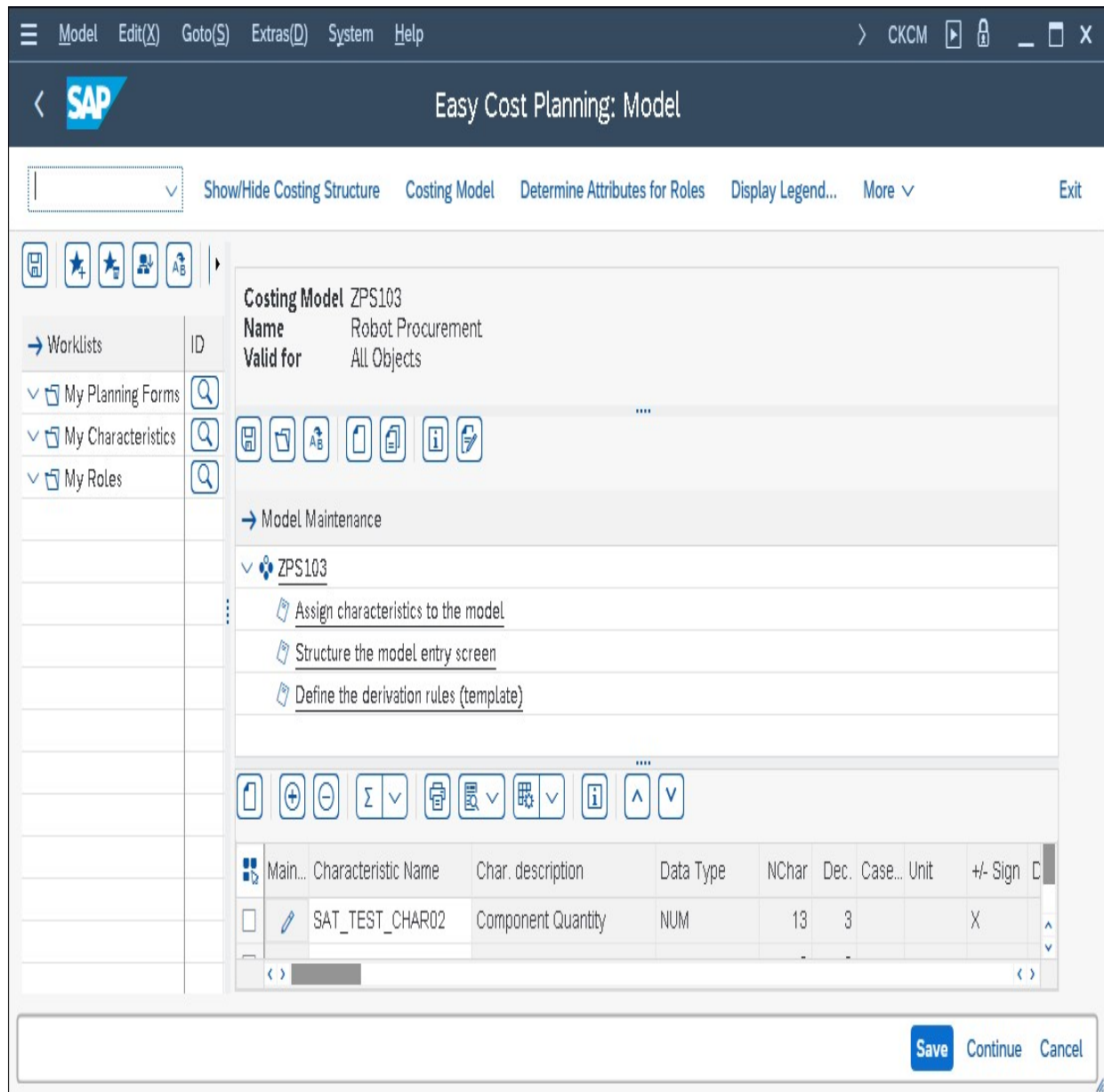


Figure 2.60 Definition of Planning Templates for Easy Cost Planning

Template Edit(X) Goto(S) Environment System Help > CPT1

SAP Create template 205 / ZPS103

Check Where-used List Hierarchy Hide editor More v Exit

Template: ZPS103 Robot Procurement
 Environment: 205 ECP: PSP-Element

Template overview : display

Type	Description	Object	Quantity	Unit	Activation	Price
Cost Center/Activity Type	Cost Center 4 / Activit...	4 / 000001	SAT_TEST_CHAR02 * 2	H	ACTIVE	v
Material	Battery 9V 1.1Ah	0001 / MDQ-TMPL-04	SAT_TEST_CHAR02 * 4	PC	ACTIVE	v

Quantity [Icons]

SAT_TEST_CHAR02 * 4

Functions for Type: Material ; Column: Quantity	Function description
<ul style="list-style-type: none"> SAP1 ECP: PSP-Element <ul style="list-style-type: none"> General data WBS element Mathematical functions ECP: costing characteristic (s) <ul style="list-style-type: none"> SAT_TEST_CHAR02 Component Quantity 	

Line: 2 Column: Quantity | Li 1, Co 1 | Ln 1 - Ln 1 of 1 lines

Save Enter Cancel

Figure 2.61 Definition of a Derivation Rule

The screenshot shows the SAP Change View 'ECP: Default Versions' interface. At the top, there is a menu bar with options: Table View, Edit, Goto, Selection, Utilities, System, Help. The title bar indicates the current view is 'Change View "ECP: Default Versions": Overview'. Below the title bar, there is a search field and a toolbar with buttons: New Entries, Copy As..., Delete, More, Display, and Exit. The main area displays a table titled 'ECP: Default Versions' with a settings icon on the right. The table has the following columns: Object Type, COAr, Vsn, and Cstg Vmnt. The data rows are as follows:

Object Type	COAr	Vsn	Cstg Vmnt
<input type="checkbox"/> Projects	0001	0	PS06
<input type="checkbox"/> Projects	0001	1	PS06
<input type="checkbox"/> Projects	0001	3	PS06

Below the table, there is a 'Position...' button and the text 'Entry 1 of 5'. At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 2.62 Defining Alternative CO Versions for Easy Cost Planning

Menu: Edit(X) Goto(S) System Help | CJ20N [Icons]

Invoicing Plan Create Dates in Invoicing Plan

Buttons: Select Deselect All Delete dates Dates for milestones Invoice plan More

Network: 4104286 | Robot Model 1

Activity: 0030 | External Engineering

Quantity: 1

Earliest Finish: 12.05.2023

Invoice plan

Inv. plan typ: Invoice plan PS

Start date: 12.05.2023 | Reference: []

Target value: [] 5.000,00 EUR | Search term: []

Deadlines

Total: 50,00 % | Total val.: 5.000,00 EUR

	Invoice date	Date description	%	Invoice value	Crcy	CheckRule	Pyt Terms	Fix. date	Milest.no.	
<input type="checkbox"/>	05.05.2023	Down payment	10,00	500,00	EUR	4		1	0	
<input type="checkbox"/>	12.05.2023	Engineering/Desig	50,00	2.500,00	EUR	1		1	0	
<input type="checkbox"/>	19.05.2023	Closing Invoice		2.500,00	EUR	3		1	0	

Figure 2.63 Invoicing Plan

<https://t.me/PrMaB2>

Table View Edit Goto Selection Utilities System Help > OPSV [Icons]

< **SAP** Change View "Object Indicator for Order Value": Overview

[Search] New Entries Copy As... Delete More ▾ [Print] **Display** Exit

	Cat Type	COAr	Append.	Assign Funds in Plan	
<input type="checkbox"/>	1	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	2	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	3	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	4	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	10	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	20	++++	++++	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	30	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	40	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	50	++++	++++	<input type="checkbox"/>	<input checked="" type="checkbox"/>

< > [Scrollbar] < >

→≡ Position... Entry 1 of 36

[Save] Cancel

Figure 2.64 Definition of Order Value Update for the Project

The screenshot shows the SAP S/4HANA interface for defining a plan category. The title bar includes navigation options like 'Table View', 'Edit(X)', 'Goto(S)', 'Selection', 'Utilities', 'System', and 'Help'. The main header displays the SAP logo and the title 'New Entries: Details of Added Entries'. Below the header, there is a toolbar with buttons for 'Delete', 'Previous Entry', 'Next Entry', 'Configuration Help', 'More', 'Display', and 'Exit'. The main content area is titled 'Maintenance View for Category' and contains the following fields:

- Plan Category: Z_PR0J_01
- Medium description: Periodic Project Plan 1
- Application Type: 0 Periodic Planning and Consolidation
- Exchange Rate Type: (empty)
- Usage: (empty) No specific usage

Below these fields is a section titled 'Allow Entry/Delete of Plan Data' with four checkboxes:

- By Importing Financial Plan Data
- By Copying Another Plan Category
- By Deleting Financial Plan Data
- By Compressing Financial Plan Data

At the bottom right of the form, there are 'Save' and 'Cancel' buttons.

Figure 2.65 Definition of a Plan Category

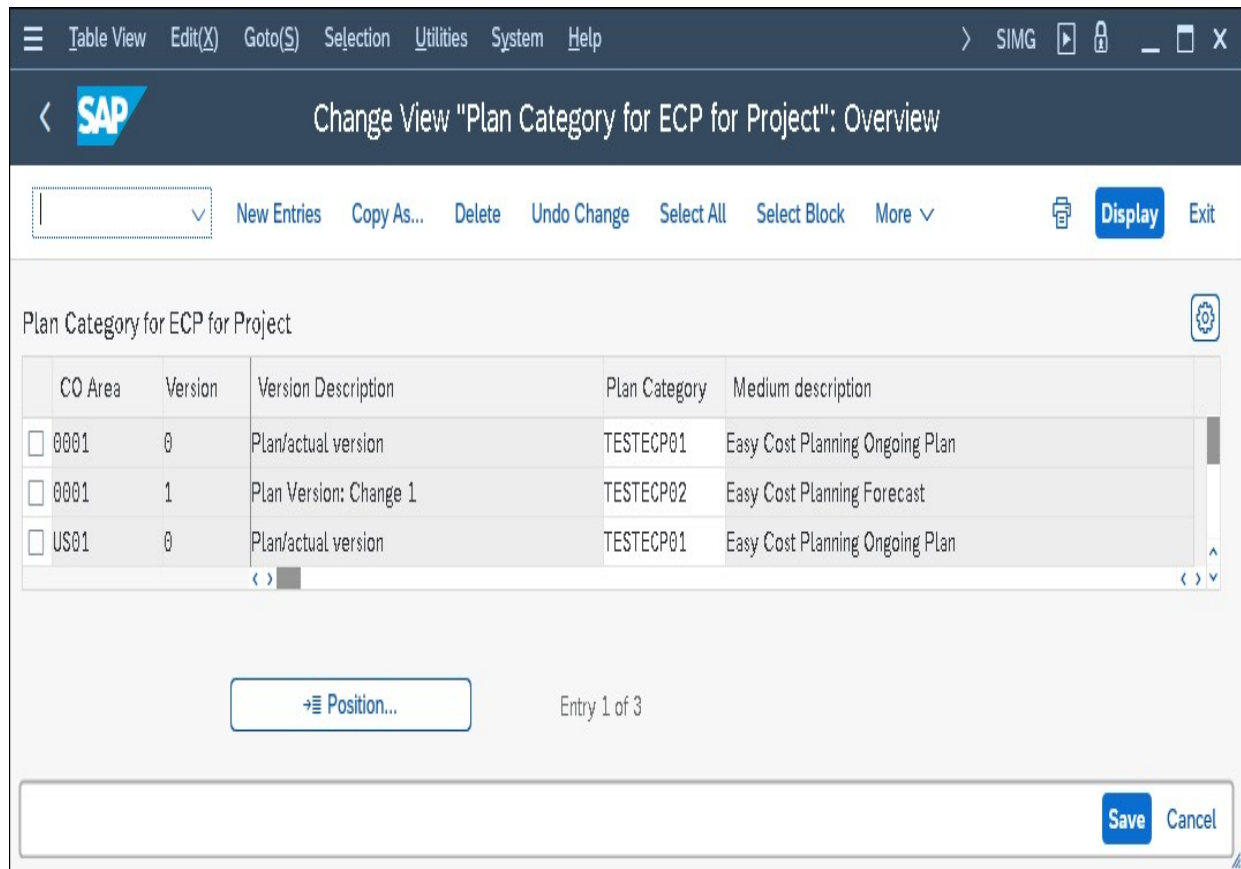


Figure 2.66 Assignment of Plan Categories to CO Versions of Easy Cost Planning

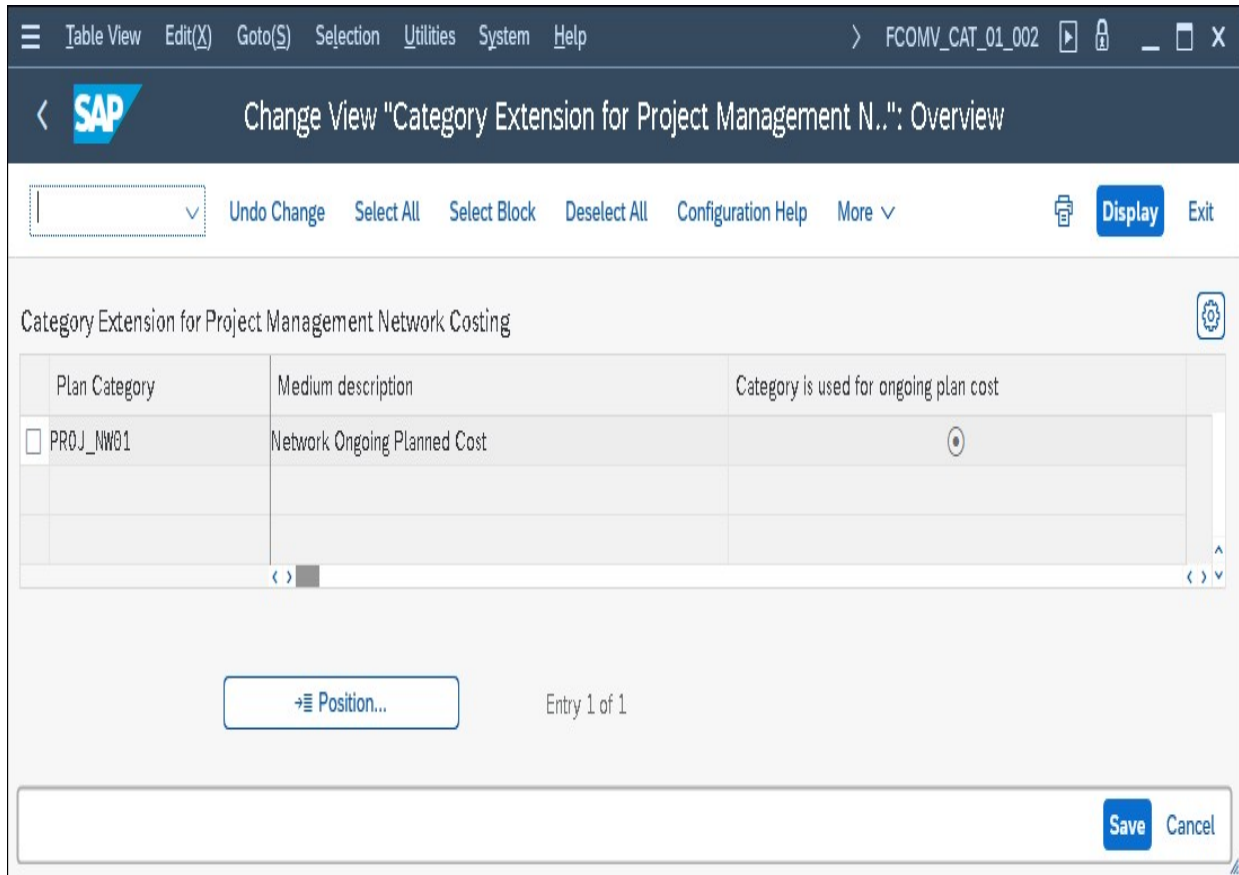


Figure 2.67 Defining a Plan Category for Network Costing

Robotics - Planning		in \$ 1 Filter						
Date		▼ (all)	> 2020	▼ 2021	> Q1 (2021)	> Q2 (2021)	> Q3 (2021)	> Q4 (2021)
Project	Accounts							
▼ Robotic Project E-2602	> Project Cost	16,579,334	10,046,610	6,532,724	2,141,306	1,515,479	1,917,317	958,622
Specification	> Project Cost	607,860	607,860	-	-	-	-	-
Construction	▼ Project Cost	13,593,518	9,431,574	4,161,944	2,141,306	1,515,479	505,159	-
	Salary - Standard	455,814	243,409	212,405	91,030	91,032	30,343	-
	Salaries - Exempt	4,792,359	3,502,772	1,289,588	682,723	455,149	151,716	-
	Material - Components	35,490	35,490	-	-	-	-	-
	Material - Service	8,805	8,805	-	-	-	-	-
	External Design Services	4,135	4,135	-	-	-	-	-
	Engineering	14,587	14,587	-	-	-	-	-
	Prototyping	651	651	-	-	-	-	-
	External Services	1,960,323	1,045,809	914,513	391,934	391,934	130,645	-
	Misc	5,917,582	4,324,562	1,593,020	910,297	512,042	170,681	-
	Internal	76,509	76,509	-	-	-	-	-
	Others	327,263	174,844	152,419	65,322	65,322	21,774	-
Procurement	> Project Cost	2,377,955	7,175	2,370,780	-	-	1,412,158	958,622

Figure 2.68 Project Planning in SAP Analytics Cloud

The screenshot displays the SAP 'Import Financial Plan Data' application interface. At the top, the SAP logo and the title 'Import Financial Plan Data' are visible. The source file is set to 'Project_Cost_Plan.csv', with a 'Browse CSV Files...' button. The 'Processing Type' is set to 'Online Processing'. Two informational messages are shown: one about data adaptation and another about the number of lines imported. A 'Plan Data Scope' table lists various characteristics and their values. At the bottom, there are links for 'Download Templates', 'Test Import Source File', and 'Import Source File'.

Source File: [Browse CSV Files...](#)

Processing Type: Online Processing Background Processing

i Attention! By importing this file, plan data will be adapted within Plan Data Scope. To analyze the existing data, go to: [Display Financial Plan Data](#)

i Your plan data import will incorporate 6 lines from CSV file. For more information, go to: [Preview List](#)

Plan Data Scope

Characteristics	Values
Plan Category	BUDGET01; BUDGET02; PLN
Ledger	0L
G/L Fiscal Year	2022; 2023
Company Code	1010
WBS Element	E-2610
Posting Period	001; 009; 010; 011; 012

[Download Templates](#) [Test Import Source File](#) [Import Source File](#)

Figure 2.69 Importing Project Plan Data App

Change Standard Order 133704: Item Data

Sales Document Item: 10 Item Category: TAO Milestone-Bill.Plan
 Material: 233600 Robot Multi-Level Model 1

Sales A Sales B Shipping Billing Document **Billing plan** Conditions Account Assignment Schedule lines Partner Texts Order Data Status S... >

Net value: 200.000,00 EUR

Billing plan

BillingPlanType: 01 Milestone Billing
 Start date: 25.11.2022 01 Today's Date Reference:

InvoicePercentg: 50,00 Billing Value: 200.000,00 EUR

Dates

	Billing Date	DtDs	MlStRel		%	BillValue	Crcy	Block	MStn	BR	BillSt	PayT	DCat	Billing Type	ExchrRt.Act	Milestone no.	Fix
<input type="checkbox"/>	08.05.2023		CS04	Down payment (deb.)	10,00	20.000,00	EUR	02	<input checked="" type="checkbox"/>	4	A		03	FAZ		390	0
<input type="checkbox"/>	31.05.2023		CS01	Partial billing (deb.)	50,00	100.000,00	EUR	02	<input checked="" type="checkbox"/>	1	A		01			391	0
<input type="checkbox"/>	29.09.2023		CS03	Final billing (deb.)		100.000,00	EUR	02	<input checked="" type="checkbox"/>	3	A		02			392	
<input type="checkbox"/>	*								<input type="checkbox"/>								
<input type="checkbox"/>	*								<input type="checkbox"/>								

Create Dates Milestones

Figure 2.70 Billing Plan of a Sales Document Item

Costing Edit(X) Goto(S) Extras(D) System Help > CJ20N

SAP Sales pricing Robot Model 1: Sales price basis

Show/hide structure tree Sales price Quotation Billing plan More

Description	S...	Locked	Transfer amount	Currency	Transfer quantity	UM	Transfe...	Net value	Currency
▼ E-2610 Robot Model 1	▲		203.712,00	EUR	***	***	71,40	203.712,00	EUR
▼ ▲ E-2610 Robot Model 1	▲		203.712,00	EUR	***	***	71,40	203.712,00	EUR
↳ Insurance	●		0,00	EUR	***	***	0,00	0,00	EUR
↳ Internal acty alloc., produc	■		1.760,00	EUR	8,0	H	100,00	1.760,00	EUR
↳ Internal acty alloc., setup	■		168.000,00	EUR	480,0	H	100,00	168.000,00	EUR
↳ Overhead: Production	■		33.952,00	EUR	***	***	100,00	33.952,00	EUR

Amount Qty Percent

Description	Status	Locked	Original amount	Transfer amount	Crcy	Alnd	ApRsn	Net value	Crcy
☐ Σ E-2610 Robot Model 1	▲		285.312,00	203.712,00	EUR			203.712,00	EUR
☐ Insurance	●		81.600,00	0,00	EUR			0,00	EUR
☐ Internal acty alloc., production hours	■		1.760,00	1.760,00	EUR			1.760,00	EUR
☐ Internal acty alloc., setup	■		168.000,00	168.000,00	EUR			168.000,00	EUR
☐ Overhead: Production	■		33.952,00	33.952,00	EUR			33.952,00	EUR

Figure 2.71 Sales Price Basis View of a Sales Pricing

<https://t.me/PrMaB2>

Costing Goto(S) Extras(D) System Help > CJ20N

SAP Sales pricing Robot Model 1: Sales price

Sales price basis Quotation Billing plan More

Exit

Item	Description	Sales price basis	Currency	Net value	Currency
Robot Model 1	E-2610	203.712,00	EUR	207.712,00	EUR
Robot Multi-Level Model 1	..._SERVICE_MATERIAL	28.000,00	EUR	32.000,00	EUR

Conditions Amount Quantity Percentage

Quantity: 1,0 HR Net: 32.000,00 EUR Tax: 0,00 CumltvConfQty: 0,000

Condition Record Analysis Update

Pricing Elements

...	CnTy	Description	Amount	Crcy	per	UoM	Condition Value	Curr.	Status	NumCCo
<input type="checkbox"/>	EK01	Actual Costs	28.000,00	EUR		1HR	28.000,00	EUR		1
<input type="checkbox"/>	RB00	Discount (Value)	4.000,00	EUR			4.000,00	EUR		0
		Discount Amount	4.000,00	EUR		1HR	4.000,00	EUR		1
		Rebate Basis	32.000,00	EUR		1HR	32.000,00	EUR		1
		Net Value for Item	32.000,00	EUR		1HR	32.000,00	EUR		1

Figure 2.72 Sales Price View of a Sales Pricing

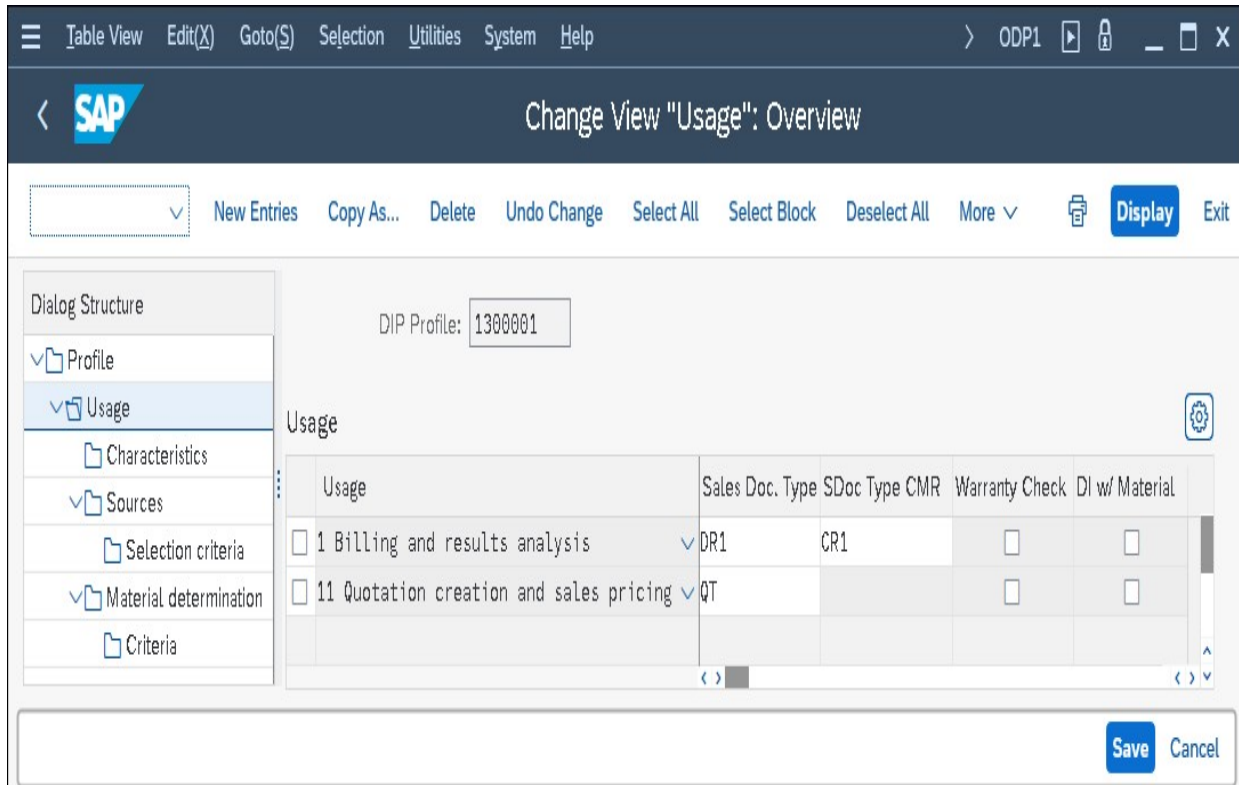


Figure 2.73 Definition of DIP Profiles

<https://t.me/PrMaB2>

Change View "Budget Profile for Projects": Details

Profile: 130003
Text: Budget: Overall/Year; Release

Time Frame

Past: 3
Future: 5
Start:

Total Values
 Annual Values

Investment Management

Program type budget:

Representation

Decimal places: 2
Scaling factor:

Availability Control

Activation Type: * 1 Usage:

Overall Object Currency
 Releases

Currency Translation

Exchange Rate Type: * M
Value Date:

Remainder translat.

Budgeting Currency

Controlling Area Currency
 Object Currency
 Transaction curr.
 Default Object Currency

Save Cancel

Figure 3.1 Defining a Budget Profile

Change Original Budget: WBS Element Overview

Proj.def.: E-1104 Robotic Project

Period: 2022

Annual Values

E... Lev	WBS Element	Budget	Tran...	Current budget	Distributed	Distributable	Planned total Version 0
<input type="checkbox"/> 1	Robot	200.000,00	USD	200.000,00	174.500,00	25.500,00	199.462,57
<input type="checkbox"/> 2	Engineering / Design	5.000,00	USD	6.000,00		6.000,00	2.650,70
<input type="checkbox"/> 3	Electrical Engineering		USD				1.325,35
<input type="checkbox"/> 3	Mechanical Engineering		USD				1.325,35
<input type="checkbox"/> 2	Procurement	125.000,00	USD	126.000,00		126.000,00	121.376,93
<input type="checkbox"/> 2	Assembly	40.000,00	USD	40.000,00		40.000,00	32.618,14
<input type="checkbox"/> 2	Acceptance	2.500,00	USD	2.500,00		2.500,00	1.022,58

Save Cancel

Figure 3.2 Distributing the Original Budget

Typ	Message text	LTxt
■	Annual budget 2022 less than distributed budget	?
●	- Robot: 200.000,00 < 207.000,00 (USD)	?
■	Overall budget less than cumulative budget	?
●	- Robot: 185.000,00 < 200.000,00 (USD)	?
●	- Procurement: 121.000,00 < 136.000,00 (USD)	?
●	- Assembly: 35.000,00 < 50.000,00 (USD)	?
●	- Acceptance: 2.000,00 < 2.500,00 (USD)	?

Figure 3.3 Error Messages for Inconsistent Budget Distribution

Change Supplement: WBS Element Overview

Proj.def.: E-1104 Robotic Project

Period: 2022

Annual Values

E... Lev	WBS Element	Supplement	Tran...	Current budget	Distributed	Distributable	Planned total Version 0
<input type="checkbox"/> 1	Robot		USD	200.000,00	188.000,00	12.000,00	199.462,57
<input type="checkbox"/> 2	Engineering	2.000,00	USD	9.000,00		9.000,00	2.650,70
<input type="checkbox"/> 3	Electrical Engineering		USD				1.325,35
<input type="checkbox"/> 3	Mechanical Engineering		USD				1.325,35
<input type="checkbox"/> 2	Procurement		USD	124.000,00	33.000,00	91.000,00	121.376,93
<input type="checkbox"/> 3	Procurement Base Unit		USD	33.000,00		33.000,00	7.247,57
<input type="checkbox"/> 3	Procurement Base Frame		USD				110.535,01

Save Cancel

Figure 3.4 Supplement in the Project


<https://t.me/PrMaB2>

Navigation icons: > CJ34 [Print] [Lock] [Window] [Close]

SAP Transfer Budget: List Screen

Check More ▾ Exit

Document Date: 30.04.2022

Budget Transfers 

LNo	Sender WBS element	Sen...	Receiver WBS element	Rece...	Amount	Crcy	Total
<input type="checkbox"/> 1	E-1104-1	2022	E-1104-2	2022	1.000,00	USD	<input checked="" type="checkbox"/>
<input type="checkbox"/> 2		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 3		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 4		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 5		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 6		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 7		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 8		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 9		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 10		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 11		2022		2022			<input type="checkbox"/>
<input type="checkbox"/> 12		2022		2022			<input type="checkbox"/>

Navigation icons: [Search] [Grid] [List] [Minus] [Scissors] [Print] [Clipboard]

Post Cancel

Figure 3.5 Budget Transfer

<https://t.me/PrMaB2>


Menu icons: > CJ32 [Print] [Lock] [Window] [Close]




SAP Copy view


Check Document Text Annual Overview Expand Collapse More ▾ Exit

Proj.def.: E-1104 Robotic Project

Period: 2022 < >

Annual Values 

E...	Lev	WBS Element	Release	Tran...	Current budget	Distributed	Distributable	Planned total Version 0
<input type="checkbox"/>		1 Robot		USD	200.000,00	600,00	600,00-	199.462,57
<input type="checkbox"/>		2 Engineering	600,00	USD	7.000,00		600,00	2.650,70
<input type="checkbox"/>		3 Electrical Engineering		USD				1.325,35
<input type="checkbox"/>		3 Mechanical Engineering		USD				1.325,35
<input type="checkbox"/>		2 Procurement		USD	124.000,00			121.376,93
<input type="checkbox"/>		3 Procurement Base Unit		USD	33.000,00			7.247,57
<input type="checkbox"/>		3 Procurement Base Frame						110.535,01



Copy view

Percentage: 50

Overwrite
 Add

Continue Cancel

Save Cancel

Figure 3.6 Budget Release Using the Copy View Function

<https://t.me/PrMaB2>

SAP Change View "Project Availability Control: Tolerance Limits": Overview

New Entries Copy As... Delete Undo Change More v Display Exit

COAr	Prof.	Text	Tr.Grp	Act.	Usage	Abs.variance	Crcy
<input type="checkbox"/>	0001	000001	General budget profile	++	1	90,00	EUR
<input type="checkbox"/>	0003	000001	General budget profile	++	1	100,00	USD
<input type="checkbox"/>	A000	130003	Budget: Overall/Year; Release	++	1	95,00	
<input checked="" type="checkbox"/>	A000	130003	Budget: Overall/Year; Release	00	1	90,00	
<input type="checkbox"/>	RECO	000001	General budget profile	++	1	95,00	
<input type="checkbox"/>	REOB	000001	General budget profile	++	1	300,00	
<input type="checkbox"/>	SG01	000001	General budget profile	++	1	90,00	

Availability-control activity gr... X

Activity group Short Descript.

- ++ All activity groups
- 00 Purchase requisition
- 01 Purchase order
- 02 Orders for project
- 03 Goods issue
- 04 Financial accounting document
- 05 CO document
- 06 Budgeting
- 07 Funds reservation
- 08 Fixed prices in project
- 09 Payroll
- 10 Travel Expenses

12 Entries found

Position...

Save Cancel

Figure 3.7 Defining the Tolerance Limits of Availability Control
Based on Activity Groups

<https://t.me/PrMaB2>

SAP Analysis Active Availability Control

Project E1104

- Customizing settings
- Entries in this color make no contribution to the assigned value!
 - V: Value type not relevant (<> Act./Plan/Stat.Act./Stat.Plan/Commt)
 - D: Delivery
 - S: Settlement to object with no budget control
 - R: Revenue cost element
 - C: Cost element is exempt cost element
 - X: Record excluded by BAdI
 - M: Minimum from actual + commitment and plan per order value update
 - P: Plan value is not on apportioned order / network
 - B: Plan Costing Single Position
 - S: Funds Commitment in Balance

Controlling element	Distributable	Assigned
E1104	14.000,00 USD	19.350,00 USD
COSS 2022 04 0094311000	0000000769 RKL D USD	14.400,00 USD
NWA 4000320 1000		
COSS 2022 04 0094311000	0000000769 RKL D USD	990,00 USD
COSS 2022 04 0094311000	0000000771 RKL D USD	960,00 USD
COSS 2022 04 0094311000	0000000769 RKL D USD	3.000,00 USD

Refresh

Figure 3.8 Analysis of Availability Control in Transaction CJ30

<https://t.me/PrMaB2>

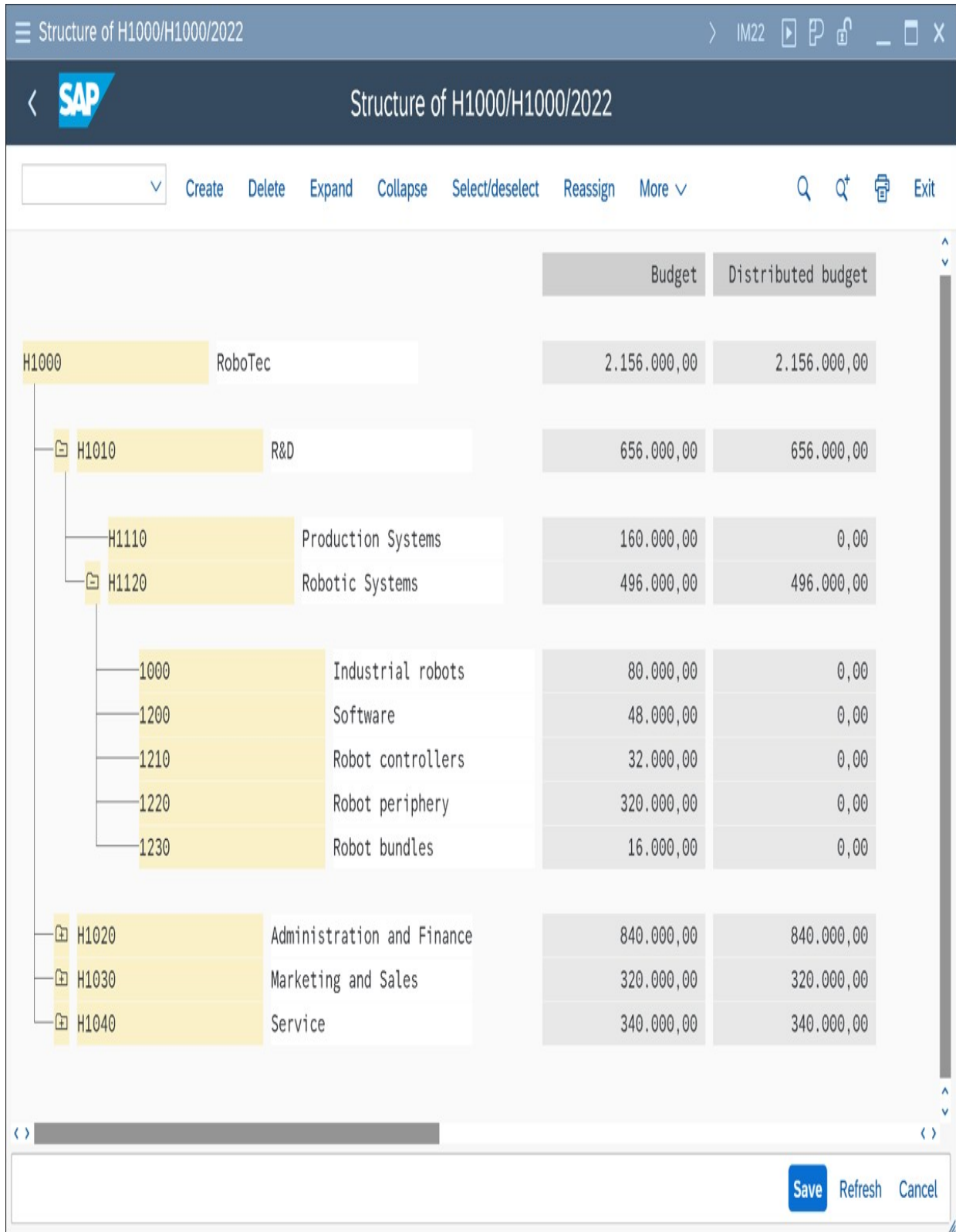


Figure 3.9 Investment Program

☰ E-1104 - Assignment to investment program position ✕

Investment program:

Position ID: 

Approval year:

✓ ↻ ✕

Figure 3.10 Assigning a WBS Element to an Investment Program Position

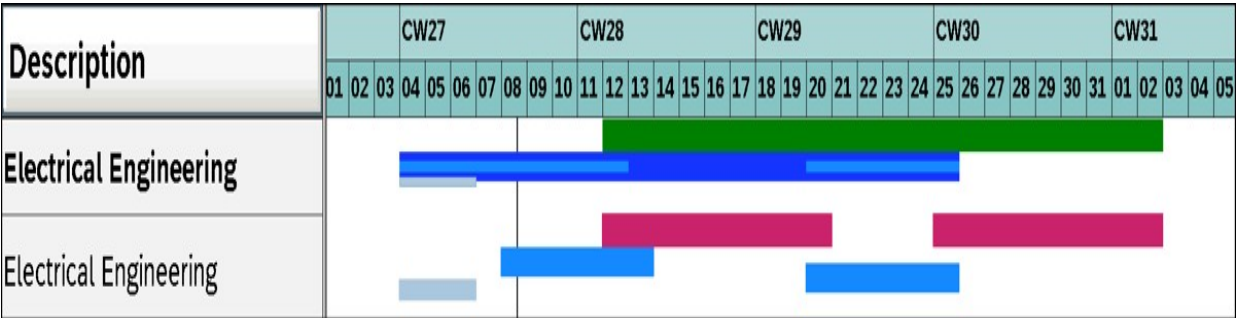


Figure 4.1 Scheduling a Partially Confirmed Activity in Which the Shift Network Indicator Is Set

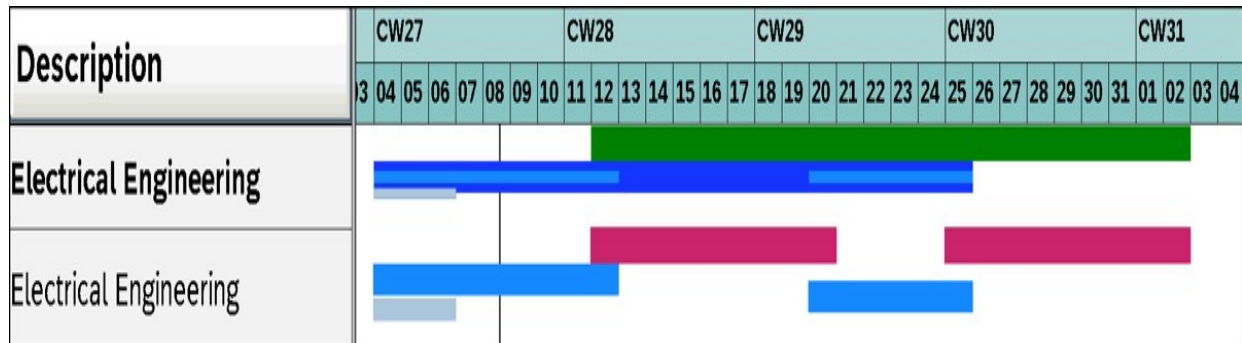




Figure 4.2 Scheduling a Partially Confirmed Activity in Which the Shift Network Indicator Isn't Set

<https://t.me/PrMaB2>

SAP Confirm Project Milestone ? AL

Project Milestones

Search  

Design Review done	4 Days
14242	Overdue
Project: E-2602	

Confirm Project Milestone

Design Review done 4 Days

14242 **Overdue**

Project: E-2602

Project Description: Robotic Project

Usage Description: Start execution

Activity: 4028021 0030

Activity Description: Design Review done

Percentage of Completion:


Invoice Percentage:

Usage Indicators: Progress Analysis

Trend Analysis

Milestone Function

Basic Scheduled Date: 04.07.2022

Actual Milestone Date: * 06.07.2022 


[≡] Confirm 

Figure 4.3 Confirm Project Milestone App for Entering Actual Dates of Milestones

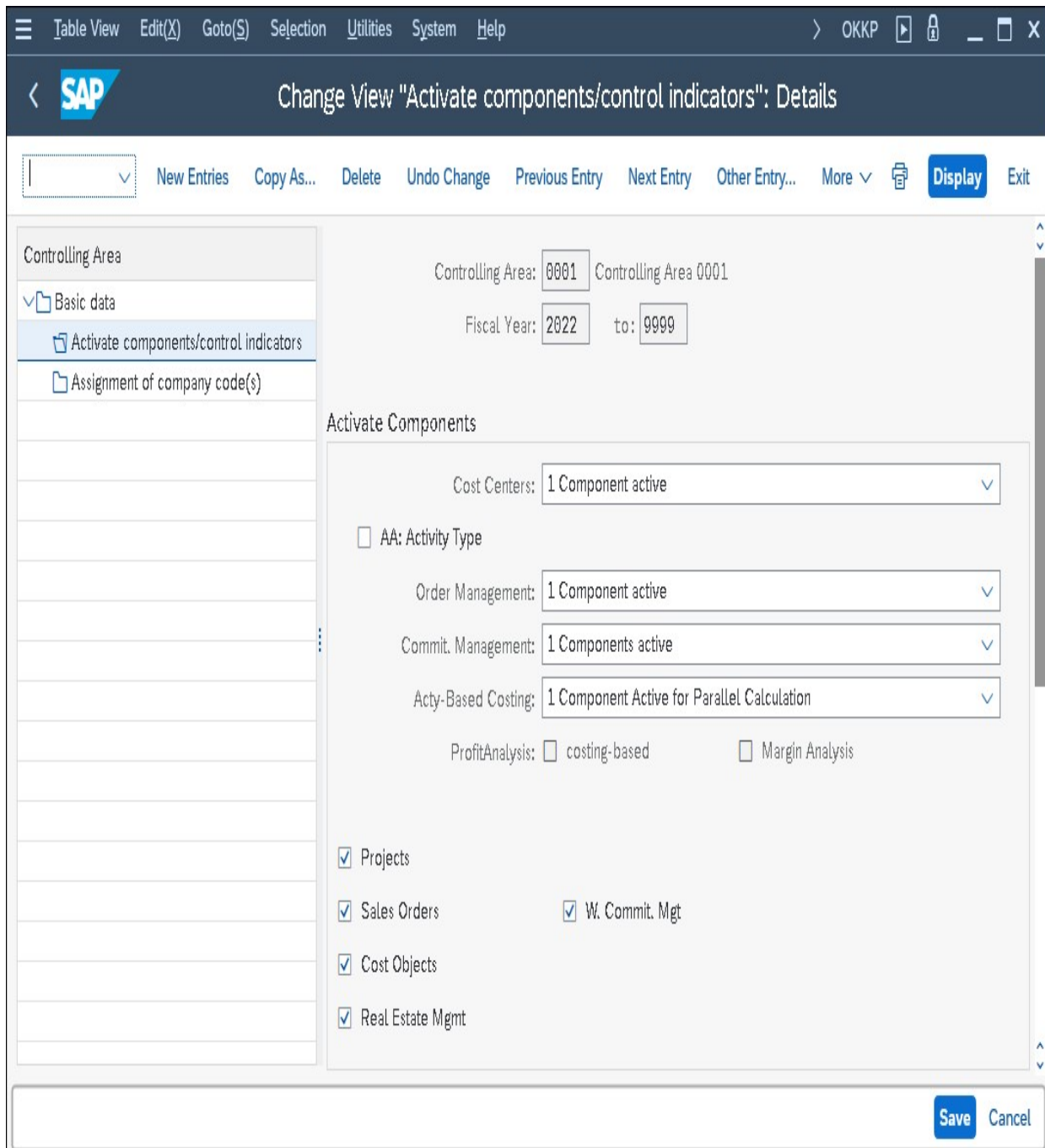


Figure 4.4 Activating Commitments Management

The screenshot displays the SAP Easy Cost Planning: Execution Services interface. The main title is "Easy Cost Planning: Execution Services". The execution service is set to "Internal Activity Allocation".

Costing Structure Table:

Costing Structure	Value	Currency
Robot Model 1	12.250,00	EUR
Robot Model 1	12.250,00	EUR
Specification	0,00	EUR
Insurance Costs	0,00	EUR
Engineering	12.250,00	EUR
Engineering Electrics	5.250,00	EUR
ACT01	5.250,00	EUR
External Engineering	0,00	EUR
Engineering Electrics	0,00	EUR
Engineering Mechanics	7.000,00	EUR
Engineering Mechanics	0,00	EUR
Engineering	7.000,00	EUR
Procurement	0,00	EUR
Procurement Mechatronics	0,00	EUR
Procurement Control Units	0,00	EUR
Procurement Shell	0,00	EUR
Procurement Shell	0,00	EUR
Assembly	0,00	EUR

Internal Activity Allocation Table:

DocumentNo	Posting Date	Partner-CCtr	ParActivity	Pr	Total quantity	PUM
300306363	19.11.2022	TEST1	ACT01		6,0	H
300306362	19.11.2022	TEST1	ACT01		3,0	H

Internal Activity Allocation : Engineering Mechanics Table:

Item	Description	Cost Center	Activity Type	Bt	Quantity	Unit	Posting Date
E	Engineering	TEST1	ACT01		20,0	H	19.11.2022

Figure 4.5 Execution Service for an Internal Activity Allocation

<https://t.me/PrMaB2>

Navigation icons: > SIMG [Play] [Lock] [Minimize] [Maximize] [Close]

SAP Change View "Execution Service": Overview

Toolbar: [Dropdown] New Entries Copy As... Delete More [Dropdown] [Print] **Display** Exit

Dialog Structure

- Execution Profile
- Execution Service**
- Assign Execution Profile to Project Profile

Execution Prof.: 0001 [Copy]

Execution Service

Service	Name
<input type="checkbox"/> ACTV	Internal Activity Allocation
<input type="checkbox"/> GICR	Goods Issue
<input type="checkbox"/> POCR	Purchase Order
<input type="checkbox"/> REQU	Purchase Requisition
<input type="checkbox"/> RESV	Reservation

[< >]

[>] [List Icon] Position...

[< >]

Save Cancel

Figure 4.6 Defining an Execution Service Profile

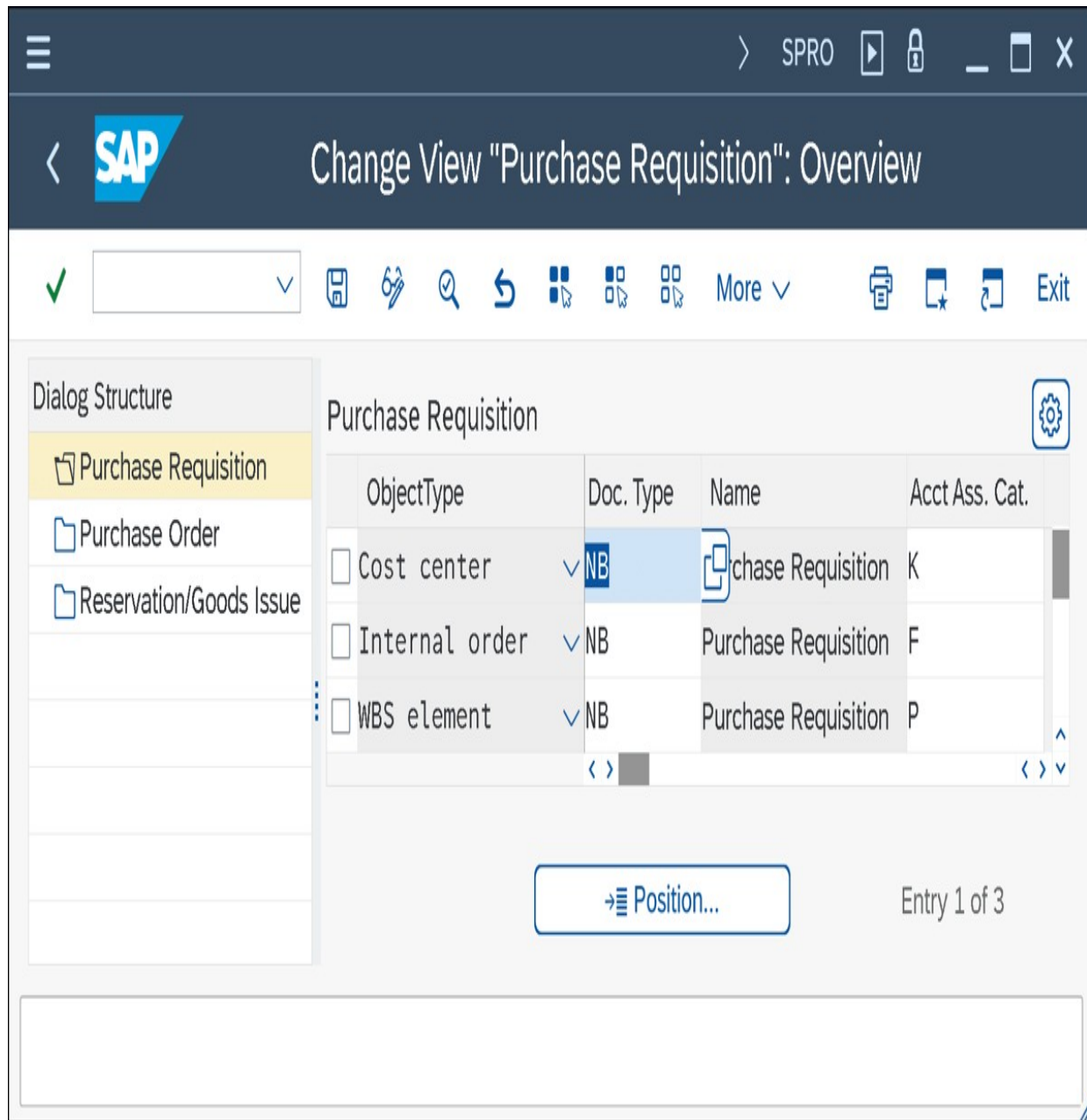


Figure 4.7 Defining the Settings for Execution Services

<https://t.me/PrMaB2>

> CJ20N≡

< Enter Network Confirmation: Actual Data

▼

First Operation Previous Operation Next Operation Last Operation More ▼

Activity: 1030	Engineering mechanics
Work Center: <input style="width: 80px;" type="text" value="2605"/> <input style="width: 80px;" type="text" value="1710"/>	Engineering
Personnel no.: <input style="width: 80px;" type="text"/>	
Wage type: <input style="width: 80px;" type="text"/>	
Reason: <input style="width: 80px;" type="text"/>	Short Descript.: <input style="width: 80%; border: 1px solid #ccc;" type="text"/>

Processing

Processing %: <input style="width: 40px;" type="text" value="94"/> %	FinalConf: <input type="checkbox"/>	No date update: <input type="checkbox"/>
	Completed: <input type="checkbox"/>	Clear Open Reservs.: <input type="checkbox"/>

Costs

Posting Date: * <input style="width: 100px;" type="text" value="25.08.2022"/>	Business Proces: <input style="width: 80px;" type="text"/> <input type="checkbox"/> Complete
Activity Type: <input style="width: 80px;" type="text" value="11"/>	Process Qty: <input style="width: 80px;" type="text"/>
AcctIndicator: <input style="width: 80px;" type="text"/>	Remaining Proc.: <input style="width: 80px;" type="text"/>

Activity

Start	Finish	Duration	Work		
Date	Time	Date	Time	UoM	UoM
Earl.sched:	06.06.2023	09.06.2023		3,0 DAY	16,0 HR
Ltst.sched:	07.06.2023	12.06.2023			
Actual:	01.08.2022	25.08.2022		19 DAY	5,0 HR

Confirm.

Actual:	<input style="width: 80px;" type="text" value="25.08.2022"/>	<input style="width: 80px;" type="text" value="25.08.2022"/>	<input style="width: 40px;" type="text"/>	<input style="width: 40px;" type="text"/>	<input style="width: 40px;" type="text" value="10,0"/>	<input style="width: 40px;" type="text" value="HR"/>
	Forecast:	<input style="width: 80px;" type="text"/>	<input style="width: 40px;" type="text"/>	<input style="width: 40px;" type="text"/>	<input style="width: 40px;" type="text" value="1,0"/>	<input style="width: 40px;" type="text" value="HR"/>

Figure 4.8 Detail Screen of a (Partial) Confirmation

<https://t.me/PrMaB2>

Change View "Confirmation Parameters": Details

Order category: 20 Network

Plant: 1710 Plant 1 US

Network type: PS02 Network with activity assignment(int.NA)

Default Values

- Final Confirmation
- Clear Open Reservs.
- Propose Dates
- Propose Activities
- Milestone automatic.

Goods Movements

- All Components

Selection

- Confirmed Ops
- Confirmable

Checks

- Dates in Future
- WrkDev. active Work deviation: 10
- DurtnDev.active Duration deviation:

Workflow

- Wrkflw for work
- Duratn workflow

HR Update

- No HR Update
- No date update

Logs/Error Handling

- Actual Costs
 - Termination for Incorrect Act.Costs
- Goods Movement
 - Termination for Incorrect Goods Movt

Control Data

Process Control:

Mass Confirmation

- Rough Reversal

Rough Reversal frm Counter Stats:

Save Cancel

Figure 4.9 Defining Confirmation Parameters

<https://t.me/PrMaB2>

SAP Confirm Network Activity

Network Activities

Search

Engineering electrics	20.0 Hours
4000363 / 1050	Project
Engineering mechanics	11.0 Hours
4000363 / 1030	Project
External Engineering	0.0
4000363 / 1180	Project
Layout	0.0 Hours
4000363 / 1000	Project
Exernal quality assurance	0.0
4000363 / 1190	Project

Confirm Network Activity

Engineering electrics

20.0 Hours

4000363 / 1050

2605 / Engineering

Plant 1 US

Project E-2610

Earliest Scheduled: 25.08.2022-06.09.2022

Latest Scheduled: 14.06.2023-23.06.2023

Actual Confirmed: 25.08.2022-25.08.2022

Work Overview

Planned Duration	32
Actual Duration	12
Forecast Duration	32

Report Processing

Planned: 32.0 Hours

Actual: Hours

Remaining: Hours

Forecast: 32.0 Hours

Report Date

Actual Start:

Actual Finish:

Forecast Finish:

Report Processing Percentage

Processing: %

Calculate Confirm Final Confirmation

Figure 4.10 Confirm Network Activity App

Network Confirmation: Collective Confirmation

Select All Deselect All Sort in Ascending Order Sort Descending Delete More v

Network	Act.	Elem	Cat	Spl	Confirm.	Pers. No.	Wag...	Work Ctr	Plnt	ActTyp	CM Postg Date	Bus. Proce	
4000363	1030	8345	2605	1710	11	25.08.2022	31	5,0	HR	11,0	HR	01.08.2022	01.08.2022
4000363	1000	8343	2610	1710	11	25.08.2022	100	11,0	HR		HR	05.08.2022	05.08.2022
4000363	1180	8429		1710		25.08.2022						05.08.2022	10.08.2022
4000363	1050	8346	2615	1710	11	25.08.2022	38	12,0	HR	20,0	HR	25.08.2022	25.08.2022
4000363	1190	8430		1710		25.08.2022						01.08.2022	25.08.2022
4000363	1030	8345	2605	1710	11	25.08.2022	31		HR	11,0	HR	25.08.2022	25.08.2022

Save Cancel

Figure 4.11 Collective Confirmation of Activities

SAP Time Sheet: Data Entry View

Personnel Number: 29 Bruce Smith Cost Ctr: []

Data Entry Period: 15.08.2022 - 11.09.2022 Week: 33.2022

Worklist

Network	Activ...	SOp	Cat	Spl	Work Ctr	Plnt	Operation	Short Text	Name	Name
4000363	1050	002	1	2605	1710	Engineering	electrics			

Data Entry Area

Network	Activ...	Work Ctr	Plant	Total	16.08	17.08	18.08	19.08	20.08	22.08
				144	8	8	8	4	0	
				22	0	4	2	4	0	
4000363	1050	2605	1710	22		4	2	4		

Cell Information

Additional information: General

Cell content: 2 Hour

Full-day

Short Text: []

Reason for rejection: []

Additional information: Logistics

Remaining work: 15

Forecast finish date: 28.08.2022

Det. status auto.

Partial confirmation

Final Confirmation

Technical information

Processing status: 10 In process

Document no.: []

Data entry view Release view Variable view Entry 1 of 3

Continue Check Cancel

Save Cancel

Figure 4.12 Entering Time Data Using CATS Classic

<https://t.me/PrMaB2>

Change View "CATS: Data Entry Profiles": Details

Data Entry Profile: 1301 PS/HR: Timerecording Network (no checks)

General settings

<input checked="" type="checkbox"/> Profile changeable	<input type="checkbox"/> Highlight rej. recs	<input checked="" type="checkbox"/> Release future times
<input checked="" type="checkbox"/> With target hours	<input type="checkbox"/> Highlight addnl info	<input checked="" type="checkbox"/> Release on saving
<input checked="" type="checkbox"/> With totals line	<input checked="" type="checkbox"/> Workdays only	<input type="checkbox"/> No changes after approval
<input type="checkbox"/> With clock times	<input type="checkbox"/> Display weekdays	
<input type="checkbox"/> No Deductn of Breaks	<input type="checkbox"/> No initial screen	

Cell length: Trip Schema:

Authorization:

Print program:

Time settings

Period type:* Weekly data entry Periods:*

First day of week: Monday

Start date relative: Lower limit relative: Upper limit relative:

Person selection

Enter for several personnel nos

Select via pers. list

Time administrator Organizational unit Cost center

Selection report

Approval

Without approval procedure

Save Cancel

Figure 4.13 Definition of a Data Entry Profile

<https://t.me/PrMaB2>

System Help > SBWP

Purchase Order Change due to Network Change

Close workflow Cancel

Operations

1160 External engineering

Workflow toolbox

Info Log Forward Resubmission Mail Attachmnts Agents

Network

Network	914240	Type	PS04	Plnt	1300
Description	Robot Model 1				
Change	WF-PS-1	18.12.2022	06:21:20		

Changes

Activity	1160	Seq.	0				
	New		Old				
Requirement qty	120,0	STD	100,0	STD			
Reqmt Date	27.06.2023	24:00:00	27.06.2023	24:00:00			
Purchase Req.	10024834	10	Purchasing Org.	1000			
Ordered Qty	100,0	STD	Purch. Group	001			

POs for Requisition

Pur. Order	Supplier	Item	D	Schd.	Deliv. Date	Qty (BUn)	OU	Qty (UoM Op.)
4500018100	1000	10		1	27.06.2023	100,0	STD	100,0

Refresh Undo Edit Print

Figure 4.14 Workflow after a Purchase Order–Related Change to an Externally Processed Element

The screenshot displays the SAP 'Create Entry Sheet' interface. The title bar shows '100000392 Create Entry Sheet'. The main area is divided into several sections:

- Header:** Entry Sheet 100000392, No acceptance (indicated by a red dot), Returns Indicator (checkbox).
- For Purchase Order:** 4500018105 10.
- Short Text:** Robot quality checks.
- Navigation:** Basic Data, Accept. Data, Vals, Long Txt, History.
- Acct Assgt Cat.:** F Order.
- External Number:** (empty).
- Price Ref.:** 18.12.2022.
- Service Loc.:** (empty).
- PRsp. Intern.:** (empty).
- Period:** (empty).
- PRsp. Extern.:** (empty).

A table of service lines is visible below the data fields:

Line	D.	P	C	U	Service No.	Short Text	Quantity	Un	Gross Price	Crcy	P.	per U...	Cost Center
<input type="checkbox"/> 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	E-1302	Security check	2	H	100,00	EUR	<input type="checkbox"/>	1	
<input type="checkbox"/> 20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	E-1301	Test of Function	1	AU	250,00	EUR	<input type="checkbox"/>	1	

At the bottom, there are navigation icons and a 'Service Sel.' button. The 'Line' field is set to 10.

Figure 4.15 Service Entry Sheet

<https://t.me/PrMaB2>

MD51

SAP Project Planning - Multi-Level

More Exit

Project def.: E-2610

WBS Element:

With hierarchy

MRP Control Parameters

Create Purchase Req.:	2	Purchase requisitions in opening period
Planning mode:	1	Adapt planning data (normal mode)
SA Deliv. Sched. Lines:	3	Schedule lines
Scheduling:	1	Determination of Basic Dates for Planned

Process Control Parameters

Also Plan Unchanged Components


Display Results Prior to Saving

Display material list

Figure 4.16 Initial Screen of Material Requirements Planning for Project Stock

<https://t.me/PrMaB2>

☰ Delivery Info for 4133729 0010 ✕

Delivery info.: ZCNSO_PROJE1 

Delivery data

Project def.:* PROJECTE


GR via delivery

Shipping Point: 0001 Shipping Point 0001

Planned GI date: 21.05.2021

Delivery Date: 29.05.2021

Ship-to Party: 13043 BP Multi Addresses DE 01

 Delivery Address

Organizational data

Sales Org.: 0001 Sales Org. 0001

Distr. Channel: 01 Distribtn Channel 01

Division: 00 Engine - 1010




✓ Copy    ✕

Figure 4.17 Delivery Information of a Network Activity

Delivery from Project: Item Details

Material	E-1501	Engine unit	5 KW 380V AC
Delivery date	12.08.2023	Goods Issue	12.08.2023

Quantities		Assignment		
Dlv.quantity	1	PC	Network	914240
Reqmt Qty	1	PC	Activity	1080
Withdrawal Qty	0		WBS Element	E-2615-2
Qty in delivery	0		Special Stock	0
Open quantity	1			
Avail. open qty	1			

General data			
Reqmt Date	08.08.2023	Stor. Loc.	0001
Item	0010	Batch	
Item Category	L	Sort String	

✓ Copy ✗ ⏪ ⏩

Figure 4.18 Calculating the Delivery Quantity of a Material Component

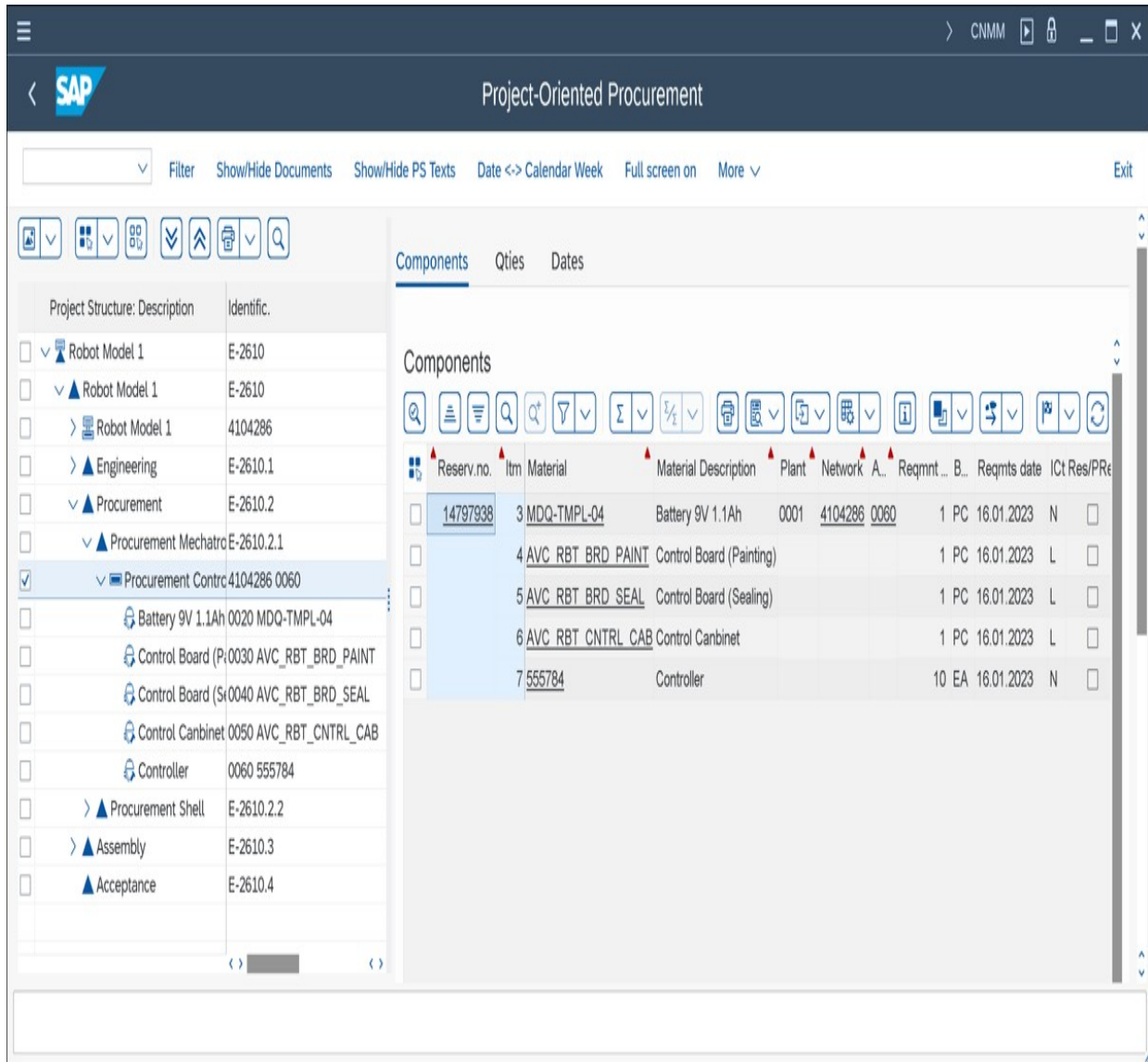


Figure 4.19 Project Structure and Components View of ProMan

<https://t.me/PrMaB2>

Change View "ProMan Profile": Details

ProMan Profile: PS0001

Description: ProMan Demo Profile

Settings

Except. Profile: YDEX01 ETO Exceptions

Orders/Documents	Views
<input checked="" type="checkbox"/> Purchase Req.	<input checked="" type="checkbox"/> Components
<input checked="" type="checkbox"/> Inquiry	<input checked="" type="checkbox"/> Activ./Elements
<input checked="" type="checkbox"/> Purchase Order	<input checked="" type="checkbox"/> Quantities
<input checked="" type="checkbox"/> Delivery	<input checked="" type="checkbox"/> Dates
<input checked="" type="checkbox"/> Material Docum.	<input checked="" type="checkbox"/> Deliveries
<input checked="" type="checkbox"/> Planned Order	<input checked="" type="checkbox"/> Stock
<input checked="" type="checkbox"/> Production Ord.	<input checked="" type="checkbox"/> Orders/Docs
<input checked="" type="checkbox"/> Maint.order	<input checked="" type="checkbox"/> Progress Tracking Information
<input checked="" type="checkbox"/> Res. for WBS	<input type="checkbox"/> Custom Enhancement

Save Cancel

Figure 4.20 Defining a ProMan Profile

VF01

SAP Down Payment Request (FAZ) Create: Overview of Billing Items

Pricing Conditions Header Change Bill. Doc. Display Bill. Doc. More Exit

Down Payment Request: \$000000001 Net Value: 20.000,00 USD

Payer: 17100011 SAP SE / 3999 West Chester Pike / Newtown Square PA 19073-3299

Billing Date: 21.08.2022

Item	Material	Item Description	Billed Quantity	SU	Net Value	Curren...
<input type="checkbox"/>	1E-1010	Robotic Model 1010		1PC	20.000,00	USD

Save Cancel

Figure 4.21 Creating a Down Payment Request

<https://t.me/PrMaB2>

VF01

Invoice (F2) Create: Overview of Billing Items

Pricing Conditions Header Change Bill. Doc. Display Bill. Doc. More Exit

Invoice: \$000000001 Net Value: 60.000,00 USD

Payer: 17100011 SAP SE / 3999 West Chester Pike / Newtown Square PA 19073-3299

Billing Date: 21.08.2022

It...	Material	Item Description	Billed Qu...	SU	Net Value	Curren...	Tax Amount
<input type="checkbox"/>	1E-1010	Robotic Model 1010		1PC	60.000,00	USD	12.600,00
<input type="checkbox"/>	2E-1010	Down Payment Settlement		1PC	20.000,00	USD	0,00

Save Cancel

Figure 4.22 Creating a (Partial) Invoice with Down Payment Settlement

<https://t.me/PrMaB2>

SAP Billing request for resource-related billing document

DP91

Show/hide structure tree Sales price Billing request More

Exit

Description	St...	Loc...	Amt to be billed Curr...	Qty to be billed UM	% to be b...	Net value Currency
236141	▲	🔒	7.800,00 EUR	14,612 HR	96,96	7.800,00 EUR
236141/1	▲	🔒	7.800,00 EUR	14,612 HR	96,96	7.800,00 EUR
All costs	▲	🔒	7.800,00 EUR	14,612 HR	96,96	7.800,00 EUR
Secondary costs	▲	🔒	7.800,00 EUR	14,612 HR	96,96	7.800,00 EUR
Engineering costs	▲	🔒	4.000,00 EUR	4,789 HR	95,78	4.000,00 EUR
Management costs	▲	🔒	3.800,00 EUR	9,823 HR	98,23	3.800,00 EUR

Amount Qty Percent

Reject All

Entry Billing, postpone

Description	S..	Lo...	Original amount	Amt alrea...	Open amount	Amt to be billed	Amount postponed
Σ Secondary costs	▲	🔒	8.044,75	0,00	8.044,75	7.800,00	100,00
Engineering costs	▲	🔒	4.176,25	0,00	4.176,25	4.000,00	100,00
Management costs	▲	🔒	3.868,50	0,00	3.868,50	3.800,00	

Save Cancel

Figure 4.23 Expenses View of a Resource-Related Billing

<https://t.me/PrMaB2>

> DP91

<
Billing request for resource-related billing document

Expenses Billing request More ▾
 Exit

Item	Description	Amt to be billed	Currency	Net value	Currency
▾ Debit Memo Request	Debit Memo Request	7.800,00	EUR	7.800,00	EUR
▾ Produkt	S-1300	7.800,00	EUR	7.800,00	EUR
Internal services	S-1311	7.800,00	EUR	7.800,00	EUR

Conditions Amount Quantity Percentage

Qty	1,00 HR	Net	7.800,00	EUR
		Tax	1.482,00	

Pricing Elements

N..	CnTy	Name	Amount	Crcy	per	U...	Condition value	Curr.	Status	NumC...	OUn	CConDe	Un	Co
		Net Value 2	7.800,00	EUR		1HR	7.800,00	EUR			1HR		1HR	
		Net Value 3	7.800,00	EUR		1HR	7.800,00	EUR			1HR		1HR	
<input type="checkbox"/>		AZWR Down Pay./Settlement	0,00	EUR			0,00	EUR			0		0	
<input type="checkbox"/>		MWST Output Tax	19,000	%			1.482,00	EUR			0		0	
		Total	9.282,00	EUR		1HR	9.282,00	EUR			1HR		1HR	
<input type="checkbox"/>		SKTO Cash Discount	3,000	%			278,46	-EUR			0		0	
<input type="checkbox"/>		MW15 Factoring Disc. Tax	19,000	%			0,00	EUR			0		0	

Condition rec.
Analysis

Update

Save
Cancel

Figure 4.24 Sales Price View of Resource-Related Billing

<https://t.me/PrMaB2>

< **SAP** Milestone Trend Analysis: Project E-2610 (Basic)

| ▾ Choose dates Historic curve Historic milestones More ▾ Exit

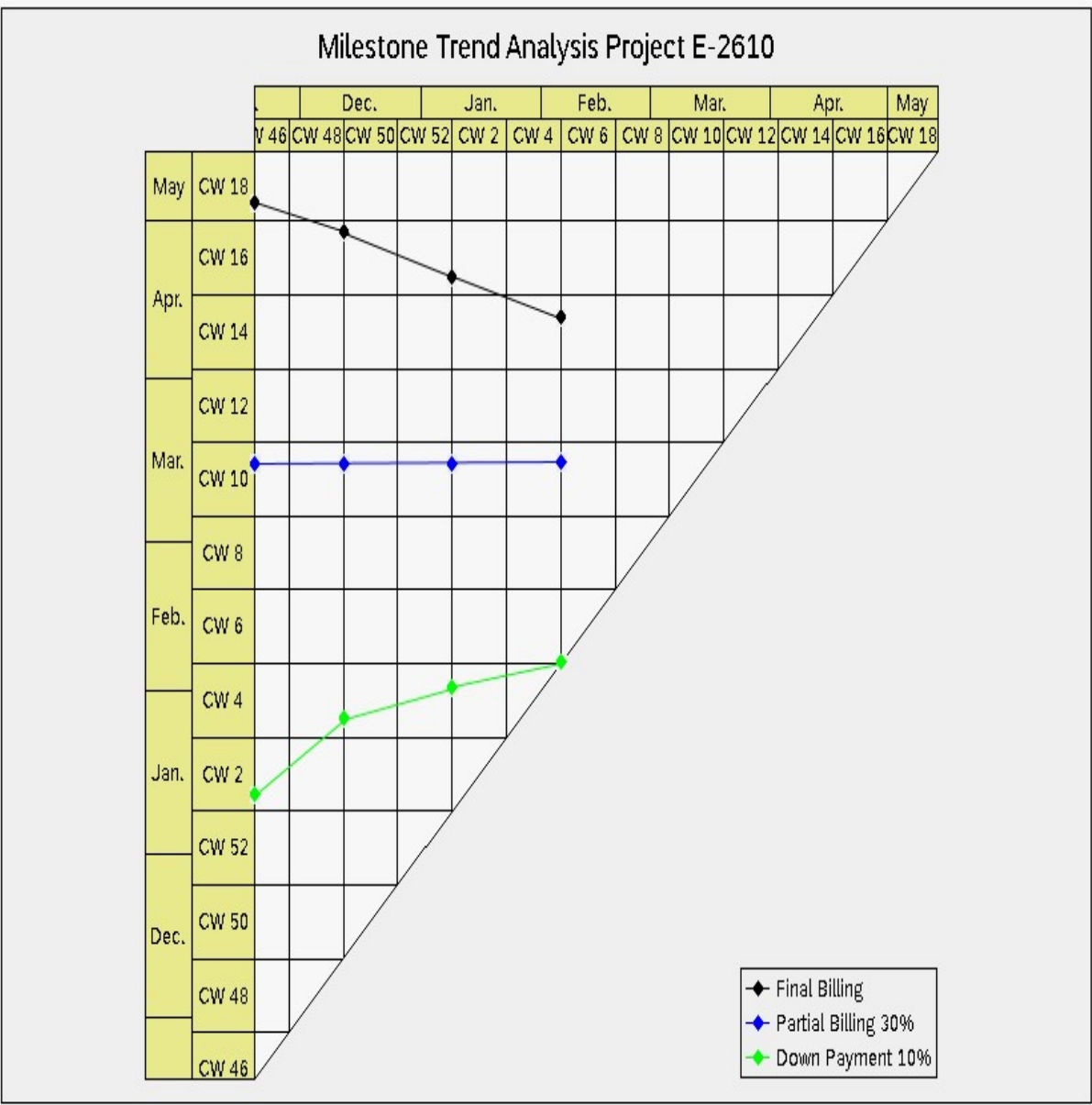


Figure 4.25 Milestone Trend Analysis

<https://t.me/PrMaB2>

The screenshot shows the SAP S/4HANA configuration interface for 'Measurement Methods for PS Earned Value Analysis'. The browser window title is 'Change View "Measurement Methods for PS Earned Value Ana..": Details o'. The SAP logo is visible in the top left. Below the header, there is a search bar and a 'More' dropdown menu. The main content area is divided into two sections: 'Measurement Methods for PS Earned Value Analysis' and 'Parameters'. In the first section, the 'Meas. method' is set to 'Z_0001', 'Text' is '50-50', and 'Description' is 'Start-Finish 50-50'. In the 'Parameters' section, 'Meas. technique' is set to 'Start-Finish', 'Max POC' is '100', and 'Start POC' is '50'. A 'Copy' button is located in the bottom right corner of the form area.

Change View "Measurement Methods for PS Earned Value Ana..": Details o

More

Measurement Methods for PS Earned Value Analysis

Meas. method:* Z_0001

Text:* 50-50

Description:* Start-Finish 50-50

Parameters

Meas. technique:* Start-Finish

Max POC: 100

Start POC: 50

Copy

Figure 4.26 Defining a Measurement Method

SAP Change View "Object type dependent default values for me.": Overview

CO Area: 0001

Object type dependent default values for measurement methods

Prog.V...	Object Type	Plan/act	Method	Descriptn
<input type="checkbox"/>	100 WBS element	Plan	0000000005	Time proportionality (level of effort)
<input type="checkbox"/>	100 WBS element	Actual	0000000005	Time proportionality (level of effort)
<input type="checkbox"/>	100 Activity, internal processing	Plan	0000000005	Time proportionality (level of effort)
<input type="checkbox"/>	100 Activity, internal processing	Actual	0000000006	Degree of processing from confirmation
<input type="checkbox"/>	100 Activity, external processing	Plan	0000000005	Time proportionality (level of effort)
<input type="checkbox"/>	100 Activity, external processing	Actual	0000000006	Degree of processing from confirmation
<input type="checkbox"/>	100 Activity, general costs	Plan	0000000008	Cost proportional
<input type="checkbox"/>	100 Activity, general costs	Actual	0000000008	Cost proportional
<input type="checkbox"/>	100 Activity element, internal processing	Plan	0000000001	0-100 method
<input type="checkbox"/>	100 Activity element, internal processing	Actual	0000000001	0-100 method
<input type="checkbox"/>	100 Activity element, external processing	Plan	0000000001	0-100 method

Position... Entry 1 of 16

Save Cancel

Figure 4.27 Defining the Default Values for the Measurement Methods of Different Object Types

<https://t.me/PrMaB2>

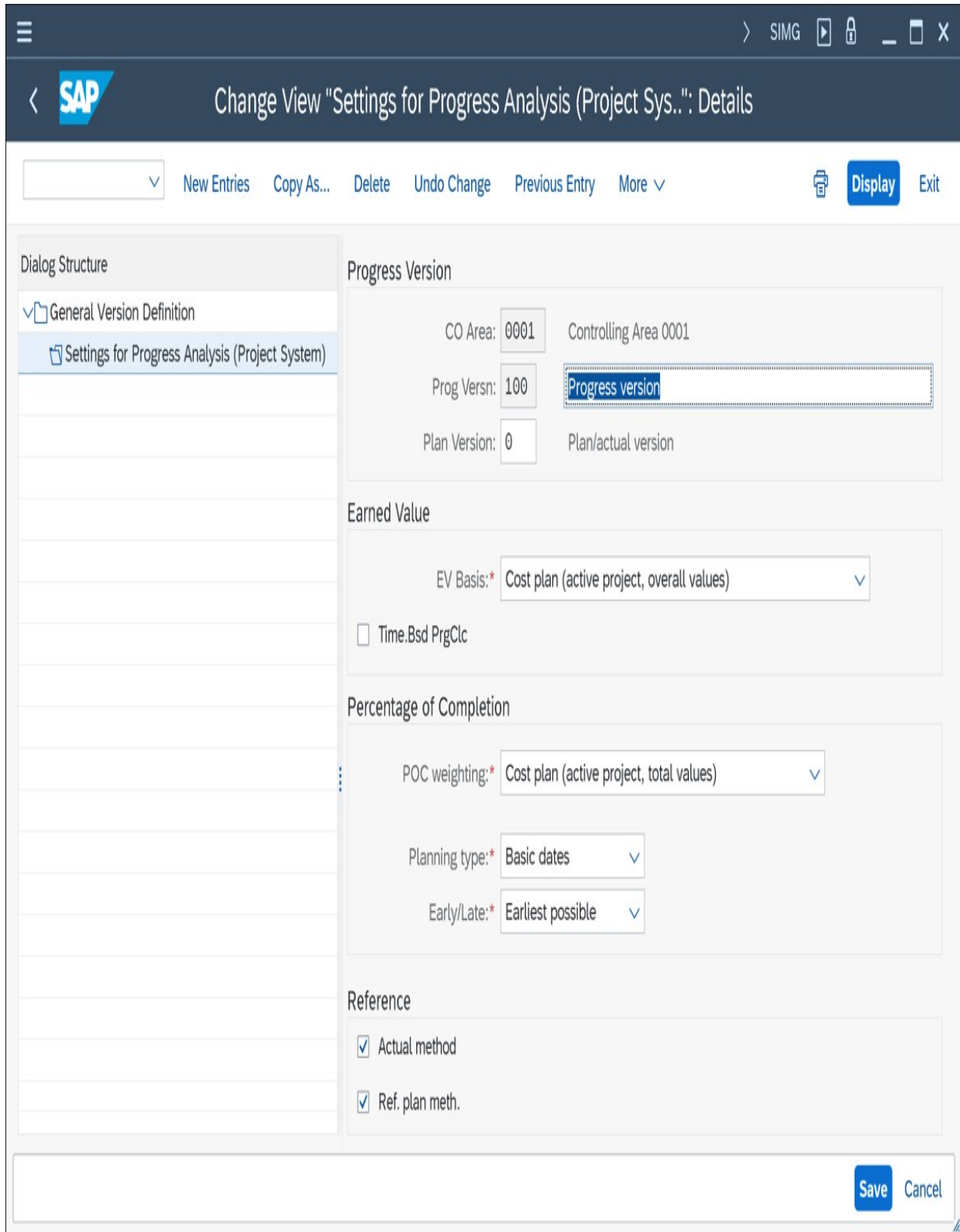


Figure 4.28 Defining a Progress Version

The screenshot displays the SAP Progress Analysis Workbench interface. At the top, there is a menu bar with options: Progress Analysis, Edit(X), Goto(S), Extras(D), System, and Help. The window title is 'Progress Analysis Workbench'. Below the menu, there are navigation buttons: Project definition, Network header, Save the changes in status, Confirmation Layout, and More. The main area is titled 'Progress Analysis Workbench' and contains a 'Project Definition' section with various icons for search, refresh, and other functions.

Obj...	Level	WBS Element	Activity	Milest...	Milestone POC	System Status	User Status	BscStart	BscFin	ActStart	ActFin	BCWS Cost	BCWS Cost ...	BCWP Cost	BCWP Cost ...
	0					PREL	ORD PLND								
	1	E-2618				PREL	ORD PLND	25.04.20...	04.08.20...			0,00	USD	0,00	USD
	0	E-2618		416		5									
	0	E-2618		418		10									
	0	E-2618	0010			MCNF PCNF RE...	ORD PLND			25.04.20...		20.000,00	USD	4.400,00	USD
	0	E-2618		419											
	0	E-2618	0020			REL SETC	ORD PLND					0,00	USD	0,00	USD
	2	E-2618.1				REL	ORD PLND	03.05.20...	05.06.20...			0,00	USD	0,00	USD
	3	E-2618.1.1				REL	ORD PLND	03.05.20...	05.06.20...			0,00	USD	0,00	USD
	0	E-2618.1.1	0030			REL SETC	ORD PLND					0,00	USD	0,00	USD
	0	E-2618.1.1	0040			MCNF PCNF RE...	ORD PLND			08.05.20...		60.000,00	USD	768,00	USD
	3	E-2618.1.2				REL	ORD PLND	03.05.20...	01.06.20...			0,00	USD	0,00	USD
	0	E-2618.1.2	0050			REL SETC	ORD PLND					0,00	USD	0,00	USD

At the bottom right of the window, there are 'Save' and 'Cancel' buttons.

Figure 4.29 Progress Analysis Workbench

<https://t.me/PrMaB2>

The screenshot displays the SAP Progress Tracking: Overview interface. At the top, there is a navigation bar with the SAP logo and the title 'Progress Tracking: Overview'. Below this, there are options for 'Display <-> Change', 'Profile', 'More', and 'Exit'. The main content area is divided into two sections: 'Components' and 'Events'.

Components Table:

Scenario	Events	Sltn	StInfo	Docu	Material	Reqmts date	Reqmnt qty	U...	Netwo...	Act.
<input checked="" type="checkbox"/> CP0001					555784	16.01.2023	10	EA	41042...	0060
<input type="checkbox"/> CP0001					AVC_RBT_CNTRL_CAB	16.01.2023	1	PC	41042...	0060
<input type="checkbox"/> CP0001					MDQ-TMPL-04	16.01.2023	1	PC	41042...	0060

Below the components table, there are input fields for: Material: 555784 / 0001, Description: Controller, Reqmts date: 16.01.2023, and Requirement qty: 10 EA.

Events Table:

Description	Baseline	Baseline is Set	Plan	Plan is Set	Forecast	FcS...	Actual	Pr...	Sc	StdE	Pr...	Priority	Var.
<input type="checkbox"/> Specification	16.01.2023	<input type="checkbox"/>	16.01.2023	<input type="checkbox"/>	16.01.2023	<input type="checkbox"/>	16.01.2023	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				00■
<input type="checkbox"/> Design	06.03.2023	<input type="checkbox"/>	13.03.2023	<input type="checkbox"/>	16.03.2023	<input type="checkbox"/>	16.03.2023	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				●00
<input type="checkbox"/> Planning	20.03.2023	<input type="checkbox"/>	13.03.2023	<input type="checkbox"/>	16.03.2023	<input type="checkbox"/>	16.03.2023	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				●00

At the bottom right of the interface, there are 'Save' and 'Cancel' buttons.

Figure 4.30 Entering Data in Progress Tracking

<https://t.me/PrMaB2>

Change View "Progress Tracking Profile for Components": Details

Profile: CP0001

Progress Tracking Profile for Components

Description: Standard Profile Components

Scheduling

- Baseline
- Plan
- Forecast
- Backwards
- Forwards
- Backward-Forwd.
- Forward-Backwd
- Do Not Display

Variances

- Planned > baseline:
- Forecast > baseline:
- Actual/today> Basel.:
- Forecast > Planned:
- Actual/today>planned:

Column Display

- Baseline
- Plan
- Forecast
- Actual Dates

Save Cancel

Figure 4.31 Defining a Progress Tracking Profile

The screenshot shows the SAP 'Assignment of Event to Event Scenario' overview screen. The title bar indicates the current view is 'Change View "Assignment of Event to Event Scenario": Overview'. The interface includes a menu bar with options like 'New Entries', 'Copy As...', 'Delete', 'Undo Change', 'Select All', and 'More'. A 'Display' button is also visible. The main area contains a table with the following data:

Scenario	Pre	AM	Subs.	AM	Fw	Bc	Offs.	Ref	
<input type="checkbox"/>	CP0001	Specification	<input checked="" type="checkbox"/>	Design	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12	<input type="checkbox"/>
<input type="checkbox"/>	CP0001	Design	<input type="checkbox"/>	Planning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10	<input type="checkbox"/>
<input type="checkbox"/>	CP0001	Planning	<input type="checkbox"/>	Purchasing Documents	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5	<input type="checkbox"/>
<input type="checkbox"/>	CP0001	Planning	<input type="checkbox"/>	Generation of Purchase Requisition...	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8	<input type="checkbox"/>
<input type="checkbox"/>	CP0001	Generation of Purchase Requisition	<input type="checkbox"/>	Release Purchase Requisition	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input type="checkbox"/>

Below the table, there is a 'Position...' button and a status indicator 'Entry 1 of 10'. At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 4.32 Assigning Standard Events to a Scenario

<https://t.me/PrMaB2>

SAP Change Claim: Internal Claim 400000000

Notification: 400000000 C1 Internal Claim Partner Type: Partner Type: []

Notific. Status: OSNO APRQ [i]

Subject Assignment Costs Tasks Activities DMS

Reference Object

Project def.: E-2615 Robotics project

WBS element: E-2615-3 Montage

Company Code: 1710 Company Code 1710

Reference Documents

Template: [] Reference No.: []

Sales Order: 40000000 []

Delivery: []

Just. Reference: 16101701

Purchasing Doc.: []

Execution

Person respons.: 33 Brad Baker

Coordinator (us: SERV_EMPL Barbara Lee

Func	Partner	Name
<input type="checkbox"/> Coordinator (user)	▼ SERV_EMPL	Barbara Lee
<input type="checkbox"/> Sold-to Party	▼ 17100001	Domestic US Customer 1
<input type="checkbox"/> Person respons.	▼ 33	Brad Baker
<input type="checkbox"/>	▼	

Action box

- Telephone Call
- E-Mail, Fax
- E-Mail, Fax with Attachments
- Internal Note
- Business Documents Services
- Create Claim
- Project Simulation
- Operation long text
- Simulation Version
- Business Document Services

Save Cancel

Figure 4.33 Internal Claim

The screenshot shows the SAP interface for the transaction 'Revaluation at Actual Prices: Project/WBS Element/Network'. The top menu bar includes 'Revaluation', 'Edit(X)', 'Goto(S)', 'Extras(D)', 'Environment', 'System', and 'Help'. The current user is 'CJN1'. The title bar shows the SAP logo and the transaction name. Below the title bar, there is a search field with a dropdown arrow and a 'More' dropdown menu. An 'Exit' button is located in the top right corner. The main area contains three input fields for selection: 'Project: E-2610', 'WBS Element:', and 'Network:'. Below these are two checkboxes: 'With hierarchy' and 'With orders'. The 'Parameters' section contains 'Period: * 04' and 'Fiscal Year: * 2023'. The 'Processing Options' section contains 'Test Run' (unchecked) and 'Detail Lists' (checked). At the bottom right, there is an 'Execute' button.

Figure 5.1 Initial Screen for Revaluation at Actual Prices in Individual Processing

The screenshot displays the SAP Customizing interface for 'Display Template 1-FC-MONTH'. The left sidebar shows a 'Closing Structure' tree with various folders and tasks. The main area shows a table of tasks, with '99 Projects with Worklist' selected. Below this, the 'Details' tab is active, showing a table of 'General Properties' for the selected task. The 'Organization Units' section is also visible, showing 'Controlling Area' (US01) and 'Company Code' (ZA01).

Type	Task ID	Task Description	Predec.	Success...	Document	Crit. Path	Proc. Ty...	Proc. ...	Resp.Ty...	Resp. Name	Start Immediately
<input checked="" type="checkbox"/>	8	99 Projects with Worklist									

General Properties					
Status	Not Started	Task Type	Flow Definition	Flow Definition	1-PS-DEF_WL
Organization Type	Folder	Task Group			
Responsible Type		Responsible		Full Name of Responsible	
Processor Type		Processor		Full Name of Processor	
Planned Start	0 00:00:00	Planned End	0 00:30:00	Planned Duration	0 00:30:00
Authorization Group		Path	Controlling~/Company C~/Closing Tasks at Per~/Cost Account~/Proje		
Email Notification	Yes	Global ID		Start Immediately	No
Significance		Automation		Purpose	
Critical Path	No	Ignore Error	No		
Links					

Organization Units	
Controlling Area	
<input checked="" type="checkbox"/>	US01
Company Code	
<input checked="" type="checkbox"/>	ZA01

Figure 5.2 Closing Structure Template in the SAP Financial Closing Cockpit for SAP S/4HANA

Flow definition Edit(X) Goto(S) Graphic System Help > FCLOCOC

SAP New Template Change

Check Display step Align... Zoom in Minimize Complete view Center on selected objects More Find Exit

Graphical Model

Navigation Area

Navigation area

- Steps
 - 000019 Renew worklist processing?
 - 000025 Check the objects in the worklist
 - 000044 Object Selection -> Worklist
 - 000050 Surcharge on Projects (with Worklists)
 - 000056 Interest on Projects (with Worklists)
 - 000062 Results Analysis on Projects (with Worklists)
 - 000068 Incoming Orders on Projects (supp. WL)
 - 000074 Settlement of Projects (with Worklists)
 - 000078 Cost Forecast on Projects (with Worklists)

Object Selection

- Display
- Agent assignment for task
- Binding for task
- Go to block end

Surcharge on Projects (with Worklists)

Result of Syntax Check

Step Number	Message
-------------	---------

Figure 5.3 Flow Definition for the Period-End Closing of Projects

The screenshot shows the SAP 'Change View "Costing Sheet Rows": Overview' dialog box. The interface includes a menu bar at the top with options like 'Table View', 'Edit(X)', 'Goto(S)', 'Choose', 'Utilities', 'Extras(D)', 'System', and 'Help'. Below the menu bar is a toolbar with buttons for 'Change -> Display', 'New Entries', 'Copy As...', 'Delete', 'Undo Change', 'Select All', 'More', 'Print', and 'Exit'. A 'Dialog Structure' pane on the left shows a tree view with 'Costing Sheet Rows' selected. The main area displays 'Procedure: A000000 Standard' and buttons for 'Check' and 'List'. A table titled 'Costing Sheet Rows' is shown with the following data:

Row	Base	Overhead ...	Description	From	To Row	Credit
<input type="checkbox"/> 10	B000		Material			
<input type="checkbox"/> 20		C000	Material OH	10		E01
<input type="checkbox"/> 30			Material usage.....			
<input type="checkbox"/> 40	B001		Wages			
<input type="checkbox"/> 45	B002		Salaries			
<input type="checkbox"/> 50		C001	Manufacturing OH	40	45	E02
<input type="checkbox"/> 60			Manufacturing costs...	40	50	
<input type="checkbox"/> 70			Cost of goods manufactured...			
<input type="checkbox"/> 80		C002	Administration OH			E03
<input type="checkbox"/> 90		C003	Sales OH	70		E04
<input type="checkbox"/> 100			Cost of goods sold...			

At the bottom of the dialog, there is a 'Position...' button, 'Entry 1 of 11', and 'Save' and 'Cancel' buttons.

Figure 5.4 Definition of a Costing Sheet

Change View "Details": Overview

O/H Rate: Material OH

Dependency: Overhead Type

Details

	Valid From	To	CO Area	Ovrhd Type	Percentage	Unit
<input type="checkbox"/>	01.01.1992	31.12.9999	0001	1	10,000	%
<input type="checkbox"/>	01.01.1992	31.12.9999	0001	2	10,000	%
<input type="checkbox"/>	01.01.1992	31.12.9999	0001	3	25,000	%

→ Position... Entry 1 of 16

Save Cancel

Figure 5.5 Definition of an Overhead

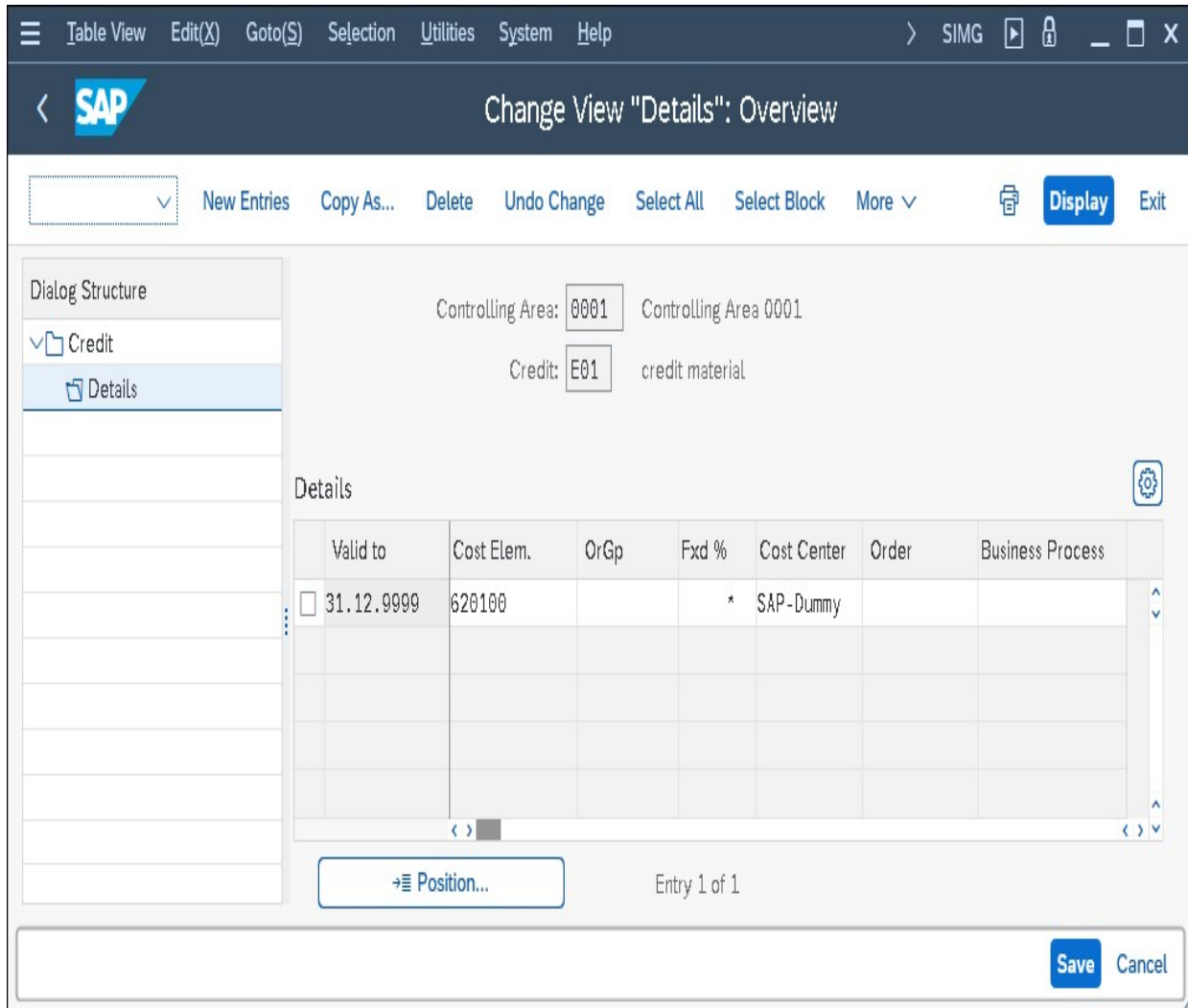


Figure 5.6 Definition of a Credit

The screenshot displays the SAP interface for 'Actual Overhead Calculation: Project/WBS Element/Network Debits'. The table below shows the calculation of network activities and activity elements.

Senders	Receiver	Cost Elem.	Val/COArea Crcy
CTR SAP-DUMMY	NWA 4104286 0010	620100	265,00
CTR SAP-DUMMY		620200	600,00
CTR SAP-DUMMY	NWA 4104286 0040	620200	450,00
			1.315,00

Figure 5.7 Actual Overhead Calculation of Network Activities and Activity Elements

Template Edit(X) Goto(S) Environment System Help > CPT2 [Icons]

< **SAP** Change template 004 / 1300

[Dropdown] Display <-> Change Check Test Plan Where-used List Hierarchy Hide editor More ▾ Exit

Template: 1300 Network Activities
Environment: 004 Network

Template overview : display

[Icons]

Type	Description	Object	Unit	Plan quantity	Plan activation	Plan allocatio...	Actual quantity	Actual activat...	Actual allocat...
Business Process ▾	Arbeitsvorber...	300900	PC	NumberOfNet...	ACTIVE ▾		NumberOfNetwor...	ACTIVE ▾	

✓ Actual quantity [Icons]

NumberOfNetworkActivities

Functions for Type: Business Process ; Colu...	Function description
/x NetworkActivityNoOfDocsOfType	Number of Docs of Given Type for Current Activity
/x NetworkActivityNumberOfDocs	Number of Documents for Current Activity
/x NumberOfActivitiesWithType	Number of Network Activities with Given Type
/x NumberOfMatCompForActy	Number of Material Components for Current Activity
/x NumberOfMaterialComponents	Number of Material Components
/x NumberOfNetworkActivities	Number of Network Activities
/x NumberOfNetworkWorkCenters	Number of Different Work Centers in Activities
/x NumberOfWorkCenterChanges	Number of Work Center Changes in Activities
/x PlanQtyForatypNetworkWorkCtr	Plan Quantity for Activity Type in Work Center
/x TotalAllActivit...	Total of Operation Based Formula Results

Li 1, Co 1 Ln 1 - Ln 1 of 1 lines

Save Enter Cancel

Figure 5.8 Sample Definition of a Template

The screenshot shows the SAP 'Actual Template Allocation: Project/WBS Element/Network' report. The table displays the following data:

Receiver Object	Sender object	Alloc. CElem	Total fixed/var. qty	UoM	Ttl Fx+Vbl value CAC	CO crcy	Template
NWA 4134334 0010	BPR 300900	640150	132	PC	264,00	EUR	1300
NWA 4134334 0010					264,00	EUR	
NWA 4134334 0040	BPR 300900	640150	168	PC	336,00	EUR	1300
NWA 4134334 0040					336,00	EUR	
					600,00	EUR	

Figure 5.9 Result of a Template Allocation for Actual Costs of a Project

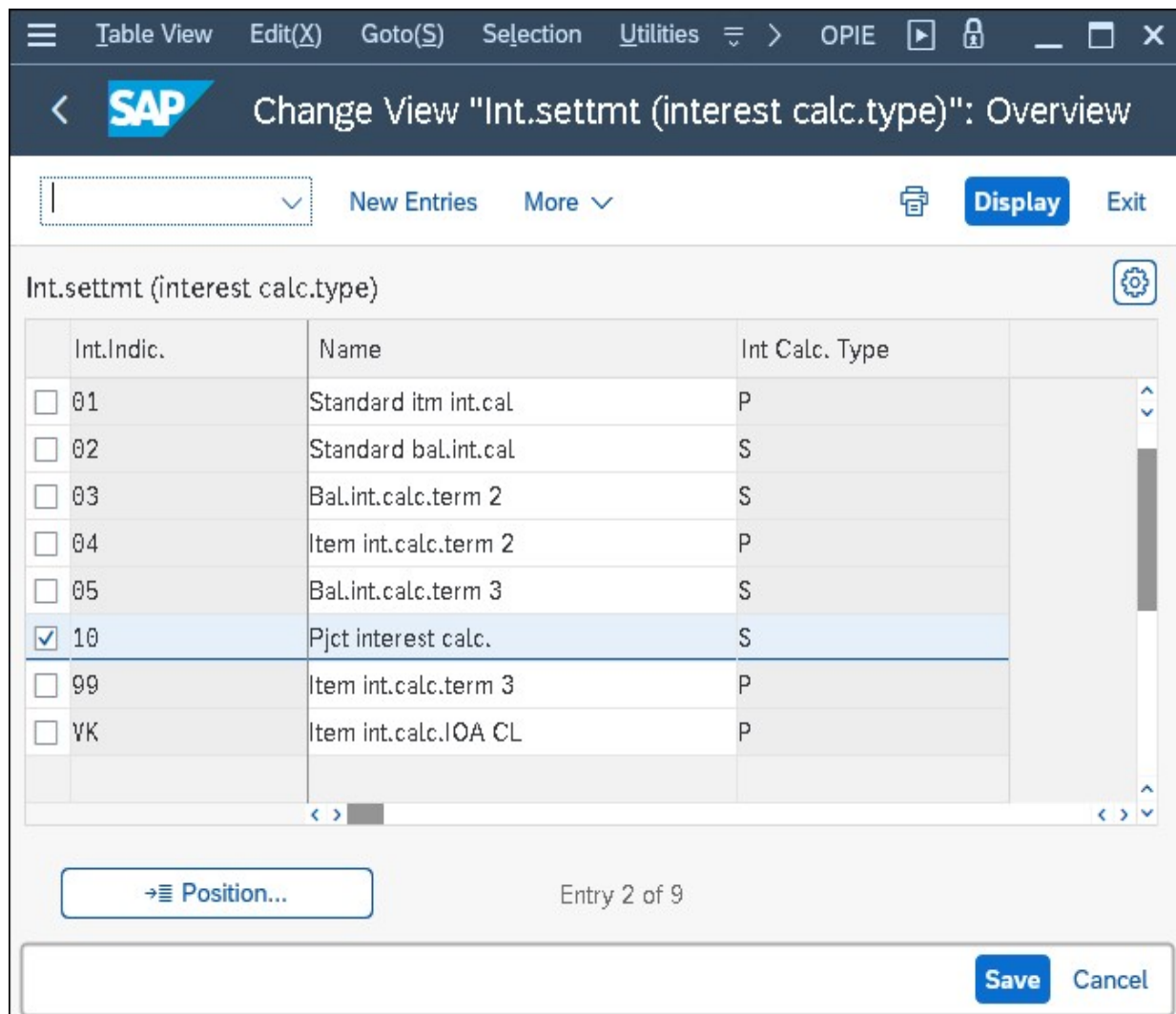


Figure 5.10 Definition of Interest Indicators

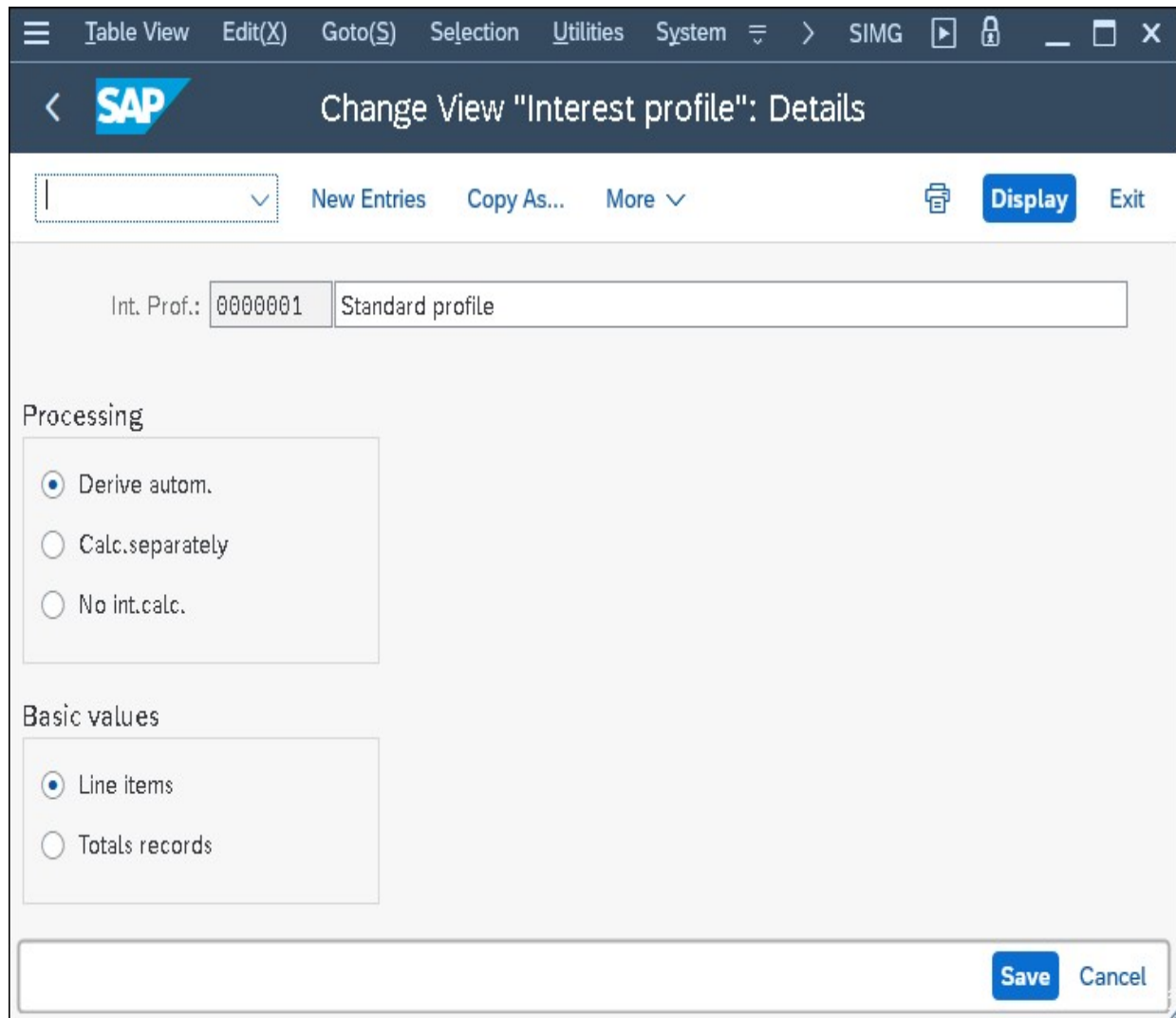


Figure 5.11 Sample Definition of an Interest Profile

The screenshot shows the SAP 'Change View Project Interest Calculation: Details' dialog box. The title bar includes the SAP logo and the text 'Change View "Project Interest Calculation": Details'. The menu bar contains 'Table View', 'Edit(X)', 'Goto(S)', 'Selection', 'Utilities', 'System', and 'Help'. The main area is divided into several sections:

- Header:** A dropdown menu, 'New Entries', 'Copy As...', 'Delete', and 'More'.
- Profile Information:**
 - Int. Prof.: 00000002 (Standard profile)
 - Int.ind.: 10 (Pjct interest calc.)
 - Currency: EUR
- Conditions:**
 - Min.durn: []
 - Threshold: []
 - And connection
- Compound interest for CI projects:**
 - Period control: []
- Assessment basis for valuing capital investment:**
 - Chart of Depr.: []
 - Depreciat. Area: []
- Footer:** 'Save' and 'Cancel' buttons.

Figure 5.12 Detailed Settings of an Interest Profile

Acct determination Edit(X) Goto(S) Utilities System Help > OPID

SAP Maintain Account Determination: Posting Specifications

Accounts Symbols Create Delete More ▾

Application: 0200 Project interest calculation

Posting specifications

Business transaction: 1000 Interest indicator: +

Company code: + Business area: +

Debit: 40 4 Neutral int received Comp

Credit: 50 3 Interest received Comp

Business transaction: 2000 Interest indicator: +

Company code: + Business area: +

Debit: 40 1 Interest paid Comp

Credit: 50 2 Neutr. interest paid Comp

Position...

Save

Figure 5.13 Definition of Posting Specifications

Detail list: interim balances

Project PRJ E-2610
Balancing object WBS E-2610
Interest posting cost element 483000

Value date	Balance	Int. Rate	Days	Interest amount
23.10.2022	10.000,00	3,00000000	3	2,50
* Total			3	2,50

Figure 5.14 Displaying the Interim Balances of an Actual Interest Calculation

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities System Help > OKG2

SAP Change View "Results Analysis Versions": Details

New Entries Copy As... Delete More ▾ Display Exit

CO Area: 0001 RA Version: 0 WIP/Results Analysis (Standard)

Actual Results Analysis/WIP Calculation

Version Relevant to Settlement Transfer to Financial Accounting

Multiple Valuation

Legal Valuation

Extended Control Off

Extended Control

Split Creation/Usage
 Generate Line Items
 Legacy Data Transfer
 Deletion Allowed
 Assignment/RA Key
 Update/RA Key
 Cross-Comp.Valuation
 Cross-BusArea Val.
 Update Plan Values
 Save WIP Details

Calculate WIP or Results Analysis For

Orders in Sales-Order-Related Production
 Orders in Engineer-to-Order Production
 Mfg Orders w/o Settlement to Material
 Internal and Service Orders w/o Revenue

Status Control: A

Cutoff Period for Actual RAWIP: * 12.2023

Actual RA Actual and Plan RA Simulate Actual w/ Plan

Planned Results Analysis

Version Relevant to Settlement

Plan Version: 0

Cutoff Period for Planned RA:

Cost Elements On Technical RA Cost Element: * 610000

Save Cancel

Figure 5.15 Definition of a Results Analysis Version

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities System Help > OKG3 [lock] [min] [max] [close]

< **SAP** Change View "Simplified Maintenance of Valuation Methods": Details

[input] [dropdown] New Entries Copy As... Delete More [print] **Display** Exit

CO Area: RA Version: RA Key:

Results Analysis Method: *

Revenue-Based Method - With Profit Realization

Status Control

Results Analysis with Status: Released

Cancel Inventory w/Status: Final billing

Cancel Inventory/Reserves with Status: * Technically completed

Profit Basis

Plan Value of Obj. and Dependent Objects

Sales Order Cost Estimate

Std Price of Material for Sales Order

Valuation Level

Valuation at Totals Level Valuation at Line ID Level

Minimum Values

Capitalized Costs/WIP:

Reserves for Unrealized Costs:

Reserves for Commissions/Complaints:

Reserves for Imminent Loss:

Expert Mode

Save Cancel

Figure 5.16 Definition of a Valuation Method

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities System Help > OKG3

Change View "Valuation Methods": Details

New Entries Copy As... Delete More

CO Area: 0001 RA Version: 0 Status Profile:
 RA Key: 000002 Status: REL Status Number: * 2

RA Type: * F WIP Calculation on Basis of Actual Costs
Profit Indicator: * M With Profit Realization

Valuation	Cancel. Meth. of Appt	Minimum Values
Valuation Basis: * 0 Plan Version: 0 Version f. Sim.: 0 Progress Versio: Updated Costs: Valuation Level: * S Profit Basis: * C Base Quantity: Loss Realization: * E Final RA: Project Struct.: A SalesOrderStruct: Profit %: ResultsRes: Commitments: <input type="checkbox"/> No Valuation	<input checked="" type="checkbox"/> WIP I <input checked="" type="checkbox"/> Res. Unreal Cost D <input checked="" type="checkbox"/> Res. Complaints D <input checked="" type="checkbox"/> Res. Immin. Loss S <input checked="" type="checkbox"/> Other Apportionment Redistribution: * A Cost of Sales:	WIP: Reserves: ResrvCompl: ReslmmLoss:
	Planned Values Overall Plan: * E Line ID Costs: Line ID Revenue: Overrun: A Line ID Overrun: Rev.: Days/Per.	Extended Control Cutoff: * D Special Funct.: End: * E Time Frame: Manual RA: * E <input type="checkbox"/> Only Periodic Enhance 1: <input type="checkbox"/> UserDefCOS Quantities:

Display Exit

Save Cancel

Figure 5.17 Expert Mode of a Valuation Method

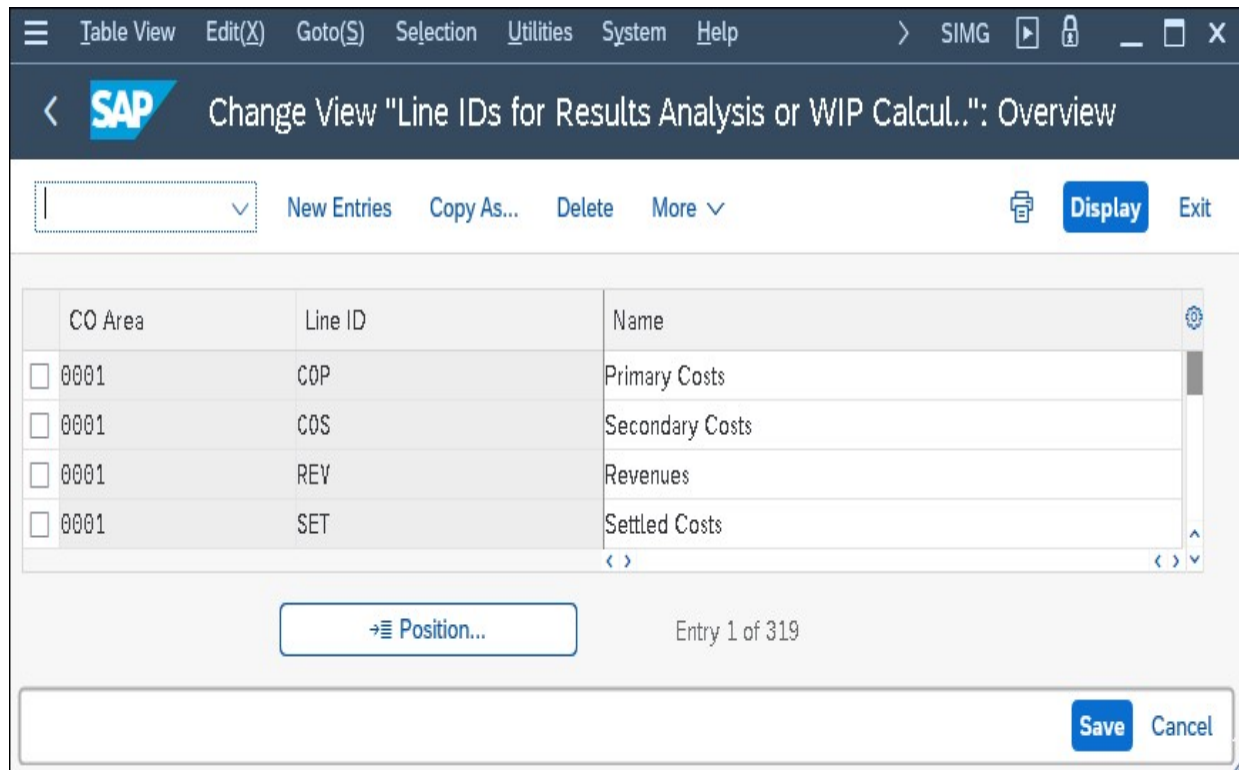


Figure 5.18 Defining Line IDs

The screenshot shows the SAP Change View 'Assignment of Cost Elements for WIP and Res.: Overview'. The interface includes a menu bar at the top with options like 'Table View', 'Edit(X)', 'Goto(S)', 'Selection', 'Utilities', 'System', and 'Help'. Below the menu bar is a header bar with the SAP logo and the title 'Change View "Assignment of Cost Elements for WIP and Res.": Overview'. A toolbar contains buttons for 'New Entries', 'Copy As...', 'Delete', 'Undo Change', 'Select All', 'Select Block', 'Deselect All', 'More', 'Display', and 'Exit'. The main area is a table with the following columns: 'CO ...', 'RA...', 'RA ...', 'Masked Cost Element', 'Origin', 'Masked Cost ...', 'Masked Activity...', 'Busi...', 'D V. App...', 'Account...', 'ReqToC...', 'OptToCap', 'CannotB...', '% OptToCap', and '% CannotB...'. The table contains five rows of data, each with a checkbox in the first column. Below the table is a 'Position...' button and the text 'Entry 1 of 1.214'. At the bottom right, there are 'Save' and 'Cancel' buttons.

CO ...	RA...	RA ...	Masked Cost Element	Origin	Masked Cost ...	Masked Activity...	Busi...	D V. App...	Account...	ReqToC...	OptToCap	CannotB...	% OptToCap	% CannotB...
<input type="checkbox"/>	0001	0	0000239000	+++	+++++++	+++++		+ +	++	COS				
<input type="checkbox"/>	0001	0	0000239010	+++	+++++++	+++++		+ +	++	COS				
<input type="checkbox"/>	0001	0	00004++++	+++				+ +	++	COP				
<input type="checkbox"/>	0001	0	00006++++	+++	+++++++	+++++		+ +	++	COS				
<input type="checkbox"/>	0001	0	00008++++	+++				+ +	++	COP				

Figure 5.19 Assignment of Cost Elements to Line IDs

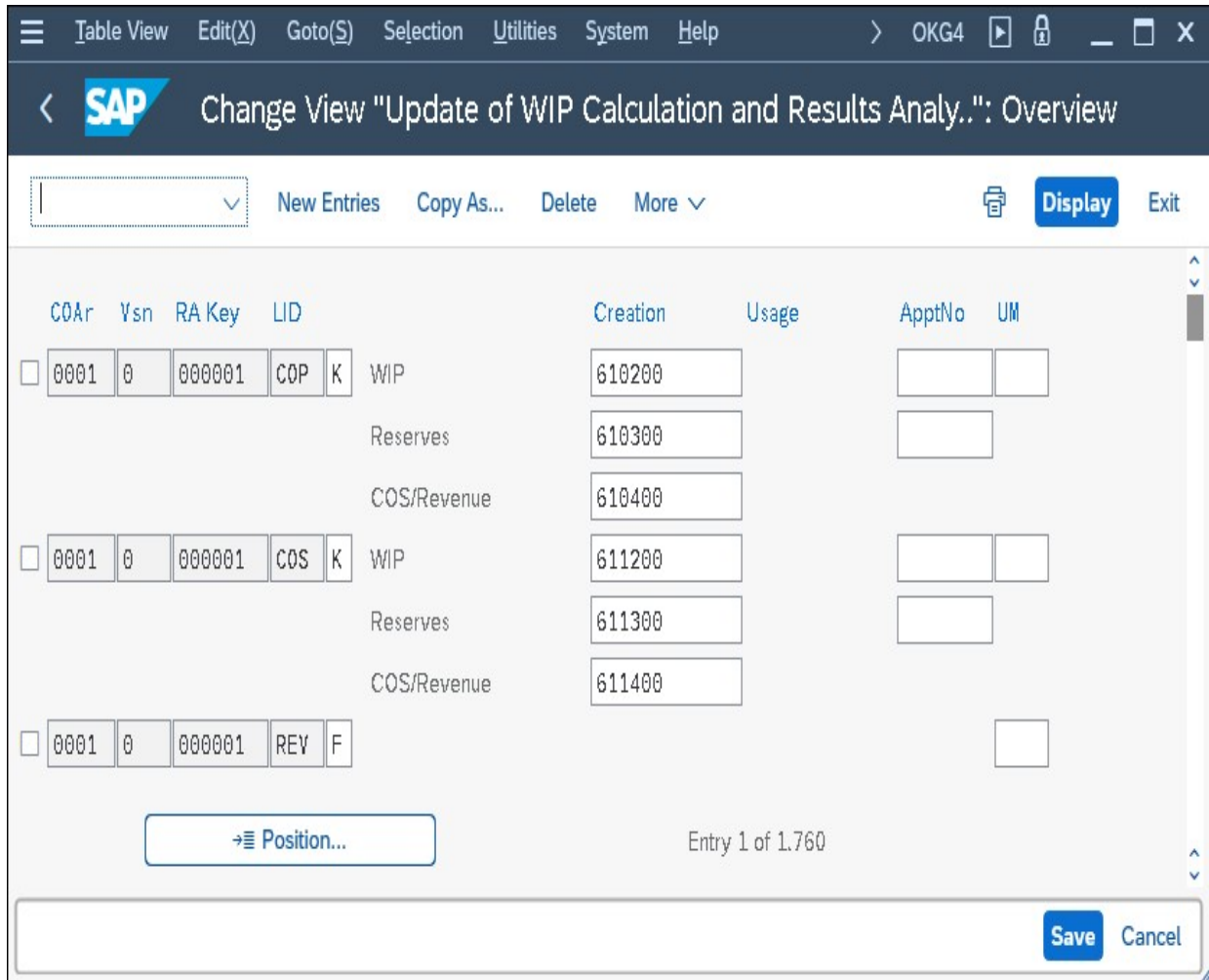


Figure 5.20 Defining Update Rules

Table View Edit(X) Goto(S) Selection Utilities System Help > OKG8

< SAP Change View "Posting Rules in WIP Calculation and Result..": Overview

New Entries Copy As... Delete Undo Change Select All Select Block More Display Exit

	CO Area	Company ...	RA Version	RA category	Bal./Creatio...	Cost Element	Record number	P&L Acct	BalSheetAcct	Accounting Princi...
<input type="checkbox"/>	0001	0001	0	WIPR			0	801000	791000	
<input type="checkbox"/>	0001	0001	0	RUCR			0	230000	89510	
<input type="checkbox"/>	0001	0001	0	RCCR			0	801000	791000	
<input type="checkbox"/>	0001	0001	0	RIML			0	230010	89520	
<input type="checkbox"/>	0001	0001	0	POCI			0	800300	140000	
<input type="checkbox"/>	0001	0001	0	POCS			0	800300	140000	
<input type="checkbox"/>	0001	0001	0	POCR			0	800310	793010	

< > Entry 1 of 334

Save Cancel

Figure 5.21 Defining Posting Rules

<https://t.me/PrMaB2>

Results Analysis Edit(X) Goto(S) Logs System Help > KKA2

Results Analysis for Project

WBS Element E-2616 Subordinate Objects: 0 Results Analysis Method: Customer
Version: 0 Results Analysis Type: E
Period: 1.2023 Cutoff Period: 16.2022 Profit Indicator: M
Currency: EUR Final Results Analysis: No
Custom Enhancements Active: No

Maintain Manually Next Period Previous Period Next Currency More Exit

Actual Data

	Cumulative	Periodic
Actual Revenue:	60.000,00	60.000,00
Actual Costs:	50.000,00	50.000,00
Not Included:	0,00	0,00

Plan Data of Valuation

Total	
Planned Revenue:	120.000,00
Planned Costs:	50.000,00
Planned Profit/Loss:	70.000,00
Not Included:	0,00

Calculated Profit/Loss

	Cumulative	Periodic
Revenue Affecting Net Income:	60.000,00	60.000,00
Costs Affecting Net Income:	25.000,00	25.000,00
Reserves for Imminent Loss:	0,00	0,00
Calculated Profit/Loss:	35.000,00	35.000,00

Key Figures

POC (%)	50,000
Planned Profit (%)	140,000

Inventories

	Cumulative	Periodic
Revenue in Excess of Billings:	0,00	0,00
Work in Process:	25.000,00	25.000,00
Capitalized Profit:	35.000,00	35.000,00

Save Cancel

Figure 5.22 Result of a Results Analysis

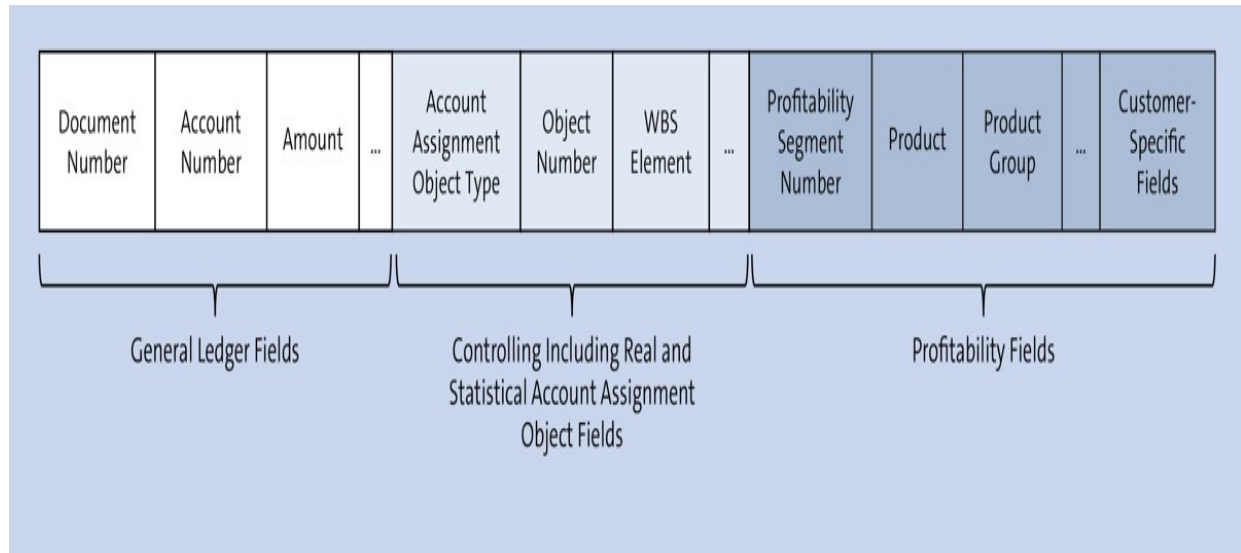


Figure 5.23 Schematic Structure of the Universal Journal (Table ACDOCA)

Incoming Orders/Balance Current data (05.01.2023 10:23:28)

Navigation

Object
Company Code
Period/Year
Val.category

Lead column	Revenues	Costs	Profit
New Order	120.000-	80.000	40.000-
Rejection	30.000-	15.000	15.000-
Changed Order	0	0	0
Plan change	0	0	0
Billed Values	150.000-	95.000	55.000-
Orders on hand	60.000-	38.000	22.000-

Save Definition Adapt report width Cancel

Figure 5.24 Evaluation of Project-Related Incoming Orders

The screenshot shows the SAP Change View 'Incoming Orders: Settings for Key': Details. The interface includes a top navigation bar with menu items like 'Table View', 'Edit(X)', 'Goto(S)', 'Selection', 'Utilities', 'System', and 'SIMG'. Below the navigation bar, there is a title bar with the SAP logo and the text 'Change View "Incoming Orders: Settings for Key": Details'. The main content area contains several fields and options:

- A dropdown menu (empty) with a downward arrow.
- Buttons: 'New Entries', 'Copy As...', 'More' (with a downward arrow), a printer icon, 'Display', and 'Exit'.
- Field: 'RA Key' with value '000001' and description 'Results Analysis (Int. Orders/Projects)'. The value '000001' is highlighted with a selection box.
- Field: 'CO Area' with value '0001' and description 'Controlling Area 0001'.
- Section: 'Hierarchy level in billing structure' with two radio button options: 'Project def.' (selected) and 'Billing element'.
- Section: 'Valuation basis' with a text input field for 'CO version' containing '0' and the label 'Plan/actual version'.
- Field: 'Resource-rel.billing' with an unchecked checkbox.
- Buttons: 'Save' and 'Cancel' at the bottom right.

Figure 5.25 Settings for a Results Analysis Key

The screenshot shows the SAP interface for 'Project-Related Incoming Orders'. The title bar includes menu options like 'List', 'Edit(X)', 'Goto(S)', 'Settings(P)', 'Extras(D)', 'Environment', 'System', and 'Help'. The main header displays the SAP logo and the title 'Project-Related Incoming Orders'. Below the header, there are navigation and action buttons: 'Previous list level', 'Display messages', 'Display master record', 'Sort in ascending order', 'More', 'Find', and 'Exit'. The main content area is titled 'Detail List: Incoming Order Values' and contains a table with the following data:

Project	Billing element	VCat	Cost Elem.	Revenues	Other income	Costs	Total Quantity
E7608	E-7608	AEGA	650100	30.000,00-	0,00	0,00	0,000
E7608	E-7608	AEGA	650300	0,00	0,00	15.000,00	0,000
* E7608	E-7608	AEGA		30.000,00-	0,00	15.000,00	0,000
E7608	E-7608	ABAF	650100	30.000,00-	0,00	0,00	0,000
E7608	E-7608	ABAF	650400	0,00	0,00	17.000,00	0,000
* E7608	E-7608	ABAF		30.000,00-	0,00	17.000,00	0,000
** E7608	E-7608			60.000,00-	0,00	32.000,00	0,000
*** E7608				60.000,00-	0,00	32.000,00	0,000

Figure 5.26 Detail List of a Project-Related Incoming Order Determination

SAP Cost Forecast: Value List							
Period	FYear	CElem	Plan costs	Actual costs	Commitment	Updated res.cst	Updtd ovrll costs
Network Activity Project							
914302 0010 E-2616							
* 914302 0010							
			14.175,01	1.000,00	0,00	17.010,00	18.010,00
914302 0020 E-2616							
10	2022	620000	5.000,00	800,00	0,00	1.650,00	2.450,00
10	2022	655200	250,00	0,00	0,00	82,50	82,50
10	2022	655300	1.050,00	0,00	0,00	346,50	346,50
10	2022	655400	787,50	0,00	0,00	259,88	259,88
11	2022	620000	5.000,00	0,00	0,00	5.776,20	5.776,20
11	2022	655200	250,00	0,00	0,00	288,81	288,81
11	2022	655300	1.050,00	0,00	0,00	1.213,00	1.213,00
11	2022	655400	787,50	0,00	0,00	909,75	909,75
12	2022	620000	0,00	0,00	0,00	5.773,80	5.773,80
12	2022	655200	0,00	0,00	0,00	288,69	288,69
12	2022	655300	0,00	0,00	0,00	1.212,50	1.212,50
12	2022	655400	0,00	0,00	0,00	909,37	909,37
* 914302 0020							
			14.175,00	800,00	0,00	18.711,00	19.511,00
** 914302							
			28.350,01	1.800,00	0,00	35.721,00	37.521,00

Figure 5.27 Result of a Cost Forecast

The screenshot displays the SAP 'Maintain Settlement Rule: Overview' window. At the top, there is a menu bar with 'Settlement rule', 'Edit', 'Goto', 'System', and 'Help'. The window title is 'Maintain Settlement Rule: Overview'. Below the title bar, there are navigation buttons: 'Details', 'New rule', 'Delete rule', 'Check', 'Settlement hierarchy', and 'More'. A search field contains 'WBS element: E-2610.4'. Below this, it indicates 'Assembly' and 'Actual settlement'. The main section is titled 'Default distribution rules' and contains a table with the following data:

Cat	Settlement Receiver	Receiver Short Text	%	Equivalence No.	Settlement Type	Source Assignment	No.	From Period	From Fiscal Yr	To Period	To Fiscal Ye:
CTR	SAP-DUMMY	SAP dummy	100,00		PRE	BES	1				
CTR	SAP-DUMMY	SAP dummy	100,00		PRE	LEI	2				
FXA	40000000046-0	Assembly	100,00	0	AUC		3	0		0	
FXA	10000000030-0	01.RU04.01		1	FUL	MAT	4				

Figure 5.28 Distribution Rules of a Settlement Rule

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities System Help > SIMG

SAP Change View "Settlement Profile": Details

New Entries Copy As... Delete Undo Change Previous Entry Next Entry More Display Exit

Settlement Profile: 20 Overhead costs

Actual Costs/Cost of Sales	Valid Receivers
<input checked="" type="radio"/> To Be Settled in Full <input type="radio"/> Can Be Settled <input type="radio"/> Not for Settlement	G/L Account: 1 Settlement Optional Cost Center: 1 Settlement Optional Order: Settlement Not Allowed WBS Element: 1 Settlement Optional Fixed Asset: 1 Settlement Optional Material: Settlement Not Allowed Network: Settlement Not Allowed Profit. Segment: Settlement Not Allowed Sales Order: Settlement Not Allowed Cost Objects: Settlement Not Allowed Order Item: Settlement Not Allowed Business Proc.: Settlement Not Allowed Real Est. Object: 1 Settlement Optional
Down Payments <input checked="" type="radio"/> To Be Settled <input type="radio"/> Not for Settlement	
Default Values Allocation Structure: A1 C0 allocation structure Source Structure: PA transfer struct.: E1 PA Transfer Structure 1 Default Object Type: CTR Cost Center	
Indicators <input type="checkbox"/> 100%-Validation <input checked="" type="checkbox"/> %-Settlement <input checked="" type="checkbox"/> Equivalence Numbers <input checked="" type="checkbox"/> Amount Settlement <input type="checkbox"/> Variances to Costing-Based PA <input type="checkbox"/> Summarize Using Source Cost Element	Other Parameters Document Type: AB Accounting Document Max.No.Dist.Rls: 10 Residence Time: 3 Months Currencies/Ldgs: C Freely defined currencies

Save Cancel

Figure 5.29 Definition of a Settlement Profile

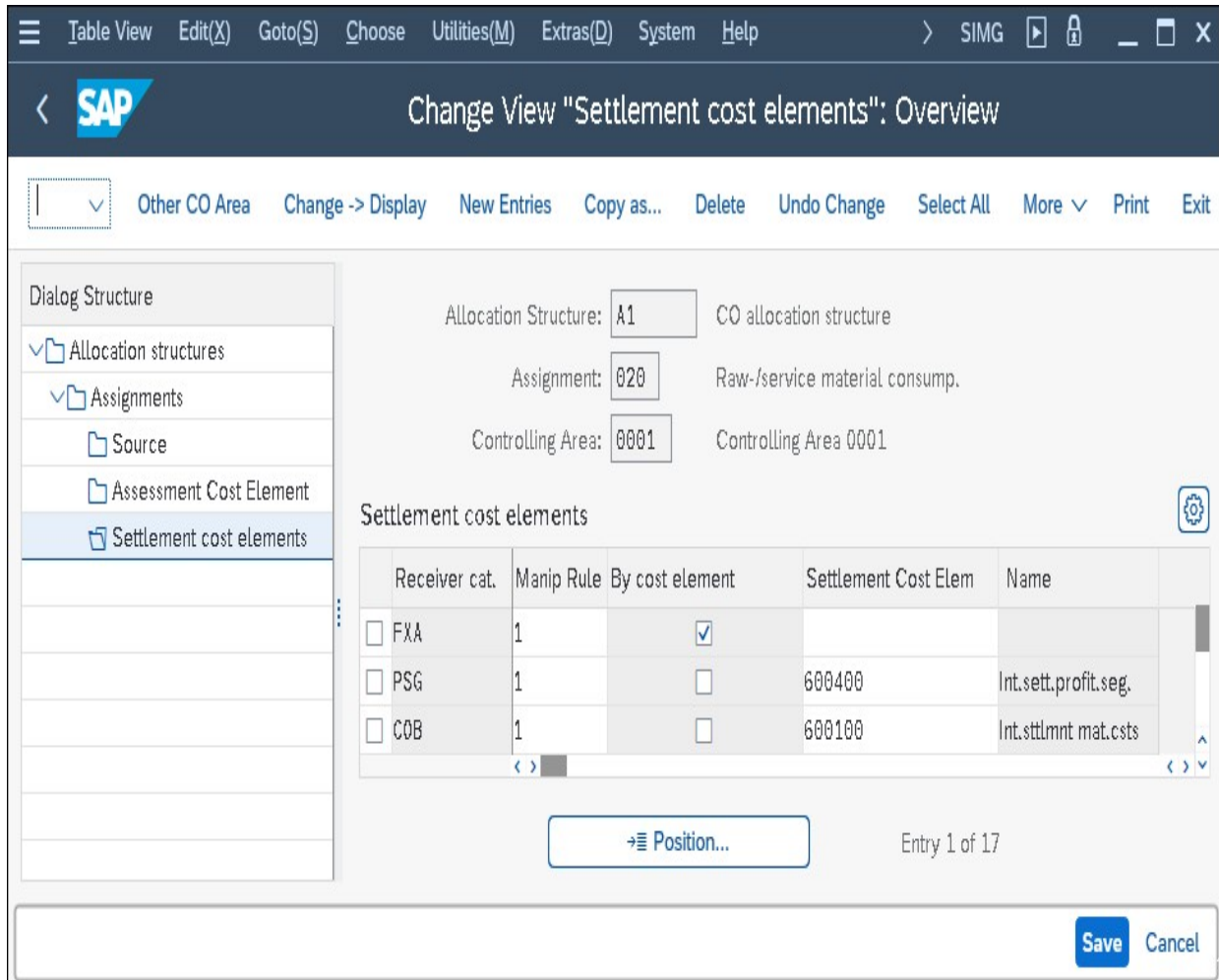


Figure 5.30 Defining the Settlement Cost Elements in an Allocation Structure

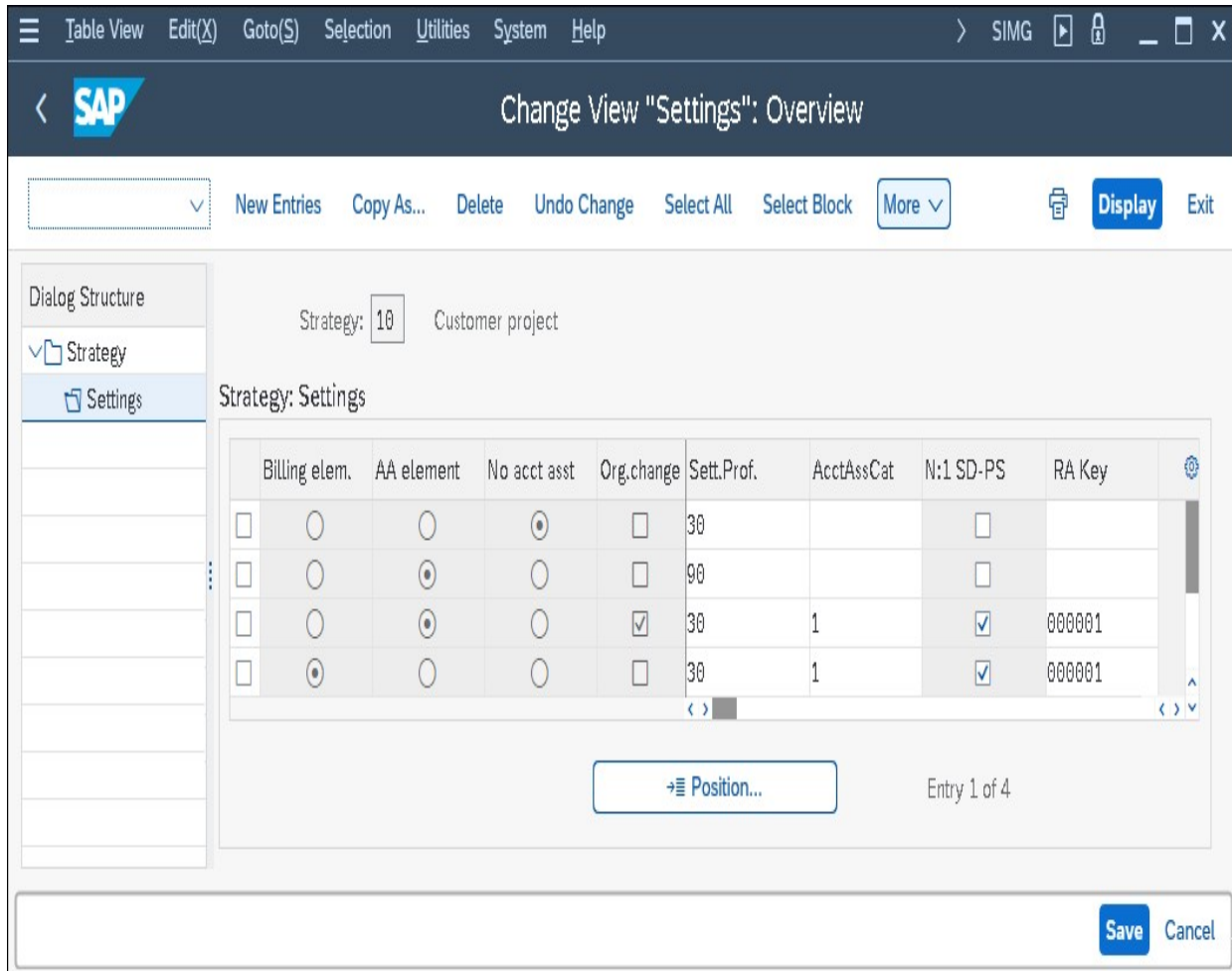


Figure 5.31 Definition of a Strategy for Generating Settlement Rules for WBS Elements

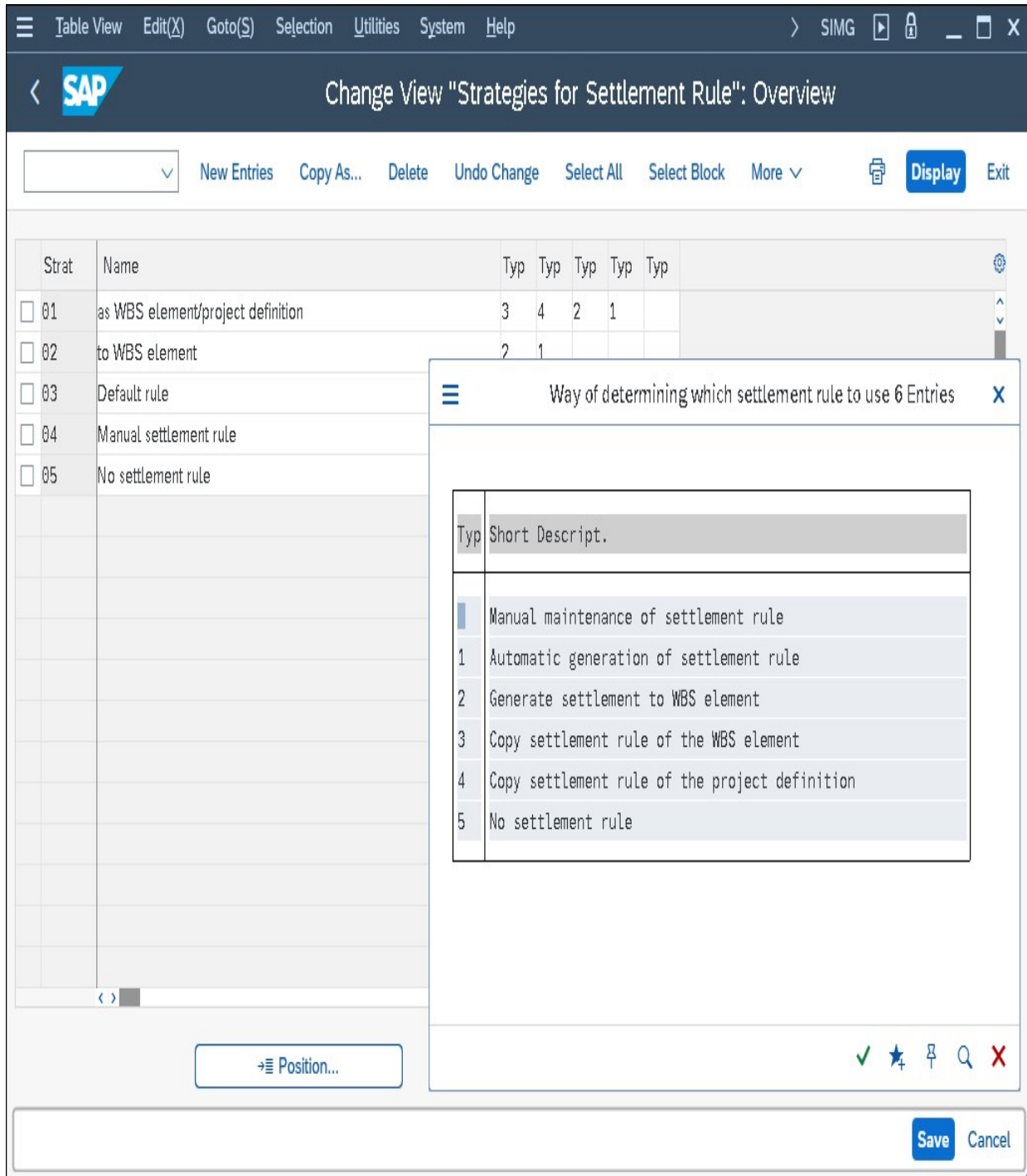


Figure 5.32 Defining Strategies for Generating Settlement Rules for Networks

Settlement Edit(X) Goto(S) Extras(D) Environment System Help > CJ88

< **SAP** Actual Settlement: Project/WBS Element/Network

More ▾ Exit

Project: E-2616

or

WBS Element:

or

Network:

With hierarchy

With orders

Parameters

Settlement Period: * 10 Posting Period:

Fiscal Year: * 2022 Asset Value Date:

Processing Type: * 1 Automatic ▾

Processing Options

Test Run

Detail List

Check Trans. Data

Layouts

Execute

Figure 5.33 Initial Screen of the Actual Settlement of a Project

Actual Settlement: Project/WBS Element/Network Detail list

Basic list | Detail list of accrual data for FI | Choose detail | More

Find | Copy | Exit

Detail list - Settled values

Senders	Short text: Sender	Receiver	Val/COArea Crpy	Additional information
WBS E-2610.4	Assembly	FXA 40000000046-0	2.000,00	AUC capitaliz.
		CTR SAP-DUMMY	3.000,00	
			5.000,00	

Figure 5.34 Detailed List of an Actual Settlement

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) Selection Utilities System Help > OITA [lock] [min] [max] [close]

< **SAP** Change View "Investment profile": Details

[dropdown] New Entries Copy As... Delete Undo Change More ▾ [print] **Display** Exit

Investment Profile:

Investment measure

Manage AuC
 AuC per source structure/assignmt

Inv.meas. ast.class:

Fixed default class

Settlement

Summary settlement
 Line item settlement and list of origins

Depreciation simulation

Sim. asset class:

Fixed default class
 Ident. valuation
 Comparison w/ actual settlemts

Type of distribution rules **Comparison value for amount distribution**

Percentage rates
 Equival. numbers
 Amounts
 Amounts and percentages
 Amounts and equiv. numbers

Ovr/ plan val. Version:
 Budget

Save **Cancel**

Figure 5.35 Definition of an Investment Profile

<https://t.me/PrMaB2>

Evaluation Edit Goto View Settings Extras/environment System Help > CN41

SAP Project Info System: Structure Initial Screen

Save as Variant... Choose Get Variant... Hide dynamic selections Delete More Print Exit

Dynamic selections

Master data WBS element
Project Type:

Org. units WBS element
Company code:

User-def. fields WBS el.
Ufield 1 WBS element:

Project Management Selections (PS Info profile: 000000000001, Changed:)

Project: to:

WBS Element: to:

Network/order: to:

Activity: to:

Materials in network: to:

Additional WBS element criteria

Level: to:

Origin of data (physical)

Data from database:

Data from archive:

Archive:

Origin of data (logical)

Current Data:

Version data:

Structure-related Object-related

Project version:

Execute

Figure 6.1 Initial Screen of the Structure Overview with an Active Dynamic Selection

<https://t.me/PrMaB2>

The screenshot displays the SAP Change View for 'Project Info System: Database settings'. The window title is 'Change View "Project Info System: Database settings": Details'. The interface includes a menu bar with options like 'Table View', 'Edit', 'Goto', 'Selection', 'Utilities', 'System', and 'Help'. Below the menu bar, there are buttons for 'New Entries', 'Copy As...', 'Delete', 'More', 'Display', and 'Exit'. The main content area is divided into several sections:

- Database prof.:** 000000000001
- Last changed by:** SAP
- Project view: *** 000000000001
- Maximum Level:** 99
- Standard selection (structure):** Standard selection (structure)
- Protected:**
- Not Changeable:**
- Commercial eval.:**
- Superior obj.s:**

The **Origin** section contains:

- Archive data
- Version data
- Std structures

The **Selection Criteria** section is divided into three sub-sections:

- Project def.:** Project def., Sales document, Component
- WBS element:** WBS element, Incl. Hierarchy, Dynamic sels
- Network/order:** For WBS, Network, Prod. order, Others, Maint. order, CO order, Incl.subnets

The **Activity** section contains:

- For WBS, Network act., Prodn ord.acts, Others, Act./Main.order

The **Miscellaneous** section contains:

- Rel. view (3)
- Capacity
- Confirmation
- PRT
- Milestone
- PS texts/docs
- Purchasing data
- Planned order
- Expenses
- Valuated qty
- Earned value

At the bottom right, there are 'Save' and 'Cancel' buttons.

Figure 6.2 Defining a Database Profile

Evaluation Edit(X) Goto(S) View Settings(P) Extras/environment System Help

CN41 X

SAP Project Info System: Structure Overview

Different Application Toolbar Choose fields... Select block Select All Deselect All Remove entry Expand All More v Exit

No. of Project object: 13(83)

1 Critical 2 Remaining work

Exce	Project object	Object Type	EFinish	Finish(A	Project cost sch 000	Actual costs	Work (A)	Status
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	- E-2610	Project definition	05.05.23	02.12.22	357.274,70 EUR	28.695,00 EUR	66,0 H	PREL // STA1
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	- E-2610	WBS element	05.05.23	02.12.22	357.274,70 EUR	28.695,00 EUR	66,0 H	PREL PCNF ACPT NSCH
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	→ 00000000305	Milestone	14.11.22	14.11.22				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	→ 00000000362	Milestone	08.05.23					
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	→ 4104286	Network	05.04.23	21.11.22	9.200,00 EUR	16.365,00 EUR	45,0 H	ACAS MANC PCNF PRC
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	→ 4104286 0010	Int. Processed Act	21.11.22	21.11.22	7.200,00 EUR	16.365,00 EUR	45,0 H	CNF MCNF REL SETC
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	→ 00000000306	Milestone	21.11.22	21.11.22				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	→ FuncDesc	PS text						
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	→ 4104286 0020	General Costs Acti	21.11.22		2.000,00 EUR	0,00 EUR		MCNF PCNF REL SETC
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	+ E-2610.1	WBS element	05.01.23	02.12.22	57.585,00 EUR	12.330,00 EUR	21,0 H	PREL
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	+ E-2610.2	WBS element	08.02.23		181.310,70 EUR	0,00 EUR	0,0 H	CRTD
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	+ E-2610.3	WBS element	05.04.23		109.179,00 EUR	0,00 EUR	0,0 H	CRTD NSCH NTUP
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	+ E-2610.4	WBS element	05.05.23		0,00 EUR	0,00 EUR		CRTD NSCH

Figure 6.3 Evaluating a Project in the Structure Overview

<https://t.me/PrMaB2>

Table View Edit Goto Selection Utilities System Help > OPSM [Icons]

SAP Change View "Project Info System: Overall Profile": Details

[Dropdown] New Entries Copy As... Delete Undo Change More [Display] Exit

PS Info Profile: 000000000001 Std profile: structure overview (desc.)
Database prof.: 000000000001

Changes
Last chg: SAP Protected No changes

Edit profile/variant **Short texts**

Overview profiles	Resource profiles	Action selection
Structure overy: 000000000001	Project def.: SAPPISPROJ	Selecting keys: <input type="checkbox"/>
Project def.: 000000000001	WBS elements: SAPPISPRPS	Selecting flds: <input type="checkbox"/>
WBS elements: 000000000001		<input type="checkbox"/> Cursor > select
Sales documents: 000000000001		
Sales doc.items: 000000000001		
Planned Orders: 000000000001	Planned Orders: SAPPISPLAF	Translation
Orders: 000000000001	Orders: SAPPISAUFK	Unit conversion: <input type="text"/>
Networks: 000000000001	Networks: SAPPISNETZ	
Activities: 000000000001	Act./elements: SAPPISACT	
Relationship: 000000000001	Relationships: SAPPISAFAB	
Milestones: 000000000001	Milestones: SAPPISAFAB	
PRT: 000000000001	PRT: SAPPISAFFH	
Cap.reqmts: 000000000001	Capacity reqmts: SAPPISKBED	
Components: 000000000001	Components: SAPPISRESB	
Confirmations: 000000000001	Confirmations: SAPPISAFRU	
Period Drilldwn: 000000000001		

Text modules
Title:
Header:

Structure Graphic	Overview variants
Graphic prf: PS 000000000001 0	Overview variant hdr: <input type="text"/>
	Overv. variant item: <input type="text"/>

Save **Cancel**

Figure 6.4 Defining a PS Info Profile

The screenshot displays the SAP Project Info System: Structure Initial Screen. The interface includes a menu bar at the top with options like Evaluation, Edit(X), Goto(S), View, Settings(P), Extras/Environment, System, and Help. Below the menu bar is the SAP logo and the title 'Project Info System: Structure Initial Screen'. A toolbar contains various icons for navigation and actions, including a search icon, a refresh icon, and a 'Documents' button. The main area is a table titled 'Project Structure Overview' with columns for Title, BasicStartDate, Basic finish, Actual start, Actual finish, Proj.cost plan, Actual costs, and Status. The table lists various project components such as Robot Model 1, Project Kick-Off, Specification, Insurance Costs, Engineering, Procurement, Assembly, and Acceptance, each with associated dates and costs.

Project Structure Overview	Title	BasicStartDate	Basic finish	Actual start	Actual finish	Proj.cost plan	Actual costs	Status
Robot Model 1	E-2610	30.09.2022	06.04.2023	14.11.2022	02.12.2022	186.030,50	8.250,00	PREL // STA1
Robot Model 1	E-2610	30.09.2022	06.04.2023	14.11.2022	02.12.2022	186.030,50	8.250,00	PREL PCNF NTUP // ANG
Project Kick-Off	000000000305			14.11.2022	14.11.2022			
Robot Model 1	4104286	07.11.2022	07.03.2023	14.11.2022	21.11.2022	8.000,00	6.750,00	ACAS MANC PCNF PRC
Specification	4104286 0010			14.11.2022	21.11.2022	6.000,00	6.750,00	CNF MCNF REL SETC //
Start Specification and Dow	000000000306			21.11.2022	21.11.2022			
SPECIFICATION	FuncDesc							
4104286 0010 1	4104286 0010 1			14.11.2022	21.11.2022			
Insurance Costs	4104286 0020					2.000,00	0,00	MCNF PCNF REL SETC //
Engineering	E-2610.1	14.11.2022	09.12.2022	21.11.2022	02.12.2022	22.786,50	1.500,00	PREL
Procurement	E-2610.2	23.11.2022	10.01.2023			137.065,00	0,00	CRTD
Procurement Mechatronics	E-2610.2.1	16.12.2022	30.12.2022			44.910,00	0,00	CRTD NTUP
Procurement Control Units	4104286 0060	16.12.2022	16.12.2022			44.910,00	0,00	CRTD SETC // STA1END
Controller	15083094 30 555784	16.12.2022	16.12.2022			0,00	0,00	CRTD
Procurement Shell	E-2610.2.2	22.12.2022	10.01.2023			92.155,00	0,00	CRTD NTUP
Assembly	E-2610.3	30.09.2022	07.03.2023			18.179,00	0,00	CRTD NTUP
External Quality Assurance	4104286 0080					8.382,00	0,00	CRTD SETC // STA1END
Pre-Assembly	4104286 0090	30.09.2022	30.09.2022			1.200,00	0,00	CRTD SETC // STA1END
Delivery	4104286 0100					3.797,00	0,00	CRTD SETC // STA1END
Final Assembly	4104286 0110					4.800,00	0,00	CRTD SETC // STA1END
Final Assembly	000000000309							
Acceptance	E-2610.4	13.03.2023	06.04.2023			0,00	0,00	CRTD
Acceptance and Project Closu	000000000310							

Figure 6.5 Evaluating a Project in the Project Structure Overview

Project Info System: Activities Overview

No. of Act. Elem: 11 Activity Element

1 Later 2 Remaining work

Exce	Act.	Elem	Ctrl	Activity desc.	ErLStrt(B)	LtFin (B)	Act. start	Act. finish	Work	Work (A)	Work (R)	Status
		Total							250,0 H	55,0 H	205,0 H	
<input checked="" type="checkbox"/>	00	0010		PS01 Specification	07.11.2022	11.11.2022	14.11.2022	21.11.2022	40,0 H	45,0 H	0,0 H	CNF MCNF REL SETC
<input checked="" type="checkbox"/>	00	0020		PS03 Insurance Costs	11.11.2022	07.03.2023						MCNF PCNF REL SETC
<input checked="" type="checkbox"/>	00	0030		PS02 External Engineering	14.11.2022	03.12.2022						REL SETC // STA1
<input checked="" type="checkbox"/>	0A	0040		PS01 Engineering Electrics	14.11.2022	02.12.2022	21.11.2022	02.12.2022	50,0 H	10,0 H	45,0 H	MCNF PCNF REL SETC
<input checked="" type="checkbox"/>	0A	0050		PS01 Engineering Mechanics	14.11.2022	09.12.2022			60,0 H	0,0 H	60,0 H	REL SETC // STA1
<input checked="" type="checkbox"/>	0A	0060		PS01 Procurement Control Units	16.12.2022	30.12.2022			20,0 H	0,0 H	20,0 H	CRTD SETC // STA1
<input checked="" type="checkbox"/>	0A	0070		PS01 Procurement Shell	22.12.2022	10.01.2023			10,0 H	0,0 H	10,0 H	CRTD SETC // STA1
<input checked="" type="checkbox"/>	00	0080		PS04 External Quality Assurance	01.03.2023	07.03.2023						CRTD SETC // STA1
<input checked="" type="checkbox"/>	0A	0090		PS01 Pre-Assembly	21.02.2023	27.02.2023			10,0 H	0,0 H	10,0 H	CRTD SETC // STA1
<input checked="" type="checkbox"/>	0A	0100		PS01 Delivery	28.02.2023	01.03.2023			20,0 H	0,0 H	20,0 H	CRTD SETC // STA1
<input checked="" type="checkbox"/>	0A	0110		PS01 Final Assembly	02.03.2023	07.03.2023			40,0 H	0,0 H	40,0 H	CRTD SETC // STA1

Save Cancel

Figure 6.6 Enhanced Individual Overview

Excep...	Milestone number	Description	Usage	WBS Element	Order/Network	Activity	Sched. date (basic)	Actual date	Later
<input type="checkbox"/>	305	Project Kick-Off	00002	E-2610			07.11.2022	14.11.2022	5,0
<input type="checkbox"/>	306	Start Specification and Down Payment	00002	E-2610	4104286	0010	21.11.2022	21.11.2022	0,0
<input type="checkbox"/>	307	End of Engineering	00004	E-2610.1.2	4104286	0050	09.12.2022		0,0
<input type="checkbox"/>	308	End of Pre-Assembly	00005	E-2610.3	4104286	0090	27.02.2023		0,0
<input type="checkbox"/>	309	Final Assembly	00005	E-2610.3	4104286	0110	07.03.2023		0,0
<input type="checkbox"/>	310	Acceptance and Project Closure	00006	E-2610.4			06.04.2023		0,0

Figure 6.7 ALV-Based Individual Overview

The screenshot displays the SAP Fiori 'WBS Element Overview' application. At the top, the SAP logo and the title 'WBS Element Overview' are visible. Below the title, there are filter fields for 'Project Definition' (set to 'Robot Model 1'), 'WBS Element', 'Level', and 'System Status' (set to '*CRTD*'). A 'Go' button and 'Adapt Filters (2)' are also present. The main content area shows a table of 'WBS Elements (8)' with columns for Project Definition Name, WBS Element, WBS Element Name, Level, System Status, and dates. A context menu is open over the table, listing options like 'Network Overview', 'Network Activity Overview', 'Milestone Overview', 'Material Component Overview', 'Project Builder - Change WBS Element', and 'Project Builder - Display WBS Element'.

Project Defin...	Project Definition Name	WBS Element	WBS Element Name	Level	System Status			
E-2610	Robot Model 1	E-2610	Robot Model 1	1	CRTD, NSCH, PCNF, PRE			
E-2610	Robot Model 1	E-2610.1	Engineering	2	CRTD, PREL			
E-2610	Robot Model 1	E-2610.1.2	Engineering Mechanics	3	CRTD, NSCH, PREL			
E-2610	Robot Model 1	E-2610.2	Procurement	2	CRTD			
E-2610	Robot Model 1	E-2610.2.1	Procurement Mechatronics	3	CRTD, NSCH			
E-2610	Robot Model 1	E-2610.2.2	Procurement Shell	3	CRTD, NSCH	24.01.2023	08.02.2023	>
E-2610	Robot Model 1	E-2610.3	Assembly	2	CRTD, NSCH	22.03.2023	05.04.2023	>
E-2610	Robot Model 1	E-2610.4	Acceptance	2	CRTD, NSCH	06.04.2023	05.05.2023	>

Figure 6.8 Example of an SAP Fiori Overview App

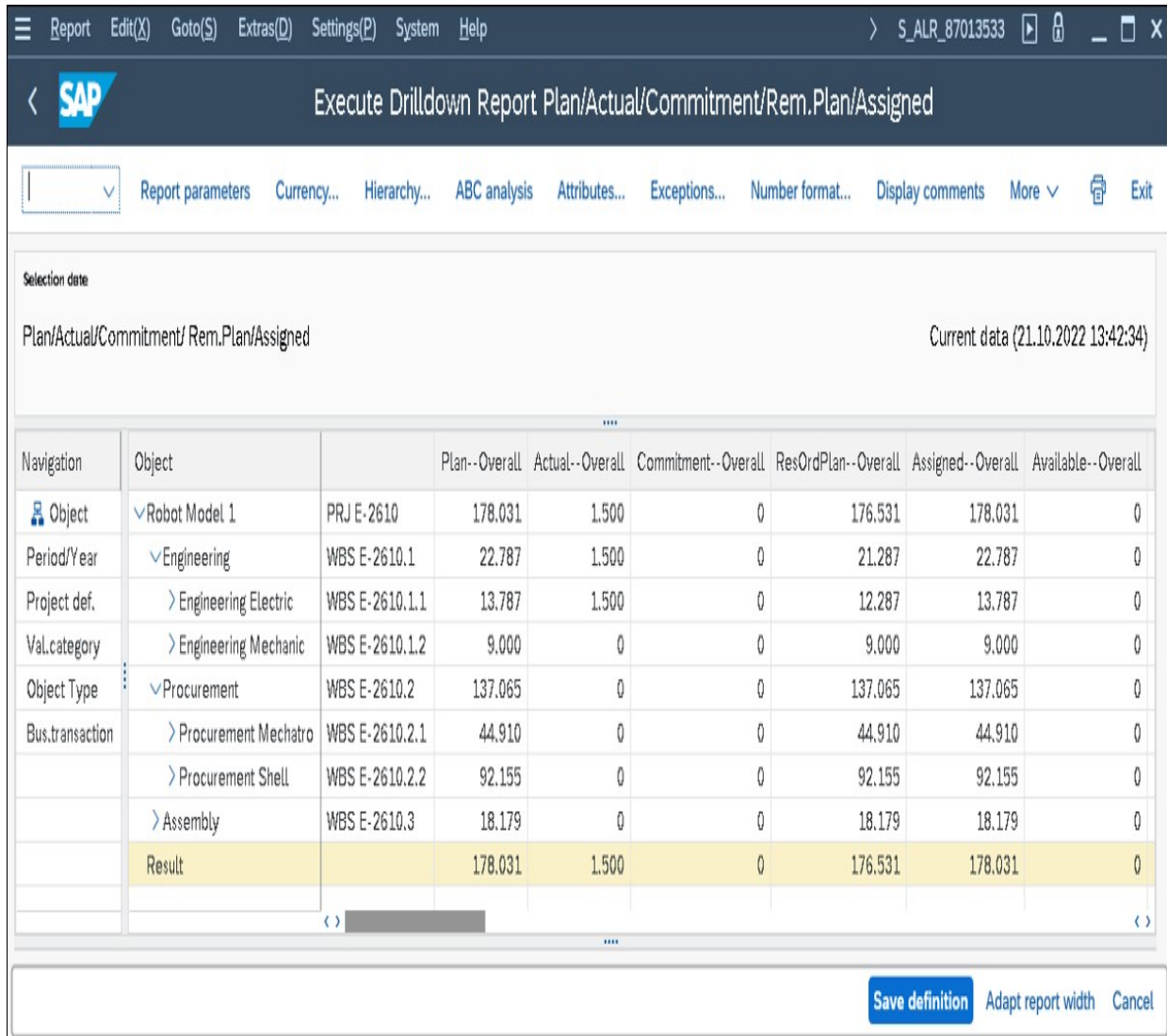


Figure 6.9 Graphical Report Output of a Hierarchy Report

Form Edit(X) Goto(S) Extras(D) Formatting Environment System Help > CJE5

Report Painter: Change Form

Hide navigation Display <-> Change Check Change/display Insert element Undo Select/deselect More v Q Q Print Exit

Form	Description
11ERL1F	Order History
12CTC1	Forecasting
12EVA1	Plan/Act./Cmmt/ResPl
12EVA2	Earned Value: Detail
12KST1	Costs: Structure
12KST1A	Costs: Bdg/Act/Cmmt
12KST1B	Costs: Bdg/Act/Var.
12KST1C	Plan/Act./Cmmt/ResPl
12KST1D	Plan/Act. Comparison
12KST1E	Costs: Plan/Act/Exp.
12KST1F	Costs: Cmmt Detail
12KST1G	Plan1/Plan2/Act/Cmmt
12KST1H	Actual Currency
12KST1I	Proj. Ver. Plan/Act.
12KST1J	Project Ver. Plan
12KST1K	Act/Plan/Tgt/T Total
12KST1L	Project Interest

Form 12KST1C Plan/Act./Cmmt/ResPl Page 1 / 1

Lead column	Plan	Actual	Commitment	Res0rdPlan	Assigned	Available
Overall values	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx
Previous years	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx
\$0FY	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx
\$0FY	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx
\$0FY	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx
\$0FY and Following	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx
Total of years	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx	xxx.xxx.xxx

Save Enter Cancel

Figure 6.10 Defining a Detail List of a Form

Layout of Drilldown List

Characteristic	Overall values					
	Plan	Actual	Commitment	ResOrdPlan	Assigned	Available
Value 1	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX
Value 2	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX
Value 3	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX
Value 4	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX
.						
.						
.						
Result	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX	XXX.XXX.XXX

✓ < > >> ✗

Figure 6.11 Defining a Drilldown List

<https://t.me/PrMaB2>

Drilldown report Edit(X) Goto(S) Extras(D) Environment System Help > CJE3

SAP Display Report: Settings

Display <-> Change Delete Execute Report parameters Transport Translate More v Exit

Report	Description
Report type	
001	Project Report
10KEF1A	Costs/Revenues/Expenditures/Receipts
11ERL1	Structure
11ERL1A	Planned Contribution Margin
11ERL1B	Actual Contribution Margin
11ERL1C	Plan/Actual/Variance
11ERL1D	Quotation/Order/Plan/Actual
11ERL1E	Project Results
11ERL1F	Incoming Orders/Balance
12CTC1	Forecast
12EVA1	Progress Analysis
12EVA2	Progress Analysis: Detail
12KST1	Structure
12KST1A	Budget/Actual/Commitmt/Rem.Plan/Assigned
12KST1B	Budget/Actual/Variance
12KST1C	Plan/Actual/Commitment/Rem.Plan/Assigned
12KST1D	Plan/Actual/Variance
12KST1E	Plan/Actual/Down Payment as Expense
12KST1F	Commitment Detail
12KST1G	Plan 1/Plan 2/Actual/Commitments
12KST1H	Actual in COArea/Object/Trans. Currency
12KST1I	Project Version Comparison: Actual/Plan
12KST1J	Project Version Comparison: Plan
12KST1K	Actual/Plan/Cur. Target/Cur. Total Costs
12KST1L	Project Interest: Plan/Actual

Report: 12KST1C Plan/Actual/Commitment/Rem.Plan/Assigned
Form: 12KST1C Display

Report type: Project Report

Characteristics Variables **OutputType** Options

Output type Layout

Graphical Report Output

Output areas: 105 Info control, navigation ctrl, drilldown ctrl, d...v

HTML templ.: 1 SAP Template

Headers Footers

Classic drilldown
 Basic list: D-down
 Basic list: Detail
 Object list (ALV)
 XXL (spreadsheet)
 Available on selection screen

Save Cancel

Figure 6.12 Report Definition of a Hierarchy Report

The screenshot shows the SAP Drilldown Report interface. The title bar includes 'SAP' and 'Execute Drilldown Report Plan/Actual/Commitment/Rem.Plan/Assigned'. The menu bar contains 'Report', 'Edit(X)', 'Goto(S)', 'Extras(D)', 'Settings(P)', 'System', and 'Help'. The status bar shows 'S_ALR_87013533'. The main area displays 'Selection date' as 'Plan/Actual/Commitment/ Rem.Plan/Assigned' and 'Current data (21.10.2022 13:42:34)'. A table below shows a hierarchy of data with columns for 'Navigation', 'P..', 'N..', 'Text', 'Val.category', 'Plan--Overall', 'Actual--Overall', 'Commitment-...', 'ResOrdPlan...', 'Assigned-...', and 'Available--Overall'. The table is broken down by 'Val.category'. A status bar at the bottom indicates 'Report broken down by "Val.category"' and includes buttons for 'Save definition', 'Adapt report width', and 'Cancel'.

Navigation	P..	N..	Text	Val.category	Plan--Overall	Actual--Overall	Commitment-...	ResOrdPlan...	Assigned-...	Available--Overall
Object				400 Warehouse issue	95.000	0	0	0	0	95.000
WBS E-2610.2	^	v	Procurement	620 Overhead	37.715	0	0	0	0	37.715
Period/Year				640 Internal activity al	3.750	0	0	0	0	3.750
012.2022	^	v	12. Period	Result	136.465	0	0	0	0	136.465
Project def.										
Val.category										
Object Type										
Bus.transaction										

Figure 6.13 Drilldown in a Hierarchy Report

Report Edit(X) Goto(S) Navigate Extras(D) Settings(P) System Help > S_ALR_87013532

SAP Execute Plan/Actual/Variance: Overview

Report parameters Export... Graphics... Send... Sort in ascending order More Find Find Next Exit

Plan/Actual/Variance Current data (21.10.2022 13:48:50)

Navigation
 Trans. Currency: Project def. PRJ E-2610 Robot Model 1
 Bus.transaction
 Period/Year

Value category	Total of years				Previous years				2022			
	Plan	Actual	Variance	Var %	Plan	Actual	Variance	Var %	Plan	Actual	Variance	Var %
0400 Warehouse issue	106.500	0	106.500	100,0	0	0	0	0/0	99.500	0	99.500	100,0
0620 Overhead	42.281	0	42.281	100,0	0	0	0	0/0	39.502	0	39.502	100,0
0640 Internal activity al	29.250	1.500	27.750	94,9	0	0	0	0/0	20.250	1.500	18.750	92,6

Report broken down by "Val.category" Save Definition Adapt report width Cancel

Figure 6.14 Detail View of a Hierarchy Report in the Classical Display

SAP **Ist/Obl./Summe/Plan**

Navigation on/off | Print page formatting on/off | Column freeze on/off | Options / Office Integration | Send report | More | Search | Print | Exit

Variation: Object

- PRJ E-2610 Robot Model 1
 - WBS E-2610 Robot Model 1 (Cum.)
 - NWA 4104286 0010 Specification
 - NWA 4104286 0020 Insurance Costs
 - WBS E-2610.1 Engineering (Cum.)**
 - WBS E-2610.1.1 Engineering Electrics (Cum.)
 - NWA 4104286 0030 External Engineering
 - NWA 4104286 0040 Engineering Electrics
 - WBS E-2610.1.2 Engineering Mechanics (Cum.)
 - NWA 4104286 0050 Engineering Mechanics
 - WBS E-2610.2 Procurement (Cum.)
 - WBS E-2610.3 Assembly (Cum.)

Ist/Obl./Summe/Plan As of: 21.10.2022 Page: 2 / 6

Column 1 / 4

Object: WBS E-2610.1 Engineering
Name of Person Resp.

From Fiscal Year: 2022 To Fiscal Year: 2024
From Period: 1 To Period: 12

Alle Kostenarten	Ist	Obligo	Summe	Plan
400000 Consumption, raw material 1				4.500,00
620100 Overhead: Material				450,00
620300 Overhead: Administration				594,00
620400 Overhead: Sales				742,50
640100 IAA Production hours	1.500,00		1.500,00	16.500,00
* *	1.500,00		1.500,00	22.786,50

Figure 6.15 Evaluating Project Data Using a Cost Element Report

The screenshot shows the SAP Report Painter interface. The title bar reads 'Report Painter: Display Report'. The menu bar includes 'Report', 'Edit(X)', 'Goto(S)', 'Extras(D)', 'Formatting', 'Environment', 'System', and 'Help'. The status bar shows 'GRR3'. The main toolbar contains 'Hide navigation', 'Check', 'Overview', 'Report header', 'General data selection', 'Variation', 'Change/display', 'Execute', 'More', search icons, and 'Exit'. On the left, a tree view lists reports under 'Project Reporting (Hierarchy Reps)', with '6PP1-001 Act/Com/Total/Plan' selected. The main area displays report details: Report 6PP1-001, Section 0001, and Standard layout 6-BTC1. Below this, a 'Format group' is defined with four columns of zeros. A table shows the layout for 'Cost Elements' with columns for 'Actual', 'Commitments', 'Total', and 'Plan'. The row for '* All Cost Elements' shows placeholder values 'xxx.xxx.xxx,xx' for each column.

Report	Description
6P1	Project Reporting
6P2	Project Cost Element Reports
6P3	Project Reporting (Hierarchy Reps)
6P0T-001	Debit/Credit, Actual
6P0U-001	Debit/Credit, Plan
6PP1-001	Act/Com/Total/Plan
6PP2-001	Actual/Plan/Variance
6PP3-001	Actual/Plan Comp.
6PP4-001	Period Comp. - Actual
6PP5-001	PeriodComp-Commtmnts
6PP6-001	Period Comp. - Plan
6PP7-001	Stat.KeyFigs-Act/Pln
6PPA-001	Result Analysis Cat.

Report	6PP1-001	Act/Com/Total/Plan	Horiz. page 1 / 4	
Section	0001	Act/Com/Total/Plan		
Standard layout	6-BTC1			
Format group:	0	0	0	0
Cost Elements	Actual	Commitments	Total	Plan
* All Cost Elements	xxx.xxx.xxx,xx	xxx.xxx.xxx,xx	xxx.xxx.xxx,xx	xxx.xxx.xxx,xx

Figure 6.16 Definition of a Cost Element Report in the Report Painter

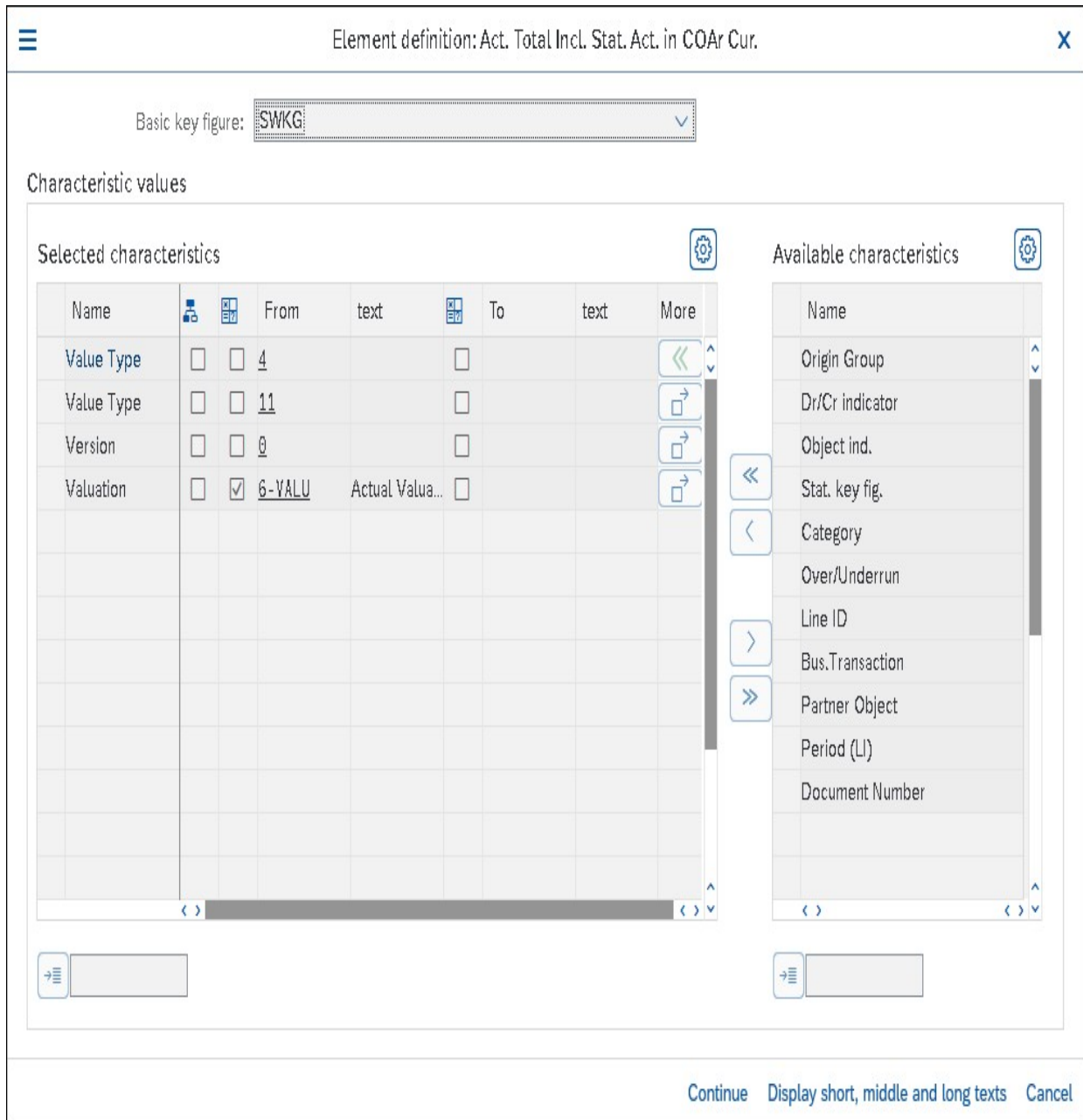


Figure 6.17 Definition of the Actual Column Using a Basic Key Figure

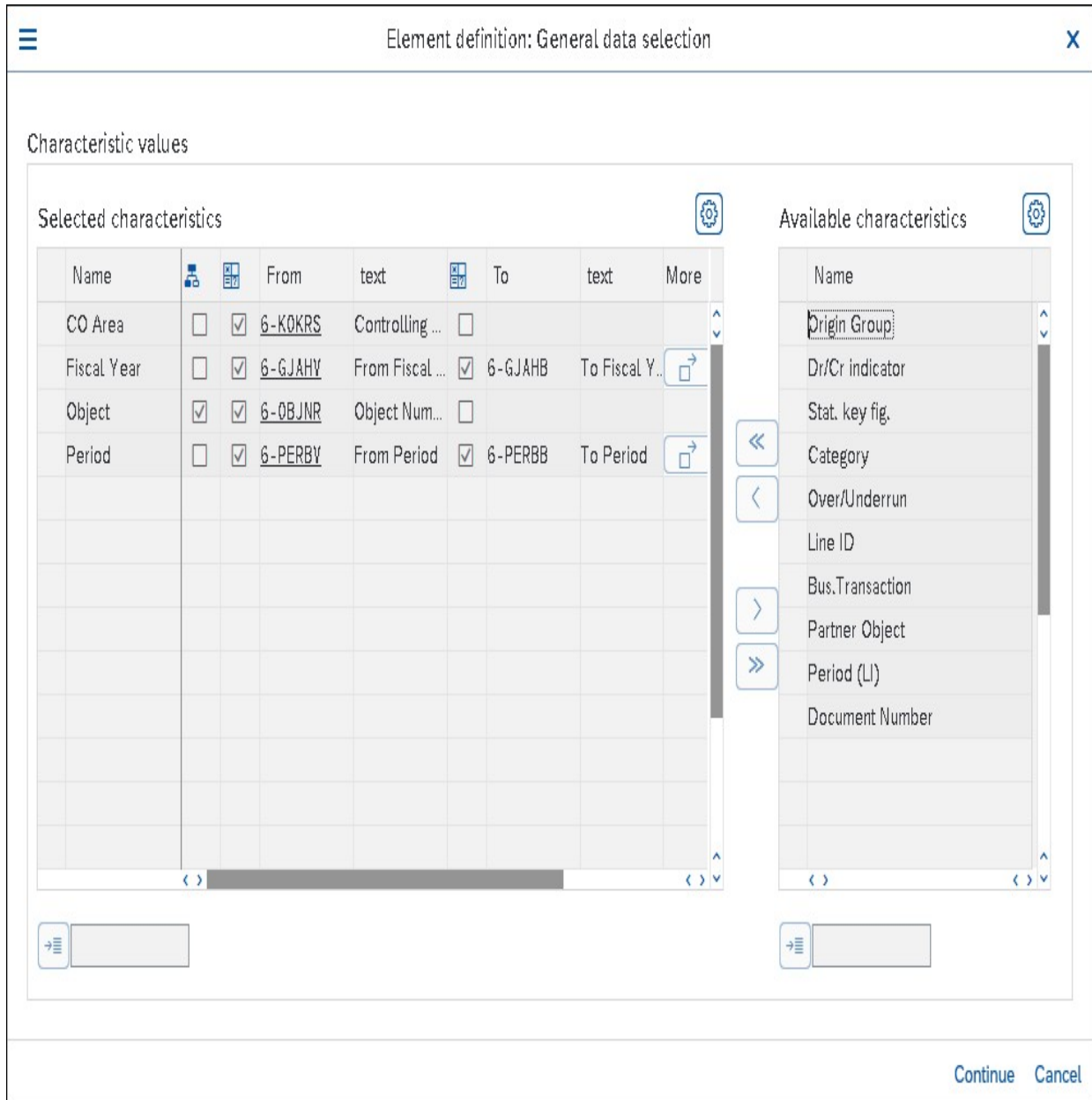


Figure 6.18 Defining General Selections

☰ List Edit(X) Goto(S) Settings(P) Extras(D) Environment System Help > CJ13

< **SAP** Display Actual Cost Line Items for Projects

▾ Document Master Record Correction Request Details Set Filter Sort in Ascending Order Sort in Descending Order More ▾ 🔍 Exit

Layout 18AP Doc.date/object/cost element/value
 Object PRJ E-2610 Robot Model 1
 Cost Element 410000 To 890000 Trading gds consump....
 Posting Date 01.10.2022 To 31.10.2022

DocumentNo	OTy	Object	Cost Elem.	Val/COArea Cr	CO cr...	Value TranCurr	TCurr	Partner type	Posting Date	Period
200008600	NWA	4104286 0010	410000			1.200,00				10
300304909	NWA		620100			250,00				10
200008600	NWA		890000			1.300,00				10
		4104286 0010				2.750,00				
300304912	NWA	4104286 0040	620200			150,00				10
300304907	NWA		640100			1.500,00				10
300304911	NWA					750,00				10
		4104286 0040				2.400,00				
300304915	NWA	4104286 0050	620200			180,00				10
300304914	NWA		640100			900,00				10
		4104286 0050				1.080,00				
						6.230,00				

☰ List of Documents in Accounting X

Documents in Accounting	
Document Number	Object type text
0100482308	Accounting document
0100482309	Accounting document
0300304915	Controlling Document
0300304914	Controlling Document
0002388417	Reporting document

🔍 Original document 🖨️ X

Figure 6.19 Line-Item Report with a Selection of Environment Documents

The screenshot shows the SAP Fiori 'Project Costs' overview. At the top, there is a navigation bar with the SAP logo and 'Project Costs' dropdown. Below this, the 'Standard' view is selected. A filter bar indicates '4 filters active: Project, Include Orders, Planning Category 1, Planning Category 2'. The main content area is titled 'Project Objects' and features a table with columns for ID, Name, Plan Cat. 2 Costs in Global Currency, Plan Cat. 1 Costs in Global Currency, Actual Costs in Global Currency, and Variance (Plan Cat. 1 - Actual). The table lists several project objects, including 'Robot Model 1', 'Engineering', and various sub-categories like 'Engineering Electrics', 'Engineering Mechanics', 'Procurement', 'Assembly', and 'Acceptance'. Each row includes a checkbox and a dropdown arrow for expansion. The 'Variance' column shows the difference between Plan Category 1 and Actual costs, with values ranging from 317,44 USD to 63,650,00 USD.

ID	Name	Plan Cat. 2 Costs in Global Currency	Plan Cat. 1 Costs in Global Currency	Actual Costs in Global Currency	Variance (Plan Cat. 1 - Actual)
▼ E-2611	Robot Model 1	221.920,00 USD	216.980,00 USD	317,44 USD	216.662,56 USD
▼ E-2611	Robot Model 1	221.920,00 USD	216.980,00 USD	317,44 USD	216.662,56 USD
▼ E-2611.1	Engineering	43.320,00 USD	41.230,00 USD	317,44 USD	40.912,56 USD
E-2611.1.1	Engineering Electrics	3.800,00 USD	3.610,00 USD	317,44 USD	3.292,56 USD
E-2611.1.2	Engineering Mechanics	39.520,00 USD	37.620,00 USD	0,00 USD	37.620,00 USD
E-2611.2	Procurement	91.200,00 USD	91.200,00 USD	0,00 USD	91.200,00 USD
E-2611.3	Assembly	22.800,00 USD	20.900,00 USD	0,00 USD	20.900,00 USD
E-2611.4	Acceptance	64.600,00 USD	63.650,00 USD	0,00 USD	63.650,00 USD

Figure 6.20 Cost Overview: SAP Fiori

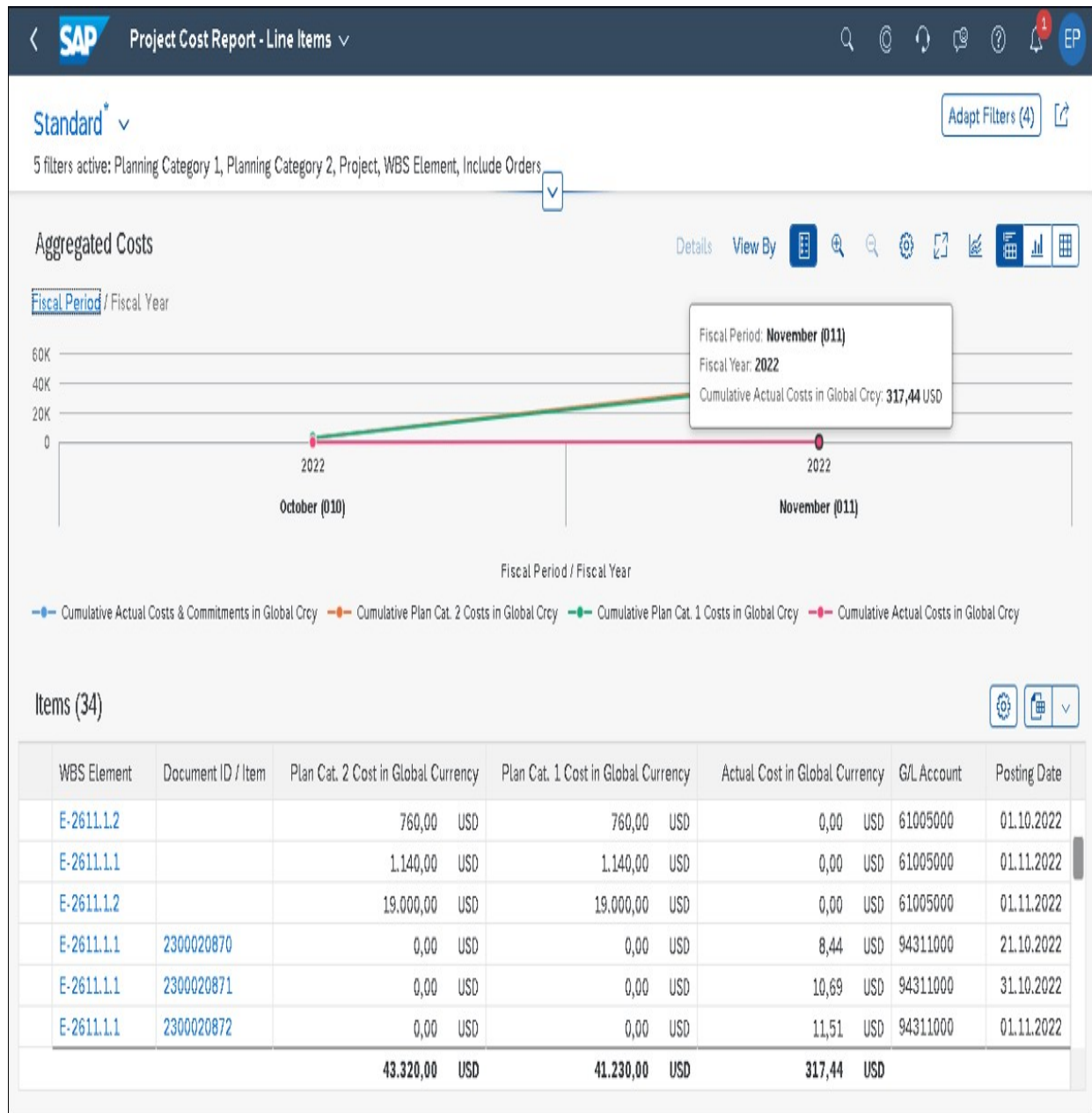


Figure 6.21 Line-Item Analysis: SAP Fiori

SAP Project - Plan/Actual

Apps Search In: "Apps"

Standard * v

Filtered By (5): Ledger, Fiscal Year of Ledger, Plan Category, Key Date, Project

Navigation Panel

Dimensions

Search Dimensions

Rows

WBS Element Is ...

Project

WBS Element

G/L Account

Columns

Measures

Available Fields

Billable Control

Business Transac...

CO Object Curr...

Calendar Month

Calendar Quarter

Calendar Week

Calendar Year

Chart of Accounts

Company Code

Company Code

Data Analysis Graphical Display Query Information

<No Bookmark Loaded> v Filter v Sort v Hierarchy v Drilldown v Display v Measures v Navigate To v

Project	WBS Element	G/L Account	Actual Amount in Company Code Cr...	Difference Actual Plan in CC Cr...	
E-2611	Robot Model 1	50304000	COGS Personnel Time	-116.800,00 EUR	
		61005000	Travel Exp Grd Trnsp	-116.800,00 EUR	
		94311000	Pers hrs	334,21 EUR	
		Total		334,21 EUR	-233.265,79 EUR
	Engineering	50304000	COGS Personnel Time		-22.800,00 EUR
		61005000	Travel Exp Grd Trnsp		-22.800,00 EUR
		94311000	Pers hrs	334,21 EUR	334,21 EUR
		Total		334,21 EUR	-45.265,79 EUR
	Procurement	50304000	COGS Personnel Time		-48.000,00 EUR
		61005000	Travel Exp Grd Trnsp		-48.000,00 EUR
			Total		-96.000,00 EUR
	Assembly	50304000	COGS Personnel Time		-12.000,00 EUR
61005000		Travel Exp Grd Trnsp		-12.000,00 EUR	
		Total		-24.000,00 EUR	
Acceptance	50304000	COGS Personnel Time		-34.000,00 EUR	
	61005000	Travel Exp Grd Trnsp		-34.000,00 EUR	
		Total		-68.000,00 EUR	
Total			334,21 EUR	-233.265,79 EUR	

Figure 6.22 Analytical App for Project Analysis Based on Tables ACDOCP/ACDOCA

The screenshot displays the SAP 'Display Commitment Item' interface. At the top, the menu bar includes 'Commitment item', 'Edit(X)', 'Goto(S)', 'Extras(D)', 'System', and 'Help'. The main header shows the SAP logo and the title 'Display Commitment Item'. Below the header, there are navigation options: 'Change documents', 'Long Text', 'FM area', 'Where-Used List', 'More', and 'Exit'. The main content area is divided into sections. The top section contains input fields for 'Commitment Item: 800000' and 'Commitment Item Type:'. Below this, the 'FM Area: FM02' is shown with the text 'Tools Inc. US'. There are several icons for document management. The 'Basic Data' section is highlighted with a blue underline. It contains a form with the following fields: 'Name: Sales revenues-dom.', 'Description: Sales revenues-dom.', and three empty text boxes. Below the description, there are two radio buttons: 'Directly Postable' (selected) and 'Not Directly Postable'. Further down, there are fields for 'Financial Trans: 30' with the text 'Post revenue, expenditure, asset, inventory stocks...', 'Commitment Item Cat.: 2' with the text 'Revenues', and 'Authoriz. Group:'. The 'Hierarchy Assignment' section at the bottom has a field for 'Superior commitment item:'. A blue 'Continue' button is located in the bottom right corner of the form area.

Figure 6.23 Defining a Commitment Item Manually

<https://t.me/PrMaB2>

Table View Edit(X) Goto(S) System Help > FIPOS

SAP Creating Commitment Items

More Exit

Selection

Company Code: * Tools Inc. America
 FM Area: Tools Inc. US
 G/L Account: To:

G/L Acct / Commitmnt Itm Assignment

<input type="checkbox"/>	G/L Account	Short Text	Commitment item	Financial Trans	Item Category	Name	Status	Default commitment item	Defau.
<input type="checkbox"/>	282500	Gain-own mat.valuatn	282500	30	3	Gain-own mat.valuatn	OK	282500	30
<input type="checkbox"/>	283000	Gain-inventory diffs	283000	30	3	Gain-inventory diffs	OK	283000	30
<input type="checkbox"/>	285000	Stock transf.revenue	285000	30	3	Stock transf.revenue	OK	285000	30
<input type="checkbox"/>	287000	QC consumption gain	287000	30	3	QC consumption gain	OK	287000	30
<input type="checkbox"/>	290000	Rev.release of provn	290000	30	3	Rev.release of provn	OK	290000	30
<input type="checkbox"/>	300000	Raw material 1	300000	30	3	Raw material 1	OK	300000	30
<input type="checkbox"/>	303000	Operating supplies	303000	30	3	Operating supplies	OK	303000	30
<input type="checkbox"/>	304000	Spare parts	304000	30	3	Spare parts	OK	304000	30
<input type="checkbox"/>	310000	Trading goods	310000	30	3	Trading goods	OK	310000	30
<input type="checkbox"/>	400000	Consumptn, raw mat.1	400000	30	3	Consumptn, raw mat.1	OK	400000	30
<input type="checkbox"/>	400010	Raw material 2 cons.	400010	30	3	Raw material 2 cons.	OK	400010	30
<input type="checkbox"/>	400020	Raw mats cons.w/o cc	400020	30	2	Raw mats cons.w/o cc	OK	400020	30
<input type="checkbox"/>	410000	Trading gds consump.	410000	30	3	Trading gds consump.	OK	410000	30
<input type="checkbox"/>	410001	Scrap trading goods	410001	30	3	Scrap trading goods	OK	410001	30
<input type="checkbox"/>	415000	External proc. costs	415000	30	3	External proc. costs	OK	415000	30
<input type="checkbox"/>	417000	Purchased services	417000	30	3	Purchased services	OK	417000	30

Collective Assignment

Commitment itm:
 Fin.trans: ItemCategory: Description:

Statistics

- Locked
- Inconsistent
- Incomplete
- Different
- OK

Figure 6.24 Transaction FIPOS for Creating Commitment Items Automatically

<https://t.me/PrMaB2>

SAP Execute Receipts/Expenditures: All Fiscal Years: Detail

Report parameters Export... Graphics... Send... Currency... Number format... More Find Find Next Print Exit

Receipts/Expenditures: All Fiscal Years Current data (18.11.2022 07:31:04)

- Navigation
- Object ▲
 - Val.category .
 - Period/Year .
 - Trans. Currency ▼
- ⏪ ⏩ ✖ ⚙

	Overall	Prev. years	2022	2023	2024 ff	Total
Plan Credit Payments	0	0	0	0	0	0
Credit-Side PurchReq	12.614-	0	5.604-	7.010-	0	12.614-
Cred.Oblig.Purch.Ord	60-	0	60-	0	0	60-
Cred Dwn Payt Req.	0	0	0	0	0	0
Cred. Dwn Payt w/POR	0	0	0	0	0	0
Cred. DP, No PO Ref.	0	0	0	0	0	0
Credit Parked IR	0	0	0	0	0	0
Credit-Side Invoice	0	0	0	0	0	0
CR Side Payment	10.000-	0	10.000-	0	0	10.000-
Cred. Payt Transfer	0	0	0	0	0	0
Receipts						
Plan cust.down payts	120.000	0	120.000	0	120.000	0
Plan Debit Payments	210.000	0	120.000	90.000	0	210.000
Deb. Down Payt Req.	0	0	0	0	0	0
Debit Down Payments	0	0	0	0	0	0
Deb.PyOblig.Invoice	0	0	0	0	0	0
Debit-Side Payment	120.000	0	120.000	0	120.000	0
Deb. Payt Transfer	0	0	0	0	0	0

Figure 6.25 Evaluating Revenues and Expenditures Using the Classic Display of a Hierarchy Report

The screenshot shows the SAP interface for transaction ME5J, titled "List Display of Purchase Requisitions for Project". The table below represents the data displayed in the interface.

Item	WBS Elem.	Network	S	I	A	Material Short Text	Quantity	Un	Matl Group	Plant	Location	Requisnr.	Vendor	POrg	Info record	No. PReq.	
																4	
					N											3	
10		4104286	N		D	External Quality Assurance	1	AU	001	0001			Franz	0001	5500000360	1	
20		4104286	N			External Engineering	1	EA	001	0001				0001		1	
40		4104286	N			Transportation	10	EA	L001	0001			Franz	FIO-VEND01	0001	5500000481	1
					Q											1	
30	E-2610.2.1	4104286	N			555784 Controller (DE)	1	EA	FIOMRP1	0001	0001					1	

Figure 6.26 Table Display of Purchase Requisitions for the Project in Transaction ME5J

The screenshot shows the SAP Manage Project Procurement app interface. At the top, there is a navigation bar with the SAP logo, the title 'Manage Project Procurement', and several utility icons. Below the navigation bar, the user profile 'Standard' is visible, along with a notification of '3 filters active: Display Currency, Project, PO Delivery Status'. There are two tabs: 'Purchase Orders (1)' and 'Purchase Requisitions (75)'. The main content area is titled 'Purchasing Documents' and contains a table with the following data:


Project	WBS Element	Material	Supplier	Purchase Order Item	Delivered / Ordered Quantity	Net Amount
Robot Model 1	Procurement Me...	SEMI124,PD,Subassembly	FL-JM_20220301-123...	4500076620/00010	8PC 	5,47 USD
E-2610	E-2610.2.1	SG124	34715		10PC	

Figure 6.27 Display of Order-Relevant Data in the Manage Project Procurement App

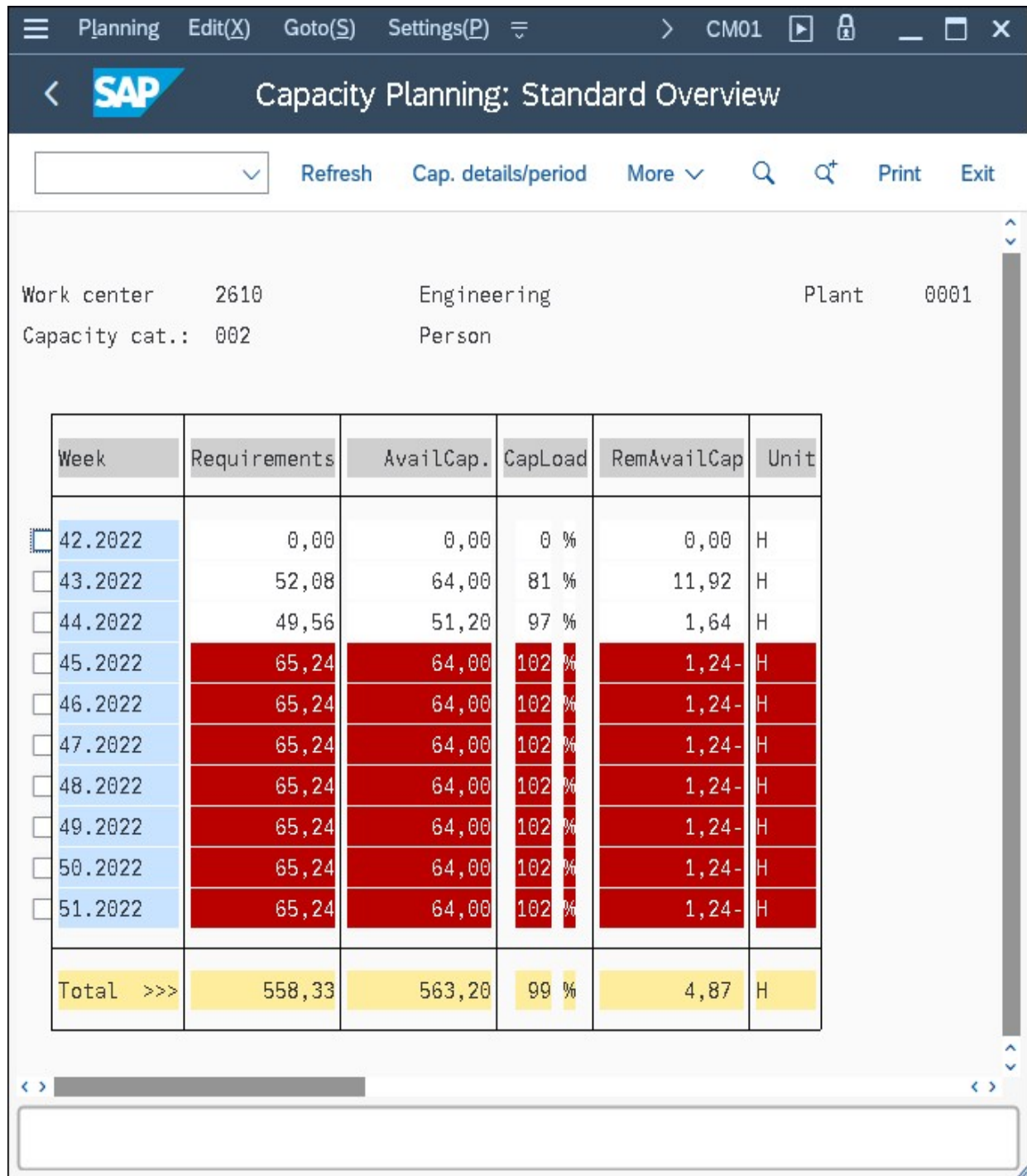


Figure 6.28 Standard Overview of a Capacity Evaluation

SAP Capacity Planning: Detailed Capacity List							
Week	P	PeggedRqmt	Op.	Proj. def.	Reqmnts	Earl.start	LatestFin.
Plant		0001	Plant 0001 - no change allowed				
Work center		2610	Engineering				
Capacity cat.		002	Person				
Total					558,332 H		
<input type="checkbox"/> 43.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 44.2022		4104588	0010	E-2610	41,667 H	24.10.2022	30.12.2022
<input type="checkbox"/> 44.2022		4104588	0020	E-2610	7,895 H	02.11.2022	23.12.2022
<input type="checkbox"/> 45.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 45.2022		4104588	0020	E-2610	13,158 H	02.11.2022	23.12.2022
<input type="checkbox"/> 46.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 46.2022		4104588	0020	E-2610	13,158 H	02.11.2022	23.12.2022
<input type="checkbox"/> 47.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 47.2022		4104588	0020	E-2610	13,158 H	02.11.2022	23.12.2022
<input type="checkbox"/> 48.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 48.2022		4104588	0020	E-2610	13,158 H	02.11.2022	23.12.2022
<input type="checkbox"/> 49.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 49.2022		4104588	0020	E-2610	13,158 H	02.11.2022	23.12.2022
<input type="checkbox"/> 50.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 50.2022		4104588	0020	E-2610	13,158 H	02.11.2022	23.12.2022
<input type="checkbox"/> 51.2022		4104588	0010	E-2610	52,083 H	24.10.2022	30.12.2022
<input type="checkbox"/> 51.2022		4104588	0020	E-2610	13,158 H	02.11.2022	23.12.2022

Figure 6.29 Detail View of a Capacity Evaluation

The screenshot displays the SAP Capacity Planning: Variable Overview interface. The title bar shows 'Planning Edit(X) Goto(S) CM01'. The main header includes the SAP logo and the title 'Capacity Planning: Variable Overview'. Below the header, there are search and navigation icons, and a 'More' dropdown menu. The main content area shows 'Version Overview of order categories' and 'Unit H'. A table with 6 columns and 10 rows is displayed, showing weekly capacity planning data. The columns are: Week, Wk.orders, Pl.orders, Sum, Avail.cap., and Load in %. The rows represent weeks from 42.2022 to 51.2022. The 'Load in %' column shows values ranging from 0,00 to 101,94.

Week	Wk.orders	Pl.orders	Sum	Avail.cap.	Load in %
42.2022	0,00	0,00	0,00	0,00	0,00
43.2022	52,08	0,00	52,08	64,00	81,38
44.2022	49,56	0,00	49,56	51,20	96,80
45.2022	65,24	0,00	65,24	64,00	101,94
46.2022	65,24	0,00	65,24	64,00	101,94
47.2022	65,24	0,00	65,24	64,00	101,94
48.2022	65,24	0,00	65,24	64,00	101,94
49.2022	65,24	0,00	65,24	64,00	101,94
50.2022	65,24	0,00	65,24	64,00	101,94
51.2022	65,24	0,00	65,24	64,00	101,94

Figure 6.30 Variable Overview of a Capacity Evaluation

☰Settings: More✕

General

Cumulate over periods

Capacity Unit: * Hours

Unit of Measure from Capacity

Reqmnts type: * Rem.reqmts

Hierarchy

Cumulation of Reqmts

Cumulation of Capacity

Hierarchy:

Plant:

Interval to be evaluated

Entry type: * Number of calendar days

Start: * 16.10.2022

Int.finish: * 15.12.2022

Distribution

From work center/operation

Periods

S Description

Day

Factory calendar day

Week

Month

Posting period

Planning Calendar

Plant:

Planning Calendar:

Duration: *

Available capacity

Capacity Version:

[Std. distribution](#) [Time periods](#) ✕

Figure 6.31 General Settings of a Capacity Evaluation

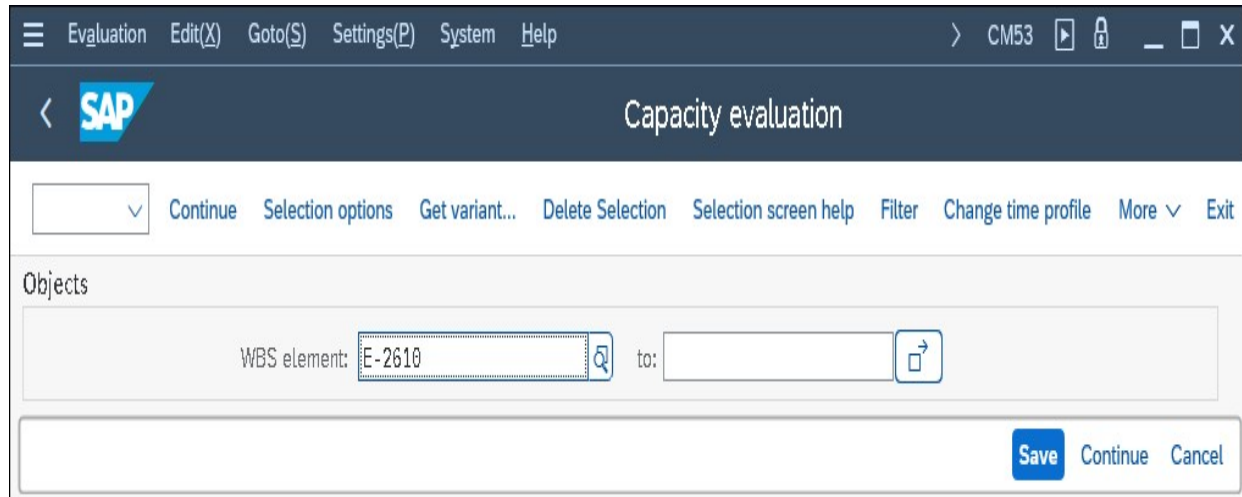


Figure 6.32 Initial Screen of the Enhanced WBS Element/Version Capacity Evaluation

SAP Capacity evaluation: Standard overview

No. of Entries: 7 Pers. No. ICapacity

Plant 0001 Plant 0001

Work center 2610 Engineering

Capacity category 002 Person

Entries	Rem.cap.reqs	Avail.capacity	Rem.a	Rem. avail. capaci	Act.cp.ld	RmCapPlan
Total	362,608 H	371,2 H		8,592 H		371,2 H
42.2022	0,0 H	0,0 H	0,0	0,0 H	0,0	0,0 H
43.2022	52,083 H	64,0 H	81,4	11,917 H	0,0	64,0 H
44.2022	49,561 H	51,2 H	96,8	1,639 H	0,0	51,2 H
45.2022	65,241 H	64,0 H	101,9	1,241- H	0,0	64,0 H
46.2022	65,241 H	64,0 H	101,9	1,241- H	0,0	64,0 H
47.2022	65,241 H	64,0 H	101,9	1,241- H	0,0	64,0 H
48.2022	65,241 H	64,0 H	101,9	1,241- H	0,0	64,0 H

Figure 6.33 Standard Overview of an Enhanced Capacity Evaluation

<https://t.me/PrMaB2>

Report Edit(X) Goto(S) Extras(D) Settings(P) System Help > S_ALR_87013577

SAP Execute Drilldown Report Costs/Revenues/Expenditures/Receipts

Report parameters Currency... Hierarchy... ABC analysis Attributes... Exceptions... More v Exit

Selection date
Costs/Revenues/ Expenditures/Receipts Current data (22.10.2022 10:00:07)

Navigation	Object		Plan Costs--Total	Act. Costs--Total	Plan. rev.--Total	Act. ...
Object	√SUM 0001	Kostenrechnungskreis	9.355.000	7.354.500	4.940.000-	
Val.category	√SUM CP	Customer Projects	3.695.000	3.334.500	4.940.000-	
Period/Year	SUM Person 1	Person 1	220.000	210.000	300.000-	
Bus.transaction	SUM Person 2	Person 2	310.000	330.000	430.000-	
	SUM Person 3	Person 3	80.000	20.000	100.000-	
	SUM Person 5	Person 5	340.000	350.000	580.000-	
	SUM Person 6	Person 6	670.000	600.000	800.000-	
	SUM Person 7	Person 7	950.000	820.000	1.200.000-	
	SUM Person 9	Person 9	1.125.000	1.004.500	1.530.000-	
	√SUM RD	R&D Projects	5.660.000	4.020.000	0	
	SUM Person 1	Person 1	1.332.000	824.000	0	
	SUM Person 2	Person 2	780.000	120.000	0	
	SUM Person 3	Person 3	218.000	120.000	0	
	SUM Person 5	Person 5	145.000	210.000	0	
	SUM Person 7	Person 7	830.000	832.000	0	
	SUM Person 8	Person 8	2.120.000	1.680.000	0	
	SUM Person 9	Person 9	235.000	234.000	0	
	Result		9.355.000	7.354.500	4.940.000-	

Save definition Adapt report width Cancel

Figure 6.34 Evaluation of Summarized Project Data

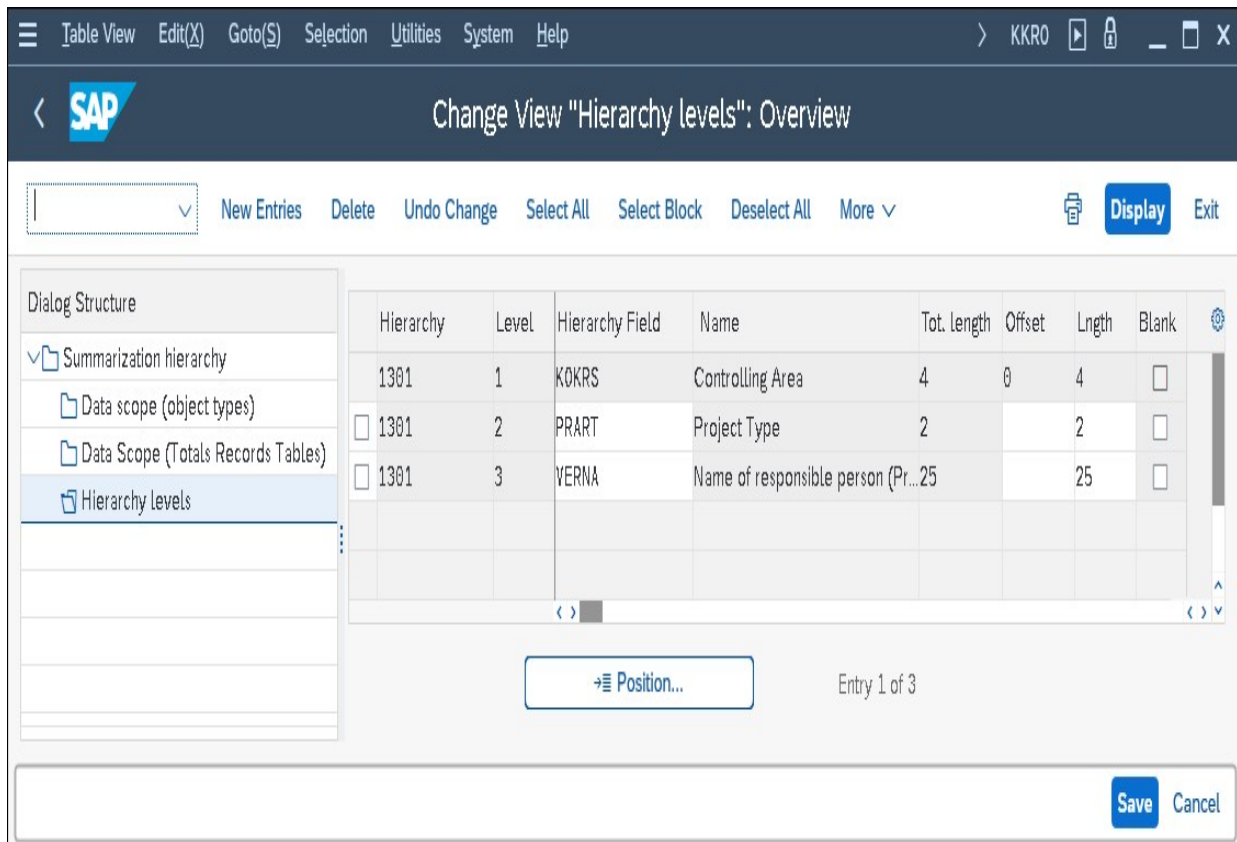


Figure 6.35 Defining a Summarization Hierarchy

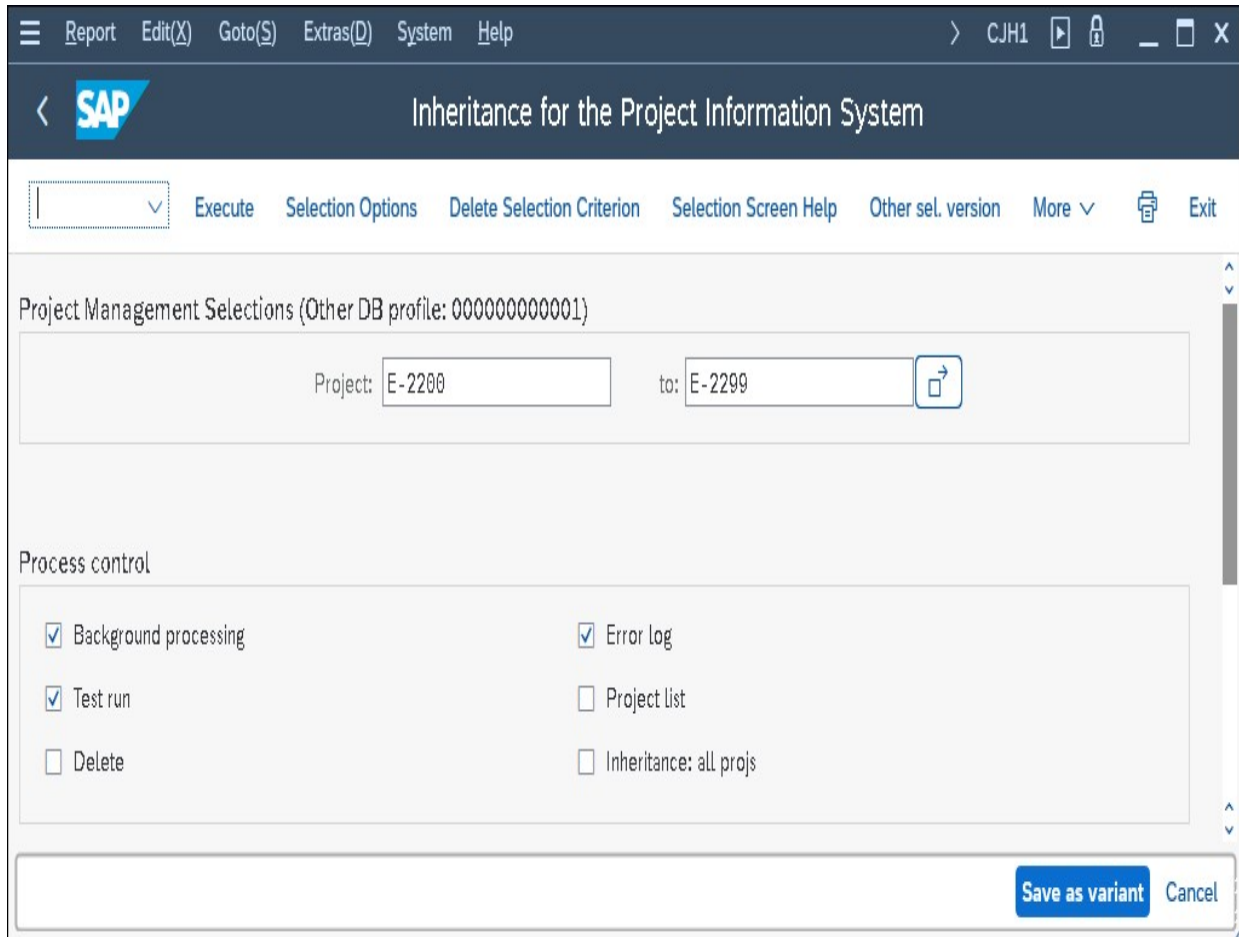


Figure 6.36 Initial Screen of the Inheritance of Project Data

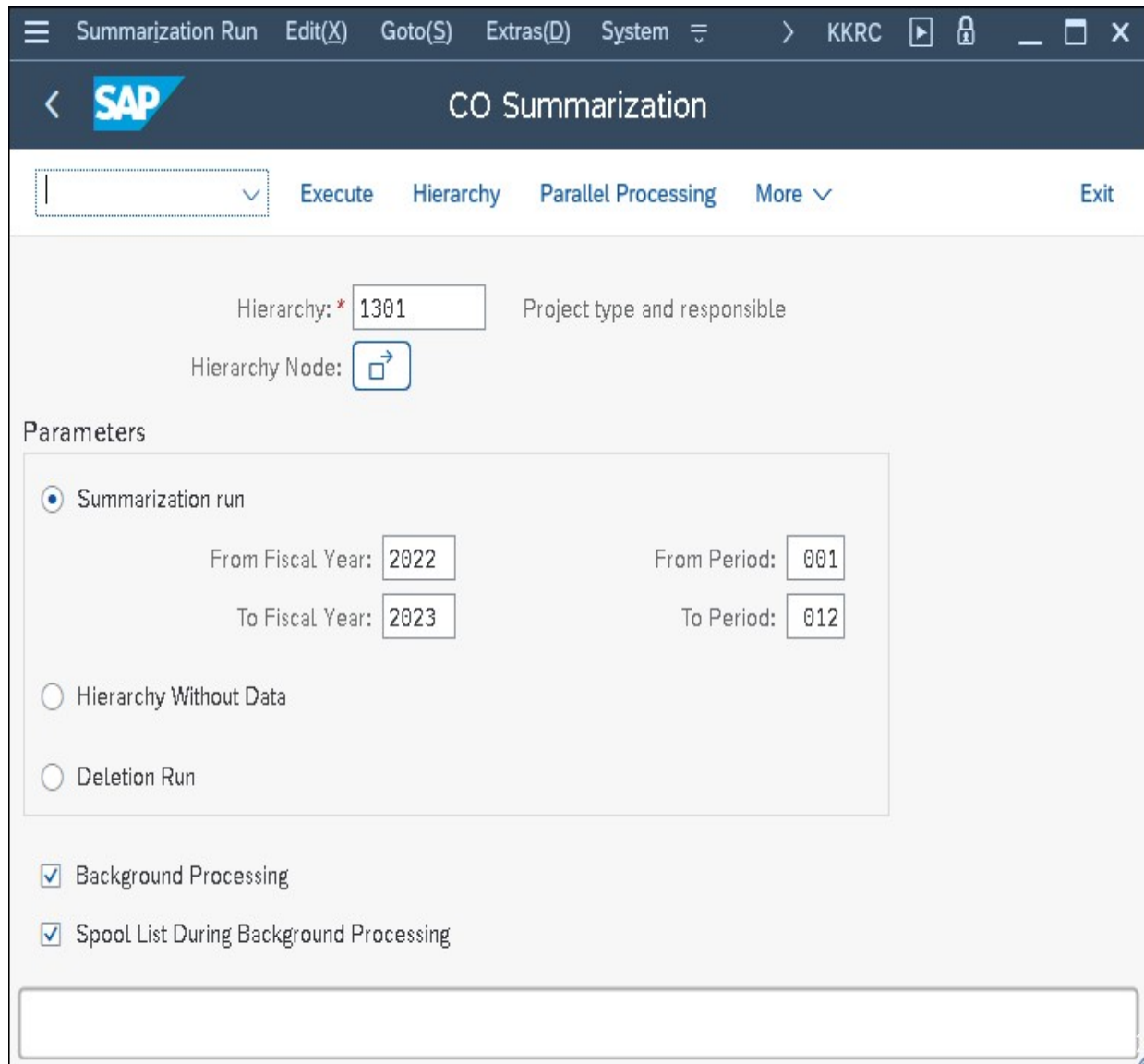


Figure 6.37 Initial Screen of the Summarization of Project Data

SAP My Tasks ▾ 🔍 ? 🔔 B

Standard ▾ 🔗

Task Name: Project Name: Ready to Start: Status: Severity:

Project Tasks (7) Standard* ▾ Confirm ⚙️ 📄 ▾

Task Name	Project Name	Planned St...	Planned Fin...	Ready to Start	Status	Severity
<input type="radio"/> Kick-Off Remaining Work: 2,000 YPD	Robotic Projekt	19.04.2022	25.04.2022	Yes	Released (Processing has begun)	Hazardous >
<input type="radio"/> Specification Gripper Remaining Work: 8,000 YPD	Robotic Projekt	26.04.2022	30.05.2022	No	Released	Very Critical >
<input type="radio"/> Detail Specification Remaining Work: 5,000 YPD	Robotic Projekt	21.07.2022	27.07.2022	No	Created	No Value Set >
<input type="radio"/> Consolidation Tasks Remaining Work: 1,000 YPD	Robotic Projekt	22.08.2022	22.08.2022	No	Created	No Value Set >
<input type="radio"/> Prototyping Gripper Remaining Work: 3,000 YPD	Robotic Projekt	23.08.2022	04.10.2022	No	Created	No Value Set >
<input type="radio"/> Corrections Prototype Gripper Remaining Work: 4,000 YPD	Robotic Projekt	13.10.2022	18.10.2022	No	Created	No Value Set >
<input type="radio"/> Handover Plan Remaining Work: 1,000 YPD	Robotic Projekt	28.10.2022	28.10.2022	No	Created	No Value Set >

Figure 7.1 Overview of Tasks Assigned to the Project Team Member in the My Tasks App

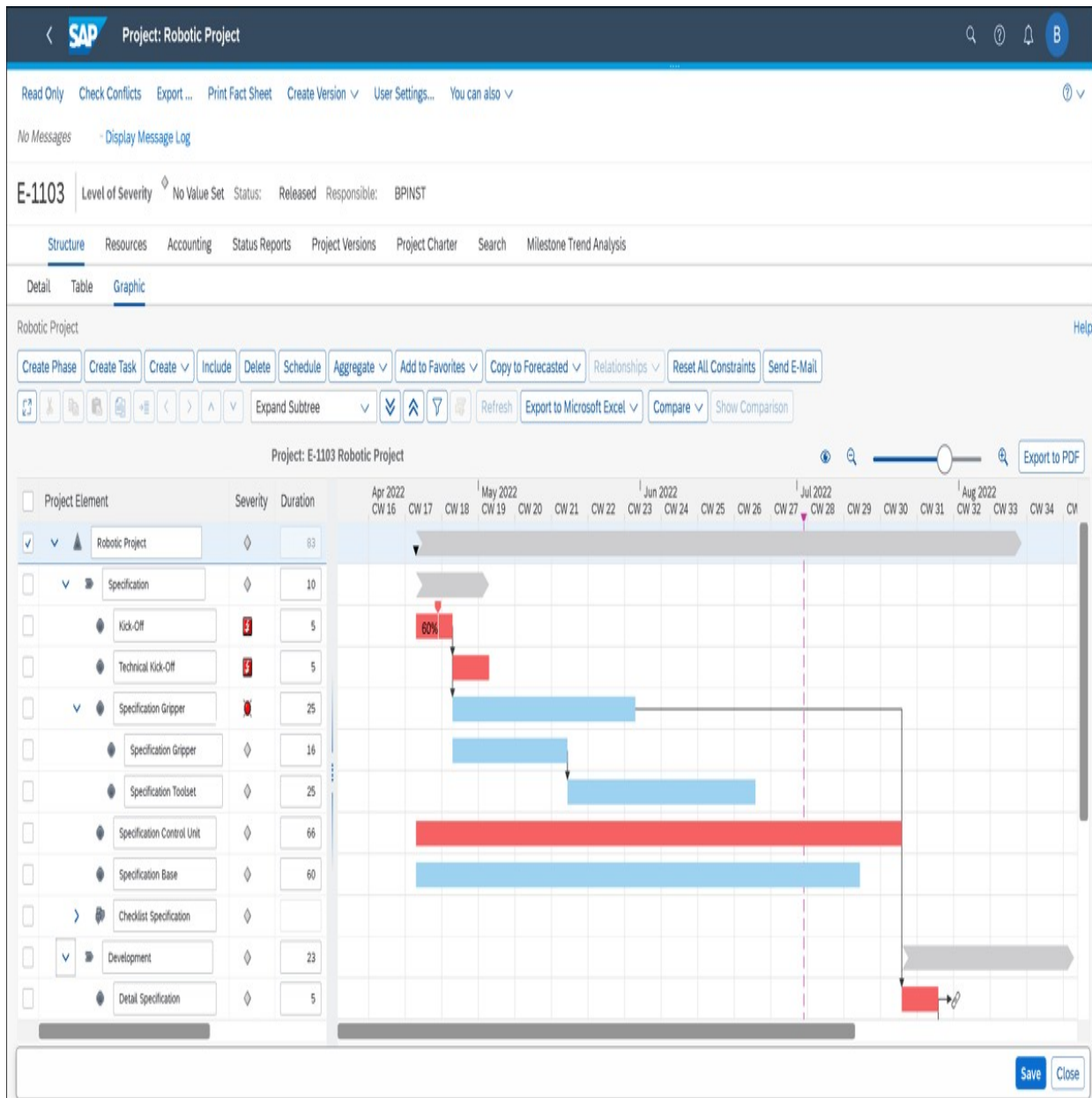


Figure 7.2 Project Structure in Project Management

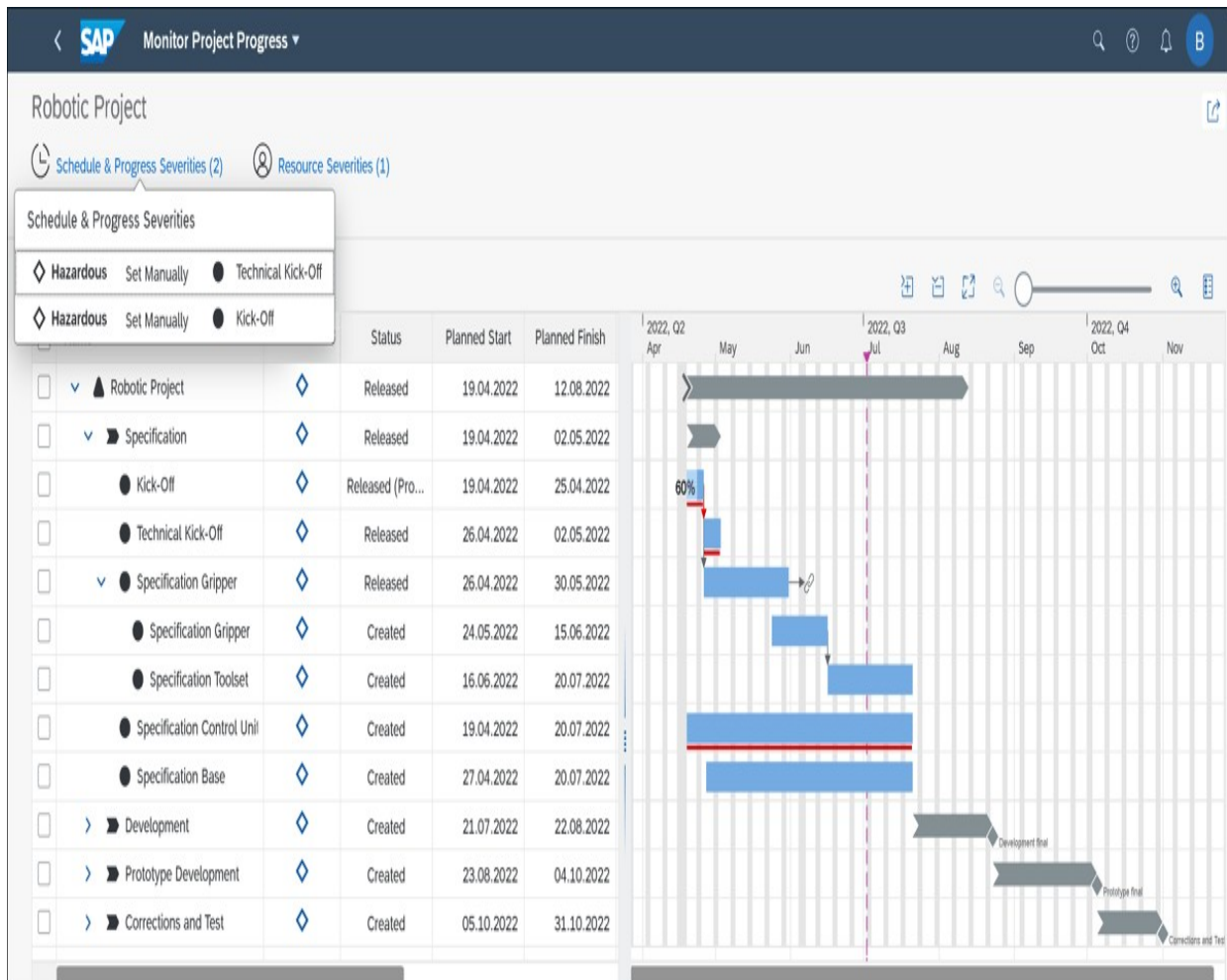


Figure 7.3 Monitor Project Progress App Displaying Various Exceptions

<https://t.me/PrMaB2>

Header Data

Network:	<input type="text" value="4000340"/>	Description:	<input type="text" value="Robotic Model 3"/>
WBS element:	<input type="text" value="E-2609"/>	Currency:	<input type="text" value="USD"/>
Plant:	<input type="text" value="1710"/>		
Scheduled finish:	<input type="text" value="02.06.2022"/>	Scheduled start:	<input type="text" value="20.05.2022"/>
Basic finish date:	<input type="text" value="02.06.2022"/>	Basic Start Date:	<input type="text" value="20.05.2022"/>

Costs

Project cost plan:	<input type="text" value="75.566,75"/>	Project cost plan 2:	<input type="text" value="0,00"/>
Order cost plan:	<input type="text" value="75.566,75"/>	Order cost plan 2:	<input type="text" value="0,00"/>
Project revenue plan:	<input type="text" value="0,00"/>	Proj.rev.plan 2:	<input type="text" value="0,00"/>
Order revenue plan:	<input type="text" value="0,00"/>	Order revenue plan 2:	<input type="text" value="0,00"/>
Budget:	<input type="text" value="0,00"/>	Assigned:	<input type="text" value="120,00"/>
Available:	<input type="text" value="75.446,75"/>	Release:	<input type="text" value="0,00"/>
Residual order plan:	<input type="text" value="0,00"/>	Fixed price cmmt:	<input type="text" value="0,00"/>
Ttl cost commitment:	<input type="text" value="0,00"/>	Actual costs:	<input type="text" value="120,00"/>
Act.revs:	<input type="text" value="0,00"/>	Payments out:	<input type="text" value="0,00"/>
Incoming payments:	<input type="text" value="0,00"/>	Currency:	<input type="text" value="USD"/>

Figure 7.4 Display of Network Data in Project Management

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Change View "Object Types for Object Links": Details

Object Type: @NETWORK Network (P)

Object Types for Object Links

- Active
 - Key: OLR3_TS_CAUFV_INT_ID
 - Identification: OLR3_TS_CAUFV_EXT_ID
 - Group: NP Network (PS)
- Existence Check
- Search Help
- Read Data
- Edit
- Own Persistence

Search Fields: OLR3_TS_CAUFV_SHLP

Proxy Class: CL_DPR_OLR3_NETWORK

Log.System:

Logical Port:

Destination: NONE

Web Server:

Save Cancel

Dialog Structure

- Object Types for Object Links
 - Restrict Project Element Types
 - Name of Class in SAP System per Object Type
 - Standard Consistency Checks per Object Type
 - Fields per Object Type
- Frames per Object Type
 - Fields per Frame
- Table/View in SAP System per Object Type and Method
- Service for an Object Type
- Search Help
- Operative Object Link

Figure 7.5 Definition of an Object Link in PPM Customizing

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The screenshot displays the SAP Display IMG (Implementation Guide) interface. At the top, there is a navigation bar with the SAP logo and the title "Display IMG". Below this, a filter bar contains a dropdown menu, the text "Expand All", "Position", "Existing BC Sets", "Apply Filter", "More", search icons, and "Exit". The main content area is titled "Structure" and shows a tree view of SAP objects. The tree is expanded to show "SAP Portfolio and Project Management", which includes "Portfolio Management", "Project Management", and "Controlling". Under "Controlling", there are several transaction codes, each with a "Go" icon (a magnifying glass with a right-pointing arrow) and a "Refresh" icon (a circular arrow). The transactions listed are: "Create and Change Controlling Scenario", "Define Controlling Scenario", "Settings for Easy Cost Planning", "Assign Cost Elements and Activity Types", "Define User-Defined Message Types", "Develop Enhancements", and "Business Add-Ins (BADIs)". The "Business Add-Ins (BADIs)" folder is expanded to show: "BAdI: Costing Integration", "Business Add-In: Controlling Parameters", "Characteristics of CO Account Assignment to Be Created or Changed", "BAdI: Name of Project Definition and WBS Elements", and "BAdI: Determine Controlling Scenario". Below these are "Object Links from Project Management" and "SAP DMS Integration". At the bottom, the "Customer Relationship Management" folder is partially visible. The interface includes a search bar at the bottom and a scrollbar on the right side of the tree view.

Structure

- SAP Portfolio and Project Management
 - Portfolio Management
 - Project Management
 - Controlling
 - Create and Change Controlling Scenario
 - Define Controlling Scenario
 - Settings for Easy Cost Planning
 - Assign Cost Elements and Activity Types
 - Define User-Defined Message Types
 - Develop Enhancements
 - Business Add-Ins (BADIs)
 - BAdI: Costing Integration
 - Business Add-In: Controlling Parameters
 - Characteristics of CO Account Assignment to Be Created or Changed
 - BAdI: Name of Project Definition and WBS Elements
 - BAdI: Determine Controlling Scenario
 - Object Links from Project Management
 - SAP DMS Integration
 - Customer Relationship Management

Figure 7.6 Settings for Financials Integration with Project System in the SAP System

SAP Buckets 🔍 ? 🔔 B

Portfolio RoboTec

Switch Portfolio Switch Hierarchy/Bucket Portfolio Details Search

List of Buckets Bucket Structure

[Help](#)

View: DEFAULT VIEW Items/Initiatives ⌵ ⌶ [Settings](#)

<input type="checkbox"/>	Bucket Name	Items	Financial Period Break...	Capacity Unit	Capacity Period Break...	Status	Parent Name
<input type="checkbox"/>	▼ Research and Development	6	Monthly	Days	Monthly	Active	
<input type="checkbox"/>	Administration	2	Monthly	Days	Monthly	Active	Research and Development
<input type="checkbox"/>	> Production Machines	0	Monthly	Days	Monthly	Active	Research and Development
<input type="checkbox"/>	> Production Systems	0	Monthly	Days	Monthly	Active	Research and Development
<input type="checkbox"/>	▼ Robotic Systems	4	Monthly	Days	Monthly	Active	Research and Development
<input type="checkbox"/>	Industrial Robots	1	Monthly	Days	Monthly	Active	Robotic Systems
<input type="checkbox"/>	Robot bundles	0	Monthly	Days	Monthly	Active	Robotic Systems
<input type="checkbox"/>	Robot Controllers	3	Monthly	Days	Monthly	Active	Robotic Systems
<input type="checkbox"/>	Robot Periphery	0	Monthly	Days	Monthly	Active	Robotic Systems
<input type="checkbox"/>	Software	0	Monthly	Days	Monthly	Active	Robotic Systems

Last Refresh: **02.07.2022 06:48:22 UTC** [Refresh](#)

Figure 7.7 Sample Portfolio Structure in PPM

The screenshot displays the SAP PPM interface for a project named "Robotic Project" (ID: E-2609). The interface includes a top navigation bar with the SAP logo and the text "Item: Robotic Project". Below this, there are several menu items: "Read Only", "Refresh", "Reporting Cockpit", "Financial and Capacity Planning", "Print Fact Sheet", "Project", "Risk Management", and "You can also". A message bar indicates "Data saved successfully" with a "Display Message Log" link. The breadcrumb trail shows the project's location: "RoboTec > Research and Development > Robotic Systems > Robot Controllers > Robotic Project". The project ID "E-2609" is prominently displayed, followed by metadata: "Called From: Portfolio RoboTec", "ID: E-2609", "Name: Robotic Project", "Type: CAPEX Project (with PS)", "Budget Status: On Budget", "Schedule Status: On Schedule", "Staffing Status: [icon]", "Priority: [icon]", "Risk: [icon]", and "Derived Risk: [icon]". A horizontal flow diagram shows the project stages: "Stage 0 Project Proposal", "Stage 1 Project Initialization", "Stage 2 Feasibility Study", "Stage 3 Concept Optimization", "Stage 4 Engineering Definition", and "Stage 5 Implementation, Handover & Compl.". Below the flow, there are tabs for "Overview", "Phases and Decisions", "Deliverables", "Relationships", "Documents and Notes", "Miscellaneous", and "Custom Component". The "General Information" tab is active, showing a form with fields for "Name" (Robotic Project), "ID" (E-2609), "Status" (Created), "Priority" (Medium), and "Type" (CAPEX Project (with PS)). The "Description" field contains "Extension of Robotic Series E-26 by redesigned Gripper Axis" and has an "Upload Image" button. There are also checkboxes for "Proposal" and "Escalation". The "Date" section includes fields for "Forecasted Start/Finish", "Planned Start/Finish" (01.01.2022 to 31.12.2023), "Actual Start/Finish", and "Days Left Until Finish" (547). At the bottom right, there are "Save" and "Close" buttons.

Figure 7.8 Sample Portfolio Item in PPM

SAP Financial Planning: Robotic Project

Refresh View Chart

No Messages - Display Message Log

Called From: Item Robotic Project Current Planning Period Start: 01. January 2017 To: 31. December 2023 Period Breakdown: Monthly Currency: European Euro

Hierarchy Type: View - Category - Group Currency: European Euro

View: * [Standard View] Print Version Export Period Displayed: 01.01.20... To: 31.12.2023 Apply Show All Periods Filter: All Edit Filter Display List Collapse All Functions

View J. Category J. Group	Sponsor	Initial Am...	JAN 2022	FEB 2022	MAR 2022	APR 2022	MAY 2022	JUN 2022	JUL 2022	AUG 2022	SEP 2022	OCT 2022	Periods T...	Grand Total
03 Approved Project Budget		26.000	58.000	39.550	37.500	42.500	10.500	10.000	10.100	7.500	4.000		223...	249...
External Costs		0	18.000	17.500	12.500	12.500	7.500	7.500	7.500	7.500	4.000		98.500	98.500
Hardware	Markieren	0	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000		40.000	40.000
Other	Markieren	0	2.500	2.500	0	0	0	0	0	0	0		5.000	5.000
Services	Markieren	0	8.000	7.500	5.000	5.000	0	0	0	0	0		25.500	25.500
Software	Markieren	0	3.500	3.500	3.500	3.500	3.500	3.500	3.500	3.500	0		28.000	28.000
Internal Costs		26.000	40.000	22.050	25.000	30.000	3.000	2.500	2.600	0	0		125.150	151.150
Administration	Select	26.000	0	22.050	0	30.000	3.000	2.500	0	0	0		57.550	83.550
Inhouse Trainings	Select	0	0	0	0	0	0	0	0	0	0		0	0
Other	Select	0	0	0	0	0	0	0	0	0	0		0	0
Systems	Markieren	0	30.000	0	25.000	0	0	0	0	0	0		55.000	55.000
Travel Cost	Markieren	0	10.000	0	0	0	0	0	2.600	0	0		12.600	12.600
04 Forecasted HR Costs		0	0	0	0	0	0	0	0	0	0		0	0
05 Non-HR Forecasted Costs		0	0	0	0	0	0	0	0	0	0		0	30.000
07 Plan Costs		0	0	0	0	0	0	0	0	0	0		0	0
08 Actual Costs - HR Costs		0	0	0	0	0	0	0	0	0	0		0	413

Save

Figure 7.9 Sample Financial Planning at the Portfolio Item Level

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SE38

SAP FI-CO Integration and Planning at Portfolio Item and Item (Init) Level

Save as Variant... Get Variant... More ▾ Exit

Execution Option

Integr., Planning and Rollup:

Integration and Planning:

Integration:

Planning and Rollup:

Planning:

Rollup:

Consistency Check:

PS Logical System


Destination System:


Portfolio/Bucket Selection

Portfolio ID:

Bucket ID:

Date Selection

Forecasted Date: to: 

Planned Date: to: 

Execute

Figure 7.10 Program for the Integration of Accounting Data

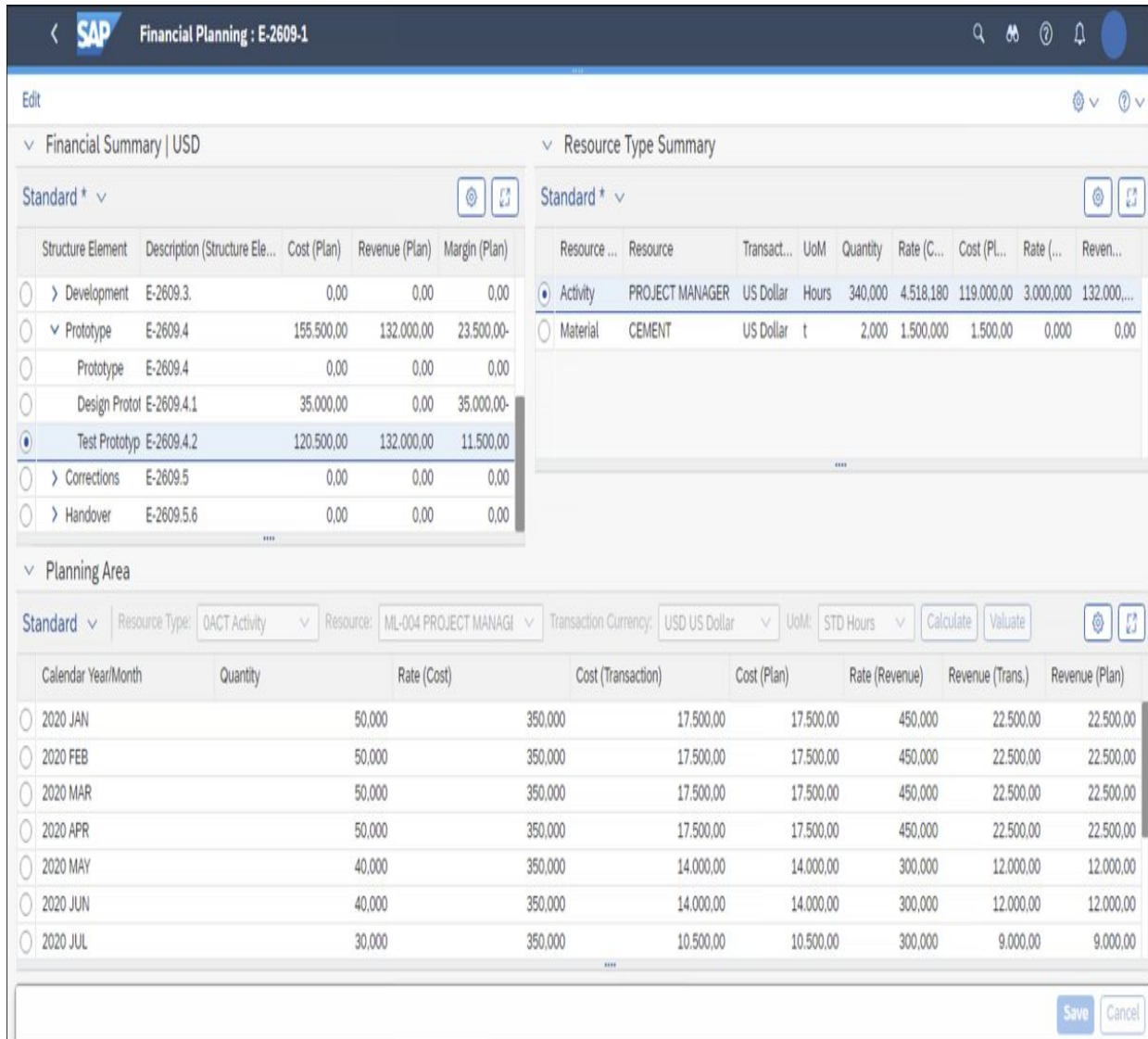


Figure 7.11 Project Cost and Revenue Planning Using CPM

The screenshot shows the SAP General Issue interface. At the top, there is a navigation bar with the SAP logo and the title 'General Issue'. Below this, there are action buttons: 'Edit', 'Copy From', 'Change Request (Copy and Ref.)', 'Print', 'Open Side Panel', and a settings icon. The main content area is divided into sections: 'Issue Description' and 'Activities'. The 'Activities' section contains a table with the following data:

<input checked="" type="checkbox"/>	Activity Template Description	Sort Number	Activity Status	Activity Type Text	Employee Responsible (Name)	Activity ID
<input checked="" type="checkbox"/>	General Activity	0000		General Activity	James Bradley	\$_00001

Below the table, there is a 'Detailed View for Activity \$_00001' section. It has several tabs: 'Activity Overview', 'Reference Objects', 'Business Partners', 'Attachments', and 'Administration Data'. The 'Activity Overview' tab is selected. It is divided into two columns: 'General Details' and 'Detailed Description'. The 'General Details' column contains the following information:

- Activity ID: \$_00001
- Activity Template Description: General Activity
- Activity Type: IA1 General Activity
- Employee Responsible: 9980000... James Bradley
- Activity Is: Proposal, Mandatory

The 'Detailed Description' column contains a 'Title' field and a 'Long Text' field with a rich text editor toolbar.

Figure 7.12 Entry of an Activity as a Measure for an Issue

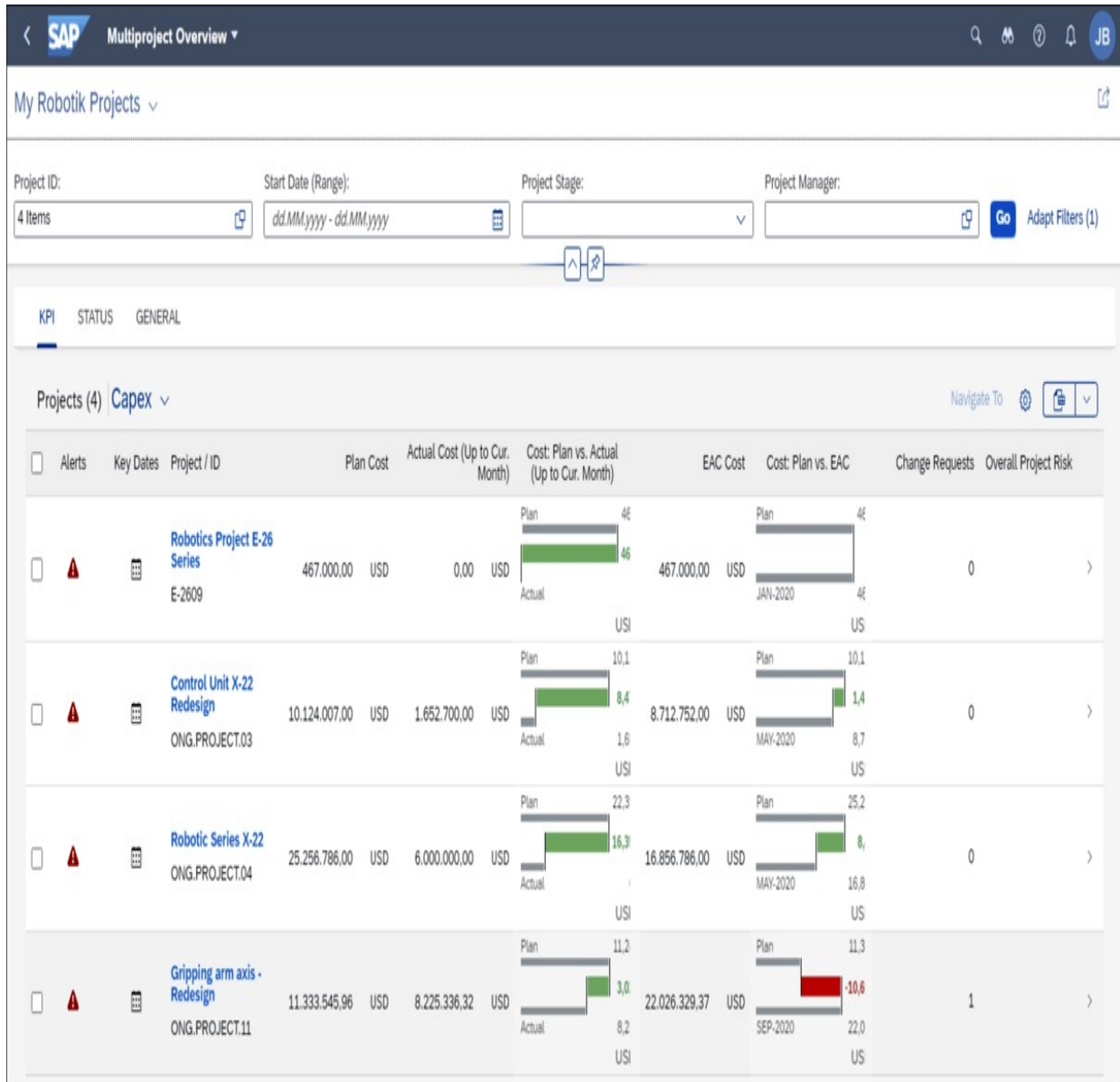


Figure 7.13 Cross-Project View of the Project Workspace in CPM

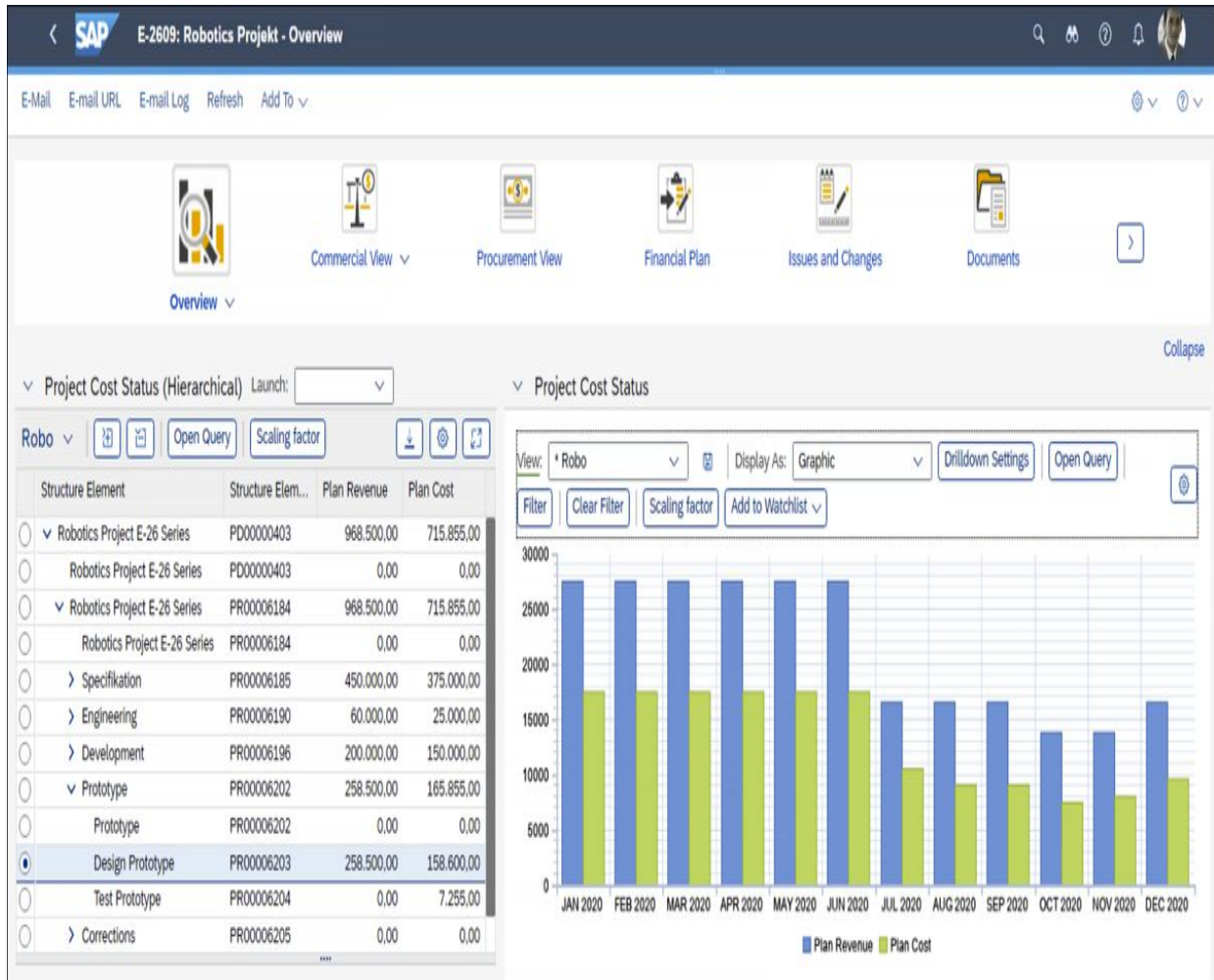


Figure 7.14 Overview of a Project in the Commercial Project Workspace of CPM

The screenshot displays the SAP Project Details interface for a collaboration project. The header shows the SAP logo, 'Project Details', and user information 'OS'. The main title is 'Markdorf New Office Building 9' with ID '2021-MAK07X'. A location map shows 'Dornierstraße 3, 88677 Markdorf'. The collaboration owner is 'Stern, Oscar' from 'BestRun'. The project duration is from July 8, 2021, to July 8, 2023, and the status is 'New'. A navigation bar includes 'Header', 'Overview', 'Tasks', 'Documents', 'Digital Twin', 'Project Partners', and 'Related Objects'. The 'Overview' section contains five cards: 'Project Plans' (Last Update: Nov 24, 2021), 'Financial Views' (Deprecated), 'Documents', 'Issues Assigned to Me' (1), and 'Open Issues' (1 overdue, 1 open). Each card has a corresponding management link at the bottom.

Category	Value / Status	Action
Project Plans	Last Update: Nov 24, 2021	Manage Project Plans
Financial Views	Deprecated	Manage Financial Views
Documents		Manage Documents
Issues Assigned to Me	1	Show Issues Assigned To Me
Open Issues	1 overdue, 1 open	Manage Issues

Figure 7.15 Details of a Collaboration Project

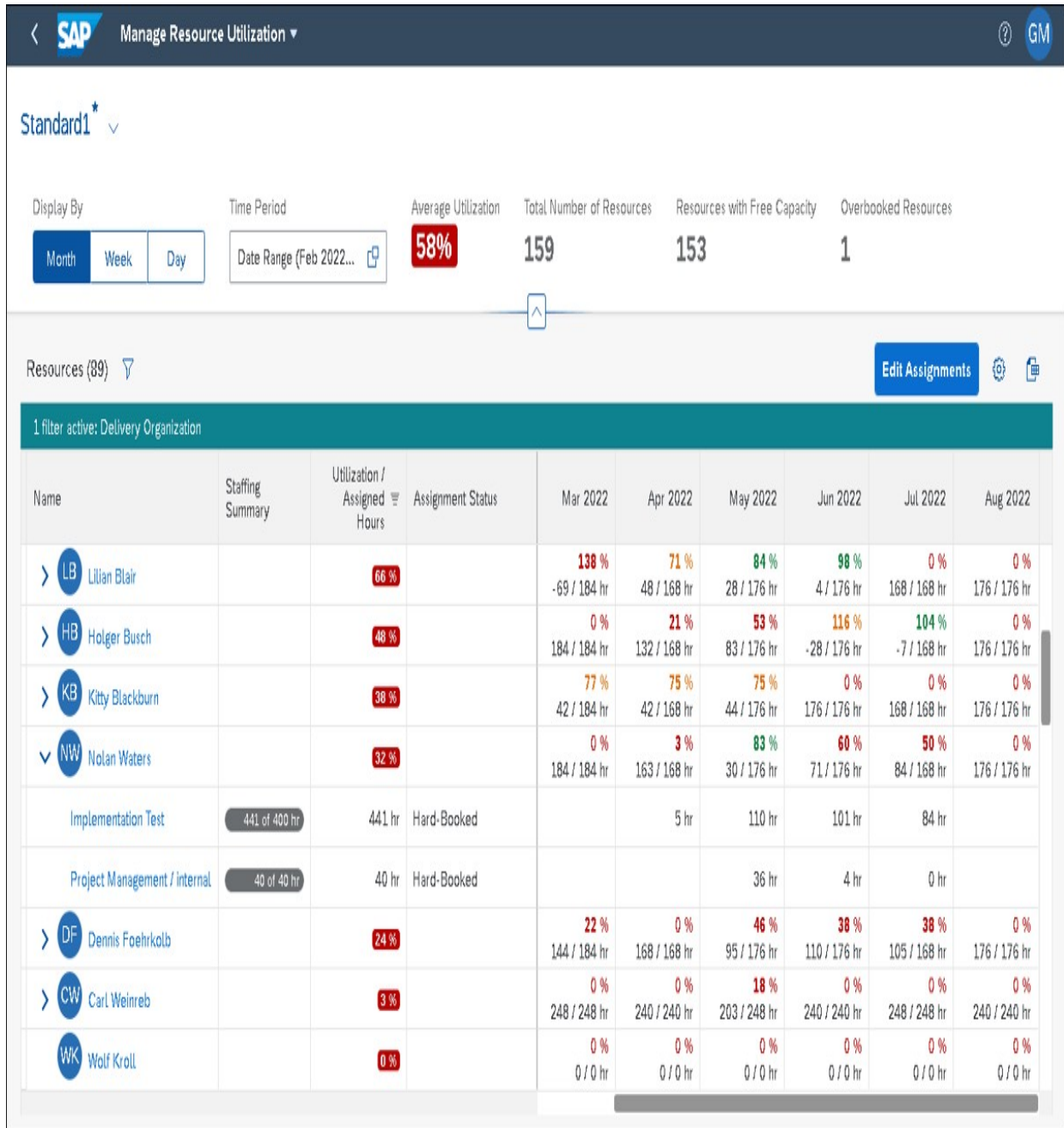


Figure 7.16 Monitoring Resource Utilization Using the Manage Resource Utilization App

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