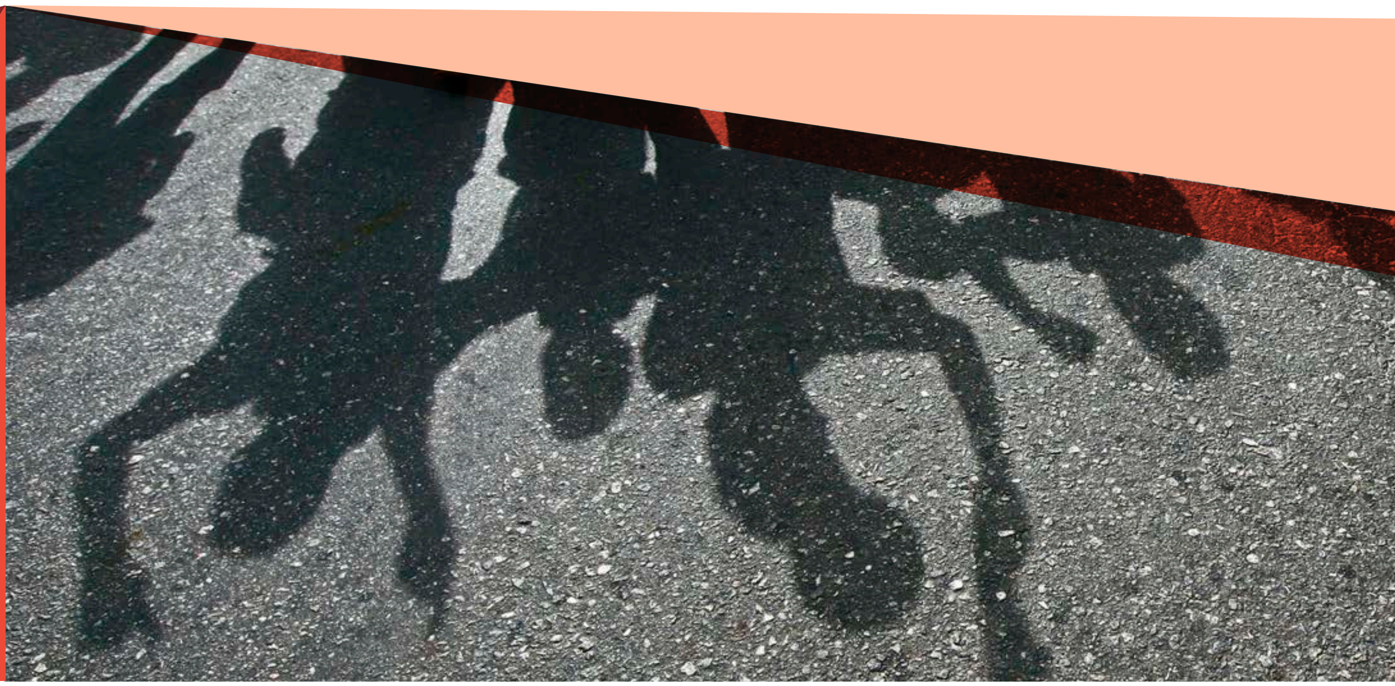
MARSH & McLENNAN COMPANIES

Global Risk Center

THE EMERGING RISKS QUANDARY

ANTICIPATING THREATS HIDDEN IN PLAIN SIGHT



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TEN TAKEAWAYS

1. Increasing global economic integration, technological advances, and geopolitical friction are making it ever more important for companies to anticipate shocks and adverse trends that might shatter corporate reputation and growth expectations.

2. To support company resilience and commercial choices, it is necessary to approach the global and emerging risks agenda in a way that is simultaneously creative but pragmatic, open-minded but disciplined.

3. Successful programs for emerging risks overcome well-known challenges – patchy data on threats, a lack of clarity about business significance, limited senior-level engagement, and weak integration within business decisions.

4. A watch list of key threats should draw from diverse sources. These might include the corporate risk register, external publications, expert interviews or workshops, and bespoke data mining or analyses of social media.

5. Characterizing a complex risk is essential for understanding its significance. This involves delineating the risk's underlying drivers and potential pathways, and also specifying the principal revenue streams, assets, costs, and strategic goals it might affect.

6. Scenarios are a helpful way of giving shape to emerging risks and positing plausible alternative futures – without any claim to prediction. They should be carefully designed according to the purpose they are intended to serve.

7. Scenario-based stress tests should avoid unnecessary complexity with a view to ensuring transparent assumptions and calculations; achievable execution within the required timescale; plausible results; and the possibility of reuse or adaptation.

8. A framework for monitoring designated emerging risks is vital for providing early warning on changing threat levels. Undertaken in a structured way, this can feed into senior management and board reporting on the possible future risk profile of the firm.

9. Analyses of top emerging risks are useful for testing strategy-planning assumptions, evaluating the likely effectiveness of risk mitigation measures, and getting a risk-adjusted view of major investments. For this to take place, analyses need to be formally integrated into corporate processes.

10. Chief executives and chief financial officers should actively promote the consideration of global and emerging risks within the firm. Day-to-day responsibility for the agenda should lie with individuals who appreciate the big picture and can cooperate with strategy and financial planning functions as well as business leaders.

A GROWING IMPERATIVE

Anticipating the unexpected has become more important than ever. Increasing global economic integration, technological advances, and geopolitical friction are profoundly complicating the risk landscape, creating exposures and vulnerabilities that have the potential to generate more than mere "volatility" in corporate earnings. At the same time, many companies find it hard to galvanize senior-level discussion around emerging threats in a way that truly supports good governance and decision making. In our view, this is a major shortcoming. To avoid being blindsided by unwelcome surprises, boards and executive teams need to develop a much stronger context for risks that, for the moment, may seem to be safely over the horizon.

In recent years, sharper analytics and better-crafted control frameworks have enabled companies to get a stronger grip on everyday risks that drive performance variance and operational disruption. Firms with robust enterprise risk management frameworks have developed approaches to balance risk, reward, and cost – often against clear levels of tolerance. But many of these frameworks fall short when it comes to messier, more complex challenges and sudden crises, where leadership discussions should focus on strategic resilience and positioning rather than risk reduction and risk investment optimization.

The risks of concern to this paper largely stem from the intersection of global megatrends such as fundamental demographic shifts, climate change, technology innovation, and movements in the balance of global economic and political power. Recognizing that these tendencies will make the future significantly different than the past is one thing. Foreseeing where they will grind against each other painfully, conspire to generate sudden surges, or be impeded by unexpected twists and shocks is a more difficult task (see Exhibit 1).

Companies do not necessarily struggle to identify the key topics, as many publications set out the fundamental picture and flag new findings. Instead, their problems lie in understanding the consequences of potential risk pathways for planning and operating assumptions. Sometimes firms will need to explore the implications of an emerging near-term crisis. More usually, however, companies should assess how sea changes within their own industry might play out; how threats from distant, untoward developments might "jump" sectors and regions; and where the impacts of these risks might be aggravated or extended by apparently unrelated circumstances.

How the company is intrinsically positioned is only part of the consideration; in fact, the situation might even appear advantageous at first glance. The impact of the risk on the broader ecosystem is often more critical. How might a stiffening of the risk alter market sentiment and consumer behavior? What would that mean for key counterparties and competitors? How damaging might be the likely policy and regulatory responses? An answer to a board-level question about the implications of the Greek fiscal crisis that goes "We have no assets in Greece" misses the point – as does an observation that cyber-attacks are just part of the cost of doing business in today's world.

The perennial challenge of anticipating second- and third-order consequences of easily identified predicaments means that emerging risks are often hidden in plain sight. As with the global financial crisis, the cascade of events appears all too obvious with hindsight, but interpreting and acting on warning signals in good time can be surprisingly hard.

To yield valuable insights, attempts to understand the risk landscape should be *creative and open-minded*. Filtering sense from noise, formulating scenarios, and thinking through implications requires a keen curiosity. Prejudices must be left at the door; "what ifs…" must be postulated, deliberated, and weighed in an enlightened way. At the same time, the undertaking needs to be *pragmatic and disciplined* to ensure it is of interest to decision makers. It is impossible to cover everything, and a touchstone of materiality for the business helps prioritize effort.

Becoming more attuned to emerging risks shares as many characteristics with innovation thinking and strategy formulation as it does with standard enterprise risk management. Techniques from all three fields inform our recommendations in this paper as to how companies can better anticipate complex threats and uncertainties. Section two first identifies why many companies have struggled to achieve value from their work in this area, then identifies the corporate processes that the analysis of global and emerging risks should inform. Section three looks in more detail at the elements crucial for success: the ability to diagnose major threats, evaluate potential risk impacts, and support key decisions. A short conclusion covers the importance of good sponsorship and leadership.

GLOBAL AND EMERGING RISKS – DEFINITION AND CHARACTERISTICS

Global and emerging risks are complex, usually exogenous, threats and uncertainties that may have significant, unexpected impacts on company earnings and market positioning. As new phenomena or familiar challenges sharply aggravated by changing conditions, they often take shape at the intersection of several fundamental trends and can crystallize with sudden shifts in velocity.

Trajectories of these risks are hard to predict due to extensive interdependencies with other issues and complex interactions with risk-absorbing systems. This engenders the possibility of rapid dissipation, non-linear surprises, and spillover effects that cross geographic, sector, and other boundaries. For some such risks, there is no guarantee of a return to prior conditions and the result is the emergence of a new status quo.

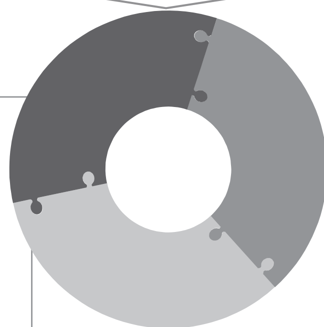
By and large, companies (individually or collectively), are not able control such risks; they can only mitigate their exposures.

Exhibit 1: Challenges of global risks

SECULAR MEGATRENDS

SPECIFIC/LOCAL TRENDS

TIPPING POINTS



EMERGING THREATS

Key features

- Complex interaction of drivers and no certainty of crystallization

Company challenge

- Understanding significance

SHOCK EVENTS

Key features

- Larger magnitude than expected and likelihood only visible with hindsight

Company challenge

- Determining preparedness

SYSTEMIC RISKS

Key features

- Correlated impacts with cascading/networked consequences

Company challenge

- Anticipating scope of impacts

Source: Marsh & McLennan Companies

OBSTACLES AND OPPORTUNITIES

Companies struggle to articulate the precise relevance of complex global and emerging risks for their business. Being clear from the outset about how the assessment of major uncertainties can support management decisions will help shape the analyses to be performed and encourage senior-level buy-in.

WEIGHT OF INERTIA

To provide directional clarity, companies tend to underplay strategic uncertainty and the threats posed by shock events and alternative futures. However, a limited and sluggish approach to global and emerging risks leaves firms vulnerable to developments that can shatter growth expectations and corporate reputations. Incidents spiraling out of control might result in a credit-rating downgrade or a fire sale of assets should free cash flows fail to cover emergencies. Should the business environment fundamentally shift, the outcome might be underperforming investments, declining market share, or obsolescence.

Many companies experience institutional resistance to this agenda, usually unspoken. To cope with new demands from boards and regulators, efforts to strengthen risk management in recent years have often prioritized process robustness and efficiency over risk scope and analytical richness. By focusing on what is readily predictable and controllable, they can blind themselves to risks that might individually not be unexpected, but which might combine to produce highly unwelcome surprises. To properly consider the key emerging levers of value destruction, many corporate risk management frameworks need to be more forward-looking and ambitious.

In addition, risk analysis capabilities are often deployed too late in strategic and financial planning – with the risk function called on to sanity-check decisions essentially already made and identify solutions for risks that can be managed. It is striking that, according to surveys undertaken by Marsh & McLennan Companies and their research partners (see sidebar numbers), risk professionals acknowledge that risk forecasting is getting harder yet also suggest that the emerging risks agenda remains a low priority for enhancement.

Against this backdrop, four hurdles need to be overcome: *informational, analytical, behavioral, and organizational.* Intelligence on global and emerging risks is usually imperfect and often changing (see Exhibit 2 for risk examples). Separating noise from key drivers and triggers of change is difficult, but pursuing the mantra that you can only manage what you can (easily) measure can result in overlooking what is most important. These informational challenges, allied with high levels of uncertainty about how key risks might develop, complicate the task of bringing together external data points with financial planning assumptions and operational realities. Extreme outcomes with low probabilities assigned to them tend to get lost in simulation processes that provide an aggregate view of earnings volatility.

This is one barrier to securing senior management buy-in. Another is the tendency of individuals to downplay patterns in unfamiliar external data and risks that appear more distant – sometimes because analyses threaten key interests or because the ability to control outcomes is limited.

Finally, institutional issues can cloud significance and result in inertia – for example, unclear ownership of the emerging risk agenda, weak integration with corporate processes, the habit of handing off responsibility to working groups and local offices, and informational overload at senior level. Outside regulated industries, there is often a reluctance to resource central functions (especially when growth is weak) and in some markets, the growing influence of activist investors in the boardroom has deprioritized long-term resilience in favor of short-term outcomes. All these factors dilute appreciation of the threat and can restrict action to ad hoc, anecdotal reporting and the application of local fixes rather than more fully considered cross-firm solutions.

85%

Proportion of risk professionals anticipating risk forecasting to be as difficult or more difficult over the next three years

Source: Association for Finance Professionals/Marsh & McLennan companies. *AFP Risk Survey: report of the Survey Results, 2016*

Note: 46% thought that risk forecasting would be "more difficult" or "significantly more difficult"

27%

Proportion of risk professionals saying that identifying emerging risks would be a priority in the coming year

Source: Marsh/Risk Management Society, *Organizational Dynamics; A Focus for Effective Management, 2015*

Exhibit 2: Global and emerging risk sources – examples
(Risk descriptions and exemplar incidents can be found in the Appendix)

Source: Marsh & McLennan Companies, World Economic Forum, Cambridge Centre for Risk Studies

RECOGNITION OF VALUE

The primary reason for investing in the analysis of global and emerging risks is to strengthen strategic, financial, and operational resilience. This is particularly important for large companies with complex footprints, business lines, and supply chains, but also a concern for smaller companies, which increasingly face similar challenges. The effort to do so may also leave them better positioned to take advantage of sharp changes in the business environment, where there is a potential upside to be harnessed. The goal should be to achieve a *generic* or wide-ranging resilience, as preparing "for everything" is too costly and risks being self-deceiving when actual events inevitably follow a course not fully anticipated. This is not, however, to militate against the need for specific strategies to counter distinct threats – for example, imminent shocks such as a pandemic outbreak or longer-range issues such as declining water availability in certain regions.

As directors more fully embrace their risk responsibilities after the roller-coaster ride of the past decade, tricky questions about inchoate threats are increasingly common at corporate board meetings, often requiring more than just fast thinking by chief risk officers and chief financial officers in response. Questions may stem from a desire to understand the potential impact of fast-moving events on quarterly results; but they may equally derive from an interest in the generation of long-term value or a more general concern about corporate reputation and investor sentiment.

Beyond tracking and reporting on global and emerging risks to support good governance, more in-depth analyses can provide value in three distinct areas.

1. **Challenge the ambitions of the corporate strategy and long-term planning.** Analyses can help test assumptions of the future – for example, the robustness of market demand, the reliability of supply countries, and the stability of the competitive landscape. Generating plausible tail-event scenarios can help stress-test earnings and key financial ratios against the materialization of complex adverse situations. Key questions include:
    - Viewed through a risk lens, are the expected objectives for long-term strategies achievable?
    - What is the range of financial outcomes (positive or negative) that might result?
    - Would the risk to assets and personnel be acceptable should certain threats escalate and crystallize?
2. **Evaluate the likely effectiveness of risk mitigation measures.** Companies need to be sure that risk response efforts are focused on the most critical risks to future expectations. Although individual emerging risks may not be listed among the top risks, they can often be the underlying drivers or amplifiers of other, more clearly scoped risks. Anticipating how key risks might evolve is critical to ensuring that mitigation actions in whatever form – strategy adjustment, capital buffers, asset divestment, financial hedging, insurance, business controls, personnel evacuation – are sufficient to keep the company within risk tolerances and on the right footing to forestall emerging crises. Key questions include:
    - Do we understand the timeframes in which events might play out and the potential impacts on different parts of our business?
    - What is our view on second- and third-order effects?
    - How well will our current risk response strategies and investments serve us?
3. **Include in the assessment of major transactions and off-strategy ventures**. The attractiveness of major acquisitions or investments may look very different against a backdrop of certain emerging risks, and such considerations should feed into investment committee deliberations. In this way, company leaders can get a better view on the alignment between risk and reward, and turn away from ventures that have a downside potential that may not be obvious or manageable, and for which the firm would not be adequately compensated. Key questions include:
    - What does the stand-alone valuation of a potential transaction look like under particular risk scenarios?
    - What do these risk scenarios mean for the risk profile of the combined, post-acquisition entity, especially with regard to risks that are largely outside the company's control?
    - To what extent can key concerns be affordably resolved?

Exhibit 3: Current and future threats – examples

SECTOR	RISK DETAILS
BANKING	• Soaring costs of tighter regulation – massive fines for personnel conduct failures in addition to higher capital requirements • Pre-digital business models and processes rendered obsolete by new fintech capabilities with billions of dollars of value shifting to "new model" suppliers
INSURANCE	• Possibility of massive losses should nanotchnology, implictly covered in many product policies, prove to have damaging side-effects • Driverless cars and ride sharing to erode core global property and casualty revenue streams by $50–75 BN per year (Oliver Wyman)
HEALTHCARE	• Well-known demographic timebomb to result in massive capacity and cost challenges over the coming decades • Potential for a new pandemic to push public health systems beyond their capacity, especially given the trend toward outpatient and preventative care
CONSUMER GOODS/ SERVICES	• Nimbler new entrants taking the major share of market growth, not constrained by the assets, business model, and regulations of incumbents • Prospect of an upsurge in health-related regulation in foodstuffs affecting sales in key product lines
ENERGY	• Market implications of Saudi Arabia prioritizing market share versus underwriting the oil price, the prospect of greater participation by Iran, and large investment cutbacks by international oil companies • Advances in battery technology and affordability that will enable consumers to store renewable energy, thereby affecting utilities

Source: Marsh & McLennan Companies, industry reports

TOWARDS A ROBUST FRAMEWORK

A wide-ranging appreciation of why and how key threats might crystallize is the foundation for understanding corporate vulnerability. Targeted analyses and stress tests can then support management decisions on the need for action.

Among firms already interested in global and emerging risks, practices vary considerably. Regulator-driven stress tests in the banking sector that inform capital adequacy ratios are perhaps at one end of the spectrum. With most effort devoted to one main pre-determined scenario, they require the impacts on different business lines and regions to be modelled, and are subject to external validation or approval. At the other end are board or senior management off-site meetings, designed to deepen awareness of an evolving market context and quietly inform strategy discussions. The content here tends to be broader in scope but with limited quantification of the potential implications for the firm.

While both types of practice are undeniably valuable, arguably neither is ideal. Most companies would benefit from a more regular triage of the evolving risk landscape, more strategic assessments of their vulnerability to key threats, and a readiness to use that intelligence in key decisions.

Exhibit 4: Addressing key challenges

Source: Marsh & McLennan Companies

THREAT DIAGNOSIS

Companies must recast threat-to-world issues as threat-to-our-business issues and thereby determine the risks of greatest concern. Assembling (and refreshing) a watch list of key concerns should embrace both directive and intuitive approaches to investigation. Structured research must be accompanied by deep absorption, fluid thinking, and continual alertness.

It is necessary to draw ideas from several different places. The existing corporate risk register is one starting point, especially when reflecting on the *potential* (as opposed to *expected*) pathways of leading exogenous risks. External publications, such as the World Economic Forum's *Global Risks* report, offer useful perspectives on broad adversities and their importance in the eyes of business leaders and policymakers. In addition, workshops or interviews with internal and external experts may reveal new stand-alone uncertainties or even hybrid concerns based on a combination of issues. Gathering and balancing different insights from across the firm is essential – perspectives and data from front-line managers; forward-thinking analyses from subject-matter experts; and a holistic overview from senior management on the drivers of key threats to shareholder value.

Some risks, such as increasing extreme weather events, are broadly recognized. The task is to take a view on the magnitude, likelihood, and frequency of future incidents based on historical precedent and the latest forecasts. But the specifics of other budding threats, such as shifts in consumer or government behavior, may only be surmised by seeking out and interpreting weak signals from disparate data sources. Big data or text-mining analytics are increasingly helpful in highlighting patterns of attitudinal change, sometimes in the form of social media listening, as are other close observation techniques. Nonetheless, expert judgment is still needed to distil meaning from noise, as the pursuit of trustworthy evidence and the triangulation of different perspectives can lead analysts into labyrinths from which they might not return.

Risk managers should characterize each emerging risk by briefly assessing the underlying conditions and factors that are critical to its escalation or attenuation. They should then scope the different pathways the risk might take and identify the point at which the risk might truly challenge the business. This is helpful in bringing shape to what might otherwise feel indeterminate. All the same, defining emerging risks by hard categories or boundaries is to be avoided, as this can constrain thinking about their interconnections and combinatory power, particularly against a backdrop of significant environmental change. Exhibit 5 provides recent examples of how different risks can emerge at the same time.

To enhance legitimacy, propositions and assumptions underpinning assessments on the potential significance for the company should be transparent and open to challenge prior to endorsement by representatives of senior management. This will help reduce partisan outcomes driven by cultural norms, institutional sentiment, and vested interests, as well as behavioral predispositions to favor information that is most recent or dominant in the memory (i.e. anchoring and availability heuristics).

To triage a draft watch list effectively, it is necessary to identify the principal revenue streams, costs, assets, and major strategic plays (business line or geographic) that would be affected by the adverse outcomes described. Some risks are better conceptualized by recognizing the vulnerability of key customer groups and suppliers and placing them at the center of the issue. For other risks, it may be valuable to take a view on how the company's exposures compare to those of its key competitors, to see where the advantage may lie in troubled times. When considering the potential impact of emerging technological shifts, it can be stimulating to speculate how a highly innovative company without the constraints of incumbency might regard the development – this can generate a challenging alternative perspective on the future competitive landscape.

Exhibit 5: A convergence of risks – historic examples

WHAT IF, OVER THE NEXT FIVE YEARS

The value of your product were to nearly double then plummet to current levels

AND

Two major costs (labor and electricity prices) were to double

AND

You were to face increasing workforce disputes and operational disruption

South African gold mining industry 2010–2015

Demand for your product turned out to be 9% lower than investment plan projections

AND

Subsidized competitors with priority market access in peak hours were to slash margins

AND

A catastrophic event on a far off continent led to a government decision to close key assets

German power industry 2010–2015

Source: Marsh & McLennan Companies, industry reports

IMPACT EVALUATION

A high-level view on the potential impact of an emerging risk (or cluster of risks) may be sufficient to pique the attention of senior management, but it is seldom enough to justify major decisions. At the same time, ambitions to bring precision to what is unknown and sometimes unprecedented can face high levels of skepticism in addition to concerns about analytical complexity and effort. But much of this disquiet is surmountable, and companies can devise analyses that match their needs and capabilities.

Scenarios are a good way of giving form to the amorphous and providing a safe space for discussing possible futures. They are particularly useful for emerging risks, where the paucity of historical data and the novelty of the issue inhibit stochastic modeling. But scenario choice and design are contingent on the purpose of the endeavor. Is the goal to inform corporate strategy (all or part) or test company resilience to a particular shock event? To optimize long-term shareholder value or anticipate competitor actions in a rapidly changing business environment? Assessing whether a major product recall in a key market during an economic downturn might destroy the firm is fundamentally different in approach to war-gaming tactics in the face of possible hostile action by the government of a key market.

Plausible stress scenarios often originate from the watch list, possibly taking a slant on a single risk or even combining linked threats. The scenario narrative will build on the risk characterization work, using the analysis of circumstances, drivers, and interconnections to frame the introduction of assumptions and the detailed articulation of first- and second-order impacts. Even without any attempt at quantification, this work is valuable as it provides a deeper understanding of causation and consequence, suggests how changes in the external environment might be monitored, and prompts ideas for mitigation based on the revenues and cost lines that might be affected. A political or economic crisis in one country might directly threaten the company's business there, but also dampen market expectations in neighboring countries (which might be more important) and have foreign exchange consequences. Such an event might also prove to be the tipping point for key counterparties elsewhere in the world that have greater exposures to either the crisis-hit country or sectors more affected by the meltdown. The principles that underpin complex adaptive systems thinking and agent-based analytics can sometimes be helpful in adding rigor to this work.

It is important to consider liquidity and solvency effects, as well as the implications for earnings and shareholder value. However, developing quantitative scenarios requires trade-offs in the modeling. Risks may be multifaceted, but too many assumptions, especially if they are contingent on each other, may limit the credibility of the result, not least because of the predisposition of some emerging risks to nonlinear development. Sometimes it is possible to overlay detail (perhaps to reflect governmental action) to assess the significance of particular risk factor stresses. But overcomplicating the environmental aspects of the model will create problems in linking the scenario to lines in the company's financial plan, as the logic may change under scenario variations.

In the absence of regulatory requirements or a desire to compare business units in detail, risk personnel bandwidth and immediate business needs may recommend a lighter touch. There is no point establishing an elaborate process that requires three months to assess the implications of an impending crisis when leaders may need to make decisions in the coming weeks. Moreover, some scenarios have lasting value that can be easily refreshed with new assumptions. Being locked in to a highly complex and inflexible tool that requires significant rework to adapt it to new needs is therefore unhelpful.

As well as articulating a possible future and the implications for the business, analyses should also accommodate the levers that might be pulled to reduce adverse impacts to an acceptable level. Without this, analyses will not support decision making and traction with senior management will weaken. However, speculating on the probability of a tail event or its variants should arguably not be a priority. After all, the goal of scenario analysis is not prediction but to deepen understanding about the company's resilience to certain trends and events, often by taking leaders outside the comfort zone of dated planning assumptions and their personal ambitions. Indeed, too many incidents have come to pass for which previously ascribed probabilities have been tiny.

Moreover, claims about accuracy should be modest. The objective should be to understand the magnitude of potential impacts under different scenarios without making claims for exactitude. It is better to be 80 percent right than 100 percent wrong. In the same vein, many companies might find it advisable to devote their modelling efforts more lightly to a few key threats rather than focusing only on one and failing to recognize the significance of others.

"There is no point establishing an elaborate process that requires three months to assess the implications of an impending crisis when leaders may need to make decision in the coming weeks"

DECISION SUPPORT

To inform decisions on strategy, investment, and resilience, the work on global and emerging risks must feed into key planning materials, business case analyses, and senior-level deliberations. Achieving this integration, of course, calls for an effective process and infrastructure. But unless senior management and the board are "warmed up" to the findings of global and emerging risk analyses over time, it is unlikely they will buy in to the need for action when it might be needed. It is essential to gradually familiarize company leaders with the agenda, certainly before tensions run higher in an emerging crisis and a more dispassionate perspective is harder to obtain.

The foundation for this orientation is a monitoring framework that can provide early warning of exogenous changes to the risks of highest concern. It can be helpful to think about the issues and data requirements over different time horizons. First, obvious near-term threats require constant review to understand the changing urgency for any response and what form that might take. Second, matters that may crystallize into defined risks over the following six to eighteen months benefit from persistent, periodic surveillance to assess whether they might require more specific stand-alone attention or inform other risk scenarios. Finally, it is also useful to track fundamental global trends – to secure distance from the noise of current events, inform understanding of the drivers of key risks, and gain early insight into issues that are not currently well-acknowledged on the corporate risk radar. Over all three time horizons, attempts to capture both historic and early warning indicators, however weak the signals might be, are valuable for informing discussions about escalating and declining threats.

Using this output, risk reports for senior management and the board should not only present the current risk profile of the company but also take a view on the future risk profile. Sometimes the future view can be represented effectively enough by arrows that indicate expected improvement or deterioration against key metrics, backed up by verbal justification if needed. However, where potential risk trajectories are more complex, such an approach may result in senior management becoming locked in to a singular perspective. A segment in the reporting template dedicated to the company's future risk profile can provide a better space for discussing the implications of external indicators as well as highlighting the outcome and implications of any stress tests. Some company templates have a "hot topics" section. Used sparingly, this is an opportunity either to go into more depth on an emerging crisis or to educate recipients on particular longer-term risk issues that might be underappreciated and thereby help build interest in exploring them further.

Where appropriate, analyses of global and emerging risks should be connected with key targets of the corporate risk appetite statement. Understanding which adverse trends or incidents might result in breaches of thresholds that are critical for the strategy helps focus attention on the effectiveness of different mitigation options over the short and long term.

With regard to planning activities and investment choices, the recognition of fundamental changes in key threats (perhaps geopolitical or technological) might guide thinking from the outset in advance of more detailed planning efforts. However, under any circumstances, draft strategic and financial plans should be formally challenged with a view to identifying those activities and locations that are most vulnerable and at risk from potential cascading effects. It is often useful to show the firm's progressive vulnerability to a particular turn of events over time, as this more strongly connects the present with the future and links assumptions about corporate trajectories more directly with an underestimated accumulation of risk. Likewise, due diligence on major investment decisions should recognize the impact of certain downside risk scenarios. In this way, a view can be formed about the potential variability of returns, and the scope for mitigating adverse impacts to ensure the hurdle rate can be reliably met.

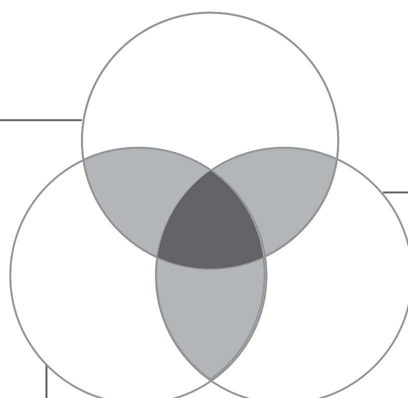
To achieve high-quality discussions and considered decisions, it is important to anticipate what proofs executives would have to accept for the identified threats to seem credible and material. Only when downside risks are properly understood can appropriate responses be determined. Companies might seek to strategically pre-empt emerging risks such as radical technological innovation. But for others (such as the prospect of a new pandemic outbreak), it might make more sense simply to know what measures could be rolled out quickly when the significance is clearer. Solutions should be analyzed for their feasibility. How quickly could we divest or evacuate from Country X should current troubles deteriorate into a full-blown crisis? Can we find insurance coverage for the cyber-risk catastrophe we are worried about? How might our earnings be compromised if we make significant changes to our sourcing strategy? How reversible is our response to risk Y when our concerns about the current crisis pass?

As Exhibit 6 indicates, the core tools for responding to global and emerging risks are common to enterprise risk management more generally. In this case, the challenge for companies lies in acknowledging both the potential magnitude of the impacts and high levels of uncertainty. A hybrid approach is usually deployed to satisfy risk appetite targets and commercial goals, with measures predicated on a realistic understanding of corporate agility particularly prized.

Exhibit 6: Responding to global and emerging risks – examples

STRATEGY

- Adjust corporate strategy targets
- Change investment allocation
- Make divestiture/acquisition
- Develop alliances
- Build know-how and capability
- Inculcate agility and flexibility



FINANCE

- Flex (expand) risk appetite
- Reinforce financial buffers
- Increase risk transfer
- Boost hedging

OPERATIONS

- Tighten business controls and limits
- Toughen investment decision gateways
- Strengthen security measures
- Test crisis preparedness

Source: Marsh & McLennan Companies

LEADERSHIP FOR RESILIENCE

Chief executives and chief financial officers should actively promote work on global and emerging risks to ensure the agenda has traction within the firm. Day-to-day leadership should be in the hands of individuals who appreciate the big picture implications and are empowered to coordinate key stakeholders and capabilities.

Enlightened company leaders are as familiar with the threats posed by global and emerging risks as they are with internal hindrances to performance. Recognizing that the value of work in this area lies as much in the process as in the outputs, they encourage colleagues to think strategically about adverse trends and possible shock events, and thereby set the tone for a culture of alertness and dynamic learning. In addition, they safeguard the agenda from those who might feel threatened by the results and seek to dilute its impact.

Day-to-day responsibility for the agenda usually lies with the chief risk officer – he or she is well positioned to take a holistic, centralized view of the company's risk environment, oversee robust analytics, and ensure that the work is well integrated with existing enterprise risk management procedures. However, the requirement for perspectives on major exogenous uncertainties and their implications for corporate ambitions is in many ways quite different to the management of business-as-usual performance volatility and compliance issues. Close cooperation with corporate strategy, financial planning, and treasury functions is essential, as is the ability to galvanize experts and management from across the firm. To this end, some firms are setting new, challenging expectations for risk managers. Others, recognizing the different skill sets required, have begun to separate out near-term and long-term risk work into different roles, with the latter more clearly linked to the CEO agenda.

Thoughtful consideration of global and emerging risks can build corporate resilience to the unexpected, inform strategy choices, and stimulate innovation. Efforts should be insightful and provocative rather than being doom-laden or complacent. If analyses appear alarming, it is worth recalling the many firms that have been undone by the crystallization of poorly anticipated threats: technology companies rapidly undermined by new innovation paradigms; resources companies hit periodically by new (geo)political agenda; and automobile manufacturers rocked by the financial crisis of 2008. Understandably, firms find it hard to divert investment away from activities, products, and locations that have been reliable sources of revenue for years, markets that are manifestly enjoyed by their competitors, and opportunities where the upside appears to be impressive. But the circumstances that destroyed these companies did not materialize overnight, and warning signs over a period of years were not sufficiently digested. A more energetic approach to exploring those future threats and uncertainties is vital for long-term sustainability.

APPENDIX: Global and emerging risk sources – examples and details

RISK TYPE	KEY CHARACTERISTICS	CORE BUSINESS IMPACT	RECENT EXAMPLES	WHY A CONCERN NOW?
Political/economic				
Adverse regulation	National and supranational-level initiatives with clear policy goals	Constraints on the license to operate	Environmental regulations affecting the US coal industry (2015) Banking sector regulations (2010-) Price caps, tax hikes, foreign exchange controls (perennial)	Determined political response to fundamental threats such as climate change and financial sector stability Scope for unequal impacts globally
Governance deficiency	Discriminatory action by authorities relating to contracts, licences, etc. for protectionist or corrupt reasons	Competitive disadvantage for targeted companies or sectors	Expropriation of foreign assets in Venezuela (2007-2011) Extortion and corruption (perennial)	Downturn, weak capacity and regime change in many emerging markets Low growth in developed economies
Trade/ Tariff war	Often tit-for-tat protectionist or punitive measures between countries or blocs	Restrictions on market or supply chain access	Mutual sanctions between western countries and Russia (2014-) EU and China trade disputes (2013-2014)	Declining western unity versus Russia Competing trade initiatives in East Asia (TTP vs. RCEP) Fallout from the final terms of the US-EU trade deal (TTIP)
Economic/political				
Fiscal crisis	Inability or refusal of government to pay back its debt in full and meet societal obligations	Depression of economic activity and increased counterparty risk	Eurozone debt crisis culminating in the Greek bailout negotiations (2010-2015) Argentina default (1999-2002)	Continuing austerity in developed economies Rising debt and economic weakness in emerging markets
Asset bubble	Significant price inflation not justified by fundamentals, followed by sharp correction	Investment volatility, financial planning disruption, and negative impacts on real economy	China stock market drop (2015) Global stock markets fall (2011) Credit boom, including sub-prime mortgages (2007-2009)	Significant leverage fueled by low interest rates Weak investor returns across main asset classes Sustained low oil prices
Financial system breakdown	Failure of institutions, market mechanisms and regulatory arrangements	Reduced credit availability, higher counterparty risk and compromised pricing mechanisms	Collapse and near collapse of banks and other financial institutions (2007-2012)	Unknown consequences and network effects of new regulations Growth of shadow banking due to regulatory circumvention and search for yield
Technological/economic				
Infrastructure failure	Breakdown in utility provision (energy, water communications), closure of transportation hub, or major industrial accident	Constraints on asset operations, supply chains, and product distribution	Brazil and South Africa brownouts (2014) Fukushima nuclear disaster (2011) Volcanic ash affecting flights in Europe (2010)	Underinvestment in resilience to meet future threats Increased pressure on (interconnected) systems by users
Transforma-tional innovation	Radical technological or scientific advances and the rapid growth of new competitors	Disruption of incumbent business models and loss of competitive advantage	Advances in machine learning, artificial intelligence, and scope for workforce automation (ongoing) Breakthroughs in synthetic biology and nanotechnology applications (ongoing)	Declining costs of market entry Large investments in disruptive innovations to achieve scale quickly Regulatory bodies playing catch-up

RISK TYPE	KEY CHARACTERISTICS	CORE BUSINESS IMPACT	RECENT EXAMPLES	WHY A CONCERN NOW?
Large-scale cyber attack	Theft of financial assets, data or intellectual property, or IT system takeover	Financial loss, operational disruption, and reputational damage	German steel mill attack (2014) International banking hack (2013-) Major credit card and medical details hacks in the US (2012-)	Commodification of malware Technical and strategic sophistication of advanced persistent threats Ever-increasing internet connectivity
Geopolitical/societal				
Social instability	Popular unrest manifesting itself in persistent labor disputes, civil disorder, mass protests, and migration	Disrupted operations, changing customer preferences and economic uncertainty	Brazil riots (2013-) Populist movement in Europe (2012) Arab Spring and aftermath (2010-) Global anti-inequality protests (2011)	High unemployment, inequality, and social polarization Rising national sentiment Deployment of social media High turnover of governments
Terrorist attacks	Violent acts designed to cause societal fear and economic disruption	Workplace safety, investor nervousness, and economic activity decline in certain sectors in affected countries	France (2015) Nigeria, Egypt, Mali (2015) Iraq, Turkey, Pakistan (2015)	Radicalization of young people and ease of cross-border travel Economic strength and geographic dominion of certain terrorist groups
Armed conflict	Use of military force between or within states, often involving asymmetric capabilities	Safety concerns and investment flight in affected and neighboring markets	Ukraine-Russia conflict (2014- Civil war in Syria (2011-), Iraq (2014-), including ISIS, and Afghanistan (2015)- Insurgency in Nigeria (2009-)	Frozen or enduring conflicts Rise in vulnerable states Potential for missteps and accidents in areas of high tension (e.g. South China Sea)
Environmental/societal				
Sustained resource shortage	Unavailability of commodities (global, regional or local) that support economic activity in key sectors	Price spikes and constrained operations Price rise in derivative goods and substitutes	California drought (2014-) Rare earths shortage (2010-2016) Food price spikes (2008,2011) Oil price spike (2008)	Climate change and extreme weather phenomena Policy and speculator-driven market distortions
Natural catastrophe	Major geological, hydrological and meteorological events	Disruption to assets, supply chains, and possibly markets	Philippines earthquake (2013) Superstorm Sandy, US (2012) Thailand floods (2011)	Climate change phenomena Greater wealth and economic output in high-risk areas
Disease outbreak	Widespread infection affecting humans, animals and plants	Disruption to assets, supply chains, and possibly markets Reduced economic activity	Ebola (2014), swine flu (2009) Avian flu (2004), bee colony collapse director (2006-) Soybean sudden death syndrome in US (2010)	Growth in zoonotic infections and antibiotic-resistant bacteria Unknown impacts of synthetic biology and other scientific advances

Source: Marsh & McLennan Companies, World Economic Forum, Cambridge Centre for Risk Studies, industry reports

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The paper has also benefited from research and insights provided by Cory Cruser, Oscar Lee, Hugh Morris and Brian Rixner.

The MMC Global Risk Center's research partners and broader network were also valuable sources for ideas, especially the International Risk Governance Council, the Public Governance Directorate at the Organization for Economic Cooperation and Development, the Wharton Risk Management and Decision Processes Center at the University of Pennsylvania, and the World Economic Forum.

ABOUT

This paper was developed by Marsh & McLennan Companies' Global Risk Center. The Global Risk Center generates insights and explores solutions for addressing major threats facing industries, governments, and societies. Drawing on the combined expertise of our companies and in collaboration with research partners around the world, the Center aims to highlight critical challenges and bring together leaders from different sectors to stimulate new thinking and practices.

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