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The Agility Imperative

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Fractured foundations

Earlier this year, Verdantix published its inaugural Dislocation Index. The aim of the Index is to define and describe the forces driving a wave of unpredictable disruption buffeting businesses across the world. Our analysis focuses on six structural factors: labour, energy, geo-economic friction, politics, production inputs and innovation. In the accompanying report, [Fractured Foundations: The forces driving global volatility](#), we explore how those forces are combining to create unique challenges across nine major economies. Our objective is to provide a structure that business leaders can use to create scenarios and think through strategies that will allow their firms to prosper during a period of change and uncertainty.

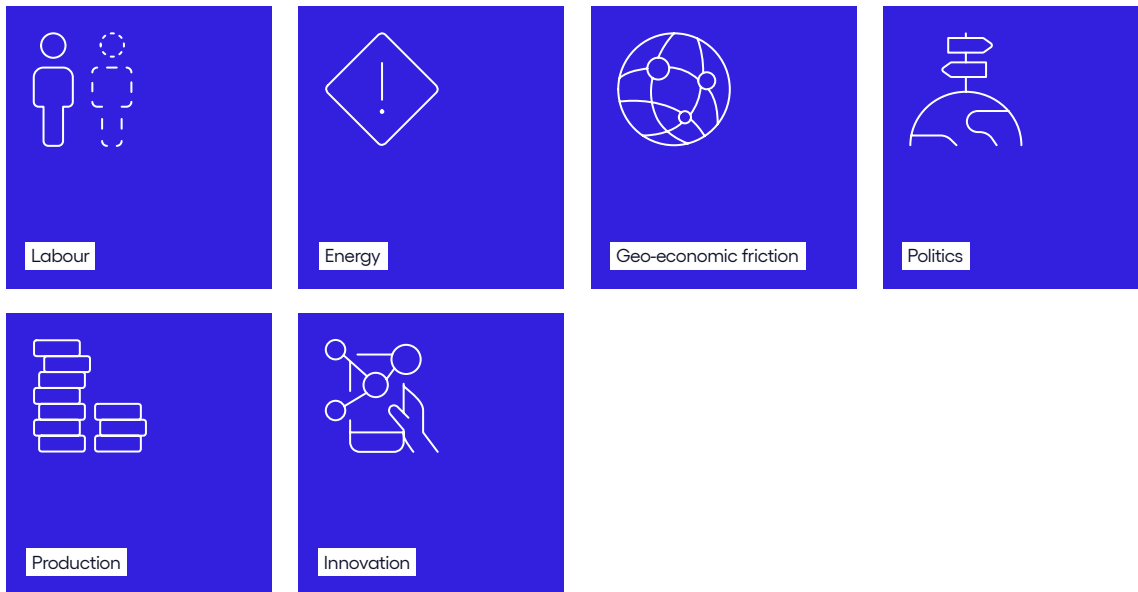
Our findings are stark. Each of the countries we looked at – from Canada to China, India to the US – present significant challenges to planning and investment. Whether as a result of demographic collapse, a lack of energy resilience, or an inability to compete using new technologies, each is more vulnerable to shocks to its operating environment than it was 10 or 15 years ago. Most disconcertingly, the situation we present in the Index is not an ‘end-state’. One of the contentions we outline in Fractured Foundations is that the global economy and geopolitical context are in a transition phase; the old order is breaking down, but the outline of the new order is not yet clear.

This represents a real challenge for senior business leaders:

- How can you invest in new facilities, plants and machinery if you do not know what the world will look like in three to five years’ time?
- How can you develop resilient supply chains if you do not know what the terms of trade between two or more countries will be?
- How can you staff a facility if the country it is built in has a shrinking labour pool and few graduates with the correct skills?
- How can you grow productivity if you do not know if the latest forms of automation will be outmoded before they are even fully installed?

In this second report of our year-long Industry Agility series, we attempt to explain how leaders throughout organizational hierarchies will be challenged by these changes in the operating environment – and what steps they can take to thrive within it. Although much of our work will be relevant to a broad range of sectors, we are particularly focused on capital-intensive firms that undertake some manufacturing activity. It is often these businesses that have the longest planning and investment cycles, and that are therefore most challenged by prolonged periods of significant volatility.

Figure 1: Six foundational factors reshaping industrial operations



Introducing Industrial Agility

In order to prosper in this period of transition, organizations will need to develop a new approach, which we have termed Industrial Agility. Industrial agility is the capability to sense disruption early, interpret its implications, and respond across the enterprise faster and more effectively than competitors. It is not simply another term for speed, resilience or operational responsiveness. It is a continuous enterprise decision loop, supported by integrated data and executed through cross-functional operating capabilities.

Its premise is straightforward: macro volatility is no longer episodic. It now shapes day-to-day business decisions, from demand forecasting and asset planning to margin management, workforce deployment and capital allocation. Firms that continue to rely on long planning cycles, siloed hierarchies and static assumptions will struggle to respond effectively.

In some respects, the response to COVID-19 provides a glimpse of what's required – but on a less acute and more sustained basis. During the pandemic, firms had to adapt rapidly to abrupt changes in working conditions, evolving scientific understanding and government interventions that differed widely in timing, scope and intensity. The difference now is that many of these disruptions are no longer temporary shocks. They are becoming embedded features of the operating environment.

Figure 2: Organizational operating model comparison

	Traditional operating model Efficiency-driven	Agile operating model Resilience-driven
Planning	Fixed multi-year planning cycles Annual budgets, static roadmaps	Continuous scenario planning Rolling forecasts, adaptive roadmaps
Governance	Hierarchical sign-off within silos Centralized authority, slow escalation	Distributed cross-functional authority Empowered teams, quick decision-making
Performance	Process efficiency & cost control Output maximization	Speed, adaptability & learning Rapid delivery, measurable impact
Value creation	Quarterly earnings performance Short-term P&L optimization	Long-term enterprise resilience Balanced risk & value creation
Responsiveness	Reactive to market disruption Responds after signals are confirmed	Proactive anticipation of change Acts on early signals, builds agility

Traditional industrial organizations are typically structured around long planning cycles, hierarchical decision-making and functional silos. These models assume that operating conditions are broadly stable and that disruptions are temporary deviations from the norm. As volatility increases, however, these assumptions become harder to sustain. Signals emerge faster, disruptions interact in unexpected ways and the time available to interpret and respond to change continues to shrink.

Industrial agility represents a shift away from these static operating models. Rather than relying on single-point forecasts and fixed strategic plans, agile organizations develop scenario-based planning frameworks, integrate decision-making across functions and continuously reassess priorities as conditions evolve. This allows leadership teams to balance competing objectives such as growth, cost control, risk management and asset lifespan, extending asset value where appropriate while preserving flexibility in uncertain markets.

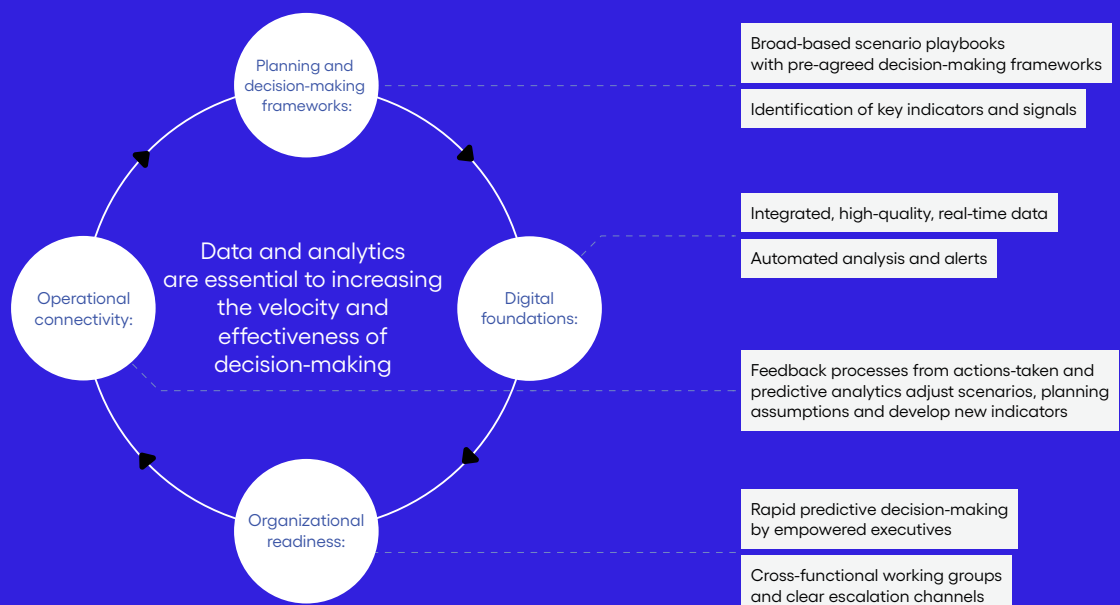
In practice, industrial agility operates through two closely connected systems. The first is a continuous decision cycle that enables organizations to sense change, interpret signals and respond quickly. The second consists of enterprise-wide workstreams that translate those decisions into coordinated action across operations, supply chains, engineering, risk management and technology. Together, these systems allow firms not simply to react faster, but to make more effective decisions under conditions of sustained uncertainty.

Building a continuous decision cycle:

1. **Planning and decision-making frameworks** – Rather than working to a fixed linear strategy, organizations should develop a broad framework of scenarios ranging from the highly plausible to the less likely but more extreme. They should also define signals and indicators that help them to understand whether a given scenario is becoming reality or if it is becoming less likely to occur. This allows the firm to orient and re-orient itself in a fast-changing landscape.
2. **Information** - Reliable, accurate, real-time and integrated information is essential to facilitating predictions, analysis and response cycles, thereby increasing the velocity and efficacy of decision-making across the entire enterprise. Data should be comparable and compatible, exist within a single platform and feed into automated analytics tools.
3. **Organizational readiness** – It is essential that businesses are able to react to signals from collected data in order to change course in response to new external conditions, or execution failures. This requires flatter and faster decision-making supported by cross-functional teams working within a known and agreed set of scenarios. Executives need to be comfortable working with predictive signals based on the indicators outlined in the planning cycle.
4. **Operational connectivity** – In this dynamic environment, both external conditions and internal processes change at speed. It is essential that these changes are understood by the enterprise as a whole, meaning that feedback loops (whether based on realities or the outputs of digital twins) must flow back into planning, scenario generation and the identification of new indicators and signals.

By adopting these four principles, organizational leaders can increase the agility of their firms while also maintaining discipline and creating a shared understanding across functions and divisions. However, executing this decision cycle at the speed required by modern industrial environments is not possible without strong digital foundations.

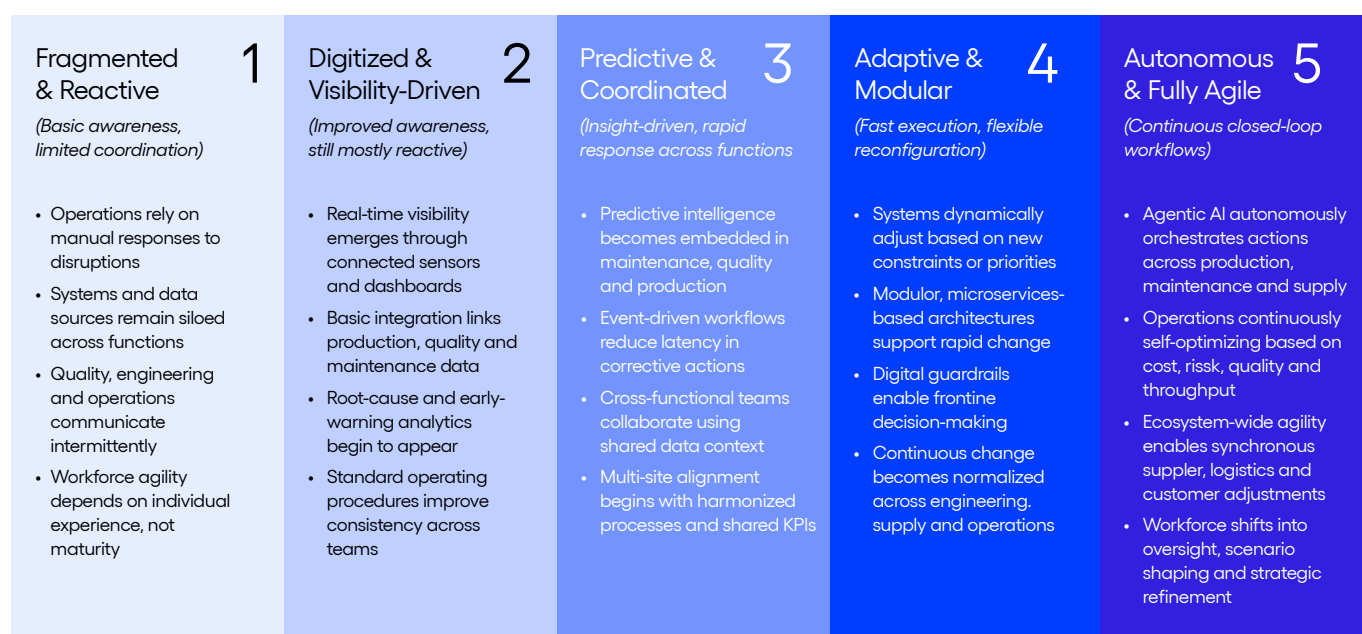
Figure 3: Four-Step Decision Loop for Industrial Agility



Digitization therefore becomes a basic requirement for industrial agility. It enables firms to aggregate, contextualize, analyze and act on information at speed. This is not a new idea, but the stakes and context have changed. The most successful firms will be those that treat digital infrastructure as a source of competitive advantage and take their strategies to a new level of maturity through greater autonomy, stronger connectivity and deeper use of AI.

At the same time, innovation is also a challenge in its own right. As we explore in our Fractured Foundations report, the sheer pace of technological change makes it difficult to know when to invest, which solutions will still be cutting-edge next year, and which suppliers will be best positioned to support long-term implementation. Leadership teams will have to make tough choices, accepting that they will not be able to achieve a high degree of advanced agility without technology, even if technology also introduces new risks from obsolescence, fragmentation or cyber exposure.

Figure 4: Industrial agility maturity model for next-generation operations



To respond effectively, industrial agility must be developed as an organizational capability that is reinforced through leadership behaviours and embedded within functional and team-level initiatives, while also being managed across the breadth of an enterprise. This goes beyond decision-making frameworks and digital infrastructure. Later in this report, we will discuss the function-level implications and requirements posed by the agility imperative, but it is also useful to consider what we define as the six key streams of activity that will run across departments, specialisms and divisions. These are: scenario planning, investment optimization, organizational intelligence, supply chain resilience, flexible automation and physical system cyber security. Combined, these workstreams create a framework for coordinating activity across the enterprise. If the four-step decision-making cycle is the how, the six workstreams are the what.

Implementing industrial agility effectively takes the whole organization

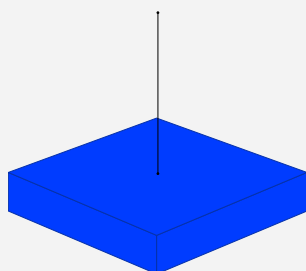
 Scenario planning	Replaces the fixed annual plan with continuous monitoring, so organizations can respond and adapt plans as change happens.
 Investment optimization	The shift from fixed budget allocation to dynamically realigning resources across scenarios as conditions and priorities change.
 Organizational intelligence	The continuous collection and interpretation of internal and external signals so leaders can make faster, better-informed decisions as conditions evolve.
 Supply chain resilience	The shift from optimizing for efficiency alone to continuously monitoring risks and flexing sourcing, inventory, and logistics strategies as disruptions emerge.
 Flexible automation	The implementation of industrial and digital technologies that can be rapidly reconfigured to maintain output as disruptions, demand shifts, or supply constraints emerge.
 Physical system cyber security	The continuous monitoring and protection of operational and industrial infrastructure against cyber threats that can disrupt physical processes and production.

Building industrial agility is not a technology project or a single team's responsibility. It requires commitment and action at every level of the organization.

Brand

Set the mandate

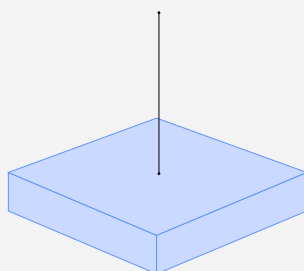
Establish industrial agility as a strategic priority. Ensure the organization has the commitment, resources and accountability structures to build it.



C-Suite

Translate direction into action

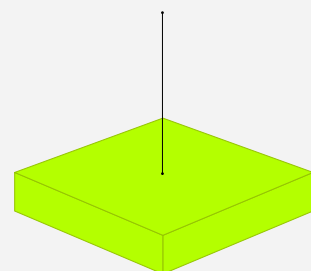
Turn board intent into funded programs, investment decisions and the organizational changes needed to build agility across the business.



Functional Leaders

Build and execute on the ground

Deliver the programs, develop new ways of working and embed agility into day-to-day operations across departments.



A worked example

Since our contention is that the immediate future will be defined by unpredictability and ongoing disruption, it is inherently difficult to describe the precise pressures facing each corporate role and function in the period ahead – or how our decision making cycle and six key practices should be applied. To bridge this gap, we have taken our own advice and developed a scenario that will work as an example for a more complete definition of the industrial agility concept. Readers can consider how changes in the scenario would alter the perspectives and requirements of different leadership roles.

Developing a scenario

Our scenario is set in the year 2028 and focuses on a mature discrete manufacturing firm with substantial operations in the US and a global supply chain and customer base. These are our assumptions:

- Overall, US import tariffs are at similar levels to those in place today. The US's relations with China and the EU have worsened. The EU has responded by imposing a web of financial and regulatory barriers targeting discrete sectors of the US economy. Chinese exports to the EU have increased markedly, as a substitute for the US market; European policymakers see this as a threat to the health of their economies and their responses are becoming more robust. National economic plans such as Germany's contribute to local economic growth, but contain many EU preference clauses.
- Labour constraints are biting in every developed market. Along with the US, Europe and Japan have moved to restrict immigration, exacerbating demographic trends and increasing wages, particularly for STEM graduates. As skilled workers retire, many organizations are faced with a substantial skills gap, limiting their ability to adapt.
- Growing national debt, rising wages and the mounting cost of energy and physical goods are creating inflationary pressures in every developed economy. Interest rates are rising.
- AI is continuing to develop at pace, but it has not yet caused mass layoffs of white-collar workers. The first AI bubble has burst, causing significant market turmoil but reducing the cost of compute as shareholders in hyperscalers shouldered the burden of funding a glut of infrastructure. Services businesses are beginning to realise significant productivity gains, but these are limited by a shortage of implementation capability and cultural factors that inhibit adoption.
- Business leaders are making meaningful attempts to shorten supply and distribution chains by reshoring manufacturing. In their attempts to do so, they are running up against labour and skills shortages and are leaning heavily on automation and digital technology to boost productivity.

- Cyber risks are at the top of the agenda. The increased connectivity required to implement enterprise AI and digitize manufacturing and logistics has created additional vulnerabilities. The deteriorating geo-political environment means that state- and non-state actors are taking advantage of these vulnerabilities for both criminal and strategic ends. As is often the case, nefarious actors are the first to fully leverage new innovation, resulting in a stream of autonomous and self-adapting AI agents probing cyber defences.
- Energy costs vary considerably by geography. With reduced environmental regulation, some countries are experiencing more moderate costs. Others – whether as a result of policy choices or restrictions on supply – are finding it difficult to support industrial operations. Even large energy exporters are struggling to manage local demands placed on the grid by increased automation, electric vehicles and data centres.

In the next section of our report we will explain how this scenario would change the perspectives of boards and executive teams, before moving on to discuss the impact on function leaders who have responsibility for operational matters.

Understanding Industrial Agility

A guide to why industrial organizations need to adopt agility, and what it takes to get there.

The operating environment is changing

Industrial organisations are under pressure, macro volatility is no longer episodic. It now shapes day-to-day business decisions and requires a new kind of organizational response

Labour

Skills shortages and changing workforce expectations are making it harder to find and keep the right people.

Energy

Rising and unpredictable energy costs are putting pressure on production and long-term planning.

Geo-economic friction

Trade tensions and shifting alliances are disrupting supply networks that organizations have relied on for decades.

Politics

Policy changes and new regulations are happening fast — often with little warning.

Production inputs

Raw materials and components are harder and more expensive to source, creating vulnerability across production systems.

Innovation

New technologies are creating both opportunity and disruption risk for those who move too slowly or too fast.

Industrial agility is the answer

Industrial agility is the capability to sense disruption early, interpret its implications and respond across the enterprise faster and more effectively than competitors. It is not simply another term for speed, resilience or operational responsiveness. It is a continuous enterprise decision loop, supported by integrated data and executed through cross-functional operating capabilities.

01

Digital foundations

The data, systems and infrastructure that make informed decisions possible.



02

Organisational readiness

The culture, skills and mindset to embrace and drive change.



03

Operational connectivity

Real-time visibility across production, supply chain and partners.



04

Planning & decision-making

The tools and processes to make faster, better decisions under uncertainty.



Leadership perspectives: from boardroom to operations

In the next section of our report we will explain how this scenario would change the perspectives of boards and executive teams, before moving on to discuss the impact on function leaders who have responsibility for operational matters.

The boardroom perspective

The chief executive officer's perspective

Operations leaders' perspective

Engineering leaders' perspective

Maintenance leaders' perspective

Quality leaders' perspective

Supply chain leaders' perspective

Energy leaders' perspective

Environmental and EHS leaders' perspective

Risk leaders' perspective

IT leaders' perspective

The boardroom perspective

Challenges:

Board members are tasked with preserving shareholder value through a period of volatility that is unprecedented in recent times. As a result:

1 The balance will shift from maximizing profitability through efficiency gains and expansion plans to increasing resilience and reducing fragility.

2 Boards will place greater emphasis on predictability than ambitious earnings growth.

3 Their attitudes to CAPEX will vary by sector, but large-scale spending plans will receive more scrutiny as the cost of capital increases and payback becomes less certain.

4 Risk management will dominate conversations, and boards will want to understand both short- and long-term strategies in more detail than ever before.

Responses:

These boardroom challenges will translate into different demands, as boards will expect CEOs to:

- Explain how their plans can be adapted to ensure success across a broader variety of different scenarios.
- Optimize supply chain, capacity management, logistics and distribution for resilience as well as efficient cost management. Some redundancy will be desirable.
- Deliver, design and implement short- and long-term plans for reshoring or nearshoring manufacturing and high-risk suppliers
- Build bigger financial buffers into business planning, with more retained cash and less reliance on debt.
- Understand that investment in new assets will only be countenanced if the assets in question can be repurposed to meet alternative requirements, or if they support a long-term de-risking objective, such as reshoring.
- Extend the life cycle of existing assets, even past the point at which it would ordinarily make economic sense to do so.
- Communicate risk metrics as essential KPIs.

The chief executive officer's perspective

CEOs will respond to new board requests by switching focus from meeting and exceeding earnings forecasts to managing catastrophic downside risks. This will require them to focus on mitigating externalities and exerting more active management of factors that sit within the organization's scope of control. CEOs will see agility as an essential quality of their business and a central message in investor relations programmes.

Challenges:

1
Defining a framework for understanding how external changes will impact the firm, assigning probabilities and decision-making processes.

2
Seeking higher quality and more holistic operational data.

3
Developing an organization-wide understanding of risk concentration throughout the value chain.

4
Making the business more reactive and adaptable to external changes.

5
Addressing skills and labour shortages as a long-term strategic challenge.

6
Developing a futureproofed technology strategy at a time of vast innovation.

7
Increasing cyber resilience as both threats and vulnerabilities multiply.

8
Using acquisitions to deepen moats or control larger parts of the value chain, rather than as vehicles for directly growing market share.

Responses:

These CEO challenges will translate into new demands on function leaders:

- Dynamic scenario-based planning and playbooks, with a variable and broad range of assumptions.
- Developing an agile and flexible leadership culture better suited to managing uncertainty.
- Updating M&A strategies to consider vertically integrating value chains within jurisdictions/national or regional markets.
- Decentralizing decision-making to speed up feedback loops and provide greater scope for managers to adapt to changing local circumstances.
- Building new reporting frameworks and KPIs, with an emphasis on integrated and actionable real-time data.
- Formulating energy strategies that build resilience and reduce exposure to price volatility
- Optimizing productivity gains and lifecycle enhancements within existing assets.
- Improving employee retention, recruitment and training.
- Implementing cost-effective and adaptive automation.

Operations leaders' perspective

COOs face two challenges: increasing organizational agility and building long-term resilience. To achieve this, their attention will shift from optimizing well understood processes and minimizing variability to strengthening the organization's ability to operate under sustained uncertainty. This will demand more granular oversight of exposure points across the value chain, and quicker intervention when conditions change. For COOs, adaptability becomes a fundamental operating principle.

Challenges:

Lengthy cycles between signal, action and feedback caused by difficulty in accessing, integrating and leveraging operational data effectively.

1

Rising energy volatility turns supply and cost into operational constraints.

2

Rapid shifts in suppliers and shipping disrupt production inputs.

3

Continuous changes in compliance and regulatory requirements.

4

Persistent shortages of skilled workers and high turnover.

5

Limited budgets are strained by the need to reshore or nearshore whilst also boosting productivity and adaptability.

6

Responses:

This will translate into new demands and initiatives for function leaders:

- Operations and IT teams will be required to build integrated, real-time data capabilities that support faster and more accurate decision-making.
- Engineering and energy management teams will be expected to design energy strategies that reduce volatility exposure and protect operational continuity.
- Supply chain leaders will need to reshape supplier networks for resilience, with multi-sourcing and contingency built into core planning.
- Quality and compliance leaders will be required to increase controls to stay aligned with rapidly shifting regulations and supplier variability.
- Operations, engineering and automation teams will be expected to counter skilled-labour shortages by deploying targeted automation and enabling more agile workforce deployment.
- Maintenance, engineering and operations will need to work together to minimize downtime, extend asset life and protect throughput under pressure.

Engineering leaders' perspective

Engineering leaders will be faced with the task of managing aging assets and infrastructure while ensuring operational continuity under increasingly unpredictable conditions. Their focus will shift from incremental optimization to designing equipment, processes and systems that can flex and withstand disruption. This requires tighter lifecycle control, faster delivery of upgrades, and closer coordination with operations, maintenance, quality and supply chain. For engineering teams, resilience and adaptability are now core design principles.

Challenges:

Aging equipment increases unplanned downtime and performance degradation.

1

Energy-intensive assets and processes require redesign or optimization to reduce exposure to energy volatility.

2

Increasing issues with equipment and critical-spares availability.

3

Shortages of engineers and technical specialists – amidst the growing need for AI, analytics and data science capabilities – slow upgrades and transformation programmes.

4

Budget constraints force engineering to prioritize retrofits, life extension and high-ROI investments.

5

Fragmented engineering and operational data slow decision-making and limit lifecycle visibility.

6

Responses:

This will translate into clear expectations and actions for engineering teams:

- Modernize and standardize the asset base so upgrades can be delivered faster.
- Improve the energy performance of equipment and processes to reduce exposure to price spikes and constrained supply.
- Strengthen reliability engineering and critical spares management so production can continue despite supplier variability.
- Deploy targeted automation and digital tools (controls, robotics, condition monitoring) to offset labour gaps and stabilize throughput.
- Extend asset life and reduce total cost of ownership by prioritizing high ROI retrofits and enforcing stronger lifecycle governance.
- Tighten coordination with operations, maintenance and supply chain so downtime is minimized.

Maintenance leaders' perspective

Maintenance leaders are under pressure to keep aging assets running reliably while cost, supply and workforce constraints intensify. Their remit is shifting from routine, schedule based maintenance to strategic, risk driven asset management that safeguards uptime in fast-moving conditions. This requires stronger reliability practices, improved use of data and closer integration with engineering and operations. For maintenance teams, maximizing asset availability becomes the central priority.

Challenges:

1 Aging equipment and inconsistent maintenance histories increase failure rates and complicate long-term reliability planning.

2 Limited access to accurate, real-time asset data makes it harder to predict failures and optimize maintenance intervals.

3 Challenges with spare parts availability and lead times create gaps in critical-spares coverage and slower repair cycles.

4 Rising compliance and safety requirements increase maintenance workload and documentation demands.

5 Shortages of skilled technicians and mechanics reduce response speed and limit the ability to carry out preventative work.

6 Budget constraints force maintenance teams to stretch asset life and defer replacements without increasing risk.

Responses:

This will translate into clear expectations and actions for maintenance teams:

- Move away from reactive maintenance strategies and implement a predictive maintenance approach to reduce unexpected failures and extend the life of aging equipment.
- Optimize preventative and planned maintenance programmes by reducing unnecessary work orders, improving task intervals and prioritizing maintenance on critical aging assets.
- Strengthen asset data quality and real-time visibility by investing in digital tools such as EAM and APM platforms.
- Design critical spares strategies and supplier plans to reduce repair delays and protect against parts shortages and long lead times.
- Develop and retain skilled technicians through targeted training and investment in digital tools to improve retention and improve knowledge transfer.
- Optimize maintenance budgets and lifecycle decisions by prioritizing high impact interventions.

Quality leaders' perspective

Quality leaders must protect product integrity and compliance at a time when supplier variability, regulatory change and operational volatility are increasing the risk of defects and non compliance. Their focus will shift from enforcing standards through after the fact checks to embedding quality assurance, data visibility and risk management across the value chain. This requires stronger governance, faster issue detection, and deeper integration with engineering, supply chain and operations.

Challenges:

Greater supply chain challenges increase the risk of defects and inconsistent product quality.

1

Tier 1 and Tier 2 supplier quality issues increase defect risk and force rapid shifts in the supply base.

2

Rapid regulatory and compliance changes drive new documentation, validation and assurance requirements.

3

Limited real time quality data.

4

Responses:

This will translate into new initiatives for quality teams:

- Tighten supplier quality management through stronger risk assessments, incoming inspection controls and clearer supplier accountability.
- Invest in quality management systems (QMS) to improve digital workflows, automate documentation and strengthen audit readiness.
- Embed compliance and quality principles into product specifications, research and design phases, and process changes.

Supply chain leaders' perspective

Supply chain leaders must navigate volatile demand and shifting trade routes while keeping the value chain stable and costs controlled. Their remit is moving beyond efficiency and cost reduction towards resilience, multi sourcing and end to end visibility.

Challenges:

Supplier instability increases the risk of late, incomplete or inconsistent inbound materials.

1

Shifting trade routes and geopolitical constraints disrupt logistics flows and increase transit risk and cost.

2

Limited visibility into Tier 2 and 3 suppliers.

3

Siloed data systems undermine scenario-planning capability.

4

Rising expectations around traceability, sustainability and ethical sourcing.

5

Growing pressure to rebalance global supply footprints through reshoring or nearshoring to reduce dependency on high-risk regions.

6

Responses:

This will translate into clear expectations and initiatives for supply chain teams:

- Redesign the supplier base for resilience through multi sourcing, regional sourcing and deliberate reshoring or near shoring of critical categories.
- Improve end to end supply chain visibility, scenario-based forecasting and data capabilities by investing in digital tools.
- Embed sustainability and traceability requirements into sourcing decisions to meet regulatory and customer expectations.

Energy leaders' perspective

Energy leaders now operate within unprecedented volatility, from price instability and supply uncertainty to the accelerating demands of electrification and decarbonization. Their mandate has shifted from managing utility budgets to architecting resilient, flexible and low carbon energy systems that can support continuous operations under disruption.

Challenges:

High and unpredictable energy prices disrupt cost planning and margin stability.	1	Increased risk of energy supply interruptions.	2
Aging on site energy infrastructure limits efficiency gains.	3	Growing regulatory pressure around emissions, reporting and energy performance increasing compliance risks.	4
Limited real time visibility of energy use.	5	Competing capital priorities that delay energy efficiency projects, renewables integration and equipment upgrades.	6
As operations electrify (e.g., heat pumps, EV fleets, high-temperature electric processes), sites face capacity constraints and grid interconnection delays.	7	Energy data are still often siloed from production data, making it hard to optimize energy intensity per unit of output.	8

Responses:

This will translate into new sets of priorities and initiatives for energy teams:

- Develop diversified energy sourcing strategies (hybrid energy portfolios) to reduce exposure to price volatility and supply disruption (renewables, PPAs, back-up generation).
- Improve the efficiency of energy-intensive assets and processes, and the efficiency of energy production.
- Modernize site energy infrastructure (e.g., boilers, HVAC, compressed air, heat recovery systems) to lower operating costs.
- Strengthen real-time energy monitoring and analytics by deploying digital energy management systems and integrating energy data with operational and maintenance data to drive agility.
- Ensure compliance with evolving energy and emissions regulations and proactively manage regulatory transition risk through stronger governance, reporting accuracy and forward-planning.

Environmental and EHS leaders' perspective

Environmental and EHS leaders must maintain high safety performance and environmental compliance while facing growing resource constraints, tightening regulations and aging assets. Their focus is moving towards proactive risk management, ensuring the organization can operate safely and legally under increasingly volatile environmental conditions.

Challenges:

Mounting safety, air, water and waste regulations.

1

More complex and aging facilities increase the risk of incidents.

2

Water scarcity and usage restrictions.

3

Siloed data systems reduce visibility of risk and slow issue detection.

4

Increasing customer and stakeholder scrutiny of environmental performance and sustainability commitments.

5

Responses:

This will translate into clear expectations and initiatives for environmental and EHS teams:

- Strengthen safety management systems and high risk controls to reduce incident likelihood and ensure consistent compliance across all sites.
- Upgrade environmental monitoring and reporting through digital tools and real time data to identify issues earlier and meet stricter regulatory demands.
- Develop water management strategies that minimize usage, ensure compliance with discharge limits, and provide resilience against regional restrictions.

Risk leaders' perspective

Risk leaders must protect the organization from growing operational, financial and compliance threats. Some of these threats are lurking in the short term, others are building over an extended period. Their remit is shifting from periodic risk reporting to real-time risk intelligence and scenario planning. As volatility increases across supply chains, cyber, energy and regulation, risk leaders are expected to ensure the organization can anticipate, absorb and recover from shocks. For risk leaders, operational resilience and enterprise-wide visibility have become central responsibilities.

Challenges:

Rising frequency, severity and length of operational shocks.

1

Rapidly evolving regulatory requirements.

2

Fragmented and siloed data across functions limit visibility of emerging threats.

3

The expanding scope of the risk function now includes climate, environmental, resource, reputational, regulatory, cyber, fraud and data security risks – in addition to core operational, geopolitical and financial risks.

4

Limited risk capability and bandwidth in the business are making it harder to embed a strong risk culture and drive effective mitigation.

5

Responses:

This will translate into new initiatives for risk teams:

- Investing in new digital tools, such as risk intelligence, GRC and TPRM software to help build real-time risk reporting that consolidates data across functions.
- Strengthening enterprise-wide risk governance.
- Enhancing cybersecurity and operational risk oversight through tighter controls, continuous monitoring and coordinated response planning with IT and OT teams.
- Improve regulatory and compliance readiness.
- Embed climate and environmental risk assessments into operational and strategic planning.
- Advance scenario planning and stress-testing to evaluate resilience under supply, energy, cyber, workforce or regulatory disruption in the short term, as well as in the long term.

IT leaders' perspective

IT leaders must enable secure, reliable and scalable digital infrastructure while supporting an organization wide shift towards digitization, automation and AI driven operations. As the pace of digital innovation accelerates, IT must ensure that systems, data and cyber security are robust enough to keep up.

Challenges:

Siloed IT and OT environments prevent data integration and prevent a holistic, real-time view of operations.

1

A complicated and aging technology stack limits interoperability and increases maintenance burden.

2

Increasing pressure on IT to deliver higher ROI.

3

Rapidly escalating cyber threats – especially in OT systems – raise the risk of severe operational and financial disruption.

4

Increasing pressure from the business for AI adoption and a defined AI governance approach.

5

Low adoption of digital tools among frontline teams.

6

Responses:

This will translate into new initiatives for IT teams:

- Leading the integration of IT and OT systems to create a unified architecture that enables real time data flow, stronger cyber security and more reliable automation.
- Strengthen cyber security across IT and OT by upgrading systems to tighten incident response capability.
- Improve digital infrastructure and data quality to support rapid scaling of new technologies.
- Increase adoption of digital tools through structured change management programmes, better frontline engagement and targeted user training.
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Granular insights for big-picture challenges

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