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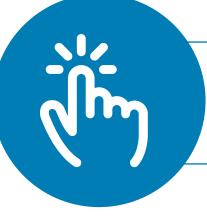
The future of riskNew game, new rules

The risk landscape is changing fast. Every day headlines bring new reminders that the future is on its way and sometimes it feels like new risks and response strategies are around every corner. The outlines of new opportunities and new challenges for risk leaders - all organisational leaders in fact - are already visible.

So what should leaders prepare for? This report profiles 10 trends that have the potential to significantly alter the risk landscape for organisations around the world and change how they respond to and manage risk.

What you will see is that risks onset and consequences and the entire nature of the risk discipline, are evolving. The good news? The strategic conversation around risk is changing too. For leaders today, risk can be used as a tool to create value and achieve higher levels of performance. It is no longer something to only fear, minimise and avoid.

Explore the drivers, opportunities, threats and real-world examples for each trend. And ask yourself: will your organisation be able to harness these trends to be even stronger, more resilient?



Contact us to discuss how you can better prepare for what lies ahead. We can help you identify ways for your organisation to manage risk, create value and ultimately power your performance.

How are organisations' responses to risk changing?



Cognitive technologies augment human decision-making

Driven by developments in artificial intelligence (Al) and easy access to huge amounts of data, smart systems will assist and at times even replace, human-led risk management.



Controls become pervasive

In a sensor-enabled, hyper-connected environment, organisations will deploy pervasive controls as part of their products, services and business models to monitor and manage risk in real time.



Behavioural science informs risk insights

Advances in behavioural sciences will fuel efforts to understand risk perceptions, influence risk behaviours and improve risk-related decision-making.



Vigilance and resilience complement prevention as leading practices

Organisations are realising that 100 percent risk prevention is not feasible, so investment in vigilance (detecting risk events as they happen) and resilience (containing and reducing the impact of risk events) will increase.



Risk transfer broadens in scope and application

Risk transfer instruments, such as insurance, contracts and novel financial instruments, will increasingly be used by organisations to protect them from a wider range of risks – cyberattacks, climate change, geopolitical risks, terrorism, business disruptions and more.

How are consequences of risk for organisations changing?



Innovation leads, regulation follows

The marketplace will reward organisations that take on strategic, high-risk innovations - even if they fall outside the scope of existing regulations.



Risk becomes a performance enabler

As risks become more measurable and tangible, organisations will be better able to determine an accurate upside value for risk and encourage an appropriate level of risk-taking.

How is the onslaught of risk changing?



The networked economy demands collective risk management

As organisations engage more deeply with a large number of external stakeholders, including "crowds," they will rely more heavily on them to identify, manage and reduce risks together.



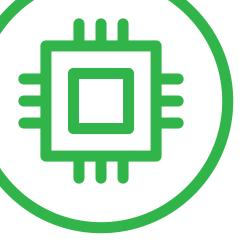
Disruption dominates the executive agenda

The constant threat of disruption resulting from emerging technologies, business model transformations and ecosystem changes will force executives to make significant strategic choices to drive organisational success.



Reputation risks accelerate and amplify

To survive in a hyper-connected world dominated by mobile devices, social media and evolving expectations from society, leaders will proactively address accelerated, amplified risks to their organisations' reputations.



Cognitive technologies augment human decision-making

Advancements in cognitive technologies, artificial intelligence and data analytics are helping organisations go beyond traditional ways of managing risks by using smart machines to detect, predict and prevent risks in high-risk situations. Autonomic computing combines automation and cognitive technologies to make systems self-managing and potentially self-defending as well as self-healing against risks.

What forces are driving this trend?



Massive growth in the volume of data available to organisations



Emergence of new and advanced Al-based algorithms



Expanding pool of data science talent



Adoption of behavioural analytics* in risk management

What are the opportunities?

- Identify use cases that are well-suited for cognitive technology solutions: Where the risk area is critical, large amounts of data are available and current solutions are not effective
- Use visualisation to analyse and communicate information in a humanfriendly way to enable rational decisionmaking
- Upskill employees so that they are able to more effectively use cognitive technologies to extract insights from data

What are potential threats and pitfalls?

- Difficulty in implementing complex cognitive tools
- Over-hyped technologies unable to deliver on promises
- Lack of trust and assurance mechanisms for Al
- Inability to source the right data
- Human backlash against automated decision-making
- Unintended consequences of mistaken predictions

Where is this trend already in play?

Warwick Analytics' early warning and prevention system looks hours, days and months ahead to try to predict when and how products in the field (such as aircraft and vehicles) will require maintenance. Identifying the root causes of failure helps engineers take corrective action, such as remanufacturing and redesigning products. Economic benefits can include enhanced efficiency of plant or production line, reduced energy bills and increased product life cycle.¹

Hong Kong-based venture capital firm Deep Knowledge Ventures has appointed a software algorithm, "VITAL," to its Board of Directors. Just like other members of the board, VITAL gets to vote on whether the organisation should make an investment in a specific company or not. It makes its decisions by scanning prospective organisations financing, clinical trials, intellectual property and previous funding rounds.²

Nexgate is a provider of Deep Social Linguistic Analysis (DSLA) technology and natural language processing (NLP) based social media risk management tools. Its major solutions scan social networks to try to discover and track an organisation's accounts; detect fraudulent social media accounts, unauthorised changes and anomalous behaviour on social account profiles; reduce potential liability from inadvertent posting of sensitive data as well as demonstrate compliance with more than 35 standards and industry regulations.³



* Behavioural analytics is the tracking, collection and assessment of user data and activities using monitoring systems to understand interactions and dynamics between different elements.



Controls become pervasive

Smart devices (also known as the Internet of Things) equipped with a variety of sensors, communications and computing capabilities serve as risk monitoring and enforcement points. This presents an opportunity for organisations to detect risk events, derive crucial risk insights and even take immediate actions in the environment. The result? Real-time, pervasive, dynamic risk management.

What forces are driving this trend?



Declining cost, decreasing size and increasing connectivity of sensors



Increasing investments in the Internet of Things



Growing adoption of workplace wearables



Advancements in sensor technology



Advancements in analytics



Organisations operating as networked ecosystems

What are the opportunities?

- Enhance operations and improve risk-related decision-making by integrating pervasive risk controls in areas such as internal audit, supply chain management, finance, cybersecurity and controls testing
- Reduce cyber security and fraud risk by using sensor-enabled devices to implement contextaware identity access capabilities
- Improve traceability across the supply chain, especially in security-sensitive industries such as food production and pharmaceuticals
- Automate compliance monitoring and reporting by embedding risk controls into business technologies
- Manage risks introduced by customers by analysing customer behaviour through real-time data feeds

What are potential threats and pitfalls?

- Heightened exposure to cyber risks as business processes rely more heavily on the Internet of Things
- Greater availability of data revealing risks in areas that were formerly considered safe, resulting in new obligations to manage those risks or increased liability
- Rising privacy concerns from employees, customers and business partners because of pervasive monitoring
- Increased difficulty of filtering relevant information from the noise, given the vast amount of data generated

Where is this trend already in play?

Saia, a US-based freight organisation has worked with Intel to deploy sensors into its truck fleet to track maintenance needs, driver safety, fuel usage and other metrics in real time. Through real-time process intelligence, this initiative has led to a 6 percent increase in fuel efficiency, which translated to \$15 million (R198 million) in savings for Saia. In addition to achieving cost savings, Saia has been able to track maintenance needs, driver safety and fuel usage, as well as other metrics, in real time.⁴

Fujitsu has developed wearable tags that can detect whether users have changed location or posture, have fallen down, or are experiencing high heat. With the help of these tags, employers can - in real time - monitor employees' working conditions or detect if they are carrying a heavy load or standing in a place where they might fall. The aim is to reduce the risks of injury at the workplace.⁵

Singapore-based TrustSphere, whose clients include financial services firms, specialises in trying to uncover the relationships that an employee has through digital interactions - attempting to reduce the risks of illegal collusion and internal fraud.⁶





Behavioural science informs risk insights

Behavioural science is the study of human behaviour through systematic research and scientific methods, drawing from psychology, neuroscience, cognitive science and the social sciences. There is increasing demand for these skills in the business world - including risk organisations. What drives risky behaviour? How do cognitive biases lead people to wrongly assess risk? How can risky behaviours be detected and modified? These are the types of questions leading organisations are looking to answer with behavioural science. In fact, some Fortune 500 companies today even have a Chief Behavioural Officer at the C-suite level.

What forces are driving this trend?



Increasing interdisciplinary research across fields such as cognitive science, psychology, economics and neuroscience



Renewed interest in making technology products intuitive for usage



Growing popularity of behavioural economics to inform decision-making



Early successes in commercialising gamification

What are the opportunities?

- "Design interventions" to help executives overcome the influence of cognitive biases in decision-making
- Improved systems for monitoring high-risk individuals in sensitive roles
- More effective risk, forensics and financial transaction-related business processes

What are potential threats and pitfalls?

- Risk of regulatory action in case of perceived misuse of behavioural interventions
- Backlash from employees and executives who see behavioural interventions as an impingement of free will
- Slow (or no) return on investments in organising complex behavioural interventions

Where is this trend already in play?

Fujitsu has built a platform that uses psychological profiling to ramp up computer security in the workplace. This enterprise tool aims to identify workers who are most vulnerable to cyberattacks and also gives advice on how to sidestep them, based on their behaviour while checking and sending emails, and browsing the web. This was developed after consulting social psychology experts and surveying more than 2000 Japanese users, half of whom had experienced attacks, to determine which traits make some users more vulnerable to viruses, scams and data leaks.⁷

Mi3 Security (formerly MetaIntell), a cloudbased mobile risk management organisation, recently brought onboard a behavioural science expert as a technical solutions and business advisor in the office of the CEO.8 Hand hygiene organisation, DebMed offers an electronic hand hygiene compliance monitoring system that seeks to measure the compliance level of an entire unit instead of individual performance. It predicts expected hand hygiene opportunities by taking into account unique conditions of each hospital unit, such as census and nurse-to-patient ratio. This aims to promote a spirit of collaboration and accountability while also providing actionable feedback for the group without singling out individuals.⁹





Vigilance and resilience complement prevention as leading practices

Risk prevention methods can never be foolproof, and increasing investment in preventative approaches often yields only marginal benefit along with unwelcome side effects such as slowing innovation. Organisations are expanding their approaches to focus on vigilance (detecting patterns that may indicate or even predict risk events) and resilience (the capacity to rapidly contain and reduce the impact of risk events) as well. We can expect activities like these to rise in importance: monitoring emerging threats, identifying anomalies in business processes, managing stoppages from third-party vendors and preparing for risk-related workplace disruptions.

What forces are driving this trend?



Growing recognition of inability to eliminate risks altogether



Rapid advancements in data analytics, machine learning and AI capabilities



Greater sharing of information among organisations as a result of the networked economy



Rising threat of nation states investing significant resources into disruptive activities



Rise in macro risks such as climate change, natural disasters, political unrest and more

What are the opportunities?

- Assess and prioritise risks to determine where to invest in vigilance and resilience
- Identify and test cutting-edge, commercially available tools focused on vigilance and resilience

What are potential threats and pitfalls?

- Inability to detect significant threats due to lack of data, tools or expertise
- Ineffective resilience efforts due to complex interdependent operating structures or lack of agility

Where is this trend already in play?



mitigate risks early and keep costs low.10

Verafin focuses on providing solutions in the fraud detection and anti-money laundering space based on Al-enabled algorithms and a more holistic view of banking transactions with diverse data points. Its latest product strives to enable cross-institutional analysis to detect suspicious activity across multiple organisations.¹¹

Zeean, an open source project, taps the crowd to map the flow of materials across the world. Using this database, Zeean then attempts to help organisations analyse the economic impact of isolated events (for example, climatic catastrophes) on global supply chains through powerful visualisations, working to help organisations and governments achieve supply chain resilience in a cost-effective manner.¹²





Risk transfer broadens in scope and application

Risk transfer instruments such as insurance and contracts are not new, but expect them to play a bigger role in the face of "mega-impact" risk events like climate change, political unrest, terrorism and cyberattacks. In the past, few considered hedging against such risks. Soon, it may become commonplace as commercial third- party insurance, risk-sharing agreements, captive in-house insurance and other tools continue their ascent. Financial industry innovation is also generating novel financial instruments that transfer and monetise risk.

What forces are driving this trend?



Growing instances of "mega-impact" events such as cyberattacks, political unrest and climate change - and their growing financial and reputational impact



Increasing globalisation and the rise of a networked economy leading to cascading risks



Persistent inability of organisations to completely eliminate risks through preventive controls



Rising cost pressure on organisations to look for cost-effective ways to transfer risks

What are the opportunities?

- Evaluate risk transfer instruments as an option to achieve business continuity and more predictable performance
- Establish risk-sensing mechanisms to identify emerging risks and determine if instruments could be used effectively to transfer key risks
- Develop clear and stringent risk-sharing clauses in all partner contracts and consider collective insurance with partners to address shared risks

What are potential threats and pitfalls?

- Potential for conflict, litigation and disputes with customers, partners and suppliers over risksharing agreements
- Inability to determine the appropriate insurance premium for various risks
- Becoming "over-insured" or purchasing insurance in noncritical areas

Where is this trend already in play?



manufacturer's quality and economic claims.¹³

Willis SECURENET aims to assist organisations facing terrorism risks, and those that are penalised by exorbitant rates of terrorism insurance, with the development of captive insurance entities. It can help them in every stage of captive formation, including feasibility analysis, domicile selection, development of underwriting parameters and maintaining communication with state insurance departments.¹⁴

BitSight Security Ratings seeks to provide objective, data-driven, daily ratings of an organisation's security performance through continuous monitoring. It works to help insurers look at historical data, compare an organisation against industry peers and make informed underwriting decisions. It also helps identify and alert applicants of potential threats in their networks. This aims to enable insurers to get insight into past and current cybersecurity risk levels.¹⁵





Innovation leads, regulation follows

As the pace of innovation quickens across diverse industry sectors, it is becoming more difficult for regulations to keep up. Meanwhile, many organisations are taking on high-risk innovations as a strategy - even when they fall outside the scope of existing regulations - and reaping the rewards. Increasingly, the rapid pace of innovation is driving the regulatory agenda.

What forces are driving this trend?



Rapid pace of proliferation of innovations



Growing adoption of new business models, such as sharing-based, freemium and subscription-based, leading to increased diversity of competitors



Industry convergence and blurring of market boundaries



Deliberate restraint on the part of regulators in order to allow innovations to gain steam



Growing consumer activism and empowerment

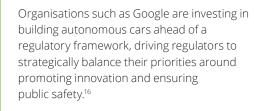
What are the opportunities?

- Reduce regulatory risks by educating regulators and harnessing customer and public support
- Work with the industry ecosystem to establish self-regulatory frameworks
- Clarify the organisation's risk appetite when evaluating projects that lie outside the realm of current regulations

What are potential threats and pitfalls?

- Losses due to investments in projects that operate in legal grey areas that subsequently become prohibited
- Fast-moving disruptive organisations can rapidly gain market share from incumbents before regulations are even put in place
- Negative publicity from lobbying efforts against disruptive start-ups

Where is this trend already in play?



Sharing economy-based businesses, such as Airbnb and Uber, are growing rapidly by breaking away from traditional industry norms and established assumptions built into regulations.¹⁷

Telemedicine, provided by organisations such as Teladoc, enables doctors to offer primary care services over videoconference. While telemedicine has been heralded as a way to increase health care access, it has required the renegotiation of relationships between insurers, physicians and regulators, with many states not allowing reimbursements for video visits despite a shortage of doctors.¹⁸





Risk becomes a performance enabler

In the past, risk management was often an exercise in fear and avoidance, with organisations focused primarily on completing necessary, compliance-driven activities. But that is changing. Many leaders are now viewing risks in terms of their potential to drive performance and value. As risks become more measurable and tangible, organisations will be better able to determine an accurate upside value for risk - and encourage a desired level of risk-taking behaviour in a bid to balance risks and rewards.

What forces are driving this trend?



Focus on innovation and experimentation is creating a culture in which failure is being viewed as a necessary step to success rather than something to be avoided at all costs



Analytics capabilities are helping leaders link risk to performance



New workplace technologies such as wearables, image recognition and AI are improving risk sensing and monitoring capabilities



Disruptive new business models are driving the need for increased risk-taking



Decentralisation is creating flat organisations where employees are empowered and rewarded for taking on risks themselves

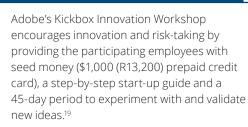
What are the opportunities?

- Use risk dashboards, visualisations and scenario analysis to empower leaders with data to make riskinformed decisions
- Recognise and reward intelligent risktaking
- Foster a risk-intelligent culture and empower employees at every level to take on informed risks

What are potential threats and pitfalls?

- Exposure to risks beyond desired risk appetite
- Potential reputation damage and regulatory actions as a result of taking on excessive risk
- Inability to correlate performance with risk due to lack of appropriate tools

Where is this trend already in play?



Chief Financial Officers are using risk dashboards for driving strategic decision-making, such as weighing mergers & acquisitions possibilities, developing new product lines, planning market entry strategy and deciding on capital allocation.²⁰

Advertising agency Grey gives out the Heroic Failure Award that honours new, unproven ideas that were failures in the market, thus rewarding and encouraging risk-taking among employees.²¹





The networked economy demands collective risk management

Organisations are more connected to one another and "crowds," than ever before. They share data, technology and much more. As a result, they also share more risks. Increasingly, they are managing risk in a manner that reflects this new reality - transforming their risk processes through more open, collaborative approaches that rise to the challenges of a networked economy and working to identify, manage and reduce risk together.

What forces are driving this trend?



Organisations operating as networked ecosystems are leading to more dependence on external stakeholders



Crowd-driven and sharing-based initiatives are gaining more acceptance among stakeholders such as customers, employees, business partners, vendors and suppliers - leading to new collaborative business models



Governments and organisations alike are moving toward radical transparency



The increasingly ratings-driven culture means that sellers, customers and products are all reviewed with increasing frequency – supplying organisations with data for risk analysis



Globally distributed business models leave brands more vulnerable to physical and virtual risks around the world

What are the opportunities?

- Use collaborative practices like gamified crowdsourcing to reduce the cost
- of risk management and improve its effectiveness
- Form alliances with risk experts, researchers and academia to stay abreast of the latest threats and mitigation approaches
- Adopt an ecosystem-led approach for risk management by forming industrywide partnerships and consortiums

What are potential threats and pitfalls?

- Potential for incurring legal costs, regulatory action and reputation damage if sensitive information is leaked through partners or datasharing portals
- Results may be manipulated if bad actors deliberately feed inaccurate data to skew the models

Where is this trend already in play?

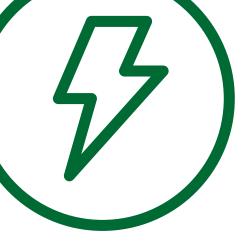


engage independent researchers, experts and hackers to find potentially dangerous security flaws for a reward.²²

ThreatExchange, a social data exchange platform by Facebook, is being used by security professionals and researchers across the world to share cyber threat information.²³

Wikistrat, the crowdsourced consulting organisation, uses interactive role-playing games that leverage a crowd of experts from all over the world for strategic forecasting. Wikistrat's open source platform provides access to vetted crowdsourced expertise to address complex client issues and risks and to develop effective action plans.²⁴



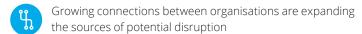


Disruption dominates the executive agenda

Organisation leaders are increasingly focusing on risks that threaten to disrupt the fundamental assumptions of their organisation's strategies. Prioritising such risks has become increasingly crucial - these risks cannot be handled in typical organisational silos and they can destroy sources of value creation for the organisation yet, they also have the potential to form the basis of game-changing moves for an organisation, if handled well. Disruptions in the forms of emerging technologies, business model transformations and ecosystem changes will force executives to make significant strategic choices to drive organisational success.

What forces are driving this trend?







Traditional industries are converging to create new markets

Business model innovation (such as sharing-based, freemium and subscription-based) is driving organisations to constantly reinvent themselves

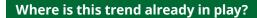
Customers are increasingly expecting more personalised products and services

What are the opportunities?

- Continuously monitor the changes in the environment to determine which could be truly disruptive
- Revisit the approach to corporate strategy development to introduce more agility, adaptability and responsiveness to emerging threats
- Identify organisational blind spots, built-in institutional challenges and personal biases of senior management that can get in the way of action
- Employ tools and techniques such as:
- Real-time monitoring, scenario planning, stress
- Testing, war-gaming and simulations to drive
- Higher levels of sophistication in managing risk

What are potential threats and pitfalls?

- New start-ups and cross-industry players can catch organisations off-guard if they do not have strategic threat monitoring and identification mechanisms in place
- Senior management can become overwhelmed by the sheer volume of complex, real-time data, leading to ambiguity and indecision
- Innovation can be stifled by the organisation's core business assumptions or structural limitations



Media organisations such as HBO that were under the threat of disruption by online streaming players have now reinvented their strategies by adapting to the fast-changing organisation environment. They have embraced online streaming and have introduced a host of related offerings, thus posing competition to existing streaming content providers.²⁵

3D printing is transforming the health care sector, with many incumbents adopting 3D printing for manufacturing medical implants, dental products and bio-printed tissues.

To counter the growing threat of car sharing organisations like Zipcar, German automaker Daimler has launched its own car sharing service called car2go. Through car2go, Daimler aims to disrupt the disruptors like Zipcar not by copying their business models but by creating its own unique value proposition – a "roving" model in which its cars have no fixed spaces and can be parked anywhere to end a trip.²⁶





Reputation risks accelerate and amplify

In today's hyper-connected world dominated by mobile devices, social media and evolving expectations from society, information can spread like wildfire. This convergence of mobile and social media is intensifying the impact of reputation risks for organisations and is driving them to fundamentally rethink their approaches to risk management and proactively address these accelerated, amplified risks.

What forces are driving this trend?



Social media is creating a more connected, networked world where information is rapidly amplified



Disruptive mobile technologies are ushering in a new era of hyper-availability in which people are always available and connected



An upsurge of socially conscious consumers and growing consumer activism, is putting pressure on organisations to be socially responsible and transparent



New multichannel marketing strategies built on social platforms allow for greater interactivity for consumers and less control for brands



Globally distributed business models are increasingly dependent on third parties and other stakeholders

What are the opportunities?

- Develop new capabilities for proactive brand-related crisis management
- Continually scan media sources with technology-enabled intelligence capabilities to monitor reputation risk
- Initiate targeted campaigns and develop an external ambassador programme to nurture external brand advocates
- Foster a more risk-intelligent culture with tools, resources and training opportunities to help employees see the reputation implications of their actions

What are potential threats and pitfalls?

- Personal online activity of employees can cause reputational damage to the organisation
- Organisations may be forced to respond to risk events in haste without fully investigating the situation





Websites like Rip-off Report and Scam book offer online platforms for consumers to post complaints. Rip-off Report receives more than a million visits a week and generates several million dollars of revenues a year from organisations that pay to resolve customer complaints.²⁷

Food safety incidents can cause significant reputation loss and revenue impact for food and beverage companies. The impact on an organisations reputation is often intensified due to the negative attention received through social media channels. Brands that are not prepared to respond to crisis face further scrutiny for moving too slowly when incidents occur.



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14





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