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Asset Management in Uncertain Times

Freddie Tan

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Dr. Freddie Tan is an Ordinary Member of the Singapore Institute of Directors (SID) and an Associate Professor (Practice) at the College of Design and Engineering at the National University of Singapore (NUS). Over his 25-year corporate career in publicly listed companies based in Singapore, his expertise spans corporate governance, digital and data, technology, and sustainability within the realm of asset management.

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Preface

We are living in an era of profound uncertainty. This book, *Asset Management in Uncertain Times*, seeks to deepen your understanding of the science and art of asset management within today's polycrisis environment. Drawing on over 25 years of experience as a corporate journeyman, this work is designed to inspire readers by offering insights from the perspective of an industry insider. It leverages practical and adaptable principles applicable across various countries and organizational contexts. While it does not claim to cover every nuance exhaustively, this reference text provides specific narratives and experiences that offer readers a closer look into the author's thought process and decision-making in complex situations.

Who will benefit from this book:

- **University students:** Gaining foundational insights into asset management practices within a firm while learning strategies to navigate uncertain times.
- **Asset management practitioners in Singapore:** For those new to the field, this book offers clarity on managing uncertainties and residual risks in diverse scenarios. It introduces fresh perspectives on corporate, business, and operational strategies, enhancing professional judgment and discernment.
- **Learned investors and retirees:** Explore essential chapters on corporate governance and delve into transformative topics such as digital twin technology and sustainability — forces reshaping the future of the built environment.

I sincerely hope that those who read this book in its entirety, regardless of where you are, will resonate with its underlying messages and find value in its contents.

At its heart, the practice of asset management during uncertain times demands agility to navigate complex issues. It also requires cultivating mental fortitude and staying resilient and optimistic throughout challenging business cycles. While there is no universal formula for achieving success or earning trust in asset management, the guiding principle I offer is this: *Be robust, but do not overdo. Always strive to create value*.

Finally, please note that terminology within this book may vary across regions, industries, and the built environment. I have endeavored to use straightforward language for broad accessibility and sincerely apologize if further simplifications could enhance clarity. Thank you for your support in building a better world.

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I am grateful to my industry peers, whose constructive feedback has shaped the structure and chapters of this book. Many of them have journeyed with me for over two decades, and their insights have helped contextualize the events, examples, and perspectives shared. While some have preferred anonymity, I wish to honor one peer reviewer — known to me for 33 years — who sadly passed away during the preparation of this book.

I would like to acknowledge the following individuals for their contributions:

- Bernard Wong: Bernard holds a Bachelor of Accountancy from Nanyang Technological University, Singapore, and is a Chartered Accountant (Singapore) accredited by The Institute of Singapore Chartered Accountants. With over 25 years in the finance industry, his insights have been invaluable.
- Ting Jeck Guong: Jeck Guong holds a Master's degree in Construction Management from the University of New South Wales and a Bachelor of Science in Building (Honors) from the National University of Singapore. He brings 27 years of expertise in the built environment sector, recruitment, and career coaching.
- Choo Kim Seng: Beginning his career in the mid-1980s, Kim Seng has contributed to major infrastructure projects such as a power plant and airport terminal, luxury hotels, Grade A+ offices, residential developments, and mixed-use projects, such as health campuses. With over 35 years in the built environment sector, his perspectives are invaluable on complex, multinational stakeholder engagements.

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CHAPTER 1

Introduction to asset management

Overview

As the world closely observes the changes being brought about by Donald Trump's second term as President of the United States of America (POTUS) and the reshaping of the global order in the next four years, it is an opportune moment to examine the role of asset management, as an asset operator, in the built environment to navigate these uncertain times.

Inspiration is drawn from past corporate, business and operation experiences in publicly listed real estates companies, and investment entities such as real estates investment trusts (REITs) and private equity funds (PE Funds) in real estates and alternative asset classes (collectively known as "Fund") domicile in Singapore.

Today, asset management's principal activities are shaping the future interactions and relationships between people, the built environment, and the natural environment. This ambit complements the principal role of a capital manager, who is an asset allocator, to strategize and allocate resources into a specific country, asset class, and market segment to meet an investment mandate.

This book presents the key considerations influencing asset management activities operating in different geographies, asset classes, and market segments for the ongoing future.

First, let us explore a few market concepts about the multifaceted world of asset management (Woodhouse, 2003; The Institute of Asset Management, 2024) to enhance your understanding and enjoyment of the rest of this book:

- Asset management
- Asset classes
- Infrastructure asset management

- Physical asset management
- Digital and data asset classes
- Digital asset management
- Data asset management.

Asset management

Asset management is a broad term that generally covers traditional investment areas such as financial asset management, infrastructure asset management, and engineering asset management.

In traditional practices, asset management in the built environment is about physical assets and financial assets. Physical assets generally have broad categories, such as infrastructure asset class and commercial asset class, while financial assets are, for example, cash and cash equivalents.

The traditional asset management approach is a robust and systematic process of developing, operating, maintaining, upgrading, and disposing of the physical asset to maximize the economic lifespan and value. If we look at the internationally acceptable standard, ISO 55000 (ISO, 2024), which has provided a global consensus on asset management, it is generally recognized as the coordinated activity of a firm to realize the value from any assets (ANSI, 2024). Managing the assets to provide products and services is deemed a core part of the discipline known as asset management.

Asset management in the built environment can, therefore, be regarded as a system approach to manage and unlock value by the entity responsible for the asset. In today's age, the academic world needs to examine the changing priorities in the built environment that affect asset management activities. This examination can offer new insights and guidance for the ongoing industry transformation in the digital economy in Singapore.

Consequently, the industry must take stock and conduct thorough studies to better understand the requirements and challenges in the market. This understanding is crucial to explain the simultaneous paradigm shifts occurring in the built environment sector in Singapore, enabling asset management practitioners to derive meaningful insights and offer effective solutions.

Asset classes

This section presents various examples of infrastructure and commercial assets, highlighting their interconnections. Additionally, it provides a detailed explanation of the nomenclature used in asset classes.

Infrastructure assets include:

- Transportation hubs, such as airports, railway stations, seaports, and highways
- Communication system and network, including underground and undersea cables
- Renewables facilities, such as solar energy farms and water reclamation plants
- Medical and emergency response facilities, such as hospitals, fire stations, police stations, and community hospices
- Public buildings, such as government offices, libraries, religious worship, town councils, and community centers
- Civil defence shelters and a public warning system.

Commercial assets include:

- Offices
- Shopping malls
- Industrial buildings
- Hotels, resorts, and serviced apartments
- Student accommodation apartments
- Senior retirement homes
- Private hospitals, medical centres, and clinics
- Mixed development, such as office-mall-hotels and private residential properties-shopping malls.

Interconnections between infrastructure and commercial assets

This segment uses examples in Singapore to improve readers' awareness of the interconnections between infrastructure assets and commercial assets in urban infrastructure. However, this book does not intend to delve into urban infrastructure, as that requires a separate discussion.

For example, the built environment has strategically positioned integrated public transportation hubs to seamlessly connect with commercial facilities, such as retail shops, food & beverage (F&B) outlets, and essential amenities like banks and automated teller machines (ATMs) within their own "ecosystem."

This ecosystem expands to include adjoining commercial properties, such as offices and shopping malls, and infrastructure assets like hospitals and government buildings. This connectivity offers the opportunity to create new user experiences that facilitate the exchange of goods and services among commuters, shoppers, and others in the same area.

One measure of success is polycentricity (Ng, 2024), which refers to the clustering of various human activities. This concept attracts more commuters to the ecosystem and reduces the need for residents to leave the area for activities. This approach is successfully implemented in Singapore's regional centers, which demonstrate a high degree of polycentricity. Asset management activities have played a crucial role in maintaining the attractiveness of these areas for social, commercial, and other activities. These centers enable a shorter distance that people travel from home for work or leisure.

It is important to note that asset ownership and the responsible entity can influence how asset management activities are conducted, resulting in different user experiences and meeting stakeholders' requirements. This is discussed in Chapter 2 to provide a clearer understanding of the asset management planning role in different investment entities.

New opportunities

In a rapidly changing built environment, the nomenclature for asset classes must be continually reviewed and updated. Traditionally, asset classes such as office and industrial buildings have leaned toward "vanilla asset class or pure play." However, over time, asset management activities in these properties have evolved to stay more connected to public transportation, nearby amenities, and common property facilities. They have embraced digital technology and smart applications (apps) to retain key tenants and enhance user experiences in more recent times.

Fundamentally, traditional definitions are being overshadowed by the reimagination of usable spaces in the digital economy. However, the primary asset classifications are likely to remain unchanged in the foreseeable future.

As society embraces Industry 4.0's digital economy amidst demographic changes, there is a rapid surge in automation, robotics, digitalization, and the use of artificial intelligence (AI) in everyday life. As thematic growth areas in business activities, technological advancements, and new user experiences emerge, more asset subclasses gradually become mainstream asset classes. We can observe fresh and exciting opportunities emerging in thematic growth areas (PERE, 2019; 2024), such as in data centers, renewables, co-working, co-living, logistics, self-storage, and wellness. Today's asset subclasses could potentially be tomorrow's game changers in the built environment.

Infrastructure asset management

Infrastructure asset management is a specialized engineering discipline focused on managing physical assets to support social and economic activities. This discipline requires expertise in management, finance, engineering, Environmental, Social, and Governance (ESG), digital technologies, and other practices to deliver the expected quality of service at an optimal cost.

Life cycle approach

The life cycle management of an infrastructure asset includes activities in design, construction, commissioning, operation, maintenance, repair, modification, replacement, and decommissioning.

Infrastructure assets are often considered "in perpetuity" due to their intent to serve society for as long as possible. A typical infrastructure asset has an optimal useful lifespan of up to 100 years (Gibson, 2017; The Infrastructure Manager, 2018). This duration can vary widely, depending on factors such as country, leadership, societal needs (purpose), technology, maintenance, and repair work.

To explain infrastructure asset management, we will use an example of the development of Singapore's air hub. For the last 50 years, Singapore has been constructing and expanding its civilian airports on its small island city-state. By the 1970s, Paya Lebar Airport could no longer manage the growing volume of passenger and airfreight movements. Changi International Airport started operation in 1981 to meet the increasing country and city links for international passenger travel and airfreight. Today, Changi International Airport has four terminals, with a fifth terminal under construction (CAG, 2024).

This achievement reflects the true grit of Singapore's leadership, stable open society, and robust economic activities in a strategical location in South East Asia, which attract visitors, investors, and residents from around the world. The seamless integration of open-air routes and landing rights is crucial for achieving the desired benefits and efficiencies in the built environment.

Effective infrastructure asset management, in this case, involves collaboration between the managers of the airport's physical facilities and public stakeholders, such as government agencies. The planning for the operation and maintenance of airport assets is divided into different physical spaces, such as restricted and public areas, each managed by specialized teams with the appropriate skills and training.

Airport planners have smartly conceived a mixed-use commercial development that includes airport services, indoor gardens, leisure attractions, retail and dining options, and a hotel, all under one roof. This innovative approach integrates private sector expertise in commercial asset management into the design, development, and management of the commercial activities in an air hub. The successful partnership between the public and private sectors has elevated visitor and user experiences at Jewel Changi Airport (CapitaLand, 2024), enhancing its appeal as a premier air hub. This re-imagination of spaces has created a new "ecosystem," further illustrating the blurring of traditional asset class classification.

To this end, it is important to recognize the impact of industry transformation on infrastructure asset management in Singapore. The Singapore growth story has witnessed remarkable infrastructure ownership transfer and upskilling in asset management for more than 30 years. Certain asset classes have successfully evolved from mainstream public infrastructures

in the early 1990s through the Government-Linked Corporations model. This success has built a rock-solid platform for privatization to promote entrepreneurship and innovation in the built environment sector. This requires a continual upgrade of capability in asset management to operate and extract values in various asset classes to remake Singapore over time.

By the early 2000s, the built environment sector had been able to offer very high-quality infrastructure and commercial assets to support economic and societal needs. This milestone was attained with the market maturity of very large publicly listed corporations and REITs.

In the 2010s, a series of digitalization efforts to embrace digital and data assets further transformed the asset management capability in the industry, paving the way for the asset management of alternative asset classes to compete against world-class PE Funds that truly demanded a holistic know-how of physical, digital, and data asset management skillsets.

Physical asset management

This segment focuses on the role of asset management in commercial assets under a Fund. Physical asset management involves a systematic approach to managing assets to prolong their life and to ensure they remain in good condition. The activities encompass the entire asset life cycle from procurement to disposal, which aims to optimize asset efficiency and create value for the firm. Asset management also enables a firm to evaluate the need for and performance of assets and asset systems at strategic, tactical, and operational levels throughout the different stages of the asset's life cycle.

Strategic activities

To achieve effective asset management, a firm must manage and categorize the various types of assets in its portfolio. This is the first and most crucial step toward accountability, as a firm needs to know what it carries on its balance sheet. Tracking and updating commercial assets require continuous monitoring and updating of asset information to keep records accurate and current.

Subsequent planning for asset management activities depends on several factors, including the organization's principal activities, asset class, subclass, asset size in the portfolio, geography, risk classification, and local operating conditions.

In this context, asset management must consider the critical aspect of asset ownership and the entity responsible for the asset. Asset management operates under the direction of fund management, which will require an understanding of fund structure and capital allocation. This is essential for asset management planning to achieve the Fund's mandate.

The asset management plan is comprehensive, typically encompassing current operations and expansion efforts. It must synchronize its planning activities to align with the Fund's long-term goals and objectives, including preparations for acquisition and divestment activities. Incorporating a life cycle costing approach, where possible, offers a strategic advantage by evaluating the total cost of ownership, including acquisition, operation, maintenance, and disposal costs.

Leveraging data analytics and technology supports decision-making, optimizes asset performance, and predicts future trends across various dimensions, such as country, asset class, market segment, interest rates, and other direct and indirect business considerations.

Choosing the right tenant or customer mix, including anchor tenants and niche tenants, requires thorough due diligence. Potential tenants or customers should be evaluated against in-house criteria and market conditions, with selections made to align with the Fund's overall mandate. The strategic mix can vary based on asset class types, location and country, influence by market factors, geopolitical situations, and cultural understanding.

Active engagement with stakeholders is necessary to ensure that their needs and expectations are considered in the overall asset management strategy.

Asset managers in countries with varying risk levels face challenges in balancing these considerations while meeting financial performance targets. It is crucial to develop the discernment needed to navigate uncertain times (Chapter 5) and manage residual risks in various situations. This requires a firm to develop robust next-generation risk management (Chapter 6) to identify, assess, and mitigate risks associated with asset performance and life cycles.

Tactical activities

Tactical asset management involves balancing costs, opportunities, and risks to achieve the desired performance of assets and meet the organization's objectives. This requires regular market analysis and operational risk assessment to identify potential or actual risks associated with assets. Implementing mitigation strategies is crucial to address these risks effectively. The duration of these activities varies across different stages of the business cycle and is traditionally adopted as a short- to mid-term plan with necessary adjustments. Maintaining open communication with the Fund Management team to provide updates on asset performance and discuss strategy adjustments is crucial. In terms of portfolio management, asset management plays a complementary role in ensuring the right mix of assets to align with the Fund's investment objectives and risk tolerance, supporting the acquisition of new assets.

At the portfolio level, monitoring cash flow for income and expenses in operating the assets is necessary to meet obligations for fee payments and investment returns to shareholders. Financial performance and analysis are needed to extract value from operating assets and make necessary adjustments, such as payment schedules, credit terms, and income-generating activities, to maximize returns. The strategy for the asset portfolio is to take proactive branding, marketing, and leasing measures to position properties with a tenant mix that is yield-accretive in the short-, middle-, and long-term.

Asset management's ability to instill flexibility in asset planning and implement versatile resource allocation strategies will position the Fund at a competitive advantage. This adaptability allows the Fund to capitalize on various market conditions and technological advancements while making necessary adjustments to comply with regulatory changes.

Operational activities

Operational asset management is crucial for any organization to maintain assets in optimal condition in day-to-day management and maintenance. Without proactive maintenance, asset performance can decline, potentially leading to asset failure. In a competitive business environment, companies cannot afford such mistakes, especially for commercial asset

classes, such as financial institutions (FIs), data centers, and cold-chain logistics, that provide essential supplies and support critical functions and services to industries.

Examples of physical assets that require life cycle maintenance planning include:

- **Mechanical, electrical, and plumbing (MEP) systems:** This includes air conditioning and mechanical ventilation systems (ACMV); electrical plant and equipment such as high tension/low tension switchboards, transformers, backup generators, and cable and wire distribution networks to endpoint users in properties; pipework and distribution for potable water, toilet, and kitchen waste; telecommunication systems; security systems; and power and water supply systems.
- **Equipment and machines:** Modern facilities across various asset classes utilize numerous production and service machines. Software tools are employed to process sensitive personal data and grant authenticated access to different types of building users, such as tenants and property operation staff, based on asset class and security classification. Other examples include visitor management kiosk systems, which are self-help automated systems for registering visitors in certain facilities; facial recognition (FR) access and control for lobbies or access doors to controlled environments; electronic car parking smart applications for online electronic payment and registration of season parking; and car park guidance systems that manage the efficient flow of vehicular traffic at a property's parking facility.

The planning and scheduling of downstream maintenance activities for physical assets using condition monitoring, data analytics, and predictive techniques in smart facilities management (Smart FM) enhance the reliability of asset performance throughout its life cycle. This includes monitoring and scanning equipment at sensors, meters, and app level to assess performance and identify potential issues or areas for improvement.

The introduction of digital twin technology offers opportunities to better match inventory and replacement needs in maintenance management activities. Tracking inventory levels and ensuring that consumable

items are available when needed supports budget planning and includes contingency plans for operational disruptions and business continuity scenarios.

For a successful asset operation, it is essential to establish a robust feedback loop, encompassing both online and offline channels, to capture insights from operational activities, such as occupancy patterns, tenants' requests, and tenants' user experience. These insights should be analyzed and acted upon promptly to enhance asset performance. By integrating this feedback into strategic and tactical plans, organizations can continuously improve their asset management practices and make informed decisions on future tenant mix, new services and products, and improvements that align with the overall objectives.

The emergence of digital and data asset classes requires an introduction in the next few segments.

Digital and data asset classes

The concept of asset management in the built environment has expanded beyond physical and financial assets to include digital and data assets, which are becoming increasingly important.

Many market leaders and decision-makers prioritize digital and data assets in their value creation, preservation, and extraction processes, recognizing their significance as platform solution providers (IMDA, 2019) and thematic growth areas.

Digital and data asset classes are now crucial pillars of infrastructure asset classes, such as data centers and renewables, as well as alternative commercial asset classes like co-working, co-living, and self-storage in the built environment sector.

Digital asset

Since the early 2010s, asset-intensive and business-to-business (B2B) market players have embraced digitalization and digital services. They have since adopted a science-based approach to address complex issues like climate change and supply chains.

In business today, asset management is already leveraging digital assets, such as cloud-based business automation for specific processes and tasks, enterprise resource planning (ERP) for integrating various business processes into a single unified system, and the recent advancements in artificial intelligence and machine learning (AIML) in smart digital applications. By integrating cloud technology with automation, businesses can streamline workflows, reduce manual effort, and improve overall productivity.

An ERP system provides real-time data and insights that drive informed decision-making, support scalability, and improve collaboration. AIML enhances asset management by automating tasks and offering advanced analytical insights. These technologies have the potential to revolutionize asset management in the built environment sector.

Data asset

Data asset offers a vast reservoir of potential insights, knowledge, and competitive advantage. It includes personal data of customers, employees, and other stakeholders, building operation data, business transaction records, market research, as well as publicly available information such as social media insights collected to support asset management activities.

This data can be in various forms and is used smartly in data analytics and insights and is presented as business intelligence (BI) at the dashboard level to a company's management. It informs strategic decisions, optimizes operations, improves customer service, and drives innovation in asset management activities (Bergin, 2023).

Digital economy

The power and value of digital and data assets are clear. "Data" is the new oil, and "digital" is the enabler. In this new economy, asset management practices have evolved across different business structures and investment entities over many business cycles.

To this end, we need to embrace a broader understanding, definition, and acceptance of modern thinking in asset management for the built environment.

Digital asset management

Digital asset management represents the future of making informed decisions and optimizing value delivery in the built environment. It involves using software and systems solutions to efficiently store, organize, manage, retrieve, and distribute an organization's resources to create, preserve, and extract values from physical and data assets.

This approach simplifies processes by providing real-time data essential for asset tracking, maintaining the economic lifespan of assets, and optimizing the asset mix within a portfolio in the Fund's duration.

Data-driven technologies and AI innovations in business cloud and social media platforms save time and improve accuracy, leading to better overall performance in the following activities of asset management:

- Planning and executing asset plans for both physical and digital/data assets
- Tracking asset locations and condition monitoring in real times
- Controlling costs associated with assets
- Overseeing maintenance management activities in building infrastructure, MEP, equipment, and machines
- Ensuring compliance with occupational health, safety, environmental, and other regulatory standards
- Analyzing asset performance for improvements and planning for asset enhancement initiatives (AEIs)
- **Promoting brand and marketing assets:** Utilizing digital channels, such as social media, company websites, and smart apps, to maintain consistent imagery and messaging, thereby building brand authority with prospective customers and driving business growth.
- **Monitoring AEIs on their progress, action, remedial measures, and cost-value proposition:** Keeping stakeholders, such as investors, informed about the progress of AEIs in existing properties and alerting tenants on preparation so as to manage the expectation on the continual use of property facilities and amenities.
- **Delivering insightful data narratives:** Providing quality updates on property activities and community storyboards in communication efforts is essential to retain stakeholders and to promote user experiences, such as tenants and customers.

- **Planning and implementing manpower strategies:** Managing portfolios of assets across different geographies and locations using a mix of core decision-making teams and outsourced service providers and consultants.

To achieve this, upskilling staff is necessary to enhance productivity. Recognizing the transformative value of digital asset management is crucial for enriching the asset life cycle in the built environment. It is not about replacing jobs but complementing decision-making power and improving the quality of actions in asset management activities.

Data asset management

Data asset management involves managing, organizing, and optimizing data as a valuable business asset to extract maximum value. This process includes the identification, classification, processing, storage, safeguarding, retrieval, and destruction of data.

The framework for data asset management incorporates data governance, data quality management, data architecture, and BI. This requires the development and implementation of robust policies and procedures (P&Ps) to ensure proper management of data assets within an organization (IMDA, 2024), and cybersecurity and data protection measures are priority asset-management practices in the digital economy to prevent data loss and leakage or compromising data security.

It helps businesses understand their data and know its location, usage, and potential value. Poor quality data can lead to erroneous insights, as millions of data points in personal, operational, and business data can result in poor business decisions. Implementing a robust data asset management system ensures that data is accurate, up-to-date, and relevant for operational, tactical, and strategic business needs in asset management activities. A single source of truth is essential, where data from different sources is integrated, cleansed, and standardized. This reliability improves the opportunity to create and extract value, for example, from the Smart FM approach (BCA, 2024) in day-to-day routine activities. Maintaining data confidentiality, integrity, and accessibility can

accelerate decision-making processes and reduce operational inefficiencies at the portfolio management level. This ensures that data quality is trusted and utilized by decision-makers, resulting in more informed and effective business decisions in asset management activities and earning the trust of stakeholders such as customers and regulators.

Conclusion

In this chapter, we have delved into the multifaceted world of asset management, exploring various dimensions, including asset management, asset classes, infrastructure asset management, physical asset management, digital and data asset classes, digital asset management, and data asset management. Each aspect plays a crucial role in ensuring the efficient and effective management of portfolio assets to meet organizational goals.

Understanding the diverse nature of asset classes, from physical infrastructure to digital and data assets, enables organizations to develop tailored strategies that maximize value and mitigate residual risks. This requires an asset management plan, which is a strategic document that serves as a tactical plan for managing the firm's infrastructure and other assets to deliver an agreed standard of service. It outlines how a firm intends to manage its assets effectively over time, detailing the principles, practices, and activities involved in the life cycle management of assets. The comprehensive asset management plan includes information on asset inventory, maintenance strategies and opportunities, risk assessment, and financial objectives. The goal is to ensure that assets contribute optimally to the firm's objectives by aligning management practices with business goals and maintaining assets in a way that adds value over their entire lifespan.

Asset management for publicly listed real estate companies and Funds needs to adapt to evolving market conditions, technological advancements, and regulatory changes in uncertain times. This demands a culture of continuous improvement and leveraging insights from both operational activities and stakeholder feedback to navigate uncertainties and achieve sustained success.

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CHAPTER 2

Planning within a firm

The firm

Capital allocation

Prior to planning asset management activities in the firm, it is necessary to understand the distinct goal, investment strategy, and operational focus of the responsible entity. This chapter explains the following types of entities and the nuances in market transformation in Singapore over time:

- Traditional real estate business
- Singapore real estate investment trusts (S-REITs)
- Private equity funds (PE Funds) for real estate (PERE)/alternative asset (PEAA) classes domiciled in Singapore.

Traditional real estate business

The principal activities of a firm are land acquisition, project development, and selling or renting the physical properties at a profit. This approach requires significant capital and hands-on management.

Market transformation

This brings about changes over time, and the capital allocation no longer favors the traditional real estate business model:

- **Diversification:** Investors began diversifying their portfolios by including various types of properties (residential, commercial, industrial) and investing in real estate markets globally.

- **Globalization:** The globalization of real estate markets allowed investors to tap into emerging markets, providing new opportunities and spreading risk across different regions.
- The introduction of S-REITs in Singapore (REITAS, 2024) has allowed investors to pool money to invest in real estate without directly managing properties. This has democratized real estate investment, making it accessible to a broader audience, such as retail investors.
- **Technology:** The rise of technology revolutionized property investment. Tools like big data analytics, artificial intelligence (AI), and digital platforms have made it easier to analyze market trends, manage properties, and make informed investment decisions.
- **Sustainability focus:** More investors are increasingly considering the sustainability and social impact of their investments (OECD, 2020). Environmental, Social, and Governance (ESG) factors have become mainstream in corporate key performance indicators (KPIs) reporting for investment strategies. More are now willing to invest in sustainable building practices and green technologies. This includes energy-efficient buildings, renewable energy sources, and sustainable materials.
- **Post-pandemic changes:** The COVID-19 pandemic has shifted work and commuting patterns, impacting office space demand and downtown environments (The Straits Times, 2020; Loh and Love, 2023; WSP, n.d.) More companies are, however, instructing their employees to return to work in their physical offices. Investors are now more cautious and selective, focusing on different asset classes that can adapt to new market conditions in different geographies. PERE/PEAA takes a more central stage.

Singapore real estate investment trusts

The investment focus for listed S-REITs in Singapore since 2002 is primarily investing in income-producing real estate, such as office buildings, shopping malls, apartments, and hotels. Some of the listed S-REITs invest in a diversified portfolio of asset classes, while other listed S-REITs are vanilla asset classes or pure play. S-REITs are publicly traded on the Singapore Stock Exchange, making them more liquid and accessible to a broader range of investors. The Monetary Authority of Singapore (MAS)

ensures good corporate governance in the S-REIT industry. This is a safeguard for investors.

The aim is to provide regular income to investors through dividends derived from rental income and distribute a significant portion of it to shareholders. There is less focus on aggressive capital appreciation, while property value increases are still beneficial to asset portfolio valuation.

Asset management focuses on property management, including leasing, maintenance, and tenant relations, to ensure high occupancy rates and stable rental income. The activities include periodic property valuation and making decisions about acquisitions, dispositions, and developments to optimize the asset portfolio. S-REITs may engage in asset enhancement initiatives (AEIs) to retain and improve the attractiveness of the asset to tenants and customers.

Potential internalization

Internalization refers to the process of bringing management functions in-house rather than relying on external asset managers owned by sponsors (SGX, 2024). This can have several effects on the operation strategy and financial results of S-REITs:

- **Cost savings:** Internalization can lead to significant cost savings by eliminating management fees paid to external managers. This can improve the S-REIT's bottom line and increase profitability.
- **Alignment of interests:** Internal management can better align the interests of the S-REIT's management team with those of the shareholders, as both parties share the same goals and incentives.
- **Operational efficiency:** With in-house management, S-REITs can have greater control over their operations, leading to improved efficiency and responsiveness to market changes.
- **Strategic flexibility:** Internal management allows for more strategic flexibility, as decisions can be made more quickly without the need for external approval or consultation.
- **Market perception:** Internalization can positively impact market perception, as investors may view it as a sign of stability and long-term commitment to the S-REIT's success.

Overall, internalization can enhance the operational strategy and financial results of S-REITs by reducing costs, improving alignment of interests, and increasing operational efficiency.

Effect on sponsors

When a S-REIT internalizes its management, the role and influence of the sponsor can change significantly. Here are some key impacts:

- **Reduced control:** Sponsors often lose some control over the S-REIT's operations and strategic decisions when management is internalized. This can lead to a shift in power dynamics within the firm.
- **Lower management fees:** Sponsors typically earn recurring income through management fees when they provide external management services. Internalization eliminates these fees, reducing the sponsor's revenue from the S-REIT. In addition to management fees, sponsors may lose acquisition, disposition, and leasing fees that they typically earn when managing the S-REIT's assets.
- **Focus on value creation:** Sponsors may need to focus more on creating value through other means, such as providing a pipeline of properties for acquisition or securing favorable financing terms.
- **Alignment of interests:** Internalization can lead to better alignment of interests between the S-REIT's management and its shareholders, as both parties share the same goals and incentives. The sponsor may need to realign its incentive structures to ensure that its interests are still aligned with those of the S-REIT and its investors.
- **Market perception:** The market may view internalization positively, as it can be seen as a sign of stability, market maturity, and long-term commitment to the S-REIT's success. Clear communication regarding the reasons for internalization and its expected benefits is crucial to ensure that shareholders and stakeholders understand the strategic rationale.

Private equity funds

A PE Fund is the engine of growth that ferrets new opportunities using modern investment strategies in alternative asset classes such as co-living,

logistics, and data centers. These have special appeals to family offices, ultra-high net worth individuals (UHNWIs), and institutional investors for the following reasons:

- **Customization:** PE investments can be highly customized to meet specific investor needs and market opportunities. This includes tailored strategies, operational improvements, and value-added initiatives.
- **Active management:** A firm actively manages the investments, often taking a hands-on approach to enhance value through strategic initiatives, property improvements, and operational efficiencies. A firm needs to demonstrate its track record.
- **Higher risk and reward:** These alternative asset classes can offer higher potential returns, but they also entail higher risks due to their specialized nature and longer investment horizons. Generally, PE Funds can invest in many types of opportunities, such as those commonly understood in the market practices in different geographies. For example, the opportunities explained (JP Morgan, 2024) are:

    - core (stable, income-generating properties)
    - core-plus (properties with potential for income growth)
    - value-add (properties needing improvement)
    - opportunistic (higher-risk, higher-reward investments).

The investment focus is to invest in private companies across various sectors, often acquiring controlling stakes to influence management and operations. This aims to achieve significant capital appreciation over a longer investment horizon. These PE Funds typically require investors to stay invested for 4 to 7 years or even longer.

Examples of alternative asset classes (non-exhaustive):

- **Data centers:** These are critical infrastructures for cloud computing and data storage.
- **Logistics:** Investments in logistics properties, such as warehouses and distribution centers, can benefit from the growth in e-commerce and supply chain demands.
- **Co-living:** Co-living spaces cater to young professionals and students, offering affordable housing with shared amenities.

- **Senior housing:** It is envisaged that there would be increasing demands for this asset class in rapidly aging societies to complement current medical support facilities and nursing homes in developed countries, for instance, Singapore.

Asset management engages in the active management of portfolio companies, implementing strategic initiatives to improve performance, reduce costs, and drive growth. This includes conducting extensive due diligence and negotiating complex deal structures during acquisitions.

The strategy focuses on long-term value creation through operational improvements, strategic mergers and acquisitions, and market expansion. Besides a clear investment mandate on specific alternative asset classes, the PE Fund can also employ a structure in the form of a blind pool fund. This is a type of investment fund where investors commit capital without knowing the specific investments the fund manager will make. Blind pool fund aims to diversify investments across various asset classes and sectors to mitigate risk. Investors do not usually have visibility into the specific investments until the fund manager makes them.

Benefits of a blind pool fund

- **Access to expertise:** Investors gain access to the fund manager's expertise and network, which can lead to better investment opportunities.
- **Potential for high returns:** By pooling resources, investors can participate in larger, potentially more lucrative investments that might be out of reach individually.
- **Diversification:** These funds often invest in a range of asset classes and sectors, providing diversification benefits.

Risks and considerations

- **Blind pool risk:** Investors commit capital without knowing the specific investments, which can be risky if the fund manager's decisions do not perform well.
- **Illiquidity:** Investments in blind pool funds are typically illiquid, meaning investors may not be able to withdraw their capital easily until the fund matures.

- **Management fees:** Investors pay management fees to the fund manager, which can impact overall returns.

Both S-REITs and PE Funds in the built environment sector aim to create value and achieve growth, but their strategies differ based on their ownership structure and market pressures. The planning of asset management activities in S-REITs and PE Funds also differ significantly due to their distinct goals, investment strategies, and operational focuses.

In summary, S-REITs focus on managing real estate properties to generate regular income. The PE Funds concentrate on enhancing the value of the firm for long-term capital gains. The firm plans for exit strategies, such as selling the portfolio company or taking it public, to realize returns for investors.

Greater specialization in asset management for private equity funds

Specialization within these alternative asset classes is becoming more pronounced. Here are some market examples:

- **Co-working:** Companies specializing in providing flexible office spaces tailored to the needs of freelancers, startups, and remote workers. This includes offering amenities like high-speed internet, meeting rooms, and community events. For example, WeWork has historically had a presence in Singapore (WeWork, 2024), and SoftBank was a major funding source for WeWork in 2019 (WeWork, 2019).
- **Co-living:** Developers are focusing on creating co-living spaces that cater to young professionals and students, offering affordable housing with shared amenities such as kitchens, lounges, and gyms. For example, one market player in Singapore is The Assembly Place (The Assembly Place, 2024). The co-living business funding sources include PE investment, such as Apricot Capital (MINGTIANDI, 2024).
- **Data centers:** Specialization in data centers involves building facilities with advanced cooling systems, high-security measures, and scalable infrastructure to support the growing demand for cloud computing and data storage, in part fueled by the advent of AI. For example,

Keppel Data Centre Fund II in Singapore taps on the Keppel Group's know-how in sustainable technology and energy efficiency into developing greener data centers (Keppel, 2020).

- **Logistics:** The logistics sector is seeing specialization in developing warehouses and distribution centers equipped with automation technologies, robotics, and advanced inventory management systems to enhance efficiency and reduce costs. One example is the CapitaLand SEA Logistics Fund. It is investing into next-generation smart warehouses that include built-in automation to address more sophisticated logistics requirements cost-effectively (CapitaLand, 2022).

Several factors are driving this transformation:

- **Urbanization:** Increasing urbanization is believed to drive demand for co-working, co-living, and logistics facilities.
- **Technological advancements:** Innovations in technology are enabling the development of specialized facilities and services, for example, to bridge supply chain gaps in the logistics space.
- **Sustainability:** There is a growing emphasis on sustainability, with investors and developers focusing on energy-efficient and environmentally friendly buildings.
- Increased demand for flexible office spaces. As businesses outsource more functions, there is a growing need for flexible office spaces and co-working environments, driving demand for properties with short-term leases and adaptable layouts with a focus on cost efficiency.
- Change in demand pattern for different asset classes such as residential, commercial, and industrial properties. Interest rates can make borrowing more expensive, potentially reducing demand for large-scale real estate investments. This may lead to less competition in certain asset classes while continuing to see an upswing in new investments in alternative asset classes such as co-living and co-working, which are supported by new growth engines and require greater specialization.

This pivot toward unlisted entities and greater specialization is energizing the built environment landscape, offering new opportunities for investors and funds to capitalize on emerging trends and changing market dynamics.

Strategic adjustment for asset management owned by a sponsor in S-REIT

Internalization can lead to significant changes for the sponsor, requiring strategic adjustments and a shift in focus to maintain profitability and continue creating value for its shareholders and investors.

Overall, a firm will need to rethink the following changes in the planning of asset management activities:

- Outsourcing to specialized service providers in each asset class, commonly known as third-party property managers, can lead to more efficient property management, improving the overall value and attractiveness of investment for capital allocation by investors.
- Diversification of investment portfolios. A fund may diversify portfolios by including a sales leaseback properties arrangement catering to businesses seeking specialized services, spreading risk, and providing more stable returns in a volatile market.
- Shift in tenant demographics. The types of businesses that outsource services may differ from traditional tenants.
- **Changing from operational focus to strategic values:** The external asset managers owned by a sponsor may need to shift their asset management's operational focus from managing the S-REIT's day-to-day activities to more strategic roles, such as sourcing new investment opportunities or enhancing the overall portfolio.
- **Resource allocation:** Asset management resources previously dedicated to managing the S-REIT may need to be reallocated to other areas of the sponsor's business and involve exploring new markets, asset classes, or business lines. One potential collaboration can be on certain projects or investments, leveraging its expertise and relationships to create value.

Internal considerations within a firm

The focus now shifts to corporate, business, and operation considerations within the firm that directly impact planning asset management activities. The following considerations are discussed in this book:

- Corporate governance (Chapter 3)
- Regulatory and compliance (Chapter 4)
- Uncertain times (Chapter 5)

- Next-generation risk management (Chapter 6)
- Digital twin (Chapter 7)
- Sustainability (Chapter 8)
- Manpower resilience (Chapter 9)
- Hybrid security (Chapter 10)
- Supply chain resilience (Chapter 11)
- Stakeholder management (Chapter 12).

Some of the considerations have already attracted the limelight or are becoming major concerns in uncertain times (Alexander *et al*., 2020; KPMG, 2024) more recently. These have drawn the attention of authorities, businesses, and interest groups. It is prudent to say that these will continue to shape asset management practices now and in the foreseeable future.

Planning asset management

Generally, there is a market shift in the role of asset management to deal with changing market conditions and investor expectations for different asset classes in different geographies. The firm's nimbleness lies in an adaptable mix of a core management team and is supported by outsourced teams operating in different geographies.

A firm needs to be guided by a set of principles and align internal processes to achieve a resilient approach in uncertain times. By adhering to these principles, the firm can optimize asset-related workflows and minimize residual risks in its corporate governance, business conduct, and operation activities to achieve long-term sustained results and shape expectations.

- **Holistic approach:** Firm emphasizes the importance of considering a Fund's mandate when managing portfolios of assets and ensures alignment in its business strategies and long-term goals. It is important to maintain strategic flexibility to enable adaptation to changing market conditions and internal dynamics.
- **System thinking:** Firm is responsible for ensuring a structured and methodical approach to designing and analyzing its asset management

plan. This creates a unified direction and consistent approach across the firm.

- **Risk management:** Firm needs to focus on understanding the interrelationships of risks to make informed decisions and ensure portfolio sustainability due to the complexity of the next-generation risks in a new world order.
- **Sustainability:** Firm incorporates sustainability and ESG factors into asset management practices to achieve sustainable returns for its portfolio of assets, enhancing the firm's reputation and social responsibility.
- **Lifecycle optimization:** Firm manages assets throughout their entire lifecycle using Building Information Modeling (BIM), automation, and smart building technologies. This prioritizes efficient resource allocation to areas with significant impact, reducing waste and maximizing value.
- **Value-centric:** Firm generates value for the fund by setting achievable goals and implementing strategies that contribute to overall success. Establishes performance metrics that reflect both departmental and the firm's objectives for better monitoring and evaluation.
- **Transparency and accountability:** Firm has clear and transparent reporting of asset management activities at the management's dashboard level to enhance accountability and assist different stakeholders in making informed decisions.
- **Continuous improvement:** Firm needs to conduct regular reviews to improve asset management practices to stay competitive and adapt to changing market conditions. A firm needs to engage various stakeholders in common goals, fostering collaboration and support.
- **Strategic acquisitions and partnerships:** Mergers and acquisitions are an inorganic growth engine to expand market presence and acquire new capabilities such as platform solutions.

Conclusion

Asset management planning in a firm needs to be guided by a set of principles and to align internal processes to achieve a resilient approach to deal with various corporate, business, and operation considerations in

uncertain times. Asset management will need to evolve the practices, vis-à-vis business arrangements in S-REITs and PE Funds, in the built environment sector in Singapore that is filled with ongoing concern for interest rates, changing space demand, and greater specialization for different asset classes.

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CHAPTER 3

Corporate governance

Accountability

Chapter 2 has explained how Singapore real estate investment trusts (S-REITs) and private equity (PE) funds (collectively referred to as "Fund") pool capital from multiple investors to invest in various asset classes of properties, offering diversification and professional asset management. The business requires proper accountability and oversight at the board and management levels. We need to understand the relationship between asset management, funds, and corporate governance in a firm. This discussion is approached for a publicly listed firm operating out of Singapore. Figure 3.1 shows how they are interconnected to ensure the effective asset management and sustainability of the investments at the firm level.

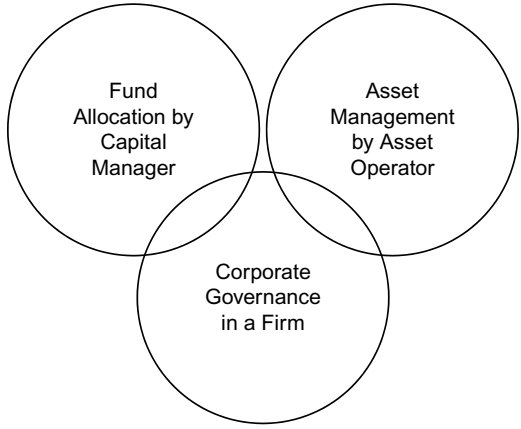

Figure 3.1. Constructive collaboration between asset management, fund, and corporate governance in the firm.

Source: Author

Asset management involves the professional management of real estate asset classes. While capital managers (asset allocators) make decisions to strategize and allocate resources into a specific country, asset class, and market segment to meet investment mandate, the asset operator, including third-party professional managers, must make decisions for asset management activities operating in different geographies, asset classes, and market segments for the ongoing future.

Effective asset management requires a robust framework of corporate governance to ensure that decisions are made in the best interest of all stakeholders. Corporate governance refers to the system of rules, practices, and processes by which an entity is directed and controlled. The critical success factors for effective corporate governance have focussed attention on the people, practices, and business processes (Holland *et al*., 2003). It ensures that the entity operates in a transparent, ethical, and accountable manner.

Corporate governance in a firm plays a vital role in the following:

- **Transparency:** Ensuring that investors have access to accurate and timely information about the performance and management of the Fund.
- **Accountability:** Holding management accountable for their decisions and actions, ensuring that they act in the best interest of the investors.
- **Risk management:** Implementing effective risk management practices at the firm level to identify, assess, and mitigate risks associated with investment in the asset classes.
- **Ethical conduct:** Promoting ethical behavior and compliance with regulatory and legal requirements at the firm level to maintain the integrity of the Fund.

Critical success factors in the firm

The following critical business success factors in the firm aim to promote the sustainability of the Fund operating in different geographies:

- **Building trust:** Establishing trust between investors and the firm by ensuring transparency and accountability.

- **Enhancing performance:** Improving the investment's performance by promoting sound decision-making and risk management practices for the asset class(es) in its portfolio.
- **Attracting capital:** Drawing and retaining investors by demonstrating a commitment to ethical conduct and responsible management in the firm.
- **Ensuring compliance:** Adhering to regulatory and legal requirements, as well as industry standards, to avoid legal and reputational risks to the firm.

By implementing robust corporate governance practices at the firm level, asset management can build trust, enhance performance, help the Fund attract capital, and ensure compliance, ultimately benefiting all stakeholders. The constructive collaboration between asset management, the Fund, and corporate governance in the firm is crucial for achieving long-term success and sustainability in the built environment sector.

Corporate governance framework within a firm

Corporate governance covers a broad range of areas to ensure that a firm is run effectively, ethically, and transparently.

Implementation

Here are the key areas in implementation using a top-down approach:

Board structure and responsibilities

- **Board composition:** Ensuring a diverse and balanced board with a mix of skills, business operation and professional experiences, and international and local perspectives that are relevant to the business activities at the firm. A curious nature among board members is needed to overcome complacency at the firm level (Gerald, 2024).
- **Roles and duties:** Defining the roles and responsibilities of board members, including the chairperson, CEO, and independent directors.

- **Committees:** Establishing specialized committees (e.g. audit, compensation, and nomination committees) is necessary to oversee specific governance areas (SID, 2025). The digital economy requires board members with experiences and skill sets in artificial intelligence (AI) and digital data to deal with business innovations and risks.

Risk management

- There is a myriad of risks from investment, financial transactions, operations, and management activities at the firm level. Risk management at the firm level is, therefore, a continuous process to deal with ongoing known risks and next-generation risks, such as offensive AI, quantum computing, and geopolitics. In more recent times, SGX RegCo reported that it had helped to improve general risk management practices within the SGX market community. The two areas of focus were on the lessons learnt from COVID-19 that would translate into preparations for the next crisis and general credit risk management practices with a special focus on their counterparty credit review practices (SGX Group, 2021). This gives you a prelude to the planned discussion of next-generation risk management at the firm level in Chapter 6 to know how to deal with next-generation risks in asset management activities during uncertain times.
- **Internal controls:** Implementing robust internal controls at the firm level is necessary to prevent and detect fraud, errors, and non-compliance. Internal controls have value beyond compliance and external financial reporting. Effective internal controls help to articulate a firm's purpose, set its objectives and strategy, and grow on a sustained basis with confidence and integrity in all types of information (COSO, 2025).
- **Business continuity:** SGX RegCo (SGX Group, 2025) has explained the business continuity requirements for any publicly listed corporations in Singapore. Other countries of operation will have their own business continuity requirements according to their industries and local regulations. Asset management practices will need to develop and implement local prevention, detection, and response strategies and plans, including crisis management plans, to manage diverse types of emergencies and adverse situations in each country of operation. The

different aspects of business continuity are treated at a more granular level in later chapters, such as regulatory and compliance, manpower resilience, and supply chain resilience.

Transparency and disclosure

- Transparency refers to the openness and clarity with which asset operators communicate information to investors. It involves providing clear, accurate, and timely information about strategies, performance, risks, and costs. Transparency helps investors make informed decisions and builds trust. Disclosure involves the systematic release of information about the financial and operational aspects of an investment. This includes regular reporting of financial performance, portfolio holdings, fees, and any material changes that could impact the value of the investment. Media and investor relations within the firm play an important role in explaining the international business spreading across countries that investors may not be familiar with. This will be important when the firm wants to venture across countries and invest in certain asset classes to tap into the opportunities.
- **Financial reporting:** Providing accurate and timely financial statements and disclosures to stakeholders. This is the most important consideration for ongoing business activities in the firm to explain to stakeholders the financial status of the investment and the quality of tenant mix in the asset portfolio.
- **Non-financial reporting:** Many jurisdictions require companies to disclose their Environmental, Social, and Governance (ESG) practices. This includes information on sustainability initiatives, labor practices, and corporate governance structures. Disclosing such information is useful to stakeholders because the related risks and opportunities can be better understood concerning the decision-making process for asset management, such as information on how ESG considerations are integrated into investment and asset operation strategies. In Singapore, SGX RegCo (SGX Group, 2024) has started incorporating International Financial Reporting Standards (IFRS, 2025) and Sustainability Disclosure Standards into climate reporting rules in Financial Year (FY) 2025, where all issuers are required to start reporting Scope 1 and Scope 2 Green House Gas (GHG) emissions. Their climate-related

disclosures must also start incorporating the climate-related requirements in the IFRS Sustainability Disclosure Standards issued by the International Sustainability Standards Board (ISSB).

- The goal of these reporting requirements is to enhance transparency and accountability regarding climate-related risks and opportunities. By providing detailed emissions data, companies can better manage their environmental impact and contribute to global efforts to combat climate change. Implementing sustainable practices can help the firm meet regulatory requirements and attract socially responsible investors. By FY2026, a sustainability report would require the following primary components:

  (a) Material ESG factors
  (b) Policies, practices, and performance
  (c) Targets
  (d) Sustainability reporting framework
  (e) Board statement and associated governance structure for sustainability practices.

These mandatory disclosures are shaping the role of asset management in the future since asset operators are required to ensure that these deliverables for their portfolio will be met in an asset operation life cycle.

- Transparent reporting of risks, such as (but not limited to) market risks, credit risks, and operational risks, and performance metrics, allows investors to better understand the potential challenges and opportunities associated with their investments and helps them manage their portfolios more effectively. These are discussed at the board and management levels prior to any disclosure.
- Regulatory bodies in different countries of operation normally require asset operators, who act on behalf of REIT managers and fund managers, to adhere to strict transparency and disclosure standards. Compliance with these regulations helps protect investors and maintain the integrity of the financial markets in those geographies (see Chapter 4).
- **Communication:** Ensuring clear and transparent communication with stakeholders, which include shareholders, employees, customers, and regulators. It is vital for asset operators to address the specific

considerations in each class of stakeholders to gain understanding and support and ensure smooth operation. Management must review and approve all communication materials for business consideration, investor relations, and legal and regulatory compliance requirements in the different geographies they operate. It is important that time-sensitive material and prospective deal-making in the pipeline must be handled with care. Its media and investor relation office and the legal and compliance team supporting the management in the firm are responsible to ensure that the needful requirements are met prior to any disclosure.

Ethical conduct and compliance

- **Code of ethics:** Establishing a code of ethics to guide the behavior and decision-making of employees and management.
- **Compliance programs:** Implementing compliance programs to ensure adherence to legal and regulatory requirements. In Singapore, REIT managers and other classes of regulated activities are expected to adhere to the requirements of the Monetary Authority of Singapore (MAS, 2025). For example, a company must hold a Capital Markets Services (CMS) license to conduct activities regulated under the Securities and Futures Act (SFA) 2001 (AGC, 2025). Individuals representing CMS licensees or exempt financial institutions need to be appointed as representatives. The REIT manager, fund manager, and representatives for CMS licensees are accountable for reporting to regulators on updates and submissions. Many operational activities in asset management are usually outsourced to third-party property managers, trade specialists, and contractors in the built environment sector. It is necessary for the compliance officers in the firm to ensure that compliances are met for all downstream activities.
- **Whistleblower process:** The firm needs to provide a safe mechanism for employees to report unethical behavior or violations without fear of retaliation. Similarly, the firm will also need to ensure a public-facing reporting mechanism for all external stakeholders to report suspicious activities or ethical concerns to the management and board. Clear Policies and Procedures (P&Ps) must be put in place. This is to

ensure that the board, management, employees, and all external stakeholders understand the corporate culture and ethics of the firm.

The firm must always address non-compliance issues swiftly, especially to address any ambiguity risk in operating asset portfolios in different geographies. This will build a good reputation and branding of asset management in uncertain times.

Shareholder rights and engagement for publicly listed entities

- **Voting rights:** Ensuring that shareholders have the right to vote on important matters, such as the election of board members and major corporate actions.
- **Shareholder meetings:** Facilitating regular shareholder meetings and providing opportunities for shareholders to engage with the board and management.
- **Transparency:** Keeping shareholders informed about the firm's performance, strategies, and governance practices.

This action is meaningful to build confidence and trust with shareholders, especially in uncertain times, to deal with geopolitics risk that has increased complexity in asset operation in different geographies.

Performance management

- **Executive compensation:** Designing compensation packages that align executive incentives with long-term shareholder value.
- **Succession planning:** Developing succession plans for key executive positions to ensure continuity and stability. It is prudent for large firms to build and retain time-tested and event-tested employees who can understand the culture and operation within the firm to assume key positions. Sourcing for suitable external talents is equally important to bring complementary experiences and skill sets to strengthen asset management and corporate governance in the firm to address next-generation challenges and opportunities. It is worth noting that any cult of personality within the firm must be managed with proper care

to avoid the risk of tarnishing the firm's reputation and brand, as well as the potential of alienating certain stakeholders due to incompatible values and culture.

- **Performance evaluation:** Conducting regular performance evaluations of the board, committees, individual directors, employees and third-party property managers, specialists, and contractors. The services they provide must be able to uphold the reputation and brand of the firm besides meeting the financial and operation requirements.

Corporate Social Responsibility

- **Sustainable practices:** Integrating sustainability into business practices and decision-making processes is not new and has been around for many years in enlightened organizations. This is a good indicator of the firm's ability to future-proof its financial well-being and operational readiness in operating its asset portfolio in different geographies (see Chapter 8).
- **Corporate Social Responsibility (CSR) initiatives:** Implementing CSR initiatives to contribute positively to society and the environment helps prospective and current employees who are usually keen to work for companies with good CSR programs that will enrich their working experiences and connections with others. The social capital and ability to connect with others can be underestimated in nurturing employees or recruiting good prospective employees of diverse backgrounds for the firm. This has a bearing on how to operate smartly in different geographies in uncertain times.
- **Stakeholder engagement:** Engaging with stakeholders to understand their expectations and address their concerns related to sustainability and CSR. This is imperative to meet compliances, increase visibility, build relationships, and grow resources for the firm to conduct the activities (see Chapter 12).

Many attributes of human capital shortlisted above will be explained further in Chapter 9 to disclose the strengths and weaknesses in manpower resilience to deal with complex situations in different geographies during uncertain times.

Technology and innovation (see also Chapters 7 and 10)

- **Digital transformation:** Embracing digital technologies to enhance operational efficiency, innovation, and competitiveness.
- **Cybersecurity:** Implementing robust cybersecurity measures to protect the firm's data and systems.
- **Data privacy:** Ensuring compliance with data privacy regulations and protecting customer and employee data.

By focusing on these areas, corporate governance helps the firm to achieve long-term success, maintain stakeholder trust, and operate in an ethical and transparent manner. These are next-generation risks and opportunities in asset management activities and duly require comprehensive treatment in later chapters of this book.

Organization culture

"Tone from the top" is a critical element in guiding a firm's vision, objectives, goals, staff behavior and performance, and stakeholder acceptance and respect.

Implementation

The key steps are:

- **Setting the vision:** Leaders at the top are required to articulate a clear and inspiring vision for the firm. This vision serves as a north star, guiding all strategic decisions and actions.
- **Aligning objectives:** Top management in the firm sets objectives that align with the overall vision. These objectives provide a roadmap for achieving the vision and help ensure that all efforts are focused on common goals.
- **Goal setting:** Leaders need to establish Specific, Measurable, Achievable, Relevant, and Time-bound (SMART) goals for the asset management activities in the Fund. These goals break down the vision into actionable steps and milestones.
- **Strategic direction:** The tone set by leadership defines the strategic direction of the firm. This includes decisions on resource allocation,

market positioning, and growth strategies, especially when there are headwinds in the fee income distribution and sourcing of competent supply chains in different operating environments.

- **Role modeling:** Leaders serve as role models for expected behaviors and organizational values. Their actions and decisions reflect the standards they expect from employees in the operating activities of asset management.
- **Cultural impact:** A positive tone from the top certainly helps to foster a healthy organizational culture. Leaders who prioritize ethics, integrity, and transparency will create an environment where employees feel valued and motivated to perform their best in asset management. Local employees in different operating environments will have the courage to report risks and challenges and suggest solutions to resolve complex problems in their asset management activities.
- **Performance management:** The "Tone from the top" in the firm provides a benchmark in performance management practices, including setting performance expectations, providing feedback, and recognizing achievements. Leaders who emphasize continuous improvement and accountability will drive higher and more sustainable performance levels among local employees in different geographies.
- **Building trust:** Leaders who demonstrate transparency, accountability, and ethical behaviors will improve their chances to earn the trust and respect of stakeholders. This includes investors, customers, employees, and the community.
- **Staff communication and engagement:** This is necessary for building organizational culture and growing a sustainable pool of staff to support asset management activities in the firm. The useful channels are town hall meetings, workshops, retreats for managers, and staff engagement surveys for meaningful feedback.
- **Stakeholder engagement:** Leaders who actively listen to and address stakeholder concerns foster strong relationships and support and more genuine voices from the various levels reporting to the board and management.
- **Corporate governance:** Strong governance practices established by top leadership usually enhance stakeholder confidence. This includes adherence to regulatory requirements, risk management, and ethical conduct. The open culture will demonstrate the breadth and depth of

the board and management bench in the firm to deal with adversities and uncertainties in difficult situations. It is contrary to conventional wisdom that mistakes or gaps are shrouded in complex operating environments in different geographies.

Leadership styles

It is important to invest time to understand the preferred leadership styles. In the built environment sector in Singapore, it is not difficult to spot the following leadership styles:

- **Ethical leadership:** Leaders who prioritize ethics and integrity set a standard for ethical behaviors across the firm. This reduces the risk of misconduct and enhances the organization's reputation. Honesty is the best policy for market practices in the built environment sector.
- **Visionary leadership:** Leaders with a clear and compelling vision inspire employees to contribute to the firm's success. This aligns efforts toward achieving long-term goals and drives innovation at the firm.
- **Inclusive leadership:** Leaders who promote diversity and inclusion create a supportive environment where all employees feel valued and empowered. This leads to higher employee engagement and better decision-making within the firm.

There is no single success formula in leadership styles. The degree of success offered by different leadership styles may vary according to individual persona, types of business, geographies, and cultures. But it is noteworthy to mention that substantive investment in ethical, visionary, and inclusive leadership behaviors will win the hearts and minds of many stakeholders.

Feedback and actions

Feedback and action are essential components of effective corporate governance in the firm. They ensure that a firm can continue to operate transparently, ethically, and in alignment with the interests of its stakeholders. Here are how feedback and action play a decisive role:

Feedback mechanisms

- **Stakeholder engagement:** Feedback mechanisms, such as online surveys, online feedback forms, and invited consultations, allow stakeholders (including employees, customers, investors, and regulators) to share their opinions and concerns. This engagement helps the firm to understand stakeholder perspectives and expectations.
- **Performance evaluation:** Regular performance evaluations of board members, executives, and employees provide feedback on their effectiveness. These evaluations can identify areas for improvement in asset management activities and recognize achievements, fostering a culture of accountability and continuous improvement in the firm.
- **Audit and compliance reports:** Internal and external audits provide objective feedback on the firm's financial health, compliance with regulations, and adherence to internal P&Ps for asset management activities. These reports highlight strengths and weaknesses, guiding corrective actions.

Taking action

- **Addressing issues:** Feedback is only valuable if it leads to action. A firm must take concrete steps to address the issues raised by internal and external stakeholders. This might involve revising policies, improving processes, or implementing new initiatives to improve the overall corporate governance in the firm.
- **Strategic adjustments:** Based on feedback, the board and management team can make strategic adjustments to ensure the firm remains on track to achieve its goals. This may include reallocating resources for asset management activities, altering business strategies, or changing leadership approaches.
- **Enhancing transparency:** Taking action based on feedback demonstrates a commitment to transparency and accountability. The whistleblowing policy must be clearly communicated to all staff at all levels and external stakeholders. It is not only an internal policy at the firm level but an important tool to engage external stakeholders. Regularly

communicating the steps taken in response to feedback builds trust with all internal and external stakeholders and shows that the firm values their input.

Continuous improvement

- **Iterative process:** Corporate governance should be an iterative process where feedback loops would continuously improve understanding and calibrate decision-making. This ensures that the firm adapts to changing circumstances and improves over uncertain times.
- **Benchmarking and best practices:** Comparing the firm's performance and governance practices against industry benchmarks and best practices helps identify gaps and opportunities for improvement. Action taken to align with best practices enhances the firm's overall governance framework.

Enhancing corporate culture

- **Promoting ethical behavior:** Feedback and action contribute to a culture of ethical behavior and integrity. When employees see that their feedback is valued and leads to positive change, they are more likely to act in the firm's best interest.
- **Empowerment and engagement:** Encouraging feedback and acting on it empowers employees and engages them in the governance process. This leads to higher job satisfaction and better organizational performance.

Building stakeholder trust

- **Responsiveness:** Demonstrating responsiveness to stakeholder feedback enhances the firm's reputation and builds trust. Stakeholders are more likely to support and invest in a firm that listens to and acts on their concerns.
- **Accountability:** Action taken in response to feedback holds leaders accountable for their decisions and behaviors. This accountability is critical for maintaining the integrity and credibility of the corporate governance framework in the firm.

Conclusion

In summary, the "Tone from the top" is a powerful tool for shaping a firm's culture, guiding its strategic direction, and earning the trust and respect of stakeholders. By setting a positive and consistent tone, leaders can drive asset management success and long-term sustainability. The right level of accountability and oversight at the board and management levels in a firm is a sustainable formula for achieving effective asset management of investments. Transparency and disclosure are fundamental principles of corporate governance in asset management practices in the built environment sector. Investors are more likely to invest in markets where they feel they have access to reliable information and where asset operators are held accountable for their actions. This helps to enhance overall market confidence. Feedback and an action loop are integral for the firm to operate transparently, ethically, and in alignment with the interests of its stakeholders, ultimately leading to long-term success and sustainability. This leads us to address and explain the insights of identified legal and regulatory considerations in the next chapter, using market understanding of publicly listed entities in Singapore that operate different asset classes in different geographies.

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CHAPTER 4

Legal and regulatory compliances in international asset management

Setting a clear line in the sand

While the preceding chapter on corporate governance has explained how a firm is directed and controlled with a primary focus on accountability, transparency, ethical conduct, and internal controls to manage risk and objectives in asset management activities, legal and regulatory compliances, such as adherence to laws, regulations, and guidelines in international asset management at the firm level are deeply intertwined, reinforcing, and complementing corporate governance.

The scope of international compliance regulations for publicly listed entities in Singapore involves understanding the various legal and regulatory frameworks that govern their asset management's local operation activities across different jurisdictions. The board and management in the firm must set clear expectations and instructions on the list of legal and regulatory considerations for its wide array of transaction activities in various countries of operation. A firm needs to demonstrate accountability to ensure compliance requirements are met for its own activities, including third-party property managers, suppliers, contractors, consultants, and other service providers (collectively referred to as "vendors") who are directly playing a critical or essential role in asset management activities. There are areas of legal and regulatory compliances that could have clear instructions for the firm and vendors in terms of separate, joint, and several liabilities, but it is not always the same rule to apply universally.

Many regulations are extraterritorial in nature and present complex situations for an asset operator. There are legal, regulatory, and operational aspects to ensure cross-border compliance across jurisdictions

(Mandal, 2023). There are local compliances in the country's operation too. International compliance requirements can slow down business processes and add layers of bureaucracy. This is particularly true for small and medium-sized enterprises (SMEs) that might not have the resources to manage complex regulations as effectively as larger corporations.

However, we need to recognize the benefits these regulations bring. They help to ensure a level playing field, promote fair competition, protect consumers, maintain ethical standards, and promote sustainable practices. The key is to find the right balance at the firm level because good compliances underpin governance.

As the macroenvironment is fluid today, a risk-based approach to legal and regulatory compliance is a valuable proposition to a firm because both disciplines are fundamentally about managing risks. It allows the firm to focus sustainable efforts on the most critical areas. In adverse situations in uncertain times, but not limited to the need to withdraw from a certain conflict zone or country, the decision to abstain from taking sides in conflicts, or respectfully disagreeing with the local authority over a certain disclosure due to a conflict of interest, the legal and regulatory basis in proposed actions must be established objectively and submitted to the board and management for binding decisions. Asset management faces an increasing risk of encountering them during uncertain times. It will be certainly wise to avoid these undesirable scenarios and outcomes.

This chapter provides guidance on the elementary steps to ensure compliance within a firm operating out of Singapore with asset operation activities in different geographies in Europe, Asia Pacific, and the Middle East. The main types of transaction activities in asset management are highlighted to remind stakeholders of the need to address legal and regulatory considerations for cross-border and local transactions without the risk of non-compliance. A firm needs to evaluate its asset management activities carefully to ensure compliance, especially with new and updated laws, regulations, and guidelines in the fields of tax and tariffs, data use, artificial intelligence (AI) engines, and anti-money laundering/counter-terrorist financing. It is justifiable to shine a light on the more pressing concerns to provide the right direction.

However, it is outside the intent of this book to discuss these areas in-depth using legal, compliance, and technical treatments or to provide

an academic discourse on the simplification and harmonization of international regulations across countries that could help reduce the bureaucratic burden.

Ensuring compliances within a firm

Ensuring compliance with conflicting requirements can be challenging.

A large firm should aspire to adopt a comprehensive governance, risk, and compliance (GRC) approach to address and align those legal and regulatory considerations in the business system, processes, and procedures to guide the front office, country operations, and shared services since corporate governance and compliances are both part of this larger GRC framework. GRC has been long established to address uncertainty and to deliver a principled performance since 2002 (OCEG, n.d.).

For starters, as an SME or young firm, the approach below is a beginner idea that can be used as a reference to consult its legal and compliance advisory team on how to formulate its own business strategy to navigate the complexity. This is not intended to be legal advice, act as a substitute for any legal advice, or to right-size specific legal and regulatory considerations in any adopted approach within the bounds of law.

Prioritize requirements

- **Understand the impact:** Assess the impact of each requirement on the firm's operations, reputation, and legal standing. A firm cannot disobey local regulations. All country rules must be respected in business conduct.
- **Rank by importance:** Prioritize requirements based on their criticality and potential consequences of non-compliance. It is true that different countries of operation could have different legal and regulatory requirements.

Engage stakeholders

- **Open communications:** Maintain open lines of communications with stakeholders to understand their perspectives and explain the challenges of conflicting requirements.

- **Seek alignment:** Work with stakeholders to find common ground and align on the most critical requirements.

Conduct risk assessments

- **Identify gaps:** Perform periodic risk assessments to identify potential compliance gaps and vulnerabilities.
- **Evaluate impact:** Evaluate the potential impact of conflicting requirements on your operations and develop mitigation strategies.

Develop a compliance framework

- **Create policies and procedures (P&Ps):** Establish clear P&Ps in the firm that addresses conflicting requirements and provides guidance on how to manage them.
- **Implement controls:** Implement internal controls to ensure compliance with the highest-priority requirements.

Digital technology

- **Compliance management tools:** Utilize compliance management tools and software to track regulatory changes, manage compliance tasks, and document compliance efforts in the firm.
- **Automated updates:** Implement automated systems to stay updated on regulatory changes and ensure timely adjustments to compliance programs.

Seek legal advice

- **Consult experts:** Engage legal experts with cross-border expertise to provide guidance on navigating conflicting requirements and ensuring compliance with relevant laws and regulations.
- **Stay informed:** Keep abreast of regulatory updates and seek advice on how to reconcile conflicting requirements within the firm.

Continuous improvement

- **Regular reviews:** Conduct regular reviews of compliance programs to identify areas for improvement and ensure ongoing alignment with regulatory requirements.

Training and awareness

- **Programs:** Training and awareness updates for employees are necessary to ensure they understand the importance of compliance and how to manage conflicting requirements.

These insights are necessary to prepare international asset management for what lies ahead in an asset operation life cycle, from the launch of a new asset class or/and product or globalization strategy to an exit strategy for its asset portfolio in the countries of operation. The asset operator needs to gather insight that enables the right decision in transactions in the various stages of the asset operation life cycle.

Transactions in asset operation lifecycle

A firm buys and sells services in the asset operation life cycle. It procures many services to ensure the properties can continue to run without disruption to cater to the business needs and user experience of tenants and customers. It sells services to generate revenues from space leases, car parking lots, events, and common facilities such as meeting rooms and co-working spaces. Asset management activities can generate many types of transactions, for example:

- Operational transactions (e.g. Lease agreements, rent collection, utility coordination payment)
- Maintenance transactions (e.g. Procurement, maintenance contracts, maintenance work, invoices)
- Financial transactions (e.g. Budget allocations, revenue management, expense management)

- Administrative transactions (e.g. Digital storage cost, tenant service center expense)
- Regulatory compliance transactions (e.g. Inspection fees, legal fees, Environmental Health and Safety (EHS) compliance)
- Strategic transactions (e.g. Green investments, Corporate Social Responsibility/Environmental Social and Governance (CSR/ESG) initiatives, insurance and risk management costs).

While a firm needs to fulfill the ongoing obligations in its various countries of operation, it must observe compliance requirements in varying national laws, regulations, and guidelines. A well-structured legal and regulatory compliance framework in the firm should be able to provide a clear mechanism for dispute resolution and enable parties to seek remedies in a familiar legal environment, thus maintaining trust in cross-border transactions and local transactions in the asset operation lifecycle.

Here are a few legal and regulatory compliance areas that require attention in local operations and cross-border transactions:

- Tax compliance
- Regulations on securities, international trade, and investment
- Anti-money laundering (AML) and counter-terrorist financing (CTF)
- Anti-bribery and corruption (ABC)
- Labor and employment laws
- Data privacy and protection.

A due diligence check on prospective tenants, major account customers, and essential service providers or suppliers can only fetch past and immediate information about their people, financial status, and business conduct. A firm needs to act decisively to manage financial-related risks and operational stress in real-time that may arise in the agreed period of the contract for the foreseeable future using a myriad of risk monitoring, detection, and response tools.

While measures such as security deposits, utility deposits, specific insurance instruments, and performance bonds can be designed carefully in agreements or contracts to address some of those concerns, a sudden adverse event can disrupt the continuing use of space by tenants and

customers or cause an essential service provider or supplier to fail. For example, the different asset classes in the built environment sector have been severely tested for their financial and operational obligations during the COVID-19 period.

In uncertain times, the risk of business liquidation or foreclosure among the tenants and major account customers can escalate. Likewise, a key supplier or service provider in critical functions and services may not be able to provide a service to a firm due to unforeseen circumstances, such as a power outage or cybersecurity incident, resulting in non-compliance. Contractual clauses containing legal recourse must be carefully understood and ensure consistency within the framework of local market rules and regulations. All renewal, termination, and changes in requirement must be addressed clearly in agreements or contracts. This is to ensure that transactions are efficient and enforceable.

Tax compliance

The firm must comply with corporate tax laws in the jurisdictions where it operates. Asset operators should seek sound and experienced professional advice from the International Tax Advisory. Inside the global tax functions, pressing business issues and opportunities for international asset management are seen in changes in corporate tax rates, digital tax, and other considerations such as the Organization for Economic Co-operation and Development's (OECD) base erosion and profit shifting (BEPS) scheme that addresses tax avoidance strategies by multinational enterprises. BEPS aims to address tax avoidance strategies that exploit gaps and mismatches in tax rules to artificially shift profits to low or no-tax locations. One aspect of BEPS is the consideration of withholding taxes that might be imposed in affected countries on distributions made by the Fund to foreign investors. This has a significant impact on the manner of filing tax returns and paying taxes on income generated from local operations in affected countries. Ministry of Finance (MOF) Guidance in Singapore has shed light on the working mechanism of BEPS (MOF, n.d.). A firm with an MNE (multinational enterprise) status in Singapore will have to assess the impact and determine how to meet tax compliance (IRAS, n.d.).

On the issue of asset management tax that is examined (KPMG, n.d.), it is advisable that the firm needs to set a clear and firm boundary on what is acceptable and what is not in its tax practices, thus effectively setting a strict policy on ethical tax practices. Overall, this gives the board and management clear oversight on tax matters and ensuring tax compliance.

Regulations on securities, international trade, and investment

Below are a few considerations for a firm to embed initiative-taking measures and to ensure that responsible persons in the firm are accountable for the proper execution:

- Funds that are publicly traded must comply with securities regulations, including disclosure requirements and reporting standards. Such regulations are put in place to protect investors, ensuring that they receive accurate and timely information about the performance and management of the Fund. For example, the Singapore Exchange (SGX) and the Monetary Authority of Singapore (MAS) oversee the listing requirements for issuers such as real estate investment trusts (REITs). The SGX sets the rules and regulations for listing (SGX, n.d.), while the MAS provides the broader regulatory framework for financial institutions, including REITs (MAS, 2024). Additionally, the Accounting and Corporate Regulatory Authority (ACRA, n.d.) plays a role in overseeing the statutory audits of primary-listed issuers, such as REITs.
- It is important to recognize foreign investment rules. Some countries have restrictions on foreign investment in a Fund. The firm must navigate these rules to ensure compliance when investing in or receiving investments from foreign entities. Funds involved in cross-border transactions must comply with international trade laws and local regulations, such as bank procedures, the legal channel for transfer, limits, and declarations.
- International Financial Reporting Standards (IFRS) are widely adopted around the world to ensure consistency and transparency in financial reporting (IFRS, n.d.). However, there are different accounting rules in some countries for several reasons, such as local regulatory, cultural,

and economic factors. If a firm is operating in different geographies, including some countries with different rules, it is important to consult domain experts who know how to deal with those challenges properly. This leads to other concerns regarding AML and CTF, which have been gaining attention in more recent times.

Anti-money laundering and counter-terrorist financing

AML/CTF regulations require a firm to implement measures to prevent money laundering and terrorist financing. This includes conducting due diligence on investors and tenants in properties, maintaining accurate records, and reporting suspicious transactions.

There are many agencies and organizations in a coordinated effort toward the fight against money laundering and terrorism financing internationally. For example, the EU Global Facility on AML and CTF as an operational tool to provide demand-driven support to third-world countries based on deficiencies in their AML/CTF regimes (EU AML/CFT, n.d.) and the International Monetary Fund's (IMF) bilateral surveillance program (IMF, n.d.) that evaluates countries' compliance with international AML/CTF standards and helps them to develop programs to address shortcomings. The IMF effort extends to the Financial Sector Assessment Program (FSAP). The Financial Action Task Force on Money Laundering (FATF) is an intergovernmental body that issues recommendations to prevent, detect, and respond to money laundering and terrorism financing activities and monitors countries' compliance with these recommendations.

There are national laws and regulations that implement FATF recommendations, and supervisory authorities are agencies responsible for overseeing compliance with AML/CTF regulations. These protect the global financial systems by preventing illegal activities and is the integrity necessary to build trust among stakeholders, including investors, customers, and regulators.

Legal compliance is to help firms comply with legal requirements and avoid penalties in their countries of operation, playing its part to contribute to global security by disrupting the financial networks of criminals and terrorists.

In Singapore, REIT managers and fund managers are subject to MAS regulatory oversight and enforcement powers (MAS, n.d.). The MAS has issued compliance toolkits for approvals, notifications, and other regulatory submissions to the MAS for REIT managers and fund managers (Allen & Gledhill, 2020). In 2024, the MAS set out its supervisory expectations on firms in relation to their implementation of AML/CTF controls, as well as observations of good practices gathered from its inspections (MAS, 2024). Downstream actors such as estate agents are also required to adhere to the requirements in the Prevention of Money Laundering and Financing of Terrorism Regulation (CEA, n.d.).

Asset operators are expected to ensure that their asset management activities, including outsourced service providers, can meet these regulatory compliance requirements.

Anti-money laundering measures

AML refers to a set of laws, regulations, and procedures designed to prevent criminals and terrorist organizations from disguising illegally obtained funds as legitimate income. The process typically involves three stages:

Placement: Introducing illegal funds into the financial system.

Layering: Conducting complex transactions to obscure the origin of the funds.

Integration: Making the funds appear legitimate through additional transactions.

The firm is required to verify the identity of clients and assess the risks associated with them in a Know Your Customer (KYC) process. This is the most crucial step because the traceability and transparency of resources from legitimate investors and tenants are crucial to protect the immediate and long-term interest of the firm.

In any business cycle, the firm must not adopt an easy attitude toward potential investors and tenants. While the due diligence checks, including the use of open-source intelligence (OSINT), can be comprehensively performed by AI engines, this is not delegated to become a paper motion

exercise and neglect the human element. It is prudent to conduct more specific background checks about a certain individual and to meet the necessary requirements in its country of business activities according to the local oversight authority's supervisory expectations.

Transaction monitoring: Continuous monitoring of transactions to detect suspicious activities is necessary. It is important to check against the updated registers offered by any local authority in the country of operation. This effort includes a subscription to alert monitoring and surveillance services that is usually offered by reputable firms in the market. These are vigilant measures designed to prevent and detect any insidious intent. However, the author cautions here that this is not always foolproof, as bad actors are usually sophisticated.

Reporting: Mandatory reporting of suspicious transactions to the relevant authorities is necessary in many countries. Any reporting must be properly consulted with legal and compliance experts on how to approach and address those considerations, especially in cross-border transactions that are governed by different jurisdictions. There are procedures to adhere to and the asset operator must not overlook details that are required.

For this reason, it is a proactive strategy to implement a comprehensive AML compliance program, including employee training and internal control, as part of the overall firm's GRC framework. The indoctrination of values, ethics, and acceptable practices is to ensure all employees and third-party service providers in asset management services are aware of the compliance requirements, toolkits, and prevention, detection, and response actions.

Counter-terrorist financing measures

CTF focuses on preventing the financing of terrorist activities. It involves similar measures to AML but is specifically targeted at identifying and stopping the flow of funds to terrorist organizations.

Risk assessment: Identifying and assessing the risks of terrorist financing that can be encountered with internal and third-party transactions. Terrorist organizations also try to make use of legitimate asset or cash

from criminal acts, and make use of the placement, layering, and integration process to channel funds to their activities.

Customer due diligence (CDD): Enhanced due diligence for high-risk customers and transactions remains necessary. It is important to explain to potential customers the governing regulatory compliance requirement due to the presence of a firm's domicile operation. This is an acceptable practice in many parts of the world, but there are cultural differences in certain parts of the world, and CDD actions must be managed tactfully to explain to potential customers.

Sanctions screening: Screening transactions and customers against international sanctions lists is the next obvious measure.

Cooperation with local enforcement agency: The firm is a commercial entity and hosts a wide ambit of asset management activities, including dealing with tenants, customers, service providers, and suppliers.

Overall, it is the firm's own decision, on advice by its legal and compliance team, to collaborate with local security bodies in its country of operation, such as to share sensitive data or commercial information for counter terrorism financing. This too serves to protect and secure its own continuing business interest in the country of operation. The next segment broaches anti-bribery and corruption (ABC), which is similarly accorded robust prevention, detection, and response countermeasures in international asset management.

Anti-bribery and corruption

In Singapore, a zero-tolerance policy toward bribery and corruption is a firm commitment to preventing, detecting, and addressing any form of corrupt practices within a firm. This helps maintain the integrity of the firm by ensuring that all actions and decisions are made ethically and transparently. P&Ps are needed to define what constitutes corrupt behavior and outline the consequences for any violation. According to the Corrupt Practices Investigation Bureau (CPIB, n.d.), corruption is receiving, asking for, or giving any gratification to induce a person to do a favor

with a corrupt intent. Therefore, establishing clear reporting lines and responsibilities ensures that compliance can be monitored effectively and any issues are addressed promptly. Conducting regular internal and external audits provides an independent assessment of a firm's compliance with laws and regulations. This includes continuous monitoring of transactions and activities, which helps to detect and prevent suspicious activities in real time.

Periodic training sessions for employees and vendors are necessary to ensure they stay up to date in their understanding of anti-corruption and bribery policies and their responsibilities in upholding them. This raises awareness about specific ethical and regulatory risks and reinforces the importance of compliance.

A whistleblower protection implementing mechanism, as explained earlier in Chapter 3, is necessary for employees, vendors, and other stakeholders, such as tenants and customers, to report corrupt activities anonymously without fear of retaliation. There are laws protecting informers or whistleblowers in Singapore (Singapore Legal Advice, n.d.). Regular internal and external audits are required to detect and prevent corrupt practices. In enforcement, swift and decisive actions against any individuals or vendors found engaging in corrupt activities should always be taken, regardless of their position or status within the firm. This reinforces the firm's commitment to compliance and risk management.

Ultimately, this is about building trust among all stakeholders by demonstrating a commitment to ethical behavior and accountability. Compliance with anti-corruption laws and regulations in domicile countries of operation helps to avoid legal penalties and reputational damage. A strong stance against bribery and corruption enhances the firm's reputation, making it more attractive to investors, partners, and customers.

However, this may shun certain rich investors such as the family office and ultra high net worth individuals (UHNWIs) in conservative culture. It is therefore important for the firm to explain the KYC process to its prospective clients and articulate how fair competition is the way forward to ensure a level playing field for all businesses by preventing unfair advantages gained through corrupt practices.

Labor and employment laws

A firm must be aware that there are local labor and employment laws, including fair labor practices, workplace safety, and employee rights, in different countries of operation. Each country has its recruitment process, wage structure, working hours, leave entitlements, and termination procedures. The firm must ensure that its employment practices comply with these rules. Known employee rights are varied, such as the need for notification and obtaining proper consent to conduct background checks in recruitment or onboarding exercises for the use of their personal data in employment, among other expectations in different countries.

In Singapore, the Employment Act provides basic terms and working conditions for employees. It covers aspects such as salary, working hours, overtime, rest days, annual leave, and other employment conditions, while the Ministry of Manpower (MOM) is the government agency responsible for overseeing labor policies and regulations. That includes work passes, employment practices, workplace safety, and health. The Tripartite Alliance for Fair and Progressive Employment Practices (TAFEP) promotes fair and inclusive employment practices, including providing guidelines and resources to help employers implement fair employment practices (TAFEP, n.d.). The MOM can take action against non-compliance with these guidelines in (MOM, n.d.). Employment is a priority item in international asset management since human capital is key to unlocking future value from the assets. The country head and human resources business partner must manage employer-employee relationships carefully, particularly onboarding new employees from an acquired property or entity.

Any attempt to hire global employees using a unified set of employment rules must first comply with the specific legal and regulatory requirements of each country where it operates. A firm should respect the views of all other stakeholders, such as the local authority and union, and collaborate diligently to avoid potential friction.

While a firm can establish global employment policies that outline general principles and standards for hiring, compensation, benefits, and workplace conduct, local practices must adapt these policies to comply with local labor laws and regulations in each country.

Hiring foreign employees often requires obtaining work permits or visas. The firm must follow the specific procedures and requirements of each country. In terms of cultural sensitivity, the smart policy is employee engagement and implementing strategies to engage and retain employees across different regions, considering local preferences and expectations.

In some countries, a firm needs to establish a local legal entity to hire employees directly. This can help streamline compliance with various local regulations. In other countries, there are restrictions to transfer personnel between properties in asset operation. A diversity, equity, and inclusion (DEI) policy in a firm may help to promote diversity and inclusion in the workplace. It must be mindful that DEI values vary according to different geographies. It should not be misconstrued by outside interest groups as prejudicial toward any ethnic group or gender. It is prudent to adapt employment practices to respect cultural differences and social norms in each country.

By understanding and adhering to labor and employment laws, a firm can operate with greater employees' confidence and trust and in accordance with legal requirements.

Data privacy and protection

A firm needs the personal data of employees, tenants, customers, investors, vendors, and other stakeholders to carry out business activities. Personal data is a big concern in many countries. It is literally any data about an individual or information, such as likes, comments, or digital signatures on social media and websites, that can identify an individual or form part of the personal data. A firm operating in different geographies must comply with local data protection, data security, privacy and cybersecurity laws, and regulations in the various countries of operation. The firm must also ensure that the personal data hosted in data centers in any country are subject to the same duty of care. This is an evolving field of complex compliance that is shaped by cultural, economic, political, and societal concerns in different countries. The International Association of Privacy Professionals (IAPP) has served as a one-stop shop for information on data protection authorities for privacy professionals navigating

international data protection and privacy laws (Apacible-Bernardo and Fischer, 2024). Several technical and legal barriers are identified here, for example:

- Consent management that needs to meet transparency, lawfulness, and fairness requirements for the collection, use, disclosure, retention, and care of personal data.
- Extraterritorial regulations in some countries such as the Singapore Personal Data Protection Act (Singapore PDPA) and the European Union General Data Protection Regulation (EU GDPR).
- Data residency requirements, such as member states of the European Union (EU), put additional guardrails to protect the personal data of residents. Data transfers outside the EU are only allowed if the recipient country has adequate data protection laws or if appropriate safeguards (e.g., standard contractual clauses and binding corporate rules) are in place.
- A cross-border data mechanism is implemented to ensure privacy and security between countries where the cross-border data transfer involves moving personal or sensitive data from one country to another.
- Specific guidelines in different countries concerning the use of sensitive personal data for specific purposes, such as CCTV surveillance operation, marketing, telemarketing, and data monetization.
- Specific guidelines in different countries concerning the use of digital technology, such as AI, cookies, dictionary attack software to harvest data, and privacy-enhancing technologies in data protection.

Overall, international asset management activities that manage personal data will need robust data protection measures and navigation ability to manage conflicting requirements. Here are the essences:

- **Data mapping:** Identify where data is stored and transferred to understand the flow and potential risks. This exercise is necessary to recognize the origin of data source and to establish the legitimate use of data in its custodianship. Compliance with these data laws and cybersecurity regulations designed to protect data, networks, and systems from unauthorized access and cyber threats are essential for a firm to safeguard its asset operations and maintain trust with stakeholders.

- **Binding corporate rules (BCRs):** Implement BCRs for intra-organizational data transfers within the firm if possible.
- **Data protection agreements (DPAs):** Use DPAs to ensure that all third-party data recipients (receiving parties) comply with relevant data protection laws. DPAs need to explain clear and robust administrative, physical, and technical security measures for data at rest, data in motion, and data in use, so as to meet local data protection regime in the countries of operation.
- **Data localization:** Consider data localization requirements in certain jurisdictions that mandate storing data within the country. Ensure all data transfers concerning the different personal data classifications in the country of origin can meet any data security requirements. The receiving parties must demonstrate that they have the same standard of data protection in their own countries of operation and data storage (host) equivalent to that of the country of the sender.

Conclusion

Gleaning from global compliance challenges and business complexity in the built environment sector, it is strategic for asset operators to stay focused on their asset management principal activities (see examples in Chapter 1) while smartly outsourcing specialty areas in international compliance to domain experts. There are international firms, such as the TMF Group (TMF Group, 2023) and Deloitte Group (n.d.), amongst others, that offer leading-edge technology and multidisciplinary capabilities. This can be helpful in navigating the hurdles and resolving complex compliance issues in the operations of a firm.

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CHAPTER 5

Uncertain times

Dealing with "unknown unknowns"

Asset management operating in a continuous state of flux driven by a series of seemingly endless organizational redesigns and responding to disruptive events is not ideal from the author's own long experiences. However, there is no panacea to escape the organization treadmill in a firm that is based in Singapore and operates in different geographies. This is a universal challenge. Many industry experiences in recent years (Hougaard *et al*., 2022; Barr, 2022; Sorrentino, 2024; Fitzgerald *et al*., 2021) reflect on leadership styles and organizational effectiveness for sustained performance and employee health in uncertain times.

While a firm needs to redesign asset management to achieve its organization goal as industry transformation and disruptive forces accelerate in the market, it needs to be prudent to manage change and deal with uncertainty in a smart manner so as to capture emerging opportunities and retain sustainable growth. What stymied the market is not a lack of information but a limited understanding of the inter-relationships between business and disruptive factors, thus culminating in uncertainty.

A firm needs to recognize that there are unknown forces in the market that we do not know about (referred to as "unknown unknowns"). This is best explained by the Rumsfeld matrix (US DoD, 2002; Sarvanan, 2021), which can help decision-makers in a firm navigate uncertainty by categorizing unknowns into more manageable tasks. By identifying "known unknowns," a firm can surface assumptions that need to be validated because there are gaps in our knowledge that we must address in consultation with experts. By uncovering "unknown knowns," a firm can tap into

hidden knowledge buried in our subconsciousness and insights that are overlooked or dismissed as remoteness, which can enhance the understanding of the situation in the country of operation. The lowest hanging fruit in conventional wisdom is "known knowns." These are facts or variables that a firm is fully aware of and understands. Most managers in their comfort zones will focus on the "known knowns" in a conventional risk management approach. That has limited the options to excel in uncertain times.

In this way, a firm can prioritize tasks and allocate resources more effectively, focusing on the most significant sources of uncertainty. By systematically addressing these uncertainties, a firm can make better-informed decisions and manage risks more effectively. Risk assessment, in turn, determines possible mishaps, their likelihood of happening and consequences, and the tolerances for adverse events in uncertain times.

This chapter serves as a bridge connecting the multifaceted roles and responsibilities of asset management in a firm discussed in earlier chapters, with the opportunities to address specific considerations in uncertain times, which will be also explored in the subsequent chapters.

Disruptions to asset management

The growing list of disruptions (adverse events) creates the conundrum of the risk of a slow-burnt polycrisis in the world today (WEF, 2023). A polycrisis refers to a cluster of interconnected global risks that, when combined, have a compounding effect, leading to a situation where the overall impact exceeds the sum of each individual risk. It is essential that a firm needs to develop a balanced view of global events and their potential disruptions in navigating uncertainty.

A firm needs to be clear on what constitutes uncertain times. Uncertain times are periods marked by unpredictability, instability, and a lack of clear direction, often impacting economic, social, political, and environmental factors. The technology factor is included since it is the disruptive factor that is re-shaping everything in uncertain times.

Once a firm has identified its highest priorities, it should allocate resources to asset management to address them effectively. However, it is

important not to overextend these resources. In practice, it is wise for a firm to allocate some resources to the outliers because they can exploit the gaps to inflict financial and reputation damage to the firm.

The list of disruptions for a firm will vary according to periods and hence it can be different for different firms, depending on the geographies they operate in and the maturity level of people, process, and technology in the firm and its coordinated supply chain resilience.

Hidden understanding of the unknowns

This segment explains the importance of recognizing potential adverse events and understanding the looming possibility of a period of uncertain times. A firm, along with the vast expanse of knowledge, cannot always prevent, detect, and respond to every adverse event from the very beginning. This is a truism, as both natural and human-caused calamities have occurred throughout history. Those who understand the three keys below will be able to navigate uncertain times:

- Knowing the past
- Seeing the present
- Sensing the future

It is essential to discern past events and understand the unfolding of current events. This often provides a rich context that may reveal hidden insights, offering the key to ensuring sustainable growth in uncertain times.

Knowing the past

In tandem with the introduction on the impact of industry transformation on infrastructure asset management in Singapore (Chapter 1), the next segment benefits readers by illustrating the points made with specific, real-world adverse events. These examples demonstrate how the asset management sector in Singapore's built environment has navigated uncharted waters since the 1990s. As an open society, Singapore requires uninterrupted business operations. Therefore, firms must brace themselves

against headwinds and potential adverse events, especially those with an international presence in different geographies.

- Asian Financial Crisis (1997), which led to a significant devaluation of currencies, collapse of stock markets, and a sharp decline in asset values in East and Southeast Asia. Companies had to navigate through high volatility, liquidity issues, and a loss of investor confidence.
- Dot-com Bubble (2001), which resulted in massive losses for technology stocks and a broader market downturn in terms of business activities, which affected the willingness of business tenants to pay higher rents for better quality commercial spaces.
- SARS outbreak (2003), which caused economic disruptions in East and Southeast Asia, particularly for the affected sectors such as hospitality and international travel. There was a short-term market volatility.

These disruptions to asset management revealed a positive aspect amidst the challenges. The post-Dot-com era presented a period of consolidation and growth for the built environment sector, fostering innovation and business opportunities. Since 2002, Singapore real estates investment trusts (S-REITs) opportunities have paved the way for a series of innovations in commercial spaces, enabling business, consumer, and social activities in the syndicated retail, food and beverage (F&B), and entertainment sectors in Singapore.

- Global Financial Crisis (GFC) (2008), which was triggered by the significant challenges in the housing market and adventurous subprime mortgage lending practices in the United States. The GFC led to a severe global recession. Many businesses had to manage losses, liquidity crises, and a re-evaluation of their risk management practices.

Following the GFC, the recovery period saw increased regulatory scrutiny and changes in asset management strategies to enhance risk management and compliance. Firms focused on rebuilding investor confidence and adapting to new market conditions in their countries of operation.

In contrast, the next two events had milder impacts, partly due to the ongoing post-GFC restructuring.

- H1N1 flu (2009): The unexpected pandemic caused volatility in specific sectors, such as travel and healthcare.
- 2009 European sovereign debt crisis: This crisis led to austerity measures in affected countries.

Firms with asset management services for hospitality and medical tourism had to mitigate the associated risks during the H1N1 flu pandemic in 2009. For firms with EU exposure, asset management required careful handling of assets, tenants, and customer interests, as well as navigating credit risks and reassessing their exposure to European assets.

Many recovery measures in asset management have incorporated enhanced corporate governance at the firm level. The sustained effort in oversight at the board and management levels for many companies in Singapore did not go unnoticed (NUS Business, 2019). The decade in the 2010s also witnessed a rapid pace of digitalization (Auxier *et al*., 2019; MTI, 2019; Palandrani, 2022).

Today, our personal and professional lives are getting intertwined with digital technology to a degree we might have never imagined before. These early traits are important because the later chapters will reveal an emerging pattern in the digital twin, resilience, and sustainability, which will illuminate the path to navigating uncertain times.

During the same period, firms in Singapore enhanced their business continuity preparedness. By 2016, Temasek announced the formation of a steering committee comprising Temasek and Temasek Portfolio Companies (TPC) to recommend skills, competencies, and processes for a Business Psychological Resilience Programme (BPREP).

This program aimed to match the operational needs of various businesses across different industries, preparing them to cope with the psychological and emotional impacts of crises (Temasek, 2016). TPC in the built environment sector actively participated in the BPREP and incorporated it as part of their business continuity measures.

- The COVID-19 pandemic (2020) caused unprecedented market volatility and economic disruptions globally.

Asset management had to quickly adapt to the new normal. The focus was on liquidity management to help embattled tenants. Active portfolio management was used to diversify non-performing or non-core assets.

New opportunities were identified in a rapidly changing environment. This included converting hotel rooms and serviced apartments into approved quarantine and medical facilities to support the recovery process in the country of operation. Additionally, more online-to-offline (O2O) activities were enabled to support local business sectors, such as retail, F&B, and certain commercial activities.

This includes a continuous implementation of safe management measures (SMMs) for operating properties across different asset classes during the intervention periods of the COVID-19 years to restore societal confidence.

Firms with international portfolios faced challenges differently in each country of operation, as each country had its own considerations in border control, business continuity measures, societal expectations, and individual rights such as data privacy and freedom.

This necessitated a sharper focus on intra-firm coordination for business continuity measures to ensure an adequate workforce and outsourced supply chains could meet the expected service levels of critical services and essential supplies for different asset classes at the operating level.

The COVID-19 countermeasures and pace of implementation in each country were not always coordinated with World Health Organization (WHO) recommendations, adding to the growing list of international legal and regulatory compliances managing this business disruption.

Firms that were ahead in terms of preparedness and readiness across different industries were able to adapt their physical workspaces and business activities quickly. This is a crucial factor for asset operators, as their asset management activities would focus more on managing embattled tenants, particularly in downsizing situations.

Takeaways from past events

These adverse events underscore the importance of adaptability, risk management, and strategic planning in asset management. Each crisis has

presented unique challenges and lessons, shaping the strategies and practices of asset operators.

Over time, there has been greater specialization in asset management practices to address market changes and demands and a more resilient supply chain to meet industry expectations for different tiers of customers and tenants.

Since the greatest shift toward remote working in the COVID-19 period, there is an ongoing tussle to get employees to return to the physical workspace. The changing commuting patterns have affected tenant covenant strength, impacting rental income and occupancy rates. Similarly, O2O activities have modified the arousal factors to retain the attractiveness of shopping malls to consumers.

Seeing the present

Today, the built environment in Singapore hosts a more resilient infrastructure and international business hub and, in part, owed credit to the various stakeholders' conscious effort to manage the series of significant impacts from past events.

All economies, regardless of size, require a stable environment to facilitate the exchange of goods and services, both physically and digitally. Business activities take time to perform well.

Asset management must elevate to next-generation risk management and sustainability strategies at the core of operations to address several considerations:

Economic factor

- Interest rates are the most scrutinized market factor, since an increase would elevate the cost of borrowing and capital, making it more challenging to finance projects in the built environment sector. The inflationary pressures have affected construction costs, property values, and rental rates.
- Increased tariffs can disrupt trade flows, affecting export-oriented industries.

- Uncertainty can impact tenant employee morale and productivity, requiring businesses to focus on employee engagement and support. This can lead to potential friction and loss of future revenue opportunities in asset operator-tenant relationships at the property level due to gaps in communications and the sudden departure of seasoned tenant touchpoints.
- A firm needs to monitor whether business tenants in its property portfolio are resorting to measures like layoffs or downsizing to maintain financial stability. If a red flag is identified, it will require re-balancing risk allocation and managing the tenant mix strategy in asset management, as these business decisions are likely to impact the future choice and use of business spaces.

Social factor

- In uncertain times, a variety of elements can impact the society and the way people interact with each other. Economic instability can lead to job insecurity, affecting peoples' livelihoods and well-being in a country of operation. This can lead to increased stress and anxiety among employees and third-party vendors, which can have a significant impact on mental health and well-being.
- At the community level, disparities in income distribution and unemployment may create conditions for social tensions and unrest. Social cohesion, migration, and displacement may lead to demographic changes and challenges in host countries and their communities. These can have an impact on individual employees and third-party vendors, shaping the way the local operation functions during periods of uncertainty.
- At the firm level, asset management should assess whether there are genuine concerns regarding the safety, security, and mental health of employees and third-party vendors in affected countries of operation.

Political factor

- Geopolitics is an evolving dimension to business environment cornered by too many distractions. Geopolitical tension, such as conflicts between countries, civic wars, slow-burnt demonstrations turned

violent, and spilling of a trade war around the world, will always be a major risk for asset management, particularly those who operate globally or within affected areas.
- For example, the Energy Crisis (IEA, n.d.) is a development linked to geopolitical tensions and global supply chain disruptions, causing significant energy shortages and economic impact globally.
- Frequent changes in government policies and regulations can adversely affect business and investment sentiments, and a firm needs to be aware of the potential change in occupancy demand and modification of space user behavior or expectation.

Environment factor

- Unpredictable weather patterns, natural disasters, and environmental regulations are impacting industries and communities.
- Resource scarcity in water, energy, and raw materials can create imbalance and adverse social impacts.
- At the firm level, insights from Environmental, Social, and Governance (ESG) indicators are crucial for understanding the influence of environmental factors on asset management activities.

Technology factor

- Artificial intelligence (AI), advanced chips, and quantum computing are examples of rapid technological change that disrupt industries and require constant adaptation in a firm's business systems, processes, and people.
- The dark art of cyber-attacks has exploited the use of advanced technology and social engineering, which can increase the risk of cyber-attacks and data breaches. This creates vulnerabilities for businesses and individuals.
- Cybersecurity threats are borderless, meaning an incident affecting a firm does not need to come directly from an adversary. Even a seemingly low-risk cybersecurity incident can have serious ramifications if it exploits the cybersecurity and data protection weaknesses of a third-party vendor, who is a few removal layers in the value chain.

- A firm needs to invest in hybrid security, focusing on preparing its employees, strengthening cybersecurity and data protection measures, and ensuring its supply chain vendors meet the same robust standards during digital transformation.

Sensing the future

- In sensing the future, it is essential to leverage advanced technologies, sustainable practices, and resilient strategies to anticipate and mitigate future risks. These forward-thinking approaches in AI-enabled next-generation risk management (McKinsey and Company, 2022) can help a firm better manage uncertainties and ensure long-term success.
- Powerful data visualizations can greatly help the board and management in a firm to envision the future and make decisions about how to use their resources, since there is an exponential increase in a discovery process of inter risk relationship and permutations within a short, compressed time to tap the opportunities embedded in "unknown knowns" and "known unknowns."
- This is virtually everything the world knows about the disruptive factors at any given moment, made possible by the smart use of AI-identifying patterns that indicate potential risks before they materialize and relaying the options available to tap opportunities when other firms do not know how to handle an evolving situation.
- This insight focuses on prediction and prevention, which would differentiate the capability of a forward-looking firm. This is a new way of envisioning the world and its complexities.

Conclusion

Uncertain times are characterized by a lack of predictability and stability across the above considerations, leading to challenges and opportunities for businesses, governments, and individuals. Uncertainty can impact long-term investment decisions of businesses and investors, forcing them to rethink their basic assumptions about the economy, business cycle, immediate concerns, and future growth.

By understanding and addressing the disruptive factors, firms using asset management can navigate uncertain times more effectively and position themselves for long-term success. A firm may need to engage in scenario planning to prepare for various potential outcomes and develop flexible strategies.

This leads to the next chapter, which will demonstrate how next-generation risk management can significantly enhance a firm's decision-making process to capture emerging opportunities and offer plausible solutions to promote sustainable growth in times of uncertainty.

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CHAPTER 6

Next-generation risk management

Navigating the future

The built environment sector, a derived demand industry, relies on the level of business activities and transformational requirements of various industries within Industry 4.0's digital economy. Strong risk management and governance, industry-focused implementation, and a high level of transparency are crucial for success (EY, n.d.). The future of asset management for Singapore real estate investment trusts (S-REITs) and private equity funds (PE Funds) in uncertain times requires a curious and conscious approach to understanding the multidimensional outcomes of interrelated risks within a firm's governance, risk, and compliance (GRC) framework. Management and board levels must possess in-house capabilities to identify and utilize modern tools and approaches. This is essential for understanding how risks are interconnected and may compound in the firm's countries of operation and for applying business acumen to devise effective risk mitigation strategies. At the outset, it is unwise to assume any singular disruptive factor as the overriding risk or primary threat in an uncertain environment. It is important to plan and test various stress scenarios using real-time structured and unstructured data to help the firm recognize unknown unknowns and inflection points. This can enhance the quality of asset management decisions at the firm level. This chapter concludes with a summary of plausible technological, system, process, and people solutions to capture emerging opportunities in an uncertain environment. Each solution is explained and supported with examples throughout the remainder of this book, providing guidance to help beginners build a foundation.

Managing polycrisis situations in uncertain times

An uncertain geopolitical future serves as the backdrop for polycrisis pressures. The insights and understanding drawn from real events and examples in the preceding chapter have demonstrated how each disruptive factor in uncertain times — economic, social, political, environmental, and technological — can impact asset management activities within the firm. The world is more interconnected than ever before, spanning business supply chains, international travel, the flow of information between geographies, and countries hosting data storage.

Robust solutions within the global system

A firm will need to design robust solutions within the global system that would allow it to keep functioning smoothly if connections were abruptly cut. It is crucial to recognize that the maturity level of risk management varies across industries and companies. Generally, financial institutions lead with the most mature approaches, followed by industries, such as aviation, oil and gas, advanced manufacturing, pharmaceuticals, and cold chain logistics, where safety is paramount. Organizations across various sectors will likely need to refresh and strengthen their risk management strategies to better prepare for the next normal.

Emerging opportunities and threats

This scenario presents both emerging opportunities and new threats for future space utilization, configuration requirements, and the use of infrastructure and facilities to support these industries. The built environment sector is a derived demand industry that relies on other business sectors to envision the use of space for their operations across different asset classes. Effective asset management at the firm level necessitates an efficient flow of information in communication and data networks, supply chain resilience, manpower resilience, uninterrupted utilities, and reliable infrastructure to operate successfully in any geographical location.

Inflection points

When we look back at historical events, it is essential to question whether outcomes were inevitable, random acts, or influenced by other factors. Inflection points mark moments of significant change. In asset management, an inflection point can signal a major market shift or the emergence of disruptive factors that impact the firm's long-term sustainability, marking critical decision-making moments.

While articulating theories and providing logical explanations in hindsight is easy, developing strategic foresight in uncertain times is more crucial. Many practitioners and academics have failed to recognize inflection points in past events from the outset due to human limitations, such as psychological biases, or being blindsided by seemingly adverse events in the buildup of risk appetite.

Enhancing risk insight

Leading experts in dynamic risk management (DRM) (Jain *et al*., 2020) and next-generation risk management (ERMA, n.d.) have explained the value of modern risk management approaches. The strength of DRM is continuously monitoring, updating based on the latest information, and adjusting strategies to address evolving risks such as market fluctuations, economic conditions, and regulatory changes. Next-generation risk management using artificial intelligence (AI)-enabled tools can enhance traditional practices by automating data analysis, predicting market trends, and identifying potential risks in operating different asset classes in different geographies. It is important for asset management to recognize that the discovery process may not present the full opportunity to manage uncertainties due to information asymmetry and decision bias in each disruptive factor. While available AI-enabled tools have their own unique strengths that may be suited for different organizational needs, there are common strengths, such as:

- Centralized risk management provides a single platform to identify, assess, and manage risks across the entire firm using common risk language and a measurement approach.

- Comprehensive risk catalog allows a firm to document and track real-time risks and monitor key risk indicators (KRIs) by delivering the appropriate information to the right people, driving accountability for managing interrelated risks in corporate governance.
- Advanced analytics utilizes machine learning and quantification tools to provide a unified view of risk.
- Regulatory compliance addresses the firm's need to meet compliance requirements and monitor regulatory changes.
- Operational resilience supports the identification and management of operational risks to ensure business continuity in asset management activities.
- User interface on dashboards and in apps for smart devices promote user experiences that can significantly improve oversight, decentralization, decision making, and actions.
- Data security is designed using scalable deployment options, such as on-premises, privately hosted, and cloud-based solutions for different asset classes in different countries of operation.
- Proactive risk management enables firms to anticipate and plan for future challenges, fostering a strong risk management culture among employees.

AI-augmentation in human decision-making

Positioning AI within this strategic context can effectively counteract asset operators' intense margin pressure and transform them for sustainable and profitable growth. Below is a discussion of the general steps to guide implementation:

- **Risk identification:** AI-powered data analytics and machine learning models can identify emerging risks in real time by analyzing vast amounts of data from various sources. These algorithms can detect suspicious patterns and flag anomalous activities, helping firms stay ahead of potential threats in procurement, deployment, and repositioning asset management activities in uncertain times.
- **Risk assessment:** AI can improve decision-making through AI-powered insights and risk scoring models, provided the inputs, such as each disruptive factor and associated or interrelated risk

factors, are given appropriate weightage in the model, and the model assumptions and biases are understood. AI can offer more accurate risk assessments based on historical data and current trends. Firms need to define criteria for acceptable residual risk based on their risk tolerance and regulatory requirements and evaluate these criteria to determine if the risk is within acceptable limits.

- **Risk mitigation:** AI can enhance efficiency by automating risk assessments and compliance reporting. This reduces the time and cost associated with mundane standard reporting and allows firms to focus their strategy on adopting the appropriate risk mitigation strategies that align with their risk appetite in asset management. Examples of risk mitigation strategies include:
  - Avoidance: Eliminating the risk by not engaging in the specific activity that causes it.
  - Reduction: Reducing the likelihood or impact of the risk for a specific activity.
  - Transfer: Transferring the risk to another party, such as through insurance or outsourcing, to a domain expert with the capability and experience to manage the specific risk more effectively and efficiently.
  - Acceptance: Accepting the specific risk only if the potential consequences are properly understood by the firm's management and board.
- **Model and performance monitoring:** AI can automate the monitoring of model performance and generate alerts if chosen metrics fall outside the tolerance levels set by the firm's board and management. Implementing a real-time system for continuous monitoring and reporting of risks, including recalibrating the outcomes of those scenarios with new information and insights garnered over time, is crucial. Keeping model documentation, bias assessments, error calculations, refinements (tuning), and validation reports up to date is essential.
- **Stress scenarios testing:** Potential applications include generating investment and operational signals from large volumes of unstructured data, using advanced pattern recognition to improve corporate governance, and calculating time-weighted return predictions or risk outcome simulations for different scenarios. AI systems can systematically combine scenario elements and refine parameters. By assessing the

logical consistency of these combinations, less plausible scenarios can be filtered out, leaving a more manageable set of scenarios to consider. It is important to be cautious of psychological biases. Testing various stress scenarios in real time aims to improve a firm's sustainability. At the very least, firms should be able to derive more robust risk solutions and gain performance insights from internal and external real-time data sets at a fraction of the cost of conventional processes. AI efforts may reveal "unknown unknowns" and signal inflection points in both global and local operating environments. When vast amounts of data on property values, occupancy rates, and market conditions are analyzed to provide new insights, inflection points not immediately apparent to decision-makers may be identified. This promotes strategic foresight in the asset management lifecycle, enhancing the opportunity for asset operators to maximize the potential for preserving and growing the future portfolio value of asset classes at the country level, using the options available to the firm in the foreseeable time horizon.

Overall, the pivotal strength lies in real-time insights, which can help a firm navigate uncertainties in any geography more proactively. By leveraging AI in these steps, a firm can significantly improve decision-making in asset management activities. The risks caused by disruptive factors can thus be reduced to a more acceptable level based on the residual risk appetite of the board and management. This presents a vast potential to augment human skills, enabling a firm to make better business decisions. This approach is particularly beneficial for resource-constrained firms like small and medium-sized enterprises (SMEs) operating in highly challenging environments, such as extreme weather and political volatility.

Vulnerability of traditional risk management

In contrast to the next-generation risk management approach, traditional risk management often relies on identifying and responding to risks after they occur and using a database of "known knowns" and "known unknowns." A firm will be consigned to fewer options in uncertain times because the heuristic approach has a limited ability to sense the "unknown knowns" and "unknown unknowns" in the discovery process within a small window of time. It is advisable not to entertain the idea of inaction

in adopting next-generation risk management practices, as the cost of failing may leave a firm vulnerable to operational disruptions, financial losses, and reputational harm.

Firm level

Understanding risk exposure

At the firm level, transparency in risk management practices, including the disclosure of various categories of risks, enables management and the board to assess the breadth and depth of risk exposure, including KRIs. This transparency helps identify potential warning signs and trends. It is necessary to analyze the interconnections among risks to understand how they might compound each other.

Table 6.1 offers a beginner checklist of risk examples and their potential impacts on asset management activities in uncertain times.

Table 6.1. Types of risks and their potential impacts.

Type of risk	Description	Impact on asset management activities
Climate change	Borderless risks related to climate change include extreme weather events, rising sea levels, and environmental degradation.	May result in property damage and an increased frequency of natural disasters that render it difficult to resume normal business operations at the property level, interrupt the supply of essential utilities, such as electricity and water, and disrupt the essential and critical supply chain to the affected property.
Cybersecurity	Borderless threats related to cyber attacks, data breaches, and digital infrastructure vulnerabilities.	May lead to significant financial losses, disruption of services offered by the firm, and compromise of sensitive information and personal data.
Data	Borderless risks associated with the collection, storage, and use of data, including privacy concerns and data integrity issues in asset management activities.	May result in legal liabilities, loss of customer trust, and regulatory penalties.

(*Continued*)

Table 6.1. (*Continued*)

Type of risk	Description	Impact on asset management activities
Economic	Borderless risks associated with economic instability, such as inflation, unemployment, tariffs, and market volatility	May lead to reduced consumer spending, business closures in affected buildings, and financial crises, thus affecting the occupancy rates and asset operating incomes.
Terrorism	Acts of violence and threats aimed at causing fear, harm, and disruption for political, religious, or ideological purposes.	May lead to a loss of life, economic damage, and an increase in the cost of heightened security measures in higher-risk regions or targeted asset classes.
Geopolitics	Risks arising from political tensions, armed conflicts, slow-burnt demonstration events, and changes in international relations.	May adversely affect business activities in the country of operation, limiting utilities' supply, and disrupting supply chains, leading to the demise of asset operation in the affected country.
Health	Risks related to public health, including pandemics, healthcare system capacity, and access to medical care.	May lead to a loss of life, strain on healthcare resources, and economic disruption, leading to a slow down of occupancy rate and facilities use.
Social	Risks related to social issues, including inequality, social unrest, and demographic changes, such as preference and affordability.	May result in political instability, labor disputes, and changes in consumer behavior, including the boycott of certain brands and their country of origin, thus affecting the business and volume of customers at the property level.
Technological	Risks associated with the rapid pace of technological change in Industry 4.0's digital economy, including obsolescence and ethical concerns.	May lead to job displacement, ethical dilemmas, and the need for continuous adaptation in business systems, processes, and practices at the firm level.
Wide area disruption	Risks that can cause widespread disruption across multiple regions, such as natural disasters, pandemics, and large-scale infrastructure failures.	May lead to significant economic losses, social unrest, and long-term recovery challenges, leading to dwindling occupancy rates over time.

Understanding these risks and their interconnections is crucial for the design and implementation of effective strategies to mitigate their impact and build resilience in the face of a polycrisis, which may otherwise culminate in black swan or grey swan events.

N-order risks

N-order risks refer to the cascading and interconnected risks that evolve from an initial risk. These are classified based on their complexity and the layers of interconnections they involve:

- 1st-order risks are primary risks that arise directly from specific events or actions.
- 2nd-order risks are risks that directly influence and are influenced by one other type of risk. For example, cybersecurity risks directly affecting data security.
- 3rd-order risks are more complex risks involving multiple interconnections. For example, climate change influences economic instability, which, in turn, affects social issues, creating a network of interdependencies.

By understanding n-order risks, firms can anticipate cascading effects that might not be immediately apparent, enabling more robust risk management strategies. Effective risk mitigation in asset management activities involves viewing industry best practices and standards as the minimum benchmark. This approach is especially crucial as many risks are interconnected and borderless, potentially impacting firms operating across different geographies, asset classes, or countries.

Table 6.2 provides examples of interconnected risks, illustrating the complexities and impacts of managing n-order risks in asset management. These highly complex risks usually involve many interconnected factors and cascading effects, representing a network of interdependencies where each risk may influence multiple other risks simultaneously. For example, in 2nd-order risks, a cybersecurity incident leads to a data breach. This direct cause-and-effect relationship is straightforward yet significantly impactful on digital operations. An example of a 3rd-order risk is geopolitical tensions, which may lead to acts of terrorism that will heighten

Table 6.2. Examples of interconnected risks and their potential impacts.

Interconnected risk	Impact on asset management activities
Economic and geopolitics	Economic instability can be exacerbated by geopolitical tensions and conflicts, leading to further market volatility and reduced business operations of firms in affected regions.
Geopolitics and terrorism	Political tensions can fuel acts of terrorism, leading to increased security costs, loss of life, and economic damage in the affected country(s) of operation. This creates a crucial decision-making point for the firm if the foregoing future remains viable for asset management activities.
Cybersecurity and data	A cyber attack can compromise data security, leading to breaches of sensitive information, legal liabilities, and loss of customer trust for their personal data managed by the firm.
Technological and cybersecurity	Rapid technological advancements, such as quantum computing capability, can introduce new vulnerabilities in digital infrastructure, increasing the risk of borderless cyberattacks across all industries. This will increase the cost of data protection and the sophistication of digital security measures for the firm.
Wide area disruption and health	Pandemics and large-scale infrastructure failures can strain healthcare systems and disrupt essential services, leading to long-term recovery challenges across all sectors in affected country. A firm will need to assess the sustainability of the operating business in the affected country of operation.
Economic, social, and technological	Economic instability, social unrest, and rapid technological advancements such as quantum computing can collectively create a very challenging environment for business continuity and asset management.
Cybersecurity, technological, and data	Cybersecurity risks, rapid technological changes, and data vulnerabilities can intertwine, leading to significant financial losses, ethical concerns, and legal liabilities for digital and data assets under asset management by the firm.
Geopolitics, terrorism, and social	Geopolitical tensions can cause terrorism and social unrest, further destabilizing conflict regions and impacting business operations and security measures in the country(s) of operation.

social unrest by eroding community stability. This sequence represents a broader network of interlinked risks. This sequence underscores the importance of addressing root causes, such as resource allocation, to prevent these cascading effects.

For firms, particularly those managing diverse asset types, such as S-REITs and PE Funds, it is essential to map out these cascading risks and interdependencies to formulate more comprehensive risk management strategies for different asset classes in different geographies. It is prudent to conduct scenario analyses to explore how risks might ripple through interconnected categories and implement stress-testing frameworks to assess vulnerabilities across geographies and operational asset classes.

Promoting transparency and trust

A proper risk disclosure report made available to external stakeholders will provide a clear picture of the risks a firm is exposed to in different countries of operation at any time. The degree of disclosure should show investors how acute and interconnected risks are being managed and what measures are in place to mitigate them. This provides insights into the firm's ability to understand risks, risk appetite, and tolerance and whether the intra-firm response behavior is in alignment with investor expectations and preferences. This also fosters transparency that prevents risk from building up that may lead to future crises, thus enabling clear understanding among other stakeholders, such as regulators, that, in turn, promotes trust in the board and management.

Positive value of disclosures

Firms with market leadership positions often take proactive action to share with their stakeholders. Two business examples are shared here to illustrate the positive value of disclosures demonstrated by a publicly listed firm:

- The public gained early insight into the firm's organized workforce and the preparedness of its safe management measures to ensure

workplace safety and hygiene, even when the novel coronavirus was little known in Singapore in the early stage of the COVID-19 pandemic in January 2020 (CapitaLand, 2020) in a news release. Subsequently, the firm also issued a series of updates on business continuity measures to stakeholders on various platforms.

- Investors gained understanding of the firm's strategy to accelerate geographical diversification globally, anchoring on thematic-driven investment strategies on three secular trends — demographics, disruption, and digitalization — on its Investor Day (CapitaLand, 2024).

Plausible solutions to improve outcomes

The primary goal of next-generation risk management is to design and implement innovative solutions that achieve sustainable growth and resilience in uncertain times. This requires concerted efforts in key areas to ensure sustainable income generation from the portfolio, operational efficiency at the asset level, maximized profitability for the firm, and the extended longevity of physical, digital, and data assets under management.

While all firms typically train employees at all organizational levels to improve outcomes, modern asset management in uncertain times requires customized training tailored to specific functions in the front office, middle office, and back office. This training should incorporate Volatility, Uncertainty, Complexity, and Ambiguity (VUCA) considerations in everyday decision-making processes. The strategic leadership environment, as described by the US Army Heritage and Education Center (USAHEC, 2022) and Bennis and Nanus (1985), provides a lens through which an entity can interpret its challenges and opportunities.

For effective implementation, the various components of a firm must align and function cohesively, resembling a self-organizing map of strategic foresight, insight, and intra-entity behavior. This alignment can shed light on potential failures associated with any decision missteps, enabling the firm to navigate uncertainties more effectively.

The design and implementation of each plausible solution must consider scalability to enable flexible decision-making in asset management activities. This includes outsourcing options (e.g. local procurement, global master agreements), asset acquisitions (e.g. new properties, digital

assets, data assets), and divestment considerations (e.g. retaining digital and data assets from property divestment).

Given the need for firms to continuously adapt to changing circumstances while operating different asset classes in various geographies, the following list of plausible technology, system, process, and people solutions may serve as a valuable starting point for consideration in critical areas:

- Utilizing digital twin (DT) technology to create virtual replicas of physical assets and systems enables real-time monitoring, predictive maintenance, and optimization of building operations. This reduces risks and enhances efficiency in physical assets. DT technology can simulate scenarios in virtual environments, allowing firms to test both aggressive and defensive strategies.
- **Sustainability initiatives:** Climate adaptation presents opportunities in climate-resilient infrastructure and sustainable practices across various aspects of asset management activities. This includes adopting renewable energy sources, reducing carbon footprints, and promoting eco-friendly practices to ensure long-term environmental and economic stability, including Environmental, Social, and Governance (ESG) considerations that put sustainability at the center of asset management.
- **Manpower resilience:** Building a resilient workforce through continuous training, skill development, and mental health support ensures that employees are upskilled and well-prepared psychologically to handle disruptions and adapt to changing circumstances in the operating environment.
- **Supply chain resilience:** Strengthening supply chain resilience involves a structured approach to minimize disruptions to critical and essential business functions. A proactive approach involving suppliers and service providers increases preparedness for crises and disruptions. An anticipatory approach includes identifying supply chain risks and introducing measures to reduce business exposure to these risks.
- **Hybrid security measures:** Implementing comprehensive security measures that combine physical security, people security, data security, and cybersecurity at the firm level is essential. This includes

safeguarding critical infrastructure, protecting people and sensitive data, and implementing cybersecurity measures, such as regular patching, penetration tests, vulnerability assessments for cloud and system, audits, encryption, identity and access management, end-user computing, incident response plans, IT disaster recovery, and ensuring business continuity in the face of emerging threats.

Conclusion

The myriad of risks arising from asset management activities highlights the complexity involved. It is crucial to examine their interconnected relationships to assess their potential impact on operations and develop effective mitigation strategies. As risk practices mature, firms are more likely to achieve their strategic objectives even in uncertain times, as risk factors and their residual risks are better understood.

At the firm level, cross-functional collaboration is essential to break down silos between departments and create a unified risk strategy. Disclosures play a significant role in corporate governance, often including information on the continuous monitoring and updating of risk management practices and the firm's behavior in the operating environment. This transparency ensures that investors are aware of any changes or improvements, helping to build trust and confidence among stakeholders and enhancing the reputation of the asset operator.

These actions also provide opportunities to demonstrate compliance with regulatory requirements and industry standards, helping stakeholders understand that the firm adheres to best practices. For risk-averse firms preferring to operate in low-risk environments, some of the plausible technology, system, process, and people solutions may offer consolation against potential risks to ensure stable outcomes. Conversely, firms motivated to capture emerging opportunities in uncertain times may find that some of these solutions improve outcomes based on their risk appetite.

The firm's motivation should be accompanied by business acumen to decide on appropriate insurance coverage for various risks affecting its sustainability and to maintain adequate liquidity to manage cash flow during disruptions.

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CHAPTER 7

Digital twin

What is a digital twin?

The concept of a digital twin (DT) involves creating a virtual representation of a physical asset, such as a building, airport, railway station, or an operational digital asset system or process. This virtual model can simulate the asset's behavior and performance in real time by leveraging data collected from various sensors, Internet-of-Things (IoT) devices, and historical records. The face of DT, as an agent of change, can be recognized in the context of digital transformation within Industry 4.0, where the digital economy represents the fourth industrial revolution, characterized by the integration of digital technologies such as IoT, artificial intelligence (AI), big data, and cloud computing across all industries. The built environment sector provides the necessary infrastructure and building to support the critical and essential activities of these industries.

The digital transformation involves leveraging these technologies to enhance efficiency, productivity, and innovation within the firm (IMDA, n.d.) while ensuring challenges (BCA, 2024) such as cybersecurity risks, data privacy concerns, and the need for upskilling employees are addressed adequately. By mimicking the asset's condition and behavior, the DT allows firms to monitor, analyze, and optimize physical assets, digital assets, and data assets in asset management activities. This chapter explains how to implement DT plausible solutions to derive the greatest value in scenario planning of assets under management in normal business conditions and adverse situations.

Strengthening asset management

At first glance, the life cycle opportunities enable collaboration and cost-effective, proactive remedial solutions at different stages and provide

timely information to different stakeholders in the asset lifecycle in normal business conditions. During an adverse situation, an inactive asset is not productive for the asset under management. This is an important issue that requires a deeper understanding and the need to offer plausible solutions to the firm quickly at a fraction of the conventional cost. For this, we can distill how DT can create positive impacts in a firm's decision-making process using the understanding of two broad categories — normal business conditions and adverse situations.

Normal business conditions

This segment explains how DT can be harnessed to create value at the firm level and asset life cycle. Proactiveness and intuitiveness are essential traits for asset operators leveraging DT for digital and data insights to create value for stakeholders, shortening their learning curve to manage tasks and challenges and imbibing strategic foresight using scenario planning. The possibilities are endless. Below are a few key pointers on how DT can enhance the quality of decision-making across the front, middle, and back offices:

- At the management's dashboard level, the continuous real-time monitoring of asset performance metrics (e.g. duration of space use, energy consumption, water consumption, comfort indices, occupancy rate, number of events, human traffic pattern in building, facilities booking pattern, carpark use pattern, service charges, and rental forecast and renewal status) provides the board and management real-time insights to identify underutilized or idle assets, enabling timely interventions to maximize value extraction from the portfolio and divest non-performing assets.
- At the firm level, DT can be harnessed to simulate risk scenarios in virtual environments, allowing a firm to test and optimize strategies that balance aggressiveness and defensiveness. This capability transcends the industry's current technology silos, improving efficiency and productivity. DT can enhance business processes across the front, middle, and back offices with many practical applications, such as automating operations and procurement, client onboarding (e.g. Know Your Customer (KYC) exercise, enhanced due diligence), performing

compliance reviews, generating reports, and improving the performance of sales and marketing teams.

- By analyzing large datasets from various sources in the firm's enterprise resource planning (ERP) system such as procurement, smart facilities management (Smart FM), supply chain management, finance and human resources, the asset operators can gain a comprehensive understanding of assets under management and the number of shared services necessary to support the level of activities in the firm.
- DT can reveal anomalies and patterns in early risk identification and mitigation, such as enhancing the detection of money laundering and financial crimes, which may indicate potential issues, and empower the asset management team to proactively address them before they escalate, ensuring regulatory compliance and safety standards are met at the operating level. The strength of corporate governance can be improved in business activities.
- At the portfolio level, the predictive analytics algorithms in DT can help to anticipate potential opportunities and issues in the physical asset operation to meet tenants' business space requirements and user experiences, allowing for proactive maintenance, preventing unexpected breakdowns, reducing repair costs, extending asset lifespan, and reducing downtime. Many information sources can be harvested from IoT devices and sensors to maximize the opportunity to create value for asset management, for example:
  - Air conditioning and mechanical ventilation (ACMV) system data
  - Building façades and interior space layouts, such as floor plans and fenestration
  - Smart FM systems and operational data
  - Facility security system data
  - Wireless sensor networks containing lighting, thermal comfort, air quality, and fire sensor data
  - Information about tenant digital and physical interaction with the building, and
  - Third-party cloud services.
- In strategic business, DT infused with market intelligence data from monitoring the market trends and insights can intuitively serve the firm's interest to take smart positions. For example, favorable outcomes can be achieved by capitalizing on emerging thematic

opportunities in different asset classes by using DT to aid the planning of critical and essential resources ahead of time and to upskill the manpower to support the growth.

- In ferreting new business, the effort of scenario analysis in asset management should be outcome-driven to prepare for various market conditions and improve decisions that will help the firm to manage its risk mitigation strategies in target business areas and repositioning current business and tenant mix in its asset portfolio.
- A firm with DT strategic planning capability is in a far better position to ensure long-term sustainability by rapid prototyping and testing new ideas in a virtual environment and speeding up innovation and development processes to lead to the intuitive adoption of new technologies to stay ahead of the market competition. DT needs a shared platform to collaborate with multiple stakeholders to access the same data and insights securely so that everyone is on the same page on process innovation. Its talent pool must be willing to learn and adapt continuously to stay relevant and responsive to changes.
- The DT real estate model can allow asset operators to improve their corporate sustainability, where carbon dioxide (CO_2) emissions, pollution, and waste collection at the building can be monitored. Different scenarios can be simulated to calculate the outcome of any change in their model, such as replacing the air conditioning system with a more sustainable option. Digital and data insights promote many parametric opportunities to use different resource permutations to enhance water and energy efficiencies and conservation at peak, off-peak, and normal load operating conditions, thus creating opportunities for the adoption of sustainable practices and recyclable materials and cutting down the emission of greenhouse gases.
- Many leading experts have demonstrated the merits of using DT in a building life cycle (Matterport, n.d.; ARQI, n.d.). DT offers the opportunity to visualize the concept clearly to the board and management, major stakeholders, and regulators and allows for changes and alterations to meet user requirements and regulatory compliances at a fractional cost. This visualization provides stakeholders with a clear understanding of the project's design, layout, and spatial relationships. Project teams can identify potential design issues, visualize

construction sequencing, and optimize resource allocation. Third-party agents and leasing managers are typically working with spaces that are still under construction to capture interest in marketing efforts. DT can enable prospective corporate tenants, accommodation lessees, and interested buyers to view spaces anywhere and at any time and acts as a catalyst to enable space use re-imagination. The Building Information Modeling (BIM) files can be integrated with external modeling software to demonstrate the spatial layout for maximum flexibility and keep prospective clients engaged and continually updated in the negotiation process. For example, leasing and salespersons can evaluate the accessibility of a property for sale or lease with target clients by using a DT model to show prospects how they might navigate a space as different users in the asset class (e.g. lodging, data center, wellness, logistics, business park, self-storage, office, retail, or industrial). Granular details enable prospects to explore properties on an even deeper level, such as the integration of building services to support creative activities in the space and the opportunity to adopt finishes and colors to match their own corporate branding or theme. The opportunity list does not end here and can include common facilities such as building lobby access, wayfinding, ramp access, lift control, and safety concerns that can be easily visualized and understood from the standpoint of different users, including accommodating physically challenged users.

- Asset management can improve its own competitiveness using digital application (apps) to improve the mobile accessibility of its tenants and customers and thus connect more seamlessly with users. The curated customer experience that draws from AI-ferreted insights promotes transparency and trust in customer service since it can provide clients with real-time online interactions, enabling quick responses, and implementing the change for a desired outcome. In this example, DT acts as an intuitive tool to communicate customer needs and preferences and enabling personalized services to improve overall satisfaction, user experience, and customer loyalty.
- Overall, DT can contribute to the long-term sustainability of the firm using a myriad of possible actions (Table 7.1) in different phases of the asset life cycle.

Table 7.1. How can DT contribute to the long-term sustainability of the firm?

Life cycle stages	Life cycle opportunities (non exhaustive)	How can DT contribute to the long-term sustainability of the firm?
Design and Planning Phase	Virtual prototyping	Create a digital model of the building to test various design concepts and simulate their sustainability in terms of green building performances and user experiences.
	Scenario testing	Evaluate different scenarios in energy efficiency, water efficiency, structural integrity, environmental impact, occupancy comfort, spatial layout, and productivity to select the best design options.
Construction Phase	Progress monitoring	Use DT to monitor construction progress in real-time, ensuring that the project stays on schedule and within budget. Site variables such as materials, machines, equipment, manpower, utility, and weather can be incorporated into the model.
	Quality management — Predictive analysis and quality control	Detect potential issues early by comparing the digital model with the physical construction, enabling timely corrections. May be used to predict environment, health, safety, and building performance gaps.
Operation and Maintenance Phase	Condition monitoring and prediction	Monitor the building's systems and components to predict when maintenance is needed, reducing downtime and extending the asset's lifespan.
	Resource management	Optimize energy usage by simulating different heating, cooling, and lighting scenarios, resulting in cost savings and environmental benefits. Optimize water usage by simulating the different water-based equipment, such as the cooling tower, pump, pipework, water fountains, and end-user appliances in bathrooms, toilets, and kitchen.

Table 7.1. (*Continued*)

Life cycle stages	Life cycle opportunities (non exhaustive)	How can DT contribute to the long-term sustainability of the firm?
Asset Enhancement work in existing infrastructure and building carried out on behalf of the building owner	Impact analysis	Simulate the impact of proposed renovations on the building's performance, allowing for informed decision-making and advise stakeholders, such as tenants, customers, in-house property team, outsourced building service providers, regulators, and investors (if asset enhancement work is for a property under fund management)
	Resource allocation	Plan and allocate resources efficiently by using the digital model to identify areas that require attention, such as safety precautions, noise control measures, new safe wayfinding to avoid construction areas, additional security measures, work schedule, duration of work, and any inconvenience and disruption anticipated.
Demolition and Decommissioning Phase	Safety planning	Ensure safe demolition by simulating different demolition methods and identifying potential hazards.
	Recycling and waste management	Plan for the recycling and disposal of materials by analyzing the building's composition and identifying recyclable components.

Adverse situations

Adverse situations refer to conditions or events that pose challenges, threats, or negative impacts on the normal functioning and safety of assets or operations. These situations can arise unexpectedly and may require immediate attention and action. Here are some examples of adverse situations:

Natural disasters

- Earthquakes
- Floods
- Tsunamis

Man-made threats

- Terrorist attacks
- Cyber-attacks
- Vandalism
- Industrial accidents
- Wide area disruption caused by demonstrations and riots

Economic crises

- Recessions
- Market crashes
- Supply chain disruptions
- Financial instability

Public health emergencies

- Pandemics
- Epidemics
- Biohazards
- Contaminations

Environmental challenges

- Climate change impacts
- Extreme weather events
- Pollution
- Resource scarcity

Operational failures

- Equipment malfunctions
- System outages
- Power failures
- Structural failures

For instance, in the case of a pandemic flu that is communicable and leads to closed borders, as observed during COVID-19, a split team and alternative work arrangements are necessary, which puts a strain on the workforce. An act-of-war situation means that countries with conscription services will experience a vacuum of manpower needed for economic activities. A recent example is the Ukraine conflict, which has adversely affected its domestic economy and the global supply chain in agricultural products, leading to price shocks (Chepeliev, 2024). Wartime economy is not the usual planning scenario for asset management but is becoming more relevant with an uncertain geopolitical environment globally. Wide-area disruptions, such as the great 2015 Chennai flood (NDMA, n.d.), can render the entire city inoperable. This can disrupt operation supply chains that other regions rely on, impacting asset management decisions on whether to decant or mothball property assets that cannot support tenants and customers in economic distress situations. There are many considerations for the plant and equipment serving the building and its contents, owing to the local obligation to provide uninterrupted services and utilities to tenants at the property level, who are providing essential services to the local community at large. Unlike a mobile phone, a building cannot simply be shut down and must be measured against the local requirements. It is also reasonable to consider the potential conversion of property assets, such as hotels and convention centers, into temporary healthcare or shelter facilities in complex situations, such as during pandemics or wars.

DT can enable proactive management and rapid response to adverse situations, ultimately enhancing the resilience and sustainability of building portfolios. DT can enable the switch to be less radical since resource

planning and execution can be smoothened out, addressing different facets such as protecting physical assets and human lives and building content in times of emergencies, such as fire, floods, and natural disasters.

Data insights provide the key to unlocking opportunities to introduce practical business continuity plans at the asset level to ensure critical and essential services and functions remain operational and uninterrupted to serve the tenants and their activities while strategizing actions to ensure supply chain resilience for outsourced service providers and suppliers to support ongoing activities. By leveraging real-time data and advanced simulations, the gap in knowledge and understanding can be bridged. The opportunities for value creation in the asset life cycle is explained using the following examples in Table 7.2.

Table 7.2. DT value creation in the asset life cycle.

S/No	Adverse situations (non exhaustive)	How can DT create value?
1	Natural disasters	In earthquake preparedness, DT can simulate the impact of earthquakes on buildings to identify structural weaknesses and plan suitable retrofitting measures to avoid safety risks to lives and building content.
2	Climate change	In urban heat island mitigation, DT can simulate the effects of heatwaves on buildings, allowing for the implementation of cooling strategies and energy-efficient designs to abate the extremes, thus avoid interruption to normal services and to save costs.
3	Extreme weather	In flood preparedness, DT can predict the impact of monsoon rains on low-lying areas, enabling proactive measures to protect buildings and infrastructure. By modeling flood scenarios, DT can help in designing flood-resistant infrastructure, planning evacuation routes, and business continuity.
4	Man-made threats	In terrorism and criminal activities, DT can be used to simulate potential security breaches and plan for effective surveillance and response strategies.

Table 7.2. (*Continued*)

S/No	Adverse situations (non exhaustive)	How can DT create value?
5	Cyber and data threats	In the realm of cybersecurity and data security, DT can play a pivotal role by monitoring and simulating cyber-attacks on ERP systems and associated operations, including human resources, finance, procurement, marketing and sales, supply chain, and Smart FM. This capability enhances cybersecurity measures, ensuring the confidentiality, integrity, and availability of data while aligning with data privacy regulations to safeguard customer and employee information effectively.
6	Economic downturns	DT can help in identifying areas where operational costs can be reduced without compromising performance. DT can optimize the use of manpower, equipment, and other resources during economic downturns, ensuring that critical maintenance and operations continue efficiently, and essential services remain available.
7	Environment health and safety	In pandemic response, DT can simulate the spread of diseases within buildings, aiding in the design of ACMV systems and other prevention, detection, and response measures to reduce transmission. In fire emergency evacuation, DT can plan and simulate emergency evacuation routes and procedures in cases of fire.

Conclusion

This chapter has clearly demonstrated that DT can enhance business processes across front, middle, and back offices with practical applications in normal business conditions, and to unlock the strategic transformation asset, operators need to overcome margin pressure in various future scenarios. However, scenario planning will not always be fully accurate in uncertain times. It is not a panacea for every economic, social, and political disruption. The analogy of a fire station is useful here: while

firefighters do not know when the next fire will occur, they are always prepared for it. Common sense must still prevail, as the psychological factors (e.g. emotional exuberance and cultural understanding) in human decision-making cannot be meaningfully replicated with current computing capabilities. In contributing to business resilience, DT can provide insights to optimize manpower allocation in adverse situations, such as pandemics, acts of war, and wide-area disruptions. Each situation requires a different response.

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Chapter 8

Sustainability

Sustainability at the center of everything

The United Nations Sustainable Development Goals (SDGs) is a universal call that puts 17 interconnected goals to address critical global challenges, such as poverty, inequality, climate change, and environmental degradation (UNDESA, n.d.). This chapter explains what needs to be done at the firm, including how to make commercial sense at the operating level in different geographies that have different Environmental, Social, and Governance (ESG) regulations, approaches, and practices. The generally understood ESG taxonomy has created a classification system for businesses and investors to know what activities are considered green or climate-friendly. It is not the intent here to discuss climate change technology salvation or the net zero carbon dioxide (CO_2) target. A firm with international operations needs to consider multifaceted sustainability due to demographic change, digitalization, and disruptions. Therefore, any firm operating out of Singapore needs a new mindset to embrace thematic and dislocation opportunities in a changing new world order. In uncertain times, it is strategic for a firm to put sustainability as a plausible solution at the center of asset management.

Evolving regulatory environment

The European Union (EU) is a global leader on sustainability. Much remains to be seen at this point if the EU will scale back ESG regulations in the foreseeable near future (McGowan, 2025) to improve their own business competitiveness to match the United States' (US) competitive economic and trade policies and aspirations. The EU has proposed significant changes to its sustainability reporting rules to ease the compliance

burden on businesses, as part of the Omnibus Simplification Package. These are still subject to the EU's legislative process. The proposed changes aim to reduce the number of firms required to report under the Corporate Sustainability Reporting Directive (CSRD) and the Corporate Sustainability Due Diligence Directive (CSDDD), among other regulations. The EU is a global stage player and has an impact on international business practices, particularly for firms with EU operations. It is timely to remind a firm to assess its own business risk exposure to uneven regulatory requirements in different geographies.

Measuring ESG performance

There are many tools and metrics used to assess ESG performance. For example, agencies such as MSCI (MSCI, n.d.) and FTSE Russell provide ESG ratings (FTSE Russell, n.d.). Frameworks on reporting standards include the Global Reporting Initiative (GRI, n.d.), Sustainability Accounting Standards Board (SASB), and Task Force on Climate-related Financial Disclosures (TCFD). Firms may opt to use more than one reporting format, such as the SASB Standards or GRI Standards, to meet the needs of their audiences (SASB, n.d.). The GRI remains one of the most widely used sustainability reporting standards globally (KPMG, 2024).

Future-ready for the built environment

At the physical asset level, the World Green Building Council's (WGBC, n.d.) system change approach to operating green buildings is touted as the way forward to enable the Future-Ready in Government, Business, and Finance Community globally, while Smart Solution aims to reduce energy and resource use today for a more efficient future, shifting to electricity today for a zero-carbon future, and adapting our collective actions today for a more resilient future.

In Singapore, the message is also distinct and clear: forging a Future-Ready Built Environment Sector in Industry 4.0's digital economy concerns the Sustainability, Sustainable Finance, Built Environment Industry Digital Plan and Innovation & Technology (I&T) (BCA, n.d.1). Singapore

will raise the national climate target to achieve net-zero emissions by 2050 as part of its long-term low-emissions development strategy (LEDS) (NCCS, 2022).

Against this backdrop, the Infocomm Media Development Authority (IMDA, n.d.) opines that digital technologies can be a key enabler to help companies better manage the use of resources and achieve sustainable outcomes. It has launched a playbook, Digital Tech for Sustainability — In Building Management, developed together with industry partners to raise awareness of sustainability as well as drive the adoption of digital technology for sustainability in building management.

A holistic effort in supply chain sustainability is aimed at small and medium enterprise (SME) participation in the built environment, in particular, facilities management providers and building owners in general maintenance services, integrated building management systems, and mechanical and engineering (M&E) services. This is a useful guide on sustainability outcomes (e.g. tracking indicators) in the area of building management and operations and the types of available digital technology that can help to achieve these outcomes.

Singapore Green Building Masterplans (BCA, n.d.2) have showcased Singapore's success story of green buildings, with the Building and Construction Authority's (BCA) Green Mark Scheme since 2005 as the backbone. The 2021 Green Mark scheme is aligned with the United Nations' SDGs. As the idea of sustainable buildings has gained traction in Singapore, the BCA expanded its reach to target the greening of the larger stock of existing buildings and engage building occupants to change their energy consumption behavior. The target is to have at least 80% of buildings (by floor area) in Singapore to be green by 2030. The BCA has updated the Green Mark scheme to raise energy performance standards and place greater emphasis on other important sustainability outcomes such as designing for maintainability, reducing embodied carbon across a building's life cycle, and creating healthier environments for building users. The BCA also launched the Super Low Energy (SLE) Building program in 2018 to encourage firms to go beyond the existing Green Mark Platinum standards and push the envelope of environmental sustainability in Singapore. Under the GreenGov.SG initiative, the Singapore government will take the lead in bringing SLE buildings into the

mainstream. These initiatives will help to transit Singapore to a more sustainable, low-carbon built environment.

The industry's ESG trend has been encouraging so far in Singapore. SGX-listed companies are required to start reporting Scope 1 and Scope 2 Green House Gas (GHG) emissions in FY2025, which will enhance transparency and accountability regarding climate-related risks and opportunities, as explained in Chapter 3. There are plenty of green building examples reported in Singapore real estate investment trusts (S-REITs) in Singapore that have showcased tangible benefits, using data and metrics to demonstrate the financial and environmental performance of sustainable green buildings. Overall, sustainable practices in the built environment are embraced in Singapore as a more acceptable norm in industries and infrastructure.

Firm level

The discernment for firms with an international asset management presence is to refine their Enterprise Resource Planning (ERP) systems and processes to match local business and regulatory expectations, taking into consideration the different climates, social-economic norms and practices, and geopolitical reality in different countries of operation. Other countries may not share the same ESG metrics, standards, and acceptance because each operating environment has its own priorities and concerns. Financial sustainability will always be an ongoing concern for country managers in different countries of operation.

Board and management leadership needs to articulate how the firm's global procurement and supply chain strategy and business practices in any asset class can translate to meet ESG goals without disruption to a firm's local operation.

Public perception can significantly shift when businesses comply with ESG standards. ESG is important to investors as long as the firm can deliver profitability outcomes in the fund. In uncertain times, decision makers in a firm need to recognize that reducing ESG regulations might offer short-term benefits; it could also pose long-term risks and challenges for businesses.

Through tracking and monitoring sustainability efforts and outcomes, a firm can also potentially achieve greater cost savings and be able to

potentially gain access to other green resources, such as green financing and green certification in its country of operation.

Accessing financial instruments such as green bonds and loans that provide favorable terms for sustainable projects is one way forward to raise capital. Where permissible, embrace government incentives such as taxes and grants for implementing sustainable practices and the opportunity to adopt Power Purchase Agreements (PPAs) to purchase grid energy at the building level (for both your manager and tenants) and renewable energy from off-site sources. These are opportunities for a firm not to overlook in its quest for improved returns in sustainability. Balancing these factors is crucial for sustainable growth and success.

ESG governance

The board and management of a firm should know about ESG governance. The framework is used by investors, companies, and stakeholders to evaluate the sustainability and ethical impact of a firm's operation.

Leading firms in the built environment in Singapore have built their own sustainability framework and sustainability reporting. CDL (n.d.) has stated that CDL's sustainability reports are prepared using a unique blended model using GRI Standards as its core since 2008. Since then, CDL has embraced the Carbon Disclosure Project (CDP), Global Real Estate Sustainability Benchmark (GRESB), Value Reporting Foundation's (VRF) Integrated Reporting Framework, the UN SDGs, TCFD, SASB, and Climate Disclosure Standards Board (CDSB) as well.

CLI (n.d.) reported that its latest CapitaLand Investment Global Sustainability Report 2023 continues to be prepared in accordance with the GRI Standards and to apply the Guiding Principles of the International Integrated Reporting (IIRC) Framework as well as ISO 26000:2010 Guidance on Social Responsibility. It also references the SDGs and the SASB real estate sector-specific standards. CLI has voluntarily disclosed climate-related financial disclosures in four key areas as recommended by the TCFD. The report was externally assured in accordance with the International Standard on Assurance Engagements 3000 (ISAE 3000). These leading firms have continually improved their ESG practices in their business over time.

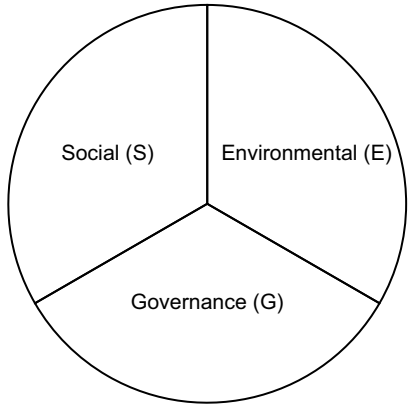

Figure 8.1. ESG components.
Source: Author

For beginners, there are three components at the ESG foundation level (Fig. 8.1).

- The Environmental (E) component assesses how a company interacts with the environment. Key areas include climate change mitigation efforts to reduce GHG emissions, resource management to examine the efficient use and conservation of natural resources like water, energy, and raw materials, pollution reduction measures to minimize air, water, and soil pollution, and biodiversity to protect ecosystems and promote biodiversity.
- The Social (S) aspect focuses on the company's relationships and its impact on people and society, such as labor practices on fair wages, safe working conditions, and employee rights, diversity, and inclusion to promote diverse and inclusive workplaces, community engagement to focus on building strong and positive relationships with local communities, and the equity concept of fairness and justice in the way people are treated, thus ensuring that everyone has access to the same opportunities and resources, regardless of their background or circumstances. This collectively upholds and promotes human rights within and outside the company.
- The Governance (G) component examines how a company is managed, and this is already explained in detail in Chapter 3 on key areas

such as board composition, ethical practices, transparency and accountability, and risk management.

Table 8.1 provides a beginner's list of the ESG operating parameters in a firm.

Table 8.1. Beginner list of ESG operating parameters in a firm.

Category	Components	Beginner checklist (non exhaustive)
Environmental	Sustainable Practices	• Sustainable materials • Building automation systems (BAS) • Energy-efficient equipment and appliances • Natural light optimization • Natural ventilation strategy • Sustainable transportation • Renewable energy • Eco-friendly manufacturing • Water recycling • Waste management • E-waste management
	Climate Risk Assessment	• Identify vulnerabilities • Implement adaptation measures (flood-proofing, backup power systems) • Evaluate carbon markets and offset programs • Adopt GHG emission reduction and decarbonization technologies
	Sustainable Innovation	• Foster a culture of innovation within the organization to develop new sustainable products and services • Invest in research and development for sustainability technologies
	Biodiversity and Habitat Protection	• Protect local ecosystems • Create green spaces and wildlife corridors
	Circular Economy	• Adopt circular economy principles • Use recycled and recyclable materials • Supply chain management

(*Continued*)

Table 8.1. (*Continued*)

Category	Components	Beginner checklist (non exhaustive)
	Sustainability Schemes	• Green certifications such as Green Mark Awards • Green bonds for financing • Incentive schemes to adopt sustainability measures • Tax consideration
	Green Amenities	• Develop eco-friendly amenities (e.g. green roofs, walls, landscaping) • Promote eco-practices for tenants and users of buildings
Social	Tenant Engagement	• Green leases • Health and well-being measures in workspaces and buildings
	Community Engagement	• Supporting local communities in eco-practices • Invest in local education, healthcare, and infrastructure projects that support the community
	User Experience (UX)	• Manage user preferences in buildings • Ensure reliability in operations • Interactive digital apps for tenant and customer engagement
	Stakeholder Interest	• Address interconnected risks (interest rates, supply chains, manpower)
	Employee Well-being and Development	• Health, safety, and wellness programs • Professional development and training
	Diversity and Inclusion	• Promote diversity and inclusion • Equal opportunities for all employees
Governance	Transparency and Reporting	• Dashboard on ESG KPIs • Track metrics (water efficiency, energy efficiency, recycling, carbon footprint) • Benchmarking against known standard(s) and the format of reporting to meet local compliance and business needs in the country of operation

Table 8.1. (*Continued*)

Category	Components	Beginner checklist (non exhaustive)
	Long-term Commitment	• Assess the local market infrastructure maturity level in the country of operation to support ESG • Ensure consistency in building performances and service delivery
	Supply Chain Resilience	• Engage with suppliers on sustainable practices • Supplier code of conduct with ESG criteria
	Ethical Business Practices	• Clear policies and procedures (P&Ps) • Maintain high ethical standards in business conduct • Implement training programs such as anti-bribery and corruption
	Regulatory Compliance	• Stay updated on evolving ESG regulations and standards • Ensure compliance with local and international laws
Continuous Improvement	Adaptation and Resilience	• Monitor and adapt practices • Conduct ongoing risk assessments and mitigation strategies
Additional Insights	Sustainable Finance	• Explore sustainable finance options, such as green bonds and social impact investing • Assess financial risks and opportunities related to ESG factors
	Commercial Impact	• Evaluate rental rates and service charges
	Collaborations and Partnerships	• Partner with industry groups, NGOs, and government agencies to promote sustainability initiatives • Share best practices and collaborate on joint projects

ESG relevance to asset management

Companies with strong ESG practices are often more attractive to investors looking for long-term sustainable growth. Effective ESG practices can help identify and mitigate interconnected risks. Strong ESG performance can enhance a company's reputation and brand loyalty. One example is ESG premium (McKinsey & Company, 2020). The list of firms with

good ESG ratings is publicly available to inform stakeholders and granted to leading firms (e.g. Blackrock) in financial institutions with robust ESG practices (King, 2024).

Companies that focus on ESG often find ways to improve their operational efficiency, such as reducing waste and energy consumption. This can lead to cost savings and improved profitability. Meeting ESG standards can help ensure compliance with current and future regulations in different countries of operation and open fresh opportunities to raise new capital.

The trend is driven by the growing demand for transparency and accountability in business practices. Investors, lenders, and insurers are increasingly prioritizing companies with strong ESG performance, as they are seen as lower risk and more sustainable in the long term.

These ESG efforts can lead to increased capital inflows and better access to financing. In the interest rate environment, the US Federal Reserve's rates have fluctuated over the years. Currently, the federal funds rate is around 4.3%, as of February 2025 (Macrotrends, n.d.; Tepper, 2025). Historically, rates have varied significantly. This has a significant impact on the firm's ongoing concern, even before ESG considerations are taken into account.

Challenges in ESG implementation

Leading experts have shared challenges in ESG implementation (Deloitte, n.d.; Loughlin, 2024). At the firm level, asset management has already faced challenges, namely, data availability, standardization, and how to avoid the perception of greenwashing. The dire concern for a firm with an international presence is the nimbleness of its system, processes, and people to support local operation growth if it is willing to adopt sustainability and sustainable practices in its asset portfolio. It is important to state that managing assets with ESG goals is not immune to market and regulatory change risks.

Reliable and consistent data collection from different properties in different countries of operation can be challenging. The aggregate data and data analytics may present an incomplete or inaccurate data insight about actual conditions in different operating countries, thus leading to

less desirable outcome. Moreover, ESG is relatively new, and there is limited access to historical data to analyze long-term performance. This can make it difficult to predict future performances and risks.

There is no universally accepted set of standardized metrics and reporting frameworks that all stakeholders in various countries can agree on for evaluating ESG performance. This presents a teething issue for international reporting by the firm. This lack of consistency can make it challenging for investors to compare firms and assess their true ESG impact.

There is a concern on the possible risk of a firm overstating its ESG commitments that may mislead investors about the true sustainability of investments in different asset classes.

Economic competition, geopolitical events, and other market factors can modify the sustainability outlook that is explained at the start of this chapter. Firms that fail to comply with evolving ESG regulations may face a bigger challenge in legal and financial penalties. Staying updated with regulatory changes is therefore crucial for both firms and investors.

A clear, actionable plan is necessary for integrating sustainability for a firm operating out of Singapore. A firm needs a step-by-step roadmap to implement sustainable practices, including timelines and key milestones. Each practice must be measurable in terms of outcome and impact on profitability and adjust for interest cost incurred for investing in a specific investment. This is the holy grail of sustainable practices, established since the early 2000s in the S-REIT scene in Singapore, where asset management can reproduce accretive yield in asset enhancement initiatives (AEIs) and ensure sustainable incomes.

A firm needs to understand the importance of involving stakeholders in the planning and implementation process to ensure buy-in and support. The message is to explain how ESG practices are designed to create sustainable long-term value for the firm and its stakeholders meaningfully. This includes a strong commitment to ensure asset management practices are conscious of preserving the asset values in monetization efforts.

Business decision-making

Sustainable practices in asset management of properties can vary across different asset classes, but the common strategies are generally seen in

sustainability plans that address energy, water, waste, and transportation for the entire property and asset portfolio level.

Sustainability is a key narrative for a future-ready environment. Considerations include sustainable materials, building automation systems, energy-efficient appliances, natural light optimization, sustainable transportation, renewable energy, eco-friendly manufacturing, sustainable food practices, water recycling, tenant and community engagement, green certifications, eco-friendly amenities, green roofs and walls, green landscaping, green cleaning, waste management and reduction initiatives, e-waste management, sharing resources, optimizing delivery routes, using electric or hybrid vehicles, and green packaging solutions.

Climate risk assessment is necessary to identify vulnerabilities to extreme weather events in the country of operation, with adaptation measures in properties, where needed, such as flood-proofing and backup power systems to ensure resilience. A firm needs to establish if there is an available carbon market, such as carbon offset programs and emission reduction and decarbonization technologies, e.g. clean manufacturing processes, to minimize emissions and waste and carbon capture and storage in the local operating environment. The firm should assess for its own self-interest if the local market infrastructure is maturing for any long-term commitment to implementation.

It is important to manage the interconnected risk relationships in ESG implementation, such as interest rate, supply chain, and manpower, to achieve a positive outcome. The last mile in the sustainable journey is to manage user experience (UX) and stakeholders' interest among tenants and customers in different asset classes for normal and adverse operating situations.

These continuing efforts in steering the firm in the right direction for sustainability will expect consistency and predictability in building performances of the asset portfolio, the conscious effort to understand user preferences and needs at the property level, and reliability in both normal business conditions and adverse operating conditions. Asset management should develop the level of confidence and transparency to disclose ESG key performance indicators (KPIs) at the dashboard level, such as water efficiency, energy efficiency, recycling, and carbon footprint, among other initiatives, and the use of artificial intelligence (AI)

and digital services for tenant and customer engagement to cut down carbon emissions.

The tenants' attraction and retention measures in the form of green leases that incorporate sustainability clauses in leases might encourage tenants to adopt eco-friendly practices. Further undertaking of health and well-being measures to create healthy indoor environments, with improved air quality, natural lighting, and other design elements to attract and retain tenants. The litmus test for tenants and customers is the commercial impact of sustainability in payable rental and the facilities and service charges in green buildings.

By implementing these possible sustainability practices, properties in each asset class can build resilience, ensure stable and sustainable income streams in their own niche, and enable continuous capital recycling for growth. This holistic approach not only enhances the value and appeal of properties but also contributes positively to the environment and society.

The actual results can vary based on individual property characteristics and market dynamics. In uncertain times, it is crucial to review sustainability plans more frequently to ensure they remain relevant and effective. A good practice is to conduct reviews quarterly or bi-annually. This allows a firm to adapt to changing conditions, incorporate new data, and respond to emerging risks and opportunities.

Human capital in a firm

Achieving ESG goals necessitates a comprehensive approach to workforce capability and development. This involves not only addressing the skillset requirements at the firm level but also recognizing the pivotal role of the Chief Sustainability Officer (CSO). Sustainability reporting training providers can now refer to a new guidebook to design their programmes and courses in a way that aligns with standards set out by the International Sustainability Standards Board (ISSB) (Business Times, 2025). The efficacy of these efforts is largely influenced by the extent to which financial outcomes are attributed to these roles:

- Employees in the front office, middle office, and back office must possess a sound understanding of ESG principles and practices and

technical knowledge that encompasses areas such as sustainable resource management, renewable energy, and ethical supply chain management.
- Proficiency in data analytics is crucial for monitoring ESG performance, identifying trends, and making data-driven decisions.
- Cross-functional collaboration across departments (e.g. finance, operations, marketing) is essential for integrating ESG initiatives into the firm's overall strategy.
- The CSO plays a key role in setting the vision for sustainability and driving cultural change within the firm. The designated person is responsible for developing and implementing ESG strategies that align with the firm's business objectives. Active engagement with stakeholders, including investors, customers, and regulatory bodies, to communicate the firm's ESG commitments and progress is necessary to promote transparency and trust with stakeholders.

Conclusion

Overall, measuring efficacy through financial performance, KPIs, and transparent reporting is needed. The linkage between ESG initiatives and financial outcomes must be clearly established. This includes demonstrating how ESG efforts lead to cost savings, revenue growth, and risk mitigation. Defining and tracking KPIs related to ESG goals allows for a quantitative assessment of progress and impact. Regular and transparent reporting on ESG performance helps build trust with stakeholders and showcases the firm's commitment to sustainability.

The future of sustainability lies in the increasing integration of ESG factors into financial analysis and decision-making. A firm with an international presence should operate in a way that can achieve sustainable profit for the asset classes it operates in different geographies but is also beneficial for its own corporate governance and local environment.

For these reasons, technological advances to enhance ESG data collection and reporting and managing evolving regulations to stay ahead in the adoption of ESG practices are a necessary fundamental shift toward more sustainable and ethical asset management practice of a firm.

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CHAPTER 9

Manpower resilience

Adaptability

In uncertain times, it is crucial for leaders within a firm to develop their own capacity for change (Brassey, *et al*., 2024). For a firm with an international presence, a diverse board and management team composed of individuals with varied backgrounds and expertise is indispensable. Each member brings unique strengths that collectively enhance the firm's ability to navigate complex challenges. Shared vision, values, and goals should serve as a unifying force, aligning efforts across the front office, middle office, and back office.

An engaged, innovative asset management team is equally essential. Such a team must be capable of adapting quickly and fluidly, ensuring the firm remains agile and competitive. If we embrace the principle that people are the most valuable asset in any firm, addressing manpower resilience becomes a cornerstone for success during periods of uncertainty. This is not merely about surviving — it is about thriving and uncovering new opportunities for value creation in asset management.

Unpredictable and uncontrollable events in the external environment can impose relentless stress, threatening to overwhelm individuals' capacity to cope. To counter this, a firm must cultivate a future-proof workforce — one that is resilient to economic, technological, and social shifts while sustaining productivity and well-being. By prioritizing resilience, a firm can build a workforce that not only withstands future challenges but also maintains a competitive edge.

A compelling example of manpower resilience can be seen in Singapore's Temasek Portfolio Companies (TPCs), such as CapitaLand in the built environment sector. During the COVID-19 pandemic, CapitaLand (2020) announced that it had put into place precautionary measures and

business continuity plans to fight COVID-19 and explained how it had prepared its workforce to support its tenants and the community in the face of disruptions and change. This showcases the power of manpower resilience as a viable solution for navigating uncertain times.

Building manpower resilience

Mental well-being

In challenging times, firms must prioritize the mental well-being of their employees. The link between individual stress and performance is significant, and the cumulative effects of stress can disrupt business operations when a crisis impacts the entire workforce (Fisher *et al.*, 2020). Building mental fortitude to manage stress overload, uncertainty, and adversity is essential.

Firms can address this by implementing mental resilience training, mindfulness programs, and stress management workshops. The challenges faced in asset management activities should not be underestimated. Therefore, creating a supportive work environment where employees feel comfortable seeking help, along with providing access to external resources, is vital. By fostering a culture that values mental health, firms can empower employees to remain focused, resilient, and productive, even during difficult times.

New capabilities, new norms, new mindset

In an ever-evolving business landscape, adaptability and flexibility are critical to achieving success in asset management across diverse geographies. Firms should actively encourage employees to develop new capabilities, embrace emerging norms, and challenge long-held mindsets and behaviors to better navigate uncertainty. This transformation must be championed by leaders who are open to change and willing to adapt themselves.

Continuous skill development through targeted training programs and workshops ensures that employees stay relevant and well-equipped to tackle different operational conditions. Career adaptability is also a key

element; fostering openness to new roles, career paths, and opportunities can help employees navigate disruptions caused by technology, competition, and other factors, ultimately keeping them motivated and engaged.

Staying unified

Clear goals and priorities are essential for maintaining focus and direction during uncertain times. Management must communicate these priorities effectively to ensure alignment across the firm. Moreover, robust business continuity planning strategies must be designed, implemented, and tested regularly to prepare firms to sustain operations during and after crises.

A culture of engagement and trust is crucial to enhancing organizational resilience. By nurturing this culture, a firm can keep employees committed, motivated, and connected, even in the face of challenges.

Key actors in a firm

Understanding the key roles within a firm (Table 9.1) is essential to ensuring its smooth functioning and sustained success:

- Rainmakers are the firm's top revenue generators and influential business developers for different asset classes in different countries of operation. These senior professionals possess extensive networks, exceptional deal-making abilities, and strategic vision. Their charisma and relationship-building expertise allow them to attract and retain high-value clients, such as institutional investors and family offices. Rainmakers are the primary drivers of the firm's financial growth.
- Gatekeepers manage access to critical resources, decision-makers, and vital information. They typically hold administrative, managerial, or strategic roles to ensure the efficient allocation of resources and smooth operations. Gatekeepers play a pivotal role in aligning the firm's strategies with its overarching goals and risk tolerance.
- Custodians safeguard the firm's core values, culture, and long-term sustainability. Focused on governance, compliance, and ethical practices, they uphold the firm's reputation and integrity. By operating responsibly, custodians preserve the firm's legacy for future generations.

Each of these roles uniquely contributes to the firm's ecosystem, balancing immediate achievements with long-term stability and ethical stewardship. Identifying these actors within the firm is critical to ensuring their effective functioning, even under extraordinary or disruptive conditions.

Table 9.1. Key actors in a firm.

S/No	Actors	What are their roles?	Impact in uncertain times
1	Rainmakers	They are responsible for identifying and acquiring new clients. They use their industry connections and market knowledge to target potential clients who can bring substantial assets under management (AUM). They focus on relationship management, market intelligence, and revenue generation.	During market volatility, clients may feel anxious about their investments. Rainmakers play a key role in reassuring clients, providing them with market insights, and keeping them informed about their investment performance. Uncertain times can also present new opportunities. Rainmakers leverage their market intelligence to identify and capitalize on these opportunities, helping the firm to grow even in challenging conditions.
2	Gatekeepers	They are generally responsible for due diligence, performance monitoring, risk management, and policy enforcement.	In volatile markets, the role of gatekeepers becomes even more critical. They are responsible for identifying emerging risks and implementing strategies to mitigate them. This helps to protect the firm's assets and minimize losses. Gatekeepers provide strategic oversight to ensure that the firm's investment decisions are prudent and aligned with long-term objectives. Their ability to adapt to changing market conditions helps the firm to navigate uncertainty effectively.

Table 9.1. (*Continued*)

S/No	Actors	What are their roles?	Impact in uncertain times
3.	Custodians	They ensure the safekeeping of assets and manage various administrative tasks to support the firm's operations, such as maintaining asset inventory, operations, compliance and reporting, and cash management.	Custodians play a crucial role in maintaining operational stability during market disruptions. Their ability to process efficiently and accurately helps to prevent delays and errors that could impact the firm's operations. During times of market stress, regulatory scrutiny may increase. Custodians ensure that the firm remains compliant with all regulatory requirements, reducing the risk of penalties and reputational damage. It is a test of confidence and trust that assets under custody (AUCs) are secure, especially during uncertain times.

Building trust through communications

Transparent dialog and open communications are vital for promoting collaboration and information-sharing within a firm. Breaking down communication barriers and organizational silos helps create a cohesive and united workforce. Regular check-ins, team meetings, feedback sessions, town hall meetings, and fireside chats ensure that employees feel heard and valued within the firm environment. By fostering an environment of open communication, a firm can build trust and encourage employees in the firm to share ideas and solutions, ultimately enhancing resilience.

Culture of lifelong learning and specialization

A culture of continuous learning and development is essential for keeping employees' skills relevant and up-to-date to manage assets. A firm should

encourage lifelong learning through training programs, workshops, and opportunities for professional growth. By promoting a mindset of lifelong learning, employees remain engaged and adaptable and are ready to take on new challenges and opportunities as they arise.

Technology and innovation

Employees should embrace technology and innovation that is essential for enhancing efficiency, productivity, and resilience. A firm should foster a culture of innovation by encouraging the use of digital tools, automation, and data analytics to drive continuous improvement. By staying ahead using data insight, a firm can communicate to its workforce how to remain competitive in different asset classes and adaptable in a rapidly changing business landscape in different geographies. This promotes trust and supports employee contribution toward the firm.

Agile and responsive structure

Developing an agile and responsive organizational structure allows a firm to quickly adapt to changes and challenges. Implementing flexible work arrangements, agile project management practices, and scenario planning prepares a firm for various potential future events. By being agile and responsive, a firm can navigate uncertainty with confidence and maintain a competitive edge.

Success formula

These are a few practical resources (Fig. 9.1) that can help a firm operating out of Singapore to build manpower resilience.

Wellness program

Prioritizing the mental and physical well-being of employees is crucial for building resilience within the firm. Implementing wellness programs, offering mental health support while respecting individual

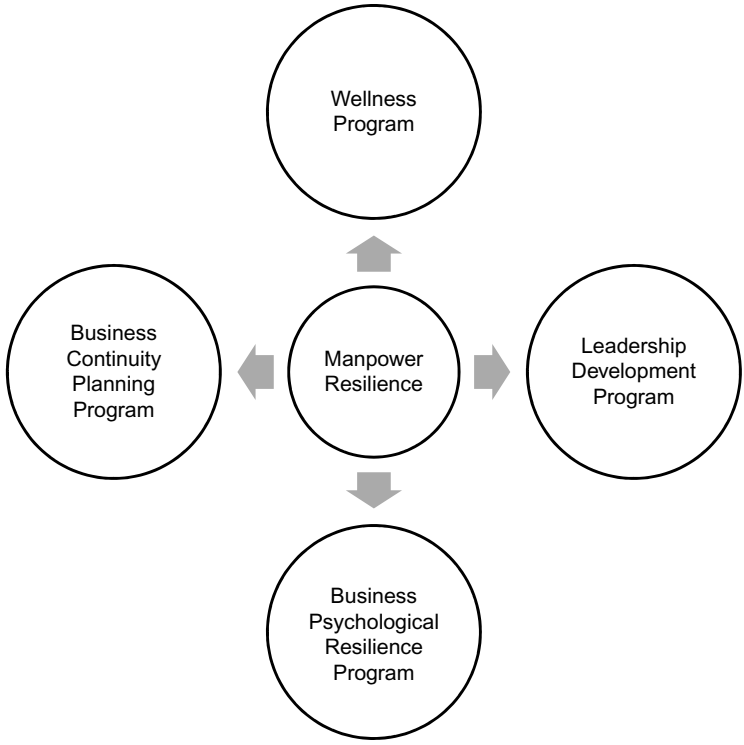

Figure 9.1. Ways to build manpower resilience.

Source: Author

privacy, and providing opportunities for physical activities help employees maintain their overall well-being. Many hospitals and clinics can offer this service.

Health and wellness initiatives that focus on the holistic well-being of employees create a supportive and thriving work environment, enabling them to perform at their best, even during challenging times.

Leadership development program

Investing in leadership development programs equips leaders with the skills needed to navigate uncertainty and inspire resilience within their

teams. Providing mentorship and coaching opportunities can help leaders grow and develop their capabilities. This is especially useful for a firm that operates in different geographies and needs to build trust with different stakeholders of diverse backgrounds and cultures.

By fostering strong leadership, a firm can ensure that the various teams in the firm remain committed and resilient, and are ready to face any challenges that may come their way.

Business continuity planning program

A firm must design, implement, and rigorously test its business continuity planning (BCP) program to address various scenarios across its countries of operation. In Singapore, the Ministry of Manpower (MOM) has outlined the BCP's critical steps to help businesses resume, recover, and restore operations during disruptions (MOM, n.d.). These steps include:

- **Risk assessment.** Identify, analyze, and evaluate risks that may affect business operations.
- **Business impact analysis (BIA).** Assess the impact of disruptions on performance, prioritize critical business functions, and determine the maximum time the business can sustain without certain services.
- **Business continuity strategies and solutions.** Develop strategies based on the findings of the risk assessment and BIA to ensure operational continuity.
- **BCP and exercise.** Document actionable steps to be taken during a crisis and conduct regular testing to confirm the plan's effectiveness.

In addition to these foundational steps, it is essential to establish a robust crisis communication plan to effectively engage stakeholders in various scenarios. Typically, this effort is led by the communications team for external stakeholders, HR business partners for internal stakeholders, and supported by the firm's business continuity experts.

Business psychological resilience program

The Business Psychological Resilience Programme (B-PREP) is an initiative (2016–2018) led by the Temasek Foundation that is aimed at building psychological resilience within the workplace (Temasek

Foundation, n.d.). This program was designed to help TPCs in Singapore manage the psychological and emotional impact of emergencies, threats, and crises.

A firm can learn from this early experience of TPCs. The program can help asset management activities establish coordinated response processes, reducing the impact of emergencies on operations in different countries and asset classes. By investing in psychological resilience, a firm can ensure the long-term well-being of its employees. This leads to a more engaged, productive, and resilient workforce capable of navigating future challenges.

B-PREP is implemented in collaboration with various partners, including Changi General Hospital and TPCs such as CapitaLand Limited, Keppel Corporation Limited, Mapletree Investments Pte Ltd, SATS Ltd, Sembcorp Industries Ltd, Singapore Airlines Limited, and Singapore Technologies Engineering Ltd.

These are the key outcomes:

- B-PREP equips employees with core skills and competencies to handle emotionally stressful situations (Temasek Trust, 2019) and provides frameworks for group crisis interventions and strategic responses to critical incidents. Employees learn how to respond effectively to emergencies and provide support to affected individuals. The program includes comprehensive training sessions that cover psychological first aid, crisis management, and emotional support techniques.
- B-PREP provides businesses with frameworks for coordinated responses to crises. The TPCs learn to implement appropriate processes and share knowledge and best practices with one another. The program emphasizes the importance of engaging employees in resilience-building activities. This includes regular workshops, simulations, and drills to ensure employees are prepared for various emergency scenarios. B-PREP encourages the establishment of support systems within each TPC. This includes creating teams of trained personnel who can provide psychological and emotional support during crises at the firm level.

These outcomes led to enhanced psychological resilience. Employees equipped with B-PREP training are better prepared to handle emotionally

stressful situations. They develop core skills and competencies that enable them to respond effectively to emergencies. Companies that implement B-PREP frameworks are better equipped to manage crises.

B-PREP fosters a culture of knowledge sharing among participating companies. Businesses learn from each other's experiences and best practices, enhancing overall resilience. The program overall contributes to building a resilient community by preparing employees to handle emergencies, not only at the workplace but also in their personal lives. This holistic approach strengthens the overall resilience of the community.

Firm-level manpower resilience

Below are actionable steps to build manpower resilience in a firm operating across multiple geographies:

- **Secure leadership commitment.** Obtain firm-wide commitment and support from senior management to prioritize manpower resilience as a strategic initiative.
- **Establish a cross-functional steering committee.** Form a team comprising representatives from HR, operations, finance, and other key departments to lead manpower resilience efforts.
- **Define objectives.** Clearly outline the objectives of scenario planning in the BCP, such as enhancing workforce adaptability, sustaining productivity, and mitigating risks.
- **Determine the scope.** Identify the specific departments, roles, and processes to be included in the scenario planning initiative.
- **Assemble a dedicated task force.** Create a specialized team that includes HR specialists, data analysts, business continuity experts, and key stakeholders from relevant departments. Assign clear roles and responsibilities within the team.
- **Conduct workshops and brainstorming sessions.** Facilitate sessions to identify key drivers (e.g. technological advancements, market trends) and critical uncertainties (e.g. economic downturns, pandemics) that may impact manpower resilience.
- **Develop multiple scenarios for different asset classes in different geographies.** Create diverse scenarios by combining key drivers and

uncertainties. Leverage quantitative tools to assess and categorize factors affecting the firm's operations.
- **Engage employees.** Communicate the plan transparently to all employees to ensure alignment and buy-in.
- **Train and equip employees.** Organize training sessions and workshops to provide employees with the skills and knowledge necessary for implementing the various plans.
- **Provide ongoing support.** Continuously offer resources and assistance to employees to strengthen their resilience.
- **Monitor and adapt plans.** Regularly monitor the external environment and update the plan to address evolving challenges.
- **Report progress.** Report milestones and progress to the board and management to ensure accountability.
- **Share best practices.** Celebrate and disseminate success stories and best practices across the firm to reinforce the importance of manpower resilience.

Implementation

To implement these steps effectively:

- Develop detailed narratives for each scenario, outlining potential future conditions, challenges, and opportunities in each country of operation. Support these scenarios with a blend of quantitative and qualitative data.
- Assess workforce requirements for each scenario, including skills, training, and development needs. Identify vulnerabilities such as skills gaps, reduced productivity, or heightened stress levels.
- Design strategic plans to bolster manpower resilience. Initiatives should focus on continuous learning and development, mental and physical well-being, leadership growth, as well as technological and innovative advancements.
- For adverse scenarios, create contingency plans to mitigate risks and ensure business continuity. Strategies might include flexible work arrangements such as remote work, flexible hours, or hybrid models.
- Integrate business continuity planning into the recovery process, offering strategies to sustain operations during and after crises. Regularly

test emergency response plans to ensure preparedness for emergencies like health crises or natural disasters.

Conclusion

While the steps outlined above provide a robust foundation for strengthening manpower resilience, a firm must also foster a culture of continuous learning and adaptability. This begins with a willingness to embrace and learn from mistakes. Adopting a mindset that views failures not as setbacks but as opportunities for growth allows a firm to analyze and optimize its responses to challenges. Such an approach promotes innovation, encourages experimentation, and enhances overall organizational resilience.

Building a resilient front office, middle office, and back office requires more than just policies and procedures (P&Ps); it demands a cohesive strategy centered around people, processes, and technology. A firm must prioritize mental well-being, continuous skill development, and career adaptability among its workforce. Investing in leadership development, as well as providing access to resources like stress management programs and training workshops, ensures that employees are prepared to face uncertainty head-on.

Moreover, integrating scenario planning into business continuity strategies enables firms to prepare for diverse future conditions, including economic, social, and technological shifts. By implementing flexible work arrangements, fostering open communication, and leveraging technology and innovation, a firm can navigate both routine operations and crises with agility. Proactive business continuity planning, complemented by regular testing and refinement, ensures the firm remains resilient even in the face of disruptive events.

It is also vital for a firm to communicate its shared vision and values across all levels of the organization, aligning employees with clear goals, and fostering a sense of purpose. By maintaining transparency and celebrating success stories, the firm reinforces employee engagement and trust, creating a unified workforce capable of thriving in uncertain times.

Ultimately, a firm that prioritizes manpower resilience is better positioned to sustain its competitive edge, unlock new opportunities for value

creation, and secure long-term sustainability. Resilience is not just about enduring adverse situations — it is about emerging stronger, more innovative, and ready to seize the opportunities that lie ahead.

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Chapter 10

Hybrid security

Asset resilience

People tend to underestimate the security risks to physical, digital, and data assets. A firm operating out of Singapore needs to understand that security risks and challenges vary for different asset classes and geographies. Physical, digital, and data assets form the backbone of contemporary asset management in the built environment sector. Businesses can suffer significantly without robust physical asset security and cybersecurity measures, yet many people still underestimate their importance.

Firms operating in different geographies face numerous asset protection challenges due to the compounding effects of geopolitical risks, cybersecurity attacks, data breaches, and various adverse events, such as massive power outages, wide-area disruptions, and slow-burn disruptive events that can adversely impact normal business operations. For example, earthquake-proof buildings and flood defense systems can enhance physical asset resilience, while redundant data centers and cybersecurity measures bolster digital asset resilience. Regular backups and data encryption are essential for data asset resilience.

While there is no indication of an imminent attack, Singapore has remained a target for terrorists (Koh, 2024; MHA, 2024). Singapore is an oasis in uncertain times — its society has enjoyed a peaceful environment for many years due to the "Total Defence" strategy in military, civil, economic, social, psychological, and digital domains (Matthews and Timur, 2023). This creates confidence in local infrastructure but may have led to unintentional complacency, assuming it is the same in other geographies.

Regarding asset management readiness, there is growing evidence that public buildings such as hotels, offices, and shopping malls in many peaceful societies overseas (BBC, 2019; Marsh *et al.*, 2019; Okumu,

2023; Olarn and Stapleton, 2023) are not prepared for actual threats from acts of terror, isolated adverse incidents, and wide-area disruptions due to demonstrations turning violent. Commercial property owners and managers are often not trained to deal with these matters. Civilians are often traumatized in challenging situations, and escapes can be chaotic, resulting in injuries.

Infiltration risks using remote cyber-attacks can occur anywhere, anytime, making it difficult for cross-border agencies to assist immediately. A firm needs to know how to design and implement digital and data asset protection in asset management. There is a trove of confidential information and sensitive personal data belonging to stakeholders, such as customers, employees, partners, investors, service providers, and others. A firm needs to know how to deal with cybersecurity incidents and data breaches in asset management and manage the regulatory, legal, reputational, and business risks associated with any compromise of confidentiality and privacy.

Adversary tactics, techniques, and procedures (TTPs) are continually adapting due to available technologies that can be obtained commercially and modified to suit their intent. There are many more examples in different countries not cited here. A firm operating in overseas countries needs to be aware that such risks can be elevated to cause an actual loss of lives, asset damage, and harm to business reputation.

The plausible solution is to minimize risk exposure to human lives and physical assets and protect data assets from being exploited by bad actors. While humans are not bionic, we can reduce the risk of harm by taking proactive measures to detect and prevent risky situations. Innovation to execute simultaneous lockdowns of public buildings during security emergencies, such as external wide-area disruptions due to illegal gatherings turning violent and acts of terrorism, can reduce infiltration risks and safeguard lives. Such adverse events usually carry secondary risks, such as opportunistic looting, theft, fraud, and scams that seek to take advantage of the situation. A firm needs to know how to protect stakeholders' interests.

Enhanced cybersecurity measures and data protection can play a pivotal role in activities on enterprise resource planning (ERP) systems (Oracle, n.d.) and operations that integrate requirements in asset

management, such as human resources, finance, procurement, marketing and sales, supply chain, and smart facilities management (Smart FM). Simulating cyber-attacks and phishing attempts in exercises can help reduce vulnerabilities in people, processes, and technology, closing gaps and ensuring the confidentiality, integrity, and availability of data. This aligns with expected data privacy regulations to safeguard customer and employee information effectively.

Hybrid security is thus relevant in today's interconnected world, where threats can come from both physical and digital domains. By integrating these two aspects, organizations can create a robust and adaptable security framework that protects their assets and operations effectively, boosting the confidence and trust of stakeholders and ensuring sustainable asset management in uncertain times.

Assets under management

Many asset operators in the built environment have limited capability and understanding to properly address proportionate measures for assets under management (AUM) during spontaneous and adverse events. This impacts the quality of business decision-making processes, particularly in outsourcing in Smart FM and knowing the correct procedures to protect the interests of the firm and its stakeholders (e.g. tenants and investors).

In the built environment, building designers (e.g. architects, engineers) and builders often have limited knowledge and practical experience in considering detection, prevention, and response measures in their building design and construction. Countermeasures and know-how are often restricted to security agencies, uniformed groups, and approved individuals with security clearance. The TTPs used by bad actors are complex, requiring asset operators to continuously upskill to address evolving situations.

This presents an untapped commercial opportunity to promote and retain good tenancy in higher-risk operating environments, grow capital with a reputation for being able to operate anywhere, and reduce insurance costs by addressing risk measures in a sensible and objective manner.

A firm's actions should include stepping up its ability to use civilian methods to provide temporary safe havens for occupiers and the public

during difficult moments or enabling safe retreats or escape from dangers. Stakeholders (e.g. building owners, tenants, service providers, and others) in the built environment have a collective responsibility to protect human lives, commercial interests, and the local community. This instills confidence and assurance to both the local and international business tenants and investors that proactive measures are in place to respond effectively in adverse situations.

Framework to guide hybrid security at the portfolio level

First and foremost, a firm requires a comprehensive and proactive approach to ensure the safety and resilience of physical assets in uncertain times. The asset management services of a firm need to develop the know-how to deal with acute threats in civilian environments, such as cyber terrorism, massive data breaches, wide-area disruptions, or acts of war, at the portfolio level, with diversified asset classes such as premium office buildings, hotels and serviced apartments, and data centers.

This approach demonstrates competency to external stakeholders, such as international tenants and investors, during due diligence exercises, making them more willing to inject capital into the funds or take up more lettable spaces in the asset classes.

While the hybrid security concept and basic measures shared in this chapter are generally applicable across different asset classes, the systems, processes, and operating procedures are likely to differ for various asset classes in different countries.

The action steps in Fig. 10.1 are intended as a beginner's guide for asset management to develop a prevention, detection, response, and business continuity framework on how to deal with acute threats in each asset class using external resources.

It is important to appoint a suitable consultant to conduct a thorough risk assessment to identify potential threats and vulnerabilities specific to the AUM in different geographies and to assist the firm in developing the framework and policies and procedures (P&Ps) to deal with acute threats at the portfolio level.

Each country manager in the country of operation will need to create detailed emergency response plans for different scenarios, including

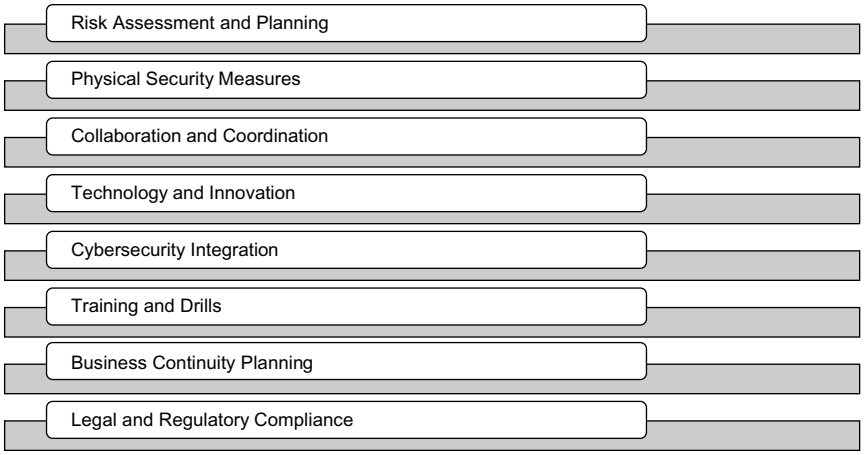

Figure 10.1. Beginner's action steps to deal with acute threats.
Source: Author

evacuation routes, communication protocols, and resource allocation, develop robust local measures, and test them correctly.

A few "low-hanging fruit" examples below are used to explain how to limit existential threats at the portfolio level using civilian resources. These examples intend to act as a catalyst for a firm's internal review with its in-house or third-party property managers and service providers to identify strengths, promote and retain good tenants and customers in an uncertain business environment, and close operational gaps in asset management activities in different geographies.

Physical security

Perimeter security measures such as electromagnetic doors, security barriers, and surveillance systems are necessary to deter unauthorized access, with additional measures for higher-risk environments. It is good practice in uncertain times to use advanced access control systems, including biometric scanners and keycard access, to restrict entry to sensitive areas in physical assets and admit people in purpose-built environments, such as office buildings, hospitals, and hotels.

Security network

While each country has its own code of conduct and practices for trained security personnel, asset management needs to recruit suitably trained people who can monitor and respond to threats in real time, with experience commensurate with the level of risk in the country of operation. It is prudent for a firm to establish strong relationships with local law enforcement and emergency services to ensure a coordinated response during crises. A good relationship helps asset operators gain an improved understanding of the private sector security companies' infrastructure and network in the local market, providing pivotal information in the procurement exercise to appoint the right security contractor.

Community network

At the city level, it is wise to engage with the local community and neighboring building owners and managers to raise awareness and encourage vigilance against potential threats. In countries where it is permissible, utilizing advanced surveillance technologies such as drones and AI-powered cameras to monitor large areas and detect suspicious activities is a good investment that strengthens active security services, both remotely and on-site.

Telecommunication

Telecommunication is a survival tool. In any country of operation, conducting proper checks with local telecommunication and related authorities for the types of communication systems allowed ensures seamless coordination during emergencies. Typically, fixed-line telephone numbers and mobile phones with data plans or local Wi-Fi are basic telecommunication amenities available in many countries. Omnichannel platforms that automate and simplify communication to reach the target audience in the property through SMS, email, and other channels can be useful.

In an emergency, the bandwidth may not cater to a sudden surge in demand or may be intermittent or disrupted for security reasons. It is a strategic consideration for asset operators to invest in emergency communication lines that are allowed and available in the market. Depending on

local laws and regulations, an operating system such as a critical event management and crisis communication platform capable of pinpointing the geolocation of individual users to guide them to safety is advantageous for improving the safety of people.

Emergency drills

To ensure this can work seamlessly in real situations, a country manager needs to coordinate and conduct regular emergency drills to prepare asset management employees, security personnel, and tenants in the properties for various threat scenarios. The granular details of such emergency drills will vary from country to country depending on the level of infrastructure, security risk, and the capability and speed of the first response team from local uniformed groups and enforcement agencies to neutralize the threat. It is advisable to adhere seriously to ongoing training programs to keep staff refreshed on the latest security protocols, response strategies, business recovery steps, and crisis communications.

This requires a proper consultant who knows how to deal with acute threats in civilian environments. This seemingly inconvenient truth is born out of necessity to reduce the risk of acute threats and prepare the asset management team at the property level to avoid confrontation and hostage situations where possible, and to minimize secondary risks posed by bad actors.

Modern "invisible" threats

At the physical property, modern threats are no longer confined to physical danger. The modern "invisible" threat comes from cyber and data exploitation, such as denial of service and data exfiltration. Therefore, both physical and cybersecurity measures need to be integrated to address hybrid security threats at the portfolio level. Certain asset classes such as hotels, serviced apartments, offices, malls, logistics parks, and manufacturing facilities may face specific risks unique to people, operations, and businessses in adverse situations. A firm needs to get its appointed consultant to address each risk carefully in the country of operation, as these risks can make or break its operation in adverse situations.

The firm and affected property should always consider the priority action to remove local access to important information of tenants and other stakeholders, and the personal data of individuals at the affected property. This acts as a countermeasure to reduce the risk to any business tenants and people in an adverse situation.

A firm's ERP system needs to ensure robust cybersecurity measures in the supply chain and that their local information and data have backup systems and redundancies to ensure business operations can continue after a crisis is over. It is prudent to develop comprehensive recovery plans to restore operations and minimize downtime because acute threats may result in severe damage that can also evolve into a slow-burn situation. More will be discussed in the later section on digital and data asset protection.

Against this backdrop, a firm should be able to move forward to address the more granular considerations in physical asset protection and digital and data asset protection at the asset class level in the rest of this chapter.

Physical asset protection

Asset classes

Securing buildings involves a combination of physical security measures to protect the premises, assets, and occupants in each asset class. Below is an overview of the key components of physical security design and implementation suitable for asset classes, such as grade-A multi-tenanted commercial buildings, purpose-built facilities designated as data centers and logistics, serviced apartments, and hotels.

Access control

This is the most important security implementation to reduce infiltration risk, as briefly shared in the example earlier. The building needs to implement access control systems at all entry points, such as keycard readers, biometric scanners, or turnstiles, to ensure that only authorized personnel can enter. For tenant-access properties such as office buildings or logistics, the Human Resources or Office Manager representing each tenant is

responsible for providing a whitelist of authorized personnel, including their names and contact information, to the asset operators. The asset operators then facilitate building access by issuing access cards, verifying access via tenant employee identification passes, or utilizing employees' biometric data. All collected data is safeguarded with strict security protocols and is used to ensure access control. For instance, it can prevent unauthorized re-entry or forced entry, particularly if an individual is no longer employed at the tenant's premises or otherwise has no legitimate reason to access the property. The tight security control applies to retainer-basis service providers and contractors who are contracted to carry out work and provide services and supplies to the building.

Typically, a visitor management system (VMS) is implemented to register and track visitors by issuing a one-time "Quick Response" code (QR code) for access and exit or providing temporary access badges if the visitor is pre-registered by the tenant. It also restricts visitor access to designated areas. It is essential for the concierge or tenant service center to ensure that the duration of access is limited to a "need-to-be" basis only and to remove the risk of back-passing. These are countermeasures to prevent the bypass of access controls that can pose a significant security risk since they undermine the integrity of the access control system and can lead to unauthorized access, theft, or other security breaches. For ad hoc delivery services and guests, the building concierge or security office will usually contact the tenant in the office building or the guest in the serviced apartment to confirm any expected delivery or guest and to meet the individual in person at the lobby.

For buildings with shared facilities and amenities available for booking by tenants and sensitive areas, such as server rooms and executive offices, additional layers of security are usually implemented to ensure that only individuals with verified background checks can gain entry. Service providers must provide advance notice and adhere to strict security protocols when performing duties in high-security spaces such as data centers.

For premium shopping malls and hotels in countries with higher risk, the access control at entrances to premises and car parks is usually manned by security personnel and technology to detect illegal arms and items as defined under local law and regulation. Occasionally, the private security at the premises has a K-9 unit.

Surveillance systems

Closed-circuit televisions (CCTVs) are usually set up throughout the building, including entrances, exits, lobbies, common areas, and parking lots, and cover blind spots and critical areas to monitor live feeds, analyze using video analytics, and respond to security incidents in real-time. The specific locations are not known due to security reasons, but there should be clear notification signages to notify the public that CCTVs are in use on the building premises. The permitted scope and extent of coverage can vary from country to country and usually follow the local laws and regulations concerning the use of CCTVs or the collection of biometric data in security systems for different asset classes. The access to and use of biometric data is governed by local data protection or privacy laws and regulations.

Some buildings may employ private security firms to provide remote monitoring and real-time response to support the building operations at the city level, complementing or substituting the building's security office. Modern digital technology, such as body cameras on patrol security personnel and autonomous security vehicles, can be used to patrol the building, monitor access points, and respond to incidents if the use can fulfill the compliance obligation with local laws and regulations.

Communication systems

Common communication systems in a building include the public address system (PA System) to broadcast important announcements and emergency instructions to all occupants. Security personnel are usually equipped with two-way radios for efficient communication during emergencies and routine operations in each asset class. However, there are adverse situations where these common communication systems may be disadvantaged, and a critical event management and crisis communication platform is a more suitable option.

Empowerment

The concierge staff usually serves as the first line of defense, screening visitors and managing access to the building. Panic buttons should be installed at the concierge service counter to relay emergency alerts to the

control center with a clear real-time view from its surveillance command and control. In this way, the right action call can be made to support the first responders on the ground. The first few minutes are most crucial in any precipitating event, and the right action can reduce potential harm to people and damage to property.

It is important that security personnel are adequately trained to meet the security classification for the types of building activities and are able to assist with visitor management and various emergency situations, such as violent acts and demonstration spillovers.

The various service providers, such as cleaning and housekeeping crews and maintenance service technicians, should be trained to identify common risks and know how to respond accordingly without putting themselves at risk.

Building safety

To complement the above measures in various scenarios, the following actions should be ingrained as part of asset management hygiene measures in each asset class to protect the various assets in the building:

- **Good lighting:** Ensure the building perimeter and parking areas are well-lit to deter criminal activity and enhance visibility. Emergency escape routes must be well-lit and provided with emergency lighting. Emergency exits must be clearly marked and maintained to ensure they are easily accessible and free from obstructions.
- **Fire detection systems:** Install smoke detectors, fire alarms, and sprinkler systems throughout the building to detect and respond to fires promptly. Regular fire drills are important to ensure building tenants and users are familiar with evacuation procedures and that passive and active fire safety measures are functioning properly. Fire outbreaks are not uncommon in adverse events such as demonstrations turning violent or acts of terrorism.
- **Panic buttons:** In some countries, panic buttons are installed in parking areas for wellness and safety assistance. In overseas operations, suitable fencing, gates, and security barriers around standalone commercial building perimeters are common to prevent unauthorized access due to elevated risk profiles in the local operating environment.

- **Health and safety measures:** Set up first aid stations and ensure staff are trained in basic first aid, with refresher courses conducted periodically. First responders with proper training to administer cardiopulmonary resuscitation (CPR) can save lives in emergency situations.
- **Cleanliness and illness prevention:** Implement measures to maintain cleanliness and prevent the spread of illnesses in the building, such as regular disinfection of common areas and providing hand sanitizers. The right types of personal protective equipment (PPE) are required for different threats, such as suspected communicable disease cases, serious air pollution due to industrial hazards/fire, and suspected biochemical contamination in premises. These can be acts of bad actors and will be determined by local authorities with oversight of such incidents. The building's response measures include proper disinfection of premises according to local biohazard standards and procedures and safely relocating affected individuals in the building premises to isolation rooms using designated evacuation routes. Special ambulances at designated pickup points in the building will transfer affected individuals to designated hospitals or special care facilities.
- **Indoor climate control:** Maintain determined temperature and humidity levels and uninterrupted electricity supply to protect critical plant and equipment in building operations and ensure uninterrupted service. Sensitive equipment that store data assets should be protected to enable the resumption of critical and essential services as soon as the crisis is over.
- **Secured water storage:** Ensure there is sufficient secured water storage to provide a reliable and safe water supply for drinking, operating building equipment (such as cooling towers), and sanitation purposes.
- **Emergency preparedness:** Develop and practice evacuation plans to ensure building tenants and users know what to do in case of emergencies such as fires or active shooter situations. While physical assembly areas are common for building evacuation, it is important to note that they are not suitable for all emergency situations. Modern asset management should use critical event management and crisis communication platforms to improve the rate of establishing contact with building tenants, assisting those at risk, and isolating compromised contact devices. This also enables remote assembly, reducing further risk.

Other measures

Table 10.1 shows tenants' specific business requirements in different asset classes. These are known requirements that complement the abovementioned security measures, uninterrupted utility supply, and controlled microclimate for the building premises by the asset operator.

Table 10.1. Additional measures in business premises.

Different asset classes	Measures (non-exhaustive)	Purposes
Critical infrastructure such as financial institutions (trading floors, banks)	Secure data centers	• Physical security procedures to protect servers and data centers where electronic records of trading and banking transaction activities are stored. • The network operation center (NOC) or control room has oversight of activities.
	Access control	• Access to trading floors and data centers is granted on a need-to basis. Authorized personnel must submit an advanced request through a designated person. Each request undergoes security clearance and approval. • Authorized personnel must be accompanied by security personnel at all times. Approved individuals and their belongings are thoroughly checked. Identities are authenticated before admission into the premises. Personal devices capable of downloading data are prohibited. • All servicing machines, equipment, and materials are screened against a clearance list that are allowed in the approved time and purpose of the visit.
	Surveillance	• CCTV systems and communication data recording are utilized to monitor trading floors and sensitive areas. This includes close-in CCTV at the rack level within the data center facility. • Security personnel are deployed to oversee these areas, ensuring continuous surveillance and prompt response to any incidents.
	Fire suppression systems	• Suitable systems to protect against fire damage in critical areas.

(*Continued*)

Table 10.1. (*Continued*)

Different asset classes	Measures (non-exhaustive)	Purposes
Industrial spaces for essential supplies	Warehouses and storage facilities	• Physical security procedures to protect stored commodities like food supply, pharmaceutical products, and oil against theft, sabotage, contamination, and loss prevention.
	Security personnel	• Tenant guards to monitor and patrol storage areas.
	Access control	• Restricted access to storage facilities and loading docks is limited to authorized personnel. • Security control typically involves a whitelist of approved individuals.
	Surveillance systems	• Tenant CCTVs to monitor storage areas and entry points.
	Fire and environmental controls	• Appropriate systems to protect against fire, loss prevention, and indoor climate damage.
Storage for alternative investments (e.g. art, collectibles)	Secure display areas	• Display cases and secure rooms to protect valuable items.
	Access control	• Restricted access to areas where valuable items are stored or displayed.
	Surveillance systems	• Tenant CCTV to monitor display areas and entry points. • Active security detection, prevention, and response system against theft, burglary, and sabotage.
	Security personnel	• Tenant security guards to monitor and patrol areas where valuable items are kept.
Shopping malls	Crowd management	• Enhanced security protocols during peak shopping periods, holidays, and special events to effectively manage large crowds and prevent incidents. • Implement queue management strategies to streamline lines and avoid overcrowding at entrances, exits, and high-traffic stores.
	Surveillance systems	• Tenant CCTV systems to monitor tenanted areas, customer service zones, back-of-house sections, and entry points within the premises. This additional security measure is frequently employed by selective tenants, including supermarkets, bank branches, and jewelry stores.

Table 10.1. (*Continued*)

Different asset classes	Measures (non-exhaustive)	Purposes
	Security personnel	• Tenant security guards to monitor and patrol tenanted areas. This additional measure is often implemented by selective tenants, such as bank branches and jewelry stores, where armed guards are commonly employed.

Source: Author

Digital and data asset protection

Evolving landscape

In today's dynamic global environment, a firm operating across multiple geographies faces a complex web of regulations, standards, and guidelines (DLA Piper, n.d.; IAPP, 2025) for digital and data asset protection. Navigating this evolving landscape requires strategic foresight to anticipate and address emerging requirements, ensuring sustainable asset management practices.

Key areas of focus need to minimally include:

- **Cybersecurity:** Protecting systems and networks from ever-changing cyber threats
- **Data security:** Ensuring the secure handling, storage, and transmission of valuable data
- **Privacy and data protection:** Adhering to local data privacy laws to safeguard sensitive information and maintain trust.

International approaches like "data protection by design and by default" are commonly adopted (PDPC, 2019; European Commission, n.d.) to meet these requirements. A firm should consider local regulations for each operating country, including:

- Definitions and classifications of data
- Criteria for data collection, use, access, correction, sharing, retention, destruction, and cross-border transfer
- Restrictions on data sharing, use, and cross-border transfer.

Safeguarding a firm's digital and data assets requires a smart layered security approach anchored in three core principles (Fruhlinger, 2024):

- **Confidentiality (C):** Protecting sensitive information from unauthorized access and breaches
- **Integrity (I):** Ensuring data remains accurate, reliable, and unaltered throughout its lifecycle
- **Availability (A):** Guaranteeing systems and data are accessible whenever needed to support uninterrupted operations.

By upholding these CIA principles, a firm can establish a robust foundation for secure and accurate data. Such data enables stakeholders to make informed decisions, identify market trends, and uncover thematic opportunities that drive growth and innovation. This capability also supports the firm's strategic vision, ensuring competitiveness, sustainability, and resilience in a landscape increasingly challenged by cybersecurity incidents and costly data breaches.

Actionable strategy

A firm needs to maintain an up-to-date inventory of all digital assets, including hardware, software, and data. This helps in identifying and categorizing digital and data assets based on their importance and vulnerability, and regularly assess the risks associated with each asset and implement appropriate security measures to mitigate those risks.

Of particular importance, a firm needs to identify its own crown jewels in digital and data assets and their impacts on business, reputation, and regulatory compliance. It is strategic to implement automated real-time monitoring to track the behavior of assets and to detect any unusual activities or potential threats since the volume of activities each day can be overwhelming for an active firm operating in different geographies. With the advent of offensive artificial intelligence (AI), a firm may have to decide if automated response measures, such as AI cybersecurity (IBM, n.d.), can be part of a firm's digital and data security strategy.

System thinking

While an ERP system is useful to integrate business functions, enabling seamless communication and data sharing across departments, a firm operating in diverse regions such as China, the European Union (EU), and Asia-Pacific countries face conflicting requirements (DLA Piper, n.d.; IAPP, 2025). Harmonizing ERP design with local regulations is critical to managing digital and data assets efficiently.

Building on the considerations in ERP systems, the cloud and operations form a natural next step. The asset management team in the firm usually enters into service and license agreements with cloud providers to leverage third-party services. Therefore, decision-makers at the firm need to be familiar with key aspects of cross-border compliance in the cloud to ensure data security and privacy (GDPR Advisor, n.d.).

A firm should at least address four basic considerations in its asset management:

- Data security
- Monitoring
- Identity and access management (IAM)
- Development, security, and operations (DevSecOps).

Protecting sensitive information in the cloud is vital and involves key components:

- **Encryption:** Ensures data is unreadable to unauthorized users by converting it into coded formats.
- **Key management:** Secures the handling of cryptographic keys used for encryption and decryption. This includes practices, such as key generation, distribution, storage, rotation, and destruction.
- **Secure application programming interfaces (APIs):** APIs facilitate communication between software applications. Secure APIs should include strong authentication, authorization, and encryption mechanisms to protect data exchange from tampering or unauthorized access.

Continuous monitoring maintains the security and integrity of cloud data and involves:

- **Real-time threat detection:** Tools continuously monitor for unauthorized access, malware, and suspicious activities, enabling immediate response to potential threats.
- **Compliance checks:** Regular assessments ensure adherence to regulatory requirements such as the European Union General Data Protection Regulation (EU GDPR), Singapore Personal Data Protection Act (Singapore PDPA), and China Personal Information Protection Law (China PIPL). This reduces legal risks and ensures alignment with industry standards.
- **Cybersecurity Vulnerability Risk Assessment (CVRA):** Identifies potential vulnerabilities in areas like storage, applications, and disaster recovery plans. CVRA prioritizes mitigation efforts based on the severity of risks.
- **Penetration testing:** Simulates cyberattacks to identify and address vulnerabilities, strengthening the cloud's security posture against real-world threats like ransomware, phishing, and denial-of-service (DoS) attacks.

IAM ensures that only authorized users access cloud resources and sensitive data. Key aspects include:

- **Multi-factor authentication (MFA):** Adds an extra security layer by requiring multiple forms of verification, such as passwords and biometric data.
- **Adaptive access:** Dynamically adjusts access controls based on user behavior and context, such as unusual login attempts from unknown devices.
- **Threat and vulnerability risk assessment (TVRA):** Evaluates potential identity-related threats, ensuring robust access controls mitigate risks effectively.

DevSecOps integrates security to address vulnerabilities early and maintain ongoing security. Key components include:

- **Development lifecycle integration:** Embeds security practices into every development stage, from design to deployment, ensuring vulnerabilities are identified early.
- **Continuous security:** Ongoing vulnerability management includes automated tools like vulnerability scans and compliance testing, ensuring security remains integral to the workflow.

A firm requires a network of interconnected systems and processes to harmonize the efforts of people, processes, and technology in asset management activities across different countries of operation. These systems and processes often evolve over time, shaped by collaborative efforts between in-house teams and third-party solution providers, especially for a firm operating out of Singapore. While some firms aim to simplify IT architecture by adopting comprehensive solutions from a single proprietary provider, operational demands frequently necessitate specialized systems.

Specialized systems must be integrated with broader systems and processes at the portfolio level to ensure seamless functionality. In certain cases, a firm may opt for standalone specialized systems to address specific operational needs at the property level. Such decisions often reflect the firm's business operating model, particularly legal considerations around digital and data asset ownership.

Applications and end-user computing (EUC) are critical components of asset management systems and processes. Their effective implementation ensures operational efficiency, user productivity, and data security in different asset classes:

- **Applications:** A firm utilizes specialized software solutions to support operational, analytical, and asset-tracking needs in an asset management platform, a customer relationship management (CRM) system, and industry-specific tools. For instance, a retail mall may deploy applications that analyze foot traffic and consumer behavior, aligning them with cybersecurity and privacy regulations through secure integration practices.
- **EUC:** EUC devices (e.g. laptops, tablets, mobile phones) and software empower employees and stakeholders to carry out their responsibilities

effectively. Secure EUC practices involve device security, encryption, and adherence to firm-wide policies. For example, hospitality franchisees may rely on EUC devices to manage guest check-ins and reservations, necessitating strict access controls and employee training to protect sensitive guest data.

The integration of applications and EUC enhances systems and processes and is intended to support seamless data flow, robust security, and actionable insights.

Asset complexity and strategic alignment

Organizational resources in a firm must align efficiently with its strategic objectives to address complexities like:

- **Property asset divestment activities.** A firm's property asset divestment as part of the capital recycling strategy will require a careful evaluation of digital and data asset ownership. In office transactions, existing tenant data and local operating systems are generally transferred to the new property owner to enable seamless operation and services. However, in data center transactions involving colocation facilities, only digital and data assets in the common facilities are typically included in the transfer, as the business servers, equipment, and data belong to the tenants. Tenants rent space in the form of racks or private suites according to their business needs, while a colocation provider manages the data center's facilities environment.
- **Franchisor/franchisee in operating a hospitality brand.** For example, when digital and data ownership resides with a global hospitality asset management firm ("franchisor") in branded properties, licenses may be granted to third-party property owners ("franchisees") to operate under the franchisor's brand and model. This arrangement ends when the agreement expires, and the third-party property owners have no further access to the digital and data assets.
- **Retail mall.** Asset operators often monetize data assets via data partnerships and marketing initiatives, leveraging clear and unequivocal consent for specific purposes. This practice introduces compliance responsibilities under cybersecurity, data security, and privacy regulations, which vary across geographies.

Therefore, the seamless integration of people, processes, and technology go beyond operational efficiency, fostering innovation, adaptability, and resilience throughout the digital and data asset lifecycle.

Tiered and layered security approach

A tiered and layered security approach ensures that a firm addresses industry-specific regulations and client needs, aligning with varying market maturity levels and business models, such as owned asset management, third-party contracts, joint ventures, and franchises.

- **Hospitality real estate investment trust (REIT).** In addition to encrypting guest data, hotels and serviced apartments with loyalty programs must secure and manage data related to rewards points. For example, cross-border data transfers for international guests must comply with regional data protection laws (e.g. EU GDPR), ensuring the smooth exchange of information while maintaining security and compliance.
- A firm operating private equity funds globally face challenges in protecting sensitive information like customer account details, investment portfolios, and cross-border payment data. Advanced tokenization methods for transaction data and real-time fraud detection systems will help secure its assets while meeting diverse regulatory requirements.
- An e-commerce platform in a retail REIT deals with sensitive customer purchase histories and payment details. It might employ geolocation-based security to detect potential fraud during cross-border transactions while ensuring compliance with local data residency requirements.

These examples illustrate how a layered and tiered approach caters to the unique demands of operating different asset classes in different geographies, ensuring robust compliance and risk mitigation. To ensure seamless compliance and effective digital asset management, a firm should:

- Understand local legal and regulatory requirements for data management.
- Develop an internal compliance framework outlining P&Ps and internal controls.

- Define a firm's role-based access controls for sensitive data and access rights for different employees.
- Conduct regular audits and assessments to ensure ERP and data practices meet regulations.
- Train employees on compliance templates and checklists for their roles at corporate, operational, and property levels.
- Implement robust encryption for data at rest and in transit.
- Create incident response plans tailored to local regulations.
- Stay informed about regulatory changes and update frameworks, business models, and practices accordingly.
- Utilize compliance management tools for real-time monitoring and automated processes (e.g. access timing, anomalies).
- Engage legal and compliance specialists familiar with local regulations.

By and large, a firm's cybersecurity hygiene should at minimum include essential measures, such as access control, encryption, firewalls, intrusion detection systems (IDSs), and regular updates or patches. Beyond these basics, firms should adopt practices like integrating security into the development lifecycle, performing automated vulnerability scans, enforcing least privilege access policies, and ensuring robust end-user security measures.

End-user measures include endpoint security, device usage policies, access controls, and Bring Your Own Device (BYOD) security protocols. BYOD security involves safeguarding personal devices through virtual private networks (VPNs) and mobile device management tools. To strengthen overall security posture, a firm can benefit from implementing security information and event management (SIEM) solutions, which provide a comprehensive view by collecting, aggregating, and analyzing data from multiple sources across the IT infrastructure.

Additionally, a firm may consider employing a bounty program to incentivize external "whitehat" security specialists, who actively identify vulnerabilities in the IT systems, further reinforcing the firm's digital and data security defenses.

A firm should work with its cybersecurity and data protection expert to assess the following implementations:

- A firm's operation capability in different geographies using local infrastructures and external technical support.

- Ability of its third-party service providers to manage its cybersecurity and data risk while providing a service to the firm.

The most pressing concern is lateral movement in a cybersecurity attack, which is not an uncommon situation in the market today. A bad actor gains initial access to a network and then moves laterally within it to exploit interconnected systems. When this arises from a remote vendor in the supply chain, it becomes particularly concerning due to the extended attack surface and potential vulnerabilities in third-party systems. This is well-recorded in publicly known cases such as the Target Data Breach in 2013 (DevX, 2024), where there could be an initial compromise, giving bad actors a foothold in the vendor's network by exploiting vulnerabilities in a remote vendor's system, such as unpatched software, weak credentials, or phishing attacks. By way of access to the firm's network, whether through shared systems, APIs, or remote access tools, the attacker can use this connection as a bridge to infiltrate the firm's environment. Once inside, the bad actor can navigate through the firm's network, escalating privileges, accessing sensitive data, and potentially deploying malware or ransomware. They often use legitimate tools and credentials to avoid detection.

It therefore makes sense to require vendors to meet the performance and standard expected in their service delivery in areas such as authentication methods to control access to sensitive data and systems; encryption of sensitive data, both in transit and at rest to protect it from unauthorized access; deploying firewalls and IDSs to monitor and block malicious traffic and detect potential intrusions; keeping all software and systems up to date with the latest security patches to protect against known vulnerabilities; and submission of periodic audited reports from independent assessors and auditors during the service agreement period. To this end, the purpose is clear, with the intent to track and close any vulnerabilities in supply chain systems and enforce security requirements for suppliers in contractual clauses.

Incident response plan

The starting point of preparation is to outline the steps needed in the event of a data breach or cyberattack.

- **Detection and analysis:** Implement systems to detect and analyze security incidents promptly.
- **Containment:** Take immediate steps to contain the breach and prevent further damage.
- **Eradication:** Identify and remove the root cause of the breach.
- **Recovery:** Restore affected systems and data to normal operations.
- **Post-incident review:** Conduct a thorough review of the incident to identify lessons learned and improve future response efforts.

It is important to discern the notification requirements of data breach, if any, in different countries of operation. The various regulations such as EU GDPR, Singapore PDPA, and China PIPL vary in criteria for managing and notifying data breaches.

In a broad view, the common requirements are:

- A disaster recovery plan that focuses on restoring IT systems and data after a disaster. It includes:
  - Contingency plans for various disaster scenarios (e.g. natural disasters, cyberattacks).
  - **Recovery time objectives (RTOs):** The maximum acceptable downtime for the crown jewel in the firm. These are critical systems necessary to support the critical functions and essential service for ongoing asset management activities to provide timely and uninterrupted services to customers in different asset classes in various countries of operation.
  - **Recovery point objectives (RPOs):** The maximum acceptable data loss measured in time. For critical functions and essential services, an RPO is crucial because minimal data loss is vital for maintaining the integrity of critical operations, such as financial transactions, resident records in senior housing facilities, or customer data in e-commerce. A firm needs operational continuity to provide essential services like emergency response systems, utilities, and communication networks that truly rely on accurate and up-to-date data to function effectively. Moreover, industries have strict regulations regarding data retention and recovery. A well-defined RPO helps meet these compliance requirements. To set up

meaningful RPO in asset management, a firm needs to assess data criticality that identifies which data is essential for asset operations in different asset classes and cannot be lost and determine its tolerance levels to establish how much data loss is acceptable without significantly impacting operations. This includes the use of frequent backups and real-time replication to minimize potential data loss. The backup and restoration procedures are necessary to ensure data integrity and availability in asset management activities.

  - Testing, assessment, and audit procedures to ensure the various digital and data assets in the firm are managed and protected comprehensively in the ERP, the cloud, systems, and processes, including EUC.

- An integrated data breach reporting and business continuity plan that comprises
  - A data breach management and business continuity committee that should include the management bench members, key corporate function heads such as in IT, security, communication, investor relations, legal and compliance, and key asset management team members, such as an account manager, finance, operation, and others;
  - A data breach management plan that is needed to explain clearly the step-by-step procedures to handle a data breach matter, including instructions to each internal stakeholder on what to do and what not to do in the first 24 hours, 48 hours, and up to the first one year or longer, and the accountability lies with the management and board to manage the necessary reporting to different authorities in different countries of operation if it is a case of data belonging to different nationalities in different countries;
  - A toolkit package that contains pre-authorized ready-made templates for various scenarios and accompanying action notes to explain the method and approach of the notification procedure to the affected parties whose data are compromised; cooperation procedure with the appointed independent IT security consultant to address the root cause and ensure remedial action is implemented properly; notification procedure to inform the oversight authorities

on actions taken by the firm and subsequent engagement to update the authorities; communication protocol to engage other stakeholders, such as investors and customers, if the matter is necessarily to be made public in view of legal and business obligations; and maintain a clear and open communication channel with all stakeholders, including to address any ongoing or future concerns, and

  - A business continuity plan that explains clearly what needs to be done to ensure business recovery and resumption and to manage the reputation and trust in the firm.
- Responding to data breaches:
  - Take immediate steps to contain the breach, isolate the affected system(s) and process(es), and prevent further unauthorized access to personal data.
  - Assess the risks, establish the root cause and impact of the breach, and consider factors, such as the type of data involved, nationality of individuals, and the number of individuals affected.
  - Notification obligation to affected individuals and oversight authority(s) is required to meet the specific requirements under the applicable laws and regulations in the country of operation. This includes a timeline to inform the oversight authority(s) as soon as practicable, and many countries have imposed a short line no later than 72 hours from the time the organization becomes aware of the breach. A firm is also required to provide information, such as specific facts about the breach, actions individuals can take, and the firm's contact details in the notification.
  - Post-breach actions will include:
    - **Evaluation:** Conduct a post-breach evaluation to identify the cause of the breach and assess the effectiveness of the response.
    - **Preventive measures:** Implement measures to prevent future breaches, such as improving security controls and updating policies and procedures (P&Ps).
    - **Documentation:** Maintain records of data breaches and the organization's response to demonstrate compliance with the applicable laws and regulations in the country(s) of operation. A data breach case can take up to a few years to close the matter

due to the complexity of cybersecurity and data protection in digital and data assets.

- **Regular audits:** It is prudent to conduct regular audits to ensure ongoing compliance with data protection and privacy regulations to demonstrate to stakeholders such as regulators and investors that the firm has built strength to protect and manage digital and data assets over time. This will protect the reputation of a firm in the longer term if it has a robust program that knows specifically how to deal with any suspected or actual data breach in a cybersecurity incident to immediately contain the risks and to protect the interest of affected parties.

Employee training and awareness

First and foremost, the scope and extent of employee preparedness for a cybersecurity incident or data breach should be proportionate to the volumes and types of data collected in the firm's asset management activities and its risk exposure in different asset classes in different geographies.

A firm should have at least online regular training to employees on cybersecurity and data protection best practices, such as recognizing phishing emails and using strong passwords. Awareness programs are necessary updates to keep employees informed about the latest cybersecurity threats and how to protect against data breach.

While it is good to test employees' awareness of social engineering in awareness programs, a firm's policy must articulate clearly on protocols to limit human errors in asset management activities, which include a check and advice on vulnerabilities related to human interaction.

Ensuring compliance

As accountability lies with the management and board, it is important that the designated person, such as the Chief Privacy & Security Officer, is empowered to guide the firm's employees in asset management to meet regulatory compliances in the country(s) of operation.

To ensure compliance, these are a few basic steps:

- Refresher course on the firm's checklists, templates, and practices to ensure regulatory compliance with relevant regulations and standards, such as EU GDPR and ISO 27001. This includes any updates to the checklists and templates and the creation of new procedures to meet fresh regulatory requirements.
- Assessments such as tabletop exercises to verify compliance and competency of asset operators in different functions and to identify areas for improvement.
- Conduct regular country audits to ensure asset management activities are adequately prepared to address stakeholders' questions and to respond to any authority's queries in the event of an adverse event.

Conclusion

There is a clear need for convergence of both physical and cybersecurity measures to create a comprehensive and resilient security framework so as to ensure a breach in one area does not compromise the other. For example, restricting physical access to server rooms and using cybersecurity practices to protect the network and data stored within those rooms. The enhanced protection offered to a firm can address a wider range of threats and vulnerabilities by combining physical and cyber security measures. This creates an opportunity for improved situational awareness using real-time monitoring and data analytics to provide a comprehensive view of both physical and cyber threats, allowing for quicker and more effective responses. Hybrid security systems can be scaled up or down based on the firm's needs, such as acquisition and divestment, providing flexibility and adaptability to match the size of AUM in different asset classes across different operating countries. By implementing these measures, a firm can enhance its cybersecurity posture, protect digital and data assets, and effectively respond to data breaches in asset management.

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Chapter 11

Supply chain resilience

The almost panacea for uncertainty

In the multifaceted world of asset management, where portfolios span diverse asset classes and geographies, supply chain resilience has emerged as a critical yet challenging strategy for mitigating risks. The supply chain, which serves as one of the largest cost drivers, offers the potential to unlock significant value across a diversified asset portfolio in the capex-heavy built environment sector.

This plausible approach addresses many challenges associated with unpredictable situations, such as geopolitical threats, interest rate fluctuations, trade tariff actions, natural disasters, and labor shortages. The COVID-19 pandemic was a wake-up call for the vulnerabilities embedded within supply chains (Schuster *et al*., 2021). The global event has a widespread impact on project delivery, timelines, budgets, and the ability of operational properties to deliver promised services to tenants and customers across asset classes.

The author aptly describes supply chain resilience as an "almost panacea" — a powerful framework for adapting and recovering from disruptions while ensuring continuity in asset management operations. However, this framework is not flawless. It does not eliminate risks entirely and cannot account for unforeseen external factors or gaps in strategic foresight.

Recent years have seen industry leaders (ACCESS Newswire, 2025; BCG, 2023; Blanchet *et al*., 2024; KPMG, n.d.) advocate for next-generation supply chain capabilities. Leveraging advanced technologies, such as artificial intelligence (AI), digital integration, and predictive analytics, can significantly enhance resilience. Strategies like nearshoring are also suggested as key solutions to address vulnerabilities. Moreover, supply chain resilience plays a pivotal role in achieving Environmental, Social,

and Governance (ESG) goals and net-zero commitments, signaling its importance beyond operational efficiency.

This transformative approach diverges from traditional practices focused on maximizing efficiency, negotiating global agreements, and organizing resources based solely on market conditions. Historically, firms prioritized cost-cutting measures, such as "just-in-time" sourcing models, reducing inventory levels, and consolidating supply chains. However, the "new normal" demands a more dynamic and adaptive model, integrating collaboration with key suppliers and third-party property managers at the local level.

For firms managing asset portfolios across geographies, the development of a robust supply chain management (SCM) system requires addressing concentration risks and fostering adaptability in large-scale operations. This involves strategic planning to ensure the seamless management of physical, digital, and data assets, even in the face of disruptions. A successful SCM framework blends diversification, technological innovation, collaboration, and sustainability, safeguarding asset functionality, safety, and value while protecting stakeholder interests.

Embedding resilience into SCM involves proactive scenario planning, data-driven decision-making, and redundancy measures to prepare for unforeseen disruptions. A resilient supply chain not only enables firms to withstand challenges but positions them to adapt and thrive, maintaining continuity in asset management operations across geographies.

In this chapter, the author explores actionable strategies for weaving resilience into SCM. By identifying vulnerabilities, fostering strong partnerships, and integrating cutting-edge technologies, organizations can enhance their ability to address uncertainties. This narrative offers practical insights into building robust SCM systems that prioritize adaptability and sustainability, ensuring assets emerge stronger and more valuable over time — transforming challenges into opportunities.

Firm level

Building resilient supply chains in varied geographies

Establishing a resilient supply chain at the firm level requires a multi-pronged, strategic approach to ensure efficiency, adaptability, and

sustainability. For firms operating in diverse geographies and managing a variety of asset classes, the following considerations and actions can significantly enhance resilience.

Understanding the context

- **Asset classes:** SCM strategies should be customized to meet the unique requirements of diverse asset types:
  - Critical infrastructures: Uninterrupted service is essential for data centers and financial institutions.
  - Industrial buildings: Supporting essential supply chains in the local economy.
  - Lodging: Tenant satisfaction and operational continuity are paramount in hotels, serviced apartments, and senior housing that support business travelers, multinational corporation (MNC) clients, tourists, and elderly residents.
  - Offices and co-working spaces: Ensuring consistent service delivery to tenants and supporting evolving workplace demands.
  - Retail malls: Delivering products and services to support the daily essential needs of the local community.
- **Geographies:** Effective SCM must account for regional distinctions:
  - Variations in local regulations, labor market dynamics, and the maturity of infrastructure.
  - Environmental risks, such as susceptibility to natural disasters or climate-related disruptions, necessitate localized contingency planning.
  - Regional cultural and market differences that influence supply chain design and partner selection.

Key supply chain management strategies

- **Risk assessment and mapping**

The first task is to identify vulnerabilities in critical supply chains that support essential functions for key customer accounts in each asset class. A firm needs to avoid over-reliance on single suppliers or regions through comprehensive dependency analysis. Therefore, it is strategic for asset

management to map the end-to-end supply chain to visualize interdependencies, pinpoint bottlenecks, and examine third-party suppliers' practices in managing their own risks. This will enable the firm to develop tailored risk mitigation strategies specific to each region and asset class, focusing on high-priority areas like operational continuity and tenant satisfaction.

- **Diversification**

To mitigate risks associated with supplier or regional dependencies, a firm should implement robust multi-sourcing strategies, ensuring continuity and adaptability across its supply chain. Developing local sourcing capabilities tailored to specific asset class requirements not only reduces reliance on external suppliers but also fosters stronger community connections and promotes local economic growth.

Additionally, exploring nearshoring or regional sourcing alternatives is a strategic move to minimize exposure to geopolitical instabilities and logistical challenges. By diversifying supply sources and strategically balancing global and local partnerships, a firm can build more resilient supply chains capable of adapting to evolving market conditions and mitigating disruption risks effectively.

- **Technology integration**

Implementing Internet-of-Things (IoT) and radio-frequency identification (RFID) solutions for real-time tracking of goods and materials is a smart approach because a firm can leverage this information with other data insights to develop strategic foresight on space demand and price sensitivity. The opportunity not to miss is to leverage AI-powered predictive analytics to forecast and address potential disruptions in high-risk environments. That offers decision-makers in a firm to explore more options with local operations in an uncertain time. Building Information Modeling (BIM) can be utilized to evaluate asset adaptability in adverse conditions, such as conversion of space for alternative uses, and maximize supply chain opportunities to meet those new business needs.

- **Collaboration and partnerships**

It is necessary for a firm to build strong partnerships with suppliers and service providers to secure priority access during crises for critical functions like infrastructure, lodging, and industrial operations. Therefore, the

asset management needs to engage in collaborative planning with subcontractors, suppliers, and specialists to enhance communication, manage capacity, and resolve issues quickly.

- **Sustainability and adaptability**

A firm's integration of sustainability goals into SCM practices, aligned with its ESG commitments, not only strengthens its environmental and social credentials but also unlocks tangible business benefits. Enhanced access to financing becomes achievable as investors increasingly favor firms with robust sustainability strategies. Additionally, the alignment attracts and retains high-quality tenants who share similar ESG priorities, fostering long-term partnerships. To achieve this, the firm must cultivate a culture of innovation and continuous improvement, ensuring its systems remain agile and responsive to evolving risks and challenges. By embedding adaptability into its operations, the firm can proactively address disruptions, leverage new opportunities, and maintain a competitive edge in dynamic markets.

- **Operational flexibility and preparedness**

A firm needs to design flexible systems capable of adapting to scope changes in the local operating environment, shifting timelines in projects and operations, and resource limitations. Therefore, it is prudent to maintain optimal inventory levels using accurate demand forecasting to avoid both shortages and overstock situations. The new strategy is to streamline core activities critical to asset management in uncertain times while outsourcing non-core functions without compromising service levels.

Additional strategies across risk environments

Some strategies transcend individual risk levels and asset types, providing universal benefits to firms:

- **Scenario planning:** Conduct "what-if" analyses to anticipate disruptions like transportation delays, energy shortages, or sudden demand shifts. It is a worthwhile exercise for a firm to proactively address potential risks to ensure supply chain continuity and identify opportunities for growth in challenging environments. It was reported that certain asset classes, such as tourism, hospitality, and aviation sectors of Gulf

countries were main beneficiaries of the Arab Spring turmoil (Augustine, 2018). This is a classic example of sudden demand shifts in the region.

- **Redundancy measures:** Establish buffers such as additional stock or alternative suppliers and logistics routes to maintain continuity during unexpected disruptions.
- **Data-driven decision-making:** Use dashboards to monitor supplier performance and local market trends, enhancing decision-making capabilities. AI tools can optimize forecasting and inventory management at both property and portfolio levels.
- **Employee training:** Invest in upskilling employees to manage emerging technologies and adapt processes for enhanced supply chain resilience.
- **Regular reviews:** Conduct periodic assessments of supplier relationships, operational performance, and risk mitigation strategies to stay aligned with evolving threats and opportunities.

Tailored strategies for varied risk environments

By tailoring SCM strategies to the specific risk levels of operating environments, a firm can ensure resilience and protect stakeholder value. Figure 11.1 is intended to be a beginner's guide that illustrates how strategies can shift across high-risk, moderate-risk, and low-risk scenarios.

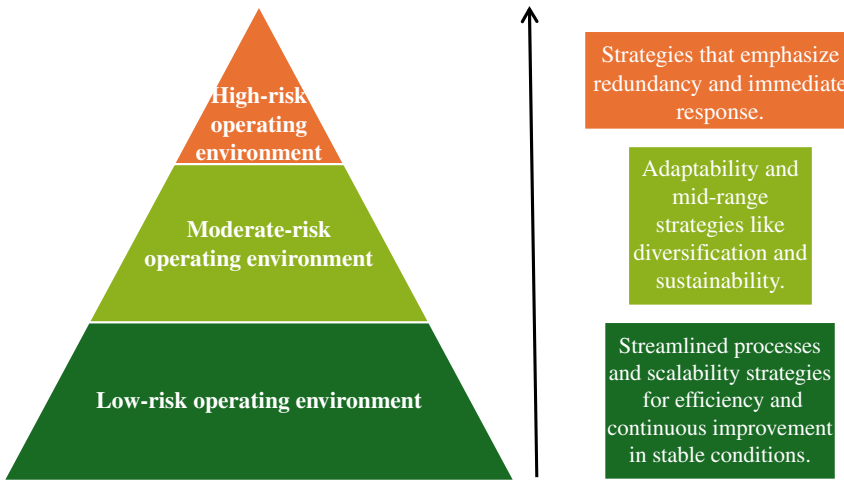

Figure 11.1. SCM strategies in different operating environments.

Source: Author

Strengthening the transition logic

The vertical arrow visually represents the evolution and adaptability of SCM strategies across different operating environments. This design facilitates decision-makers in asset management to connect the varying risk levels of operating environments and adjust their strategies accordingly. To enhance understanding, the strategies are color-coded, emphasizing the shift in focus for each prescribed approach.

Adaptation across risk environments

- **High-risk environments:** Demand robust contingency measures such as redundancy and immediate response plans to address frequent and severe disruptions, e.g. natural disasters, geopolitical instability, or unreliable infrastructure. These environments require proactive systems to ensure continuity despite unpredictable challenges.
- **Moderate-risk environments:** Transition toward diversification and sustainable practices to handle occasional disruptions like regulatory shifts, seasonal demand changes, or moderate infrastructure challenges. Resilience is built through balanced strategies that adapt to evolving conditions.
- **Low-risk environments:** Focus on optimizing processes and driving continuous improvements to operate effectively in stable conditions with predictable demand and minimal disruptions. Streamlined systems enhance operational efficiency and reduce unnecessary costs.

While each risk level necessitates distinct SCM approaches, certain strategies such as sustainability, redundancy, and technological integration remain foundational across all environments. These core strategies underpin efforts to deliver consistent value not only to asset management but also to the broader ecosystem of stakeholders.

Defining the stakeholder ecosystem

Table 11.1 outlines various opportunities for asset management in differing operating risk environments (high-risk, moderate-risk, low-risk). Key SCM strategies such as redundancy, risk mapping, and scenario planning are pivotal for unlocking value across a firm's asset classes. Approaches

Table 11.1. Opportunities in asset classes.

Opportunities	Examples of asset classes	SCM strategy	Unlocks value for firm
High-risk operating environment	Lodging	Supplier diversification	• *Strategy*: Analyze geopolitical risks affecting imported supplies for hotels and serviced apartments, such as furniture, kitchen equipment, and consumables. • *Unlocks value*: Reduces dependency on imports by partnering with local and regional suppliers, ensuring availability of essential items despite external disruptions.
	Data centers	Sustainability practices	• *Strategy*: Evaluate the viability of alternative energy resources like local solar panels or wind farms in regions with unstable energy supply. • *Unlocks value*: Enhances resilience by reducing reliance on traditional energy grids and aligning operations with sustainability goals. • *Note*: Small modular reactors (SMRs) represent a promising emerging technology for powering data centers efficiently and sustainably.
	Logistics buildings and warehouses	Technology integration	• *Strategy*: Employ IoT to monitor equipment stress and assess vulnerability in disaster-prone locations, such as flood-prone cities. • *Unlocks value*: Prevents costly downtime by enabling proactive maintenance and risk mitigation.
	Office buildings	Scenario planning	• *Strategy*: Develop alternate staffing strategies to address labor shortages caused by strikes or restrictions on foreign workers affecting public transportation systems. • *Unlocks value*: Ensures continuity of tenant services and operational efficiency during disruptions.

Table 11.1. (*Continued*)

Opportunities	Examples of asset classes	SCM strategy	Unlocks value for firm
Moderate-risk operating environment	Lodging	Inventory optimization	• *Strategy*: Align inventory with seasonal peaks and troughs in tourist-dependent regions experiencing fluctuating demand. • *Unlocks value*: Maintains operational efficiency by optimizing inventory levels and reducing waste during off-peak seasons.
	Logistics buildings and warehouses	Sustainability practices	• *Strategy*: Implement energy-efficient air conditioning and mechanical ventilation systems in locations with moderately reliable power grids. • *Unlocks value*: Reduces energy consumption, lowers operational costs, and supports ESG commitments.
	Data centers	Technology upgrades	• *Strategy*: Use predictive analytics to optimize energy consumption and adapt to changes in operational requirements. • *Unlocks value*: Improves energy efficiency while maintaining seamless performance for critical functions.
Low-risk operating environment	Office buildings	Streamlined operations	• *Strategy*: Maintain lean inventory systems supported by flexible backup plans to handle unanticipated demand surges. • *Unlocks value*: Optimizes resource use and reduces overhead costs in stable conditions.
	Lodging	Proactive monitoring	• *Strategy*: Automate consumable inventory orders based on real-time usage patterns to minimize shortages or surpluses. • *Unlocks value*: Enhances operational efficiency and improves tenant satisfaction through consistent service delivery.

(*Continued*)

Table 11.1. (*Continued*)

Opportunities	Examples of asset classes	SCM strategy	Unlocks value for firm
	Logistics buildings and warehouses	Collaborative relationships	• *Strategy*: Establish fixed contracts with local vendors to build reliable supply chains in stable operating environments. • *Unlocks value*: Strengthens partnerships and ensures cost-effective procurement practices.
	Data centers	Technology upgrades	• *Strategy*: Gradually integrate advanced liquid cooling technologies to enhance energy efficiency and reduce environmental impact. • *Unlocks value*: Positions assets as future-ready and supports long-term sustainability goals.

Source: Author

like sustainability remain adaptable and scalable across all risk levels, enabling firms to align operations with long-term ESG goals while delivering consistent value to stakeholders.

Unlocking value for stakeholders

The implementation of robust SCM strategies has a profound and meaningful impact across a broad spectrum of stakeholders, unlocking value in the following ways:

- **For tenants:** In critical asset classes such as financial centers, data centers, and cold chain warehousing, tenants benefit from seamless SCM adaptability to changes in demand or regulatory requirements within their country of operation. This ensures uninterrupted service delivery, allowing tenants to maintain their essential functions. Meanwhile, tenants in other asset classes, such as lodging, offices, and malls, can enjoy a heightened assurance of service continuity, comfort,

and reliability across different risk environments. This resilience enhances tenant satisfaction and trust in asset operators.

- **For investors:** A firm's proactive and tailored SCM solutions provide investors with greater predictability in returns and enhance the appeal of efficient, future-ready assets. By rightsizing SCM practices to fit the geographical and operational complexities of asset portfolios, fund structures like real estate investment trusts (REITs) and private equity (PE) funds achieve sustainable and optimized returns. This approach fosters investor confidence and positions the firm as a leader in resilience, sustainability, and adaptability, even in challenging operating conditions.
- **For suppliers and contractors:** Suppliers and contractors benefit from improved workflow stability and growth opportunities through strategic partnerships supported by data-driven SCM insights. These insights into demand patterns enable suppliers to maintain a suitable inventory float aligned with asset management's requirements while also offering opportunities to redirect surplus supplies within the ecosystem. Such practices prevent hoarding, mitigate price volatility concerns, and build stronger, mutually beneficial relationships between firms and their supply chain partners.

Conclusion

Resilience is the cornerstone of future asset management. In an era marked by unpredictability, supply chain resilience stands as an "almost panacea" for navigating uncertainty in asset management. While it may not eliminate all risks, its thoughtful application transforms challenges into opportunities, allowing firms to adapt, recover, and thrive in dynamic operating environments.

Tailoring SCM strategies to address specific risk levels across geographies and asset classes, such as leveraging sustainability, redundancy, and technology integration, can offer a firm the tools to mitigate disruptions and protect asset performance. A key aspect of this resilience is proactively addressing asset portfolio concentration risks, where reliance on specific asset classes, geographies, or suppliers amplifies vulnerabilities. Diversifying supply chains, integrating local resources, and implementing

robust contingency plans minimize such risks, creating more balanced and resilient portfolios.

Crucially, these strategies go beyond just maintaining operations. They are aligning with broader goals of sustainability, innovation, and stakeholder engagement. They enable firms to protect the functionality, safety, and value of their assets while safeguarding the interests of tenants, investors, suppliers, and the wider ecosystem.

As the complexities of global markets evolve, the ability to embed resilience into SCM will define a firm's capacity to succeed in uncertain times. This transformative approach, though not a one-size-fits-all solution, ensures that asset management can rise above challenges and secure a competitive edge, ultimately positioning a firm's portfolios as robust, adaptable, and valuable.

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CHAPTER 12

Stakeholder management

Pioneering the new frontier of asset management

The journey through this book has illustrated a reimagined approach to asset management, using the example of any public-listed firm in Singapore that operates across diverse geographies. In an era of uncertainty, as risks and challenges loom within the built environment, the convergence of physical, digital, and data assets has emerged as a transformative force, unlocking unprecedented opportunities. Throughout the chapters, the author has explored how evolving market dynamics, rapid technological advancements, and shifting priorities necessitate the adoption of innovative frameworks and skill sets once considered inconceivable. This concluding chapter synthesizes the key takeaways from each chapter, offering a comprehensive summary of the insights and lessons presented. It then transitions into a discussion on managing the expectations of stakeholders — a critical aspect for navigating today's unpredictable and volatile landscape.

The opening chapter unveils to readers modern concepts of asset management in the built environment to unlock value for the firm responsible for the assets under its management and explains how market transformation since the 1990s has evolved to today's environment that requires holistic expertise in physical, digital, and data asset management. Emerging asset classes, driven by thematic growth areas such as data centers, renewable energy, co-working and co-living spaces, logistics, self-storage, and wellness sectors, are poised to become transformative forces within the built environment. To maximize value and mitigate risks, tailored strategies should be crafted at strategic, tactical, and operational levels, leveraging a life cycle approach.

Chapter 2 explores capital allocation in the market, starting with traditional real estate companies and examining how Singapore real estate investment trusts (S-REITs) and private equity funds (PE Funds) in the built environment sector drive value creation and foster growth for the future. The discussion focuses on S-REITs and PE Funds, and the strategies differ based on ownership structure and market pressures. Hence, the planning of asset management activities in S-REITs and PE Funds also differ significantly as a result due to their distinct goals, investment strategies, and operational focuses. For the S-REIT landscape in Singapore, potential internalization in the future can enhance the operational strategy and financial results of S-REITs by reducing costs, improving the alignment of interests, and increasing operational efficiency. Meanwhile, the market has turned to private equities for thematic investments, offering opportunities of specialization within alternative asset classes. While S-REITs focus on managing real estate properties to generate regular income, PE Funds concentrate on enhancing the value of the firm for long-term capital gains. The firm holding the PE Funds plans for exit strategies, such as selling the portfolio company or taking it public, to realize returns for investors. Asset management planning in a firm therefore needs to be guided by a set of principles and to align internal processes to achieve a resilient approach to deal with various corporate, business, and operation considerations in different investment structures.

Chapter 3 explains that effective asset management requires a robust framework of corporate governance to ensure that decisions are made in the best interest of all stakeholders. The critical success factors for effective corporate governance have emphasized the people, practices, and business processes that ensure an entity operates in a transparent, ethical, and accountable manner. This fosters trust, enhances performance, attracts capital to the fund, manages risks effectively, and ensures compliance, ultimately delivering value to all stakeholders. "Tone from the top" is a powerful tool for shaping a firm's culture, guiding its strategic direction, and earning the trust and respect of stakeholders. By setting a positive and consistent tone, leaders can drive asset management success and long-term sustainability. The right level of accountability and oversight at the board and management levels in a firm is a sustainable formula for

achieving effective asset management of investments. Transparency and disclosure play a big role in corporate governance and investors are more likely to invest in markets where they feel they have access to reliable information and where asset operators are held accountable for their actions. This helps to enhance overall market confidence.

This leads the author to address and explain the insights of identified legal and regulatory considerations in Chapter 4, using a market understanding of any publicly listed firm in Singapore that operates different asset classes in different geographies. The legal and regulatory compliances, such as adherence to local laws, regulations, and guidelines in international asset management at the firm level, are deeply intertwined, reinforcing and complementing corporate governance. The scope of international compliance regulations for any publicly listed firm in Singapore involves understanding the various legal and regulatory frameworks that govern their asset management's local operation activities across different jurisdictions. The board and management in the firm must therefore set clear expectations and instructions on the list of considerations for its wide array of transaction activities in various countries of operation. Any operating firm needs to demonstrate accountability to ensure compliance requirements are met for its own activities, including third-party property managers, suppliers, contractors, consultants, and other service providers (collectively referred to as "vendors") who are directly playing a critical or essential role in asset management activities. There are areas of legal and regulatory compliances that could have clear instructions for the firm and vendors in terms of separate, joint, and several liabilities, but it is not always the same rule to apply universally. Many regulations are extraterritorial in nature and present complex situations for an asset operator. Evolving regulatory environment in many of the new world order ranges from cybersecurity, data protection, and Environmental, Social, and Governance (ESG) to cross-border tax compliance and artificial intelligence (AI). The author acknowledges the global compliance challenges and business complexity in the built environment sector, and it is strategic for asset operators to stay focused on their asset management principal activities while smartly outsourcing specialty areas in international compliance to domain experts in navigating the hurdles and resolving complex compliance issues in the operations of a firm.

Chapter 5 is a very important bridge connecting the multifaceted roles and responsibilities of asset management in a firm discussed in the preceding chapters with the opportunities to address specific considerations in uncertain times in the subsequent chapters. The chapter itself explains while a firm needs to redesign asset management to achieve its organizational goal as industry transformation and disruptive forces accelerate in the market, it needs to be prudent to manage change and deal with uncertainty in a smart manner so as to capture emerging opportunities and retain sustainable growth. What stymied the market is not a lack of information but a limited understanding of the inter-relationships between business and disruptive factors, thus culminating in uncertainty. A firm needs to recognize that there are unknown forces in the market that we do not know about (referred to as "unknown unknowns"). This is best explained by the Rumsfeld matrix, which can help decision-makers in a firm navigate uncertainty by categorizing unknowns into more manageable tasks. By identifying "known unknowns," a firm can surface assumptions that need to be validated because there are gaps in our knowledge that we must address in consultation with experts. By uncovering "unknown knowns," a firm can tap into hidden knowledge buried in our subconsciousness and insights that are overlooked or dismissed as remoteness, which can enhance the understanding of the situation in the country of operation. The lowest hanging fruit in conventional wisdom is "known knowns." These are facts or variables that a firm is fully aware of and understands. Most managers in their comfort zones will focus on the "known knowns" in a conventional risk management approach. That has limited the options to excel in uncertain times. By shifting focus from "known knowns" to "unknown knowns," a firm can prioritize tasks and allocate resources more effectively, focusing on the most significant sources of uncertainty. By systematically addressing these uncertainties, a firm can make better-informed decisions and manage risks more effectively. Risk assessment, in turn, determines possible mishaps, their likelihood of happening and consequences, and the tolerances for adverse events in uncertain times. That connects readers to the next chapter.

Chapter 6 explains that next-generation risk management is a plausible solution to examine the interconnected relationships among different risk factors to assess their potential impact on operations and develop

effective mitigation strategies. This helps a firm to more likely achieve its strategic objectives even in uncertain times, as risk factors and their residual risks are better understood. At the firm level, cross-functional collaboration is essential to break down silos between departments and create a unified risk strategy. Actions must provide opportunities to demonstrate compliance with regulatory requirements and industry standards, helping stakeholders to understand that the firm adheres to best practices. For risk-averse firms preferring to operate in low-risk environments, some of the plausible technology, system, process, and people solutions may offer consolation against potential risks to ensure stable outcomes. Conversely, firms motivated to capture emerging opportunities in uncertain times may find that some solutions can improve outcomes based on their risk appetite.

Chapter 7 has advocated the use of technology, digital twin (DT), as a plausible solution to enhance business processes across front, middle, and back offices with practical applications in normal business conditions and to unlock the strategic transformation asset operators need to overcome margin pressure in various future scenarios. However, scenario planning will not always be fully accurate in uncertain times. It is not a panacea for every economic, social, and political disruption. Common sense must still prevail, as the psychological factors (e.g. emotional exuberance and cultural understanding) in human decision-making cannot be meaningfully replicated with current computing capabilities. In contributing to business resilience, DT can provide insights to optimize manpower allocation in adverse situations, such as pandemics, acts of war, and wide-area disruptions. Each situation requires a different response.

Chapter 8 reminds a firm with international operations to consider multifaceted sustainability due to demographic change, digitalization, and disruptions. Therefore, a firm needs a new mindset to embrace thematic and dislocation opportunities in a changing new world order. In uncertain times, it is strategic for a firm to put sustainability as a plausible solution at the center of asset management. The future of sustainability lies in the increasing integration of ESG factors into financial analysis and decision-making. Asset management should develop the level of confidence and transparency to disclose ESG key performance indicators (KPIs) at the dashboard level, such as water efficiency, energy efficiency, recycling, and

carbon footprint, among other initiatives, and the use of AI and digital services for tenant and customer engagement to cut down carbon emissions. A firm with an international presence should operate in a way that can achieve sustainable profit for the asset classes it operates in different geographies but also be beneficial for its own corporate governance and local community. It is important to manage interconnected risk relationships in Environmental, Social, and Governance (ESG) implementation, such as interest rate, supply chain, and manpower, to achieve a positive outcome. The last mile in the sustainable journey is to develop a conscious effort to understand user preferences and needs at the operating level. This is key to unlocking user experience (UX) and managing stakeholders' interest among tenants and customers in different asset classes for normal and adverse operating situations. Green leases, eco-friendly practices, healthy indoor environments, payable rentals, facilities, and service charges in green buildings are important aspects of stakeholders' consideration. These continuing efforts in steering the firm in the right direction for sustainability can expect consistency and predictability in building the performances of the asset portfolio to achieve reliability in both normal business conditions and adverse operating conditions.

Chapter 9 focuses on manpower resilience. For a firm with an international presence, a diverse board and management team composed of individuals with varied backgrounds and expertise is indispensable. Each member brings unique strengths that collectively enhance the firm's ability to navigate complex challenges. Shared vision, values, and goals should serve as a unifying force to align efforts across the front office, middle office, and back office. An engaged, innovative asset management team is essential in a firm that is capable of adapting quickly and being agile and competitive. If any firm embraces the principle that people are the most valuable asset, addressing manpower resilience becomes a cornerstone for success during periods of uncertainty to uncover new opportunities for value creation in asset management. New capabilities, a new norm, and a new mindset to empower internal stakeholders are refreshing ways to build a robust foundation toward strengthening manpower resilience. Scenario planning in business continuity strategies adds a layer of strength that enables internal stakeholders to prepare for diverse future conditions, including economic, social, and technological shifts, and to

navigate both routine operations and crises with agility. The author opines a mindset that views failures not as setbacks but as opportunities for growth that can allow a firm to analyze and optimize its responses to challenges. Such an approach can promote innovation, encourage experimentation, and enhance overall organizational resilience.

Chapter 10 explains that a firm requires a comprehensive and proactive approach to asset resilience in uncertain times. The asset management team needs to develop the know-how to deal with acute threats in civilian environments, such as cyber terrorism, massive data breaches, wide-area disruptions, or acts of war, at the portfolio level with diversified asset classes such as office buildings, hotels and serviced apartments, and data centers. This approach can demonstrate competency to external stakeholders, such as international tenants and investors, during due diligence exercises, making them more willing to inject capital into the funds or take up more lettable spaces in the asset classes. At the physical property, modern threats are no longer confined to physical danger. The modern "invisible" threat comes from cyber and data exploitation, such as denials of service and ransom in-data exfiltration. Therefore, both physical and cybersecurity measures need to be integrated to address hybrid security threats at the portfolio level. Certain asset classes, such as hotels, serviced apartments, offices, malls, logistics parks, and manufacturing facilities, may face specific risks unique to people, operations, and businesses in adverse situations. A tiered and layered digital and data asset security approach with industry examples is used to explain how a firm addresses industry-specific regulations and client needs, aligning with varying market maturity levels and business models, such as owned asset management, third-party contracts, joint ventures, and franchises. While the hybrid security concept and basic measures shared in this chapter are generally applicable across different asset classes, the systems, processes, and operating procedures are likely to differ for various asset classes in different countries. Hybrid security systems can be scaled up or down based on the firm's needs, such as acquisition and divestment, providing flexibility and adaptability to match the size of asset under management (AUM) in different asset classes across different operating countries.

Chapter 11 addresses supply chain resilience as an almost panacea and requires addressing concentration risks and fostering adaptability in

large-scale operations. This involves strategic planning to ensure the seamless management of physical, digital, and data assets, even in the face of disruptions. A successful supply chain management (SCM) framework blends diversification, technological innovation, collaboration, and sustainability, safeguarding asset functionality, safety, and value while protecting stakeholder interests. Embedding resilience into SCM involves proactive scenario planning, data-driven decision-making, and redundancy measures to prepare for unforeseen disruptions. A resilient supply chain not only enables a firm to withstand challenges but positions it to adapt and thrive, maintaining continuity in asset management operations across geographies. While it may not eliminate all risks, its thoughtful application will transform challenges into opportunities, allowing a firm to adapt, recover, and thrive in dynamic operating environments. Tailoring actionable SCM strategies to address specific risks across geographies and asset classes can offer a firm the tools to mitigate disruptions and protect asset performance. This transformative approach, though not a one-size-fits-all solution, ensures that asset management can rise above challenges and secure a competitive edge, ultimately positioning a firm's portfolios as being sustainable, adaptable, and valuable.

Managing expectations from stakeholders

This segment explains how the new frontier in asset management must consider both internal and external stakeholder interests when operating across different geographies. For beginners, the steps illustrated in Fig. 12.1 serve as a guide to facilitate the feedback loop process.

The first step is to identify internal and external stakeholders in each country of operation, along with their specific interests and concerns.

Primary groups of stakeholders

Internal stakeholders:

There are three key categories of internal stakeholders to consider:

- **Employees:** Focused on fostering engagement, providing training, and ensuring alignment with asset management goals.

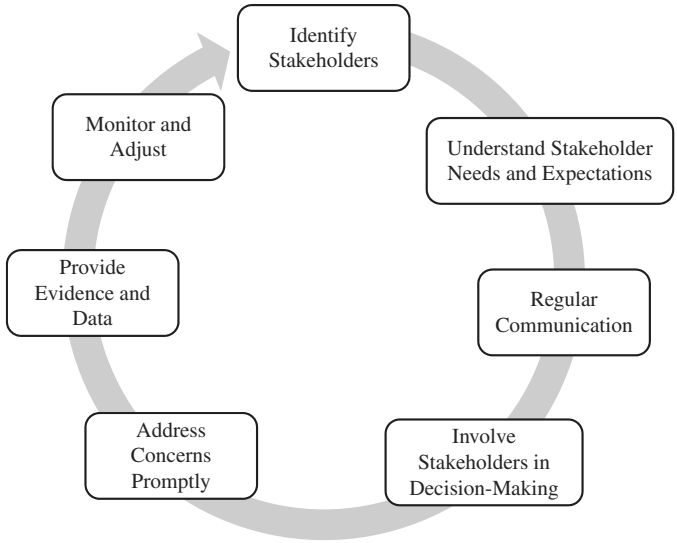

Figure 12.1. Flow chart showing the feedback loop process.

Source: Author

- **Management:** Responsible for aligning decisions and strategies with the firm's objectives while effectively addressing operational challenges.
- **Board of directors:** Charged with maintaining accountability within the organization and ensuring transparency in asset performance and the firm's long-term vision.

Detailed discussions on these topics can be found in Chapters 3 (Corporate governance) and 9 (Manpower resilience).

External stakeholders:

- **Customers:** Building tenants, hotel guests, shoppers, and diners in malls (refer to Tables 12.1 to 12.3).
- **Investors:** Engaging stakeholders who fund and support operations (refer to Table 12.4).
- **Vendors:** Collaborating with third parties, such as suppliers and service providers essential to the business (refer to Table 12.5).

Table 12.1. Managing tenants' expectation.

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
Office, industrial, and business park tenants	Personalized service — offline and online	• Tailoring services to meet the unique needs of each tenant. This can include personalized communication, customized maintenance schedules, special amenities, events, social spaces, and communication platforms. A strong community can enhance tenant satisfaction and retention.
	Security to their physical premises, people, onsite assets, business data, and personal data of employees	• Robust hybrid security — physical security, digital security, and data protection measures that commensurate with the risk level of tenant classification, asset classes, and geographies.
	Quality of service — Matters acted on immediately, responsive action, and support	• Ensuring timely responses to tenant inquiries, maintenance requests, and complaints. Clear and consistent communication builds trust and satisfaction. Address tenant inquiries and issues promptly and efficiently. A quick response can significantly enhance tenant satisfaction.
	Feedback and suggestions	• Act immediately, stay connected with tenants, and show them that their opinions are valued.
	Quality of service — access and convenience	• Utilizing digital tools like property management software, mobile apps, and online portals to streamline processes and provide tenants with easy access to information and services. Ensure tenants can easily reach property management through various channels, such as phone, email, or a tenant portal.
	Uninterrupted services	• Keep the property in good condition. Regular inspections and proactive maintenance to ensure uninterrupted services.

Table 12.1. (*Continued*)

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
	Regular updates	• Keep tenants informed about any changes, maintenance schedules, or community events through newsletters, emails, or notice boards.
	Clear tenancy terms and conditions, including operation house rules	• Being transparent about policies, fees, and any changes that may affect tenants. Clear information helps tenants feel informed and respected. • Treat all tenants fairly and equally, ensuring that everyone feels respected and valued.
	Flexible payment options	• Offer multiple payment methods and consider flexible payment plans for tenants facing financial difficulties.
	Timely reminders	• Send reminders about upcoming rent payments or any other important deadlines.

Source: Author

Table 12.2. Managing guests' expectations.

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
Guests/residents in hotels, service apartments, resorts, and luxury senior living	Personalized experience, with very niche services in luxury brands	• Use customer data to remember guest preferences and offer personalized services, such as room preferences, special amenities, or dining options.
	Security in their residence space and common facilities and amenities, and safeguard their privacy	• Robust hybrid security — physical security, digital security, and data protection measures for all guests and residents.
	Rewards	• Implement loyalty programs to reward repeat customers with perks such as discounts, upgrades, or exclusive access.

(*Continued*)

Table 12.2. (*Continued*)

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
	Quality of service	• Ensure staff are well-trained to provide courteous, efficient, and proactive service.
	24/7 support	• Provide round-the-clock support to address guest needs and concerns promptly.
	Quality amenities	• Offer high-quality amenities and ensure rooms are clean and well-maintained.
	Seamless check-in/ check-out for short-stay residents	• Streamline the check-in and check-out processes to make them quick and hassle-free.
	Regular updates	• Keep guests informed about events, special offers, and local attractions through emails, apps, or social media.
	Feedback mechanisms	• Encourage guests to provide feedback and act on their suggestions to improve the experience.

Source: Author

Table 12.3. Managing shoppers' expectations.

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
Shoppers and dinners in malls	Personalized shopping and dining experience	• Use data analytics to understand customer preferences and offer personalized product recommendations.
	Security in the mall and other facilities such as the carpark and toilets	• Robust hybrid security — physical security for shoppers and dinners and digital security and data protection measures for personal data collected (e.g. shopping reward membership program, shopping app, CCTV footage).
	Tailored promotions	• Provide personalized discounts and promotions based on shopping behavior.
	Engaging store experiences with convenience and accessibility	• Create an inviting store layout with attractive displays and easy navigation. • Allow customers to return online purchases in-store for added convenience.

Table 12.3. (*Continued*)

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
	Interactive retail experiences	• Incorporate interactive elements, such as product demonstrations or virtual try-ons, to enhance the shopping experience. • Create an omnichannel experience to promote a seamless transition between online and offline experiences, such as buying online and pick-up in-store (BOPIS) services. • Develop mobile apps that enhance the shopping experience, such as providing store maps, product availability, and personalized recommendations.
	Customer service	• Train staff to be knowledgeable, approachable, and ready to assist customers.
	Mobile customer service — online and offline	• Offer multiple support channels, including mall concierge assistance, online chats, and phone support.
	Event and workshop experience	• Host events or workshops to engage with customers and create a sense of community.
	Social connectivity	• Actively engage with customers on social media platforms to build relationships and gather feedback.

Source: Author

- **Regulators and auditors:** Addressing compliance requirements and oversight to ensure adherence to laws and standards (refer to Table 12.6).

A firm needs to engage with external stakeholders to understand their needs, expectations, and priorities. This helps in aligning asset management activities with their goals. Further to this, the firm has to set clear objectives and milestones that clearly define the objectives, scope, and timelines of the asset management activities, and communicate these to stakeholders to set realistic expectations. Stakeholders like to be kept informed with regular updates on progress, challenges, and changes. Transparency helps in building trust and managing expectations

Table 12.4. Managing investors' expectations.

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
Investors	Investors seek a firm with solid financial health, including consistent earnings growth, high return on equity (ROE), and low debt-to-equity ratios.	• Ability to generate profits and manage the operation effectively.
	Quality firm with a proven track record of stable and consistent performance over time.	• Able to reduce the risk of significant downturns and provide a sense of reliability. • For more details, read Chapters 5 (Uncertain times) and 6 (Next-generation risk management).
	A strong management team with a proven track record of making sound decisions is crucial.	• Leadership who can navigate challenges and capitalize on opportunities. • For more details, read Chapters 5 (Uncertain times) and 6 (Next-generation risk management).
	A firm with a competitive advantage, or "moat," is more likely to fend off competition and maintain profitability.	• Strong brand recognition, patents, or unique business models.
	Quality firm often pays regular dividends, providing a steady income stream for investors. This can be an attractive feature for those seeking both capital appreciation and income.	• Demonstrate sustainable revenue generation through a proactive lease management strategy that ensures the right tenant mix, according to the business cycle in an asset class, quality tenants of proven business record, guests/customers with strong spending power, timely rental collection, suitable arrear recovery enforcement, and termination of leases that turn bad.
	Investors look for firms that can sustain growth and profitability over an extended period rather than those that offer short-term gains.	• Demonstrate the ability to generate accretive yield in REITs or achieves or exceeds the agreed-upon hurdle rate in a PE Fund. For more details, read Chapter 2 (Planning within a firm).

Table 12.4. (*Continued*)

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
	Investors now consider a company's ESG practices as part of their evaluation.	• Demonstrate strong ESG practices, since a focus on sustainability and ethical growth ensures reliable returns while aligning with broader societal expectations. For a firm that prioritizes resilience, it can contribute to a stable and progressive market ecosystem. This approach is not only prudent but also positions investors as key enablers of a sustainable future. For more details, read Chapter 8 (Sustainability).

Source: Author

Table 12.5. Managing vendors' expectations.

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
Vendors (e.g. third-party property managers, suppliers, contractors, consultants, and other service providers)	Seek fair and transparent terms in contracts and transactions. Value timely and reliable payments for goods and services provided. Look for strong, cooperative relationships that foster assured volume of business.	• A clear supply chain policy that promotes fair agreements, payment practices, and collaboration in different geographies. • Supply chain resilience directly impacts operational continuity. Collaborating with sustainable suppliers and service providers in different geographies and fostering transparent partnerships builds trust among supply chain stakeholders. These relationships create value while reducing vulnerabilities, ensuring smooth operations despite disruptions. For more details, read Chapter 11 (Supply chain resilience).

Source: Author

Table 12.6. Managing regulators and auditors' expectations.

Categories of stakeholders	What do stakeholders look for?	What can asset management do?
Regulators and auditors	Require businesses to comply with legal and regulatory standards. Value accurate and timely reporting of business operations and financials. Expect adherence to ethical practices and standards.	• Demonstrate compliance, transparency, and ethical practices through public disclosure reports such as compliance and audit reports. For more details, read Chapters 3 (Corporate governance) and 4 (Legal and regulatory compliances in international asset management).

Source: Author

effectively. Engage stakeholders in matters (where applicable) and in key decisions to ensure their input is considered so that they will feel a sense of ownership in the process. It is prudent to listen to stakeholder concerns and address them promptly for matters that affect asset operation and compliance. This will show that you value their input and are committed to resolving their issues. This includes the readiness to share relevant data, research, and evidence to support your decisions and actions. This helps stakeholders understand the rationale behind your choices. It is necessary to devote effort to continuously monitor stakeholder satisfaction and adjust your strategies as needed, and the regular feedback helps in fine-tuning your approach to better meet stakeholder expectations. By following these strategies, you can effectively manage stakeholder expectations, foster collaboration, and ensure the success of your asset management activities.

Conclusion

This chapter has encapsulated the key takeaways from the evolving practices in asset management, delving into the internal operations of a firm and providing plausible solutions to address the diverse opportunities and challenges across different asset classes and geographies in uncertain

times. The concepts explored are not merely theoretical — they serve as a call to action for practitioners and decision-makers alike.

The strategies outlined in the latter half of this book are designed to unlock value in asset management during periods of uncertainty, with a clear focus on their relevance to each stakeholder group. In this context, the significance of robust corporate governance, coupled with comprehensive legal and compliance frameworks, cannot be overstated. These foundational elements are vital for navigating unpredictable challenges and strengthening resilience, even during turbulent times.

A range of tested technologies and innovative risk solutions has been presented, including DT technologies, sustainability-driven ESG practices, manpower resilience, supply chain resilience, and hybrid security. Together, these plausible solutions promote an interconnected, future-ready strategy for systems, processes, and practices in asset management. This comprehensive approach can enable a firm operating in different geographies to confront complex challenges, mitigate risks, and thrive sustainably in an ever-evolving world. The relationships and implications for stakeholders have been thoughtfully articulated throughout this journey.

The uncertain environment we face today offers a unique opportunity to make a positive and lasting impact in asset management, contributing to a sustainable future. This book has laid out pathways for building strong, collaborative communities with both internal and external stakeholders. In the face of short-term market volatility, a "built to last" firm — anchored in a forward-thinking asset management strategy focused on sustainable growth and resilience — is better positioned to resist impulsive, reactive decisions. Such a firm is also more likely to embody ethical stewardship, aligning seamlessly with the increasing emphasis on sustainability, digitalization, and the management of dislocation factors. This approach not only fosters trust but secures enduring value across various investment vehicles, including REITs and PE Funds, even amidst volatile cycles.

Ultimately, the strategies presented here are an invitation to dream boldly and act decisively in strengthening stakeholder engagement and trust. As collaboration with stakeholders expands, the growth journey

becomes inherently more sustainable. The future of asset management hinges on adaptability, innovation, and connection. It is time to challenge outdated paradigms, embrace transformative ideas, and lead the charge in reshaping the built environment to meet the demands of the digital economy. As asset management continues to evolve, the focus transitions from "What can we manage?" to "What can we create?". The next frontier is on the horizon — are you ready to seize the opportunity?

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