

Enterprise Risk Management

Applying enterprise risk management to environmental,
social and governance-related risks



**PRELIMINARY
DRAFT**

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This document was developed by the **Committee of Sponsoring Organizations of the Treadway Commission (COSO)** and the **World Business Council for Sustainable Development (WBCSD)**.

This draft guidance: *Enterprise risk management: Applying enterprise risk management to environmental, social and governance-related risks* is designed to supplement COSO's updated enterprise risk management (ERM) framework, *Enterprise risk management - Integrating with strategy and performance*. This supplemental guidance addresses an increasing need for companies to integrate environmental, social and governance (ESG)-related risks into their ERM processes.

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Call for public comment on preliminary draft

WBCSD and COSO are calling for public comment. The consultation period will commence in February 2018 and end June 30, 2018. Comments may be submitted through a survey available at COSO.org or via email to risk@wbcsd.org.

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Introduction

Businesses face an evolving landscape of emerging environmental, social and governance (ESG)-related risks that can impact a company's profitability, success and even survival. COSO and WBCSD believe that leveraging a company's enterprise risk management governance and processes can support identification, assessment and mitigation of ESG-related risks. This guidance is designed to facilitate the process.

Over the past decade, the prevalence of ESG-related risks has steadily increased while the more traditional economic, geopolitical or technological risks are less dominant.

Companies worldwide have experienced measurable impacts after product safety recalls, worker fatalities, child labor, polluting spills and weather-related supply chain disruptions. Many of these have translated to financial or reputational harm – in some cases to the point of no recovery.

Considering ESG challenges at an enterprise level offers an opportunity for business leaders to expand their understanding of a company's risk profile and the value creation model – while enabling them to consider how these issues impact shareholders and society.

What is ESG?

ESG refers to environmental, social and governance issues that investors consider in the context of corporate behavior.¹ There is a growing body of evidence that companies that manage ESG issues benefit from improved financial performance.²

The evolving landscape of ESG-related risks

Business faces threats in the form of ESG-related risks that need attention. The World Economic Forum's *Global Risks Report 2018* outlines the growing severity and frequency of ESG-related risks over the past 10 years.

As shown in Table 0.1 on the next page, in 2008, only one societal risk - pandemics - was reported in the top five risks in terms of impact. Ten years later in 2018, four of the top five risks were societal or environmental, including extreme weather events, water crises, natural disasters and failure of climate change mitigation and adaptation. The World Economic Forum also highlights the depth of the interconnectedness that exists both among the environmental risks and between them and risks in other risk categories—such as water crises and involuntary migration.³

Consequences from failure to manage ESG-related risks

At a global level, businesses have felt the impacts of this evolving risk landscape for many years, and at an increasing rate. From small startups to large multinationals, recent history provides extensive examples in which companies have failed to identify or respond to ESG-related risks. These failures result in significant impacts on the bottom line, society and the environment,⁴ spanning industries, geographies and risk categories. Table 0.3 highlights some publicly available examples of ESG-related events that resulted in significant financial and reputational impacts.

Year	Company	Event	Business impact
2018	Wells Fargo	The Federal Reserve found that Wells Fargo workers responded to the high pressure sales culture by creating as many as 3.5 million fake accounts. The bank also forced up to 570,000 customers into unneeded auto insurance. ⁵	The punishment included a requirement to remove four board members and imposed a cap on the growth of the company until sufficient improvements are put in place ⁶
2017	Uber	Multiple reported incidents pointed to a pervasive culture of alleged sexual harassment ⁷	Reputational damage
2016	Samarco (Vale and BHP)	A dam collapse killed 19 people and sent iron ore mining debris through the southeast region of Brazil ⁸	USD \$6.2 billion settlement ⁹
2016	7-Eleven	Company workers were being paid less than the legal minimum wage ¹⁰	At least USD \$26 million in back pay to 680 workers ¹¹
2015	Volkswagen	Millions of cars were recalled worldwide after the company admitted to falsifying emissions tests ¹²	USD \$14.7 billion settlement ¹³
2015	3M	NGO ForestEthics alleged that 3M suppliers provided products from endangered forests around the world ¹⁴	Led 3M to revise its policy on pulp and paper sourcing to improve environmental and social practices in more than 70 countries with 5,000 suppliers ¹⁵
2014	General Motors (GM)	A faulty ignition switch that caused airbags to fail in a crash prompted the recall of 1.6 million vehicles ¹⁶	USD \$35 million civil penalty after the National Highway Traffic Safety Administration determined GM delayed reporting the ignition switch defect ¹⁷
2013	More than 25 brands including Primark, Benetton and Walmart	More than 1,100 workers were killed and 1,000 were injured in Bangladesh's Rana Plaza factory collapse ¹⁸	USD \$15 million of USD \$40 million target raised by the International Labor Organization, a UN agency, to compensate impacted families ¹⁹
2011	Automotive industry	Flooding in Thailand resulted in over 500 deaths and significant disruptions to supply chain networks, particularly in the automotive and technology industry sectors	The impact has been felt at the regional level, with the Thai central bank reducing its gross domestic product growth forecast for 2011 from 4.1% to 1.5%, and the Thai baht depreciating by about 3.9% in three months ²⁰
2010	BP	Oil spill in the Gulf of Mexico	BP paid USD \$5.5 billion in Clean Water Act penalty and up to USD \$8.8 billion in natural resource damages ²¹
2000s	Mattel	Mattel experienced a number of product recalls, in 2007 recalled toys due to lead paint contamination	Recalled 967,000 toys ²²
1990s	Nike	Company paid its factory workers, including children, less than minimum wage and forced them to work overtime ²³	Reputational damage and loss of sales from protests at the Barcelona Olympics in 1992 and multiple exposés of labor practices ²⁴
1980s	Nestle	Infant Formula Action Coalition launched a boycott of Nestle for its marketing and sale of baby formula in emerging countries ²⁵	The boycott caught on in France, Finland, Norway, Ireland, Australia, Mexico, Sweden and the UK ²⁶
1970s	Ford	After the company learned its Pinto model was prone to fires, 1.9 million Pintos were recalled ²⁷	Initially one claimant was awarded USD \$125 million in damages, which was later reduced to USD \$3.5 million ²⁸

	2008	2013	2018
Top 5 global risks in terms of likelihood	Asset price collapse	Severe income disparity	Extreme weather events
	Middle East instability	Chronic fiscal imbalances	Natural disasters
	Failed and failing states	Rising greenhouse gas emissions	Cyberattacks
	Oil and gas price spike	Water supply crises	Data fraud or theft
	Chronic disease, developed world	Mismanagement of population aging	Failure of climate-change mitigation and adaptation
Top 5 global risks in terms of impact	Asset price collapse	Major systemic financial failure	Weapons of mass destruction
	Retrenchment from globalization (developed)	Water supply crises	Extreme weather events
	Slowing Chinese economy (<6%)	Chronic fiscal imbalances	Natural disasters
	Oil and gas price spike	Diffusion of weapons of mass destruction	Failure of climate-change mitigation and adaptation
	Pandemics	Failure of climate-change mitigation and adaptation	Water crises

● Economic ● Environmental ● Geopolitical ● Societal ● Technological

In the business world, this evolving landscape means ESG-related risks that were once considered “emerging” or “black swans” are now far more common. Further, these are issues that can no longer be left to government or nongovernmental organizations to solve on their own. This is clear from the 2015 UN Sustainable Development Goals (SDGs), which established unprecedented expectations on the private sector to supplement global development efforts through innovation and collaboration.^a

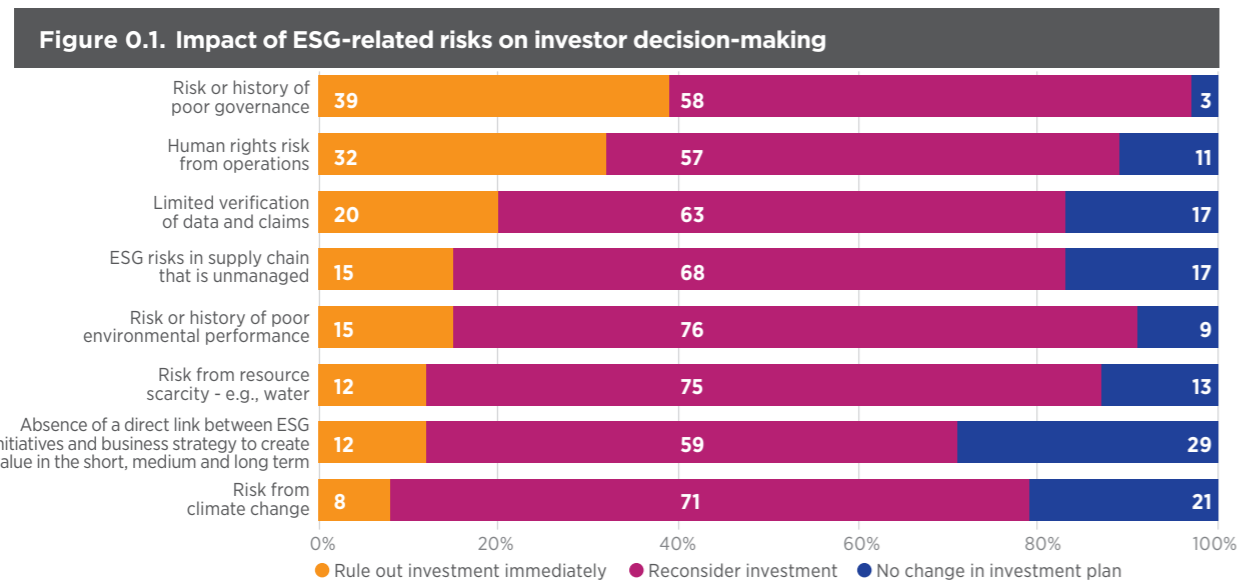
Thus business needs to take a more active role in understanding and addressing ESG-related issues – whether that means reducing or removing the risk, adapting and preparing the company for if and when it occurs or simply being more transparent about what the business is doing. Table 0.2 shows how these megatrends translate to ESG-related issues, risks and opportunities that companies need to acknowledge and address.

Environmental		Social		Governance	
Issues • Energy use and efficiency • Climate change impacts • Use of ecosystem services		Issues • Employee engagement • Labor conditions in the supply chain • Poverty and community impacts		Issues • Code of conduct and business principles • Accountability • Transparency and disclosures	
Risks • Higher-than-average energy costs result in missed profit targets • Greater frequency of extreme weather events impacting operations	Opportunities • Internal carbon pricing scheme to reduce greenhouse gas emissions and energy costs • By-products in waste process used in adjacent industry to create new income streams	Risks • Low engagement and high turnover result in increased costs and missed profit targets • Lack of support for local communities results in challenges with local governments to maintain operating permits	Opportunities • Greater loyalty and inclusive work force attract the best talent in the industry • Increasing the education of crop farmers improves yields, providing a greater standard and quality of life - plus increased sales	Risks • Limited board oversight results in negative company performance • Limited transparency results in reduced access to equity financing	Opportunities • Open and transparent board decisions for key ESG-related topics provide investors with greater sense of security in their investments leading to increased and longer equity positions

^a This collaboration includes the UN Global Compact and Impact 2030, which support the private sector through knowledge sharing and capacity building. The United Nations Guiding Principles for Business and Human Rights released in 2011 also highlights a shift away from the traditional approach for human rights expectations to be set and enforced by the states to establishing an expectation for business to “protect,” “respect” and “remedy” human rights.

Investor interest in ESG-related risks

Institutional investors are also taking an interest in how companies are navigating the changing business environments and addressing social and environmental challenges to achieve long-term, sustained growth. An EY survey of institutional investors revealed that more than 80% of institutional investors surveyed agreed that for too long, companies have failed to consider environmental and social risks and opportunities as core to their business. They believe that ESG issues have “real and quantifiable impacts” over the long term and that generating sustainable returns over time requires a sharper focus on ESG factors. Of the ESG-related risks, poor governance, human rights-related risk from operations and lack of independent verification (assurance) over data and claims were the most likely risks to alter investor decisions (refer to Figure 0.1).²⁹



Investors have experienced past consequences from failing to anticipate ESG-related risk events, and they expect these to continue in the future. Particularly related to climate change, new research findings call for regulators, governments and investors to re-evaluate energy business models against carbon budgets. Without action, a USD \$6 trillion carbon bubble is predicted in the next decade because companies are not taking the cost of climate change into account.³⁰

Lack of alignment between sustainability and risk disclosures

Many businesses have teams of sustainability professionals working to address ESG-related risks and issues. And yet, companies have struggled to get these into the mainstream, or into risk management discussions. A 2017 World Business Council for Sustainable Development (WBCSD) report, *Sustainability and enterprise risk management: the first step towards integration*, examined the state of integration of ESG-related risks and ERM.³¹

The report examined 170 companies, constituting more than USD \$19 trillion in market capitalization, comparing material sustainability factors disclosed in sustainability reporting with the risk factors in mainstream corporate reporting.^b The report revealed that less than one in every three “material issues”^c (29%) disclosed in a company’s sustainability report were deemed to be material for the purposes of disclosure in the company’s legal risk filing.^d Particularly concerning was the finding that 35% of companies had *no alignment* between the risks deemed “material” in the sustainability report and the risks disclosed in the legal filing.³²

Companies pointed to several reasons for this misalignment. Most commonly, the challenge of quantifying ESG-related risks in monetary terms to allow prioritization and appropriate allocation of resources particularly when the risk is long-term, with uncertain impacts emerging over an unknown time period. Organizationally, a lack of knowledge of ESG-related risks throughout the organization and limited cross-functional collaboration between risk and sustainability practitioners were also common issues.^{e,33} In many companies, ESG-related risks are managed and disclosed by a team of sustainability specialists and viewed as separate or less significant than conventional strategic, operational or financial risks – leading to a range of biases against ESG-related risks.

Compounding the disclosure challenge is the different definition for materiality in financial disclosures versus sustainability disclosures. Though the expectation that companies report on ESG information in mainstream reports is increasing, there is no agreed process for incorporating ESG information in mainstream reporting in most jurisdictions. Further, the challenges described above also impact companies’ materiality considerations. For example, difficulties quantifying impacts of ESG-related risks create challenges to determine if the risks are material.

While the challenges are many, the business case to integrate sustainability into enterprise risk management (ERM) has become an imperative. There is significant opportunity for companies to leverage existing and accepted ERM practices to enhance their performance and management of ESG-related risks.

^b WBCSD expanded this research to 369 companies in 2017 and found similar results. The results showed that 31% of the material sustainability issues were disclosed to investors as risks factors. Further, 31% of companies had no alignment between the risk deemed “material” in the sustainability report and the legal filing.

^c Included issues or risks that are defined as “material” in a materiality assessment, listed in the upper right quadrant of a materiality matrix or defined as the “focus area.”

^d Included the risks disclosed in the “risk factors” section of a SEC 10-K, Form 20-F or an equivalent annual report. The desktop research methodology used a word search seeking exact language matches.

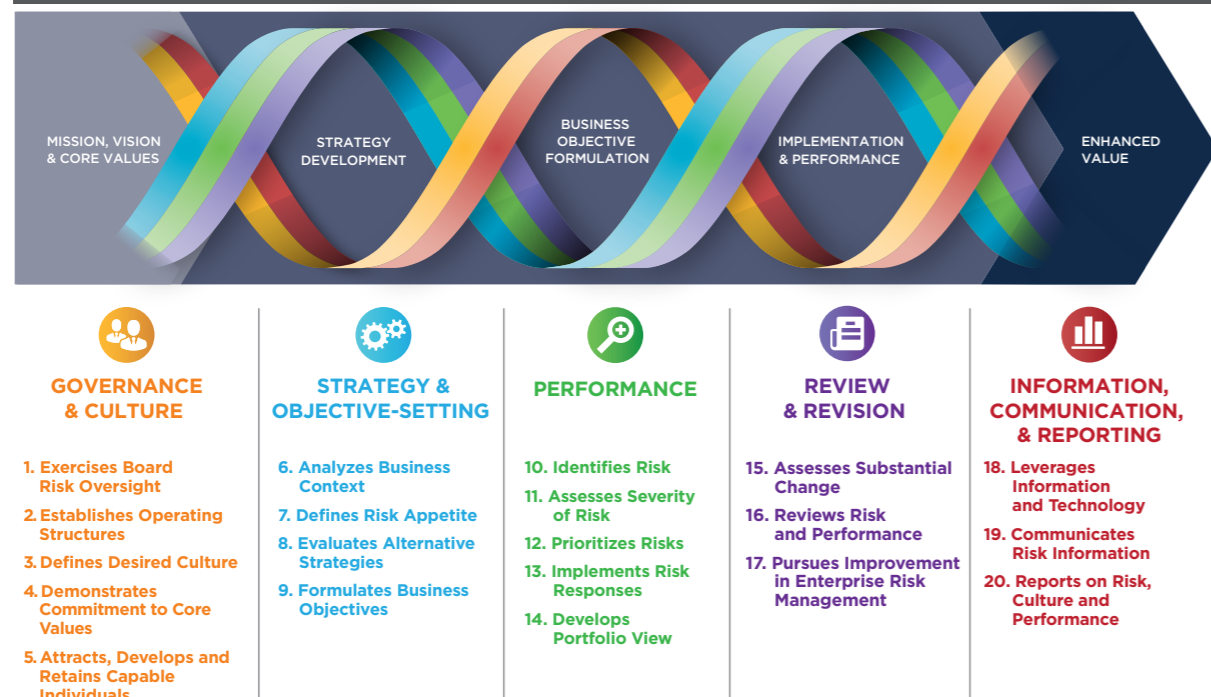
^e For further discussion, refer to the full report: *Sustainability and enterprise risk management: the first step towards integration*.

Integrating ESG in risk management

Most companies have ERM governance and processes in place to manage risks. The most commonly adopted framework is that developed by the Committee of Sponsoring Organization of the Treadway Commission (COSO).^f In September 2017, COSO released an updated framework *Enterprise Risk Management: integrating with strategy and performance*. The framework consists of five components and 20 principles while addressing the evolution of enterprise risk management and the need for organizations to improve their approach to managing risk to meet the demands of an evolving business environment (refer to Figure 0.2).

COSO defines ERM as “the culture, capabilities and practices integrated into strategy and execution that organizations rely on to manage risk and in creating, preserving and realizing value.”³⁴

Figure 0.2: Principles according to COSO’s ERM Framework³⁵



According to COSO, ERM provides an entity with a path for creating, preserving and realizing value. Its foundations support an organization’s strategic goals and business objectives, while maintaining effective governance. Its processes help identify, assess, manage, monitor and better communicate the risks that organizations face. Effective ERM helps an organization identify the challenges that lie ahead and adapt to meet them.³⁶

Incorporating ESG-related risks in ERM could improve risk management practices and company performance overall. A 2013 study by EY found that companies with mature risk management practices outperformed their competitors financially.^c Companies that ranked in the top 20% in terms of risk management maturity reported earnings three times higher than companies in the bottom 20%.³⁷ Further, a 2017 study by the CFA Institute found that 38% of institutional investors consider ESG performance a proxy for management quality.³⁸

Since as early as the 1960s, companies have used ERM to adapt to an evolving business landscape and to realize value. Shell pioneered the use of scenario analysis and planning to identify and mitigate emerging global risks potentially impacting its business objectives. During the 1970s oil crisis, Shell specifically benefitted from its analysis and mitigation measures because it was able to adapt more quickly to market changes than its competitors.³⁹

Using the <IR> Framework to integrate ESG into ERM

More recently, companies have begun integrating ESG and ERM as part of commitments to the International Integrated Reporting Council’s <IR> Framework⁴⁰:

For example, Anglo African Ltd., a private technology company based in Mauritius with operations in seven countries, found that integrated reporting helped it highlight a significant risk in one of its main business units. The company found it was creating strong returns in the short term, but in the medium term, demand for this product would fall off dramatically. To head off this decline, Anglo African diverted resources to develop new business to support longer-term returns.⁴¹



Sustainability risks are, at the end of the day, business risks. Although they can be new and emerging, complex and longer term, issues such as climate change, human rights or resource scarcity all have the ability to impact an organization’s profitability, success or even survival.

- **Bob Hirth**,
Chair 2013-2017, Committee of Sponsoring Organizations of the Treadway Commission (COSO)

^f Based on research of Fortune 100 companies by market capitalization, 69% of companies use COSO for ERM or internal controls.

The supplemental guidance: Applying ERM to environmental, social and governance risks

Given the particular and specific impacts and dependencies of ESG-related risks in the business environment, COSO and WBCSD have partnered to develop a draft guidance to supporting organizations so that they understand the full spectrum of their risks and manage and disclose these effectively. Specifically, the guidance helps companies leverage and enhance existing management of ESG-specific issues.

This document applies COSO's framework *Enterprise risk management – Integrating with strategy and performance* to provide guidance to risk management professionals, risk owners and sustainability professionals on integrating ESG-related risks into ERM. By doing so, a company can achieve:

- **Enhanced company resilience**
A company's medium- and long-term viability and resilience will depend on the ability to anticipate and respond to risks that threaten its strategy and business objectives.
- **A common language for articulating risks**
ERM identifies and assesses risks for potential impact to the business strategy and objectives. Articulating ESG-related risks in these terms enables ESG issues to be brought into mainstream processes and evaluations.
- **Improved resource deployment**
Obtaining robust information on ESG-related risks allows management to assess overall resource needs and helps optimize resource allocation.
- **Enhanced pursuit of opportunity**
By considering both positive and negative aspects of ESG-related risks, management can identify ESG trends that lead to new business opportunities.
- **Realized efficiencies of scale in considering ESG-related risks entity-wide**
Managing ESG-related risks centrally and alongside other entity-level risks helps to eliminate redundancies and better allocate resources to address the company's top risks.
- **Improved disclosure**
Improving management's understanding of ESG-related risks can provide the transparency and disclosure investors expect and provide consistency with jurisdictional reporting requirements.

Importantly, companies should approach ERM as more than a compliance exercise.⁴² Although it can be driven by regulation and compliance, ERM should be an engaging, innovative process focused on organizational integration to create shared value. All organizations set strategy and periodically adjust it, staying aware and ahead of both ever-changing opportunities for creating value and the challenges that occur in pursuit of that value.⁴³

This guidance is designed to be used by any entity facing ESG-related risks – from startups, not-for-profits, for-profit, large corporations or government entities – whether public and private. The terms “company”, “business” and “entity” are used interchangeably throughout the guidance.

Connections to other decision-making frameworks

Companies already have processes in place to understand and manage both ESG-specific risks and enterprise risks more broadly. Wherever possible, this document leverages existing decision-useful frameworks, guidance, practices and tools from both the risk management and sustainability fields.

While this document applies COSO principles to ESG-related risks, the modules' contents provide practical advice applicable to any company's ERM. This guidance can be applied to COSO's ERM framework *Integrating with Strategy and Performance* or other risk management frameworks, such as ISO 31000 or company-specific risk management frameworks.

The guidance also refers to a number of ESG-related guidance and frameworks for additional reading and insight, including:

- Global Reporting Initiative (GRI) Standards
- Greenhouse Gas Protocol
- International Integrated Reporting Council's (IIRC) *<IR>Framework*
- Natural Capital Protocol
- Social Capital Protocol
- Sustainability Accounting Standards Board (SASB) Standards
- Recommendations of the Task Force on Climate-related Financial Disclosures

The TCFD is a significant step forward globally in managing the world's preparedness for the expected low carbon energy transition and the projected increases in climate extremes. The TCFD, drawing on numerous separate guidance documents, initiatives, reporting and risk management mechanisms, has recommended one overarching framework that can be applied to both financial and nonfinancial organizations. The framework provides a common language and structure for governance, strategy, risk management, metrics and targets for climate-related financial risks, such that investors and lenders will have access to decision-useful information.

Overview of exposure draft

To supplement COSO's updated framework, COSO and WBCSD have come together in a unique collaboration to develop application guidance for companies to integrate ESG-related risks into the ERM process. This guidance leverages existing decision-useful frameworks, company examples and tools to provide sustainability and risk managers with practical approaches for managing ESG-related risks. The guidance is set out in seven modules, starting with establishing governance structures and processes, then moving through the ERM process to identify, assess, respond, review and communicate ESG-related risks, while maintaining a line of sight to the business context and strategy. This guidance will be subject to a robust consultation process in 2018.



● COSO's Enterprise Risk Management Framework 20 Principles

1. Establish governance for effective risk management

Introduction

Corporate governance is the set of relationships between the company’s management, board, shareholders and other stakeholders that provide the structure through which objectives of the company are set.¹ Effective governance provides the appropriate level of oversight, structure and culture needed to establish the goals of the company, put in place the means to pursue those goals and understand the risks associated with that pursuit. Essentially, governance establishes the way decisions are made and how these decisions are executed.



COSO principles relevant to governance

- 1 **Exercises board risk oversight** — the board of directors provides oversight of the strategy and carries out governance responsibilities to support management in achieving strategy and business objectives.
- 2 **Establishes operating structures** — the organization establishes operating structures in the pursuit of strategy and business objectives.
- 3 **Defines desired culture** — the organization defines the desired behaviors that characterize the entity’s desired culture.
- 4 **Demonstrates commitment to core values** — the organization demonstrates a commitment to the entity’s core values.
- 5 **Attracts, develops and retains capable individuals** — the organization is committed to building human capital in alignment with the strategy and business objectives.



COSO's ERM framework emphasizes that governance, including strong oversight, is a prerequisite to effectively identifying, assessing and addressing the full spectrum of company risks.² Incorporating ESG-related risks into a company's governance structure and processes is critical to overcoming the challenges many companies face in managing these risks (e.g., siloed management of ESG-related issues, challenges in quantifying ESG-related risks and organizational biases causing ESG-related risks to be disregarded or ignored).³

This module focuses on how companies can leverage and enhance practices to promote transparency and accountability for management of ESG-related risks. It also presents several activities to help strengthen oversight that supports risk management throughout a company. Below is a checklist of practical steps to help integrate ESG-related risks into ERM:

- Understand the ESG-related responsibilities of the directors so that the company establishes a mindset that ESG-related issues are not extraneous
- Understand the mandatory or voluntary ESG requirements that affect the company
- Increase the board's awareness of ESG-related risks through education, responsibility and/or accountability
- Understand how the company generally manages risks and the touchpoints that leverage its operating structure
- Assign an owner for each identified ESG-related risk as well as other resources who support collaboration on those risks
- Align ESG with the strategic planning process – either directly or through the risk management team
- Obtain an understanding of the end-to-end risk management and strategic planning processes
- Identify and deploy opportunities for collaboration throughout the organization
- Consider how embedded ESG is in a company's culture and values
- Translate ESG-related risks and issues into common, value-driven business language that provides a more accurate and compelling statement of how ESG-related risks impact the business
- Embed ESG-related skills in hiring and talent management to promote integration
- Identify and challenge organizational bias against ESG issues

“

Investors and regulators everywhere share a common interest in ... robust corporate governance practices ... which are fundamental for fair and efficient markets and to achieve sustainable value.⁴

- **Mary Jo White**,
former Chair of the U.S. Securities and Exchange Commission

Governance versus corporate governance

Although related, *governance* that forms the third pillar of ESG is different from the *corporate governance* structures and processes detailed in this module. *Corporate governance* refers to the oversight, structure and culture that are essential to the sound operation of a company. This is a subset of *governance*, which, as defined by the UN Global Compact, includes the risks of anti-corruption, conflict or rule of law.⁵

Company responsibilities to manage ESG-related risk

The notion that ESG-related risks should be managed by a separate function, ancillary to a company's core activities, such as a corporate sustainability or responsibility department, is a common misconception. Although ESG-related risks may be new and emerging, complex and longer-term, they are indeed business risks that often lead to material impacts on the company's performance. In many countries, financial, health and safety or environmental regulators may bring civil or criminal penalties to a company executive or employee found mismanaging ESG-related issues. See Table 1.1 for examples.

Company	Impact
Peanut Corporation of America	The CEO, food broker and quality assurance manager were sentenced to 28 years, 20 years and 5 years, respectively, for fraud, conspiracy and other federal charges for knowingly shipping tainted peanut products that led to a salmonella outbreak in 2008 and 2009. ⁶
Samsung	In 2017, the chief executive officer was sentenced to five years in prison for corruption. ⁷
Quality Egg	In 2015, two former egg industry executives were sentenced to three months in jail for their roles in the 2010 salmonella outbreak. Prosecutors said the executives knew their Iowa egg facilities were at risk for contamination. The company paid a USD \$6.8 million fine as part of a plea agreement, and the executives paid USD \$100,000 each. ⁸
Duke Energy	In 2015, Duke Energy Corp. pleaded guilty to criminal pollution charges from a February 2014 spill of coal ash waste. Three of Duke's subsidiaries pleaded guilty to nine violations of the Clean Water Act at various North Carolina facilities. The company agreed to pay USD \$102 million in federal penalties: USD \$68 million in fines and USD \$34 million for environmental and conservation efforts in North Carolina and Virginia. ⁹

Establishing a mindset that managing ESG-related risks is a fiduciary obligation, rather than a reputational management tool, is a critical starting point for embedding ESG into mainstream ERM activities. Those charged with board oversight or management responsibilities must understand that ESG-related issues are not extraneous to their fiduciary or delegated responsibilities to oversee the management of or manage risk. Although specific requirements vary by country, almost all jurisdictions place general obligations on the board to oversee that management:

- Safeguards the interests of the shareholders
- Discloses material risk to shareholders

For example, in the US, the Securities Exchange Commission (SEC) regulations require publicly-listed companies to disclose significant or material risk factors associated with their securities.¹⁰ Refer to Appendix II for an overview of risk disclosure requirements in other jurisdictions.

In many countries, the provisions go much further to establish governance rules for the board to follow. For example, the Dutch Corporate Governance Code establishes that:

- Long-term value creation must be considered by the board and converted into strategy
- The management board is responsible for focus on the long-term value creation
- The board must have insights into the quality of risk management systems¹¹

One-tier versus two-tier board structures

A one-tier board invests in both managerial and supervisory responsibilities in one unified board of directors (common in the US, UK and Australia). Under a two-tier system, the executive directors in the management board determine and implement the company's objectives while the non-executive directors in the supervisory board monitor these decisions on behalf of other parties (more common in Europe).¹²

Guidance

Understand the ESG-related responsibilities of the directors so that the company establishes a mindset that ESG-related issues are not extraneous

Similarly, the *Australian Stock Exchange* recommends that all listed entities establish a risk management framework and periodically review the effectiveness of that framework. This includes disclosing the entity’s material areas of exposure to economic, environmental and social risks and how it manages or intends to manage those risks.¹³

The *UK Corporate Governance Code* assigns responsibility to the board for determining the nature and extent of the principal risks it is willing to take in achieving its strategic objectives. It provides that directors should confirm in the annual report that they have carried out a robust assessment of the principal risks facing the company, including those that would threaten its business model, future performance, solvency or liquidity.¹⁴

Specific ESG-related requirements are also emerging in many jurisdictions. Some of these regulations impose duties, while others establish requirements for companies to disclose information on how they are managing ESG issues. Many of these regulations have enforcement provisions that extend to senior executives in organizations (see Table 1.2 for examples).

Guidance

Understand the mandatory or voluntary ESG requirements that affect the company

Regulation	Scope	Enforcement
Directive 2014/95/EU [European Union Non-financial Reporting Directive] ¹⁵	EU law requiring approximately 6,000 large companies (including listed companies, banks, insurance companies and public-interest entities) to disclose certain information (e.g., environmental protection and respect for human rights) on the way they operate and manage social and environmental challenges.	Full reporting compliance is required by reporting year 2017. The country in which the company is based will be responsible for enforcement. The violation of the requirements of a Directive is therefore considered as a violation of the transposition measure itself.
National Greenhouse and Energy Reporting Act 2007 (NGER Act) ¹⁶	Australia federal law requiring certain companies to report and disseminate information about greenhouse gas emissions, energy production and energy consumption in line with this framework.	Failure to comply with obligations under the NGER Act may result in penalties of up to USD \$220,000 for the corporation and for executive officers. Criminal penalties may be imposed in serious offenses.
Modern Slavery Act 2015 ¹⁷	UK law designed to tackle slavery and human trafficking by consolidating existing offenses and introducing restrictions on those convicted.	Although there are no direct penalties, the UK Government has the ability to bring proceedings in the High Court for an injunction requiring an organization to comply.
Lacey Act of 1900 ¹⁸	US conservation law prohibiting the trade of wildlife, fish and plants taken, possessed, transported or sold illegally.	A misdemeanor violation is punishable by up to one year in prison and a fine of USD \$200,000 for companies and USD \$100,000 for an individual. Felony culpability is punishable by up to five years in prison and a USD \$500,000 fine, per violation, for a company and USD \$250,000 for an individual.
Foreign Corrupt Practices Act of 1977 ¹⁹	US law addressing accounting transparency and bribery of foreign officials.	For businesses, the law imposes criminal penalties up to USD \$2,000,000 fine per violation of anti-bribery provisions.

In addition to a company’s regulatory requirements, management and the board should be aware of any voluntary codes or obligations to which the company is aligned or has become a signatory. Some of these commitments are made at the CEO-level (such as the UN Global Compact or PRI), and while voluntary, constitute a public commitment to which it may be held accountable. Companies that do not uphold the principles or requirements may be exposed to reputational risk and scrutiny from shareholders, customers or NGOs. See Table 1.3 for some of the commonly adopted voluntary frameworks and commitments.

Framework or codes	Governing body	Company expectation	How framework addresses ESG and governance
UN Global Compact ²⁰	United Nations	Signatory/membership	CEO-level commitment to 10 principles focused on human rights, labor, environment and anti-corruption.
Sustainable Development Goals ²¹	United Nations	Guidance/alignment	Set of 17 Global Goals with 169 targets covering a broad range of sustainable development issues to which companies can align.
UN Guiding Principles on Business and Human Rights ²²	United Nations	Guidance/alignment	Guidelines to advance human rights in business and eradicate abuse, specifically focusing on corporate transparency and accountability.
Principles for Responsible Investment ²³	United Nations	Signatory	CEO-level commitment for institutional investors to incorporate ESG factors into investment and ownership decisions.
UNEP Finance Initiative Principles for Sustainable Insurance ²⁴	United Nations	Guidance/alignment	Global framework for the insurance industry to address ESG risks and opportunities.
Equator Principles ²⁵	Association of member Equator Principles Financial Institutions	Signatory/membership	Financial institutions perform annual reporting to the Equator Principles Association asserting their adoption of risk management process for determining, assessing and managing environmental and social risk in projects.
Ceres Principles ²⁶	Ceres (nonprofit organization)	Guidance/alignment	Guidelines formalizing companies’ dedication to environmental awareness and accountability as well as active commitment to the ongoing process of continuous improvement, dialogue and comprehensive, systematic public reporting.
B-Corp ²⁷	B Lab (nonprofit organization)	Certification	For-profit companies certified by the nonprofit B Lab must meet standards of social and environmental performance, accountability and transparency.
Global Reporting Initiative (GRI) ²⁸	GRI	Guidance/alignment	Codified global standards for sustainability reporting.
International Integrated Reporting Council (IIRC) ²⁹	Global coalition of regulators, investors, etc.	Guidance/alignment	Principles and frameworks for integrated reporting, which includes a broad base of capitals, to create long-term value.
Task Force for Climate-Related Disclosures ³⁰	Financial Stability Board	Guidance/alignment	Guidance on voluntary climate-related financial disclosures focused on governance, strategy, risk management and metrics and targets.

¹ 15 U.S.C. §§ 78dd-1, et seq. (FCPA)

There are also a multitude of voluntary sector-, issue- or geography-specific codes or standards that a company may choose to follow. For example, apparel companies that engage suppliers from Bangladesh may choose to participate in the Bangladesh Accord, which targets building safety and working conditions of factories in that region.³¹

The combination of hard and soft legal and voluntary obligations, compounded with the potential financial or reputational impact on a company, warrants board-level awareness for ESG-related risks and obligations.

The Reporting Exchange
 To help business cut through the corporate reporting confusion, The Reporting Exchange brings corporate sustainability reporting requirements and resources from 60 countries onto a single online platform for easy access. It is *the* global resource for sustainability reporting. On it, companies can find guidance on what, where and how to report – accurately and reliably. (reportingexchange.com)

Integrating ESG at the board-level

In accordance with COSO, the board of directors provides oversight of the company’s strategy and carries out governance responsibilities to support management in achieving its strategy and business objectives.³²

Some of the key activities of the board include:

- Providing insight and advice (not just oversight)
- Establishing the character, values and culture of the company
- Balancing long-term and short-term considerations
- Approving the risk appetite and tolerance of the enterprise
- Defining the decisions (opportunities and risks) that require the board’s attention
- Obtaining assurance from management and independent assurance
- Ensuring the enterprise is prepared for crises³³

Guidance

Increase the board’s awareness of ESG-related risks through education, responsibility and/or accountability

Overseeing the full spectrum of risks requires boards to have an adequate understanding and appropriate information and experience to guide the company through the ESG-related risks that may threaten the business strategy or objectives. Board members bring significant expertise and experience, but the qualifications, skills or knowledge requirements of the board will change over time.³⁴ For example, a company may face emerging cybersecurity risks that threaten the achievement of business objectives, of which the board may not be knowledgeable. Sustainability and risk managers can play a critical role to enhance ESG-related risk awareness at the board level. Some approaches for enhancing this awareness are outlined in Table 1.4.

If the board and management do not support or provide direction for evaluating ESG-related risks, adapting, surviving and prospering in the changing world may not be possible in the long term.

Approaches for enhancing board awareness	Examples
<p>Educate the board, individual board members and/or subcommittees on ESG issues Updates can be provided periodically on particular ESG issues or risks, with the aim to provide an understanding of:</p> <ul style="list-style-type: none"> • ESG issues in the context of the business environment and strategy (refer to Module 2 for guidance) • Quantified ESG-related impacts in a language the board understands (refer to Module 4 for guidance) 	<p>A large US manufacturing company required board approval for a human rights policy and program. Prior to this approval, management presented an overview of the business case (industry trends, cost and benefits, risks from inaction) to educate the board on the topic.</p>
<p>Establish a board subcommittee that focuses on ESG-related risks and issues: A separate committee with an ESG focus should have a clear mandate to support value creation by integrating ESG-related issues into day-to-day business activities. They can work with other board committees, such as the audit committee on ESG-related activities such as reporting and disclosure.</p>	<p>Mondi P.L.C., an international paper and packaging company, divides responsibility for oversight of risks between a sustainable development subcommittee to manage health, safety and environment risks and the rest of their risks by the audit committee.³⁵</p>
<p>Ensure there are ESG-related skills or knowledge on the board or subcommittee: ESG-related skills should relate to challenges the company or industry faces and the company’s strategic priorities to provide insight on addressing these. This is especially important when the company:</p> <ul style="list-style-type: none"> • Faces particularly challenging ESG-related issues • Adopts, or has adopted, values or a strategy that strongly aligns to an ESG-related issue or risk 	<p>The corporate responsibility committee has oversight of Unilever’s corporate responsibility and its reputation as a responsible corporate citizen. Committee members have experience in direct corporate responsibility, strategy, branding, culture and climate change.³⁶</p>
<p>Include references to ESG-related risks or issues in the board charter to mandate board oversight. Highlighting ESG-related issues in the charter provides clear direction for ESG integration. Specific objectives in the charter could include:</p> <ul style="list-style-type: none"> • Develop and communicate a strategy for sustainability initiatives and link those initiatives to business priorities • Increase stakeholder awareness of the benefits of a strategy that considers ESG-related risks and opportunities • Cross-reference the material issues that could affect a company’s operations and against the company’s ESG materiality matrix • Identify potential short- and long-term ESG trends and impacts to the business 	<p>Stora Enso, a Nordic paper and packaging company, has a subcommittee on sustainability and ethics which includes the following duties in its charter:</p> <ul style="list-style-type: none"> • Review of matters, including those of legislative and regulatory nature, which may have significant impact on Stora Enso’s activities and reputation with respect to sustainability and ethics • Review of social, political, economic and environmental trends that may have a significant impact on Stora Enso’s business activities and performance³⁷
<p>Link compensation to ESG metrics and/or longer-term results for the board and senior management. The board’s compensation committee plays a role in developing competitive incentive compensation plans. Developing plans with challenging short-term and long-term incentives helps create sustainable value for the company – comprising both social and financial returns.³⁸</p>	<p>Unilever’s director remuneration package is based on six principles, which consider both annual and long-term performance. Directors are responsible for preventing inappropriate risk-taking or behaviors that are incompatible with the long-term interests of Unilever and its shareholders or that may raise any ESG risks.³⁹</p>

For additional guidance on enhancing board awareness, refer to the UNEP’s *Integrated Governance: A New Model of Governance for Sustainability*.⁴⁰

In addition, companies following the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) can expand the scope beyond climate-related risks to discuss any relevant ESG-related risks. If a company updates its charters and management responsibilities for climate, it may be appropriate to include other relevant ESG-related risks. The TCFD recommends the following governance disclosures:

- Describe the board’s oversight of climate-related risks and opportunities
- Describe management’s role in assessing and managing climate-related risks and opportunities⁴¹

6 Risk owner: This individual is accountable for ensuring risks are appropriately managed. There may be multiple personnel with direct responsibility for, or oversight of, activities to manage and monitor each risk. A single risk owner should be assigned to each risk for clear accountability. For ESG-related risks, the risk owner may be a sustainability manager or another member in the organization (see example in Table 1.4).

Guidance ✓

□ Assign an owner for each identified ESG-related risk as well as other resources who support collaboration on those risks

Table 1.4: Examples of risk owner assignment for ESG-related risks

Enterprise-level risk	ESG element	Relevant risk owner	Supporting the risk owner
Risk of increasing raw material prices	Change in prices caused by rising energy costs associated with climate change regulation	Vice President of Supply Chain	Chief Sustainability Officer Sustainability analyst (energy)
Risk of injury or fatality in operations	Health- and safety-related consideration	Health, safety and environment risk manager	Site managers
Risk of reputational damage because of poor communication on ESG issues in the supply chain	Pressure for greater supply chain transparency around human rights	Chief Procurement Officer	Chief Sustainability Officer

7 Sustainability director: The sustainability director plays a critical support role in coordinating ESG-related activities (e.g., risk, strategy, reporting). This includes monitoring megatrends and risks and identifying risk or opportunities.

The sustainability director should maintain a close relationship with the ERM director. Connections to strategic planning and operations personnel are also critical to connecting sustainability to new strategies and risk responses. These connections also support timely assessment of new and emerging risks so that the company is better prepared to identify risks and related opportunities.

Guidance ✓

□ Align ESG with the strategic planning process – either directly or through the risk management team

ERM process

Based on a 2015 AICPA survey of public companies in the US, more than 90% of public companies have an enterprise risk management process in place.⁴⁴ Even in the absence of a formalized function, roles and responsibilities for risk management activities across the business should be defined and executed.

Effective ownership of ERM requires delineation of specific expectations through which effectiveness is measured to monitor performance. A Responsible, Accountable, Consulted, Informed (RACI) matrix can clearly define roles and responsibilities for incorporating sustainability expertise into ERM. An example of this below highlights the “consulted” role sustainability teams and committees can play throughout the ERM process (see example in Table 1.5).

Table 1.5: Example Responsible, Accountable, Consulted, Informed (RACI) matrix

	ERM components	Board and sub-committee	Executive committee	ERM Director or CRO	Risk owners (includes sustainability for ESG-specific risks)	Sustainability teams and committees
Governance	Establish the governance and culture for risk management	Set the tone for governance, culture and risk appetite (A)	Implement the governance and culture set by the board (R)	Provide input into how risk management governance and culture is structured (C)	Understand and leverage the governance to support management of ESG issues (I)	Understand and leverage the governance model to support management of ESG issues (I)
	Establish and facilitating the process for ERM	Challenge management's approach for identifying, assessing, managing and monitoring risks (A)	Design and facilitate the end-to-end ERM process. Appoint a CRO or ERM Director responsible for managing risks (R)	Design and facilitate the end-to-end ERM process and lifecycle (C)	Provide input to the ERM process design and perform a variety of roles during the risk management lifecycle (C)	Understand and leverage the end-to-end ERM process to integrate ESG-related risks (I)
Process	Examine the business context and strategy	Made aware of significant changes to the internal and external environment (C)	Set the business strategy, objectives and risk appetite (A)	Facilitate the process for examining the business context and strategy (R)	Understand external and internal changes to the business context and identify shifts that may result in risks or opportunities (C)	Understand external and internal changes to the business context and the ESG-related impacts and dependencies on the business model; provide education to risk owners and executives (C)
	Identify risks that will impact the business strategy and objectives	Made aware of key risks impacting the strategy (C)	Identify and disclose the material risks that will impact the business strategy (A)	Facilitate the process for identifying business impacts (R)	Identify the factors that contribute to risk identification and understanding (C)	Support risk owners with tools and knowledge to identify and understand ESG-related risks (C)
	Assess and prioritize the severity of identified risks	Made aware of the severity and prioritization of key risks and opportunities (C)	Assess and prioritize key risks and opportunities (A)	Leverage tools for risk assessment and prioritization (R)	Assess the risk severity on the business and strategy (R)	Support risk owners with tools and knowledge to quantify and prioritize ESG-related risks (C)
	Develop and implement responses to prioritized risks	Made aware of the risk responses; may need to approve the critical risks identified by management (C)	Approve the appropriate allocation of resources to manage prioritized risks (A)	Facilitate the development of risk responses for each risk area (R)	Develop appropriate responses to address the risk and implement the response (R)	Support risk owners in developing innovative responses to prioritized risks (C)
	Review risk performance and revise as needed	Consulted on the status of risks and the ERM process (C)	Monitor the ERM activities and ensure risks stay within the company risk appetite (A)	Develop consolidated view of metrics to monitor risks (R)	Develop metrics to monitor risks and business context for when the risk shifts outside tolerance levels (R)	Support risk owners to develop metrics for measuring ESG-related risks and determine aspects to report on to internal and external stakeholders (C)
	Communicate and report risk performance	Consulted on ERM activities and processes disclosed externally (C)	Communicate the ERM activities and processes internally and externally (A)	Develop internal and external communications on ERM activities and processes (R)	Provide the inputs for internal and external communications on ERM activities and processes (R)	Support risk owners to provide the inputs for internal and external communications on ESG-related aspects of ERM activities and processes (C)

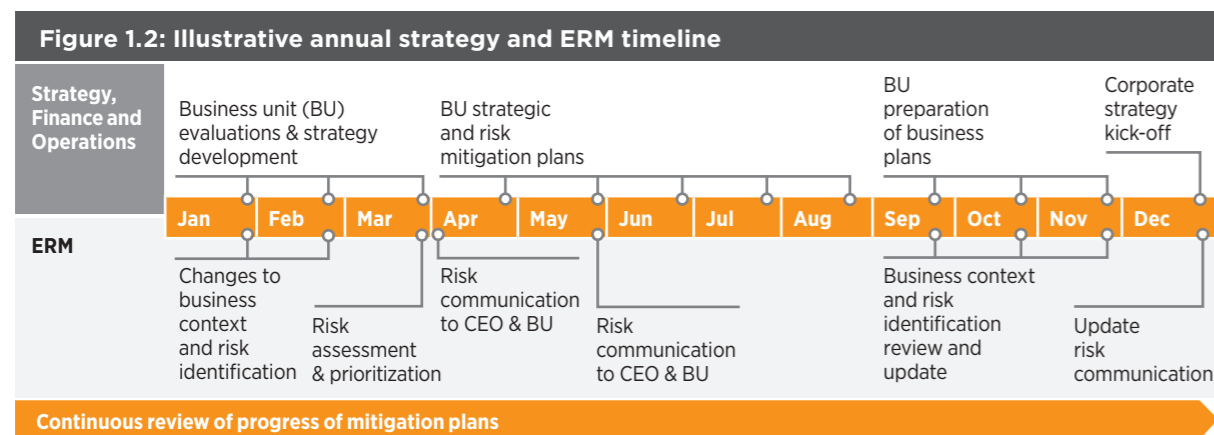
Primary roles (not exhaustive)
 (R) Responsible (A) Accountable (C) Consulted (I) Informed

Stora Enso,ⁱⁱ a global leader in providing renewable solutions for packaging, biomaterials, wooden constructions and paper,⁴⁵ has demonstrated the importance of corporate governance for integrating sustainability into ERM. Stora Enso's stated purpose of "Do Good for the People and the Planet" embodies the importance of sustainability to the company. Sustainability is fundamental to the investor proposition and strategy. Further, it is integral to decision-making across all of Stora Enso's operations and activities such as the production and sales of renewable products, buying trees from local forest owners, selling electricity generated at its mills and managing its logistics on a global scale.⁴⁶



The annual ERM cycle

Most companies have a structured timeline to coordinate ERM and strategic activities (e.g., the ERM cycle begins when the strategic direction is set). Ideally, these processes are coordinated to ensure they reflect the priorities of the organization as a whole. Understanding a company's end-to-end risk management and strategic planning processes supports identifying critical points for integrating sustainability input of ESG information. An annual ERM life cycle is illustrated in Figure 1.2.⁴⁷



In the above example, the annual ERM process begins in January with understanding changes to the business context and identifying risks. This often involves the risk director sending a survey to senior management (e.g., vice presidents, directors, heads of departments). The ERM director then meets with executive management to discuss and prioritize risks. For each of the top risks (e.g., 8 to 10 risks), an owner is identified. The ERM director communicates these risks to the CEO, and the risk managers share these risks with the business units. Once these parties agree, the ERM director shares the enterprise risks with the board. Later in the year, the ERM director reviews and updates the business context and identified risks. Again, they relay the results to the CEO, business units and board. Throughout the entire process, progress against mitigation plans and business unit input is updated.

Guidance

Obtain an understanding of the end-to-end risk management and strategic planning processes

The strategy function uses the results of ERM's annual process to inform its December kickoff meeting. Strategy teams evaluate business units. They develop an overall strategy for the next one to three years. Business units set strategic and risk mitigation plans. Business units supplement these plans with actionable objectives for implementation.

Collaboration

Collaborating on risk mitigation across the organization prevents breakdowns caused by silos and creates a sense of shared responsibility and ownership for risk. In particular, collaboration between risk management and sustainability offers an opportunity to engage in strategic discussions and to support long-term resilience against risk. Together, with combined resources, knowledge and experience, companies can better protect against ESG-related risks and leverage associated opportunities.

Going beyond collaboration, an integrated approach is one in which sustainability and risk management teams work as part of the same team, or include structures to enable the flow of information. All risks, whether financial, environmental, technological, social or other, are considered in a single process.

To promote collaboration, companies can:

- Assign sustainability personnel to the risk committee
- Consult with the sustainability group to identify new risks
- Leverage the skills and capabilities of each team (see Table 1.7)
- Find a common language for discussing ESG-related issues within the context of the business
- Collaborate on impact analysis and scenario analysis
- Collaborate on the value chain

Guidance

Identify and deploy opportunities for collaboration throughout the organization

Mission, vision and values to embed culture

A company's mission, vision and values should underpin its strategy and business objectives. The company's culture reflects its core values, behaviors and decisions.⁴⁸ Mission, vision and values describe what a company stands for, while culture guides how these are implemented and reinforced.

Having ESG-related values can be a critical starting point to integrating ESG in any aspect of an organization, including ERM. Reinforcing values through culture at all levels of the organization empowers the value statement's words to become actions, decisions and behaviors. For example, Unilever includes ESG in its corporate purpose and values. Unilever supports these values through its policies, behaviors and decisions. Conversely, a number of companies do not act in accordance with their values or code of conduct. For example, Enron declared bankruptcy as a result of fraud when its mission, vision and values were not part of its work culture (see Table 1.6).

Guidance

Consider how embedded ESG is in a company's culture and values

ⁱⁱ The company was formed in 1998 through the merger of the Finnish company Enso Oyj and the Swedish company Stora Kopparbergs Bergslags Aktiebolag; however, its history goes back as far as the 1300s. Over hundreds of years, the company has assumed many forms with diverse operations, overseas expansion, mergers and acquisitions. Change is a part of the company's heritage – Stora Enso's ability to adapt has been the foundation of its endurance. In 2014, the company took steps to more clearly integrate sustainability-related issues in ERM from the board level to every aspect of its supply chain. Using governance to integrate sustainability into ERM has strengthened Stora Enso's management and oversight of sustainability issues and risks. These activities underscore the importance of sustainability to the company which is more than a stated purpose; it is deeply embedded in the company's culture of responsibility to the community. For more details, refer to the case study which is available on wbcsd.com.

Table 1.6: Examples of company values	
Reinforcing company values: Unilever	Contradicting company values: Enron
<p>Corporate purpose: To succeed requires “the highest standards of corporate behavior towards everyone we work with, the communities we touch and the environment on which we have an impact”.</p> <p>Four core values: Integrity, responsibility, respect and pioneering.⁴⁹</p> <p>Reinforcing behaviors: Unilever expects everyone to be an ambassador for its high standards. Unilever’s Business Integrity program brings its values to life for all employees, and helps it apply its standards day-to-day. In addition to Unilever’s Code of Business Principles, it includes clear policies, guidelines and related learning materials, as well as robust procedures and controls to help the company prevent, detect and respond to any inappropriate behavior.⁵⁰</p>	<p>Values (in 2000):</p> <ul style="list-style-type: none"> • Communication – We have an obligation to communicate. • Respect – We treat others as we would like to be treated. • Integrity – We work with customers and prospects openly, honestly and sincerely. • Excellence – We are satisfied with nothing less than the very best in everything we do.⁵¹ <p>Contradicting behaviors: Enron regularly fired employees based on a scorecard of unrealistic performance metrics. It also was company practice to inappropriately bundle assets and secured loans on its balance sheet,⁵² which led the company to declare bankruptcy in 2001.⁵³</p>

Specific events, such as having a negative reputation in the industry, leadership changes or mergers and acquisitions, may drive culture changes in an organization. These events may challenge or threaten the existing culture; however, management and the board can use this as an opportunity to modify or strengthen its existing culture. When ESG-related events trigger changes in culture, the organization may recognize an opportunity for better ESG integration.

Johnson & Johnson is well-known for its Credo Challenge sessions. Managers discuss ethics in the context of their current business problems and are able to criticize the company’s credo and make suggestions for change.⁵⁴

Skills and capabilities

Effectively integrating ESG into ERM hinges on engaging people with the requisite skills and capabilities. Professionals with the appropriate skills may be in any part of the organization. However, sustainability and ERM are the most likely.

Sustainability professionals, experienced in monitoring global megatrends, have a great deal of knowledge about environmental and social risks and opportunities. However, they often experience barriers in communication when working with risk executives because of a different understanding of how the company’s strategy and business objectives translates into value. This prevents the flow of valuable information throughout the business.

Guidance

Translate ESG-related risks and issues into a common, value-driven business language that provides a more accurate and compelling statement of how ESG-related risks impact the business

Table 1.7 highlights the skills, capabilities and knowledge the sustainability manager and risk manager have to support ESG integration. Organizations should consider embedding these ESG risk-related skills in hiring and talent management.

Guidance

Embed ESG-related skills in hiring and talent management to promote integration

Table 1.7: Examples of sharing skills, capabilities and knowledge	
Sustainability manager	Risk manager
<ul style="list-style-type: none"> • Understanding of ESG-related megatrends and how these might compound other risks or impacts • Proficient in understanding ESG issues according to widely-accepted frameworks that have historically focused on business impacts on society • Technical understanding of ESG-related risks, such as detailed knowledge of the company’s carbon inventory and the levers to reduce or mitigate the related risk • Leadership capability to present ESG issues and related business risks to management and the board • Understanding of the broader stakeholder landscape and their priorities on ESG issues (shareholders, customers, employees, unions, NGOs) • Understanding of current ESG-related initiatives in place to mitigate risk or capture value and opportunity 	<ul style="list-style-type: none"> • Knowledge of the end-to-end ERM process and the timing of ERM and strategic activities • Proficient in ERM frameworks, such as COSO, and understanding of the financial, operational and strategic impacts of risks to the company • Understanding of the broader risk landscape impacting the company • Capability to deploy tools or approaches used to assess financial risks (e.g., scenario planning, Monte Carlo simulation) that may be leveraged for ESG-related risks • Skills in assessing the impact in terms of profit and loss and capital allocations
<p>← Transfers of skills, capabilities and knowledge →</p>	

ERM, sustainability and other functions working to identify and manage risks must build a common purpose, understand each person’s skills and capabilities and link those to a common purpose. Companies may develop education programs to share risk or ESG-related best practices across the company, such as:

- Identified risks and responses across business units
- Effective mitigation strategies
- Lessons learned
- Certification or training in ERM
- Tools and resources used for assessing risks

Managing biases in ERM

Bias in decision-making has always existed. It is not unusual to find within a company evidence of dominant personalities that drive certain positions or opinions; overreliance on numeric metrics, financial performance or historical data; disproportionate weighting of recent events or short-term financial risks and a tendency toward risk avoidance or risk taking. For ESG-related risks, this bias may prevent an organization from identifying a risk, prioritizing it appropriately or selecting the best response. It is critical to identify and challenge these biases to support better decision-making. Table 1.8 summarizes the types of bias relevant for ESG in ERM.

Table 1.8: Types of bias that can impact ESG in ERM	
Type	Description
Confirmation bias	People tend to emphasize data that confirms their established beliefs or ideas and to discount information that conflicts with their beliefs. People also fall for the “false-consensus effect,” assuming that others share their worldview. For example, if they believe in global warming, they expect that most people agree. Yet those who deny its existence also believe they hold the mainstream opinion. ⁵⁵
Availability bias	People tend to think events are more likely to occur if they have recently heard of them happening. Thus, people overestimate the risk of death from tornadoes, cancer or accidents and underestimate the risk from asthma or diabetes. This is because tornadoes, cancer and accidents get a lot of press and movie coverage. ⁵⁶
Anchoring bias	People use the first data point they hear as a reference to the correct data point. Researchers asked questions such as, “What is the percentage of people in the US who are age 55 or older?” When they gave respondents random percentages as starting points, the answers varied depending on the random figures. ⁵⁷
Illusion of control	People find comfort believing they can control the world around them, even when they cannot. ⁵⁸ For example, a company may believe it is mitigating climate-related risk by accounting for and reducing GHG emissions and energy use.
Overconfidence effect	People, especially specialists and experts, overestimate how much they know. Compounding the overconfidence effect is the tendency to underestimate the time and costs of projects. ⁵⁹
Story bias	People find information easier to understand in story form. However, relying on narratives to explain the world leads to story bias, which distorts reality. ⁶⁰
Status quo bias	In choosing among alternatives, individuals display a bias toward the status quo. ESG-related risks are often new and emerging, or unexpected; therefore, individuals are less likely to identify them. ⁶¹
Groupthink bias	Groups can make faulty decisions because group pressures sometimes lead to a deterioration of mental efficiency, reality testing and moral judgment. A group is especially vulnerable to groupthink when its members are similar in background, insulated from outside opinions and when there are no clear rules for decision-making. ⁶²

Organizational biases are particularly prevalent for ESG-related risks. According to one survey, more than 80% of risk managers and 75% of sustainability managers say there is a bias toward risks that are well-known to the organization, which are typically not environmental or societal.*

* According to surveys of approximately 70 sustainability and risk professionals at the WBCSD Liaison Delegate Meeting in April 2017 and the Institute of Internal Auditors GAM Conference in March 2017.


The following questions can help identify ESG bias in an organization:

- Does management have a stated position of its risk tolerance?
- Do dominant personalities or positions of power focus the attention on specific risks or dismiss risks that are not ESG-related?
- Does management over-rely on numeric evidence in prioritizing risks,⁶³ overlooking ESG-related impacts and dependencies that are not easily quantified?⁶⁴
- Does management disregard contrary information⁶⁵ including that related to emerging or unfamiliar ESG-related issues?⁶⁶
- Does management use a shorter time horizon overweighting more immediate risks which could lead to lesser weighting of longer-term ESG-related issues?⁶⁷
- Does management have a tendency for risk avoidance or risk taking,⁶⁸ which could impact the treatment of ESG-related issues?
- Is management overconfident about the controls in place to manage risk,⁶⁹ which could omit considerations for more severe but plausible scenarios for ESG-related issues?

A robust ERM process can help counteract bias. Beyond becoming aware, the following are some short-term strategies to help overcome these biases:⁷⁰

- **Practice open-mindedness:** Improve judgment by eliminating the influence of stereotypes, idiosyncratic associations and irrelevant factors.
- **Develop cross-functional teams:** Bring various viewpoints into the mix to obtain diverse perspectives on individual issues.
- **Quantify risks and use common language:** Identify methods for communicating with cross-functional teams using a common language and consistent metrics for assessing risks.
- **Leverage anonymous voting:** Provide options for internal stakeholders to rank or comment on issues anonymously.
- **Provide reference points:** Ask questions using a frame of reference that can be well-understood. For example, instead of asking colleagues to identify potential environmental risks, ask them to answer a question such as, “If global temperatures rise two degrees and sea levels rise two meters by 2050, how will this impact our facilities and those of our supply chain partners?”⁷¹

Guidance

 Identify and challenge organizational bias against ESG issues

Conclusion

Increasing complexity from emerging megatrends and business cycles are producing an environment that requires adaptability and resilience to risk. This complexity is demanding the need to engage across the business to develop solutions. Establishing a strong governance structure with defined roles and responsibilities, board-led culture, values in action and strong ESG-strategy-risk collaboration is critical.

2. Understand the business context and strategy

Introduction

While effective governance is the foundation for ERM activities, a strong understanding and line of sight to the *business context and strategy* serve as an anchor for risk management.

A company's strategy and business objectives are established to create value for the organization.¹ This value is based on multiple, interconnected types of capital that extend beyond financial, to include societal, human and relationship, natural, intellectual and manufactured capital.² Changes to the internal and external business context influence the company's ability to create or preserve value.



COSO principles relevant to business context and strategy

- 6 **Analyzes business context** — the organization considers potential effects of business context on risk profile.
- 7 **Defines risk appetite** — the organization defines risk appetite in the context of creating, preserving, and realizing value.
- 9 **Formulates business objectives** — the organization considers risk while establishing the business objectives at various levels that align and support strategy.

In recent years, the business context has become more complex and interconnected. Many companies employ sustainability executives to monitor the global megatrends and material ESG-related issues of the business. Risk managers and risk owners can leverage the outcomes of these activities and their impacts on the business model to support a more holistic view of the company’s risk profile.

While these sustainability executives have extensive knowledge about environmental and social risks, many companies experience a language barrier between sustainability and risk managers. This barrier prevents valuable knowledge from being leveraged for risk management or opportunity captured. To bring ESG-related issues into the mainstream ERM process, it is important to maintain a line of sight to the business strategy. When identifying, assessing or managing ESG-related risks, risk and sustainability managers should consider how a possible event or trend will impact business strategy, objectives or performance in the form of company earnings, reputation or share price. This is explored more in Modules 3 and 4.

This chapter discusses the importance of understanding the business context and strategy throughout all risk management activities. Below is a checklist of steps to help maintain a focus on the business context and strategy:

- Examine the value creation process and business model to understand impacts and dependencies on all six capitals in the short, medium and long-term. To assist with this understanding, conduct:
 - Megatrend analysis to understand the impact of emerging issues in the external environment
 - Strengths, weaknesses, opportunities and threats (SWOT) analysis
 - Impact and dependency mapping for all types of capital, using protocols such as the *Natural Capital Protocol* and *Social Capital Protocol*
 - A materiality assessmentⁱⁱⁱ to describe significant ESG issues
 - Engagement with internal and external stakeholders to understand emerging trends
 - Analysis leveraging ESG-specific resources
- Throughout the risk management process, maintain a line of sight to the business context, strategy and risk appetite

Value creation and the business model

The concept of value has broadened to encompass resources that are shared between an organization and wider society. At the same time, emphasis has shifted from tangible to intangible assets. In 2015, the Chartered Global Management Accountant (CGMA)^{iv} reported that the value of intangible assets has grown to over 80% of total market value for S&P 500 companies, from 17% of total market value in 1975.³ *Capital* is no longer a singular term; it has evolved to speak of the multiple stocks and flows of *capitals*, recognizing the range of resources upon which organizations rely.

COSO defines *business context* as the “trends, events, relationships and other factors that influence, clarify or change the company.”

This includes the environment within which the organization operates, encompassing macroeconomic, societal, technological, political and market trends. These changes can be risks, but they can also be opportunities.⁴

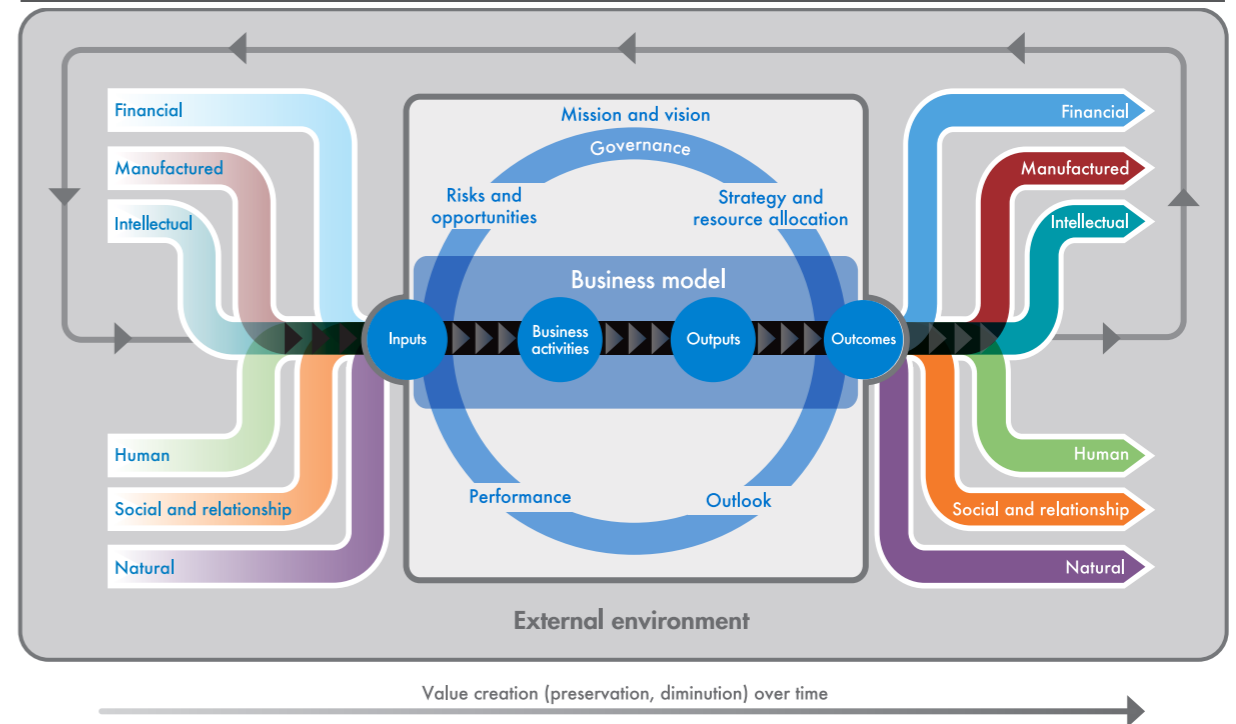
Considering this complexity, companies need to develop a better understanding of how they create value for stakeholders and society, to be able to develop a long-term, viable strategy. This thinking has been codified in the International Integrated Reporting Framework (<IR> Framework) developed by the International Integrated Reporting Council (IIRC). The framework provides support to companies looking to better understand the impact of their business and their ability to create value.⁵ Critical features of this framework are:

Guidance ✓

□ Examine the value creation process and business model to understand impacts and dependencies on all six capitals in the short, medium and long-term

The value creation process: The <IR> Framework affirms that value is created through an organization’s business model, which takes inputs from the capitals and transforms them through business activities and interactions to produce outputs and outcomes that, over the short, medium and long term, create or destroy value for the organization, its stakeholders, society and the environment (see Figure 2.1).

Figure 2.1: The IIRC’s value creation process⁶



ⁱⁱⁱ A materiality assessment is an exercise in stakeholder engagement designed to gather insight on the relative importance of specific environmental, social and governance (ESG) issues.

^{iv} The CGMA is a joint venture between two accounting bodies, AICPA and CIMA.

The capitals: The <IR> Framework recognizes the broader range of resources and relationships used and affected by the organization, which are identified as financial, manufactured, intellectual, human, social and relationship and natural capital. These are defined in Table 2.1.

Type	Description
Financial capital	The traditional yardstick of performance; includes funds obtained through financing or generated by means of productivity
Manufactured capital	Encompasses physical infrastructure and related technology, such as equipment and tools
Intellectual capital	The skills and know-how of an organization's personnel, in addition to their commitment and motivation – which affect their ability to fulfill their roles
Human capital	Encompasses the relationships – and attendant resources – between an organization and all its stakeholders, including communities, governments, suppliers and customers
Social and relationship capital	Encompasses the relationships – and attendant resources – between an organization and all its stakeholder, including communities, governments, suppliers and customers
Natural capital	The stock of renewable and non-renewable natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people ^v

Value creation for the organization and for others: An organization's activities, interactions, relationships, outputs and outcomes influence its ability to draw on these capitals continuously. Many tobacco, food and beverage companies have faced scrutiny for the health impacts of their products on their customers. Similarly, concerns about impacts on natural capital in local communities have disrupted many business models.

Natural capital impact on business model

In 2005, Coca-Cola had to shut down a plant in India, following a protracted legal battle and sustained campaign by civil rights groups. This occurred following accusations the company was depleting water wells, leaving local communities without adequate water supplies. The organization had failed to appropriately capture the dependency on water when expanding into an emerging market.⁸ Having learned from this failure, the company developed a water replenishment strategy designed to work with local communities to increase water storage capacity to meet their needs.⁹

^v This definition was obtained from the Natural Capital Coalition's *Natural Capital Protocol*. The other definitions in this table were obtained from the IIRC's <IR Framework>.

Ten themes that inform the meaning of value creation

The Technical Task Force of the IIRC explores the concept of value creation and the matters that influence the way in which value creation may be understood.

1. Value creation takes place within a context
2. Financial value is relevant, but not sufficient, for assessing value creation
3. Value is created from tangible and intangible assets
4. Value is created from private and public/common resources
5. Value is created for an organization and for others
6. Value is created from the connectivity between a wide range of factors
7. Value creation manifests itself in outcomes
8. Innovation is central to value creation
9. Values play a role in how and what type of value is created
10. Measures of value creation are evolving¹⁰

Understanding the value creation process described by the IIRC plays an important role in mitigating risks.

Capturing the ESG issues universe

Principle 6 of COSO's ERM Framework describes the importance of understanding the business context, including both the external factors (i.e., political, economic, social, technological, legal and environmental forces) and internal resources such as capital, people, processes and technology. Changes to the internal and external environment can influence a company's vision, strategy and business objectives and ultimately its ability to create and preserve value.¹¹ Failure to integrate ESG-related issues into the business context hampers a company's ability to identify risks and capitalize on opportunities.

Historically, a company's understanding of the business context tended to focus on the financial and economic factors^{vi} that may impact a company's *tangible assets*. A company's annual risk filing includes risks relating to interest rates, foreign exchange rates or compliance requirements. Given the growth in companies' intangible assets – risks such as resource use, emissions and reliance on all forms of human, natural, social and intellectual capital can no longer be considered separate to company operations. Instead, they have implications for the balance sheet over the medium and long term, if not now. These implications are not always negative: companies often stand to benefit when they openly identify activities external to an organization and directly link them to the creation of intangible asset value for the organization. Capturing the risks associated with intangible assets and the opportunities stemming from sustainable development requires thinking and decision-making based on information that is much broader, more interconnected and more forward-looking than traditional financial information.

¹ Evidenced by trends in the World Economic Forum's *Global Risk Report*

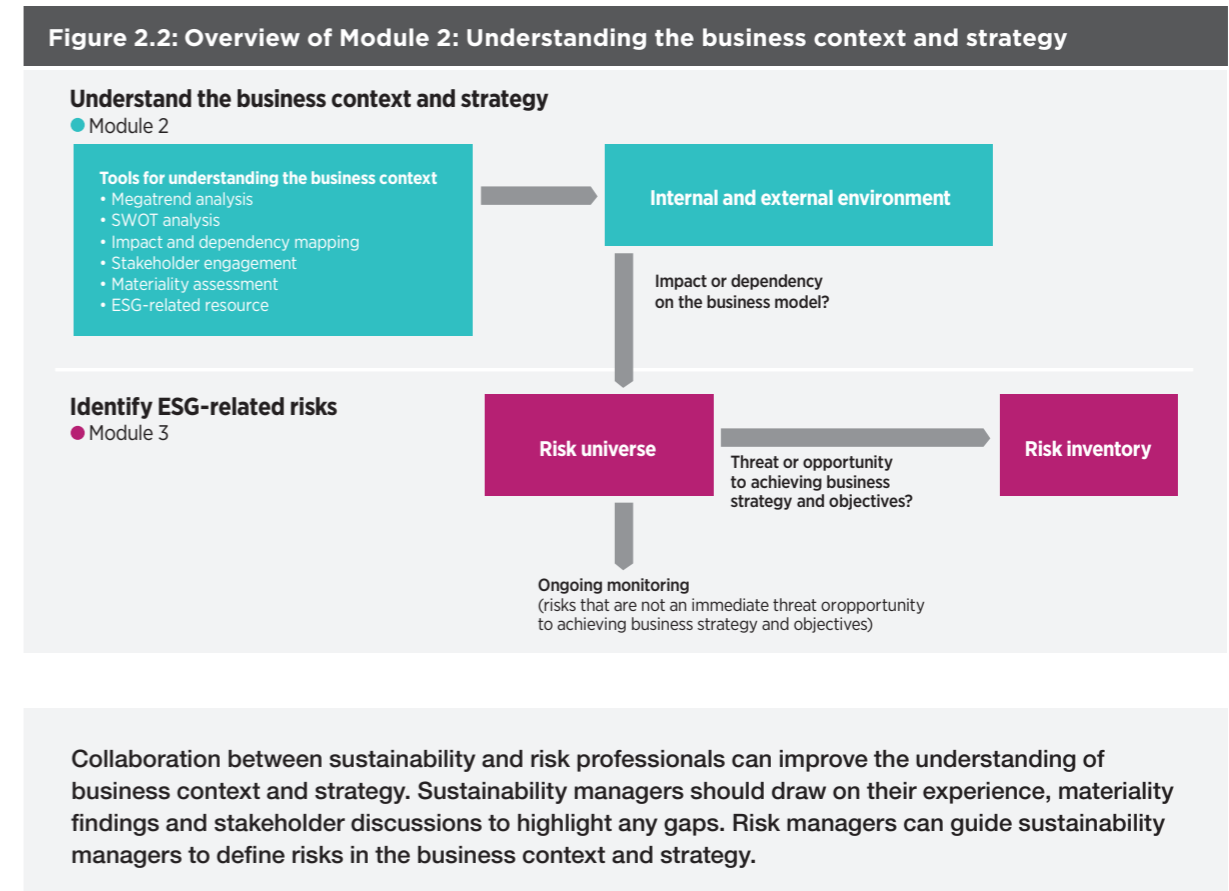
As discussed above, the <IR> Framework serves as an effective guide for understanding the complete business context in which a business operates. The Framework recommends bringing together material considerations about an organization’s strategy, governance, performance and prospects in a way that reflects the commercial, social and environmental context within which it operates.

Table 2.2 provides some key questions companies should be considering in analyzing the value creation process and business model to understand the organization’s impacts and dependencies on all six capitals on in the short, medium and long term:

Table 2.2: ESG-related risk considerations to understand the complete business context ¹²		
	Content element	Questions to consider
Value creation process	Organizational overview and external environment	<ul style="list-style-type: none"> • What are the external environment aspects of the legal, commercial, social, environmental and political context that affect the organization’s ability to create value in the short, medium and long term? • What do the organization’s mission and vision require from an ESG perspective? • How does the ESG context link to the value creation for the business more broadly? • What are the megatrends likely to impact the company? In particular, what societal issues (e.g., demographic changes, health, poverty) or environmental challenges (e.g., climate change, resource shortages, planetary limits) impact the company? • What are the legitimate needs and interests of key stakeholders from an ESG perspective? • What are the relative ESG-related strengths, weaknesses, opportunities and threats (SWOT)? • What shifts in the regulatory or legislative environment impact the organization?
Business model	Inputs	<ul style="list-style-type: none"> • What are the ESG-related issues for the capitals that the business relies on, such as raw materials, natural resources, labor sources and water sources?
	Business activities	<ul style="list-style-type: none"> • How does the organization differentiate itself in the marketplace? • What is the revenue-generating model? • How does the organization innovate? • How well is the organization designed to adapt to change?
	Outputs	<ul style="list-style-type: none"> • What are the impacts or potential impacts of the products or waste?
	Outcomes	<ul style="list-style-type: none"> • What are the outcomes and contributions (e.g., employee morale, reputation, customer satisfaction, social and environmental impacts)?
	Strategy and resource allocation	<ul style="list-style-type: none"> • What are the organization’s short-, medium- and long-term strategy objectives? • What are the ESG impacts and dependencies to achieving those objectives? In particular, what are the medium- to long-term risks that will impact the organization’s strategy (e.g., climate change)? • To what extent have environmental and social considerations been embedded into the organization’s strategy to give it a competitive advantage? • What ESG-related risks and opportunities should be reflected in a strategy? • What resources and capital allocations are required to implement the strategy? • How are stakeholder interests incorporated into strategy development?

Adapted from the <IR> Framework

To support these questions, management can use a selection of tools and approaches to understand all the impacts and dependencies on the company’s capital. This understanding illustrated in Figure 2.2 helps develop the risk universe which is then used to identify risks to the company in Module 3.



Incorporating future trends with megatrend analysis

Megatrends are “large, transformative global forces that define the future by having far-reaching impacts on business, economies, industries, societies and individuals.”¹³ Companies can use megatrend analyses to better understand the ESG factors that may impact the business context in the future. Think tanks, governments, large nonprofit organizations, industry organizations and consultancies prepare and publish research and analyses on global megatrends. These reports help to identify and highlight new, complex and unpredictable forces and trends that may impact business, environment and society (see examples in Table 2.3).

Guidance

Megatrend analysis to understand the impact of emerging issues in the external environment

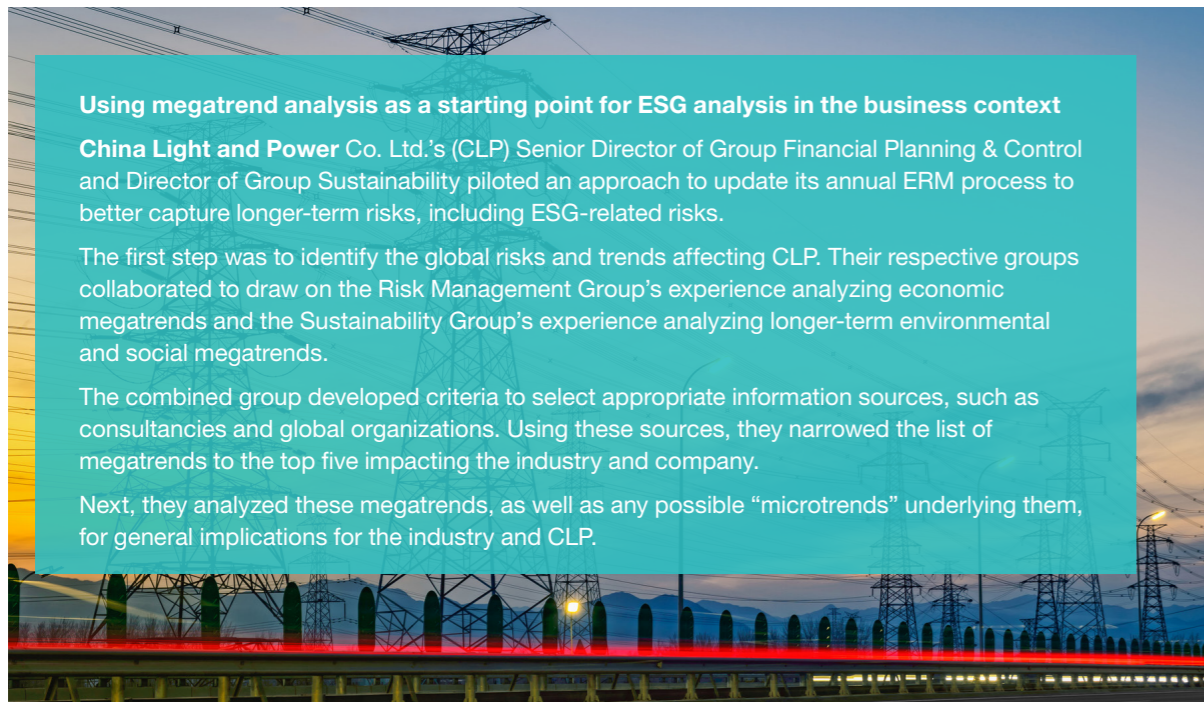
Data sources	Description
World Economic Forum Global Risk Report¹⁴	Since 2006, the annual global risk report identifies the most urgent economic, societal, technological, geopolitical and environmental risks.
Global Opportunity Report¹⁵	Since 2015, when the UN’s Sustainable Development Goals were adopted, the annual opportunity report has mapped tomorrow’s sustainable markets. Each subsequent report builds upon the first, starting with the top five goals in the 2015 report and expanding to describe new market opportunities.
Industry organizations	Industry organizations produce reports on the megatrends impacting individual sectors for the upcoming year. Examples include the Conning US and Global Insurance Industry Outlook ¹⁶ and the Biotechnology Innovation Organization Industry Analyses. ¹⁷
Megatrends reports from consulting firms^{18,19}	Reports produced by a consultancies such as McKinsey, PwC, KPMG, Deloitte, Accenture and EY on an annual basis describe the top megatrends and an outlook on the future. They also offer specialized reports which are industry-specific, such as for mining and metals. ²⁰
Political reports	National economy planning agencies typically issue reports describing government plans for the future. For example, the National Economic and Social Development Board of Thailand publishes a five-year government strategy plan. ²¹
ESG-focused organizations and conferences	Global ESG-focused consortiums of businesses, NGOs and alliances provide insights into trends, leading practices and groups such as WBCSD, Sustainable Brands, Ceres, GreenBiz, the UN Global Compact, and other branches of the UN, including the Development Programme, Environment Programme (EP) and EP Finance Initiative.

These reports can be leveraged to enhance understanding of ESG influences on the business context. For example, sustainability and risk managers can:

- Consider how specific megatrends translate to risks or opportunities for the business (see Module 3)
- Perform scenario analysis to establish plausible impacts to the company for a specific trend or scenario (see Module 4)
- Establish industry working groups to understand and navigate emerging trends collectively (see Module 5)

Considering megatrends is critical for ESG issues because many are ESG-related. Table 2.4 outlines examples of ESG-related megatrends identified in a 2014 report from CPA Australia, KPMG Australia and GRI Focal Point Australia:

Megatrend	Description
Climate change	Climate change presents multiple risks including physical, regulatory, reputational, competitive, social and legal risks. Climate change considerations for business include greenhouse gas mitigation and complications, adaptation of operations, services, products and business models to the impacts of climate change and responding to adverse weather conditions.
Energy and fuel	Global energy consumption patterns are changing. These arise from the shift from fossil fuels to renewable energy, changing energy consumption patterns as global demographics change and energy efficiency increases, uncertain production of supply of energy and changing regulation regarding energy.
Water scarcity	Potential water shortages and declines in water quality present business risks, particularly because demand for fresh water will exceed supply by 40% by 2030. Further, water conflict and price increases are expected as demand continues to grow globally.
Wealth	Because of increasing wealth, income shifts and the alleviation of poverty, expectations of consumers will change, consumption globally will grow dramatically and access to cheap labor will diminish. Further, labor and human rights are receiving increased attention.
Urbanization	Nearly all projected population growth for the next 30 years will occur in urban areas, placing strain on infrastructure, including health, waste and sanitation, telecommunications, education, utilities, transportation, safety and green space.
Material resource scarcity	Global demand for natural resources will significantly increase as populations increase and industrialization progresses worldwide. Competition for access to both renewable and non-renewable resources will continue to increase driving business to find alternative materials and methods of production.
Ecosystem decline	Ecosystem decline relates to the decline of soil fertility, pollinator populations and other essential ecosystem services. In 2005, the <i>Millennium Ecosystem Assessment</i> found that 60% of ecosystems had degraded or were being used unsustainably. Ecosystems services on which businesses rely include the supply of food and water; the provision of essential nutrients, materials and fibers; the production of medicinal products and the capture and storage of carbon emissions. Loss of these services will have significant implications for businesses globally.
Deforestation	Global forest areas are expected to decrease by 13% between 2005 and 2030. Land clearing for timber and agricultural production is occurring at unprecedented rates, resulting in the loss of key ecosystem services.
Food security	Access to sufficient, affordable food will come under threat over the next 20 years, as population growth, water scarcity, climate change and deforestation dramatically impact global food prices.



Using megatrend analysis as a starting point for ESG analysis in the business context

China Light and Power Co. Ltd.’s (CLP) Senior Director of Group Financial Planning & Control and Director of Group Sustainability piloted an approach to update its annual ERM process to better capture longer-term risks, including ESG-related risks.

The first step was to identify the global risks and trends affecting CLP. Their respective groups collaborated to draw on the Risk Management Group’s experience analyzing economic megatrends and the Sustainability Group’s experience analyzing longer-term environmental and social megatrends.

The combined group developed criteria to select appropriate information sources, such as consultancies and global organizations. Using these sources, they narrowed the list of megatrends to the top five impacting the industry and company.

Next, they analyzed these megatrends, as well as any possible “microtrends” underlying them, for general implications for the industry and CLP.

Guidance

Impact and dependency mapping for all types of capitals, using protocols such as the *Natural Capital Protocol* and *Social Capital Protocol*

Impact and dependency mapping

Impacts and dependencies in the <IR> Framework are described in terms of the stock and flow of capitals in the value creation model. Impacts and dependencies should be considered for all six types of capital, as relevant to the organization.

The Natural Capital Coalition’s *Natural Capital Protocol* (NCP)²³ and WBCSD’s *Social Capital Protocol* (SCP)²⁴ set out guidance for companies to capture the complexity of impacts and dependencies on natural, human and societal capitals. These frameworks describe the pathways which promote this understanding. An impact pathway describes how, as a result of business activity, a particular impact driver results in changes in natural capital (or other capital) and how these changes impact different stakeholders. A dependency pathway shows how a particular business activity depends on specific features of natural and/or human and social capital (or other capital).²⁵ Table 2.6 defines and provides examples of ESG-related impacts and dependencies.

SWOT analysis

Understanding both the external environment and internal capabilities is critical to business strategy and making the right business decisions. A SWOT analysis uses a two-by-two framework to define the strengths, weaknesses, opportunities and threats a company is facing.

The World Resources Institute (WRI) has developed a sustainability-specific SWOT tool focused on understanding the SWOT from an ESG perspective (i.e., impacts, dependencies and related megatrends). The example shown in Table 2.5 relates to a hypothetical consumer products company.

Guidance

Strengths, weaknesses, opportunities and threats (SWOT) analysis

Table 2.5: SWOT analysis example

	Helpful	Harmful
Internal origin	<p>Strengths</p> <p>What are unexpected ways the company can apply its strengths to ESG challenges?</p> <p>Example: The company begins measuring water use and promoting efforts to reduce water consumption.</p>	<p>Weaknesses</p> <p>Do any peers experience similar weaknesses or face similar risks from ESG challenges?</p> <p>Example: Each product requires at least as much water for manufacturing as the amount produced.</p>
External origin	<p>Opportunities</p> <p>Where is there a growing gap in which the company and others can create new solutions to ESG challenges?</p> <p>Example: New technologies reduce the amount of water required in manufacturing.</p>	<p>Threats</p> <p>Where are ESG challenges creating broad threats to future business value?</p> <p>Example: Some locations are experiencing water scarcity and drought.</p>

Source: Questions adapted from WRI’s SWOT user guide: wri.org/sustainability_swot_user_guide.pdf

Table 2.6: Illustrative examples of impacts and dependencies

Flows	Application to social or natural capital	
Impacts	The negative or positive effect of business activity on financial, social and relationship, human and natural capital. Some examples include a company’s contribution to air pollution, job creation or safe working conditions. ²⁶	
Dependencies	Resources (e.g., human, social, natural) that businesses need in order to create and sustain value. For example, a company relies on available freshwater supplies, dams for flood control or ethical employees and suppliers. ²⁷	
Company examples		
Example	Impact or dependency	Value creation or loss
Coca-Cola opened a bottling plant in a water-scarce region of India in 1993.	Beverage manufacturing depends on water availability in the country of operations.	The local watershed could not support both community water requirements and Coca-Cola’s manufacturing process. Local authorities closed Coca-Cola’s plant. ^{28,29}
Yahoo, Inc. had a cyberattack during negotiation of an acquisition by Verizon Communication, Inc. in 2017. ³⁰	Avoidance of cyberattack of customers’ personal information depends on the security strength of the company’s IT systems.	The incident resulted in a reduction in the acquisition’s value by USD \$350 million. ^{31,32}
In 1973, Nestlé S.A. began receiving criticism on product stewardship for selling baby formula in Asia, Africa and Latin America.	Customers using baby formula depend on access to and use of a clean water supply.	Many of the children given the baby formula with contaminated water contracted waterborne diseases, and many of these children died. Boycotts of Nestlé’s products were held in the US, France, Finland, Norway, Ireland, Australia, Mexico, Sweden and the UK. ³³
Apparel companies use third-party manufacturers in low-cost countries (e.g., Bangladesh, China, and Vietnam).	Employees working for apparel manufacturers in Bangladesh are impacted by the standard of the buildings leased or owned by those companies.	The Rana Plaza factory in Bangladesh collapsed because health and safety standards were not enforced. The companies paid minor fines to the families. ³⁴ They have worked to improve working conditions in factories because of reputational damage. ³⁵
Wells Fargo & Company opened financial accounts without their customers’ consent.	Customers are impacted by the fees paid for the open accounts. Wells Fargo is impacted by the fines, penalties, settlements and effects on its reputation.	The bank paid USD \$185 million in fines plus another USD \$5 million in customer remediation to the Consumer Financial Protection Bureau. ³⁶ The bank paid USD \$110 million in settlement to customers. ³⁷

Leveraging the company's materiality assessment

According to a 2015 survey, more than three-quarters of companies conduct a materiality assessment to identify the ESG issues relevant to their business and their stakeholder interests.^{vii} The process involves a combination of peer benchmarking, considering megatrends and engaging internal and external stakeholders. Sustainability professionals maintain the information, and it is typically disclosed on a company's website. As shown in Table 2.7, institutions such as the Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) offer frameworks that include guidance for materiality assessments. Sustainability managers should share these results with risk managers to include ESG components in the understanding of the business context.

Guidance

A materiality assessment to identify significant ESG issues

Table 2.7: Frameworks for performing materiality assessment

Tool	Description
GRI, inclusive of sector supplements	General and industry-specific guidelines for reporting a full range of economic, environmental, social and governance impacts of operations ³⁸
AccountAbility Five-Part Materiality Test	Designed to help organizations identify 1) What issues are most material, or relevant, to their business and its stakeholders and 2) What information should be disclosed or reported in corporate social responsibility reports ³⁹
Sustainability Accounting Standards Board (SASB)	Investor-focused standards on suggested material issues by industry and category: environment, social capital, human capital, business model and innovation and leadership and governance ⁴⁰
Integrated Reporting <IR> Framework	Framework for the preparation of an Integrated Report which explains to providers of financial capital how an organization creates value over time. It provides a process for identifying risks based on the legal, commercial, social, environmental and political contexts that affect the organization's ability to create value in the short, medium and long term (4.6-4.7, 4.16-4.17) ⁴¹
Ceres Roadmap for Sustainability 2010	Resource to help companies re-engineer themselves for success in a world beset with unprecedented environmental and social challenges that threaten the economy and local communities; designed to guide companies toward corporate sustainability leadership and ultimately support an accelerated transition toward a more sustainable global economy ⁴²
Environmental and social impact assessments	Designed to identify and quantify the environmental or social impact from business activities or projects; impacts are measured by identifying and assessing the drivers for impacts – both independent and related ⁴³
Human rights due diligence	Human rights due diligence described by the UN Guiding Principles Reporting Framework is “an ongoing risk management process ... to identify, prevent, mitigate and account for how [a company] addresses its adverse human rights impacts;” includes four key steps: assessing actual and potential human rights impacts; integrating and acting on the findings; tracking responses and communicating about how impacts are addressed ⁴⁴

It is important to understand that a materiality assessment applies a broader definition of “materiality” and relevant stakeholder perspectives than that used in the context of financial or legal disclosures. Frameworks such as GRI or AccountAbility guide companies to take into account the perspectives of stakeholders beyond those who provide financial capital. Others, such as SASB and the <IR Framework> are investor-focused and look for issues that “could substantively influence the assessments of providers of financial capital with regard to the organization’s ability to create value over the short, medium and long term.”⁴⁵ In either case, ESG-related issues are relevant. However, understanding this difference is important to ensure that risk and sustainability managers are communicating in the same language.

^{vii} GRI Standards – 101 Foundation. Evidence is based on a 2015 AccountAbility study, “Beyond Risk Management – Leveraging Stakeholder Engagement and Materiality to uncover Value and Opportunity.” Companies surveyed spanned North and South America, Europe, the Middle East, Africa, and Asia. Geographically, the respondents were 45% European, 31% North American and 24% other. Company size varies: 25% employ 2,000-20,000 employees; 31%, 20,000-100,000; and 20%, over 100,000. The market capitalization range of the companies was US \$2.4 billion to US \$255 billion. Companies represented more than 16 sectors, with most participants from utilities; technology (hardware and software); health care and pharmaceuticals; financial services; and energy and extractives. Retrieved from: accountability.org/wp-content/uploads/2017/02/Beyond-Risk-Management-Stakeholder-Engagement_and_Materiality.pdf

Example: Entergy New Orleans – the value of sustainability managers' knowledge

In 2005, Entergy New Orleans, the local utility provider, had been denied insurance coverage of its assets. Although sustainability managers disclosed the risk to the CDP (an NGO platform for company disclosures of greenhouse gas emissions), the company did not recognize or disclose this existential threat in its investor filings. In 2005, New Orleans was hit by Hurricane Katrina. The severe weather destroyed 1,763 Entergy distribution poles, flooded 12 out of its 22 substations and put 95 of its 125 miles of transmission lines out of service, leaving more than 200,000 customers without power. The impact to the company was exacerbated by the damage to customer properties, which resulted in 123,000 customers being unable to accept service for months. The event forced Entergy New Orleans into Chapter 11 bankruptcy.⁴⁶ To recover from bankruptcy without exorbitant rate increases to its customers, the US federal government provided USD \$200 million in a bailout.⁴⁷

Stakeholder engagement

Different stakeholders may have different perceptions of value and different expectations of a company's roles and obligations. Stakeholder engagement — the process of soliciting feedback from a variety of internal and external stakeholders — can help all parties better understand the business context, including what may otherwise be “blind spots” to risk management, sustainability managers or the business. It provides outside perspectives of events and enables companies to question and challenge assumptions. Stakeholder engagement can also:

- Offer perspectives on the issues or impacts of greatest concern
- Inform the relative importance of issues and impacts
- Provide data and expertise
- Inform, validate and add credibility to the materiality process and results

Many large organizations collect this type of stakeholder feedback as a matter of normal operations. Risk managers can review stakeholder feedback periodically and leverage this information to:

- Explore how stakeholder feedback highlights issues that could pose threats to achieving an organization's objectives; when new issues surface through this process, companies should consider conducting additional research to clarify whether such issues impact the business context
- Confirm existing risks and identify new or emerging risks
- Identify what additional stakeholder engagement would benefit ERM activities, including engaging stakeholder groups omitted from existing efforts or engaging stakeholders in discussions

Stakeholders are defined as those individuals, groups of individuals or organizations that affect and/or could be affected by an organization's activities, products or services.
(Source: AA1000)⁴⁸

Guidance

Engagement with internal and external stakeholders to confirm and highlight emerging trends

Table 2.8 presents examples of stakeholders whom companies typically engage.

Table 2.8: Examples of stakeholder engagement		
Business function	Typical stakeholder engaged	Example ESG trend, risk or opportunity
Sales	Customers, sales managers	Changes in customer preferences for more sustainable products
Procurement	Suppliers, category managers	Shortage of raw materials due to weather, climate change or environmental impacts
Operations	Communities, customers	Community dissatisfaction with adverse company activities
Investor relations	Shareholders	Shareholder priorities for climate risk disclosure
Public relations	Media	Disassociation from a particular company or idea indicated as negative on social media
Government affairs	Government officials	Prevalence of bribery in an emerging market
Sustainability	NGOs and industry alliances	Emerging ESG trends or issues such as NGOs water stewardship concerns

The following example demonstrates one way companies can use existing feedback processes to identify ESG-related risks.

Example: Eskom’s stakeholder engagement reveals blind spot

Eskom, a utility company based in Johannesburg, South Africa, focuses on technical excellence and frequently reviews operational risks, but the risk team understood that other types of risk should not be overlooked. In fact, the team had become increasingly aware that social risks cause project shutdowns more frequently than operational risks.

To better manage social risks, the communications department developed a “reputation tracker,” which allowed Eskom to obtain periodic community-level feedback on a range of issues. For example, the company learned that coal trucks were damaging roads impacting communities far away from operations. The risk group added this new supply chain risk to its risk inventory and put in place an appropriate response before the issue escalated.

Since the development of the reputation tracker, the risk team has continued working with the communications team to distill stakeholder feedback into risks. Risk managers find this element essential to identifying blind spots normal operations create.

Analysis leveraging ESG-specific resources

Understanding the ESG-related impacts and dependencies may also require the support of issue-specific guidance. For example, a company that recognizes an emerging risk related to climate change needs to understand its carbon footprint for assessing its contribution and developing a target. It may leverage the *Greenhouse Gas Protocol* to support these efforts. Table 2.9 includes a list of resources that companies can use to better understand the specific issues in the business context.

Guidance

Analysis leveraging ESG-specific resources

Table 2.9: ESG-specific resources for understanding the business context	
Resources	Application
Natural Capital Protocol Toolkit and Social Capital Protocol Toolkit	Variety of tools ranging from frameworks to measurement approaches to help companies understand and then assess impacts and dependencies of natural and social capital ^{49,50}
Human rights impact assessment (HRIA)	Guidelines, in-practice examples, HRIA levels and steps for understanding human rights-based risks and opportunities ⁵¹
Greenhouse Gas Protocol	Framework and assessment tool for companies measuring their carbon footprint in terms of scopes 1, 2 and 3 greenhouse gas emissions ⁵²
WRI Aqueduct	Tool to help map water risks and opportunities emerging worldwide ⁵³
Maplecroft	Tool for developing risk indices, performing country risk monitoring, assessing responsible sourcing, performing human rights due diligence and related tasks ⁵⁴
PwC’s Assessing the risk of bribery and corruption in your business	Report describing the legislative landscape and how to set up an effective framework for assessing risk of bribery and corruption ⁵⁵

Also see Module 1, Table 1.3, for a list of frameworks and principles that may help companies understand ESG-related issues in the business context.







The anchor: business context, strategy and risk appetite

To effectively manage risks, it is critical to understand the strategic and operating plans of the business. ESG-related risks or opportunities should not attempt to identify, assess or address ESG-related risks or opportunities in isolation from the company's strategic direction or risk appetite. Similarly, a risk manager omitting ESG-related risks may be omitting several material risks.

Guidance

- Throughout the risk management process, maintain a line of sight to the business context, strategy and risk appetite

A company's strategy and corresponding objectives should be an anchor to each phase of the ERM process.

-  **Establish governance for effective risk management (Module 1):** It is everyone's responsibility to understand and manage the risks that will impact the company's strategy. The board provides oversight to management in executing this role.
-  **Identify ESG-related risks (Module 3):** Consider the ESG impacts and dependencies that impact the achievement of the company strategy, objectives and business model.
-  **Assess and prioritize ESG-related risks (Module 4):** Understand the extent to which those risks could impact efforts to achieve the company's objectives and prioritize them in line with the company's risk appetite.
-  **Respond to ESG-related risks (Module 5):** Select and implement responses to achieve strategic and operational objectives.
-  **Review and revise ESG-related risks (Module 6):** Review changes to the business context and strategy and the effectiveness of the risk responses.
-  **Communicate and report ESG-related risks (Module 7):** Communicate to internal and external stakeholders which ESG-related risks are impacting the company's strategy and how these are being managed.

An example strategic vision comes from an illustrative company - **Pro Paper & Packaging**:



Pro Paper & Packaging (Pro P&P) will be the leading paper and packaging business in Europe, the Americas and Asia-Pacific region. **Pro P&P** will be a committed partner to our customers with a comprehensive product offering, leveraging our global footprint and scale, streamlined processes and technology to drive excellent returns, create value for shareholders and be recognized as leader in sustainability and an employer of choice.

The **Pro Paper and Packaging** example continues through Modules 3 through 7 to illustrate how a company can integrate ESG-related risks into all ERM activities.

Risk appetite

Risk appetite refers to the types and amount of risk, on a broad level, that an organization is willing to accept or reject in pursuit of value. Once set, risk appetite and tolerance become the boundaries for acceptable decisions.⁵⁶ Setting risk appetite is a critical role for the board and management in setting the parameters of the company's operations. Boards and management typically set the risk appetite for the company when considering strategy and business context, as the two are often intertwined.

Companies with mature risk management practices contemplate risk appetite to make more informed decisions about risk. If a company has an aggressive growth strategy, it is probably willing to accept more risk. In contrast, a mature company may be risk-averse generally but may be willing to accept more risk in strategic areas.

Risk appetite is instrumental in prioritizing risks and selecting risk responses. Managers compare the risk severity with their appetite. If the severity is within their appetite, then companies typically accept or pursue the risk. If the severity is greater than the appetite, then companies avoid, reduce or share the risk (see Module 5). Consider these questions when contemplating the risk appetite:

- What ESG-related risks are necessary and acceptable for achieving our strategic ambitions?
- What ESG-related risks should the company avoid?
- What levels of ESG-related risks are acceptable?
- How do current investments, operations and commitments compare to the company's risk appetite?
- Do incentives and performance targets align with the company's risk appetite?

Table 2.10 illustrates one example method for establishing a company's risk appetite.

Table 2.10: Example risk appetite application

Approach to setting risk appetite
<ul style="list-style-type: none"> • Risk appetite is: <ul style="list-style-type: none"> - Defined at a high level (top down) - Based on the company's values and strategic ambition - Rooted in the business context • Risk appetite considers the types of risks (strategic, operational, financial, compliance) the company needs to take, or avoid, in order to achieve its strategic ambition. • The organization typically is willing to take on a net total amount of risk, which can be allocated to each category of risk to align with the company's values and strategy. • Risk capacity is the measure of how much risk the organization can accept. It considers liquidity, stakeholder relationships, capabilities and other factors. • Risk capacity provides a set of boundaries for defining meaningful risk appetite and tolerance.

Risk appetite plays an important role in the calibration risks. It supports thoughtful deployment of resources and inhibits development of objectives that would exceed the risk appetite. Below is an example of how one company re-examined its risk appetite regarding reputational risk.

Example: Whole Foods stops selling foods made with prison labor

In 2015, protesters in Houston, Texas, led demonstrations against Whole Foods Market due to the use of prison labor by one of its suppliers. While prison labor has positive attributes in providing employment training for prisoners, it can be controversial as the prisoners are usually underpaid.

This event caused Whole Foods Market to reconsider its risk tolerance. Whole Foods Market determined that the use of prison labor was outside its risk appetite and thus decided to stop selling food made by prisoners.⁵⁷



Conclusion

The ability to maintain line of sight to the business context and strategy enables companies to effectively leverage ERM to achieve their strategy and build resilience into their business model. The effect cascades to other activities of ERM, including risk identification, assessment, prioritization and response. It ensures that the company's strategy and activities are aligned with limitations imposed by the external environment.

3. Identify ESG-related risks

Introduction

Risks are present in all business activities. They often come into focus due to changes in business strategy, objectives, context or risk appetite. Module 2 describes how companies can better understand ESG-related shifts, impacts and dependencies that may affect a business' ability to achieve its strategy or objectives. Sustainability and risk managers can leverage the outcomes from these activities to gain a more complete understanding their company's ESG-related risks.



COSO principles relevant to identifying risk

10 Identifies Risk – the organization identifies risk that impacts the performance of strategy and business objectives.

It is important to remember that not *all* ESG issues present an enterprise-level risk or opportunity. Managers need to translate external trends and drivers into identified risks and assess the impact and severity on the organization. Although many companies have processes in place to do this, ESG-related risks can be more challenging to identify because they are often:

- New or emerging and may unexpectedly threaten an organization’s ability to achieve its strategy and business objectives
- Not well-known to the business and include “black swans” or other unforeseen events that can challenge the company’s short-term or long-term performance or even survival
- Longer term, going beyond the timeline with which business strategy is set or risks are historically considered
- Difficult to quantify and communicate in the context of business language and objectives
- Beyond the scope of one company and therefore require response at industry or government levels

This module provides approaches to identify and define new and existing ESG-related risks with the aim to capture them in the entity’s risk inventory. The following actions can help integrate ESG into ERM:

- Examine the organization’s risk inventory to determine which ESG-related risks have or have not been identified
- Involve ESG-risk owners and sustainability managers in the risk identification process
- Convene meetings with both sustainability and risk managers to understand ESG-related risks
- Identify the ESG-related issues that may impact the company’s strategic and operational plans
- Define the impact of ESG-related risks on the business precisely
- Use root cause analysis to understand drivers of the business risk

Identify risks and the risk inventory

The objective of risk identification is to determine the risks that are “likely to disrupt operations ...and affect the reasonable expectation of achieving strategy and business objectives” or materially impact the company’s license to operate (including reputational issues).

Many companies maintain an inventory of risks that could significantly impact the entity. When ESG-related risks meet the company’s enterprise risk criteria, these risks should be included in the enterprise-wide risk inventory, where they can be managed and monitored by a risk owner. See Table 3.1 for an example risk inventory.

According to COSO, a risk inventory is a list of the risks that an entity faces. This inventory provides a company with a common language though which risks are described and communicated. A risk inventory may also include a description of the impact of each risk, mitigation actions and a risk owner.

Table 3.1: Example of risk inventory

Strategic	Operational	Financial	Compliance
<ul style="list-style-type: none"> • Vision and values • Corporate governance • Organizational structure • Strategic planning • Mergers and acquisitions valuation and pricing • Investor relations • Competition • Changing customer preferences or lifestyles • Growing middle class • Urbanization/growing population • Emerging markets – growth 	<ul style="list-style-type: none"> • Research and development • New products • Marketing • Budgeting and forecasting • Raw material availability • Suppliers • Production management • Product stewardship • Inventory management • Employee engagement • Labor relations • Human rights • IT investment • Cybersecurity • Business continuity 	<ul style="list-style-type: none"> • Interest rate volatility • Foreign currency volatility • Cash management • Credit risk • Accounting policies • Accounting estimates • Internal control • Tax strategy and planning 	<ul style="list-style-type: none"> • Fraud • Bribery • Conflicts of interest • Country/state/local regulation approval • Tax regulation • Trade regulation • IP management and protection • Greenhouse gas emissions • Water treatment

Typical risk categories include strategic, operational, financial and compliance. Some companies may include a separate category for “sustainability” risks, however, these risks can be captured by other risk categories – as shown in Table 3.2. Many ESG-related risks will not be entirely *new* but rather an additional *source* to an existing risk or compound the risk’s impact or likelihood of materializing. For example, climate change impacts will often increase the risk of rising cost of raw materials (an existing risk for many companies).

Guidance

Examine the organization’s risk inventory to determine which ESG-related risks have and have not been identified

Table 3.2: Example ESG-related risks

Type	ESG-related risk or opportunity	Environmental	Social	Governance
Strategic	• Shifting customer preferences toward products that are manufactured with ethical supply chains		■	■
	• Growing investor interest in ESG-related issues, resulting in proxy voting against the company on a range of topics (e.g., diversity, deforestation and human rights)	■	■	■
Operational	• Increased cost of raw materials due to sustainable forestry practice requirements	■		
	• Changing weather patterns and increased natural disasters disturbing operations and business continuity	■		
Finance	• Reputation impacts from an aggressive tax strategy		■	■
	• Increased taxation from carbon tax regulation	■		
Compliance	• Enhanced reporting obligations for greenhouse gas emissions and energy usage	■		■
	• Failure to meet environmental standards for water treatment resulting in fines and penalties	■		

In many cases an ESG-related risk impacts several or all of these categories. For example, human rights risks are predominantly operational, however, some jurisdictions have compliance requirements relating to human rights in the supply chain.

State Street identifies emerging risks

State Street Global Advisors (SSGA) is one of the world's largest asset managers.^{viii} Recently its sales function identified a new risk and opportunity: gender diversity. Management identified related megatrends and early studies showing that companies with higher rates of female participation at the senior management level benefit from return on equity, reduced volatility and fewer governance-related issues. SSGA implemented a three-pronged approach to address this risk and opportunity. Employees in operations, leadership and corporate governance started the Fearless Girl campaign, modified the Asset Stewardship Program and launched a gender diversity index. Identifying this risk and implementing a response has helped increase awareness of gender diversity's impact on company performance, attract clients who want to promote gender diversity and promote the long-term value for clients' investments. For more, visit wbcsd.org.



Sculpture by Kristen Visbal

Approaches for identifying risks

Many companies have an annual ERM process in place to identify risks that impact the business strategy and include them in the risk inventory (refer to Module 1 for additional detail). This process may include surveys, workshops and interviews with risk owners and executives to confirm existing risks or understand new or emerging risks.¹ For companies with mature ERM processes, this may also include quantitative and in-depth analytical approaches.

Guidance ✓

- Involve ESG-risk owners and sustainability managers in the risk identification process

In addition to this, companies have ongoing activities and processes performed by the sustainability function, corporate strategy function or risk owners that can support the identification of ESG-related risks. Examples include:

- Internal and external audit from which findings may be ESG-related (e.g., environmental health and safety, greenhouse gas emissions, certification audits performed by third parties)
- Due diligence activities from mergers, acquisitions and divestments
- Due diligence activities from new product or new market assessments
- ESG analyses performed for investment decisions (particularly for the financial services and manufacturing sectors)
- Project management activities (particularly for construction; information, technology and communication; professional services)
- Media monitoring, web scraping
- Data tracking and analysis of events or issues faced in the past
- Monitoring regulatory changes
- Megatrend analysis
- SWOT analysis
- Impact and dependency mapping
- Materiality assessment
- Stakeholder engagement

It is every employee's responsibility to manage risk. Although often led by ERM, everyone in the company – whether a project manager, investment analyst or procurement manager – is responsible for identifying risks.

Guidance ✓

- Convene meetings with both sustainability and risk managers to understand ESG-related risks

^{viii} SSGA has USD \$2.6 trillion under management. SSGA is a pioneer in index investing and has capabilities spanning both traditional and non-traditional asset classes across both active and index investing.



Risk and sustainability managers can overlay the outcomes of these processes on the business strategy and objectives to identify ESG-related risks or opportunities. This is illustrated in the table below, which builds on the Pro Paper & Packaging introduced in Module 2.

	Overlay of business strategy and objectives	Examples of ESG-related risks or opportunities
Megatrend analysis	How might the emergence of a global risk or megatrend impact the organization's strategy and operations?	<ul style="list-style-type: none"> Consider the impact of global risk identified by the World Economic Forum on Pro P&P. For example, consider: <ul style="list-style-type: none"> - The impact of extreme weather events and water crises on the company's forestry plantations - The impact of natural disasters on the ability of the supply chain to operate efficiently to meet customer expectations
SWOT analysis	What are the ESG-related strengths, weaknesses, opportunities and threats?	<ul style="list-style-type: none"> Consider how Pro P&P can leverage technology and innovation to improve sustainability of its product offering Consider the impact of a safety incident on the business resulting from the company packaging
Impacts and dependency mapping	What are the impacts and dependencies relating to the business model (inputs, business activities, outputs, outcomes)?	<ul style="list-style-type: none"> Consider Pro P&P's impacts and dependencies on local communities to maintain access to forestry plantations Consider Pro P&P's dependency on petroleum-based inputs for many of the packaging products Consider Pro P&P's impact on the safety of its employees and customers
Stakeholder engagement	Engaging internal and external stakeholders can help identify risks that are related to the broader group of stakeholders or have been overlooked by internal management. The company should consider: <ul style="list-style-type: none"> • Who is sharing the information • Why it is important to the stakeholder • How it impacts the company's strategy 	<ul style="list-style-type: none"> Consider the NGOs that have launched campaigns against the company due to ESG-related concerns Consider engagement with unions regarding labor relations Consider how Pro P&P can leverage the relationship with stakeholders to build goodwill and stay ahead of emerging trends and preferences
Materiality and ESG assessments	The significant issues identified through the company's sustainability materiality assessment or other ESG risk assessment tools should be considered for their impact on the business.	<ul style="list-style-type: none"> Consider the significant issues identified in the materiality assessment (e.g., climate change, deforestation, circular economy, human rights) and which of these may translate into ESG-related risks Consider the salient human rights issues identified through the <i>Human Rights Impact Assessment</i> Consider the scope 1, 2 and 3 greenhouse gas emissions profile and the resulting exposure of the organization to future carbon liabilities

Identifying *opportunities* should be a key part of the risk identification process. COSO defines opportunities as the actions or potential actions that create or alter goals or approaches for creating, preserving and realizing value.² Companies that focus on growth and differentiation and go beyond reduction and mitigation strategies leverage opportunities and innovative solutions in responding to ESG-related risks (refer to Module 5 for further discussion).

A defined process for identifying climate-related risks will support companies that follow the *Recommendations of the Task Force on Climate-related Financial Disclosures*, which recommends companies “describe their risk management processes for identifying and assessing climate-related risks,” including “whether they consider existing and emerging regulatory requirements related to climate change.”³

Defining and framing risks

When identifying risks, it is important to go beyond simply “listing” the risks – rather risks should be articulated precisely in terms of the impact on the business strategy and analyzing the root cause of risks.

Understand impact to business strategy

Risks are issues, trends and events that may impact achievement of the entity's strategy and business objectives.⁴ Therefore, any risk identified needs to be considered, described and framed in the context of how it will impact the strategy. Identified risks are translated into impacts at the entity-level.

Some aspects to consider when identifying and defining ESG-related risks include:

- What is the nature of the risk?
- What is the source of the risk?
- What is the root cause of the risk?
- Why is the issue relevant to the business?
- What is the business case for addressing the risk?
- What business decisions may be impacted by the risk?
- What will be improved or enhanced by addressing the risk?

Table 3.4 illustrates how this applies to example company Pro Paper & Packaging.

Guidance

Identify the ESG-related issues that may impact the company's strategic and operational plans



Table 3.4: Example risk definitions

Pro P&P – Strategy and objectives		ESG-related risks for achieving strategy
Overarching strategic vision	Pro Paper & Packaging (Pro P&P) will be the leading paper business in Europe, the Americas and Asia-Pacific region. We will be a committed partner to our customers with a comprehensive product offering, leveraging our global footprint, streamlined processes and innovation to drive excellent returns, create value for shareholders and be recognized as a sustainability leader and an employer of choice.	<ul style="list-style-type: none"> The possibility that impacts to key business objectives will challenge Pro P&P's ability to be market leader in selected regions and erode returns and shareholder value The possibility that lack of corporate governance around sustainability will undermine efforts to demonstrate leadership in sustainability
Objective: Customer focus	<ul style="list-style-type: none"> Leveraging scale and brand-based value propositions to be a market leader in Europe, the Americas and Asia-Pacific segments Supplier of choice with strategic customers 	<ul style="list-style-type: none"> The possibility that end-user customer preferences for products with less environmental impact and enhanced recycling and reuse properties will challenge long-term contracts with customers
Objective: Recognized brand	Differentiated position driven by brand drivers: <ul style="list-style-type: none"> Price competitiveness Product sustainability Responsiveness and customer service Innovation 	<ul style="list-style-type: none"> The possibility that NGO-related campaigns will erode brand recognition as a product with strong sustainability performance
Objective: Strong growth	<ul style="list-style-type: none"> Solidify position in winning segments and customers Enter into developing markets through channel strategies Embed merger and acquisitions capability to support growth with acquisitions that focus on innovation, scale and market leadership 	<ul style="list-style-type: none"> The possibility that geopolitical issues in emerging markets will reduce access to a skilled, efficient and engaged workforce impacting productivity and sales
Objective: Global efficiency	<ul style="list-style-type: none"> Optimized footprint to support market focus and cost competitiveness Manufacturing and process excellence Procurement supporting cost and customer value propositions 	<ul style="list-style-type: none"> The possibility that severe weather events (e.g., cyclones, floods) will disrupt the supply chain
Objective: Sustainability leadership	Recognized as: <ul style="list-style-type: none"> A global safety leader and zero-injuries workplace An employer of choice Continuously improving social and environmental performance across sites through the supply chain and life cycle of products 	<ul style="list-style-type: none"> The possibility that the safety performance of companies acquired as part of the growth strategy will be substandard and lead to impacts on employee morale The possibility that human rights issues in the supply chain (e.g., forced labor, child labor) will lead to reputational impacts and loss of customers

Not all ESG issues identified by a company's materiality assessment or megatrend analysis should be included in the risk inventory. For some issues, it may be appropriate for sustainability managers to perform ongoing monitoring and evaluation as to whether these risks should be elevated to an enterprise level and included in the risk inventory in the future. Regardless of whether the risk is included in the enterprise risk inventory, once a risk has been identified, risk owners or sustainability managers can deploy ERM processes outlined in this guidance to assess, prioritize and respond to the risk.

Risks should be identified at any level of business in which there is a strategy, including entity, business unit, product and market/region levels.

Precise risk definitions

When identifying risks, the organization should aim to precisely describe the risk.⁵ The definition of the risk should focus on the risk itself, rather than calling out an ESG issue (e.g., "climate change risk"). In accordance with COSO, precise risk identification allows the organization to:

- More effectively manage the risk inventory and understand its relationship to the business strategy, objectives and performance
- More accurately assess the severity of a risk in the context of business objectives
- Identify the root causes and impacts and therefore select and deploy the most appropriate risk responses
- Understand interdependencies between risks and across business objectives
- Reduce the "framing bias" that can occur when a risk is framed to focus on either the potential upside or downside
- Aggregate risks to produce the portfolio view

COSO advises the following sentence structures for precisely articulating the risk:

- "The possibility of [describe potential occurrence or circumstance] and the associated impacts on [describe specific business objectives set by the organization]"
- "The risk to [describe the category set by the organization] relating to [describe the possible occurrence or circumstance] and [describe the related impact]"

Guidance ✓

Define the impact of ESG-related risks on the business precisely

In order to articulate the related or associated impact, refer to Module 4 for guidance on translating and assessing the impact of the risk on the company. Table 3.5 provides examples of how to define ESG issues as business risks, express the root cause and describe the impact on strategy, objectives and performance.

Precise risk definition	ESG issue or megatrend	Root cause	Impact on strategy, objectives and performance
The possibility that drought will impact crop yields and revenue	Water scarcity	The company has invested primarily in water-intensive crops and therefore will be impacted by water scarcity during April and May.	Water scarcity may impact the ability to produce enough crops at the right price to meet the company's revenue goals.
The possibility that declining customer base will impact sales	Demographic shifts	The company's customer base in Europe is declining because of negative population growth, an aging population and restrictive immigration laws.	The declining number of domestic customers in Europe could decrease revenue and profitability.
The possibility that participating in corrupt activities will impact the company's operations in Asia	Anti-corruption	The company operates in markets where corruption is commonplace and does not have processes in place to assess due diligence risks.	Bribery violates the US Foreign Corrupt Practices Act, UK anti-bribery legislation and company values and would preclude operations in those countries.

Root cause analysis

Each risk in the inventory is driven by an underlying cause. Root cause analysis is a useful approach to understanding these drivers of business risk. It helps isolate the required changes so that companies can address a problem at its source rather than its symptoms.

Collaborating to determine root cause increases the breadth of knowledge, understanding and experience, which can make the analysis more robust. Companies should consider involving senior management and daily operations personnel to support the analysis.

Tools for understanding root causes include the five whys, cause-and-effect diagrams, hypothesis testing and comparative analysis. The examples below illustrate how companies may perform root cause analysis in practice.

Guidance

Use root cause analysis to understand drivers of business risk

The five whys:

Asking “why” is key to effective root cause analysis. The widely used “five whys” tool, starting with the issue or observation, guides managers to continue to ask why until they arrive at the root cause. For example:

Issue: The safety performance at one of the facilities is significantly worse than company averages, presenting an increased risk to the company and inhibiting the ability to achieve the goal of zero incidents.

- Why?** There is a higher level of OSHA violations at the facility than at other company facilities.
- Why?** Workers at the facility are not using appropriate personal protective equipment (PPE) at all times.
- Why?** Workers at the facility are not being provided with appropriate PPE equipment and training.
- Why?** There is no specific EH&S action plan for improvement at this facility.
- Why?** This facility was recently acquired from another company and its due diligence processes did not adequately assess the EH&S gaps existing in that company.



At the **Siam Cement Pcl. (SCG)**, a multinational conglomerate, risk managers work closely with process owners to define each risk. The process owner is able to help the risk managers understand the risk context and various impacts from which they determine root causes. This deeper understanding greatly enhances the commentary about root cause in the risk definition.

Conclusion

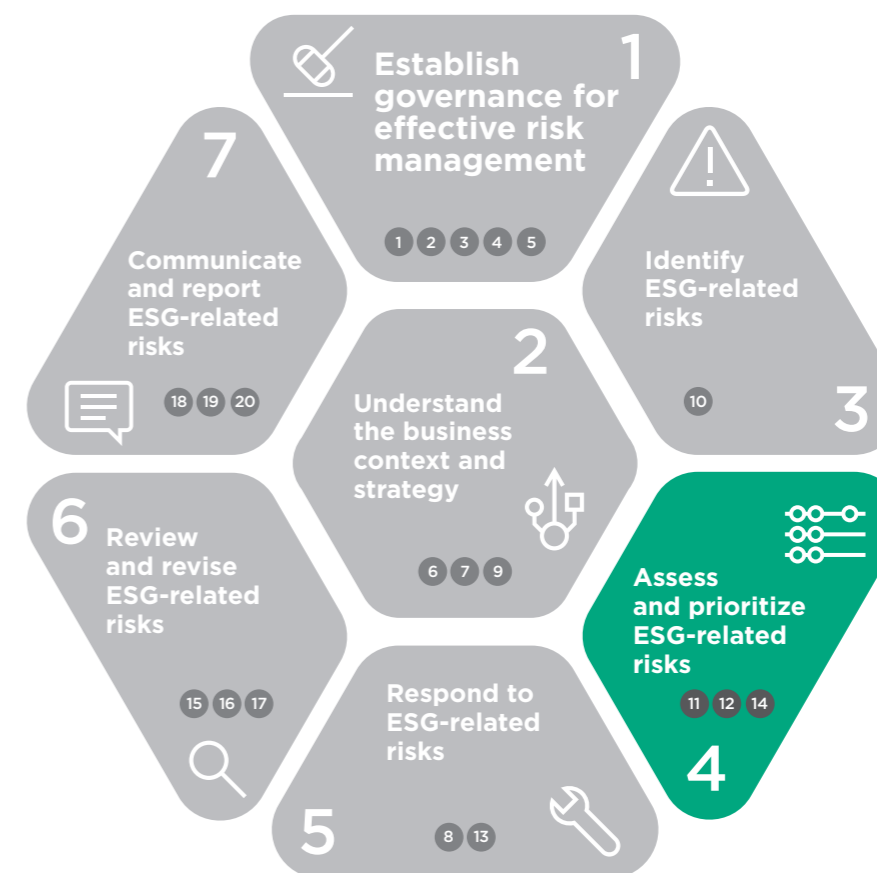
Companies have multiple approaches for identifying ESG-related risks and opportunities – megatrend analysis, SWOT analysis, impacts and dependency mapping, stakeholder engagement and materiality assessments. These tools help identify and express ESG issues in terms of how the risk threatens the company’s achievement of its strategy and business objectives. Applying these approaches through collaboration between risk and sustainability managers elevates ESG-related risks to the risk inventory and positions them for appropriate assessment and response.

4. Assess and prioritize ESG-related risks

Introduction

Effective risk management requires a constant balancing of risk exposures, benefits and resource expenditures for mitigation. For that reason, management assesses the potential impacts and severity of risks to support prioritization and allocation of resources. The goal of prioritization, therefore, is to maximize strategic, financial and operational benefit to a company.

ESG-related risks can be challenging to assess and prioritize. By nature, the financial or business implications of an ESG-related risk may not be immediately clear or measurable. This challenge is often exacerbated because a company has 1) limited knowledge of ESG-related risks, 2) a tendency to focus on near-term risks without paying adequate attention to risks that may arise in the longer term and 3) difficulty in quantifying ESG-related risks. Even when an ESG-related risk can be quantified, the company still may not prioritize it due to a conscious, or unconscious bias towards risks that are known or better understood.



COSO principles relevant to assessing and prioritizing risk

- 11 **Assesses severity of risk** — the organization assesses the severity of risk.
- 12 **Prioritizes risk** — the organization prioritizes risks as a basis for selecting responses to risks.
- 14 **Develops portfolio view** — the organization develops and evaluates a portfolio view of risk.

This module focuses on practical approaches to assess the extent to which ESG-related risks impact the company’s strategy, business model and business objectives. The following checklist provides useful steps to perform the risk severity assessment:

- Understand the required output of the risk assessment (e.g., the impact and likelihood in terms of the strategy and business objectives)
- Understand the company criteria for prioritizing risks
- Understand the metrics to use for expressing different risks (i.e., quantitative, qualitative or “directional”)
- Select appropriate assessment approaches
- Select and document data, parameters and assumptions
- Leverage subject matter expertise to prioritize ESG-related risks
- Understand the contribution of ESG-related risk to the portfolio view

In a survey of risk professionals, more than 65% indicated their company did not use any scientific methods to quantify and evaluate sustainability issues. An additional 23% did not know whether or not these quantifications methods were used.

Similarly, in a survey of sustainability professionals, approximately 70% indicated their organizations did not have a process for quantifying sustainability risks. Professionals indicated they required help to develop and improve such processes.^a

Assess and prioritize risks

An effective risk assessment examines the extent to which identified risks impact the company’s strategy and business objectives. As summarized in Table 4.1, companies achieve this by:

- Identifying the business impacts or effects that the risk will affect the company
- Making analytical choices on the most appropriate approach, data and assumptions for the assessment

Making analytical choices on the most appropriate approach, data and assumptions support an effective dialogue for prioritization that considers the severity of a risk relative to corresponding business objectives and the company’s risk appetite.

^a According to surveys of approximately 70 sustainability and risk professionals at the WBCSD Liaison Delegate Meeting in April 2017 and the Institute of Internal Auditors GAM Conference in March 2017.

Table 4.1: Overview of considerations for assessing risk severity	
Assess risk severity Perform assessments to express risks relative to the company’s ability to achieve its strategy and objectives.	
1 Business impacts and effects How does a risk impact the company’s ability to achieve its strategy and business objectives?	2 Analytical choices What is the appropriate method to assess risk severity?
1.1 Understand risk prioritization approach What criteria does the company use to prioritize risks? Does the company use judgmental evaluations or quantitative scoring methods?	2.1 Assessment approach Which assessment approach is appropriate for measuring severity of ESG-related risks (e.g., expert input, forecasting and valuation, scenario analysis or ESG-specific tools)? What additional tools are available to support the assessment?
1.2 Understand metrics for severity What metrics are used to measure the impact on the business strategy and objectives (e.g., earnings, costs, revenues, assets and capital allocation/investments)? What metrics are used to measure the likelihood, rate of onset, frequency? Are metrics qualitative, quantitative or “directional?”	2.2 Data, parameters and assumptions What are the data requirements? What data is available? Which parameters and assumptions should be applied (e.g., time, period, scope)?
3 Prioritize risks Prioritize risks based on severity, importance of the corresponding business objective and the company’s risk appetite.	

Adapted from the TCFD Technical supplement: The use of scenario analysis in disclosure of climate-related risks and opportunities (June 2017)

These considerations are not necessarily sequential and may require an iterative process. For example, the appropriate metrics for severity are subject to what data is available for a particular risk. Further, the assessment approach selected depends on the risk prioritization criteria of the company. Each of these considerations are discussed in more detail below.

Principles for assessing risk severity

Although there is no one way to assess risks, companies should adopt a principled approach. Example principles include:

- **Relevance:** The risk assessment is consistent with the risk definition and connected to business context and strategy.
- **Rigor:** A qualitative or quantitative method is used that is commensurate with the company’s expectations for prioritization.
- **Replicability:** All assumptions, data and methods used are transparent, traceable, fully documented and repeatable.
- **Consistency:** Data and methods used for the assessment are compatible with each other, the scope and the prioritization requirements.

Adapted from the Natural Capital Protocol and Social Capital Protocol

1 Business impact and effects

As discussed in Module 3, a risk is relevant if it could impact a company’s achievement of its strategy or business objectives.¹ Once a risk is identified, understanding the potential business impacts and effects allows management to prioritize risks into categories and allocate resources to respond. To achieve this, risk owners and risk managers should translate risks into a common language for measuring severity.



Table 4.2 shows examples of identified risks translated into business impacts and effects for illustrative company Pro Paper & Packaging (Pro P&P).

Guidance ✓

Understand the required output of the risk assessment (i.e., the impact and likelihood in terms of the strategy and business objectives)

Business objectives	ESG-related risks for achieving strategy	Business impacts and effects
Customer focus	<ul style="list-style-type: none"> The possibility that end-user customer preferences for products with less environmental impact, designed for recycling and reuse, will challenge long-term contracts with customers 	<ul style="list-style-type: none"> Reduced revenue of USD \$80-\$100 million per annum by 2022 (with 70% probability)
Recognized brand	<ul style="list-style-type: none"> The possibility that NGO-related campaigns will erode brand recognition as a product with strong sustainability performance 	<ul style="list-style-type: none"> Reduced market capitalization of 32% or USD \$760 million Reduced brand equity and erosion of trust
Strong growth	<ul style="list-style-type: none"> The possibility that geopolitical issues in emerging markets will reduce access to a skilled, efficient and engaged workforce impacting productivity and sales 	<ul style="list-style-type: none"> Reduced sales revenue of USD \$6.5 million for 2018-19 Increased labor cost of USD \$20 million per year from 2019 onward
Global efficiency	<ul style="list-style-type: none"> The possibility that severe weather events (e.g., cyclones, floods) will disrupt the supply chain 	<ul style="list-style-type: none"> Transitional climate-related risks reduce revenue by <ul style="list-style-type: none"> - Scenario A: USD \$70-100 million loss due to damage, reduced revenue of USD \$300 million, increase in insurance premiums of 8%, closure of three facilities - Scenario B: USD \$100-150 million loss due to damage, reduced revenue of USD \$500 million, increase in insurance premiums of 12%, closure of seven facilities
Sustainability leadership	<ul style="list-style-type: none"> The possibility that the safety performance of companies acquired as part of the growth strategy will be sub-standard will lead to lower employee morale The possibility that human rights issues in the supply chain (e.g., forced labor, child labor) will lead to reputational impacts and loss of customers 	<ul style="list-style-type: none"> Reduced revenue and increased costs of net USD \$13.6 million are a result of negative impacts on the workforce and production efficiency Contracts to the value of USD \$2.3 million are at risk due to requirements of three customers that their suppliers adopt rigorous code of conduct practices relating to the eradication of human trafficking

¹ Note that there are exceptions to this, such as human rights impacts, which are discussed in detail later in this module.

1.1 Risk prioritization criteria

Management uses quantitative and qualitative measures to predict the severity of risks while comparing and prioritizing them. Risk severity is commonly expressed in terms of impact and likelihood.

COSO defines impact as “the result or effect of a risk” and explains that there may be range of possible impacts associated with a risk. Further, those impacts may be positive or negative relative to the strategy or business objectives.¹ Table 4.3 provides some examples of criteria used to assess the impact of a risk.

Guidance ✓

Understand the company criteria for prioritizing risks

Risk Rating	Definition
Catastrophic	<ul style="list-style-type: none"> Financial loss: 20% of earnings before interest, taxes, depreciation and amortization (EBITDA) or more; more than 20% impact on share price International negative media coverage for more than six months that results in at least 20% revenue loss More than 25% employee turnover Prosecution, fines and litigation greater than 25% of expenses Threatened or actual loss of 11 or more strategic customers
High	<ul style="list-style-type: none"> Financial loss: 10%-19% of EBITDA or share price Reputation damage from media coverage that persists for one to six months and results in 10%-20% nonrecurring revenue loss Results from employee survey showing staff morale more than 5% less than peer companies Threatened or actual loss of 4-10 strategic customers
Medium	<ul style="list-style-type: none"> Financial loss: 5%-10% of EBITDA or share price Reputation damage from media coverage that persists for less than one month and results in 5%-10% nonrecurring revenue loss Results from employee survey showing morale 2%-5% less than peer companies Threatened or actual loss of 4-10 strategic customers
Low	<ul style="list-style-type: none"> Financial loss: less than 5% of EBITDA or share price Local reputation damage from NGO or media resulting in less than 5% revenue loss Individual feedback from employees on low staff morale Customer complaints from one to three strategic customers

COSO defines likelihood as “the possibility that a given event will occur.” In determining the likelihood, management may consider the following questions:

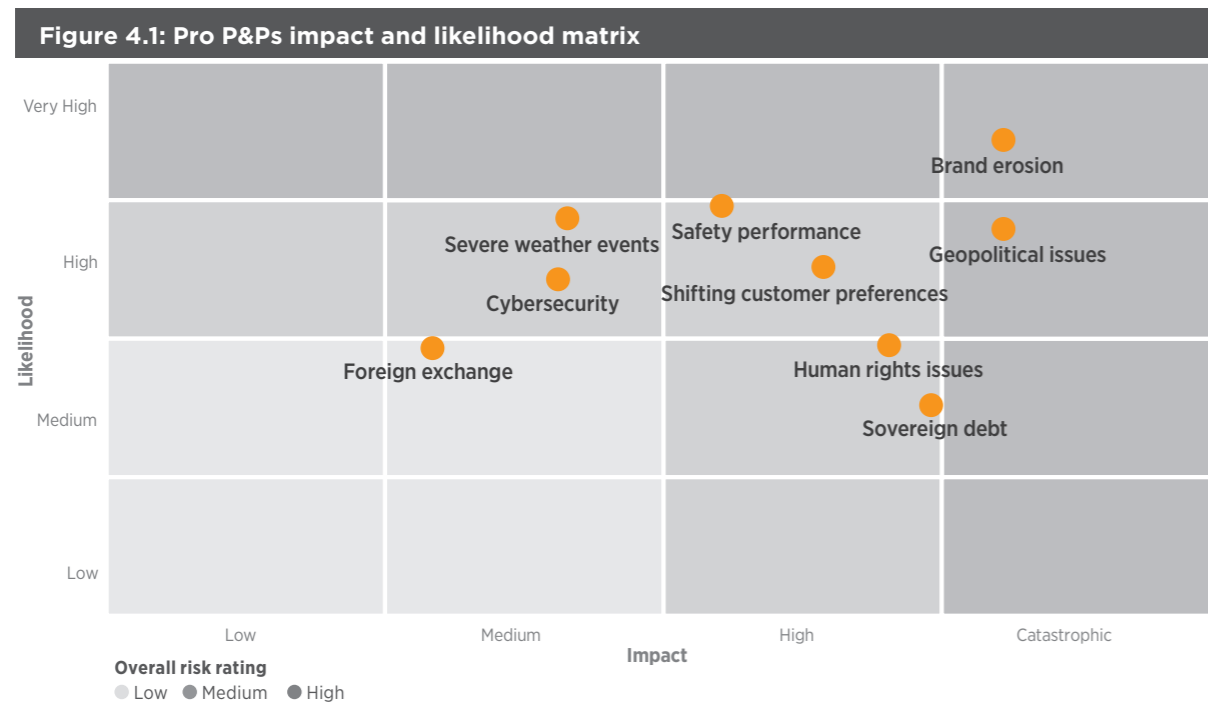
- What is the probability of the risk occurring? This may be qualitative (e.g., 12 months), quantitative (e.g., 20% likelihood in the next 5 years or 50% in the next 50 years) or frequency (e.g., once every 12 months).²
- How quickly will the risk progress to the impact that identified (e.g., considers velocity)?

Table 4.4 provides some examples of criteria used to assess the likelihood of a risk occurring.

Table 4.4: Example of likelihood prioritization criteria	
Risk Rating	Definition
Very high	<ul style="list-style-type: none"> Once a year or more frequent More than 80% chance of occurring
High	<ul style="list-style-type: none"> Occurs once every 1-3 years 50%-80% chance of occurring
Medium	<ul style="list-style-type: none"> Occurs once every 3-5 years 10-50% chance of occurring
Low	<ul style="list-style-type: none"> Occurs once every 5-10 years Less than 10% chance of occurring



Management may also use a matrix to determine an overall risk rating based on the combination of impact and likelihood. Figure 4.1 provides an illustrative example of Pro P&P's risk profile (articulated in Table 4.2) using this approach.



Although impact and likelihood are common criteria for risk prioritization, relying on these attributes alone can result in an inaccurate assessment or prioritization of ESG-related risks. In *Resilience: A journal of strategy and risk*, PwC outlines some of the characteristics of ESG-related risks that make them different from traditional risks and give rise to this difficulty, including:

- ESG-related risks can be more unpredictable and manifest over a longer and often uncertain timeframe.
- Assessment of risk is often based on historical data. For ESG-related risks, particularly those that are new or emerging, it can be difficult to find historical precedence to estimate the risk impact.
- ESG-related risks are macro, multi-faceted, interconnected and can affect the business on many dimensions. This can make assessing an ESG-related risk more complex.
- Risks may be outside a company's control. Responding to a risk may rely on the actions of other parties or may require coordinated efforts.³

ESG-related risks also tend to be affected by organizational biases that exist when assessing and prioritizing risks. As discussed in Module 1, people tend to be *overconfident* about the accuracy of forecasts and risk assessments and too narrow in the range of outcomes that may occur. There is also a tendency to *anchor estimates* based on readily available evidence despite the known difficulties with making direct extrapolations from recent history to an uncertain and variable future. This is often compounded by *confirmation bias*, which drives people to favor information that supports a certain position and suppress information that contradicts that position.⁴ Confirmation bias can be particularly common among those who hold strong positions about the science of climate change (either affirming or denying the causes and expected impacts).

To overcome these challenges, it can be helpful to consider additional criteria (beyond impact and likelihood) that provide a more complete understanding of the nature and extent of a company's exposure. Table 4.4 details a list of example criteria provided by COSO that can be used for assessing and prioritizing risks and the relevance for ESG-related risks.

Table 4.4: Application of prioritization criteria to ESG-related risks
(adapted from COSO ERM Framework)

Criteria	Description	Relevance for ESG-related risks
Adaptability	The capacity of an entity to adapt and respond to risks	A risk may be significant and unpredictable; however, a company can build in adaptability mechanisms to respond to or absorb the risk. For example, in the 1980s, Shell diversified its portfolio and used scenario planning to prepare and adapt to potential oil price fluctuations that were generally considered unforeseeable. ⁵
Complexity	The scope and nature of a risk to the entity's success	Many ESG-related risks are interrelated, global, industry-wide and constantly changing. For example, healthcare companies are aware of the complex relationship between climate change and health. Climate change impacts may lead to potential disruptions to operations, while also leading to health impacts on individuals (increasing the demand for healthcare services). CPA Australia, KPMG and GRI reported that companies that incorporated megatrend analysis into the risk processes tended to focus on one characteristic and did not deal with the "complex and systemic megaforce whose impacts are over the short, medium and long term." For example, companies with exposure to water scarcity are more likely to focus on immediate water efficiency than investigating the risks associated with future water scarcity. Similarly, companies looking at resource scarcity and deforestation are considering efficient consumption of energy, water and paper as well as recycling initiatives, but are less likely to explore deeper issues of changing land use practices and systemic impacts on ecosystem design. ⁶
Velocity, or speed of onset	The speed at which risk impacts an entity	ESG-related risks are often emerging and unforeseen until swift events result in extreme consequences. Climate change impacts often manifest in the form of more extreme or frequent occurrences of known events, such as droughts and floods, and are best understood by studying longer temporal horizons than are usually associated with typical risk management.
Persistence	How long a risk impacts an entity	Risk severity should consider the extent to which the impact will be an acute, one-time impact (e.g., cyclones, hurricanes or earthquakes) versus a chronic issue that will cause ongoing impacts (e.g., sustained higher temperatures or droughts).
Recovery	The capacity of an entity to return to tolerance	Consider how quickly the business would recover if a risk occurred today. For some ESG issues, impacts are irreversible. For example, in the agriculture, food and beverage sector, the impacts of climate change have the potential to alter growing conditions and seasons, increase pests and disease and decrease crop yield. ⁷ Recovery from these impacts requires enhancing capacity to manage and respond to the risk.

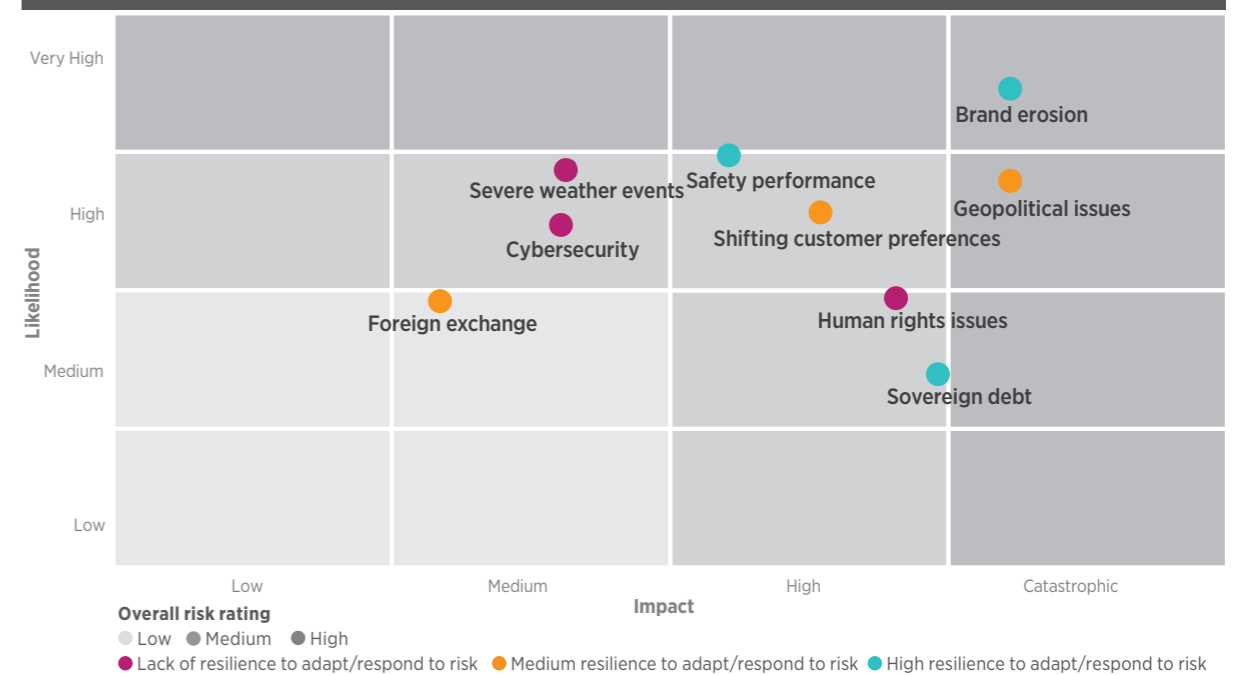
These additional considerations can be captured by either:

- Expanding the assessment criteria for understanding the risk severity (see Figure 4.1), or
- As an additional consideration during the prioritization process (refer to Section 3)



For example, consider the risk assessment of **Pro P&P** illustrated in Figure 4.1. Although the impact and likelihood assessment has not changed, by including an additional lens in the risk assessment, a company can present additional risk information to inform response-setting. In this example, by including *resilience* may elevate the threat associated with severe weather events due to a lack of contingency planning and concentration of operations to one geography.⁸ Other risks, such as the potential for brand erosion due to NGO campaigns may be associated with high resilience, due to strong stakeholder engagement and corporate crisis response program.

Figure 4.1: Pro P&Ps impact and likelihood matrix



In a similar example, in 2008 a multinational transport company revised its risk assessment process to capture the company's *vulnerability* to a particular risk event. The shift provided the company with both enhanced preparedness for risk as well as a competitive advantage and sales proposition.

Assessing risk based on vulnerability: The case of a multinational transport company

Following the impacts of the 2008 financial crisis, a multinational transport company realized that its "once a year" approach to assessing risks based on *impact* and *likelihood* was no longer fit for purpose. Not only did it fail to mitigate against the losses during the 2008 crisis, it did not provide the company with the ability to adapt rapidly to a changing environment.

This led the company to modify its approach to assessing risk, considering *impact* and *vulnerability* as a way to understand a risk and the company's overall resilience.

In 2008, the risk of pandemics was no longer considered a "black swan" but was a potentially significant social risk. The World Economic Forum's *Global Risk Report* rated it as the fourth global risk in terms of impact. The risk management team recognized this vulnerability and the potential for an event to cripple the company. In response, they developed business continuity plans that included alternative routes and operational plans to build resilience in the face of a global risk event.

As this risk materialized with the H1N1 virus in 2009 and customers started asking questions about the preparedness of the company – the risk management team was prepared. Risk managers were invited to sales meetings where customers selected the company over its competitors because of its ability to demonstrate preparedness and alternative operational plans in the event of pandemics or other global shocks.

1.2 Metrics for severity

Depending on its prioritization approach and criteria, a company selects a series of *severity measures* to assess, prioritize and communicate disparate risks. This may include metrics to assess:

- The potential impact of the risk on the company
- The likelihood of the risk occurring
- Aspects relating to other criteria used in the assessment and prioritization process

Guidance

Understand the metrics to use for expressing different risks (i.e., quantitative, qualitative or “directional”)

Companies consider both the quantitative and qualitative impact and likelihood of a risk.⁹ For many companies, risks must be monetized because they require a common denominator for comparing different risks. In other cases, qualitative assessment is considered where quantification cannot be achieved. Risk owners should understand how the company expresses risks to determine the output and level of precision required for assessing each risk. This can help in selecting the measurement method consistent with the language of the business. Some questions to consider in determining this include:

- What are the company’s mission, vision, values, strategy and business objectives?
- What are the risk prioritization approaches and the criteria used by the company (refer to Section 1.1)?
- What denominator(s) does the company prefer to use for measuring and comparing risks (e.g., capital costs, operating costs, revenues, business interruption)?
- For which areas are qualitative measurements relevant for assessment and prioritization versus areas where a quantitative assessment is more appropriate?
- What is the appropriate level of rigor to apply to an assessment? Is it sufficiently reliable for decision-making?
- When are quantitative models, scenarios and other output values necessary and/or possible?

Table 4.5 shows the range of approaches companies use to assess risk severity.

Measure	Considerations	Measurement approaches
Quantitative-monetary	<ul style="list-style-type: none"> • Prioritization requires consistency with other risk severity assessments (e.g., financial risks) • Decision-making for tradeoffs is supported • Assumptions and calculations can be complex • Prioritization requires financial value at risk and potential business impacts (e.g., revenues, sales, margin, cost) • Example monetary impact: salaries paid (employment) 	<ul style="list-style-type: none"> • Includes probabilistic and non-probabilistic models, decision trees, Monte Carlo simulations, allows for increased granularity and precision and supports a cost-benefit analysis
Quantitative – non-monetary	<ul style="list-style-type: none"> • Time, resources or data that are not available for monetization • Helpful for measuring progress over time • Disparate risks that cannot be compared (e.g., volumes of water vs. loss of revenue) • Example non-monetary impact: number of jobs (employment) 	
Qualitative or directional	<ul style="list-style-type: none"> • Do not require significant amounts of data • Less precise, greater possibility of bias • Useful when there are many different perspectives or impacts • Helpful for risks that have strong moral or ethical dimension • Example qualitative impact: expressed in categories of high, medium or low (employment) 	<ul style="list-style-type: none"> • Interviews, workshops, surveys, benchmarking

Table 4.6 provides an example hierarchy used for measuring risk severity. Although this may not always be documented, most companies have a preference for how risks are communicated throughout the business – driven by the organizational culture and the risk prioritization criteria (discussed in Section 1.1 of this module). In this example, monetized, quantitative measures are the preferred measure of severity, followed by other quantitative measures and finally qualitative or directional measurements.

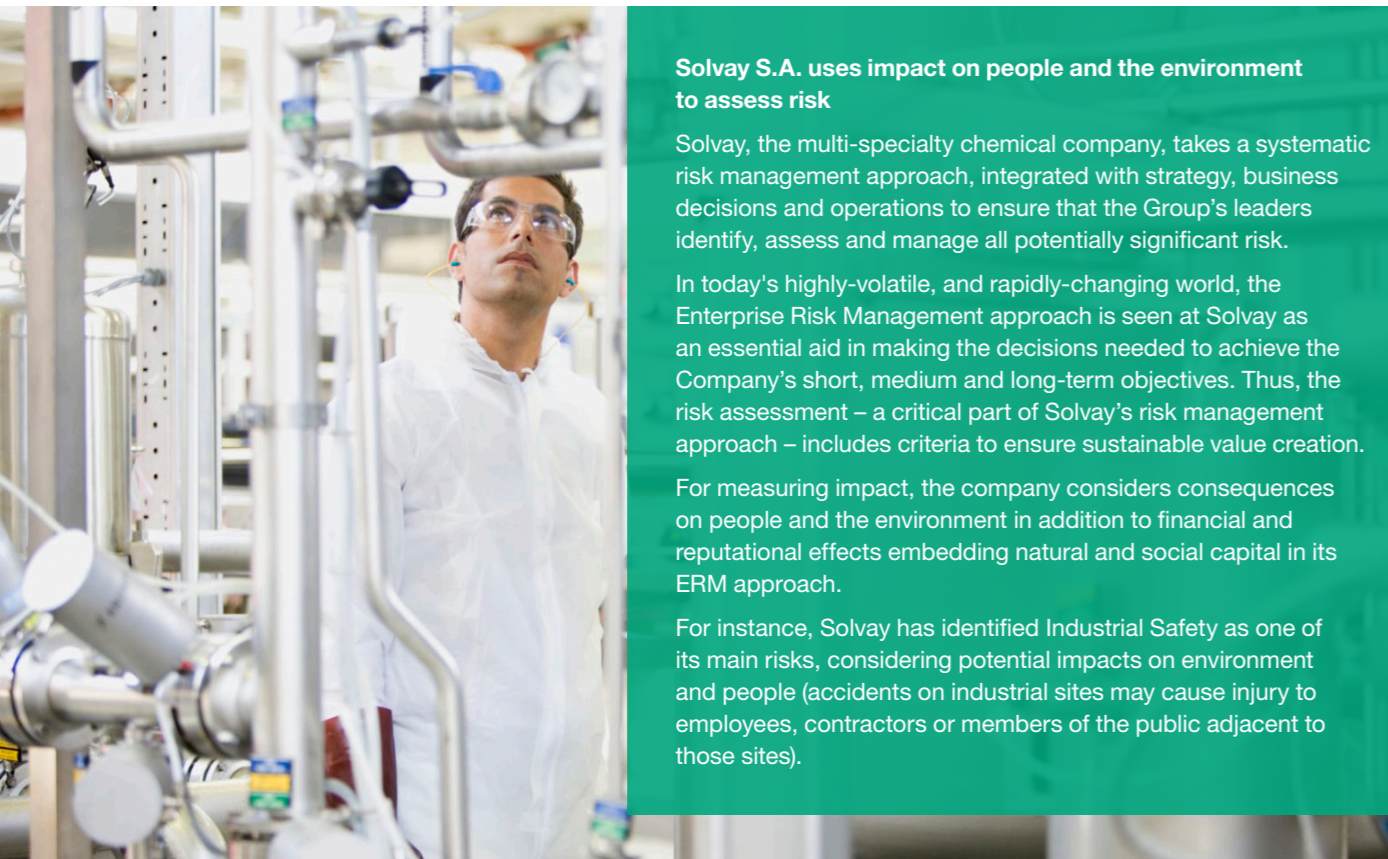
Measure	Considerations
Quantitative (monetary)	Revenue: Projected or identified impact on revenue or expenditures or costs
	Expenditures: Projected or identified impact on expenditure or costs
	EBITDA: Projected or identified impact on EBITDA
	Assets and liabilities: Write off, asset impairment and early retirement of existing assets
	Capital and financing: Impact to cost of capital or access to capital, operating losses
	Market capitalization: Impact on market capitalization
	Customer / reputation: Reduction in customer confidence (%) (may also be measured in revenue)
	Productivity: Loss in productivity (%)
	Safety: Lost time due to injuries or fatalities
	Share price: Impact (%) in share price ^b
Quantitative	Greenhouse gas emissions: Total emissions by type of greenhouse gas (GHG); carbon intensity (GHG / USD \$ million)
	Energy/fuel: Total energy consumption in megawatt hours
	Water: Total freshwater withdrawn in cubic meters from water-stressed regions
	Land use: Percent change in land cover type (e.g., grassland, forest, cultivated, pasture, urban)
	Growth: Inability to grow market share in target areas (e.g., rate) or lack of process innovations (e.g., number per year)
	Reputation: Type of complaints received from stakeholders ^c
	Location: Number of locations within a designated flood zone
	Staff morale/turnover: Engagement survey results / level of engagement
	Strategy: Inability to execute strategic plans
	Capital and financing: Directional increase or decrease in ability to raise capital
Qualitative or directional	

Where possible, ESG-related risks should be assessed and framed in the preferred denominators of the company. For many companies, this means sustainability managers and risk owners should be aiming to assess the severity of an ESG-related risk in terms of revenue, costs or EBITDA.

However, this can present some challenges. As discussed above, many companies’ interactions with ESG issues do not yet have an easily measurable impact on market value, or the price of products, materials and cash flows. For some ESG-related risks, this can be addressed by including a nonfinancial measure directly in the prioritization criteria. For example, some companies prioritize risks that lead to any significant safety incidents as “high” regardless of whether a financial connection can be made.

^b Although fluctuation in share price can provide an indication of the impact of an event on how a company is perceived by the market – these fluctuations are often short term and may not have a long-term implication for the performance of the company.
^c Using qualitative reputational metrics can also be problematic. Although companies are concerned about reputational impacts of risk, it is preferable that these are expressed in terms of a monetary or quantifiable impact on the strategy.

For other ESG-related risks, companies need to develop and leverage tools and capabilities for quantification. The Natural Capital Coalition's *Natural Capital Protocol*¹⁰ and WBCSD's *Social Capital Protocol*¹¹ can support this by providing frameworks to identify, measure and value the impacts and dependencies on natural and social capital. Both protocols are designed to help companies translate the impacts and dependencies of all six capitals^d into costs and benefits for business and society.



Solvay S.A. uses impact on people and the environment to assess risk

Solvay, the multi-specialty chemical company, takes a systematic risk management approach, integrated with strategy, business decisions and operations to ensure that the Group's leaders identify, assess and manage all potentially significant risk.

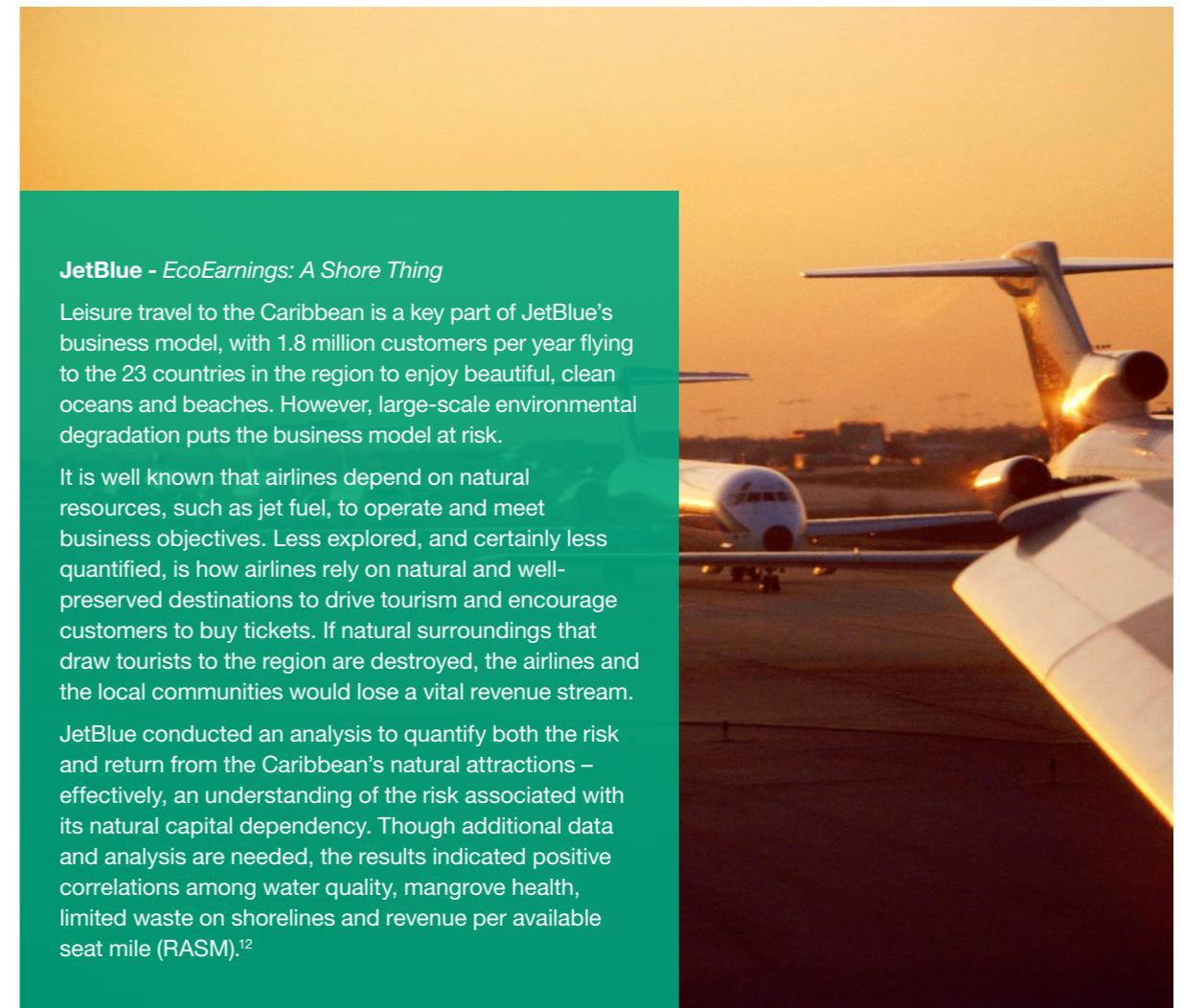
In today's highly-volatile, and rapidly-changing world, the Enterprise Risk Management approach is seen at Solvay as an essential aid in making the decisions needed to achieve the Company's short, medium and long-term objectives. Thus, the risk assessment – a critical part of Solvay's risk management approach – includes criteria to ensure sustainable value creation.

For measuring impact, the company considers consequences on people and the environment in addition to financial and reputational effects embedding natural and social capital in its ERM approach.

For instance, Solvay has identified Industrial Safety as one of its main risks, considering potential impacts on environment and people (accidents on industrial sites may cause injury to employees, contractors or members of the public adjacent to those sites).

Although the cost and benefits to the business should be the primary focus of this analysis, external costs and benefits to *society* can also contribute to the long-term value of a company. Consider the example of JetBlue (below). After identifying a dependency on natural capital (i.e., pristine beaches at their destinations) in their business model, JetBlue adopted an approach to quantify the risk and return relating to this dependency. These impacts and dependencies are becoming increasingly relevant due to an increasing drive from customers, NGOs and other stakeholders for transparency or voluntary action by businesses to recognize these costs and benefits.

^d The six capitals include financial, natural, manufactured, intellectual, human and relationship and social. Refer to Module 2 for more information.



JetBlue - EcoEarnings: A Shore Thing

Leisure travel to the Caribbean is a key part of JetBlue's business model, with 1.8 million customers per year flying to the 23 countries in the region to enjoy beautiful, clean oceans and beaches. However, large-scale environmental degradation puts the business model at risk.

It is well known that airlines depend on natural resources, such as jet fuel, to operate and meet business objectives. Less explored, and certainly less quantified, is how airlines rely on natural and well-preserved destinations to drive tourism and encourage customers to buy tickets. If natural surroundings that draw tourists to the region are destroyed, the airlines and the local communities would lose a vital revenue stream.

JetBlue conducted an analysis to quantify both the risk and return from the Caribbean's natural attractions – effectively, an understanding of the risk associated with its natural capital dependency. Though additional data and analysis are needed, the results indicated positive correlations among water quality, mangrove health, limited waste on shorelines and revenue per available seat mile (RASM).¹²

Additional guidance on calculating and valuing ESG-related risks is detailed in the next section of this module.

The particular case of business impacts on human rights

One of the social risks that responsible companies analyze is their potential impact on the human rights of their stakeholders. The process of identifying, preventing, mitigating and accounting for potential human rights impacts is generally informed by the *UN Guiding Principles on Business and Human Rights*, a document unanimously endorsed by the Human Rights Council in 2011 following rigorous consultation with business, governments and civil society. *The UN Guiding Principles* set out the content of the corporate responsibility to respect human rights: a responsibility that exists regardless of governments' ability or willingness to uphold their own duty to protect citizens from corporate human rights impacts. In other words, today's stakeholders expect companies to go beyond domestic law when necessary to uphold international standards of human rights.

The process for managing human rights impacts is referred to as "human rights due diligence" ("HRDD"). Under the UNGPs, companies should develop and communicate a commitment to respect human rights, undertake human rights due diligence, embed the results of the due diligence across their operations and track results, communicate on their efforts and have in place operational-level grievance mechanisms to remedy impacts.

There are, however, key differences in the approach to risk assessment in the human rights context.

1. In HRDD, risk is assessed on the basis of likelihood and severity, but the perspective from which severity is assessed differs. In more familiar risk management processes, severity of risk is most often assessed in whole or in part from the perspective of risk to the company, whether financial, reputational or otherwise. However, HRDD assesses risk from the perspective of the affected stakeholders only, that is, from the perspective of those who may be adversely impacted. This is a subtle yet crucial distinction: a company may consider, for example, the risk of a certain indigenous group successfully protesting aspects of its operations as very low and the risk of reputational or other damage as unlikely; however, if that group is facing a human rights impact from the operations, HRDD would assess the risk as severe. Severity is also weighted slightly higher than likelihood, such that potentially severe events with low likelihood of occurrence may still be prioritized for management (see figure to the right).

2. Stakeholder engagement is crucial in HRDD, and findings of a risk assessment should be tested with stakeholders. It is difficult for a company to assess severity of risk from the perspective of potentially affected stakeholders unless it proactively engages with them to understand their vulnerabilities and potential to be impacted by the company's activities.

Key resources offer further guidance on risk assessment in a human rights context.

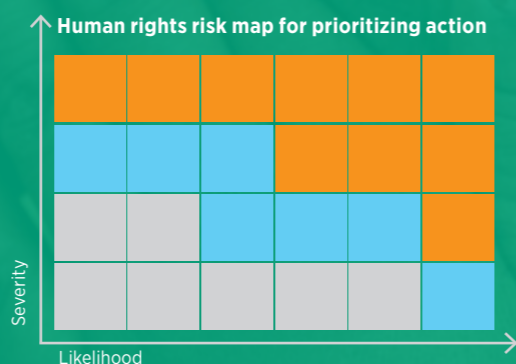


Table 4.7: Human rights resources

Resource	Description
UN Guiding Principles on Business and Human Rights	Outlines principles on the corporate responsibility to respect human rights ¹³
Shift and Mazars' UN Guiding Principles Reporting Framework	Provides implementation and assurance guidance on the <i>UN Guiding Principles on Business and Human Rights</i> ¹⁴
Shift's "Assess" guidance	Provides guidance on how the company's operations and business relationships can pose risks to human rights ¹⁵
Shift's Business and Human Rights Impacts: Identifying and Prioritizing Human Rights Risks	Reflects learning from a workshop with 12 Dutch companies together with expert stakeholders, hosted by the Social and Economic Rights Council of the Netherlands, about how companies can identify and prioritize human rights risks and test their findings through stakeholder engagement ¹⁶
Global Compact and EY's Business and Human Rights: Corporate Japan Rises to the Challenge	Includes examples and provides guidance on human rights due diligence ¹⁷

2 Analytical choices

In assessing the risk severity in terms of the business context and strategy, management makes a series of analytical choices to determine an appropriate assessment approach and select the data, parameters and assumptions required for the risk assessment.

The risk severity assessments in this section consider risk in two forms: inherent risk and actual residual risk. Due to the challenge of separating a risk from its controls in assessment, many companies choose one measure, commonly residual risk. In using residual risk, managers need to look out for confidence bias, in which they overestimate control effectiveness.¹⁸ This can lead to risk severities which do not capture a company's exposure accurately.

2.1 Assessment approaches

Depending on a company's prioritization approach and preference for severity metrics, an assessment approach is selected. If a monetary assessment is required, risk owners should leverage the appropriate approaches to monetize the risks (e.g., climate-related risks based on scenario analysis). Alternatively, they can work with the risk manager to develop acceptable non-monetary assessments (e.g., greenhouse gas emissions) or qualitative or "directional" measures.

This section highlights four approaches that can be used to measure ESG-related risk severity qualitatively or quantitatively set out in the Table 4.8.

Guidance

Select appropriate assessment approaches

Table 4.8: Measurement approaches

Approach	Description	Advantages and disadvantages
Expert input	Expert input refers to a forecasting method that relies on a panel of experts (e.g., Delphi approach) or interviews and discussions with subject matter specialists.	<ul style="list-style-type: none"> • Relatively quick, limited analysis • Not always effective for ESG-related risk when relevant experts are not available to participate • May be appropriate for emerging risks, where data is sparse • Allows criteria other than "likelihood" and "impact" such as velocity, resilience to be included in the risk assessment discussion
Forecasting and valuation	Forecasting and valuation predicts the impact of a future event based on past and present data. Traditional ERM tools such as statistical regression and Monte Carlo simulation can support quantification of ESG-related risks. In addition, the <i>Natural Capital Protocol</i> and <i>Social Capital Protocol</i> can help to value ESG-related risks or opportunities.	<ul style="list-style-type: none"> • Requires basic forecasting skills and internal or external data • Requires large amounts of data and probabilistic modeling tools
Scenario analysis	Scenario analysis develops plausible pathways to describe a future state.	<ul style="list-style-type: none"> • Requires forecasting and research of future outcomes • Allows simulation of events or disruptions
ESG-specific tools	Tools and approaches are available in the <i>Natural Capital Protocol Toolkit</i> and <i>Social Capital Protocol Toolkit</i> .	<ul style="list-style-type: none"> • Leverages ESG-issue and geography specific assessment methods • Varying degrees of quality and maturity amongst the available tools

All estimates are subject to some underlying uncertainty. Although this cannot be avoided it is important to understand where the uncertainty occurs and document the limitations.¹⁹ For quantitative approaches, estimation uncertainty can be measured. For qualitative approaches uncertainty estimates are more subjective. For example, an assessment of greenhouse gas emissions will be subject to uncertainty due to the emissions factors selected, or extrapolation of data sets (if data for some facilities is not available). These key assumptions should be documented so they can be incorporated into the prioritization and decision-making process.

Expert input

Expert input harnesses the experience and knowledge of subject matter professionals (either internal or external to the organization) in assessing, pricing or prioritizing a specific risk or set of risks. Expert input can also support identifying risks or providing input to the precise definition. The results can be used as inputs into a quantitative approach or serve as a stand-alone qualitative assessment for risk prioritization.

Expert input can be particularly useful for risks for which there is limited data or established models, which is often the case for ESG-related risks and other emerging risks. The absence of information or tools does not mean a company can ignore the risks, particularly if they are rated high in terms of materiality.²⁰ For these risks, companies can engage subject matter resources through a series of interviews or a workshop to obtain scenarios and estimates in terms of impact and likelihood. These results are often used as data points into quantification tools such as scenario analysis or Monte Carlo simulation as described below.

The Delphi approach relies on a panel of experts who respond to several rounds of questionnaires or inquiry of risk ratings, assessing expected impact and likelihood of an individual risk or prioritizing a group of risks. Delphi may also be appropriate for identifying risks.



Delphi approach

A Delphi approach can be used with a group of climate subject matter resources to develop distribution curves on climate impacts on a portfolio of facilities. The group could be presented with a series of questions, such as:

- What is the range of sea level rise over the next 20 years in our operating regions (minimum, maximum and midpoints)?
- What is the range of anticipated distribution of major storms within our operating regions?
- What is the range of temperature changes anticipated in our operating regions?

This information can provide support to synthesize many sources of information into a distilled view. The outcomes of this workshop can support Monte Carlo modeling by providing the distribution curves that form the basis from the model.

From this, discussions with the operations team can help the company understand the resulting implications of the impacts on the facilities – for example, whether the impacts will lead to interruptions to business continuity, damage and flooding or changes in insurance pricing. The output provides the basis to appropriately prioritize the risk.

Many companies also use the Delphi approach to prioritize overall risks (often using a voting or average system). Although this method allows the range of enterprise risks to be debated and compared, one challenge for ESG-related risks is that these panels are often composed primarily of management who lack expertise in ESG issues – resulting in a lower priority for ESG-related risks. Sustainability managers can provide additional information to support decision-makers. Although this is often a qualitative discussion, sustainability managers should use the assessment tools in this module to develop quantitative output through data and assumptions.

Forecasting and valuation

Forecasting and valuation are commonly used to assess the severity of a risk. These can be effective measurement tools for ESG-related risks, by leveraging historical data from the company or its peers to estimate the potential impact of a risk on revenue, costs or profit. Companies can compare the impact of ESG-related risks in financial terms with other entity-level risks during prioritization.

The quality of forecasts is largely driven by the reliability of data and assumptions. For example, a Monte Carlo simulation (which provides the probability inputs for forecasts) requires large amounts of reliable data and assumptions developed by a group of experts (such as those described in the Delphi approach) to produce a range of probabilities. Though less precise, data for an individual risk event can still contribute to a monetary risk assessment. For example, developing an assessment based on the cost of a single recall is less precise than an industry average of recalls over the past 10 years.

Quantification of the impact of community conflict in the extractive sector

Human rights risks and impacts can be particularly difficult to quantify. A Harvard Kennedy School study in 2014 found that most companies do not adequately identify, understand and aggregate the cost of conflict with local communities – which can include contractual disputes, lost productivity and suspension of operations. Estimates suggest a USD \$3-5 billion project will suffer losses of USD \$20 million per week of delayed production.

This assessment provides a strong business case for developing a human rights and stakeholder engagement program to mitigate this risk.²¹

Data, parameters and assumptions can be based on historical company experience (such as supplier spend or revenue) or proxy or extrapolated experience (such as the revenue and cost impact experienced by a competitor due to a product recall). These examples help to identify the value at stake for a selection of risks. Refer to Appendix III for some ESG examples that can be used to support these assessments.

Valuation can also be performed using methods that require more extensive data sets and subject matter knowledge. A few examples of commonly used valuation approaches are shown in Table 4.9²² while other methods are included in the *Natural Capital Protocol* and *Social Capital Protocol*.

Resource	Description
Abatement costs – the costs associated with limitation, prevention or repair of impacts (mostly used for environmental impacts)	TruCost estimates the “social cost of carbon” by monetizing the damages associated with an incremental increase in greenhouse gas emissions in a given year. ²³
Contingent valuation – survey-based approach to value nonmarket resources	A contingent valuation approach was used to estimate consumer willingness to pay for food safety health outcomes. It is estimated that there are about a million cases of foodborne disease (FBD) in the UK each year, resulting in 20,000 hospital admissions and 500 deaths. Most of this illness is caused by microbial pathogens such as viruses and bacteria. The objective of this was to estimate this cost, i.e., to estimate the willingness to pay (WTP) to avoid pain, grief and suffering associated with illness and/or death caused by microbiological pathogens, chemical and radiological contaminants and allergens. ²⁴
Value-based pricing – estimation based on the next best available alternative	“Value-based pricing is the method of setting a price by which a company calculates and tries to earn the differentiated worth of its product for a particular customer segment when compared to its competitor.” For example, a company can focus on a specific segment – such as buyers of paper towels made from recycled paper. The company would then compare the value against the next best available alternative – e.g., non-bleached paper towels. The company would determine the product differentiators (e.g., recycled and compostable) and estimate a dollar value on that differentiation (e.g., \$0.75 per paper towel roll). ²⁵
Value (benefit) transfer – estimation method transferring information from another location or context to that in question	A benefit transfer approach was used to estimate the potential benefits from protecting and restoring the wetlands in Michigan. The researchers applied the values proposed in an Ohio study to coastal residents of Michigan. This enabled the researchers to determine monetary values for the Michigan wetlands. ²⁶

Assessing ESG-related risks is inherently uncertain, which may lead companies to avoid monetary quantification. These forecasting tools allow management to develop its best risk assessment based on the information it has, while being transparent about limitations. Good practice does exist, and this should be leveraged. The examples below show how to use a range of internal and external data to develop monetary risk assessments.

Forecasting tools allow management to develop its best risk assessment based on the information available, while being transparent about limitations. The examples of companies across different sectors below show how to use a range of internal and external data to develop monetary risk assessments.


Technology company (TechX): product safety and recall costs

TechX assessed the potential severity of product safety risk resulting in a product recall. The company used data from Dell/Sony’s 2006 lithium ion computer battery recall in which the company paid USD \$400 million for 4.1 million recalled batteries.²⁷ TechX considered this a reasonable comparison because it produces the same type of battery and has a similar manufacturing process.

Using the comparable average recall data for Dell/Sony, the company determined that in the event of a recall, the cost per recalled battery is ~\$10 per laptop battery (USD \$400 million / 4.1 million laptop batteries recalled).

For a given product, TechX has sold 20 million batteries, leading to a potential cost of USD \$200 million (USD \$10 x 20 million).

The managers understand that this estimated risk severity for product safety is not precise. However, the potential risk to the company and evidence of the event happening to peers was enough to elicit action from the company. It hired three additional personnel to implement controls over product safety which reduced the company’s risk and protected its customers.

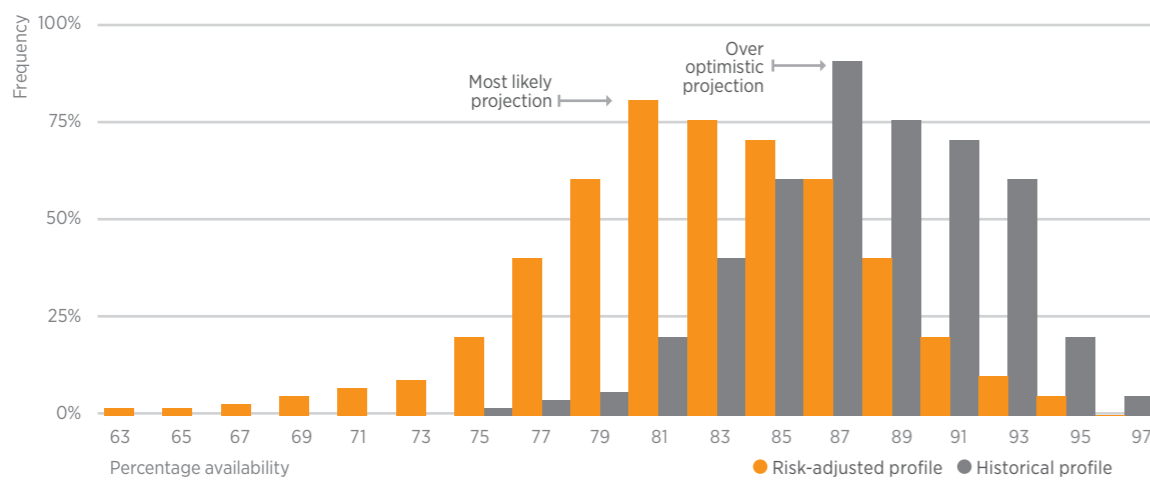


Monte Carlo simulation
Utility company – severe storms risk

An electric utility company owns many generation plants. The company identified the risk of severe weather such as tornadoes impacting operating ability of generation plants for up to several weeks. This impacts revenue and customer confidence. The time horizon for risk assessments is five years, consistent with the company's strategic plan. It assessed the severity of the risk as follows:

- The risk managers obtained historical plant availability data for the past 10 years. Using this data and the Monte Carlo simulation, they created the "historical profile."
- The risk and sustainability managers worked together to obtain meteorological projections of expected storms in the next five years. They used this projection to determine the "risk-adjusted profile."

Figure 4.1: Generation plant availability



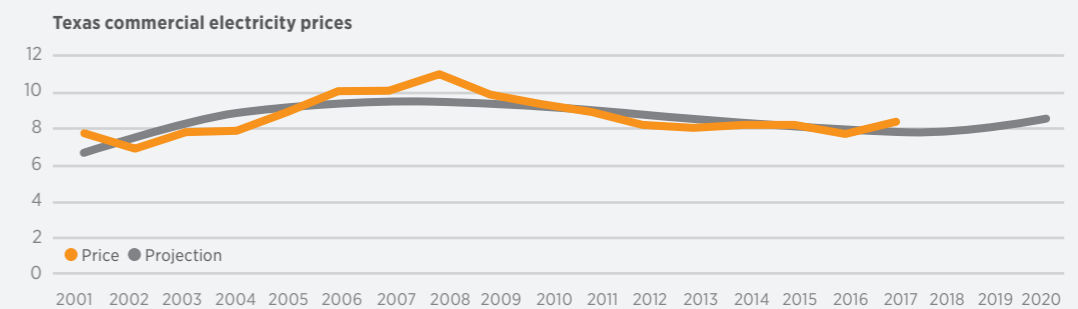
Based on this analysis, the managers observed that the plants were at a greater risk of deteriorating performance than history indicated. This warranted additional investment to prevent service degradation. Using this information, the company was able to prioritize the risk and develop and model its responses.

Telecommunications company: electricity price volatility

A telecommunications company assessed the severity of energy price volatility impacting the company's profit targets over the company's four-year strategic time horizon. The analysis focused on electricity, which represents 90% of the company's energy use. Using internal energy and cost data and external data from the US Energy Information Agency (EIA),²⁸ the company estimated the average price of electricity.

EIA average price of electricity from 2001 to 2016

The company obtained the Texas commercial electricity prices from 2001 to 2016. Using this historical information, the company projected the commercial electricity prices from 2017 to 2020.



Total electricity and expense data – historical and projected through 2020

The company used annual electricity usage and trends from 2012 to 2016 to project electricity usage from 2017 to 2020. The projection assumes the company's investments in LEED buildings will improve energy efficiency over time. Electricity cost was estimated as average electricity price times projected usage.

Year	Electricity usage (kwh)*	Electricity cost (per kwh) (USD)	Total electricity cost (USD)	Total expenses (USD)	Total electricity cost % of total costs
2012	12,000,000	0.0816	979,200	15,000,000	6.5%
2013	13,000,000	0.0802	1,042,600	14,500,000	7.2%
2014	14,000,000	0.0816	1,142,400	13,500,000	8.5%
2015	13,500,000	0.0816	1,101,600	12,500,000	8.8%
2016	12,000,000	0.071	852,000	12,000,000	7.1%
2017	11,500,000	0.068	782,000	12,000,000	6.5%
2018	10,000,000	0.071	710,000	11,500,000	6.2%
2019	11,000,000	0.0816	897,600	10,500,000	8.5%
2020	10,000,000	0.0818	818,000	10,500,000	7.8%

* Assuming electricity usage will decrease from energy efficiency gains at LEED buildings

Results:

- Total electricity costs for the next three years are estimated to be USD \$2,421,600, or approximately 7.5% of total future costs.
- Percent price increase (less than 0.5% year-to-year) is predicted to be less than inflation of 1.9%.
- The risk related to energy price volatility is assessed as moderate which requires monitoring.

Scenario analysis

Scenario analysis is a well-established tool for assessing the potential implications of a range of long-term future states under conditions of uncertainty.²⁹ Originally developed at Shell Oil in the 1960s, scenario analysis is a systematic process for defining the plausible boundaries of future states.³⁰ This can be a particularly effective tool for ESG-related risks, as it reduces the extent to which managers need to “predict” possible outcomes – by providing a range of scenarios for the company to consider and use for planning its response.

Scenario characteristics (TCFD):

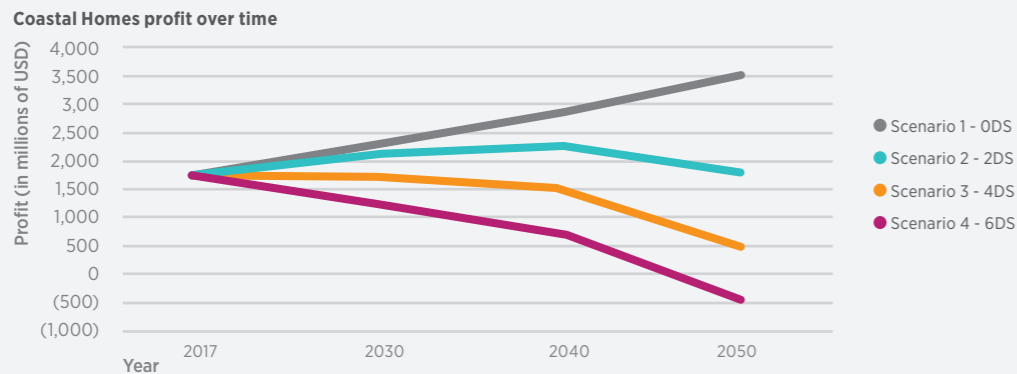
- Plausible
- Distinctive
- Consistent
- Relevant
- Challenging

Many companies and investors already use scenario analysis for anticipating future states for other risks – including climate-related risk assessments as part of their risk management and strategic planning processes.³¹ Appendix IV contains references to company examples and climate-related scenario analyses from IPCC and IEA. These examples and those in the TCFD’s *Technical Supplement: The use of scenario analysis in disclosure of climate-related risks and opportunities*³² provide detailed information on applying scenario analysis to climate-related risks. This tool can also be applied to other ESG-related risks (e.g., regional water availability, outsourcing labor cost models) which could emerge in distinct ways over time.

Coastal Homes, Inc. – climate-related risk

A real estate company operating in a warm, coastal country identified acute and chronic physical risks related to climate change impacting their ability to achieve target profits. The company used scenario analysis to project the impacts to the company through 2050.

The company leveraged the 2-, 4- and 6-degree scenarios from IEA and followed the TCFD *Technical Supplement: The use of scenario analysis in disclosure of climate-related risks and opportunities* to model the effects of sea level rise, severe storms and increased daily temperature on the value and availability of insurance available to protect fixed assets.



The results of the scenario modeling:

- The severity of physical climate-related risks led the company to determine that doing nothing would challenge the survival of the business. The scenarios provide the ability to discuss the potential impacts on the company and how the company should respond and shift strategy.
- The company prioritized the risks as high based on the coastal location.

ESG-specific tools

There is also a range of specific approaches that can support ESG-related risk assessments. The *Natural Capital Protocol Toolkit*³³ or the *Social Capital Protocol Toolkit*,³⁴ enable professionals to identify subject-matter specific tools for quantifying ESG-related risks. Examples from the toolkits include:

	Tools	Examples
Value creation process	Greenhouse Gas Protocol	Greenhouse Gas Protocol Corporate Accounting and Reporting Standard provides guidance to companies for calculating greenhouse gas inventories. ³⁵
	WBCSD Water Tool	The WBCSD Water Tool is a multifunctional resource for identifying and calculating exposure of corporate water risk and opportunities, including a workbook (for site investors, key reporting indicators and metrics) a mapping functionality and Google Earth compatibility. ³⁶
	InVEST	InVEST (Integrated Valuation of Ecosystem Services and Trade-offs) is a suite of open-source software models to map and value the goods and services from nature that sustain and fulfill human life. InVEST enables decision-makers to assess impacts associated with management choices and future climate, to identify where investment in natural capital can enhance human development and ecosystems. ³⁷
	WRI Aqueduct	WRI Aqueduct is a risk mapping tool that helps companies understand where and how water risks and opportunities are emerging worldwide. The Atlas uses a peer-reviewed methodology to create customizable global maps of water risk. ³⁸
Social Capital toolkit	B Analytics, Global Impact Investment Rating System (GIIRS)	GIIRS uses B Impact Assessment methodology to deliver an accounting of an investment portfolio’s impact on workers, customers, communities and the environment. ³⁹
	Impact Measurement Framework	This collection of sector-specific frameworks identifies relevant socioeconomic impacts, indicators and metrics. ⁴⁰
	Organisation for Economic Co-operation and Development (OECD) Guidelines on Measuring Subjective Well-being	These guidelines provide advice on the collection and use of measures of subjective well-being. They are intended to provide support for national statistical offices and other producers of subjective well-being data in designing, collecting and publishing measures of subjective well-being. In addition, the guidelines are designed to be of value to users of information on subjective well-being. ⁴¹

2.2 Data, parameters and assumptions

The calculation of risk severity requires risk owners to make choices about data, parameters and assumptions. In making these decisions, companies can start with the following considerations in Table 4.11 which are outlined in more detail on the next page:

Guidance

Select and document data, parameters and assumptions

Table 4.11: Data, parameters and assumptions

Data, parameters and assumptions	
Data sets	What primary or secondary data is available as an input to the measurement tool? What tools and frameworks can be used to support ESG-related risk assessments? What assumptions are inherent in the selected data? How reliable is the data? Does the data apply to the defined scope of the risk?
Timing	What time period should the analysis consider (e.g., strategic plan; 5, 15 or 30 years)?
Scope	At which organizational levels (e.g., divisions, functions and operating units) and value chain (inputs, operations and markets) is the analysis applied?
Discount rate	How certain are the expected events and timing of cash flows used in the monetary estimate? Are these estimates established with enough subject matter expertise or historical evidence to apply a discount rate?

These considerations should be documented to help companies maintain a clear view of how the severity of the risk is being measured and allow the assessment to be replicated over time. Discussion and peer scrutiny of the risk assessment inputs are important to build consensus and allow assumptions to be challenged.

Data sets

Management relies on the availability and quality of data as an input into its risk severity assessments. Finding quality data sets for ESG-related assessments can be a challenge, especially for companies beginning to quantify ESG-related risks. Unlike financial information which is subject to internal controls, ESG-related information does not always receive the same level of scrutiny. Table 4.12 provides a starting point for management to identify the primary and secondary data available and most useful to a company’s risk assessments.

Table 4.12: Example data sources

	Data sources	Examples
Primary	Internal company data	Supplier spend, sales performance, water usage, greenhouse gas emissions
	Survey results	Employee, supplier or customer surveys
	Interviews or focus groups	In-depth conversations for at-risk groups, such as employees, NGOs or communities
Secondary	Academic research	Credible research into the nature and extent of an ESG problem, such as plastic waste or e-waste
	Interviews with third parties or subject matter experts	Interviews that include the Delphi outputs (refer to Monte Carlo example above); NGOs can provide insight into communities inaccessible to the company
	Government or think tank data	Household budget surveys, demographic health surveys or other data collection databases
	Industry or peer company data or reports	Sector-specific data such as energy, compliance or cost data or assumptions that can be derived from publicly available information. Refer to Appendix III.
	Existing analysis	Internal or external analysis completed for other purposes, such as supply chain interruptions or costs associated with food safety issues
	Output from tools referenced in the Natural Capital Protocol Toolkit and Social Capital Protocol Toolkit	Information or results from using the tools (e.g., biodiversity footprint) which can be used as inputs into monetary risk assessment
	Social Value International (SVI) Global Value Exchange	The Global Value Exchange is an open source database of Values, Outcomes, Indicators and Stakeholders focused on social and environmental data

Each data source or selection has inherent or underlying assumptions. When preparing forecasts or valuation, decisions on assumptions need to be made or at least understood regarding the assumptions built into the data used. Some ESG-related examples include:

- Appropriate emissions factors may be selected based on the energy source and country but may not be accurate for individual cities
- Water scarcity risk may be based on rainfall and watershed measurements that are not current
- Population growth for Europe may be based on current birth rates but may not take into account migration
- Proxy data for calculating well-being may be based on a particular region, demographic group or socioeconomic class

This understanding of the assumptions embedded in the data helps inform when risk assessments need to be updated. For example, many greenhouse gas emissions factors are updated annually, which should lead to an update in the risk severity calculation. Refer to Module 6 on reviewing and revising risk assessments for more information.



Data quality and reliability:

When determining which ESG data to use, it is important to consider the quality and reliability – particularly for data that relates to new or emerging issues or risks. Care should be taken when using “off the shelf” data or models. In assessing data quality, management should ask the following questions to select high-quality data sources:

- Is the data of high enough quality to produce reliable results?
- Are controls in place over internally collected data?
- Is the data collected in accordance with a time-tested or industry standard?
- Is secondary data open-sourced or available for challenge?
- Is metadata available to perform analysis prior to using the data?
- What are the key assumptions in the model or data?
- Is expert judgment used in the model or method?

When management has concerns about the quality of data, it may be appropriate to validate the data. Validation methods include: testing the data based on metadata (e.g., summary statistics), implementing internal controls, validating a subset of the data or performing analyses to assess reasonableness.

Timing

Social and environmental risks often manifest themselves over a longer term, affect the business on many dimensions and can be outside the organization’s control.⁴² Managing these risks requires making investment decisions today for longer-term capacity building and developing adaptive strategies. This may be at odds with the short-term results that companies feel pressure to deliver. For example, public companies are required to release earnings on a quarterly basis. However, companies often develop a strategic time horizon of three to five years.

The concern with considering only the most urgent risks is that companies may neglect the long-term value organizations can deliver as well as the possible benefits of responding to risks before they fully emerge. Climate change impacts, for example, may emerge over the next 10 to 50 years. Beginning to account for transition risks (e.g., risks related to carbon taxes) in the more immediate term can help avoid more costly impacts related to physical risks (e.g., sea level rise) in the longer term.

Scope

Scope defines the organizational boundaries (e.g., divisions, functions, operating units) and value chain boundaries (e.g., inputs, operations, markets) being measured for each risk. These boundaries affect the relative importance of each risk. For example, risks assessed as important at the operating unit level may be less important at a division or entity level. At higher levels of the entity, risks are likely to have a greater impact on reputation, brand and trustworthiness.⁴³

Discount rate

When assessing financial risks, professionals often apply discount rates based on the weighted average cost of capital to arrive at the present value of the potential risk impact. Discount rates imply a level of accuracy based on the timing of predicted cash flows. Therefore, estimates need to be established with enough subject matter expertise or historical evidence to apply a discount rate. Because of the uncertainty of ESG-related risks, applying a discount rate may not be appropriate given the lack of precision in the predicted cash flows.

③ Prioritize the risk

A company prioritizes risks to determine 1) the urgency required in management response, 2) the types of action necessary and 3) the level of investment in the risk response (explored further in Module 5). Section 1.1 of this module explores the prioritization criteria companies use to compare risks across the enterprise. As discussed, *impact* and *likelihood* are often used to prioritize risks into categories, based on the preferred risk severity measures. Typically, financial metrics are the preferred denominator, however, companies may also include additional considerations, such as vulnerability, velocity or resilience. On the next page are two examples of how companies prioritize risks: one using a tiered approach and the other using a heat map.

Guidance

Leverage subject matter expertise to prioritize ESG-related risks

Solvay S.A. – using a tiered approach to classify risks

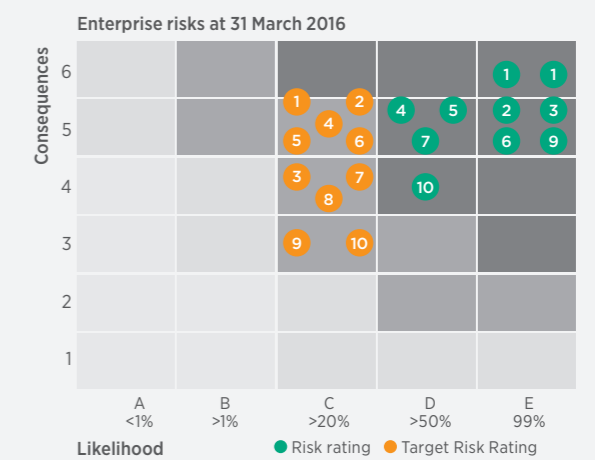
Solvay uses two ratings to prioritize the company’s risks: impact and level of control. In its external report, it disclosed three categories of criticality and the eight top risks. For each risk, an owner is assigned to respond to and monitor the risk. The risk owner maintains the risk description and tracks associated prevention and mitigation measures for executive management.⁴⁴

Criticality	Risk
High	Climate change*
	Security
	Tranpost accidents
Moderate to high	Chemical product usage
	Ethics and compliance
	Information protection and cyber-risk
Moderate	Industrial safety
	Environmental strategy*

* In its 2016 Annual Report, Solvay considered this an emerging risk: newly developing or changing risks that may have on the long-term, a significant impact which will need to be assessed in the future. In 2017, Solvay reconfirmed its commitment to act forcefully in the fight against climate change and stressed the need for implementing the recommendations of the TCFD in a pragmatic way.

Eskom – using a heat map to prioritize risks:

Eskom uses a heat map to prioritize its most critical risks according to the likelihood and consequences (impact). The company’s high-priority risks fall in the top right corner, showing the inherent risk rating. The company assesses the risk against its target risk rating – or the residual risk rating management aims to retain once risk responses are deployed.⁴⁵



Many companies use the Delphi approach to support the prioritization process (refer to the expert opinion section, above). Convening a group of executives with representation across the business allows risks to be debated, compared and voted on. It is often in this session where additional assessment criteria (such as resilience, velocity, adaptability) are captured and discussed.

The cross-functional nature of these panels means that in many cases, executives involved in these discussions are less familiar with ESG-related risks. As a result, the importance of these risks may be discounted during the voting process. Risk owners, risk managers or sustainability managers can address this by providing the executive team with context on ESG-related risks such as the impact of the risk on the company’s strategy, key performance indicators (KPIs), peer or industry practices or public commitments. The example on the next page demonstrates how a company’s human rights expert can provide insight to the executive team on an ESG-related risk.



Delphi approach

Apparel manufacturing company – human rights-related risk

An apparel company uses the Delphi approach to prioritize risks with the executive committee, including representation from finance, supply chain and operations.

The human rights manager identified the risk of human rights impacts that threaten the company’s reputation. The risk was not well understood at the executive level; therefore to support the prioritization process, the company’s human rights manager provided a fact sheet to educate the risk committee prior to the meeting. The expert also attended the meeting to answer any questions and provide additional commentary as needed.

The fact sheet included the following relevant information:

- The voluntary commitments the company made in relation to human rights (e.g. UN Global Compact signatory)
- The company’s requirement to assess and monitor supply chain activities for human rights violations for approximately USD \$120 million of the company’s contracts
- Customers accounting for 5% of revenue expressed human rights-related concerns in recent surveys
- Some institutional investors who comprise 20% of the company’s market capitalization raised changes in the regulatory landscape as a major concern, for example the UK Modern Slavery Act

Adopt a portfolio view

As part of the prioritization process, companies often use a portfolio view to understand the risk profile at the entity level.⁴⁶ The portfolio view allows enterprise risk managers to step back from the assessment of individual risks and evaluate the risks in aggregate. It facilitates comparison of residual risk to the risk appetite.

Sustainability managers need to understand the footprint of ESG-related risks within the entity’s risk portfolio. Consider asking the following questions:

- What is the contribution of ESG-related risks to overall company exposure?
- What ESG-related risks are included in each risk category (e.g., strategic, operational, financial, compliance)?
- Where do the impacts occur (business unit versus geography)?
- Of these risks, which are systemic in nature and which are unique to an operating area?
- What needs to be known to better manage these risks?
- What interdependencies exist among risks that increase or decrease the overall severity to the company?

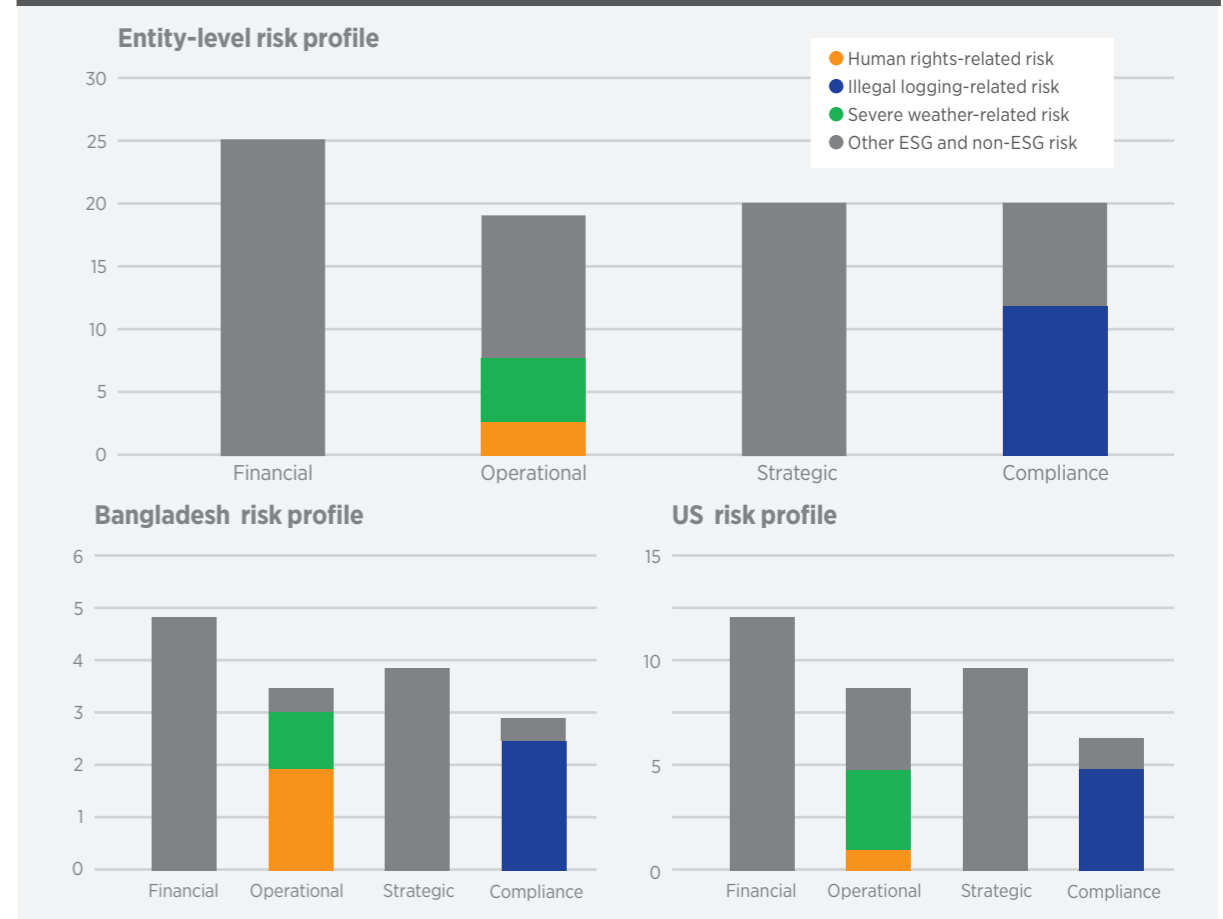
This view can help sustainability managers, risk managers and risk owners distinguish between local risks that are significant for one region versus those that will impact the entity as a whole. Consider the illustrative example for **Pro P&P** on the next page. In this case, human rights risk is a major source of operational risk for Indonesia but not for the US, or the entity overall. Conversely, illegal logging is a systemic issue across operating regions, although it may manifest in different ways (e.g., compliance with importation regulation in the US, versus retaining license to operate in Indonesia).

Guidance

Understand the contribution of ESG-related risk to the portfolio view



Figure 4.2: Portfolio view illustration



This analysis of the portfolio view supports an understanding of the priority for responding to ESG-related risks and monitoring at the entity level, versus those that can be managed at the operational, regional or business unit level.

Conclusion

The process for assessing the severity of ESG-related risks is foundational for developing a rationale for prioritizing enterprise-wide risks and allocating resources for risk responses. Although monetization is often a preferred method, it should not be avoided simply because it is more difficult. The pathway to quantification of ESG-related risks may take time. Companies may need to begin with qualitative analyses and progress to quantitative approaches with experience.⁴⁷ Leveraging ESG subject matter expertise is also critical to ensure that emerging or longer-term ESG-related risks are not discounted, but assessed and prioritized appropriately.

5. Respond to ESG-related risks

Introduction

For risks identified in Module 3, management should transparently select and deploy an appropriate risk response. Building on COSO, this guidance recommends that in doing so, management should consider the severity, timing, company vulnerability and prioritization of the risk identified in Module 4, as well as the business context and the associated business objectives (captured in Module 2).



COSO principles relevant to risk response

- 8 **Evaluates alternative strategies:** — the organization evaluates alternative strategies and potential impact on risk profile.
- 13 **Implements risk responses:** — the organization identifies and selects risk responses.

This module focuses on the key considerations for management when selecting a risk response and then developing an action plan to address each risk. If a response can be deployed within the business context and strategy, then risk response options include *accepting, avoiding, pursuing, reducing* and *sharing* the risk. In rare cases, management may consider pursuing an alternative business strategy as a response (either at the next strategy setting milestone or, rarely, in the immediate term).

As discussed in Module 4, many ESG-related risks are inherently difficult to predict and have a lower likelihood of occurring – albeit with potentially significant impacts, or related to longer-term trends that may take years to appear. Therefore, reducing or eliminating the potential impact or likelihood of the risk occurring may be a challenge. For these risks, company responses should focus on adaptive strategies and operational plans that build *resilience* to prepare companies to mitigate their risks as they unfold.

Of particular importance is appointing clear ownership for each risk response to the appropriate risk owner. The risk owner is responsible for assembling resources for designing and implementing a risk response. Addressing risks and building resilience is more effective through a collaborative model, which includes a broad range of subject matter experts from inside and outside the organization.

A cost-benefit analysis can help select and obtain buy-in for implementing a risk response. It can then be used to review the risk response for efficacy (refer to Module 6 for guidance on review and revision). This module also provides links to the range of ESG-related tools, guidance and resources available to support organizations responding to risks. The following is a checklist of practical steps to help integrate ESG into risk responses:

- Select an appropriate risk response
- Develop the business case for the response and obtain buy-in
- Evaluate risk responses at the entity level
- Implement the risk response

Internal control framework

Risk managers should work in tandem with a company’s internal control structure. Internal controls encompass the company’s control environment, risk assessment, control activities, information and communication and monitoring. Embedding strong internal controls supports the effectiveness of ERM at all stages.¹ Refer to the *2013 COSO Internal Control – Integrated Framework*.

Selecting a risk response

Management selects and deploys risk responses based on consideration of a number of factors, such as:

- **Business context:** Risk responses are selected or tailored to the business context, which includes the industry, geographic footprint, regulatory environment and operating structure. For ESG-related risks, questions may include:
 - How will the risk response minimize or exacerbate the impacts and dependencies of the company?
 - What controls and business processes are in place to address this risk?
 - How will the risk response make it easier or more difficult to meet company objectives?
- **Costs and benefits:** Capturing the anticipated costs and benefits to a company is particularly important for ESG-related risks to demonstrate the business case and obtain buy-in. The costs and benefits to society should also be considered when weighing potential response options.

- **Obligations and expectations:** Responses should align to generally-accepted industry standards, stakeholder expectations and the company’s mission, vision and values.
- **Prioritization of risk:** Companies use the prioritization of risk (Module 4) to inform the allocation of resources. For catastrophic and high risks, responses typically require action plans that consist of new investments in mitigation activities. For medium and low risks, a company may accept the risk and monitor it for significant changes.
- **Risk appetite:** Companies should design an action plan to reduce residual risk severity to within their risk appetite. If risk severity is within the risk appetite, management may choose to accept the risk.
- **Risk severity:** Responses should reflect the size, scope and nature of the risk and its impact on the entity.²



Using the **Pro Paper and Packaging Company** (Pro P&P) example, some of the approaches to addressing risk are shown in Table 5.1.

Guidance

Select an appropriate risk response

Business objectives	ESG-related risks for achieving strategy	Response
Customer focus	<ul style="list-style-type: none"> • The possibility that end-user customer preferences for products with less environmental impact, designed for recycling and reuse, will challenge long-term contracts with customers 	<ul style="list-style-type: none"> • Invest USD \$18 million into research and development for new products that use alternatives to fiber and petroleum as raw materials • Develop a customer engagement tool to maintain an understanding of preferences for sustainable products
Recognized brand	<ul style="list-style-type: none"> • The possibility that NGO-related campaigns will erode brand recognition as a product with strong sustainability performance 	<ul style="list-style-type: none"> • Hire two full-time employees to support stakeholder engagement • Invest in a system to track and respond to NGO requests
Strong growth	<ul style="list-style-type: none"> • The possibility that geopolitical issues in emerging markets will reduce access to a skilled, efficient and engaged workforce impacting productivity and sales 	<ul style="list-style-type: none"> • Engage in regular formal and informal training • Leverage databases such as Maplecroft to monitor country-level risk
Global efficiency	<ul style="list-style-type: none"> • The possibility that severe weather events (e.g., cyclones, floods) will disrupt the supply chain 	<ul style="list-style-type: none"> • Conduct scenario planning to monitor the impact of changing weather patterns on the supply chain • Conduct business continuity planning with alternative suppliers • Monitor weather changes and events to substitute suppliers as appropriate • Purchase insurance to cover losses in the event of severe weather
Sustainability leadership	<ul style="list-style-type: none"> • The possibility that the safety performance of companies acquired as part of the growth strategy will be sub-standard and lead to lower employee morale • The possibility that human rights issues in the supply chain (e.g., forced labor, child labor) will lead to reputational impacts and loss of customers 	<ul style="list-style-type: none"> • Develop and implement an externally accredited safety management system and conduct regular audits of operations • Re-evaluate company M&A due diligence processes to better identify and address ESG-related issues prior to transactions • Develop a human rights policy and implement a monitoring program • Establish a grievance process to allow human rights issues to be reported and addressed

Addressing operational risks: managing risks within the business context and strategy

Many ESG-related risks can be managed *within* the existing business objectives, performance targets and risk appetite. ESG-related risks that are commonly addressed in this way are compliance risk (responding to regulation), supply chain risk (establishing expectations and ongoing assessment processes to monitor human-rights-related supplier information risk) and health and safety risks (establishing a management system with policies, procedures and systems). For these risks, management selects from a range of risk responses: accept, avoid, pursue, reduce and share.³

In many cases, management may find it appropriate to combine multiple types of risk responses to address a particular risk. For example, a company may reinforce buildings that are susceptible to hurricanes (reduce) while at the same time purchase insurance policies on those buildings (share).

Building risk resilience

The nature and complexity of ESG-related risks means that in many cases management is not able to mitigate against the impacts of a risk entirely. Even with the best assessment tools, a company may learn that while severe weather events are likely, the timing or location of a hurricane cannot be predicted. Similarly, a company may develop a robust social compliance program and stakeholder engagement process yet still come under intense criticism from NGOs or customers due to erroneous claims, misinformation or shifting stakeholder expectations.^{ix}

In these cases, companies should focus on using a suite of risk responses aimed at enhancing their resilience should the risk eventuate. For example, mitigating against the possibility of a negative social media campaign from NGOs may not be possible. However, by designing a crisis management plan that establishes processes, pre-approved responses and escalation paths can prepare the company for a campaign, if and when it is launched. Companies can also use business continuity planning to prepare for the short-term impacts from unexpected risks and scenario planning to prepare for various scenarios that may eventuate from longer-term trends and associated threats and opportunities.

Methods for responding to risks and building resilience are detailed below.

Accept: Take no action to change the severity of the risk

This response is appropriate when risks to the strategy and business objectives are within the risk appetite and not likely to become more severe. For example, a manufacturer may accept potential for human rights-related risk in the supply chain if the company has no high-risk suppliers and has not received any public pressure on the issue. The risk may be seen as too low to justify the cost of a program beyond requesting supplier compliance statements.

Companies may choose not to accept ESG-related risks when this risk interferes with a company's values. For example, a company would be unlikely to accept the risk of bribery and corruption if one of its company values is integrity.

Accepting a risk often leads to a need for close monitoring of the assumptions that led the company to accept the risk. If these assumptions change, a different response may need to be deployed (refer to Module 6 for further detail on monitoring risks).

Avoid: Remove the risk

Companies may have zero tolerance for certain ESG-related risks, which leads them to avoid the risk entirely or at least reduce the likelihood that it will occur. Examples include:

- Insurance companies may discontinue specific policies or products, such as coverage against wind and flood damage where hurricanes occur frequently.
- Whole Foods eliminates the use of prison labor from its supply chain⁴ to avoid reputational damage and customer boycott.
- A company that supplies services to a government ceases business in the highest risk countries to avoid any possible links to corrupt business activities.

Pursue: Convert risks into opportunities

Risk responses often focus on preserving value, but in many cases responding to ESG-related risks can unlock value for companies. *The Business and Sustainable Development Commission* reported in 2017 that the United Nations Sustainable Development Goals (SDGs) could open up more than USD \$12 trillion in business opportunities.⁵ Some examples are outlined in Table 5.2 (next page).

^{ix} For example, consider the impacts of a 2010 Greenpeace campaign against Nestlé. Greenpeace released a video parody of the company's KitKat "Give me a break" candy bar ads. The video implied that Nestlé was killing orangutans by buying rainforest for palm oil. The activist organization launched a boycott of Nestlé though the company does not buy palm oil from a specific plantation but rather in the commodity market. The Head of Manufacturing stated, "You would have to look through a microscope to find the palm in the snack." Source: Sheffi, Y. (2015). *The Power of Resilience: How the Best Companies Manage the Unexpected*. The MIT Press.

Table 5.2: Examples of responding to risks through innovation

ESG-related risk	Responses	Value created
Scarcity of raw materials or excessive waste	<ul style="list-style-type: none"> Following a circular economy model, Timberland apparel company and tire manufacturer and distributor Omni United teamed up to produce a line of tires capable of being recycled into footwear outsoles once they reach end-of-life.⁶ MUD Jeans identified an opportunity related to ownership for their products at end of life. Under a circular economy model, they collect and recycle their products.⁷ The United States Business Council for Sustainable Development initiated the <i>materials marketplace</i> to facilitate company-to-company industrial reuse. Through the cloud-based platform, industrial waste streams are matched with new product and revenue opportunities, enabling a shift towards a circular, closed-loop economy.⁸ 	<ul style="list-style-type: none"> Increased availability of raw materials through reuse Improved profitability through sourcing lower cost inputs Improved reputation around material use and waste
Animal welfare	<ul style="list-style-type: none"> P&G identified a risk related to performing research on animals. In response, the company developed more than 50 alternatives and non-animal testing methods and has invested more than USD \$380 million over almost 20 years in finding alternatives and seeking regulator acceptance around the world. P&G scientists invented the first ever non-animal alternative to skin allergy tests to be officially adopted by the OECD in 2015.⁹ 	<ul style="list-style-type: none"> Reduced reliance on animals for product testing Improved its reputation with animal rights activists Acts as a leader in promoting alternatives to animal testing and developing regulation to reduce animal testing
Climate change	<ul style="list-style-type: none"> An automobile company looking to reduce the greenhouse gas emissions of its products manufactures electric vehicles. An energy company identifies pricing and availability risks related to conventional forms of energy and invests in renewable energy. Microsoft, like a growing number of other companies, places a price on carbon for internal accounting purposes as part of its long-term risk management strategy. This allows the company to talk about carbon in the language of business and reward parts of the company that can demonstrate cost savings from lowering emissions.¹⁰ 	<ul style="list-style-type: none"> Offered new, in-demand products Reduced reliance on carbon-intensive raw materials and processes Incorporated carbon emissions in business language
Employee retention	<ul style="list-style-type: none"> The hospitality industry has historically experienced low employee retention. Hyatt pursued this risk and now experiences an average tenure of more than 12 years for its housekeeping employees. The company made efforts to attract and retain its workforce. The company offers a training program called “Change the Conversation,” which is based on principles from the Stanford School of Design that emphasize listening. Employees are encouraged to find new, creative ways to solve problems and accomplish everyday tasks. Its number one source of new hires is via recommendations by its Employee Referral Program.¹¹ 	<ul style="list-style-type: none"> Improved retention of employees Reduced hiring costs Innovative solutions from employee input
Changing customer profile	<ul style="list-style-type: none"> Westpac, an Australian bank, identified the rapidly changing shifts in societal demographics as one of the four issues material to its business. In anticipating the future needs of aging customers, Westpac developed new planning investment and insurance proceeds to increase financial security including: <ul style="list-style-type: none"> - A product that allows customers to generate growth for retirement through their investment portfolio while preserving a minimum outcome at the end of an agreed term - A contact center for customers aged 50 or older - A life insurance product that provides customers with recommendations on life insurance tailored to their situation¹² 	<ul style="list-style-type: none"> Developed new products and services Improved customer service

Risk owners may consider the following in developing innovative risk responses:

- What is the root cause (or causes) of the risk?
- What is the question to be solved to address the risk?
- Where does the exposure across the organization reside? Does the risk manifest differently based on business unit or geography?
- How effectively does the response address the risk drivers?
- Could an alternative combination of risk responses more effectively address the risk?
- How could additional constraints or inputs stimulate innovative responses?

Reduce: Take action to reduce the severity of the risk

This action is typically adopted when the risk severity is higher than the risk appetite. Companies accept some level of risk for ESG-related issues based on their risk appetite and reduce the residual risk to within the risk appetite by implementing mitigation activities. Some common elements of a risk reduction program include investments in:

- **People:** Assemble a team to lead a new initiative or provide training and support to improve research and development of innovations with environmental benefits
- **Processes:** Establish a “code of conduct” within the company or across the industry to establish standards and expectations; adopt certification, chain of custody and audit programs to manage risks and enhance transparency to stakeholders
- **Systems:** Implement management systems to provide ongoing monitoring of risks according to the code of conduct (or other standards as appropriate)

Companies may make investments at the overall entity level. Companies can leverage reports from industry groups and NGOs that have produced guidance to help companies trying to manage their ESG-related risks (refer to Table 5.3 on next page).

Table 5.3: Examples of standards, principles, protocols and management systems to support risk reduction

Sector or area	Standards, principles, protocols and management systems
General - Guidance and principles	<ul style="list-style-type: none"> UN Global Compact UN Guiding Principles on Business and Human Rights CERES Principles Equator Principles Melbourne Principles for Sustainable Cities B Corporation Social Accountability 8000 (SA 8000) UN Sustainable Development Goals UN LGBTI Corporate Disclosure Standard Fairtrade International (FL) SASB and GRI sector guides
General - Management systems and standards	<p>A selection of ISO standards:</p> <ul style="list-style-type: none"> ISO 9000 - Quality Control ISO 14000 - Environmental management ISO 14001 - Environmental management systems (EMS) ISO 14020 - Environmental labels and declarations ISO 14040 - Life cycle assessment (LCA) ISO 14063 - Environmental communication ISO 14064, 65, 66, 67, 69 - GHG emissions measurement ISO/TS 14067:2013 - Greenhouse gas (GHG) and carbon footprint of products ISO 16000 - Air quality ISO 19011 - EMS Auditing ISO 20400 - Sustainable procurement ISO 26000 - Social responsibility
Agriculture, forestry and fishing	<ul style="list-style-type: none"> Farmland Principles (PRI) Forest Stewardship Council (FCS) Rainforest Alliance Marine Stewardship Council (MSC) OECD agricultural risk management recommendations
Building	<ul style="list-style-type: none"> Hannover Principles Energy Star Green Seal GRESB Green Star (Australian) BREEAM (UK) EDGE LEED
Chemicals	<ul style="list-style-type: none"> Hazardous substances (by country)
Consumer products	<ul style="list-style-type: none"> Electronics Product Environmental Assessment Tool (EPEAT) Energy Star
Financial services	<ul style="list-style-type: none"> Principles for Responsible Investment (PRI) UNEP Principles of Sustainable Insurance Investor Network on Climate Risk Green Bond Principles
Mining and extractives	<ul style="list-style-type: none"> Voluntary Principles on Security and Human Rights Kimberly Certification

Share: Share a portion of the risk or collaborate externally

Sharing ESG-related risks may eliminate some risk to individual companies. A common example of sharing a risk is to purchase insurance (or reinsurance) to pool or transfer risk. This is often an effective approach for ESG-related risks, which may be too large or complex for one company to manage.

Participate in industry or issue-specific collaboration

For some risks, effective identification, understanding and management require a high level of collaboration between business, professional bodies, government, NGOs, regulators, suppliers, customers and even competitors. A prominent example is the agreement made at the Conference of the Parties Meeting 21 (COP 21) in which 174 countries supported by business and NGOs committed to goals and regular reporting to address climate-related risks.

Carefully managed sharing of information, expertise and priorities can result in collaborative and trusted relationships that yield results and break down traditional barriers of competition.¹³ Sharing information, resources, activities and capabilities across sectors, issues and geographies helps achieve scale to realize sustained impact. According to the World Economic Forum, achieving the UN Sustainable Development Goals will require cross-sector alliances.¹⁴

This is particularly the case for supply chain initiatives. Companies have recognized that addressing complex supply chain challenges requires teaming up with peers, academia, standard setters and non-profit organizations. Multi-stakeholder collaborations focused on specific sectors, geographies, issues and commodities have proliferated in recent years. Most industries have now developed groups that work together to create common standards, share information, share auditing processes, increase leverage with suppliers and provide industry-level guidance. Some examples of industry or commodity-specific collaborations are listed in Table 5.6.

Table 5.6: Examples of industry- or commodity-specific collaborations

Industry or commodity	Collaboration	Value created
Apparel	Sustainable Apparel Coalition	The Sustainable Apparel Coalition is the apparel, footwear and textile industry's foremost alliance for sustainable production. The coalition's main focus is on building the Higg Index, a standardized supply chain measurement tool for all industry participants to understand the environmental, social and labor impacts of making and selling their products and services. ¹⁵
Beef	Global Roundtable for Sustainable Beef	The Global Roundtable for Sustainable Beef (GRSB) is a global, multi-stakeholder initiative developed to advance continuous improvement in sustainability of the global beef value chain through leadership, science and multi-stakeholder engagement and collaboration. ¹⁶
Beverage	Beverage Industry Environmental Roundtable	The Beverage Industry Environmental Roundtable (BIER) is a technical coalition of leading global beverage companies working together to advance environmental sustainability within the beverage sector. ¹⁷
Electronics	Global e-Sustainability Initiative	Global e-Sustainability Initiative (GeSI) is a leading source of impartial information, resources and best practices for achieving integrated social and environmental sustainability through its membership of information and communication technology companies. ¹⁸
Multiple	Asian Roundtable Task Force on Related Party Transactions	The Asian Roundtable Task Force on Related Party Transactions was established to develop a practical guide to monitoring related party transactions. The meeting identified concrete options for detecting and curbing abuse, such as harmonizing the definition, assessing strengths and weaknesses of various regulatory approaches and tightening enforcement as well as facilitating a change in culture and practices. ¹⁹
Pharmaceutical	Good Pharma Scorecard	The Good Pharma Scorecard, developed by Bioethics International (BEI), sets standards to rank and audit pharmaceutical companies and new drugs on how the drugs are tested, marketed and made available to patients. The initiative convenes physicians, patients, academics, regulators and pharma - to raise the bar on ethics and patient-centricity in the industry. ²⁰

Companies can also explore options to reduce the impact or likelihood of a risk occurring. For examples, refer to Table 5.4:

Table 5.4: Examples of reducing ESG-related risks

Risk	Reduction response
Increasing energy costs impact operational costs	Switch fuel or adopt a renewable energy strategy to reduce reliance on fossils fuels that may be subject to a carbon tax or growing resource scarcity
Risk of community and NGO activity impacts business continuity in the mining and extractives sector	Engage stakeholders to: 1) Stay informed of community and NGO expectations and concerns 2) Understand the community investments and operational changes that can be made to reduce the impact on local community 3) Reduce risks associated with community and NGO activity
Risk of disruption to supply due to extreme weather	Diversify supplier base and work with critical or strategic suppliers (>25% source) to develop business continuity planning
Unapproved supplier provides products of inferior quality	Develop and enforce the use of an approved supplier listing

In addition, WBCSD has many working groups composed of member companies, addressing industry-specific and issue-specific challenges including climate-smart agriculture, rural livelihoods, water stewardship, human rights, ocean waste, mobility and more.

Conducting risk assessments and cross-company scenario planning enables policy-makers and industries to proactively identify network vulnerabilities and confer on the design of new legislation and regulation. Further, collaboration between regulators and business is then required to address the inevitable challenges associated with the implementation of legislation.

Using “context-based” goals in determining risk response

Separately from business context explained in Module 2, sustainability literature discusses context in terms of how an organization contributes to the deterioration or improvement of ESG conditions, developments and trends at a local, regional or global level.²¹

Some companies develop targets to reduce risk and relate their company’s challenges to a global ESG-related issue.

For example, a risk response designed around a context-based water target accounts for:

- 1) A scientific understanding of a basin’s conditions
- 2) Local and global policy objectives
- 3) The needs and perspectives of various stakeholders while maintaining line-of-sight to the business context and strategy²²

Managers can also apply science-based emissions targets as context-based goals to climate change to help companies develop reduction strategies in line with their industry or economic contributions.²³



Revising company values

In 2013, Caterpillar created an internal team to perform an in-depth analysis of the company’s existing sustainability capabilities and strategy. The team was comprised of Caterpillar leaders from a wide range of backgrounds and perspectives. They compared Caterpillar sustainability commitments and achievements to those of its peers and competitors while examining global trends and how they relate to the Caterpillar enterprise and its employees. It became evident that it was time to officially recognize sustainability as a core value at Caterpillar. The team developed a bold recommendation for this important shift during the 2013 Strategic Planning Committee (SPC) review. Following careful consideration and approval by the Executive Office, Caterpillar recognized sustainability as a core value and included it in corporate strategy development.²⁵

**Addressing strategic risks:
Managing risks that require changes to the business objectives or strategy**

On rare occasions, a risk or set of risks impacts the company’s strategy to the extent that management must assess alternative strategies. In these instances, management considers:

1. Does the revised strategy align to the mission, vision and core values of the entity?
2. What are the implications from the selected strategy?

When taking an entity-level perspective, the company may determine that the current strategy does not efficiently respond to risks in aggregate. The company may need to select an alternative strategy that still delivers on the company’s mission but more appropriately responds to the risks. Refer to COSO’s complete ERM framework for additional guidance on evaluating alternative strategies. This guidance provides ESG-specific approaches for evaluating alternative strategies in previous modules, including SWOT analysis, modeling, valuation, revenue forecast and scenario analysis.²⁴

Collaboration

It is critical that the right people are involved in both developing and executing a risk response. In addition to the risk owner, engaging with a broad range of subject-matter experts from inside, and possibly outside the organization, can support innovation and building company resilience. Collaboration also supports a shift from a *tactical* to more *strategic* response. For example, consider the risk that safety and environmental performance of a phone product impacts sales of a technology company. A tactical response may focus on compliance testing at the end of the manufacturing process. A strategic approach uses collaboration across the business to consider the broader value chain and the opportunities to intervene to address the risk (see Table 5.7).

Table 5.7: Example of collaboration with design, sales, customer, end user, procurement

Compliance / tactical response	Strategic response
<ul style="list-style-type: none"> • Sample-test the safety and environmental performance of a product at the end of the manufacturing process and conduct root cause analysis to identify major issues 	<ul style="list-style-type: none"> • Consult with the end user to understand needs relating to safety and performance • Consult with procurement and suppliers to find opportunities for enhanced safety or environmental improvement • Consult with the customer service team to understand and monitor customer complaints relating to safety and environmental performance • Collaborate with peers to develop cross-industry standards for product safety

Develop the business case and obtain buy-in

Due to potential biases against allocating resources for ESG-related risks versus other risks (e.g. financial risks), it is important for practitioners to develop a business case for adopting a particular risk response. This can help demonstrate that the response is strategic to the organization, rather than an isolated operational issue. As companies pursue ESG strategies to address some of the significant impacts, investors in particular will be looking to understand *why* resources are being allocated to create value for the business in the short, medium and long term.²⁶

Guidance

Develop the business case for the response and obtain buy-in

A business case may include an overview of the risk or opportunity, root cause, response options, cost benefit analysis, key assumptions, roles and responsibilities, change management and implementation timeline. An important feature is the cost-benefit analysis of different risk responses. This analysis considers costs and benefits to the business but may also consider costs and benefits to the business that stem from changes in access or availability of an element of natural or social capital on which the business depends” (refer to Table 5.8). As detailed in Module 4, the *Natural Capital Protocol* and the *Social Capital Protocol* can support this analysis.

	Business costs and benefits	Societal costs and benefits
Cost	<ul style="list-style-type: none"> May include direct costs (e.g., establishing a program, wages, IT systems or infrastructure, contractors) and indirect costs (e.g., overhead) May include opportunity costs associated with the use of resources 	<ul style="list-style-type: none"> May include social costs (e.g., job loss, costs of health care, increased prevalence of disease) May include environmental costs (e.g., pollution, soil depletion, water scarcity, greenhouse gas emissions)
Benefit	<ul style="list-style-type: none"> May include the financial and non-financial benefits associated with the business strategy and objectives May include revenue, reputation benefits and contribution to ESG-related targets or company objectives May include benefits of recommended responses relative to other options May include cost savings and avoided costs 	<ul style="list-style-type: none"> May include social benefits (e.g., increase in leisure time, affordable housing, feelings of safety and security, lower rates of disease) May include environmental benefits (e.g., value of benefits from a watershed, improved air and water quality, biodiversity)

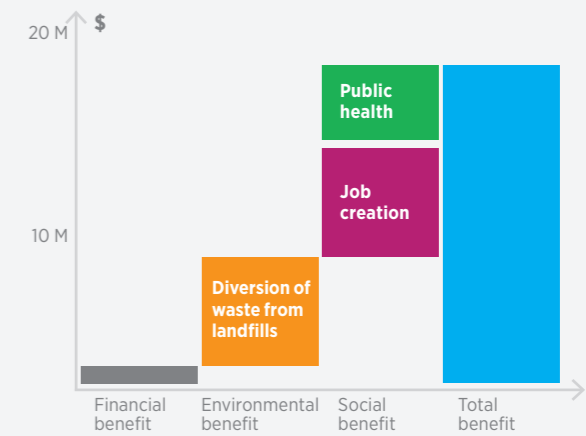
Circular economy cost-benefit analysis

With growing regulatory risk around e-waste, an electronics company may be exploring an opportunity to implement a takeback scheme. Under the scheme, all end-products will be taken back from the customer for resale, recycling or disposal.

The company assessed the **net financial benefit** to be **USD \$0.7M** resulting from increased revenue from sale of recycled materials, reduced raw material costs and the cost to implement the reverse logistics.

Before making a decision on whether to implement the scheme, the company also considered ESG-related costs and benefits to society. The significant costs and benefits included:

- The **net environmental benefit** (to society) of approximately **USD \$6 million** from diversion of customer end-products (waste) to landfills which saves space in the landfill and therefore increases its life²⁷
- The net **social benefit** (to society) of approximately **USD \$12 million** from job creation through e-waste recycling and promotion of public health from the responsible management of toxic chemicals such as lead and mercury found in electronics²⁸



From this analysis, it is clear that although the financial return was negligible, including the environmental and social benefits increased the **total benefit** of the program to **USD \$18.7 million**. The company can also expect brand and reputational benefits associated with this program (although these were not quantified).

In these instances, environmental and social costs and benefits can support decision-making by capturing total value from its license to operate, resilience, efficiency and sustainable growth. Similarly, COSO states that for an especially important strategy or business objective, there may not be an optimal risk response from the perspective of cost and benefits – particularly a financial benefit.²⁹

Viewing risk at the entity-level vs. business unit or geography-level

Risk responses are often developed at an individual risk level – even for a specific geography or business unit. However, ERM and strategy managers need to take an entity-wide view of the risk profile in light of the risk responses. Management considers how responses selected for an individual risk may have additive or offsetting impacts to the entity’s overall risk portfolio. Risk responses designed around individual risks may also leave gaps in the overall risk coverage for the entity. Taking a portfolio view helps managers see where those gaps may exist and supports timely adjustments prior to finalizing risk responses.

Guidance

Evaluate risk responses at the entity level

Implementing the risk response

Once an approach is determined, companies implement their responses. This involves developing and executing an action plan for each risk response. At this point, the ERM process begins to influence day-to-day business decisions to preserve and potentially create value for an organization (see Table 5.9)

Guidance

Implement the risk response

Proposed activity	Description
Assign a risk owner	<ul style="list-style-type: none"> Assign a risk owner to be accountable for progress toward addressing the risk The risk owner should have a team to support risk management plan development, implementation and monitoring progress
Assemble cross-functional working team	<ul style="list-style-type: none"> Determine who needs to be involved in the risk response and implementing the action plan While the risk owner should oversee the process, there should be management-level agreement on the functions that should contribute to the action plan and required level of effort A cross-functional oversight team, such as a sustainability council, could serve as an advisory board to help develop innovative, collaborative solutions to ESG-related risks
Obtain accurate and relevant information and inputs	<ul style="list-style-type: none"> Discuss issues and potential solutions with employees involved in day-to-day operations Research leading practices at other organizations and within the organization itself Conduct empirical data analysis of pilot tests
Involve sustainability managers	<ul style="list-style-type: none"> Identify overlapping activities for sustainability managers Sustainability managers may: <ul style="list-style-type: none"> Assist in developing cross-functional action plans Act as a risk owner or nominate a risk owner with appropriate cross-functional oversight Bring an enterprise and external view to the risk response design
Design risk responses to embed in decision-making processes	<ul style="list-style-type: none"> Integrate risk and management considerations into planning and operational decision-making processes Embed risk responses into the culture of the company by incorporating them into day-to-day decision making Risk responses made at the entity level should be distilled to the managers at an operational level to make a consistent, desired impact
Develop metrics to monitor the effectiveness of the risk response	<ul style="list-style-type: none"> Consider the elements of the response that should be assessed periodically to ensure the risk is addressed in line with management’s risk response decisions Refer to Module 6 for additional guidance

Conclusion

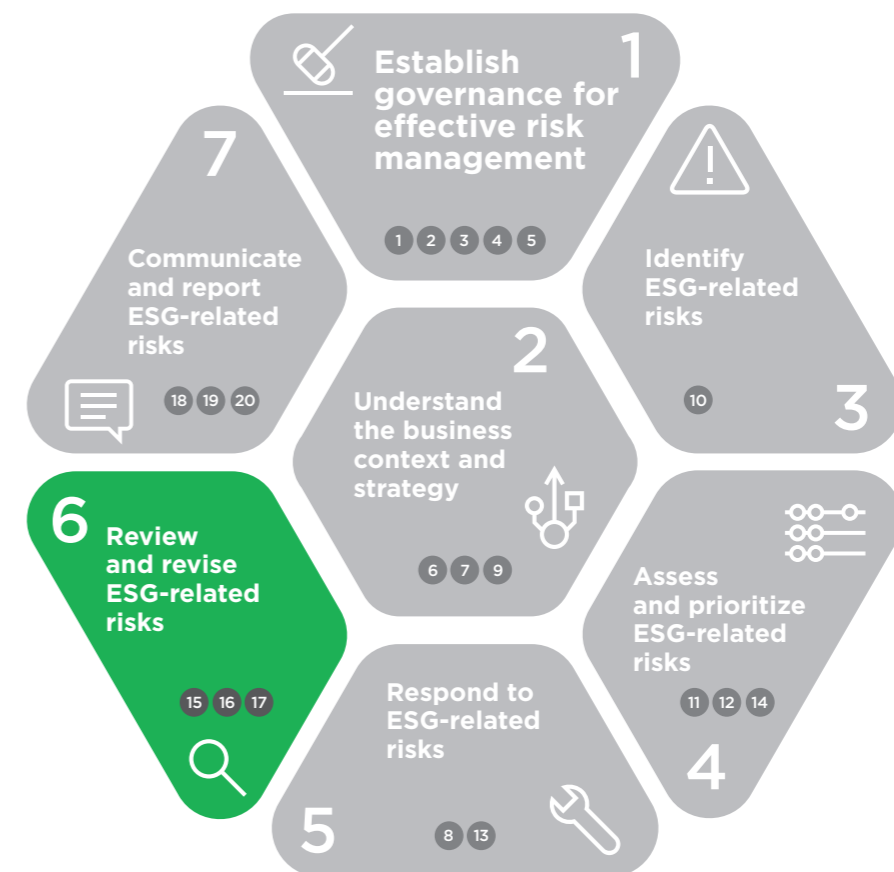
How a company responds to identified risks will ultimately determines how effectively the company preserves or creates value over the long term. Adopting a range of innovative, collaborative approaches that consider the source of the risk as well as the cost and benefits of each approach supports the success of these responses.

Companies must also define appropriate metrics to monitor changes in the risk profile or business context and the effectiveness of the response. Module 6 expands on this aspect of responding to risk.

6. Review and revise ESG-related risks

Introduction

Modules 2 through 5 focus on how companies can leverage ERM activities to better understand and respond to ESG-related risks. Risk management, however, is not a “one and done” activity. It is a dynamic process that requires ongoing review and revision of both individual risks and the ERM process overall. In many jurisdictions, monitoring the effectiveness of a company’s internal control and risk management process is required by regulation. For example, Norway’s financial sector regulation on risk management requires the CEO to “continuously monitor changes in the entity’s risks and ensure that the firm’s risks are properly addressed in accordance with the board’s guidelines.”¹



COSO principles relevant to reviewing and revising risk

- 15 **Assesses substantial change** — the organization identifies and assesses changes that may substantially affect strategy and business objectives.
- 16 **Reviews risk and performance** — the organization reviews entity performance and considers risk.
- 17 **Pursues improvement in enterprise risk management** — the organization pursues improvement of enterprise risk management.

All companies experience continuous changes to their internal and external environments. From these changes - new risks may arise, new data or assessment tools may emerge or risk responses may turn out to be ineffectual in addressing an identified risk or opportunity. By establishing indicators to review these activities, companies can recognize these changes *before* the risks lead to a negative impact on the business strategy or objectives and revise accordingly.

This module focuses on how to review and revise responses to ESG-related risks. The following checklist describes steps management can follow to support these activities:

- Select indicators to review ESG-related risk activities
- Set thresholds which trigger revision of ESG-related risk activities

Review and revision of ESG-related risks

Risk managers often use a scorecard to measure and review risks and risk responses across the entity. A scorecard is designed to provide management with information on the effectiveness of risk management and whether revision of the company's risk profile, assessment or response is required. Further, and on rare occasions, if a company has not captured a key risk during strategy setting, a change in business strategy, objectives or direction may be appropriate.

Review and revision of ESG-related risks are typically performed by risk owners and sustainability managers. Risk owners are responsible for reviewing risk performance, developing indicators to review risks and tracking performance. Sustainability managers can support this with their knowledge of ESG issues. For example, a risk owner responsible for monitoring water scarcity may leverage the sustainability manager's knowledge of geography-specific water regulation and appropriate tools and resources for tracking water risk by region. Sustainability managers, risk managers and risk owners can also work together when they need to revise a given risk management approach or response.

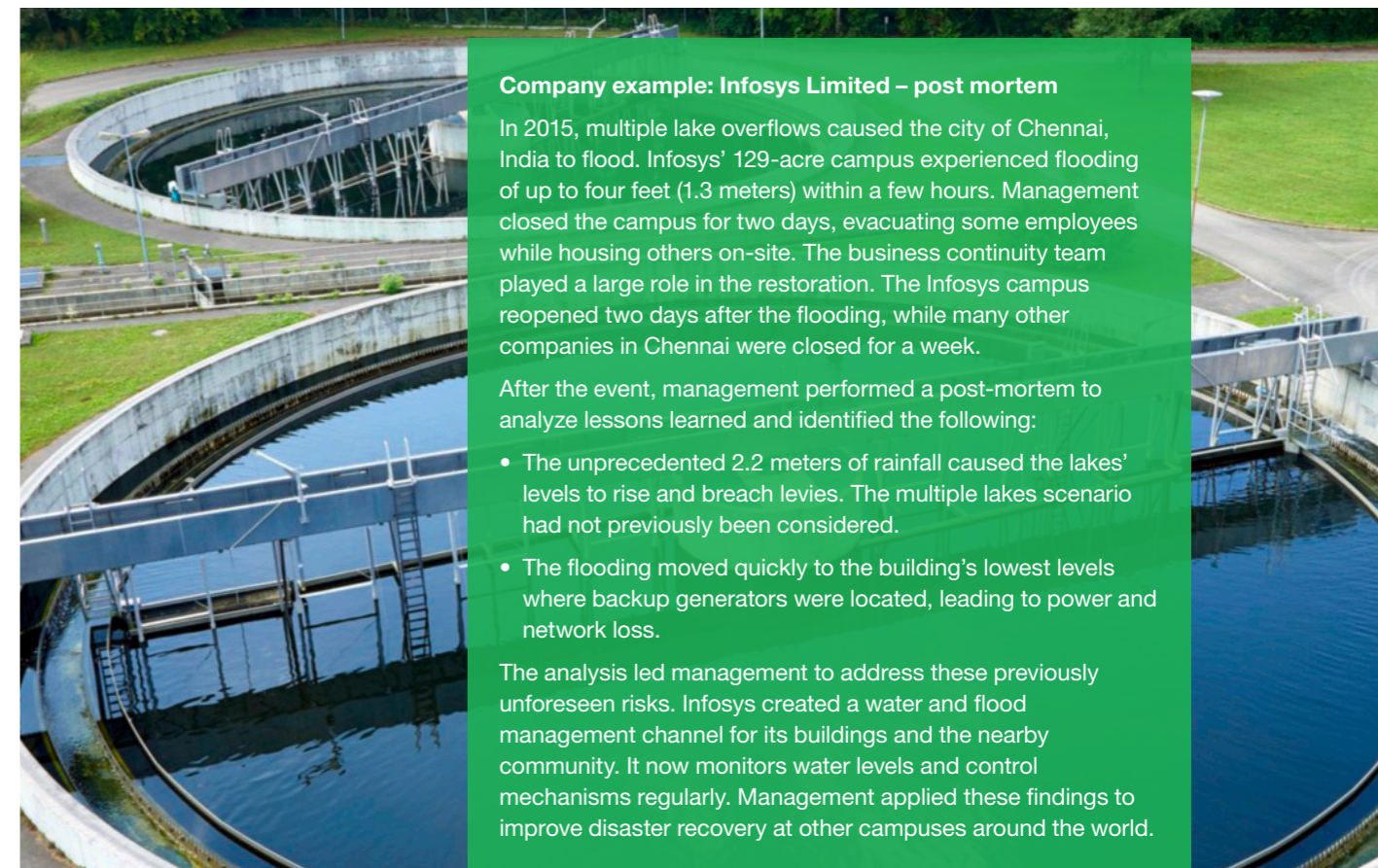
All components of the ERM process should be reviewed and revised as needed. These includes:

- The governance model - process and structure (Module 1)
- Changes to the business context and strategy (Module 2)
- The emergence of new or changing risks (Module 3)
- Changes to assessment tools or assumptions (Module 4)
- Effectiveness of risk responses (Module 5)
- Approach to communication and reporting (Module 7)

The governance model - process and structure

Companies that pursue continuous improvement in ERM implement processes to monitor and adjust their overall governance models, including ERM processes and structure. COSO offers opportunities to revisit and improve efficiency in ERM – starting with the overall processes and structure and cascading to other ERM activities. This continuous improvement is relevant for all risks across the entire ERM process, however, some of the ESG-specific areas may include:

- **New technology:** ESG-related software platforms may offer an opportunity to compile higher quality data in a centralized system.
- **Organizational change:** A company that is expecting to face more ESG-related risks (e.g., human rights) in the future may appoint a subject matter expert to the board, executive or management team.
- **Historical shortcomings:** Companies that have failed to identify significant ESG-related risks in the past may conduct a “lessons learned” exercise to understand how ESG can be better integrated throughout the ERM process. The example below describes how the business continuity team at Infosys reviewed the company's actions after a severe flooding event and presented the results to show how the company could better manage its water risk in the future.²



Company example: Infosys Limited – post mortem

In 2015, multiple lake overflows caused the city of Chennai, India to flood. Infosys' 129-acre campus experienced flooding of up to four feet (1.3 meters) within a few hours. Management closed the campus for two days, evacuating some employees while housing others on-site. The business continuity team played a large role in the restoration. The Infosys campus reopened two days after the flooding, while many other companies in Chennai were closed for a week.

After the event, management performed a post-mortem to analyze lessons learned and identified the following:

- The unprecedented 2.2 meters of rainfall caused the lakes' levels to rise and breach levies. The multiple lakes scenario had not previously been considered.
- The flooding moved quickly to the building's lowest levels where backup generators were located, leading to power and network loss.

The analysis led management to address these previously unforeseen risks. Infosys created a water and flood management channel for its buildings and the nearby community. It now monitors water levels and control mechanisms regularly. Management applied these findings to improve disaster recovery at other campuses around the world.

Changes to the business context and strategy

As described in Module 2, shifts in a company’s business context can translate into risks to its strategy or business objectives. Table 6.1 highlights example changes in the internal and external environment that may trigger a change in a company’s risk profile and require a response or decision from management.

Table 6.1: Examples of changes to the internal and external environment

Internal environment	External environment
<ul style="list-style-type: none"> • Changes in strategy or objectives • Rapid company growth • Organizational changes including change to leadership • Mergers and acquisitions • Innovation • Change in risk appetite 	<ul style="list-style-type: none"> • New or pending regulations • Emerging technology • Changing stakeholder expectation • More frequent or extreme weather • Trends or strategies adopted by peer companies • Shifts in global megatrends

For example, internally, a merger or acquisition could result in changes to who is responsible for managing risks (e.g., the ERM function may shift from reporting to the CFO to the strategy team) or may bring on a new business unit that exposes the company to new types of risk.

Externally, the *Global Risk Report* highlights the increasing prevalence of ESG-related risks dominating the global risk landscape (refer to the introduction for additional information). Monitoring these external trends, such as climate change and water crises allows a company to consider the changing impacts to the company’s business model – including its strategy and business objectives.

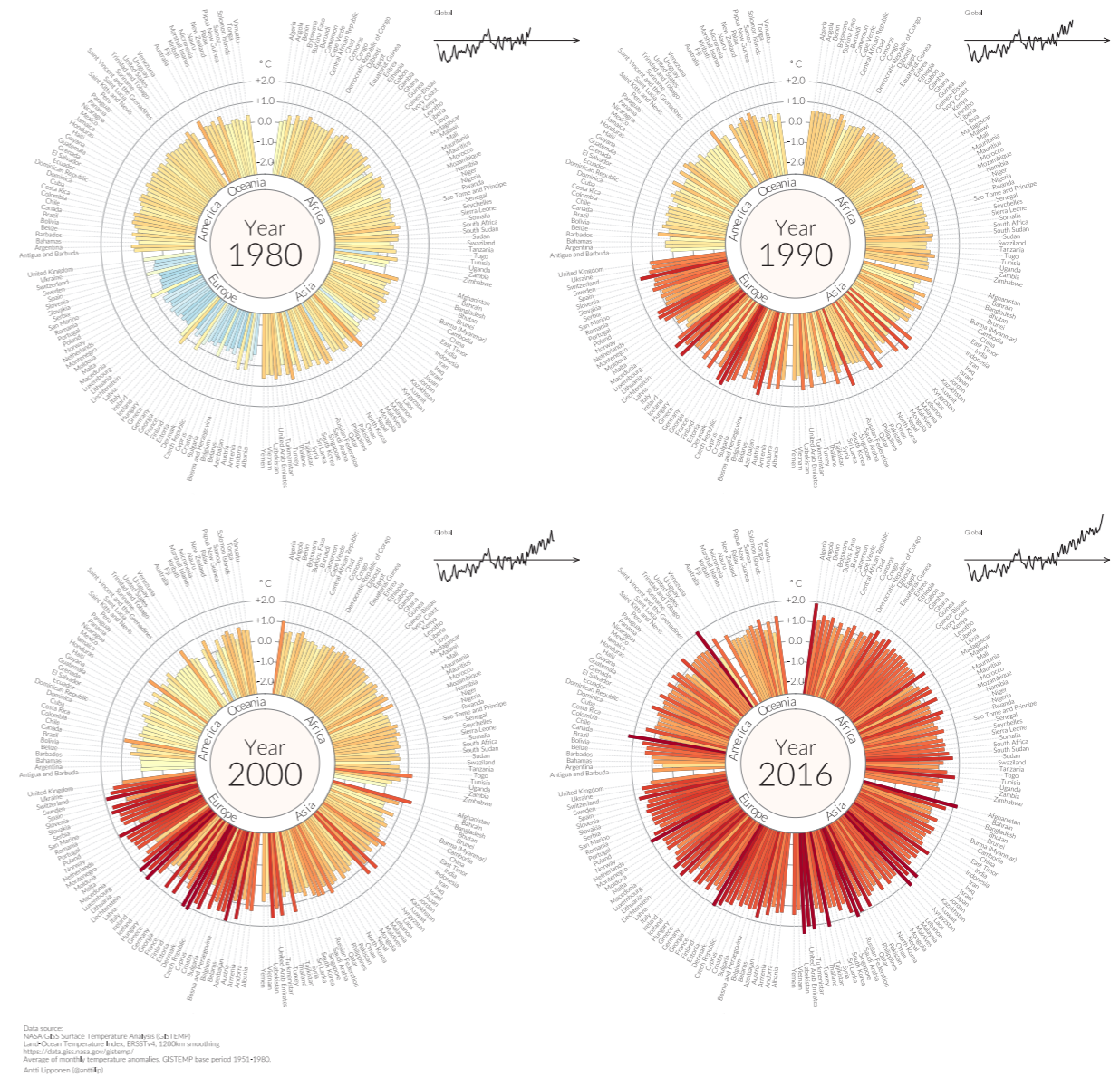
Figure 6.1 shows how a company may monitor year-on-year temperature anomalies by country. This information can be used to understand the speed with which climate change is occurring, the countries most impacted and whether this is in line with the company’s assumptions and expectations.

Similarly, discussions with external stakeholders (regulators, customers, investors or peers) may reveal shifting trends and industry practices, such as changing demographics and customer preferences.

Guidance

Select indicators to review ESG-related risk activities

Figure 6.1: Example indicator for monitoring global megatrend: climate change



The emergence of new or changing risks

Risk and sustainability managers should stay alert to changes in the business context to understand if new risks have emerged or substantially changed such that they create or exacerbate a threat to the business. When changes in the business context highlight a new risk not previously considered, risk and sustainability managers determine the appropriate response. This often includes adding it to the risk inventory (in the upcoming ERM cycle), assessing the risk impact and developing an appropriate risk response.

For example, a manufacturing company may have been aware of its dependency on water for its South African operations but did not identify water as a significant risk. As experience in Cape Town recently demonstrated, the onset of water scarcity can be rapid and severe. Even if the company did not anticipate this risk, as the risk emerges it may consider adding it to the entity’s risk inventory, developing water reduction programs and business, continuity plans and establishing indicators to monitor water use and reservoir levels.

Changes to assessment tools or assumption

The risk severity assessment is dependent on both the assessment tools and assumptions used in developing the estimate. As new information becomes available, risk owners consider whether the assessment tool used is still the most appropriate.

For example, TCFD explains that a “2°C scenario provides a common reference point that is generally aligned with the objectives of the Paris Agreement and will support the evaluation, by analysts and investors, of the potential magnitude and timing of transition-related implications for individual organizations, across different organizations within a sector and cross different sectors.” The use of a 2°C scenario, however, requires monitoring to ensure ongoing adjustment to reflect emerging trends and conditions. TCFD goes on to recommend that companies monitor the IEA, DDPP, IRENA and Greenpeace scenarios as key indicators in order to gauge the emergence or change of different pathways and the implications for the company.³

Effectiveness of risk responses

Management reviews its risk responses to understand how effectively the company is mitigating ESG-related risks according to the action plan they developed (refer to Module 5). Risk owners establish metrics, indicators and thresholds to help the company identify when revision is required.

Assessing the effectiveness of risk responses considers both design and implementation. Companies can consider the design and implementation according to inputs, activities, outputs and outcomes to develop an appropriate monitoring process. Table 6.2 demonstrates how **Pro Paper & Packaging** measures the effectiveness of responding to supply chain human rights-related risk by developing a supplier code of conduct and implementing this across the supplier base.

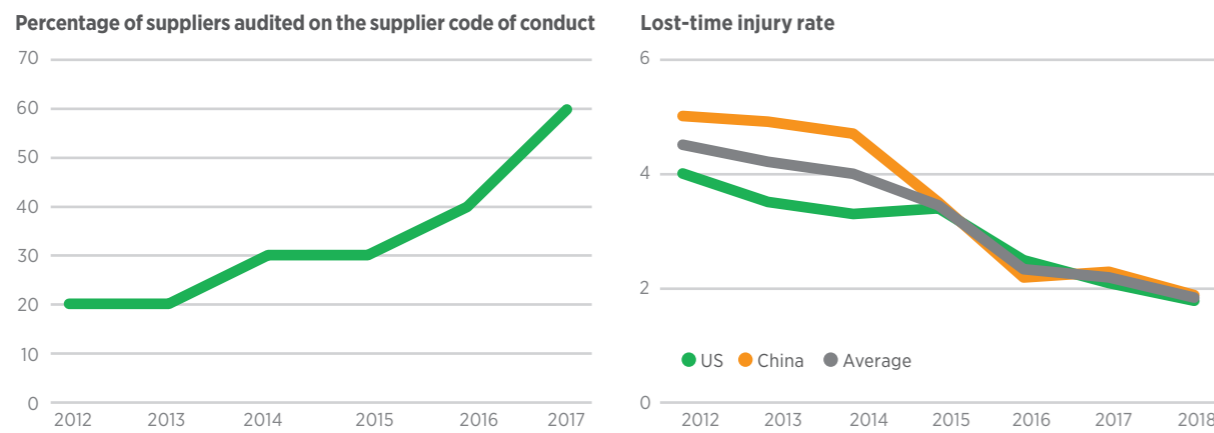


Table 6.2: Example of activity and outcome indicators for reviewing and revising Pro P&P’s supply chain program

Activity indicators		Outcome indicators	
Inputs	Processes	Outputs	Outcomes
Resources used or spent on a business activity (e.g., cost of initiative)	Activities undertaken with the resources (e.g., number of training events)	The results from activities undertaken (e.g., number of participants trained)	Impact of the results or changes on social or environment capital (e.g., participants have better skills, are more employable and enter workforce)
<ul style="list-style-type: none"> • 18 full-time employees dedicated to implementing the program • USD \$8.5 million spent on overall program cost 	<ul style="list-style-type: none"> • 350 site audits • 30 training events • 80% of high-risk suppliers audited • 67% of suppliers participating in energy efficiency program 	<ul style="list-style-type: none"> • Three non-compliances among suppliers in audit findings, on average • 2.5 million workers certified 	<ul style="list-style-type: none"> • Greater confidence of company employees that the company lives its values • Strengthened reputation for human rights among external stakeholders

Considering these inputs, processes, outputs and outcomes helps companies establish metrics to review the effectiveness of the risk response. Companies should seek to use both activity and outcome indicators for monitoring risk. Activity indicators allow companies to assess the effectiveness of the implementation (such as number of training events conducted), while outcome indicators focus on whether the company has addressed the overall risk exposure (such as the human rights performance of suppliers). Both types of indicators can also be used to monitor trends over time (refer to Figure 6.2 for example trends of activity [audits] and outcome [lost-time injury rate] trending):

Figure 6.2: Trending of risk indicators (activity and outcome)



These indicators can also be used to provide information to stakeholders on how a company is responding to a particular risk and the effectiveness of that risk response. Refer to Module 7 for more detail on communication and reporting to stakeholders.

Approach to communication and reporting

The increase in investor focus around ESG-related information is leading to changes in reporting norms arising from jurisdiction requirements and increased use of voluntary frameworks. The following example approaches are available to companies to monitor the sufficiency and relevance of the ESG-related risk information they are reporting:

- Track ESG-related reporting requirements globally
- Benchmark a company’s approach against peers or leading companies
- Monitor shareholder resolutions submitted to the company or industry
- Engage stakeholders (internally and externally) on information needs

From this, a company may determine it needs to update its communications or reporting to better meet the needs of its stakeholders or comply with jurisdiction requirements. For example, a company may need to report in accordance with the EU Nonfinancial Reporting Directive. Monitoring these requirements ensures the company is prepared for the initial reporting deadline.

Timing of review activities

The timing of review activities varies by company. While management often assesses each risk on an annual basis, significant changes may warrant interim action. For example, a megatrend analysis may be performed every three years, while supplier risk assessments may be updated annually. Assessing the status and effectiveness of risk responses, however, may need to be evaluated and communicated on a quarterly or semi-annual basis.

Resources to support indicator development

In determining the indicators to use for review, risk owners may wish to leverage the company’s key performance indicators (e.g., target employee retention, carbon intensity reduction target). Risk owners may also use existing ESG-related frameworks. For example, the Global Reporting Initiative (GRI) is widely used as a sustainability reporting framework. Although not designed to measure risks, the GRI indicators can provide example metrics used to review the company response and performance.⁴ Table 6.3 shows how GRI’s water standard could be used for this purpose.

	Description
Risk	Water scarcity impacts the company’s ability to operate.
Response	The company is decreasing its water use, increasing its recycling and monitoring the water table to prevent further reductions.
Monitoring indicators	<ul style="list-style-type: none"> • Total water withdrawal by source and allocable share of water availability • Total water sources significantly affected by withdrawal • Total volume of water recycled and reused

Other frameworks, including SASB, TCFD and others, provide a number of metrics on ESG issues that can be applied to risk monitoring.

Set thresholds for decision-making

Once indicators for monitoring a risk are determined, thresholds should be set to alert a company when risks tolerances are being exceeded and additional decision-making is required. Companies generally use tolerance levels derived from their risk appetite, which is approved by the board. These thresholds set the amount of acceptable variation for a given indicator. For example, a company may set a science-based greenhouse gas emissions target and an acceptable amount of variation in line with its management of climate-related risk. The company can review progress against that goal. If the company is tracking outside of the acceptable level of variation, management can respond by adjusting its approach.

Guidance

Set thresholds which trigger revision of ESG-related risk activities



Table 6.4 demonstrates indicators, thresholds and decisions at the example company Pro Paper & Packaging (Pro P&P).

Table 6.4: Example application of indicators and thresholds				
Pro P&P - Strategy and objectives	ESG-related risks for achieving strategy (Module 3)	Response (Module 5)	Indicator and threshold	Decision (if threshold is exceeded)
Customer focus	The possibility that end-user customer preferences for products with less environmental impact, designed for recycling and reuse properties, will challenge long-term contracts with customers	<ul style="list-style-type: none"> Invest USD \$18 million in research and development of new products that use alternatives to fiber and petroleum as raw materials Develop a customer engagement tool to understand preferences for sustainable products 	<ul style="list-style-type: none"> Percentage of customers requesting FSC/PEFC^x certified products Threshold: >25%	Increase investment and resource allocation for procuring certified products
Recognized brand	The possibility that NGO-related campaigns will erode brand recognition as a product with strong sustainability performance	<ul style="list-style-type: none"> Hire two full-time employees to support stakeholder engagement Invest in a system to track and respond to NGO requests 	<ul style="list-style-type: none"> Number and size of NGO requests and campaigns against the company Threshold: Two large campaigns and / or >10% in revenue loss	Reassess risk, response and adequacy Convene a targeted problem-solving session with the NGO
Strong growth	The possibility that geopolitical issues in emerging markets will reduce access to a skilled, efficient and engaged workforce impacting productivity and sales	<ul style="list-style-type: none"> Engage in regular formal and informal training Invest in Maple-croft to monitor country level risk Conduct scenario planning to monitor the impact of changing weather patterns on the supply chain 	<ul style="list-style-type: none"> Employee turnover Employee absenteeism Reports of employee stress Threshold: >12% Threshold: >4% Threshold: >40%	Consider on-site employee housing and alternative strategies
Global efficiency	The possibility that severe weather events (e.g., cyclones, floods) will disrupt the supply chain	<ul style="list-style-type: none"> Conduct business continuity planning with alternative suppliers Monitor weather changes and events to substitute suppliers as appropriate Purchase insurance to cover losses in the event of severe weather 	<ul style="list-style-type: none"> Severe weather events Threshold: 1) Storm severity frequency increases over five years 2) Two category 4 storms occur within any three years	Activate alternative sourcing plans Evaluate alternative pricing scenarios and customer sensitivities for sharing cost impacts
Sustainability leadership	The possibility that the safety performance of companies acquired as part of the growth strategy will be substandard and lead to negative impacts on employee morale The possibility that human rights issues in the supply chain (e.g., forced labor, child labor) will lead to reputational impacts and loss of customers	<ul style="list-style-type: none"> Develop and implement an externally accredited safety management system and conduct regular audits of operations Re-evaluate company M&A due diligence processes to better identify and address ESG-related issues prior to transactions Develop a human rights policy and implement a monitoring program Establish a grievance process to allow human rights issues to be reported and addressed 	<ul style="list-style-type: none"> Completion of acquired companies' policies and supplier audits on occupational health and safety and human rights Unfavorable audits in acquired company Threshold: <75% Threshold: >10%	Establish a special audit response action team to triage issues and develop urgent responses Place management of units with poor audit responses on probationary status with financial implications

^x Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC)

The example below demonstrates the benefits companies can realize from ongoing risk review and revision, even at the business unit level.

Company example: Infosys Limited – monitoring water scarcity risk

Infosys, a multinational conglomerate, considers water scarcity a significant risk to its business operations in India. The company has implemented a monitoring process to identify factors in the external environment that could modify the risk severity assessment. Management identified the following enterprise-wide and campus-specific indicators:

- Water table levels for each geographic area
- Storage capacity of rainwater on each campus
- Availability and cost of water via water tankers for delivery

The risk owner reviewed and set thresholds for each of the above indicators. When indicator results exceeded an individual threshold, the risk owner alerted management for follow-up. For more, visit wbcasd.org.

Conclusion

Review and revision of ERM activities is critical to evaluate the effectiveness and revise approaches as needed. Companies can develop specific indicators to alert them of changes that need to be reflected in risk identification, assessment and response. This information is reported to a range of internal and external stakeholders, as detailed in Module 7.

7. Communicate and report ESG-related risks

Introduction

The final stage of the ERM process is to communicate and report risk information to stakeholders. Risk information serves as an input to many strategic, operational, investment or purchasing decisions made by both internal and external stakeholders. Companies should leverage existing communication channels in order to provide timely, relevant and quality information to target audiences.¹



**INFORMATION,
COMMUNICATION,
& REPORTING**

COSO principles relevant to communication and reporting

- 18 Leverages information technology** — the organization leverages the entity’s information and technology systems to support enterprise risk management.
- 19 Communicates risk information** — the organization uses communication channels to support enterprise risk management.
- 20 Reports on risk, culture and performance** — the organization reports on risk, culture, and performance at multiple levels and across the entity.

The primary aim of internal communication and reporting is to provide decision-useful information on a company’s risk management approach and performance. For ESG-related risks, internal communication and reporting can enhance awareness of these risks within the company, communicate how well the risks are being managed and provide data to support better, more informed decision-making across the business.

External reporting on risk management is a regulatory requirement in many jurisdictions. These regulations require companies to inform regulators, investors and other stakeholders of their most significant risks and the processes in place to respond to these risks. An increase in demand for ESG-related information from investors is also driving companies to voluntarily disclose ESG-related information publicly.

This module focuses on how to communicate and report ESG-related risks internally and externally. The following checklist describes steps management can follow to support these activities:

- Identify relevant information for internal and external communication and reporting
- Use internal communication and reporting channels to convey ESG-related risk information for decision-making
- Understand regulatory requirements and stakeholder expectations to tailor ESG-related risk communication and reporting

Review and revision of ESG-related risks

Module 6 details the type of information a company should monitor across the ERM process to understand how effectively risks are being identified, assessed and managed. Refer to Table 7.1 for examples of this type of information.

Guidance

Identify relevant information for internal and external communication and reporting

Table 7.1: Example information for communication and reporting	
ERM monitoring	Example information for communication and reporting
The governance model (Module 1)	<ul style="list-style-type: none"> • Company’s governance around ESG-related risks and opportunities • Board oversight of ESG-related risks and opportunities and management’s role in assessing and managing ESG-related risks and opportunities²
Changes to the business context and strategy (Module 2)	<ul style="list-style-type: none"> • New or pending ESG-related regulations • Changes in a company’s risk appetite as it relates to ESG-related risks (e.g., decision not to employ prison labor)
The emergence of new or changing risks (Module 3)	<ul style="list-style-type: none"> • New risks that have emerged (e.g., water scarcity) • Existing risks that have substantially changed (e.g., employee engagement, severe weather events)
Changes to assessment tools or assumptions (Module 4)	<ul style="list-style-type: none"> • Updated risk severity assessment as a result of improved precedent data • Updated scenario analysis as a result of changes to assumptions (e.g., revision of climate scenarios to 4°C and 6°C for assessing climate-related risk)
Effectiveness of risk responses (Module 5)	<ul style="list-style-type: none"> • Activity indicators for risk responses (e.g., number of audits) • Outcome indicators for risk responses (e.g., number of participants trained)
Approach to communication and reporting (Module 7)	<ul style="list-style-type: none"> • Results of peer or industry benchmarking on external reporting • Shareholder resolutions (e.g., shareholder proposals that the company set science-based emissions targets or appoint a human rights expert to the board)

This information is relevant to a range of *internal* stakeholders, including the board of directors, operational management and employees, as well as *external* stakeholders such as shareholders, regulators, customers, civil society and non-governmental organizations. For each stakeholder group, the company should consider:

- What ESG-related risk information is required for decision-making?
- What ESG-related indicators and metrics are appropriate to provide decision-useful information?
- How frequently is the information required?
- What channel should be used to communicate the information?
- What controls or processes are in place to ensure data quality (e.g., controls over internal data, external assurance)?
- What is the most effective way to communicate the risk? Where possible, companies should try to communicate risks in terms of how the risk impacts the company’s strategy and objectives (refer to Module 4 for additional guidance).

As shown in the RACI matrix in Module 1, the risk owner is the central owner of risk information and communication. Risk owners can work with sustainability managers or other stakeholders to understand information requirements and channels for communication. Sustainability managers are particularly involved in external communication of ESG-related risks, such as climate-related disclosures.

Leverage information systems

While most global organizations use financial and operational data systems on a daily basis (e.g., accounting systems, enterprise resource planning (ERP) systems), information systems for capturing and reporting ESG-related information are less common. Nonetheless, companies that use information systems to collect and aggregate ESG-related data across the organization may see improvements in the following:

- Monitoring and communication
- Data quality
- Visibility of risk across the company
- Decision-making
- Timeliness
- Collaboration and cross-functional teaming.

For example, a company using an EHS software platform can compile data on health and safety incidents from multiple plants shortly after they occur. Root cause can be determined and recorded in the system at the time of the incident. This information can then be compiled by management for trend analysis to understand the plants with more significant or recurring safety issues. The plants with similar safety issues can work with plants with leading practices to develop and implement practical solutions.

Internal stakeholders: Communicating and reporting

Communication of risk information is a critical component to improving decisions relating to both strategy setting and day-to-day operations. Internal communication of ESG-related risks in particular can help to:

- **Educate the board of directors and management to understand how ESG-related risks will impact the business strategy and objectives** – allowing the board and management to make informed decisions and seize opportunities.³
- **Promote awareness or education of less known but critical risks to the company.** For example, despite awareness of the possibility of a volcanic eruption in Iceland in 2010, many companies were blindsided by the impacts caused by the eruption of Eyjafjallajökull – which closed European airspace for a week and impacted a range of industries including airlines, fisheries in Australia, to flower and vegetable harvesters in Africa.⁴
- **Encourage employee engagement and a culture of risk awareness throughout the company.** For example, an airline may distribute aggregated safety data to employees to demonstrate their impact on the airline or airport’s safety performance. A typical safety newsletter captures both leading (e.g., number of employees trained on safety) and lagging (e.g., incident rate) indicators.

Guidance ✓

Use internal communication and reporting channels to convey ESG-related risk information for decision-making

Communication on risk varies depending on the audience (e.g., board of directors versus operational management) and information needs of each stakeholder (e.g., do they need to understand the details of a company’s risk response versus overall effectiveness). Table 7.2 provides examples of the considerations the risk owner and sustainability manager should assess in preparing effective communications for specific audiences.

Stakeholder group	Information needs	Example communication methods
Board of directors Provides strategic oversight for critical company risks	<ul style="list-style-type: none"> • Significant changes to the internal and external business environment and the company’s approach to these changes • Risks that are falling outside the risk tolerances or appetite • Overall effectiveness of risk responses 	<ul style="list-style-type: none"> • Board meeting pre-reads and presentations • External/third-party materials (e.g., industry, trade and professional journals, media reports, peer company websites, key internal and external indices)
Operational management Oversees day-to-day operations that incorporate risk response	<ul style="list-style-type: none"> • Significant changes to the internal and external environment impacting strategy and risk appetite • Significant changes to a risk or risk profile • Status and effectiveness of risk responses 	<ul style="list-style-type: none"> • Written internal documents (e.g., briefing documents, dashboards, performance evaluations, presentations, questionnaires and surveys, policies and procedures, FAQs) • Informal/verbal communications (e.g., one-on-one discussions, meetings)
Employees Performs day-to-day operations that incorporate risk response	<ul style="list-style-type: none"> • Nature of the risk response and impacts on roles and responsibilities • Importance of the risk response activities to the company 	<ul style="list-style-type: none"> • Training and seminars (e.g., live or on-line training, webcast and other video forms, workshops) • Materials, meetings or interactions • Electronic messages (e.g., emails, social media, text messages, instant messaging) • Public events (e.g., roadshows, town halls meetings, industry/technical conferences)

Professional services firm communicates global crisis response through electronic messages

A professional services firm uses mass email and text messaging to contact employees in the event of a local or global crisis. For example, when Hurricane Harvey hit Texas in 2017, the firm contacted its employees to account for all staff and confirm any safety or emergency needs.

External stakeholders: Communicating and reporting

External stakeholders are interested in understanding how companies are managing their ESG-related risks to protect shareholder value or address ESG-related issues that impact society. Disclosure of ESG-related information has been commonplace for many companies for a number of years. GRI reports the following benefits for external reporting on ESG-related issues:

- Mitigating – or reversing – negative environmental, social and governance impacts
- Improving reputation and brand loyalty
- Enabling external stakeholders to understand the organization’s true value and tangible and intangible assets
- Demonstrating how the organization influences, and is influenced by, expectations about sustainable development⁵

Guidance ✓

Understand regulatory requirements and stakeholder expectations to tailor ESG-related risk communication and reporting

External communications on ESG-related risks should align to a company’s mandatory and voluntary reporting obligations as set out on next page.

Reporting trends for WBCSD member companies:

- All report ESG information externally
- 85% of reporters use GRI guidelines
- 45% of reports align their sustainability strategy to goal-level SDG criteria⁶

Mandatory reporting obligations

In preparing external communications on ESG-related risks, companies should start with understanding the risk and ESG reporting requirements for their jurisdiction. This includes understanding:

- The company’s requirements for reporting significant risks (e.g., US companies are required to report material risk factors in their annual 10-K).
 - Do any individual ESG-related risks meet the company’s criteria for materiality and disclosure in the legal filing (e.g., chemical companies may include health and safety concerns as a material risk factor)?
 - Do any ESG issues contribute to other material risks which would require their disclosure within a description of the legal filing (e.g., operational event impacting business continuity such as severe weather)?
- The company’s requirements for reporting ESG-related risks or issues under a separate standard. For example, France’s Article 173-VI requires asset management companies and institutional investors to describe methods for incorporating ESG factors into the investment strategy and means employed to support the Energy and Ecological Transition.⁷

Module 1 provides additional detail on the role of fiduciary duties for reporting ESG-related risks, ESG-related regulatory requirements and voluntary frameworks for reporting ESG-related issues. Jurisdiction requirements for reporting risk factors and ESG-related risk factors in particular are summarized in Appendix II.

Understanding the needs of external stakeholders

Regardless of a company’s mandatory disclosure requirements, all companies have external stakeholders that have an interest in the activities of the company.

Companies should identify their stakeholders, understand their ESG-related priorities and information needs and determine an approach for communication. Table 7.3 provides examples of information expectations of external stakeholders and methods for communicating with them.

In one study, over 80% of institutional investors stated that companies do not adequately disclose the ESG-related risks that could affect their current business models.⁸

Stakeholder group	Information needs	Example communication methods
Investors Provide capital to the company with an expectation of financial returns	<ul style="list-style-type: none"> Company’s approach for managing significant changes to the internal and external environment impacting strategy and risk appetite Understanding of how the company identifies, assesses and manages its ESG-related risks⁹ 	<ul style="list-style-type: none"> Annual general meeting of shareholders Annual report, risk filing or 10-K Integrated report Sustainability report
Customers Purchases the company’s goods or services	<ul style="list-style-type: none"> Information on how the product was made (e.g., ingredients, country of origin, factory information) Information on how to use the product and whether it may impact the consumer’s health and safety (e.g., side effects of pharmaceuticals) 	<ul style="list-style-type: none"> Responsible marketing practices (e.g., promoting accurate facts about the product) Product labelling (e.g., nutrition facts) Licensed, certified or authorized retailers (e.g., pharmacists) Focus groups
NGOs and communities Hold companies accountable for their impacts to their interest groups (e.g., environment, society)	<ul style="list-style-type: none"> Company’s approach for mitigating against negative impacts to NGO interests (e.g., deforestation from palm oil extraction) Understanding of how the company benefits the local and global environment and society (e.g., volunteer hours, employee monetary contributions to cancer research) 	<ul style="list-style-type: none"> Annual general meeting of shareholders Integrated report Sustainability report Website One-on-one engagement or facilitated stakeholder meetings

Module 2 describes how a materiality assessment and stakeholder engagement can provide insights into these issues and the potential risks that may arise. Failing to understand, engage and report on these issues can exacerbate a risk or be a risk in and of itself. A *Havard Business Review* article reports that “refusing to engage with disagreeable protesters or activists rarely works as a strategy for managing social risk.” This article recommends seeking to understand the concerns and objectives of those opposing business activities rather than withdraw, disengage or refuse to comment.

A study of 19 publicly traded junior gold-mining companies found that one-third of their market capitalization is a function of their stakeholder relations. Another recent study shows that formal agreements with Canadian indigenous communities can, under certain conditions, more than double the market value of a junior mining firm.^{xi,10} The example below details the California Public Employees’ Retirement Systems (CalPERS) approach to understanding stakeholder needs and integrating this into decision-making and reporting.

^{xi} This is a familiar scene for companies building mines, pipelines, oil fields, and, more recently, even renewable energy and large real estate projects. Consider for example the recent protests against the completion of the Keystone and the Dakota Access pipelines.

CalPERS engages stakeholders to understand their most pressing issues

In 2016, the California Public Employees’ Retirement Systems (CalPERS) conducted external stakeholder engagement to inform their upcoming strategic plan as well as identify challenges that may threaten the organization or present barriers to reaching its goals and objectives.

CalPERS met with a variety of stakeholders including employer associations, labor associations, pension funds and state legislatures. From this engagement, CalPERS identified multiple areas for improving their approach to engagement - such as being more aggressive on healthcare purchasing to reduce costs and improve access to quality healthcare. The stakeholders also identified key challenges including threats to cybersecurity and the rising cost of healthcare.¹¹ These concerns were incorporated in CalPERS new strategic plan, which was then communicated back out to stakeholders.¹²

Voluntary external communication and reporting

Many voluntary frameworks were developed and are widely-used to meet the ESG-related reporting needs of external stakeholders. These are consistent with those described above. Table 7.4 (on next page) details some of the guidance used to support the disclosure of ESG-related issues and the company’s management of those issues.

Framework	Addresses financial filings, annual reports or ESG-specific reports ^{xii}	Description
Recommendations of the TCFD¹³	Financial filings	<ul style="list-style-type: none"> Recommends voluntary disclosures for companies to report on governance, risk management and impacts of climate change on the organization Includes industry-specific guidance
SASB Implementation Guide and Reporting Guidelines¹⁴	Financial filings	<ul style="list-style-type: none"> Provides a framework for management to assess materiality^{xiii} of sustainability issues, considering risk, for inclusion in financial reports Recommends minimum disclosure requirements by sustainability issue Includes industry-specific guidance
<IR> Framework¹⁵	Annual reports	<ul style="list-style-type: none"> Provides a framework for integrated reporting on all six capitals (i.e., financial, manufactured, intellectual, human, social and relationship and natural) Advises organizations to disclose the specific risks and opportunities that affect the organization’s ability to create value over the short, medium and long term and how the organization manages them
GRI¹⁶	ESG-specific reports	<ul style="list-style-type: none"> Provides a widely-adopted framework for reporting material economic, environmental, social and governance issues Advises reporting on topics that present risks to a company’s business model or reputation
Sustainable Development Goals¹⁷	ESG-specific reports	<ul style="list-style-type: none"> Offers goals and targets which companies can consider in presenting their impacts

^{xii} ESG-specific reports refer to annual sustainability reports made publicly available.

^{xiii} SASB applies the SEC definition of materiality which is the “substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the “total mix” of information made available.”

Following example shows how Solvay decided to disclose ESG-related risks to investors.

Solvay S.A. ESG-related risk disclosures

Solvay’s annual report follows the <IR> Framework. The chemical company’s disclosures illustrate how companies can disclose their ESG-related risks to investors.

Solvay discloses climate change and environmental strategy as emerging risks alongside its other main risks: security, transport accident, chemical product usage, ethics and compliance, information protection and cyber risk and industrial safety. For each of these risks, Solvay describes the risk and prevention and mitigation measures.

Table 7.5: Climate change – emerging risk

Description	Prevention and mitigation
<p>Climate change increases the occurrence of extreme natural events, significantly impacting Solvay’s sites and supply chain. These impacts could manifest themselves as one or more of the following consequences:</p> <ul style="list-style-type: none"> • Inability to operate plants • Asset damage • Difficulty supplying customers • Disruption in the supply of raw materials, energy or utilities 	<p>This risk has a long-term horizon; nevertheless, Solvay is creating a consistent mitigation plan, the details of which are as follows:</p> <ul style="list-style-type: none"> • Build a methodology (type of impacts to be taken into account – major events, permanent changes, environmental, socioeconomic impacts – level of impact, location, etc.) • Consider the following impacts: <ul style="list-style-type: none"> - Greater frequency and higher amplitude of natural events such as floods and storms - Regulatory impact (intake water temperature, return water temperature) - Sea level rise - Drought/hydric stress

The Recommendations of the Task Force on Climate-related Financial Disclosures released in 2017 are specific on disclosure of risk management for climate-related risks.

TCFD’s Core elements of recommended climate-related financial disclosures:

- Governance: The organization’s governance around climate-related risks and opportunities
- Strategy: The actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy and financial planning
- Risk management: The processes used by the organization to identify, assess and manage climate-related risks
- Metrics and targets: The metrics and targets used to assess and manage relevant climate-related risks and opportunities¹⁸

¹⁸ Refer to the report for complete recommendations on disclosures.

Conclusion

Companies use monitoring and communication to bring risk-informed considerations to everyday decisions. Integrating enterprise risk management practices throughout an organization improves decision-making in governance, strategy, objective-setting and day-to-day operations. It helps to enhance performance by more closely linking strategy and business objectives to both risk and opportunity. The diligence required to integrate ESG, ERM and business performance provides an entity with a clear path to creating, preserving and realizing value.

Appendices

Appendix I: Glossary

- **Adaptability:** The capacity of an entity to adapt and respond to risks.
- **Business context:** The trends, events, relationships and other factors that may influence, clarify, or change an entity's current and future strategy and business objectives.
- **Business objectives:** Those measurable steps the organization takes to achieve its strategy.
- **Complexity:** The scope and nature of a risk to the entity's success.
- **Core values:** The entity's beliefs and ideals about what is good or bad, acceptable or unacceptable, which influence the behavior of the organization.
- **Corporate governance:** The set of relationships between the company's management, board, shareholders and other stakeholders that provide the structure through which objectives of the company are set.
- **Culture:** The attitudes, behaviors, and understanding about risk, both positive and negative, that influence the decisions of management and personnel and reflect the mission, vision, and core values of the organization.
- **Data:** Raw facts that can be collected together to be analyzed, used, or referenced.
- **Dependencies:** Resources (e.g., human, social, natural) that businesses need in order to create and sustain value.
- **Enterprise risk management (ERM):** The culture, capabilities, and practices, integrated with strategy-setting and its performance, that organizations rely on to manage risk in creating, pre-serving, and realizing value.
- **Entity:** Any form of for-profit, not-for-profit, or governmental body. An entity may be publicly listed, privately owned, owned through a cooperative structure, or any other legal structure.
- **Environmental, social and governance (ESG):** The environmental, social and corporate governance (ESG) issues that investors consider in the context of corporate behavior
- **External environment:** Anything outside of the entity that influences the ability to achieve strategy and business objectives.
- **External stakeholders:** Any parties not directly engaged in the entity's operations but who are affected by the entity, directly influence the entity's business environment, or influence the entity's reputation, brand, and trust.
- **Financial capital:** The traditional yardstick of performance; includes funds obtained through financing or generated by means of productivity.
- **Human capital:** The skills and know-how of an organization's personnel, in addition to their commitment and motivation – which affect their ability to fulfill their roles.
- **Impact:** The result or effect of a risk. There may be a range of possible impacts associated with a risk. The impact of a risk may be positive or negative relative to the entity's strategy or business objectives.
- **Information:** Processed, organized, and structured data concerning a particular fact or circumstance.
- **Intellectual capital:** Accounts for the intangibles associated with brand and reputation, in addition to patents, copyrights, organizational systems and related procedures.

- **Internal control:** A process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance. (For more discussion, see Internal Control—Integrated Framework.)
- **Internal environment:** Anything inside of the entity that influences the ability to achieve strategy and business objectives.
- **Internal stakeholders:** Parties working within the entity such as employees, management, and the board.
- **Likelihood:** The possibility that a given event will occur.
- **Human capital:** The skills and know-how of an organization's personnel, in addition to their commitment and motivation – which affect their ability to fulfill their roles.
- **Megatrends:** Large, transformative global forces that define the future by having far-reaching impact on business, economies, industries, societies and individuals.
- **Mission:** The entity's core purpose, which establishes what it wants to accomplish and why it exists.
- **Natural capital:** Includes resources such as water, fossil fuels, solar energy, crops and carbon sinks, which cannot be replaced and are essential to the functioning of the economy as a whole.
- **Operating structure:** The way the entity organizes and carries out its day-to-day operations.
- **Opportunity:** An action or potential action that creates or alters goals or approaches for creating, preserving, and realizing value.
- **Organization:** The term used to collectively describe the board of directors, management, and other personnel of an entity.
- **Organizational sustainability:** The ability of an entity to withstand the impact of large-scale events.
- **Performance management:** The measurement of efforts to achieve or exceed the strategy and business objectives.
- **Persistence:** How long a risk impacts an entity.
- **Portfolio view:** A composite view of risk the entity faces, which positions management and the board to consider the types, severity, and interdependencies of risks and how they may affect the entity's performance relative to its strategy and business objectives.
- **Recovery:** The capacity of an entity to return to tolerance.
- **Risk:** The possibility that events will occur and affect the achievement of strategy and business objectives.
- **Risk appetite:** The types and amount of risk, on a broad level, an organization is willing to accept in pursuit of value.
- **Risk capacity:** The maximum amount of risk that an entity is able to absorb in the pursuit of strategy and business objectives.
- **Risk inventory:** All risks that could impact an entity.
- **Risk profile:** A composite view of the risk assumed at a particular level of the entity, or aspect of the business that positions management to consider the types, severity, and interdependencies of risks, and how they may affect performance relative to the strategy and business objectives.
- **Severity:** A measurement of considerations such as the likelihood and impact of events or the time it takes to recover from events.
- **Speed of onset or velocity:** The time it takes for a risk event to manifest itself or the time that elapses between the occurrence of an event and the point at which the company first feels its effects.
- **Social and relationship capital:** Encompasses the relationships – and attendant resources – between an organization and all its stakeholder, including communities, governments, suppliers and customers.
- **Stakeholders:** Parties that have a genuine or vested interest in the entity.
- **Stakeholder engagement:** The process of soliciting feedback from a variety of internal and external stakeholders.
- **Strategy:** The organization's plan to achieve its mission and vision and apply its core values.
- **SWOT analysis:** Uses a two-by-two framework to define the strengths, weaknesses, opportunities and threats a company is facing.
- **Tolerance:** The boundaries of acceptable variation in performance related to achieving business objectives.
- **Uncertainty:** The state of not knowing how or if potential events may manifest.
- **Vision:** The entity's aspirations for its future state or what the organization aims to achieve over time.

Appendix II: Examples of risk and governance disclosure requirements

Many countries and stock exchanges establish annual reporting requirements for companies to disclose information related to potential risk factors, including ESG-related risks, and governance practices. An analysis was conducted to identify disclosure requirements of 15 countries selected based on gross domestic product (GDP), company disclosure practices and geographic location. Both national laws and stock exchange^a requirements were assessed.

The analysis revealed that 13 of 15 countries analyzed required annual risk factor disclosures, either through national laws or stock exchange-specific requirements. Eight of these 13 countries explicitly identified at least one environmental, social or governance component that should be considered in preparing risk factor disclosures. Furthermore, 14 of 15 countries required annual governance disclosures through country laws or stock exchange requirements.

Risk disclosure requirements, including specific requirements related to ESG matters, are presented below in Table II.1. Governance disclosure requirements are presented in Table II.2.

Jurisdiction	Requirements		Authoritative literature
Country	Risk factor disclosure ^b	ESG-specific risk factor disclosure ^c	Example citations
Australia	Yes	Yes	Australian stock exchange (ASX) Corporate Governance Council Principles & Recommendations: Principle 7 (recommendation 7.4)
Brazil	Yes	No	Chairperson of the Securities Commission of Brazil (CVM) Instruction No. 480
Canada	Yes	Yes	Form 51-102F2, Annual Information Form, Section 5.2; Form 51-102F1, Management's Discussion and Analysis, Section 1.2
China	No	No	
France	Yes	Yes	Article L225-100; Article L225-100-2
Germany	Yes	Yes	Commercial Code / Corporate law (HGB), §§289, 289a-e HGB, 315, 315a-c HGB
India	Yes	Yes	Companies Act 2013, Section 134. Financial statement, (3)
Japan	Yes	No	Financial Instruments and Exchange Act (FIEFA), Articles 5, 24 Cabinet Office Ordinance on the Disclosure of Corporate Affairs (Cabinet Ordinance); Article 8(1), Article 15/Form 2 33; Form 3 13
Netherlands	Yes	Yes	Dutch Civil Code, Book 2 Legal Persons, Title 9 financial statements and directors' report; Financial Supervision Act; Dutch Corporate Governance Code (December 8, 2016) of the Monitoring Committee
Norway	Yes	No	Norwegian Act on Securities Trading 2007: Section 5-5 Annual financial reports; Norwegian Accounting Act, Section 3
Singapore	No	No	
South Africa	Yes	No	King IV Report on Corporate Governance for South Africa 2016: Principle 11
Thailand	Yes	No	Regulations of the Stock Exchange of Thailand. Re: Preparation and Submission of Financial statements, Financial reports and Operating results of Listed Companies
UK	Yes	Yes	Companies Act 2006 c. 46 Part 15 CHAPTER 4A, Section 414C(2)(b), 414C(4)(b), 414C(7), 414CB(1)(2)(d)
USA	Yes	Yes	17 CFR 229.503; SEC Regulation S-K guidance, SS 229.503 (c); Item 303(a)(3)(ii)

^a In cases where there exist multiple stock exchanges within a country, the top two largest stock exchanges were included in the analysis.

^b Annual requirement to publicly disclose risk factors that exceed a specified threshold

^c Requirements specify considering at least one environmental, social or governance-related risk in selecting risk factors for annual disclosure

Jurisdiction	Requirements	Authoritative literature
Country	Specific governance disclosure requirement? ⁴	Example citations
Australia	Yes	Australia Corporations Act 2001, Volume 1, Chapter 2D, 2G, 2H, 2J
Brazil	No	
Canada	Yes	Canada Business Corporations Act: Part 5, Part 7, Part 8; National Instrument 58-101; National policy 58-201
China	Yes	Code of Corporate Governance for Listed Companies in China
France	Yes	French Commercial Code, Articles L. 225-37-2 to L. 225-37-5
Germany	Yes	German Commercial Code, Section 289F, Corporate Governance Statement
India	Yes	Securities and Exchange Board of India Regulations, 2015, Section 34, Chapter II
Japan	Yes	Financial Instruments and Exchange Act (FIEFA), Articles 5, 24 Cabinet Office Ordinance on the Disclosure of Corporate Affairs (Cabinet Ordinance); Article 8(1), Article 15/Form 2 57; Form 3 37
Netherlands	Yes	Dutch Corporate Governance Code (December 8, 2016) of the Monitoring Committee
Norway	Yes	Norwegian Accounting Act, Section 3-3c
Singapore	Yes	Singapore Companies Act (2006); Singapore Exchange Listing Rules, Report of the Committee and Code of Corporate Governance
South Africa	Yes	Companies Act 2008: Part F - Governance of Companies
Thailand	Yes	Corporate Governance Code for Listed Companies 2017
UK	Yes	Companies Act 2006 c. 46 Part 15 Chapter 5, Sections 416 (1), (3); 418 (2), 419A; Disclosure and Transparency Rules of the Financial Conduct Authority, DTR 7.1, 7.2
USA	Yes	SEC Regulation S-K, 17 CFR §229.407

⁴ Annual requirement to disclose information related to company governance practices, such as the organization of executive bodies and ethics procedures for management.

Appendix III: Example precedent event reference table

This table is designed as a starting point for companies to consider events that have occurred at other companies as data inputs for forecasting models. The references here provide an overview of the event and impact. Further research and comparability to the company’s specific circumstances would be required.

Table I.1: Examples of precedent event reference		
ESG risks	Reference to example precedent events	Impact
Environmental		
Severe weather	• Impact of catastrophic flooding and drought on cotton crop yields and price (2010)	• Next clothing brand had to raise prices 5%-8% . • H&M share prices fell 2.5% . ¹
	• Impact of Texas drought and China’s adverse weather conditions on cotton crop (2011)	• Gap lowered its annual profit forecast by 22% during its Q1 2011 update due in part to cotton prices. • Polo Ralph Lauren posted a 36% decline in net income in the first quarter, citing higher input costs as the primary driver. ²
	• Impact of coastal wetlands in northeastern USA on regional flood damages by Hurricane Sandy and local annual flood losses in New Jersey (2012)	• The presence of wetlands helped avoid USD \$625 million in direct flood damages . ³
Water contamination	• Oil spill in the Gulf of Mexico (2010)	• BP paid USD \$5.5 billion in Clean Water Act penalty and up to USD \$8.8 billion in natural resource damages. ⁴
	• Allowance of water contamination from hydraulic fracturing	• Cabot Oil and Gas paid USD \$4.2 million to two families for contaminating their water. ⁵
	• Spill of coal ash waste (2015)	• Duke Energy Corp agreed to pay USD \$102 million in federal penalties: USD \$68 million in fines and USD \$34 million for environmental and conservation efforts in North Carolina and Virginia. ⁶
Water scarcity	• Groundwater extraction above legal limits ⁷	• Coca-Cola was forced to close its bottling factory . • Students boycotted Coca-Cola by banning the drink on 23 college campuses in the U.S. and Europe. ⁸
Biodiversity	• Violations of national law on biodiversity in Brazil (2017)	• 35 different companies (mostly cosmetic and pharmaceutical multinationals) were found responsible, totaling about USD \$44 million in fines . ⁹
	• Restoration of biodiversity, nature and landscapes (French National Assembly bill)	• Any act committed by an individual is punishable by a fine of up to 150,000 euros (750,000 euros for an organized group) and two years’ imprisonment . ¹⁰

Table I.1: Examples of precedent event reference (continued)		
ESG risks	Reference to example precedent events	Impact
Social		
Human rights	• Poor worker conditions in factories (1990’s and early 2000’s)	• Nike’s defense of these claims resulted in a settlement payment of USD \$1.5 million . ^{11,12}
	• Workers being paid less than the legal minimum wage	• 7-Eleven paid at least USD \$26 million in back pay to 680 workers. ¹³
Labor rights	• Employee strike for labor rights improvements	• A major, world-class mining project with capital expenditure of USD \$3-\$5 billion will suffer costs of roughly USD \$20 million per week of delayed production in Net Present Value (NPV) terms, largely due to lost sales. ¹⁴
Occupational health and safety	• Workplace-related injuries, illnesses and deaths	• The following studies report average direct and indirect costs: <ul style="list-style-type: none"> • National Safety Council Injury Facts¹⁵ • PBS Costs of Occupational Injuries and Illnesses (US-specific)¹⁶
	• Factory collapse resulting in over 1,100 workers killed and 1,000 injured	• The International Labor Organization raised USD \$15 million of the USD \$40 million target to compensate impacted families of the Rana Plaza factory collapse. ¹⁷
Community	• Dam collapse killing 19 people and sending iron ore mining debris through a southeast region of Brazil	• Samarco (Value and BHP) paid USD \$6.2 billion settlement . ¹⁸
Food safety	• Food contamination led to E. coli (2015) ¹⁹	• Chipotle’s stock price, which was increasing at the time, fell from \$750 per share to \$440 per share over a six-month period. ²⁰
	• Pet food contamination resulted in dog deaths (2014) ²¹	• Petco halted the sale of Chinese-made dog treats, which impacted 1,300 stores and sales on Petco.com. ²²
Product safety	• Lithium ion batteries caught fire (2006)	• Dell/Sony recalled 4.1 million batteries at a cost of USD \$400 million . ²³
	• Lead paint on children’s toys (2007)	• Mattel recalled 967,000 toys, its 17th recall in ten years . ²⁴
	• Air bag failure on vehicles (2014) ²⁵	• The National Highway Traffic Safety Administration charged GM with USD \$35 million in civil penalty. ²⁶
Consumer safety	• Overheating and catching fire of cell phones (2016)	• Samsung issued an initial recall of 2.5 million devices. ²⁷
	• Lack of oversight for trading operations (2013)	• USD \$6 billion in losses due to complex derivatives • USD \$920 million in fines to regulators ²⁸
Governance		
Bribery and corruption	• Bribery payments	• Criminal and civil penalties are imposed on companies for offences defined by the US Foreign Corrupt Practices Act. ²⁹ • In 2016, the Serious Fraud Office secured its first conviction under the section 7 of the UK Bribery Act 2010 which resulted in a financial penalty of about USD \$2.7 million . ³⁰
Falsification of emissions tests	• Falsification of emissions tests on vehicles (2016) ³¹	• Volkswagen paid USD \$14.7 billion settlement . ³²

Appendix IV: Scenario analysis reference table

The resources included in the table below provide insights for developing climate change and energy focused scenario analyses. Managers should consider these resources for the principles and methodologies which can apply to other ESG-related risks.

Table IV.1: Scenario analysis reference	
Resources	Applicable use
Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities ¹	<ul style="list-style-type: none"> Describes how to build climate change scenarios which are plausible, distinctive, consistent, relevant and challenging The parameters, assumptions, analytical choice and impacts walk managers through the key considerations for developing scenarios
IEA ²	<ul style="list-style-type: none"> Provides new and current policy scenarios based on plans announced by countries on energy and their implementation Designs energy technology scenarios for limiting greenhouse gas emissions based on 2, 4 and 6 degree scenarios
IPCC ³	<ul style="list-style-type: none"> Special Report on Emissions Scenarios (SRES) cover a wide range of the main driving forces of future emissions, from demographic to technological and economic developments These scenarios include the range of emissions of all relevant sources of greenhouse gases and sulfur and their driving forces
Shell ⁴	<ul style="list-style-type: none"> Scenarios developed annually for a range of issues, including how the world could meet energy demand while reducing net carbon emissions to zero and energy scenarios for the future The purpose is to ask “what if” to consider events that may be remote possibilities to stretch thinking
Statoil ⁵	<ul style="list-style-type: none"> Energy scenarios considering greenhouse gas emissions, global climate policy, energy demand, global oil and gas markets and renewable energy (2017)
BHP ⁶	<ul style="list-style-type: none"> Climate change scenario analysis including in a 2-degree Celsius world
ConocoPhillips ⁷	<ul style="list-style-type: none"> Corporate supply and demand carbon scenarios
Glencore ⁸	<ul style="list-style-type: none"> Climate change scenarios with discussion of assumptions for delayed action, committed action and ambition action

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Notes

About us

Originally formed in 1985, COSO is a voluntary private sector organization dedicated to providing thought leadership through the development of comprehensive frameworks and guidance on internal control, enterprise risk management and fraud deterrence. COSO is jointly sponsored by the **American Accounting Association (AAA)**, the **American Institute of Certified Public Accountants (AICPA)**, **Financial Executives International (FEI)**, the **Institute of Management Accountants (IMA)**, and the **Institute of Internal Auditors (IIA)**. For more information, visit [COSO.org](https://www.coso.org).

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Enterprise Risk Management

Applying enterprise risk management to environmental,
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