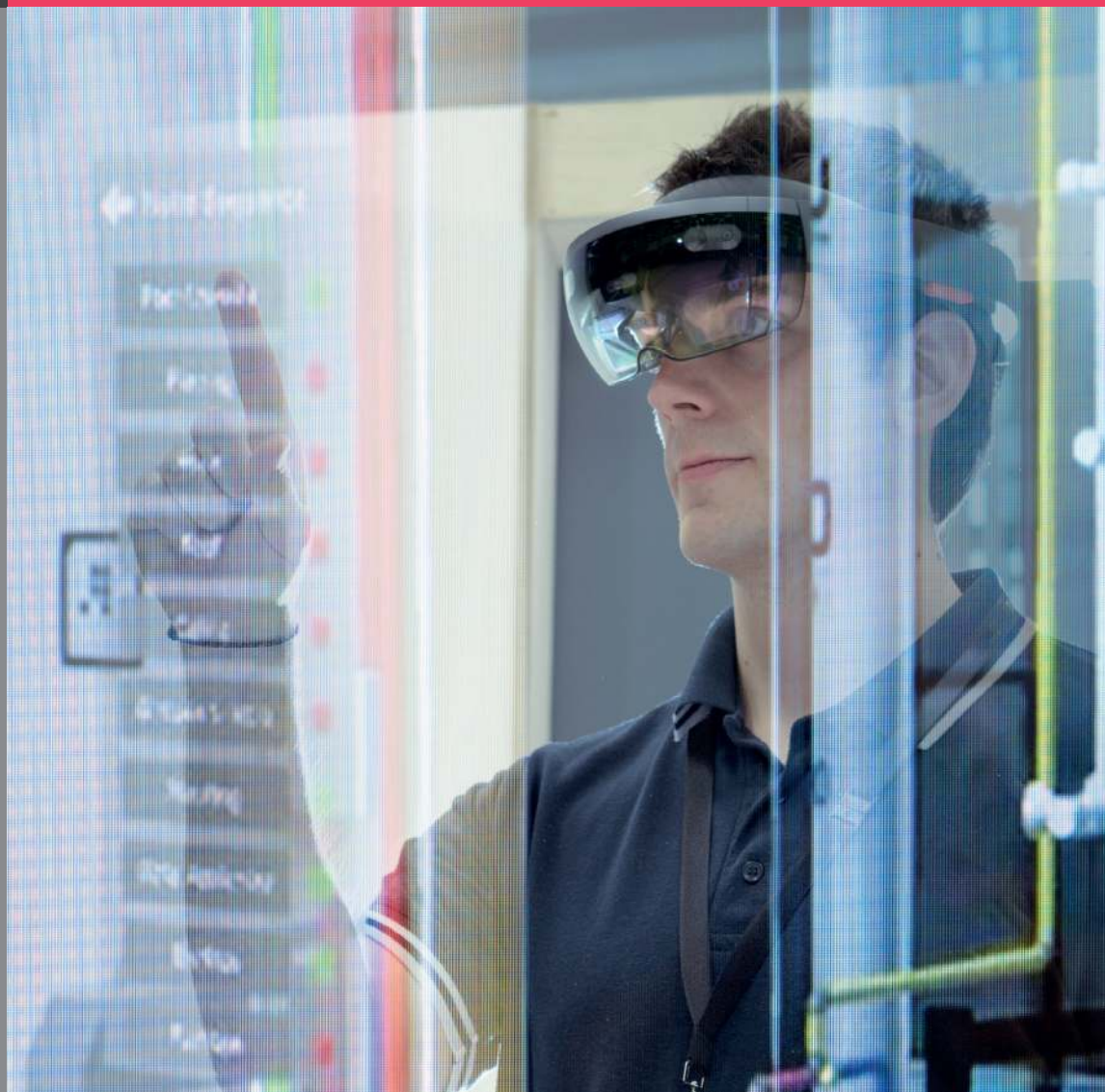


The Future of Risk

The insurance Risk Function of the future

September 2019



Contents

Introduction and foreword	1
The layers of disruption	4
The Risk Function in 2030: our vision of the future	6
Pillar 1 – Technology	8
Pillar 2 – Data and enhanced analytics	10
Pillar 3 – Skills and capabilities	14
Pillar 4 – Culture	16
The road to 2030 for the CRO	20
Contacts	24



Introduction and foreword

There is an old analogy about an insurance company being like a car. Inside this car, the Chief Underwriting Officer is in the footwell, with his foot hard on the accelerator pedal. The CEO is sitting firmly in the driving seat, but he is blindfolded. It's OK though – The Chief Actuary is looking out of the rear-view mirror telling the CEO where to go.

It's a story which is pretty amusing and probably a little unfair, but it does play to some of the limitations that Boards and management of insurance companies have. Underwriters and Sales and marketing officers have often been incentivised on volume rather than profit. CEOs have often had the skills and the controls available to them but been limited by a lack of forward looking, decision supporting management information. Chief Actuaries are often brilliant at using historical data and judgment to do their best to try to predict the future.

Enter the CRO: the newest of the senior functions. The first CRO role in the insurance industry was created at the turn of the millennium. If we continue the story above, we would like to see the CRO in the passenger seat, looking out of the front windscreen and being able to give clear instructions to the CEO on the road ahead, the obstacles and hazards to be aware of and how to safely navigate to the chosen destination. So what is holding them back, and what does the future hold?

The growing role of the CRO already feels similar to the previous journey of the CFO. Over the past 25 years, the CFO has moved from being the 'chief accountant' responsible for reporting the numbers, to being a critical strategic partner of the CEO. The growth of risk as a discipline, the ongoing response from shareholders to the lessons of the financial crisis and the growth of risk based capital regimes mean that the CRO is now heading in the same direction.

Today's CRO

In 2019, many CROs suffer from the same barriers that have traditionally impacted the actuarial profession: a reliance on use of historic data; a focus on backward looking analysis; and the lack of timely reporting.

These barriers give rise to a series of challenges that thwart the ability of the CRO to be genuinely forward looking.

- Data is often lacking in quality or availability. Sometimes it is available, but not until it is too late.
- Risk appetite metrics are often reported some weeks after a period end. In some instances, by the time the Risk Committee looks at the risk profile and risk appetite, so much time has elapsed that any actions taken are likely to be ineffective.
- Investment in risk systems fail to keep pace with other technology investments. Reporting is commonly produced manually and relies on the risk analyst aggregating data supplied by the business. There is little time for checking and challenge.
- The activities in risk tend to be dominated by regulatory compliance and actuarial or capital modelling tasks. There is little in the way of deep analytical skills.
- The skills in risk typically have little in the way of deep analytical capability.

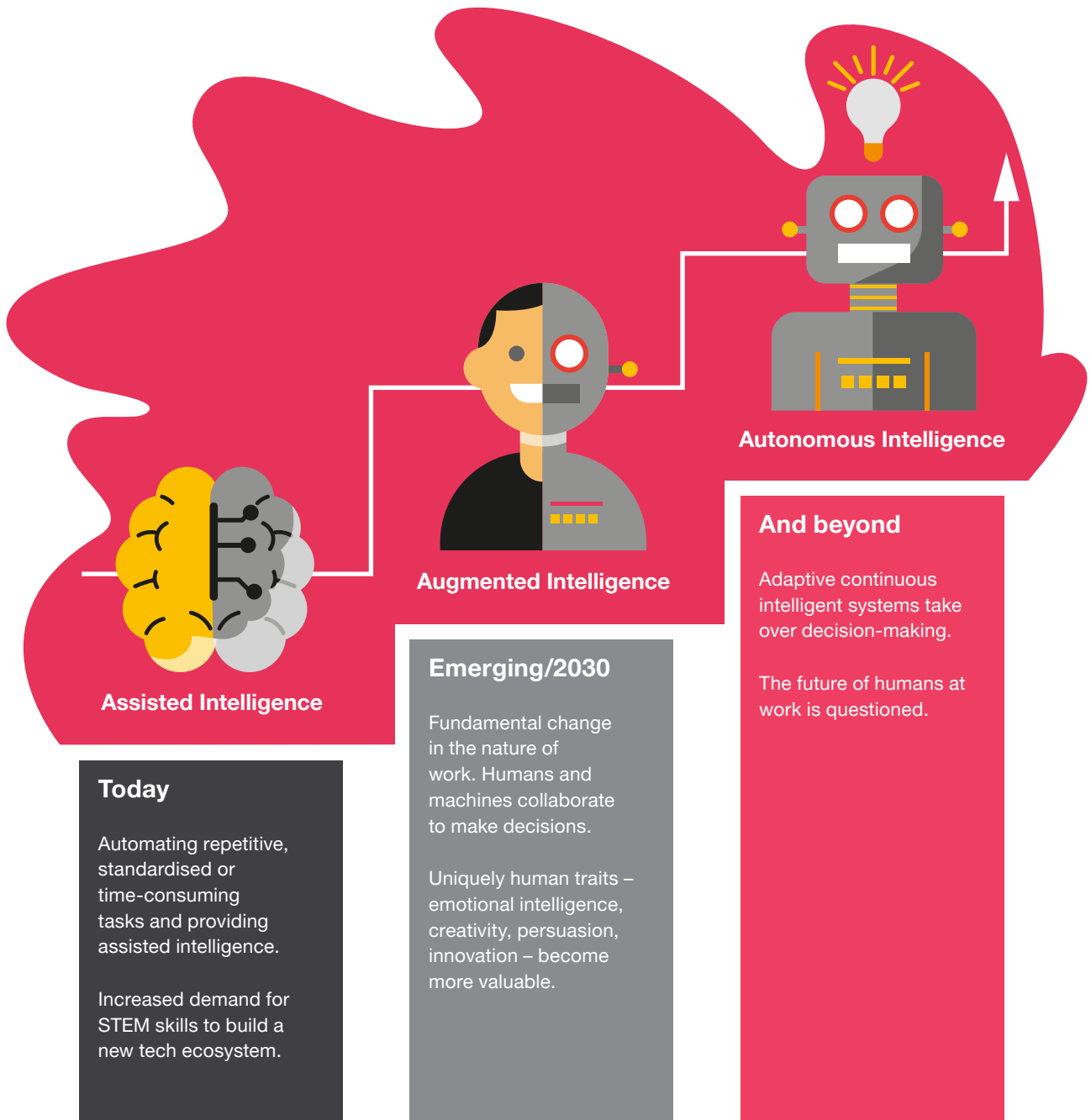
So what do we foresee for the Risk Function of the future? Over the following pages, we set out our vision for the future of risk. Harnessing the power of technology and combining this with more data than ever before. Transforming the skills of the Risk Function to be able to use the latest in predictive analytics, meaning the CRO becomes the trusted co-driver sitting in the passenger seat next to the CEO. Together with the other trusted adviser, the CFO, becoming the 'holy trinity' of the strategic partnership.

Future proofing the risk function

Throughout this report, we aim to look at the key drivers which we believe will shape the Future of Risk. The Risk Function needs to be developing constantly. The underlying risks that insurers have are ever-changing and as a result, the Risk Function needs to adapt in order to support, challenge and add value to the business. Over the longer term, this will require investment in people, training and technology. Whilst the purpose and ambition of the future Risk Function may not change, the ways of working are likely to be transformed.

As we consider the future of risk, it is important to think about the future world that the Risk Function will be working in. When looking at the future, it is easy to become very sci-fi about what will happen in our environments and how we interact; from being carried around on intelligent hover plates to services being provided with just the prompt of a thought. However real or fantastic those scenarios are, we believe there will need to be a significant rethink and transformation before we get close to these futuristic theories. In this report, we have used a reference point in time where we believe it is likely businesses will be in an environment that utilises "augmented intelligence" see analysis opposite; we therefore place this around 2030. Augmented intelligence describes a stage where both human players and computerised players have a role alongside each other, with technology, data and analytics working in concert with interventions from humans.

In this report we talk about the megatrends and shifts in the world that are disrupting both businesses and the risks they face, and a vision for the role of the CRO and the Risk Function in 2030. We describe what we believe are the four pillars that will form the Risk Function of the future and conclude with how we see the function evolving over time to meet the demands of the future. The future CRO will need to adapt to these new surroundings, so what are they most likely to be facing?



This diagram was initially produced in the **Workforce of the future paper**¹ to demonstrate how digital and artificial intelligence may change the world of work.

¹ <https://www.pwc.com/gx/en/services/people-organisation/workforce-of-the-future/workforce-of-the-future-the-competing-forces-shaping-2030-pwc.pdf>



The layers of disruption

For the CRO considering the risk landscape of the future, there is plenty of information out there to start to plan. The first step is to understand the potential changes to insurance business in the next decade.

With the volume of change in insurance companies, the Risk Function has to adapt to stay relevant and increase its value.

The world and the way we live and do business continues to change rapidly. We would all agree that by the time we arrive in 2030 insurance will be very different. The speed at which both the adoption of the internet and of other digital ways of working has progressed is faster than anyone would have predicted. Today's business world is so very different from 10 or 15 years ago – for example the first iPhone was only launched in 2007. PwC has undertaken significant analysis to identify factors that will underpin the drivers of future change.

As the insurance industry changes to adapt to the external world, the Risk Function must keep pace. At the same time as understanding the ways in which business is changing, the Risk Function will need to look at how it can transform itself to stay relevant and build its value.

Opposite we have highlighted megatrends as identified in our PwC megatrends report², the key themes from the PwC CEO survey 2019³ and consider future trends which could affect the insurance industry.

² <http://www.pwc.co.uk/megatrends>

³ <https://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2019/themes/insurance-trends.html>

Megatrends: Five global shifts changing the way we live and do business

Rapid urbanisation

By 2030, the UN projects that 4.9 billion people will be urban dwellers and, by 2050, the world's urban population will have increased by some 72%⁴. Potential insurance outcomes could be a dramatic increase in the sharing economy, but also to more worrying trends like an increase in crime, particularly where large numbers of people feel replaced or alienated by technology.

Climate change and resource scarcity

Demand for energy and water is forecast to increase by as much as 50% and 40% respectively by 2030⁵. Our planet is unable to support current production and consumption models, which will be exacerbated by the expected increase in the population.

Shift in global economic power

The rapidly developing nations, particularly those with a large working-age population, that embrace a business ethos, attract investment and improve their education system will gain the most. Emerging nations face the biggest challenge as technology increases the gulf with the developed world; unemployment and migration will continue to be rampant without significant, sustained investment. The erosion of the middle class, wealth disparity and job losses due to large-scale automation will increase the risk of social unrest in developed countries.

Demographic and social change

With a few regional exceptions the world's population is aging, putting pressure on business, social institutions and economies. Our longer life span will affect business models, talent ambitions and pension costs. Older workers will need to learn new skills and work for longer. 'Re-tooling' will become the norm. The shortage of a human workforce in a number of rapidly-aging economies will drive the need for automation and productivity enhancements.

Technological breakthroughs

Automation, robotics and AI are advancing quickly, dramatically changing the nature and number of jobs available. Existing organisations were not developed for technological adaptation whereas emerging economies are more able to adopt new technology. New technology such as blockchain, 3D printing, can transform the way we live. Organisations will need to adapt to new regulation around those technologies.

Current insurance industry trends (CEO survey 2019)

Getting value from the digital journey

Unifying and updating systems will allow businesses to create unique customer journeys around new insurance thus, elevating their place in the market.

If we can imagine it, for the first time, we can do it?

As the technological environment has matured over the last decade, cloud and microservices are now enabling more effective solutions that simply weren't available in the past.

Improving the customer experience with data analytics

Utilising innovative technology to focus on customer experience will be essential for insurers to elevate their place in the market.

Insights from experience design

Constant improvement is now the rule of thumb. Recognising that work gets done but is never really finished is a major shift in thinking for the industry. This continuous cycle of launch, learn, adapt, and relaunch is of real value to the organisation.

Digitalisation is changing the way an insurer interacts with their customers.

Online portals that contain policy documentation, handle the claims process and provide a platform for secure two-way communication is forcing a change to back-office processing and improved customer experience.

Data and technology trends of the future (PwC view)

Data privacy and protection awareness

Businesses must be agile, responding to new regulations as the focus and understanding around data protection increases.

Growing shared economy

The rapidly growing and evolving shared economy may provide new business-to-business interactions but challenges regulatory certainty.

Data as an asset

Businesses retain huge volumes of data, which could provide invaluable insight for not only business development, but also more substantial movements towards AI implementation. Data and technology assets are highly valuable and will need to be (re)insured.

Responsible AI

Cloud computing has accelerated AI development and revealed new possibilities for its use. However, with new technology comes new risks which must be addressed.

Threat from Big Tech

Technology giants have more influence than ever in the market place and society and society will demand that they manage their impact responsibly.

⁴ UN Department of Economic and Social Affairs. http://www.un.org/en/development/desa/population/publications/pdf/urbanization/WUP2011_Report.pdf

⁵ National Intelligence Council. https://www.dni.gov/files/documents/GlobalTrends_2030.pdf



The Risk Function in 2030: our vision of the future

With that backdrop, what does the CRO need to think about as they start to plan for the future?

No-one can predict the future, but we can make educated assessments of how we will need to adapt.

There are two ways we'll look at this – but they are two sides of the same coin: we'll look at the areas that Risk function will need to develop in order to keep pace with the changing world, but also look at how they can use these same developments to enhance speed, insight and value.

In 2019, trying to set an agenda for the world of 2030 is daunting. No-one can predict the future, but we can make educated assessments as to how we will need to develop. It is clear that mega-trends and industry trends will not only affect the way we do business but also how Risk Management operates.

Using a clear framework and some robust principles for development will mean that the CRO can be confident that they will develop a Risk Function in which the oversight and challenge of the business is more forward looking and predictive, and they can ensure that their function is appropriately flexible to meet the ever changing demands of the business.

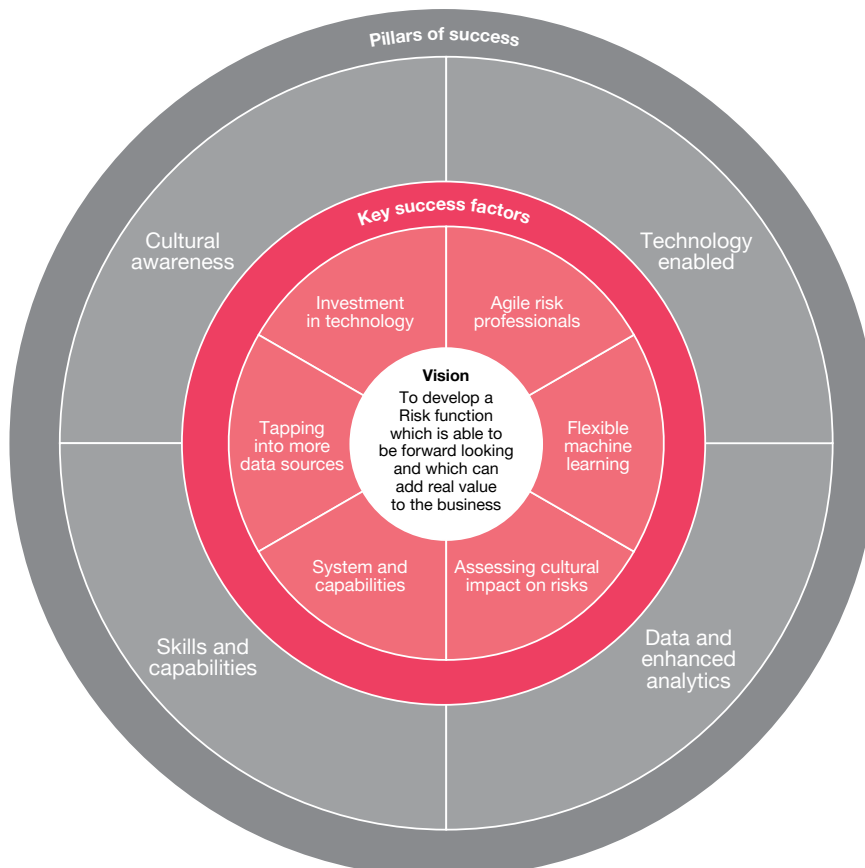
In considering the best approach, we have identified four key building blocks for developing a successful function over the coming decade:

- **Technology** – Technology will drive significant development in insurance businesses, transforming operations, finances and customer engagement models. Risk will need to embrace technology in order to provide challenge and assurance to the business, enabling the function to provide real time and predictive risk analysis.
- **Data and enhanced analytics** – Access to more diverse, real-time and larger data sets will be critical. With better access to more varied sources of internal data and the use of more macro sources of real-time data, this will allow risk professionals to create a much richer view of the risk profile and how it is likely to change. Having data is great – but only if you can use it. We believe that this is the key challenge of more data – how to use it and how we communicate the results better to the wider business. The ability to run thousands of autonomous stresses and scenarios of the business on a real-time basis will allow a greater number

of decisions to be informed by a wide range of potential outcomes. This should allow management to take actions – before risks materialise into issues.

- **Skills and capabilities** – The skills required by the business are obviously going to shift, with greater need for technology, data and analytical capabilities. We also expect the risk function to be greater users of stargazers – finding a place for creative thinking and broad-ranging predictive idea generation. Insurers will increasingly use a more flexible workforce, both in terms of physical presence and technical skill sets. The function will also become bionic with AI driving the analytics.
- **Cultural awareness** – With all the changes within the business, and in particular changes in technology and automation, culture will be even more important to ensure risk management is done right and continues to protect the business. We foresee developments such as real-time sensors and analysis embedded in first line processes and controls. The successful Risk Function of the future will use the transformation of risk capability to truly embed risk culture throughout the business.

The future Risk Function’s pillars of success





Pillar 1 – Technology

**Technology will facilitate the
'truly digital' insurance company.**



Technological change is not additive; it is ecological. A new technology does not merely add something, it changes everything.

Neil Postman, American Author

Transactions, hand-offs and interactions will happen seamlessly between customers, brokers, underwriters, insurers, reinsurers and claims providers. The concept of multiple systems and platforms will disappear being replaced with seamless workflow integration (as is happening in many areas of consumer technology, e.g. the way we all have access to many television content providers through one seamless platform app). This technology integration on a mass scale across the commercial business world will reduce the friction between businesses, but more importantly, increase the competition for consumer and B2B business. Removing this friction will focus the emphasis on value-add services, and therefore increase the risk profile related to delivering those diversified services.

Risks will dramatically change because of the 4th industrial revolution

Decision-making and transactions while we are asleep.

As we write this, over 85% of the world's trades that are made on the global stock markets are made using unsupervised algorithmic processing – put another way, unsupervised decision making. It's here! The technology needed to close the gaps in a complex world of international borders, political divisions, cloud vs on-premise, SAP vs Oracle, Apple vs Microsoft, to make automated decisions and perform transactions in the blink of an eye, is facilitating the vast majority of the world's financial system.

Insurance has been experimenting with technologies such as blockchain, which will facilitate more 'unsupervised' transactions and decisions. Technology, coupled with data and data analytics, is dramatically changing the way business operates. Outside of the obvious reliance on technology and technology resilience risk that we often talk about today, these shifts introduce a new set of risks to a company. For example:

- How does a firm attest to its compliance if transactions and interactions are based on deeply integrated systems with machine learning and artificial intelligence continually changing the way it makes decisions in a 'black box'.
- In a frictionless technology environment, with increased pressure on services, how does risk manage the balance between commercial pressures and effective risk management?
- Removing the technology silos creates both a huge reliance on third party technology providers and blurs the lines between what is yours and what belongs to the 'collective cloud' (e.g. who 'owns' the block chain?).
- As the focus to value-add services shifts and new entrants come into the market, how does the Risk Function balance its regulatory obligations with the social and reputational risk of collaborating with new entrants to new markets and customer channels (e.g. 'Uber Insurance')?

Managing risk and the speed of thought.... Or faster

Keeping up or looking through the windscreen?

If insurance businesses are using technology to support their customer bases, improve margin and become more competitive, Risk Functions need to be alongside, ensuring that companies operate within the tolerances set by the Board, or else become irrelevant.

As technology advances within the business, the Risk Function will need to keep pace, both in terms of its understanding, but also in the way that technology is used to assess, monitor, evaluate and report on the business. Risk Functions will need to ensure that as technology is developed and embedded, there are clear checks, controls and reporting available, rather than being developed separately. Sticking with the car analogy, the co-driver doesn't need to have their own dashboard, so long as they can see the same one as the driver.

Most of the technology that is needed to enhance the Risk Function already exists. The important question for the CRO is how much it costs to acquire and then embed within the business.

Technology to monitor risk appetites and tolerances across a wide-range of measures should become commonplace. Movements against appetite, including 'notification type' messages through control and "governance" processes will create huge efficiencies. The ability to specifically track exposures on such an accurate and timely basis could also be highly beneficial in the design of reinsurance products and their pricing.

In the following sections of this document we talk about the use of more diverse data sets and predictive analytics to build future-state risk scenarios. However, having the technology integration layer to facilitate this volume of data, and host the machine learning and AI capability needed may well be a future insurer's intellectual capital and competitive advantage.



Pillar 2 – Data and enhanced analytics

As with technology, data will quickly converge across a number of sources to create a rich and diverse foundation for driving insights.

Today insurers are grappling with the completeness, accuracy and attainability of data, which often exists across a number of aging and legacy platforms. Bringing data together to create an end to end view is often time consuming, rendering its use somewhat retrospective. Underwriters and actuaries are seeking better ways to use more diverse data from different sources, including geometric data, data derived from satellite imagery and drones.

Perhaps more transformational though is the opportunity to use more diverse data sets providing the insurance company with real-time insights. Using the internet of things data, home automation data, social media data and health data will allow insurers to proactively tailor products and pricing to the individual. It also expands the possibility of providing assurance related services where data might be used to avoid a loss before it happens.

With data being the lifeblood of business and the future Risk Function and technology being the underpinning enabler, analytics becomes the 'how'.

These developments in the sector drive a very different risk profile for a company. Richer data and better connected technology also increases the speed with which risks can materialise. For example, introducing the capability to make near or real-time mid-term adjustments (for example a customer adding coverage to their policy for just one day through an app), makes the risk exposure a very flexible real time moving challenge for a Risk Function.

Being plugged into the data and the systems the business are using will be the only way for risk monitoring to be effective. Risk will also need to understand how it can perform a preventative role, predicting what may trigger materialisation of a risk before it does – going beyond using only the firm’s internal data to undertake this. Augmenting internal data with external environmental and social data (as examples) will be critical for future facing decision making for the Risk Function.

With data being the lifeblood of business and the future Risk Function and technology being the underpinning enablers, analytics becomes the ‘how’. Dashboards and visualisation are being employed as alternatives to lengthy and wordy reports. However, often the coverage of this type of reporting relates to only a small number of risks, and lacks the context required to make data driven risk decisions. The industry still has a long way to go to harness the full power of analytics and visualisation in helping boards and risk managers cut through the noise to understand the ‘so what’ and the narrative good analytics provides – this is before analytics can help facilitate predictive scenarios that have not yet been realised.

Below we have detailed three key areas of focus when embracing analytics in the Risk Function:

1. Quality and speed of insight (real-time, predictive and holistic intelligence)

Analytics will be automated, with predictive insights that are continually learning and evolving (driven by AI) to identify emerging issues and trends. This will be achieved by leveraging enhanced data about customers and exposures (e.g. satellite and drone imaging) and supplementing it with a wider range of global intelligence sources.

As a result, for any portfolio, product or segment, Risk Functions’ will be able to access exposures, critically assess risk forecasts as they evolve in any location and make near real-time decisions on whether to increase/reduce the risk footprint, adjust rates or hedge exposures.

2. One embedded view of risk across the organisation

One version of the truth will be available across all business segments (underwriting / product development, claims, reinsurance, marketing, risk and finance) allowing all parties to access a consistent view of risk in any segment. Interactive MI will allow each team to drill down on issues of relevance to them – whether that is customer behaviour, management of aggregations, concentrations of risk, or deviation from technical price, etc. This will enable the business to fully incorporate risk, as well as volume/profitability throughout its decision making

3. Aligned to business strategy, rather than compliance

Risk will use enhanced analytics to analyse whether the business is operating within risk appetite, together with looking at an increased range of opportunities. As compliance activities performed by Risk become increasingly automated, the information gathered through analytics will help the business to understand the impacts of difference scenarios allowing better informed strategic decision making.

Impact of analytics on the Risk Function

The adoption of analytics in the Risk Function will drive a change to daily activities and the skillsets needed to understand, operate and enhance analytics and the role it plays for the function.

Analytics will provide a forward facing view of emerging risks, resulting in members of the Risk team being able to review these potential risks and understand and navigate the drivers and context the data and visualisation is proving.

TotalHealth – a case study of a fictional health insurer in 2030



At TotalHealth, our corporate strategy has been to bring together a comprehensive package of medical, health and well-being services centred on our customers.

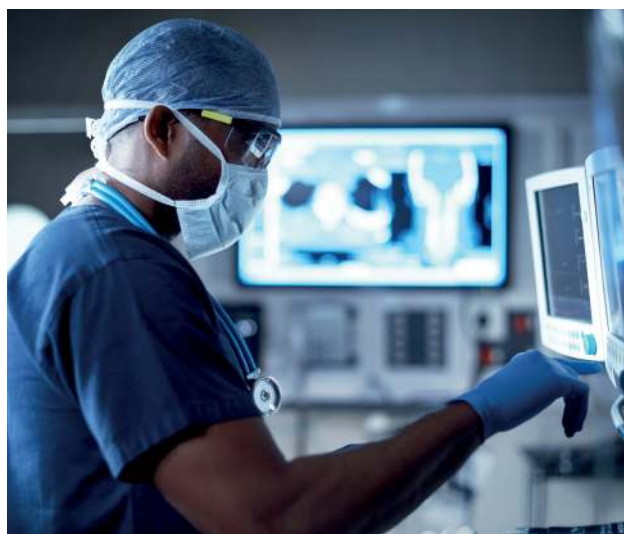
We're now the leading health provider in the UK, helping our customers to proactively manage their wellbeing, including the assessment, monitoring and treatment of illness as it occurs:

- Smart chips and pills – Smart chips and on-demand pills containing sensors and nanorobots that monitor a person's health and provide access to care and treatment, for example via (i) lifestyle interventions (ii) monitored releases of drugs tailored to policyholders' physiology and genetics and (ii) nano surgery e.g. to repair tears in muscles
- Augmented reality health services – providing policyholders with direct access to a consultant / doctor within their home. For example, this could also aid in rehabilitation allowing policyholders to ensure that their stretches and movements are correctly aligned without a physiotherapist present all the time.
- Smart mirrors that also provide internal scans of the body which can be used by consultant / doctor to assess health.

This technology also provides policyholders with augmented reality views on how their body's health could change given dietary and other lifestyle changes recommended by the insurer's health team.

At TotalHealth, we've seen our risk profile change significantly since back in the early 2000s. We have had to transform the way we manage risk as a result. Morbidity used to be a key risk driver. In its place, we have a significant risk **around the third party technology** that is fundamental to our customer experience, highly material **reputational risk** of very sensitive data being leaked to employers or to third party organisations and significant **additional complexity in conduct risk** and the treatment of customers. Additionally, **multiple regulators** across health and insurance are more demanding of our treatment of data, confidentiality and our service to our older and vulnerable customers. For example, last year a bug in their smart pills erroneously notified a subset of their customers of their DNA prognosis for future development of terminal conditions.

Our suite of analytics monitor what happens today, as well as predicting what might happen in the short to medium term future, enabling our business to make decisions ahead of risks materialising.





At TotalHealth, we've seen our risk profile change significantly since back in the early 2000s. We have had to transform the way we manage risk as a result.



Pillar 3 – Skills and capabilities

Equally as important as the developments in technology and analytics will be the developments in the people and ways of working within the Risk Function.⁶

As the CRO looks forward to the future of the Risk Function and in particular looking at how Augmented Intelligence is at the heart of the change, it is clear that the skills and capabilities that are needed to successfully run the Risk Function will be different from those today.

In 2017, PwC published a detailed report titled “Workforce of the Future – the competing forces shaping 2030”.

The research-led report looked at the forces expected to be shaping the world in the coming years and the potential worlds that the workforce might face. It is a hugely thought-provoking piece of work, which looks at the disruptive forces that industries face. Whilst these future worlds have some major differences, the common factor is the changes in skills and capabilities that will be required and the different ways of working which are likely to be prevalent.

As the CRO looks forward to the future of the Risk Function and in particular looking at how Augmented Intelligence is at the heart of the change, it is clear that the skills and capabilities that are needed to successfully run the Risk Function will be different from those today. This does not necessarily mean that different people will be required, but training and development programmes will need to be significantly enhanced in order to manage the demands of the future Risk Function.

We also consider that there will be two distinct phases in the shift to the Risk Function of the future: the development and building of a new operating model with these augmented systems and the ongoing operation, monitoring and continuous improvement of the enhanced and transformed world of risk.

⁶ <https://www.pwc.com/gx/en/services/people-organisation/workforce-of-the-future/workforce-of-the-future-the-competing-forces-shaping-2030-pwc.pdf>

Develop and build

In the develop and build stage, there will be an obvious need for more technological skills. In particular data skills and skills around the types of technology that will deliver the integrated systems and provide analysis. These are likely to be project based and will be drawn from around the organisation.

More importantly and perhaps not obviously, a key skill that will be required will be creative analytical development. Skills which blend a deep understanding of the business and the drivers of its success (and failure), but also creativity around how to visualise data and present it in a useful and engaging manner. This is a very rare skill set, so companies will need to be innovative (and ambitious) in how to train, develop or acquire.

The Risk Function will also need to carefully iterate and calibrate the risk appetite and risk tolerance thresholds at a level of granularity which has been previously impossible. It is likely that these exercises will be challenging and could well change perceptions as the depth and quality of the analysis gives new insight into the risk of the business.

In this development phase, there will be a clear requirement to develop a new operating model for Risk, which will consider all aspects from organisational design through to ways of working.

Run and enhance

Once the new function is up and running, we would expect less focus on technological development and for the Risk Function to optimise their use of technology in their roles. At the same time, there will be a rise in the need for a different set of skills to be able to work seamlessly with the Augmented Intelligence engines which have been built. With day to day monitoring being handled on an automated basis, there will be a shift to analytical and problem-solving skills. There will be a laser focus on understanding the risk appetite of the business and supporting in the optimisation of the risks taken.

As the operational risks of the business have developed, so have the skills that are needed in the Risk Function in order to manage those risks: Risk Functions will need better understanding of technology, cyber, change management, climate change, outsourcing, social and customer behaviour and dynamics.

In the new operating model, there will be significant flexibility in both the working dynamic and also in the sourcing of skills and experience. We expect outsource and co-source models to be standard, quickly identifying and procuring the right skills from either inside or outside an organisation to work on deep dives and investigations. Alongside the rest of the workforce, location and time flexibility becomes a key enabler but also a retention tool for individuals.

To manage this flexible workforce, we expect teams to need third party management skills, leveraging resource management systems and automated procurement functions.

Finally, we foresee the rise of the 'Stargazer', a new role which looks at risk on a much broader and longer time horizon than ever before. Historically Risk Functions and businesses have been deeply sceptical of people who deliver little substance which can be used today. Often deemed to deliver less output than other risk team members, this role becomes transformed by technology.

The Stargazer

The Stargazer is a role which we see as being increasingly important. They will be deep thinkers with creative minds spending time looking to predict the future. Rather than trying to see the visible road ahead, they will be trying to draw a picture of the map of the whole journey. Linking seamlessly with the strategy function, they will be looking at the current and future megatrends and forecasting the impacts on the business. They will have a limited role in day to day risk management. They should only be distracted by the current course of the road to the extent that it informs the view of the destination.

How are firms going to train these people who don't currently exist?

The future Risk Function will need to create bespoke courses to develop their people. This transformation will not happen without a supporting transformation in the skills and we foresee a greater number of partnerships between Universities and other academic institutions to create these in-depth postgraduate courses to bring together the skills and capabilities required.



Pillar 4 – Culture

As business changes so will culture and the Risk Function will need to be at the forefront to ensure that risk is fully embedded.

Cultural experts and HR professionals might sometimes feel like they are banging their head against the wall, trying to wake the industry up to the importance of culture as fundamental to the success of business strategy, their resilience, their ability to develop; attract and retain talent and importantly to their ability to manage risk. Culture is all too often still a secondary consideration, it is frequently a side-line project, getting the full attention of the Board only on the release of results of clunky annual staff surveys which deliver patchy qualitative insights. Impetus to properly get under the skin of organisation's culture tends to come only sporadically, either when something goes wrong, or spurred by other organisational change projects.

The cultural landscape of 2030

As firms move towards 2030, culture will finally be embraced for what it is – an absolute necessity for being able to guide insurers effectively through the choppy waters of uncertainty, change and disruption ahead. In 2030 culture will be, for those that get it right, their key competitive differentiator. The culture of the future for insurers is one that looks different, one of innovation, agility, collaboration, one that is proactive, forward looking and risk taking. Those that fail to recognise this will be on the way to obsolescence; unable to innovate.

Those that succeed will be able to execute change in the way they need to, able to embrace technology in the way they need to, able to develop, attract and deploy a workforce in the ways they'll need to, able to work with and compete with new entrants to their markets (from start-ups through to tech giants) and able to engender connection of their employees and customers to their societal purpose.

A culture that fails to support innovation is a losing culture. The risk of not innovating is just as high, if not higher, than the risk of innovating. Winners will have Risk Functions that help them manage this risk. These Risk Functions are themselves looking to the future, innovating and embracing the new culture. They will be acting as an enabler and promoter of innovation rather than stifling and retrospectively challenging the decision making environment. They will give individuals the confidence and autonomy they need to innovate whilst giving comfort that risk is being appropriately managed and, importantly, appropriately taken. They will constantly manage the organisation's cultural risk, protect and evolve culture as a key asset, ensuring it remains fit for purpose and is effectively embedded to support the strategy.

The insurance cultural landscape today?

The culture of 2030 doesn't look entirely unfamiliar, but it is unfamiliar to insurers. Whilst there is still no "one right culture", successful insurers of 2030 have embraced elements of the "tech giant" culture of agility, innovation, learning and reinvention and personal ownership. They collaborate seamlessly with InsurTech because their cultures are far more aligned and they are willing to take risks. They embrace technology, they use data to hypothesise, they experiment, they hedge and create new and proprietary solutions. They constantly enquire, they learn and upskill, they aren't afraid of uncertainty or of failure. They effectively use a flexible workforce, new individuals can quickly buy-into the culture and understand how they are expected to act.

Insurance

Integrity	Client Focus	
Excellence	Teamwork	Cultural Gap
Diversity and Respect	People and Quality	

Tech Giant

Collaborative	Innovative	Customer Focus
Agile	Risk-taking	Learning
Ownership	Inquisitive	Excellence

Expected developments in cultural change in insurers

Insurers that will be successful will actively work with and understand the changes in society, the industry and their workforces. They will embrace cultural change and will consistently do four things:

- Use data and technology to assess the external and internal environment to define their strategy, purpose, vision, values and link to their cultural priorities.
- Make the culture real and continuously engage the whole organisation to embed the culture.
- Continuously baseline the culture and measure behaviours.
- Align and personalise the organisational levers which are used to reinforce aspirational behaviours.

What does this all mean for Risk?

The Confidence to Innovate: Risk Management in the Sandbox

The CRO of 2030 recognises the innovation risk – that is the risk of not innovating. The Risk Function, rather than putting a check on innovation, works with it and constantly innovates themselves. Risk is a key enabler of the right culture for success – they give the organisation the confidence to innovate, to take risks and to own decisions. They look forward to identify future risks and build them into key decisions, they help the organisation learn from mistakes and be comfortable with making mistakes.

Risk management is no longer achieved through cumbersome and intrusive risk management processes and long governance timelines – it can't be. The way the Risk Function; can control and support innovation is to be involved early and often and give individuals the confidence to innovate through real-time clarity on the risks and benefits of their individual decisions. The traditional divide between risk teams and the decision makers has disappeared, they collaborate closely with the business and with specialists before any decisions have been made, building in "virtual risk professionals" to systems. Rather than overseeing and challenging individual decisions they oversee and help build the decision making environment. Risk individuals are equipped with the tools and a learning, innovative, reinventing and inquisitive culture reigns in risk.

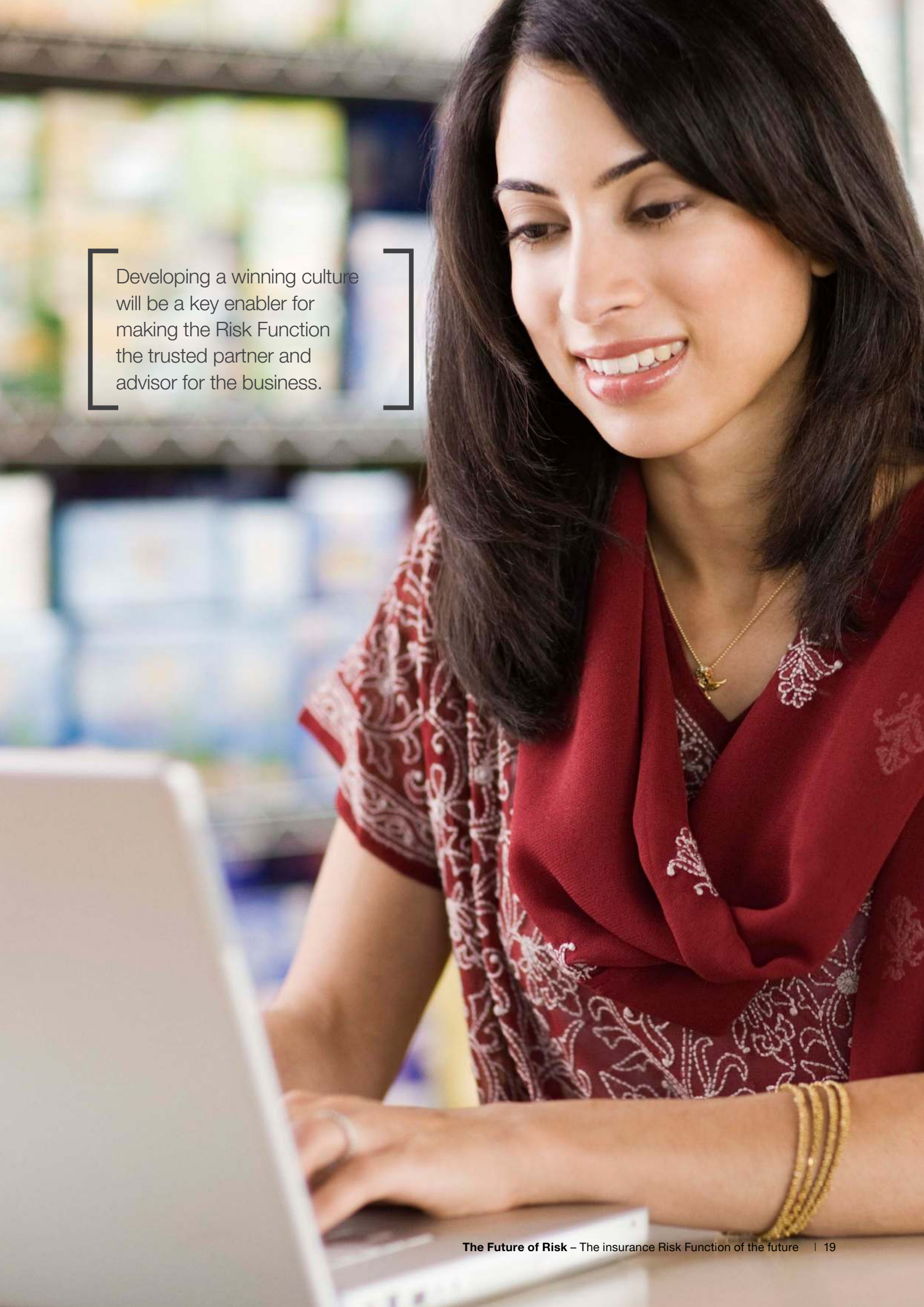
Risk can support innovative hedging strategies, rather than focussing on hedging capital the organisation hedges its bets. Multiple ideas come from the innovation sandbox, enabled by data individuals see which has the greatest chance of success and select several to pursue, with one failing another succeeds and the organisation has hedged its innovation risk.

The agenda of the 2030 CRO: culture rather than capital?


The CRO of 2030 gets comfort through culture. Leadership, regulators and Risk Functions alike recognise that culture is one of the organisation's key assets. A healthy culture has become one of the key metrics through which the condition of the organisation is measured and Risk Functions, executives and regulators alike will monitor and measure cultures in real time. Leadership, regulators and risk have assurance and individuals have autonomy.

Availability of data and advances in technology mean it is easier than ever to not only embed culture into people's habits and routines, but also to understand what these habits and routines are. Risk can get more information than ever, more confidence and control over the way people act and more early warning signs.

The Risk Function will constantly measure and oversee the key external and internal drivers of culture, measure the actual behaviours of individuals and implement and monitor key risk indicators which provide early warning signs of misalignment in culture, strategy or lack of effectiveness of the key cultural reinforcement mechanisms. They use a wealth of data to understand the culture of the organisation – they can be future looking like never before, predicting not just what will happen but how individuals might behave in a specific situation and supporting the first line to update reinforcers and embed mechanisms to mitigate the risk.

A woman with long dark hair, wearing a red sari with white floral patterns and a gold necklace, is smiling while looking at a laptop screen. She is sitting at a desk in what appears to be an office or library, with bookshelves visible in the background. The lighting is soft and natural.

Developing a winning culture will be a key enabler for making the Risk Function the trusted partner and advisor for the business.



The CRO now has a real time dashboard which updates the Risk team on the risk profile in real time.

The road to 2030 for the CRO

As we look forward to the Risk Function of the future, we have set out a hypothetical timeline of some of the critical events that might take place between now and 2030.

2020

The CRO undertakes a five year plan, conducting critical analysis of not only the Risk Function but also the wider business to identify how it will continue to remain relevant in the market in the coming years and reduce cost through efficiency. The CRO focuses on maintaining an even deeper partnership with the first line on the strategic direction.



2021

Reflecting on the technological capabilities already within the team, the CRO rebalances for the next five years. The CRO should identify the analytical tools and MI capabilities needed for the business, particularly around emerging risks, and invest in these. The Risk Function develops and embeds the tools identified by the CRO to enable them to develop a real time dashboard.

2022

The CRO now has a real time dashboard which updates the Risk team on the risk profile near real time.

2025

The CRO has the tools to automatically prevent adverse actions to the business and its policyholders thereby enabling a role for social good. For example, AI can now connect to the fire department to alert them directly of any fires to insured homes.



2024

Future-looking technology is now able to undertake scenario analysis to identify sensitivities within the business plan, and recommend actions to address these.

2026

The CRO announces a partnership with The European Institute of Risk and Technology, a new virtual university to provide bespoke training course for its risk employees globally. A new integrated workforce management tool is deployed increasing capacity for analytical analysis by 20%.

2027

AI can be used to fully automate 1st Line governance activities, leaving the CRO and risk team free to review and challenge risk takers on risk outcomes and help them to identify mitigation strategies.

2023

The CRO gets approval for investment into Augmented Intelligence. The 3 year plan is integrated with overall technology development.

2030

The CRO and risk team continue planning. They also complete the PwC Banana Skins report and provide thought leadership and contributions to all aspects of the business, adding value on strategic decisions.



2029

Wearable technology predicts changes to the risk profile and immediately puts controls in place. For example, smartwatches detect irregular heartbeats and immediately suggests a visit to A&E! Gaining the right data permissions under GDPR will remain key.

2028

The CRO reassesses the risk drivers within the business, recognising that lifestyle improvement and wellness choices have fundamentally changed the risk profile of customers, and that predictive analytics can drive selection and pricing strategies to a high degree of accuracy. On the general insurance side, data is now available to predict the behaviours of different self-driving car systems allowing the business to more effectively price motor insurance.



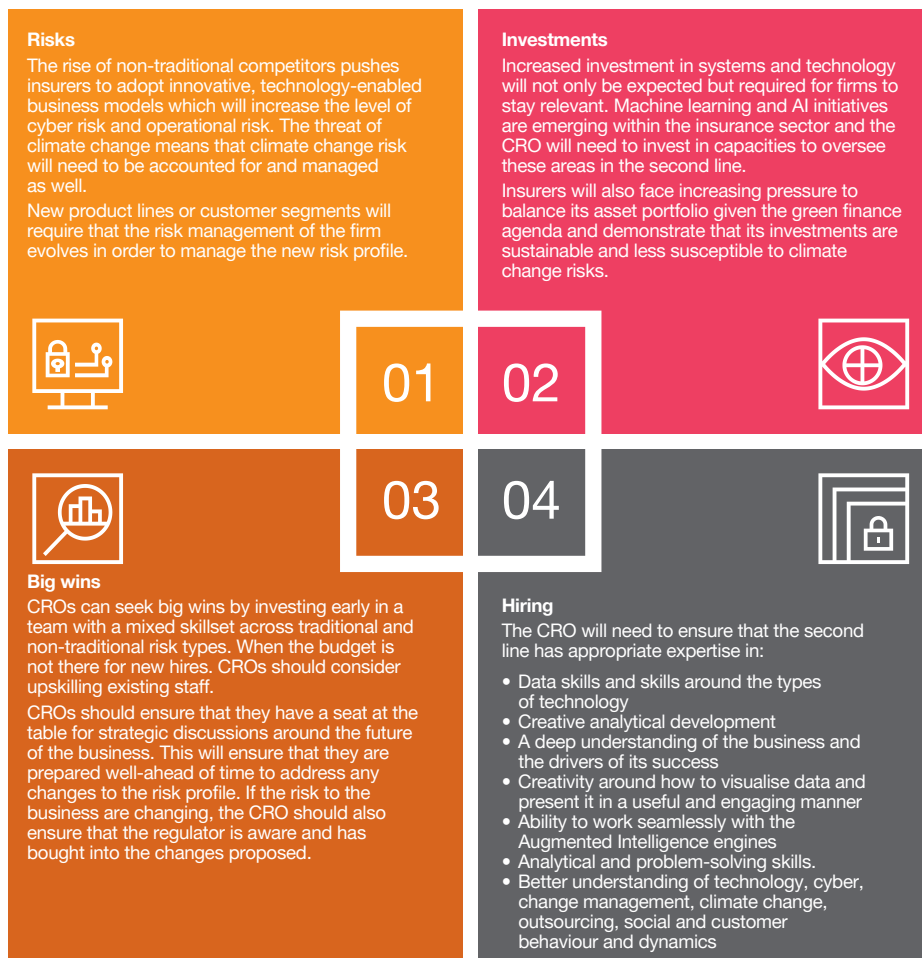
Years 1-5

Insurers will increasingly move to become more like technology businesses which offer finance services products. New, non-traditional players (e.g. Amazon) may enter the market in greater numbers, challenging the traditional approach to risk management in insurance.

As businesses begin to change, the risk management team itself will need to evolve. Technological risks, such as cyber crime and data mis-management have already overtaken more traditional risks as firm's top concerns and may result in very material potential exposures. Other key risk themes in the next five years will include climate change, social impact and sustainability and the implementation of new regulatory standards such as IFRS17 and other potential international regulation. These themes will require the Risk Function to evolve at pace. Strong risk management starts with a progressive strategy – where risk and commercial performance go hand-in-hand. The Risk Function will need to be increasingly central to decision making throughout the business as the risks it considers broaden away from purely financial risks to include

wider strategic themes. The CRO and the risk team should form a deeper partnership with the first line, with both operating at the heart of the business' strategic direction.

The CRO will need to ensure that the firm is investing in the technological capabilities of both the first and second lines – the Risk Function will need tools and software to remain relevant as much as its first line counterparts. These years will be critical and those that identify the importance of a technology-enabled, efficient model and invest early will reap the benefits in the future. The pace of technological change will become increasingly breakneck, giving the CRO access to a host of new tools including a real time dashboard which instantly updates the overview of the risk profile. Forward-looking technology which can predict sensitivities associated with different strategies. By the end of the period, technology should be able to automatically put in place mitigating actions to address crystallised risks and to prevent risks it has predicted.



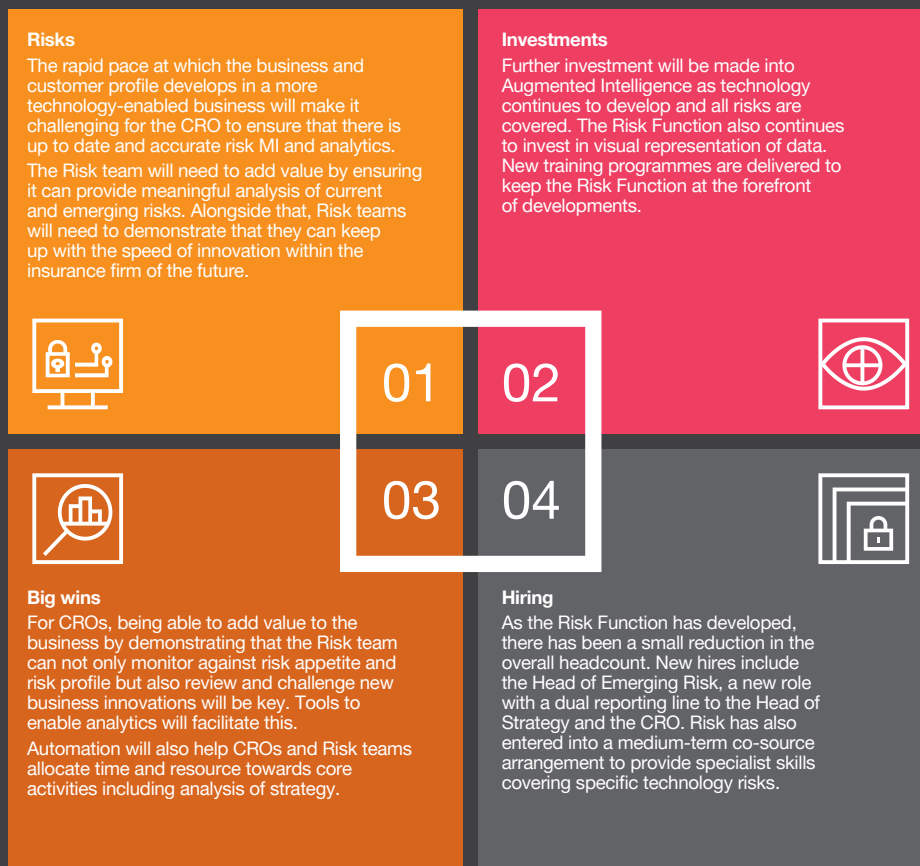
Years 6-11

The CRO and the Risk team no longer spend time reviewing the risk profile, assessing or producing MI – they do not even spend much time on risk governance as technology can now review and challenge first line actions and automatically identify and implement mitigating actions.

Data is more precise than it has ever been, given the popular adoption of wearable technology such as retina eyewear and implants. Self-driving cars, planes and boats will reduce some of the human risk associated with some lines of insurance; however the systems underlying this automation will have its own set of fallacies.

Automation will mean that the headcount within the Risk team will remain stable or fall; however the CRO should ensure that this remaining team has an understanding of the latest developments in regulation / legislation, product innovation, technology evolution and emerging risks. Quantitative analysis will continue to be important but will be easier to replicate through systems. As such, the Risk team should have the skills to critically review and interpret the analysis produced.

The CRO's focus has now shifted towards ensuring that the new risks to the business are appropriately identified and accurately represented by AI. For example, illnesses relating to pollution have now overtaken cancer and dementia as the leading causes of death in the UK, particularly in larger cities. The CRO reviews the quantification of the risks and asks the AI to rerun the numbers to take a more prudent view – there is no exact substitute for human judgement.



Contacts

Andy Moore

Global Insurance Risk and
Regulatory Leader
PwC UK
andy.moore@pwc.com

Bill Gasson

Risk Transformation
PwC UK
bill.gasson@pwc.com

Henry Essert

US Insurance Risk and
Regulatory Leader
PwC USA
henry.essert@pwc.com

James Maxwell

Risk and Controls
PwC UK
james.maxwell@pwc.com

Katie Paton

Risk Culture
PwC UK
catriona.paton@pwc.com

Melinda Strudwick

Risk Analytics
PwC UK
melinda.strudwick@pwc.com

Rich De Haan

Global and US Actuarial Leader
PwC USA
richard.dehaan@pwc.com

Sam Flitman

PwC Asia Risk and Regulatory leader
sam.flitman@id.pwc.com

And with thanks to: Kartina Thomson, Alex Juniper, Rob Brooks, James Brinkley and Craig Skinner.



At PwC, our purpose is to build trust in society and solve important problems. We're a network of firms in 158 countries with more than 250,000 people who are committed to delivering quality in assurance, advisory and tax services. Find out more and tell us what matters to you by visiting us at www.pwc.com.

This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisors.

© 2019 PricewaterhouseCoopers LLP. All rights reserved. PwC refers to the UK member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see www.pwc.com/structure for further details.

Design Services 3144 (08/19).