Global Risk Management Survey

2019

Empower Results®

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Foreword

Every organization, industry and economy around the world is confronting more risks than ever before. Considering this backdrop, it's troubling that many organizations report that they may be less prepared than they have ever been.

A key insight from Aon's 2019 Global Risk Management Survey is that organizations need to be more prepared for the broad range of risks that threaten their ability to continue growing, protecting their brand and serving clients and stakeholders.

Top-of-mind concerns include a slowing economy, damage to reputation and brand and accelerated rates of change in market factors reflecting apprehension about global trade conditions.

In a weakening economic environment, companies are more sensitive to volatility, particularly from emerging risks such as cyber-attacks, business interruption from non-physical threats and shortages of skilled workers. These risks are less well understood as there is less experience and less data available to help manage them. As a result, risk readiness has declined to its lowest level in 12 years.

Aon conducts this survey every other year to identify key risks, trends and challenges organizations are facing. Over the years, we have offered helpful insights to risk managers, C-suite executives and other business leaders in developing effective strategies to address both traditional and emerging risks.

This year's report is informed by the largest number of respondents to ever participate in the survey. Last fall, we received responses from more than 2,600 risk managers from 33 industries, representing small-, medium- and large-sized organizations operating in 60 countries.

Many organizations have yet to capitalize on new tools and approaches that could help them systematically identify and assess risks as they develop protection and mitigation strategies.

- Only 24 percent of respondents said they quantify their top 10 risks.
- Only 20 percent use risk modeling.
- 10 percent said they have no formalized process in place to identify risks.

The complexity of the situation organizations face today is substantial. These challenges are likely to grow in intensity over the next few years as new risks become even more prominent, including the implications of an aging workforce, the impact of climate change, the growing prevalence of cyber-attacks and the emergence of ever more disruptive technologies.

The most effective organizations will approach these challenges holistically, involving leaders throughout the organization to provide their unique viewpoint and expertise and then applying sector-specific data & predictive analytics to support the decisions they make. This is an opportunity for more risk managers to lead an evolution toward truly addressing risk at the enterprise level.

At Aon, we're bringing the full force of our firm to our clients by developing innovative solutions and leveraging data and analytics capabilities to prepare them for the future. We'll continue to partner with our clients, working with them side-by-side to help improve operating performance, strengthen their balance sheet and reduce volatility.

If you have any questions or comments about the survey, or wish to discuss the results, please contact your Aon account executive or visit aon.com/2019GlobalRisk

Greg Case

Best regards,

Greg Case
President and CEO

Executive Summary

Has a gloom descended over the global business community? Since Aon's last Global Risk Management Survey in 2017, investors seem to have had the wind knocked out of them by a series of incidents, each impacting the world economy's ability to manage volatility.

In October for example, stock markets around the world plunged drastically: the S&P 500 in the United States lost USD 1.91 trillion and the losses were spread across all industry sectors;[i] the Hong Kong's Hang Seng tumbled 10 percent; both China's Shanghai Composite and Italy's benchmark lost eight percent; and the MSCI EAFE, an index of stocks in 21 developed markets excluding the United States and Canada, dropped nine percent.[ii]

Commodities are typically seen as leading indicators for global growth as they are used for everything from homebuilding to powering cities. The October 2018 prices for oil, gasoline, copper and platinum plunged down at least 20 percent from their 52-week highs. [iii]

The market turmoil was largely driven by a wave of fears about the possible impact of Brexit, higher U.S. interest rates, slowing growth in Europe, China, Japan, and many emerging markets, the highly charged geopolitical climate, and dimming prospects for further economic expansion in the United States.

Meanwhile, the escalating trade wars between the United States and China, which officially kicked off in July 2018, prompted the International Monetary Fund to cut its economic growth forecast in October. According to IMF economists, growth in the U.S. would slow from 2.9 percent to 2.5 percent in 2019, and China's GDP would drop to 6.2 percent.[iv]

"The impacts of trade policy and uncertainty are becoming evident at the macroeconomic level, while anecdotal evidence accumulates on the resulting harm to companies," the IMF said.

A commentator at Forbes magazine, who covered the IMF report, even opined that "the next recession could happen sooner than we think."[v]

Needless to say, the global equity and commodity ailing market turbulence, and the pessimistic forecasts by IMF and other economists played a role in shaping the perceptions of respondents about the global economy in Aon's 2019 Global Risk Management Survey, which was conducted in the last quarter of 2018.

A web-based biennial research report, Aon's survey has gathered responses from 2,672 risk decision-makers from 33 industry sectors. Participant profiles encompass small, medium and large organizations in 60 countries across the world. About 66 percent represent privately-owned companies and 21 percent public organizations. The rest are primarily government or not-for-profit entities.

The robust representation of the 2019 survey has enabled Aon to provide insight into risk management practices by geography and industry, and has validated the data that are applicable to all industries.

Key Findings

In Aon's 2019 survey, **economic slowdown/slow recovery**, which was first ranked as the number one risk facing organizations at the height of the financial crisis 10 years ago, has once again grabbed the top spot. In fact, given the cyclical nature of the global economy, 14 surveyed industries correctly predicted in the previous survey that economic slowdown would be their highest-ranking risk

Meanwhile, **accelerated rates of change in market factors**, has jumped to number three in the current survey. It shows that the increasing volatility of many interconnected market factors -- erratic trade policy (EU/UK, US/China) and regulatory changes, large-scale geopolitical conflicts, frequent financial market turmoil, and rapid technology advancements -- is causing a seismic shift in demand and supply, and has substantially affected organizations across every region of the globe. Its appearance also illustrates the fast evolving and sometimes unpredictable key risk concerns facing organizations today.

Top 15 risks

As an important part of Aon's survey, respondents have been asked to identify and rank a list of key risks or challenges that their organizations are facing in today's volatile world. In previous years, we sifted through the data and only focused on the top tier for detailed discussion. We have modified our approach this year and have expanded our list to 15 for a wider view in this summary.

Based on the Pareto Principle, 80 percent of the effects arise from 20 percent of the causes. For us, the 20 percent here equates roughly to the top 15 risks. As is evident from the following list, these 15 top risks, which are interlinked, are most concerning for participants in Aon's 2019 Global Risk Management Survey.

Current Top 15 Risks	2019	2017
Economic slowdown / slow recovery	1	2
Damage to reputation / brand	2	1
Accelerated rates of change in market factors	3	38
Business interruption	4	8
Increasing competition	5	3
Cyber attacks / data breach	6	5
Commodity price risk	7	11
Cash flow / liquidity risk	8	12
Failure to innovate / meet customer needs	9	6
Regulatory / legislative changes	10	4
Failure to attract or retain top talent	11	7
Distribution or supply chain failure	12	19
Capital availability / credit risk	13	21
Disruptive technologies	14	20
Political risk / uncertainties	15	9

Top 15 risks vs. Top news headlines

Testing this list at a high level empirically, we looked at some of the major risk related incidents around the world as well as trending topics on social media during a 12-month period before Aon's survey was completed. By checking Aon's top risk items against these viral headlines, we can explore which external factors or events influence participants' risk perceptions and analyze their intrinsic connections.

Here are some of the top news stories of 2018:

- A French dairy giant recalled 12 million boxes of powdered baby milk in 83 countries over a salmonella scandal.
- The Dow plunged almost 1,600 points -- the biggest point decline in history during a trading day.
- The "Beast from the East," along with Storm Emma swept through the United Kingdom, creating severe disruptions.
- The U.S. imposed tariffs on steel and aluminum imports. China retaliated by imposing similar tariffs on 128 products.
- The U.S. Department of Justice charged 601 people, including 165 medical professionals with illegal prescriptions or distribution of opioids.
- Waymo (Google)'s fully self-driving vehicles self-drove 8 million miles on public roads without anyone in the driver's seat.
- The EU approves Theresa May's Brexit bill.
- The U.S. began collecting a 25 percent tariff on 818 imported Chinese products valued at USD 34 billion.
- The first wave of U.S. sanctions against Iran came into force.
- A European Bank CEO resigns over USD 234 billion money laundering scandal.
- Hurricane Florence and Hurricane Michael hit the U.S.
- Indonesia tsunami kills over 2,100.
- The U.S. unemployment rate reached 3.7 percent in September — the lowest level recorded since December 1969.
- A major airline suffered a data breach, affecting 380,000 transactions.
- Criminals hacked into a major hotel group website, stealing the data of 500 million customers.
- U.S. crude oil ended the third quarter down 24.9 percent at USD 45.41 a barrel.
- About 48 MPs submitted letters of no confidence in Theresa May, prompting a vote over her leadership.
- The U.S. federal government shutdown of 2018–2019 over President Trump's border wall funding lasted 35 days, the longest in history.

By comparing the risk list with major incidents, we see a clear picture of their correlations. A slew of bad economic news, such as the Dow's 1,600 point plunge, the drop in the prices of crude oil, and the tit-for-tat Sino-U.S. trade wars created uncertainties about a future **economic slowdown**, heightening organizations' concerns about **cash flow/liquidity risks**. Furthermore, headlines about the fluctuating commodity market, tariffs on steel and aluminum, and the renewed U.S. sanctions against Iran have brought the **commodity price risk** to the forefront. These two risks -- cash flow/ liquidity and commodity prices -- have re-entered the top 10 list for the first time since 2013. In fact, they are now at their second highest ranking since 2007, before the global financial crisis.

Extensive media coverage of corporate scandals, such as the product recall by a French diary giant over salmonella scares, the U.S. Justice Department's action against healthcare professionals who dealt in illegal prescription of opioids, the resignation of a European banking executive over money-laundering schemes as well as a number of massive data breaches, have made survey participants more aware of their organizations' exposure to reputational risk. **Damage to reputation/brand**, which was considered a number one threat in two of Aon's previous surveys, ranks at number two in 2019.

Among the major news headlines of 2018, nearly one fifth of them involved natural disasters and man-made situations that caused severe disruptions to businesses. They included winter storms that struck the United Kingdom, Hurricane Florence and Hurricane Michael that hit the United States, a tsunami in Indonesia, the Yellow Vest protests in France, and the U.S. government shutdown.

The frequencies and severity of these disruptive events have cast light on why **business interruption** has leaped from number eight in 2017 to number four. Geographically, this risk has experienced the highest increase in the Middle East & Africa, moving from number 13 to the number six (wars and geopolitical conflicts). It has maintained its number two ranking in Latin America (political turmoil and natural disasters).

In addition, the risk of **cyber attacks**, another trending social media topic, illustrates the connection between viral news headlines and risk perception. Due to space limitation, we have only picked two cyber-related news items for our list. However, if one types "cyber attacks in 2018" in a Google search, a lengthy list of related news stories will appear, affecting all sectors, from tech giants, international retailers and airlines to hotels, hospitals and government agencies. Survey participants now see cyber attacks/data breach as a number six risk facing their organizations today. In the next three years, it is predicted to rise from number six to number three.

Cyber attacks as a risk first entered Aon's Top 10 list (at number nine) in 2015 and its importance has steadily grown over the past four years. In North America, participants perceive it as a number one risk. A 2018 study by the World Economic Forum reached a similar conclusion. It showed that cyber attacks were considered the number one threat by businesses in the United States and Canada. This is hardly surprising.[vi] According to Symantec, a global software company, the United States was the country most affected by targeted cyber attacks between 2015 and 2017, with 303 known large-scale attacks. [vii]

Lastly, articles about Google's entry to the auto industry through driverless cars, the bubbles of the cryptocurrency market in the financial services sector and Facebook's attempt to use blockchain technology to kill fake news in the media sector piqued people's interest in **disruptive technologies**, which will be discussed in the next section.

New entries to the Top 15 List

Overall, about one third of the risks on the Top 15 List are new or re-entries to the top tier. Such significant shuffling reflects the rapid changes in the macro environment in which organizations operate today.

As we have mentioned, Aon's survey took place at a time when the world was reeling from perceived crises. Two of the world's oldest democracies were struck with national emergencies -- the month-long government shutdown in the United States, and the chaos surrounding Brexit in the United Kingdom. Meanwhile, the global equity and commodity market saw extreme volatilities because of the simmering trade tensions between the world's two largest economies, rising interest rates, and persistent geopolitical conflicts.

While the financial market slowed down, development across the entire information technology landscape roared ahead. In 2018, organizations have witnessed advancements in robotic farming technology, digital manufacturing, blockchain application, massive adoption of AI technology and of course the promulgation of new digital regulations.

The combined effects of these broad political, economic and technological changes can be summarized in what Aon terms as **"accelerated rates of change in market factors."** In Aon's 2017 survey, this risk was ranked at 38 and predicted to be at 32 in three years. However, it now emerges as a number three risk, experiencing the highest ever increase in importance.

In connection with accelerated rates of change in market factors, **commodity price** as well as **cash flow/liquidity risks** have also come to the fore, achieving their second highest ranking since 2007. In fact, they have re-entered the Top 10 for the first time since 2013. Meanwhile, **capital availability/credit risk**, another related risk, has climbed to number 14, from number 21 in 2017.

Another new entrant that deserves our attention is **disruptive technologies**. First added as new risk category in the 2017 survey, disruptive technologies has now moved from number 20 to number 14. In recent years, the wider use of disruptive innovation has dramatically transformed business thinking. As more and more organizations are adopting the Internet of Things and AI-driven tools like machine learning and automated processes to improve operational efficiency and manage their supply chains, the concept of Industry 4.0 is turning into a reality.

Supply chain failure, which has moved from number 19 in 2017 to number 12, is also worth discussing. Participants in North America rate it at number eight while Latin American participants put it at number 10. The sharp rise in rankings for supply chain failure is indicative of the **interconnectedness of the top risks**.

Economic slowdown/slow recovery and accelerated rates of changes in market factors are forcing businesses to adjust their supply chains rapidly so they can cope with both market uncertainty and competitive pressures. Technology and digitization have improved the efficiency of supply chain management, linking businesses through networks, improving processes, accessing new suppliers and enabling companies to digitally store essential data. However, interconnectivity and interdependency have also made supply chains vulnerable to cyber attacks and broader disruption.

Finally, as supply chains are becoming increasingly global, they are heavily affected by geopolitical uncertainties. The focus on inventory reduction and lean supply chains has amplified the potential for failure. For example, in Asia, which represents more than one third of the global contract logistics market (supply chains), natural and man-made catastrophes pose challenges for insurers because the lack of easy access and intense competition for resources often affect the speed of recovery.

Risk rising in importance outside the top 15

An aging workforce is becoming a growing concern across industries and geographies. In Aon's 2019 survey, participants rank aging workforce and health related issues at number 20, from number 37 in 2017. It is predicted to rise to number 13 by 2022. In addition, 13 out of 33 industries consider an aging workforce to be a Top 10 risk in 2022, while those representing government agencies see it as the number one risk.

This is hardly surprising. According to the United Nations, the global population aged 60 years or over numbered 962 million in 2017. The number is expected to double again by 2050, to nearly 2.1 billion. The process of population aging is more pronounced in Europe and in North America, where more than one person in five was aged 60 or over in 2017. Other regions are catching up as well.[viii]

The demographics of the workforce have also shifted significantly over the last decade. Many regions have registered the highest workforce median ages. For example, the Bureau of Labor Statistics in the United States estimates that by 2024, 25 percent of the U.S. workforce will be comprised of workers over the age of 55, and a third of those workers will be older than 65.[ix]

An aging population, along with low unemployment rates, aggravates talent shortages. A 2018 report on LinkedIn claims that nearly 60 percent of U.S. employers are struggling to fill job vacancies within 12 weeks. Globally, **workforce shortage** could reach 85.2 million people by 2030, which would explain why the risk has risen from rank 30 in 2017 to rank 17 in the 2019 survey. Industries like financial services, technology, telecommunications, and manufacturing will be some of the hardest hit.[x]

Apart from workforce shortages, an aging workforce poses challenges for organizations in balancing pension, health, and other benefits costs. Aon's own data analysis of more than USD 3 billion of incurred losses indicate that U.S. workers over 45 are reporting 52 percent higher average casualty claims costs and 40 percent more cases of litigation.

Overall, an aging population coupled with workforce shortages not only changes the social and economic trajectory of a country, but also creates volatility within an organization. If left unmanaged, it can dramatically increase a company's Total Cost of Risk, impeding operations and create financial constraints.

Underrated risks within the top 15

For the first time since the beginning of Aon's survey in 2007, **failure to attract and retain top talent**, a regular item on the Top 10 list, has slipped to number 11. Despite its drop in ranking, Aon believes that attracting and retaining top talent should continue to be an important concern for organizations to manage. In today's volatile and complex business environment, having the right talent proves to be more crucial than ever.

For example, when embracing new and disruptive technologies and business models, organizations require "digital-ready" talents, which are often scarce internally and highly competitive to obtain externally. Thus, for numerous Aon's survey respondents, many of which represent small and mid-sized companies, there is a disadvantage in competing with both large enterprises that offer top salaries and benefits or new start-ups with lucrative stock options and the chance to work on cutting-edge projects. As a consequence, a company that cannot change or fails to transform its workforce quickly runs the risk of being sidestepped or outmaneuvered.

Additionally, we believe that **regulatory/ legislative changes** has also been underrated in the current survey. From 2007 to 2017, regulatory/legislative changes consistently occupied a high perch on the Top 10 list. It has fallen, somewhat precipitously, to the bottom.

The drop in ranking is likely driven by the recent deregulation efforts of pro-business politicians in many parts of the world. For example, in February 2017, U.S. President Donald Trump signed Executive Order 13771, which essentially mandated that "total incremental costs of all [new] regulations should be no greater than zero". One year later, the U.S. government claimed to have removed 57 old regulations.[xi]

Despite these global deregulatory campaigns, the compliance landscape is still clouded with uncertainty because of political turbulence and pending elections in many parts of the world. In addition, new regulations are proliferating rapidly in the area of emerging technologies. For example, in the United States and Europe, cybersecurity laws, rules, standards and guidelines are being proposed and enforced in federal agencies, local legislatures and the business world. Complex and overlapping cyber regulations run the danger of actually creating more cyber risks.

Therefore, regardless of how the regulatory landscape evolves, companies should recognize that regulation is no longer a secondary concern, but a primary consideration in their business strategies.

Another underrated category involves **political risk/uncertainties**. In 2017, respondents predicted political risk/uncertainties to be at number eight in three years, but at present, it ranks at number 15. This relatively low ranking does not prove that political risk/uncertainties has become less important. It's simply because organizations feel that other risks are more urgent and have direct impact on their operations.

Generally speaking, businesses tend to view political risk/uncertainties as being proximate causes or the outcomes of economic slowdowns, accelerated rates of change in market factors and regulatory/ legislative changes, all of which are more likely to be held with a higher regard and importance. Unless a major political event hits their region, causing direct damage to their businesses, most respondents probably do not see them as an immediate threat.

Despite its perceived neglect, we believe that political risk/uncertainties will continue to climb in importance. After all, available market capacity for credit and political risk insurance has increased across the board, and insurers are creating innovative solutions to respond to the rising demand.

Underrated risks outside the top 15

Outside the top 15 list, we see the **loss of intellectual property/data** as an underrated risk, which has surprisingly slid to number 34. Between 2011 and 2017, this risk hovered in the 20s.

Intellectual property rights or IP rights cover four main areas: trademarks, rights, copyrights, rights patents and trade secrets. In the United States, the Commission on the Theft of American Intellectual Property estimates the annual costs from the loss of intellectual property ranges from USD 225 billion to USD 600 billion.[xii]

The IP issue has garnered a lot of attention during the raging U.S. and China trade wars, highlighting some of the challenges facing global IP-intensive industries. As China is taking off as an economic power, Beijing has been dogged by accusations that it forces Western firms to transfer technology to their Chinese business partners in return for access to the country's market. In a recent survey by the American Chamber of Commerce in China, more than half of its members reported that leakage of intellectual property was a larger concern when doing business in China than elsewhere.[xiii]

In addition to China, cyber attacks constitute a major source of IP losses. The increased connectivity and greater mobility of intellectual property have made organizations more vulnerable to hackers.

With such extensive media coverage about intellectual property litigations and cyber attacks, why is it that loss of IP is still ranked so low?

There are three possible explanations. First, IP is often overlooked because many small and medium-sized companies believe that it falls mostly within the purview of technology firms or multinational corporations.

Secondly, the value of intangible assets is still not fully understood across organizations, despite the fact that the number of cases and the amount of losses relating to intangible assets are growing and IP is the largest component, which now stands at USD 19.82 trillion in value (S&P market cap as of March 31st, 2018).

The third point we would cite is that to date, loss of IP, albeit an evolving risk, has not traditionally fallen within the domain of risk management personnel. We believe this is something that is fast changing but may account for the relative ranking given the profile of survey participants.

Also an underrated risk in Aon's survey is **climate change**, which was ranked at number 45 in 2017 but has climbed to 31. For the agriculture sector, which relies heavily on fair weather conditions, climate change is projected to be a top risk (at number three) in three years' time.

This data shows that participants around the globe are gradually beginning to grasp the reality of climate change. Aon's findings are validated by a University of Chicago and Associated Press poll in November 2018, in which 71 percent of surveyed Americans said climate change has become a serious problem. Historically, the United States had the lowest degree of concern, even though it is the world's second largest emitter of CO_2. In the AP survey, nearly half of respondents said the science on climate change is more convincing than five years ago.[xiv]

The changing perception is obviously driven by an increasing media focus and the frequency of extreme weather conditions in recent years.

According to a report released by the Media and Climate Observatory at the University of Colorado, global media coverage of climate change-related topics reached its highest level in October 2018, when the UN's Intergovernmental Panel on Climate Change released a report, detailing the impact of global warming of 1.5 °C above pre-industrial levels. This grabbed international headlines.[xv]

Meanwhile, a rising number of natural disasters and extreme weather events has helped accelerate the public's acceptance of the reality of climate change. In its 2018 annual report, Aon's Impact Forecasting team documented 394 natural catastrophes. Of those, 42 were USD billion-dollar events. As a result, 2017 and 2018 became the costliest back-to-back years on record for both economic losses (USD 653 billion) solely due to weather-related events, and for insured losses across all perils (USD 237 billion).[xvi]

As climate change intensifies, the economic impact increases accordingly. Aon says total economic losses from hurricanes in 2017 were nearly five times the average of the preceding 16 years while losses from other severe storms registered 60 percent higher.

Therefore, it is important for risk managers to gain a better understanding of the impact of climate change and the dynamics of extreme weather events. In this way, they can anticipate and effectively manage their exposures.

Strategic insights

Aon's 2019 survey has attracted the largest number of participants since inception, but the **participants' risk readiness** has reached the lowest level in 12 years. With volatile global economic conditions and fast changes in today's digital and sharing economy, these top risks, many of which are either non-insurable or only partially insurable, are becoming increasingly unpredictable to prepare for and mitigate.

Among the risks less-prepared for, managing failure to innovate/meet customer needs has presented the most challenges. Its risk readiness has fallen by 11 percent between 2017 and 2019. At a time when technologies and new business models are transforming not only how new products are being created, but also how they are consumed, it is hard to keep pace with the changes, and even more so to manage the risk of getting it wrong.

In addition to organizations' low level of risk readiness, **risk quantification**, the least cited mitigation action, has emerged as another of our concerns. Only 24 percent of respondents say they quantified their top 10 risks. This could be attributed to the fact that more of the top risks are non-insurable and hard to quantify. However, as more organizations have tightened their risk management budgets in response to changing market factors, quantification is an effective way to prioritize risks, and decide what corrective actions to take.

In a related item, we have also observed that organizations are **failing in fully leveraging available data and analytics** when identifying emerging risk issues, assessing the likelihood and severity of events and determining insurance limits and deductibles. Globally, only 20 percent of respondents state that they utilize risk modelling, and 21 percent use scenario analysis. Without employing available data and analytics, organizations leave themselves open to misunderstanding exposures, underestimating volatility, as well as underinsuring or miscalculating limits, all of which could lead to losses at the expense of other business-enabling activities.

A worrisome trend in the 2019 survey is risk identification. About 10 percent of the surveyed organizations declared they have **no formalized process in place to identify risks**. While possibly understandable for smaller organizations, or for companies in emerging markets, our research indicates it is a challenge for other entities, too. About 12 percent of European and 10 percent of North American companies have no formal process for risk identification and a small percentage of companies with turnover of more than USD 10 billion indicated they manage risk without a formal process.

Considering that the top risks in this year's survey are less insurable than ever before, companies without a formal risk management process run the risk of not being up to speed on their changing risk profile and emerging risks.

The survey also highlights the growing concern corporations have regarding their portfolio of **people related risks**. In Aon's survey, nine industry sectors rate **failure to attract/retain top talent** as a top 10 risk. In fact, participants representing education and professional services sectors list it as a number three risk because they are in dire need of people with advanced degrees, special training and advanced skill sets.

In the manufacturing or service sectors (consumer goods manufacturing, health care, lumber, furniture, paper & packaging, metal milling & manufacturing, restaurant, rubber, plastics, stone & cement, non-aviation transportation services), **workforce shortage** has emerged as a key risk.

According to Linkedin, the global manufacturing industry is expected to experience a deficit of more than two million workers by 2020—and by 2030, that shortage could reach more than 7.9 million people. The resulting loss in revenue may be as high as USD 607.1 billion. This explains why in 2022, workplace shortage is projected to climb up more on the key risk list for these manufacturing and service sectors.[xvii]

On a related topic, an **aging workforce and health related issues** are also key risks for the manufacturing, service and government sectors. As mentioned in the previous section, declining birth rates, increasing average life expectancies and low unemployment rates have led to greater pressure on the working-age population. One way to help reduce this pressure would be to encourage workers to delay retirement and remain in the labor market longer if they are able and willing to do so.

Looking forward to key risks in 2022, 13 out of 33 industry sectors, most of which are related to manufacturing, service and government, project aging workforce to be a top 10 risk.

Over the years, we have pointed out that **differences in participant role priorities** have impacted risk ranking and potentially risk management strategies. These are even more pronounced in the current study.

CEOs, CFOs or Treasurers tend to rank highly those risks with concrete financial implications -- economic slowdown/slow recovery, failure to attract and retain top talent and the related workforce shortage. Risk managers have attached increased importance to more traditional (often insurable risks) such as business interruption, supply chain failure, as well as emerging risks, such as damage to reputation and brand, loss of intellectual property and indeed the much analyzed cyber exposures. There is no right or wrong approach here, but what we feel this emphasizes is that risk and associated volatility is a challenge distributed across the entire enterprise, and that taking a similar enterprise-wide approach to the management of risk will deliver increasing value in today's fast changing environment. This is also borne out by the feedback from risk management participants in organizations that are becoming multi-disciplinary. We saw an eight percent uplift in the number of respondents who say that their organizations engage in **cross-functional collaboration in risk management**.

Regional insights

From a regional perspective, there is some consistency, too, as four risks in Aon's top 10 list are cited across all geographies – economic slowdown/slow recovery, accelerated rates of change in market factors, increasing competition, and business interruption.

While cyber risk is considered a number one threat by organizations in North America, it has not made to the top 10 list in Latin America, where public awareness remains relatively low. For the first time since the beginning of this survey, we see cyber attacks/data breach to be predicted in the top 10 for Latin America by 2022.

Respondents in North America and Asia Pacific continue to see failure to attract and retain top talent as a top threat, at number six and number 10 respectively. North America has gathered talents from around the world because of its stable, innovative, and meritocratic business environment. However, with its current low unemployment rate and tightening immigration policies, the talent pool is shrinking. In Asia, where global multinationals and fast-growing regional companies are competing for experienced leaders and top new graduates, talent shortage is even more acute.

For participants in the Middle East and Africa, there are three risks that are unique to their region: exchange rate fluctuation, political risk/uncertainties and interest rate fluctuations. While political risk/uncertainties are driven by wars and political turmoil, fluctuations in U.S. dollars and the rising interest rate in the United States may crimp growth and increase borrowing cost in countries where local currencies are pegged to the U.S. dollar, and crude oil is also traded in U.S. dollars.

Projected risks for 2022

Each year we offer respondents the chance to assess their future risk landscape and project the top 5 risks that their organizations will face in three years' time.

Top 10 in 2019	Top 10 for 2022	Movement
Economic slowdown / slow recovery	Economic slowdown/slow recovery	↔
Damage to reputation / brand	Accelerated rates of change in market factors	↑
Accelerated rates of change in market factors	Cyber attacks / data breach	↑
Business interruption	Commodity price risk	↑
Increasing competition	Failure to innovate /meet customer needs	↑
Cyber attacks / data breach	Increasing competition	↓
Commodity price risk	Business interruption	↓
Cash flow / liquidity risk	Failure to attract or retain top talent	↑
Failure to innovate / meet customer needs	Cash flow / liquidity risk	↓
Regulatory / legislative changes	Damage to reputation / brand	↓

Economic slowdown/slow recovery will continue to stand at number one while accelerated rates of change in market factors rises to number two. Commodity price risk, which is ranked at number six, will be elevated to the number three spot.

The high rankings of these three interconnected risks reflect continued volatile macroeconomic and geopolitical conditions. At the time of writing, the National Association for Business Economics in the United States had just released its latest survey of member economists. Roughly half of the participants believe that the U.S. economy, which is leading the world in growth, will slip into recession by the end of 2020, and three-fourths envision such a downturn beginning by the end of 2021. In addition, more than 90 percent of surveyed economists said trade wars and increased tariffs will slow economic growth. When it comes to government policies and new legislative actions on taxes and deficit spending, the economists were divided, like the rest of the American public. With these uncertainties looming large, the projections for 2022 seem reasonable and justified.[xviii]

For 2022, there is one drop that might be considered surprising. Damage to reputation/brand, which has consistently held its high rankings in past surveys, is predicted to fall to number 10. We assume that at the time of entry, organizations may have been more concerned about risks that could directly threaten their bottom line during hard economic times, than less tangible exposures, which are harder to quantify. Our view at Aon remains that this exposure is underestimated and organizations need to proactively explore ways to sufficiently quantify and assess existing and potential reputational risks and decide on best solutions to avoid or mitigate them.

An evolving risk landscape

Findings from Aon's 2019 survey have offered strong evidence that the ongoing dynamic macro-economic environment will continue to impact business models and key risk concerns for organizations. Our research has emphasized that risk management needs to continue to evolve at the same pace as an enterprise-wide, rather than siloed, approach and function.

In parallel, risk managers of tomorrow should continue to redefine and expand their roles to ensure risk is identified, assessed and managed in an integrated way across the organization. It goes without saying that insurance markets also need to respond accordingly with products and services that meet the needs of their customers' changing risk landscape.

We live in an era of unprecedented speed of change where the past is no longer a reliable source to predict the future. To manage today's risks and anticipate tomorrow's challenges, organizations need to harness the power of data and analytics. Those who embrace what's available to create meaningful and actionable insights will be one step ahead.

At Aon, we believe that the growing availability of segment and industry sector-specific risk insights, derived from the increased use of data and analytics, are key for risk advisors, brokers and insurance executives to meet and anticipate current and future customer needs, and to develop innovative solutions that help manage volatility, reduce risk, and realize opportunity.

Global Risk Management Survey risk ranking

partially insurable | uninsurable | insurable

1	Economic slowdown/ slow recovery	uninsurable
2	Damage to reputation/brand	partially insurable
3	Accelerated rates of change in market factors	uninsurable
4	Business interruption	insurable
5	Increasing competition	uninsurable
6	Cyber attacks/ data breach	partially insurable
7	Commodity price risk	uninsurable
8	Cash flow/ liquidity risk	partially insurable
9	Failure to innovate/ meet customer needs	uninsurable
10	Regulatory/ legislative changes	partially insurable
11	Failure to attract or retain top talent	uninsurable
12	Distribution or supply chain failure	partially insurable
13	Capital availability/ credit risk	partially insurable
14	Disruptive technologies/ innovation	uninsurable
15	Political risk/ uncertainties	partially insurable
16	Exchange rate fluctuation	uninsurable
17	Concentration risk (product, people, geography)	uninsurable
18	Workforce shortage	uninsurable
19	Counter-party credit risk	insurable
20	Aging workforce and related health issues	partially insurable
21	Property damage	insurable
22	Environmental risk	insurable
23	Weather/ natural disasters	insurable
24	Third party liability (incl. E&O)	insurable
25	Technology failure/ system failure	partially insurable
26	Major project failure	uninsurable
27	Failure of disaster recovery plan/ business continuity plan	partially insurable
28	Injury to workers	insurable
29	Failure to implement or communicate strategy	uninsurable
30	Asset value volatility	uninsurable
31	Climate change	partially insurable
32	Absenteeism	uninsurable
33	Merger/ acquisition/ restructuring	partially insurable
34	Loss of intellectual property/data	partially insurable
35	Interest rate fluctuation	uninsurable
36	Geopolitical volatility*	partially insurable
37	Growing burden and consequences of governance/ compliance	uninsurable
38	Globalization/ emerging markets	uninsurable
39	Corporate social responsibility/ sustainability	uninsurable
40	Product recall	insurable
41	Impact of digital economy*	partially insurable
42	Impact of Brexit*	uninsurable
43	Lack of technology infrastructure to support business needs	uninsurable
44	Directors & Officers personal liability	insurable
45	Inadequate succession planning	uninsurable
46	Natural resource scarcity/availability of raw materials	uninsurable
47	Fraud	insurable
48	GDPR requirements*	partially insurable
49	Rising healthcare cost*	partially insurable
50	Unethical behaviour	partially insurable
51	Outsourcing	uninsurable
52	Theft	insurable
53	Resource allocation	uninsurable
54	Workforce generation gaps*	uninsurable
55	Terrorism/sabotage	insurable
56	Safety & Pharmacovigilance*	insurable
57	Share price volatility	uninsurable
58	Embezzlement	insurable
59	Impact of Artificial Intelligence (AI)*	partially insurable
60	Pandemic risk/ health crises	partially insurable
61	Harassment/ discrimination	insurable
62	Sovereign debt	uninsurable
63	Pension scheme funding	uninsurable
64	Gender pay gap*	uninsurable
65	Impact of Blockchain tech*	uninsurable
66	Kidnap & ransom	insurable
67	Extortion	insurable
68	Off Label Promotion*	uninsurable
69	Impact of cryptocurrencies*	uninsurable

**Denotes new risks added to the Global Risk Management Survey for the first time.*

Respondent Profile

Respondent Profile

Aon's 2019 Global Risk Management Survey, a biennial web-based research report, was conducted in Q4, 2018 in eight languages. The research, which has gathered the responses of 2,672 risk decision-makers from 33 industry sectors, encompasses small, medium and large companies in 60 countries around the world.

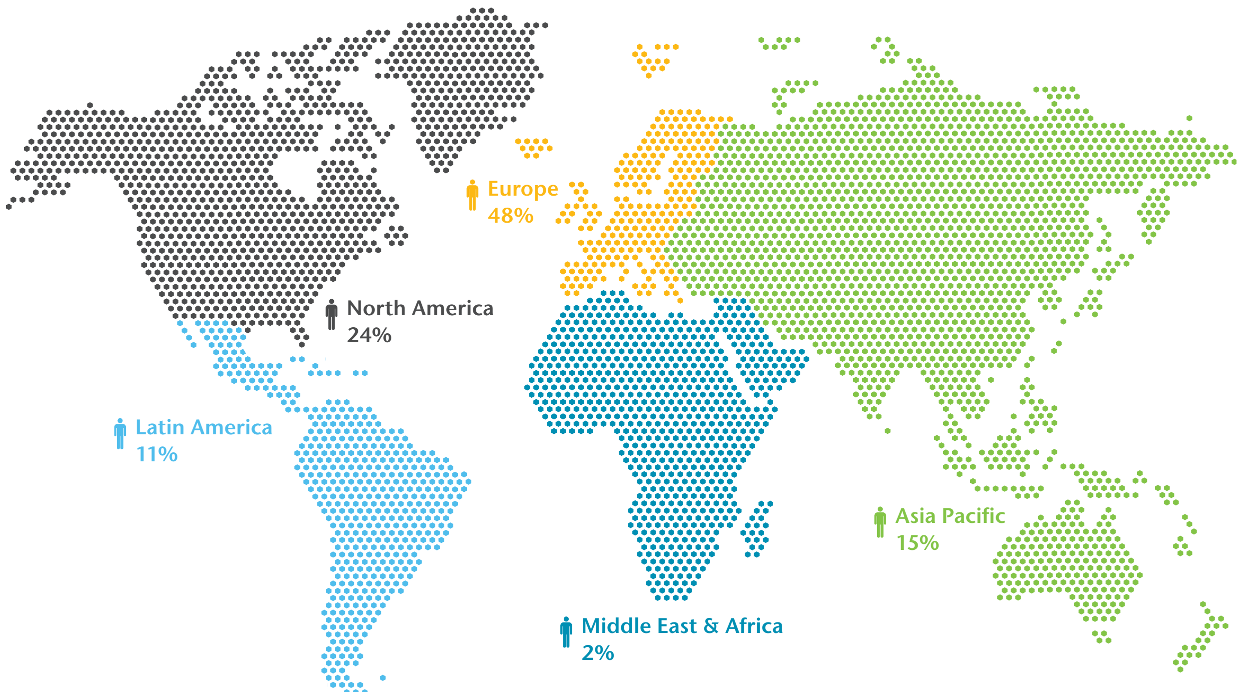
About 66 percent of the surveyed organizations are privately-owned while 21 percent are public organizations. The rest are primarily government or not-for-profit entities.

The robust representation of the 2019 survey has enabled Aon to provide insight into risk management practices by geography and industry, and has validated the data that illustrate risks common to all industries.

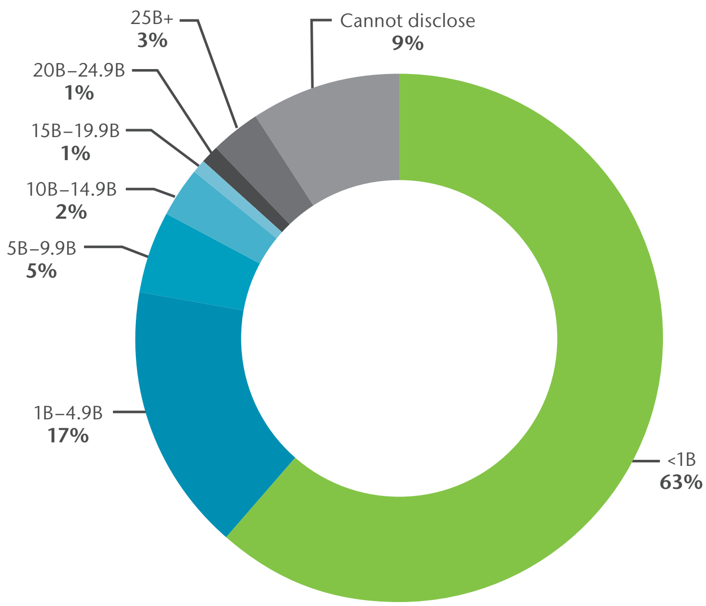
Survey respondents by industry

Industry	Percent	Industry	Percent
Agribusiness	2%	Machinery & equipment manufacturers	4%
Aviation	2%	Metal milling & manufacturing	3%
Banking	3%	Pharmaceuticals & biotechnology (life sciences)	2%
Beverages	1%	Power/utilities	4%
Chemicals	3%	Printing & publishing	1%
Conglomerate	2%	Professional & personal services	5%
Construction	7%	Real estate	4%
Consumer goods manufacturing	5%	Restaurant	1%
Education	4%	Retail trade	4%
Energy (oil, gas, mining, etc.)	6%	Rubber, plastics, stone & cement	1%
Food processing & distribution	4%	Technology	4%
Government	3%	Telecommunications & broadcasting	1%
Health care	4%	Textiles	1%
Hotels & hospitality	1%	Transportation manufacturing (non-aviation)	2%
Insurance	2%	Transportation services (non-aviation)	4%
Investment & finance	3%	Wholesale trade	5%
Lumber, furniture, paper & packaging	2%		

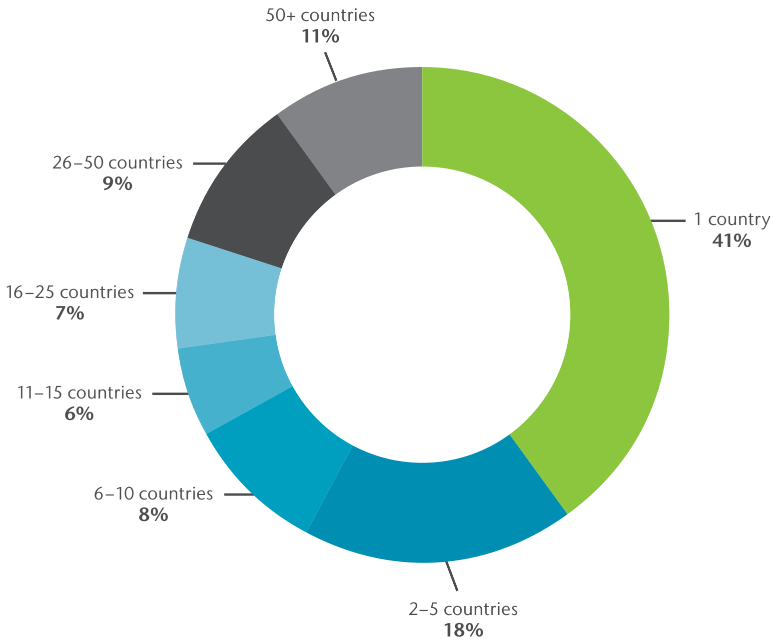
Survey respondents by region



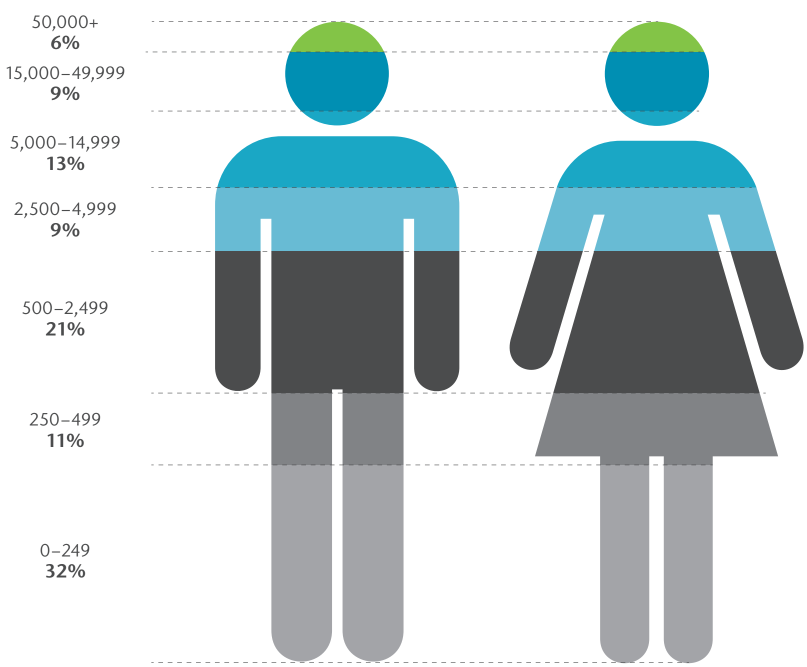
Survey respondents by revenue (in USD)



Survey respondents by number of countries in which they operate



Survey respondents by number of employees



Survey respondents by role

Role	Percent
Chief administration officer	1%
Chief counsel/head of legal	2%
Chief executive	2%
Chief financial officer	10%
Chief information officer	0%
Chief operations officer	1%
Chief risk officer	2%
Chief technology officer	0%
Company secretary	1%
Finance manager	11%
General business manager	16%
Head of human resources	1%
Managing director/partner	2%
Member of the board of directors	1%
President	1%
Risk consultant	2%
Risk manager or insurance manager	21%
Treasurer	2%
Other	25%

Top 10 Risks

1. Economic slowdown/slow recovery
2. Damage to reputation/brand
3. Accelerated rates of change in market factors
4. Business interruption
5. Increasing competition
6. Cyber attacks/data breach
7. Commodity price risk
8. Cash flow/liquidity risk
9. Failure to innovate/meet customer needs
10. Regulatory/legislative changes

1

Economic slow down/ slow recovery

Rankings in previous surveys

2019	1
2017	2
2015	2
2013	1
2011	1
2009	1
2007	8

Ranked number 1 for the following industries:

Conglomerate

Construction

Hotels and Hospitality

Machinery & Equipment Manufacturers

Real Estate

Rubber, Plastics, Stone & Cement

Textiles

Transportation Manufacturing (Non-Aviation)

Transportation Services (Non-Aviation)

Wholesale Trade

When more than 3,000 political, business and civic leaders from the world over congregated in the Swiss Alpine town of Davos for the World Economic Forum's annual meeting in January 2019, they were greeted by a slew of bad news, which cast a dark cloud over the otherwise upbeat gathering.

On the first day, Christine Lagarde, managing director at the International Monetary Fund kicked off the discussions with a dire forecast about the global economy. "After two years of solid expansion, the world economy is growing more slowly than expected and risks are rising," Lagarde was quoted as saying.[xix]

For 2019, the IMF has cut its estimates for global growth to 3.5 percent, from the 3.7 percent it predicted in October 2018. For 2020, the estimate was trimmed to 3.6 percent. Lagarde warned that the long-running trade war between the US-China, uncertainty over Britain's exit from the European Union, and other potential geopolitical conflicts in Asia, the Middle East and Latin America are threatening to drag down global growth even further.

The IMF was not alone in downgrading its forecast. The World Bank has also lowered its predictions.

Appropriately subtitled "Darkening Skies," the World Bank echoed similar sentiments in its latest report: Global economic growth is projected to soften from a revised three percent in 2018 to 2.9 percent in 2019.

The concerns and uncertainties voiced at Davos about the prospect of an economic downturn also hover in the minds of participants in Aon's 2019 Global Risk Management Survey, where economic slowdown/slow recovery is listed as a number one risk facing global organizations today. It was perceived as a number one risk in the immediate aftermath of the 2009 financial crisis, but slipped to number two in the 2015 and 2017 surveys.

At the time of writing, the National Association for Business Economics in the United States has just released its latest survey of member economists. Roughly half of the participants believe that the U.S. economy, which is leading the world in growth, will slip into recession by the end of 2020, and three-fourths envision such a downturn beginning by the end of 2021.[xxii]

A sector breakdown shows that conglomerates consider economic slowdown/slow recovery as a top risk because they are more likely to be affected by on-going trade wars and geopolitical risks. Since businesses reduce or hold back on capital spending during an economic slowdown, respondents in the related construction, rubber, plastics, stone and cement, machinery and equipment manufacturing sectors also rank economic slowdown/recovery as a number one risk.

In the real estate industry, the United States has enjoyed one of the largest expansions since 2008 when the housing bust there brought the global economy to its knees. But with each passing year, people start to question if a cyclical slowdown might take place. These questions are becoming more urgent in 2019 when high interest rates and job loss, as a result of trade wars and export tariffs could negatively impact demand for housing.[xxii]

Rankings in the regions	
Asia Pacific	4
Europe	2
Latin America	1
Middle East & Africa	1
North America	3

Geographically, companies in the Middle East and Latin America see economic slowdown as a top threat. Capital Economics, a London-based research firm, points out that falling oil output, together with restrained government spending, could blight some key economies in the Middle East and North Africa over the coming year, with Saudi Arabia, Kuwait and Oman expected to be particularly hard hit. Political instability and armed conflicts are also contributing factors.[xxiv]

Latin America has just experienced its fifth consecutive year of anemic economic growth -- at an average rate of just 0.5 percent. The region's larger economies have been struggling: Venezuela's economy suffered the sharpest collapse, which has led to a revolt against President Nicolas Maduro. Argentina faced a currency crisis and double-digit inflation in 2018. Meanwhile, Brazil was hit with a recession, while Chile and Colombia struggled with slow economic growth.[xxv]

Companies in Europe rank the risk at number two. Despite continued uncertainties over Brexit, the European economy is expected to grow for the seventh year at a moderate pace in 2019, with expansion forecast in every member state.

Since the United States continues to outperform other advanced economies in terms of the absolute pace of expansion, it is not surprising that many organizations have shrugged off the looming prospect of a drastic slowdown over the next two years and rank the risk at number three.

While we are beginning to see the seeds of a much more significant slowdown in 2019 and 2020, Bernard Baumohl, chief global economist for The Economic Outlook Group, said it would be wise for companies to start preparing now. They should "undergo rigorous stress tests" and "come up with adverse hypothetical scenarios" to gauge their preparedness for an economic downturn.[xxvi]

"It's important to renew focus on improving efficiencies, and on how to operate and improve productivity," Baumohl said. "You should at least have a plan well prepared to put into motion to help mitigate the risks from a sharp downturn or major geopolitical eruption."

2

Damage to reputation/brand

Rankings in previous surveys

2019	2
2017	1
2015	1
2013	4
2011	4
2009	6
2007	1

Ranked number 1 for the following industries:

Education

Investment & Finance

Pharmaceuticals and Biotechnology (Life Sciences)

Professional & Personal Services

Restaurant

Retail Trade

In the summer of 2018, a startling report circulated widely on social media -- more than 100 former students at a large U.S. university had come forward with allegations that the medical staff at its athletic department had sexually abused them over a 20-year period.

The scandal is the latest in a series of high-profile cases involving sexual abuse, cheating, hazing and murder/gun violence that have rattled many universities around the globe, severely damaging the reputation of educational institutions. A working paper by the Harvard Business School found that any school with a scandal that ends up being detailed in a major international media outlet can see about a 10 percent drop in applications the following year.[xxvii]

This is not a unique situation with educational institutions. Over the past two years, reputation wreckers, which hit all industries and geographies, came in different forms:

A European fashion brand caused an uproar and was boycotted in China for running a TV commercial that embedded what many Chinese consider a racist message; a European bank CEO resigned over a large money laundering scandal; a large dairy company was forced to recall more than 7,000 tons of contaminated infant formula from 80 countries; massive data breaches at an international hotel chain; and multiple pharmaceutical companies in the United States were charged with using kickback schemes to get doctors to prescribe more medications.

These international headlines from internet search engines help illustrate why damage to reputation/brand ranked as the number two risk in Aon's 2019 Global Risk Management Survey. The examples also explain why respondents in education, investment and finance, pharmaceutical and biotechnology, professional and personal services, restaurants and the retail trade perceive it as a number one risk facing their sectors.

Whenever a business undergoes a reputation event it cuts to the core of their brand's perception. And the combination of our 24/7 news cycle with widespread use of social media puts brands at risk for long-term negative consequences, both in public perception and in the marketplace.

"Technological developments have heightened reputational risk by making it easier, cheaper and faster for people to spread news," says Dr. Deborah Pretty, Pentland Analytics, which has partnered with Aon on a new report on Reputation Risk in the Cyber Age: The Impact on Shareholder Value.[xxvii]

Geographically, surveyed companies in Asia Pacific consider reputational damage to be a number one risk. This is probably driven by several major events in the region, including the U.S. Department of Justice's criminal charges made against the Chinese electronics giant Huawei for violating U.S. sanctions against Iran; and the trial of former Nissan Chairman Carlos Ghosn, who faced financial misconduct charges in Japan.

Rankings in the regions	
Asia Pacific	1
Europe	4
Latin America	4
Middle East & Africa	13
North America	2

From the daily headlines, one might assume that negative publicity often arises from a major scandal. This is far from true. We live in an age when a crisis could be triggered by a hasty tweet from a corporate CEO or a short video clip of a defective product, or a customer service snafu tweeted by an angry patron. For example, an unfiltered 280-character tweet in the middle of the night by the CEO of a tech company ended up costing him his job, a hefty fine from the U.S. Securities and Exchange Commission and irreparable damages to his company's reputation.[xxix] Moreover, at a time when politics is more divisive and partisan, an executive's reaction – whether a mere Tweet or a random remark -- to certain political events can also cause repercussions from consumers.

Even though most of the high-profile reputational events involve larger organizations, smaller and medium-sized companies also suffer tremendous losses. For example, a senior executive for a major European bank in the Republic of Malta recently disclosed that reputational damage (from money laundering investigations) to the financial sector led to a 23 percent profit drop for his division in 2018.[xxx]

In Aon's 2017 survey, respondents projected damage to reputation/brand to be number six in three years. However, when a long list of unexpected incidents grabbed international headlines in 2018, the risk came in much higher. In this survey, when Aon once again asked respondents to project the importance of this risk for the next three years, they followed the previous pattern and listed it as a number 10 risk three years from now. Only educational institutions rank it as number one.

This situation should be a cause of concern. Since reputational events often come with little or no warning, companies need to make reputational risk part of their corporate strategy and planning, and create response and contingency plans.

"Savvy companies that develop and use a robust risk management framework can not only navigate the situation better, but can often see a net gain in value post-event," says Aon's Randy Nornes.

During a reputational crisis, one can either react to a reputational event or stay proactive. To react is to lose control of the event's narrative, which subjects an organization's brand and its valuation to the uproar of those eager to voice their opinions on social media. In Aon's study, experts identified key drivers:

- Crisis communications must be instant and global
- Perceptions of honesty and transparency are essential
- Active, social responsibility is critical

3

Accelerated rates of change in market factors

Rankings in previous surveys

2019	**3**
2017	**38**
2015	**34**

Ranked number 1 for the following industries:

Printing & Publishing

A week after the British Parliament voted overwhelmingly against Prime Minister Theresa May's Brexit deal in mid-March of 2019, leaders of five major construction trade groups in the U.K. penned a letter to Downing Street, expressing their concerns for the profound uncertainty that has characterized Brexit strategies over the past two years.

Describing the impasse as "a disaster" for the country, the leaders cautioned that crashing out of the EU without a deal could leave U.K. construction and other industries unprepared for a world without free movement of labor and goods with EU member countries.[xxxi]

IHS Markit, a London-based financial information firm, voiced similar sentiments. The firm claims that the U.K. construction sector has moved into decline as Brexit anxiety is intensifying, and businesses are opting to delay capital spending, which hints at a further slide in domestic business investment from 2018. As a consequence, IHS Markit's Construction Purchasing Managers' Index dropped to 49.7 in March of 2019 from 50.6 in January, below the 50-point mark separating expansion from contraction. [xxxii]

Across the Atlantic, the protracted trade wars launched by the U.S. government against China and the EU have also squeezed the U.S. construction industry, which is paying more for metal and other goods, due to tariffs. According to American Banker, the price of construction materials rose 9.6 percent in 2018. Vendors involved in existing projects are struggling to meet obligations as the cost of materials continue to rise abruptly.[xxxiii]

What is happening to the construction industry reflects the unpredictable and turbulent macro-environment in which businesses are operating nowadays. Businesses are facing elevated levels of uncertainty over major policy issues such as Britain's proposed exit from the European Union, ongoing U.S. trade negotiations with various countries, and rising geopolitical conflicts in Asia, Latin America and the Middle East. As a consequence, the global equity and commodity markets have witnessed extreme volatilities.

While the financial market is predicted to slow down, development across the entire information technology landscape has roared ahead. In 2018, there were tremendous advancements in technologies, such as robotic farming technology, digital manufacturing, blockchain application, and AI. Disruptive technologies and the proliferation of related digital regulations have brought both transformative benefits and challenges for businesses.

Rankings in the regions	
Asia Pacific	5
Europe	1
Latin America	3
Middle East & Africa	5
North America	9

The combined effects of these broad political, economic, and technological changes can be summarized in what Aon terms as "accelerated rates of change in market factors." In Aon's 2017 survey, this risk was ranked at 38 and predicted to be at 32 in three years. However, it now emerges as a number three risk, experiencing the highest ever increase in importance.

In fact, among surveyed companies, those in the printing and publishing sector list accelerated rates of change in market factors as a number one risk. Experts at Aon attribute the top ranking to the fundamental business change driven by disruptive technology, which has significantly altered the way in which content is created, produced, marketed and consumed. "The industry as a whole is scrambling to find talent with the business acumen to understand the industry and the digital savvy to help printers and publishers successfully transition to new business models," says Aon's Brooke Green.

Geographically, accelerated rates of change in market factors is ranked number one in Europe, where the impasse over Brexit; rising populism in countries like Austria, Switzerland, Italy and Hungary; the violent Yellow Vest movement in France; and slowing economic growth in Germany have aroused deep concerns for businesses.

At present, these unexpected and unpredictable market forces remain unabated, creating further long-term volatility in the equity and commodity markets, which could erode consumer confidence, hamper investment and stall new product development. Therefore, it is not surprising that participants in the sectors of consumer goods and manufacturing, hotels and hospitality, investment and finance, pharmaceuticals & biotechnology (life sciences), restaurant, and retail trade project this risk to be a top risk in three years.

Therefore, Aon recommend companies consider the following:

- Develop early warning systems to identify potential risk factors
- Use scenario planning tools to establish your risk tolerance levels
- Implement a selection of risk mitigation techniques, for example:
    - » diversify supply chains
    - » continually review and adjust security protocols
    - » develop a risk transfer strategy around political / trade credit risk
    - » establish contingency plans

4

Business interruption

Rankings in previous surveys

2019	4
2017	8
2015	7
2013	7
2011	5
2009	3
2007	2

Ranked number 1 for the following industries:

Aviation

Beverages

Chemicals

In November 2018, violent protests erupted on the streets of Paris and across France over rising fuel prices and President Emmanuel Macron's economic policies. At its peak, the Yellow Vest movement, as it is known, drew an estimated 300,000 people, who constructed barricades blocking access to roads, fuel depots and warehouses. In several regions, the conflicts escalated into looting and riots, forcing many businesses to close.

As of February of 2019, the French government said that some 72,600 people in 5,000 companies had been put on reduced work hours. Businesses, mostly in the city centers, saw revenue fall by 20 to 40 percent on average. Insurance companies had paid USD 100 million to cover 1,670 cases of reported damage because of violence and looting.[xxxiv]

Man-made disruptions such as political protests and labor strikes hit many countries around the world. They cripple business and government operations, as well as transportation infrastructure. As a result, organizations with operations or critical suppliers in those countries face a threat to the continuity of their businesses.

More importantly, as organizations rely more and more on digital technology to improve operational efficiency and manage their supply chains, they are becoming more vulnerable to cyber attacks, which have emerged as a major cause of business interruptions.

Apart from man-made disruptions, natural disasters also inflict hefty damages globally. In its 2018 annual report, Aon's Impact Forecasting team documented 394 natural catastrophes. Of those, 42 were USD billion-dollar events, which included Hurricane Michael and Hurricane Florence (United States), Typhoon Jebi and Typhoon Trami (Japan), and Typhoon Mangkhut (Philippines, Hong Kong, China). The Camp Fire, which led to USD12 billion of loss, became California's deadliest and most destructive fire on record.[xxxv]

As a result, 2017 and 2018 were the costliest back-to-back years on record for economic losses (USD 653 billion) solely due to weather-related events. During these calamities, business interruption accounts for a much higher proportion of the overall loss.

The staggering numbers once again illustrate the devastating consequences of business interruption, a common and traditionally key risk for organizations around the world.

Business interruption was ranked at number two during Aon's inaugural survey in 2007. Over the years, even though this risk remained on the Top 10 list, its ranking slipped slightly. In the last survey, respondents rated it at number eight and projected it to be at number 21 in three years. This was probably because organizations felt that they had a better handle on threats related to business interruption. Many organizations are utilizing better catastrophe modeling/scenario analyses, and more robust risk transfer options.

However, even so, we believe that organizations should treat it as a priority because business interruption scenarios have evolved rapidly during the past two years. First, climate change has created a more volatile weather system, leading to more hurricanes, heavy rainstorms, drought and wildfires. Secondly, many more emerging incidents, such as cyber attacks, internal data breaches and unplanned telecomm outages are now increasingly occurring. These disruptions may not cause any physical damage, but they result in similar, if not greater, financial losses.

If we break it down by industries, participants in the aviation sector rate this risk at number one because of its heavy exposure to interruptions caused by inclement weather conditions, computer glitches, mechanical problems, terrorist attacks, power outages and unruly customers. The same ranking is registered for the beverages and chemicals industries, all of which have highly complex and sometimes fragmented production networks. Failures in global supply chains could lead to major disruptions in the complex production process.

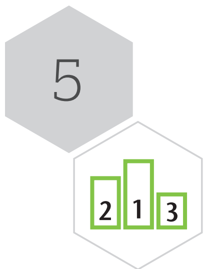
Geographically, organizations in Latin America have consistently ranked this risk at number two, because this region is particularly exposed to events traditionally linked to political instability, environmental accidents and natural catastrophes. A similar ranking is reported in Asia/Pacific, which represents more than one third of the global contract logistics market (supply chains). This region was hit with costly earthquakes, tsunamis, typhoons and flooding in 2018. Both regions pose challenges for insurers because the lack of easy access and intense competition for resources often affect the speed of recovery.

Rankings in the regions	
Asia Pacific	3
Europe	5
Latin America	2
Middle East & Africa	6
North America	5

Overall, organizations continue to operate in a volatile environment driven by the ongoing globalization of supply chains and technological change. This complexity often serves as a barrier when they try to determine the level of built-in resilience and attempt to design appropriate risk financing and mitigating programs. In some cases, existing insurance protections may not even meet the business's changing needs.

Therefore, Aon recommend companies consider the following:

- Identifying risks and analyzing your existing insurance policies and international program solutions
- Evaluating a company's overall risk picture and figuring out the probability of the risk events actually occurring, and the amount of potential loss
- Applying concrete measures and procedures for managing risks -- targeted use of risk engineering, risk financing, and change management
- Controlling different risk measures at every phase, and putting effective and sustainable risk management on a firm footing



Increasing competition

Rankings in previous surveys

2019	5
2017	3
2015	4
2013	3
2011	3
2009	4
2007	4

Ranked number 1 for the following industries:

Telecommunications & Broadcasting

Fortnite is a massive multiplayer online video game that has attracted more than 125 million players since its release in July 2017. When gamers logged in to Fortnite on February 5, 2019, they were treated a totally new experience: a live in-game concert hosted by a celebrity DJ. During the show, which only lasted about 10 minutes, the DJ broadcast two of his hit songs while participants interacted with each other by launching their avatars into the air or bouncing "beach balls." The virtual concert, the first of its kind, was viewed more than 11 million times.[xxxvi]

Even if you're not a huge fan of computer games, you get a glimpse into the future of interactive entertainment. Fortnite has created a completely different way of consuming content, drawing limitless audiences, who would traditionally listen to the DJ in a nightclub or possibly via streaming. No event would have reached the same size of audience like Fortnite did.

Fortnite's rising popularity forces other established media giants to rethink their ideas of competition. Netflix, which has revolutionized the way we consume movies and television in the past decade, finds itself facing a new challenger. [xxxvii]

Rankings in the regions	
Asia Pacific	2
Europe	6
Latin America	9
Middle East & Africa	10
North America	7

The Fortnite example illustrates the exciting and yet highly competitive business environment. Across industries, new disruptive technologies or operating models are profoundly transforming the way we conduct business today. For example, take the emergence of Industry 4.0, a new era in the Industrial Revolution that connects physical production and operations with smart digital technology, machine learning, and big data. This manufacturing revolution has drastically improved manufacturing and supply chain management, fostering industrial growth. Another visible example is the concept of a "sharing economy" that is disrupting conventional taxi and hotel markets. It is also widely applied in diverse areas such as finance, retail, electricity, and automobiles. The sharing economy is projected to grow to USD 335 billion in 2025.[xxxviii]

These disruptive innovations can deliver important benefits to businesses and consumers, in terms of new and better services, and better prices. However, they can also create tremendous challenges, causing a significant shift in profitability. Since the new model typically offers customers better value at a much lower cost, those clinging to the old business model lose ground, and many are pushed out of business.

These scenarios help explain why surveyed organizations in Aon's 2019 Global Risk Management Survey rank it at number five. In fact, this risk has secured its top ranking since Aon launched this study in 2007.

Understandably, respondents from the telecommunications sector perceive it as a number one risk. In many parts of the world, the telecommunications industry has matured in its core services. As the market is becoming saturated, companies have to compete aggressively to gain their peers' existing market shares.

From a regional perspective, increasing competition ranks high among companies in Asia Pacific, where excessive labor capacities, easy entries and risk maturity of multinationals have aggravated the risk. More importantly, China's rise has posed challenges for companies in the region's established economies, such as Australia, Japan, Korea, Singapore and Taiwan because many large Chinese enterprises are backed by the government, which offers unlimited access to lower-cost capital.

To cope with increasing competition, Aon believes that companies should recognize the new reality and bravely embrace new technologies and business models, which have become a necessity, regardless of their current size. Risk managers should stay connected and closely monitor the latest trends and incorporate the new ideas and technologies in corporate strategies.

6

Cyber attacks/data breach

Rankings in previous surveys

2019	6
2017	5
2015	9
2013	18
2011	18
2009	25
2007	19

Ranked number 1 for the following industries:

Banks

Government

Health Care

Insurance

Technology

On February 11, 2018, thousands of U.K. government websites, including those belonging to the National Health Services and the Student Loans Company, were attacked by a malware that forced users' computers to mine for crypto-currency without the owner's permission. In the following week, The Guardian newspaper reported that the same malware also invaded a series of Australian government websites.[xxxix]

Incidences of crypto-jacking have increased since 2017, when 55 percent of businesses worldwide were impacted. The U.K. National Cyber Security Centre says it could be one of the main threats for businesses and government agencies in 2019, with the majority of crypto-jacking performed by cyber criminals. [xl]

As we use technology to speed up the transfer of information, accelerating the migration of data to the cloud, and crafting new digital systems, amazing opportunities are created, but also potentially greater risks. In 2017, the average number of breached records by country was 24,089.[xli]

These breaches can carry a hefty price tag. According to the Ponemon Institute, the global average cost of a data breach in 2018 is up 6.4 percent over the previous year, to USD 3.86 million. The average cost for each lost or stolen record containing sensitive and confidential information increased by 4.8 percent year-over-year to USD 148.[xlii]

These startling figures have changed the public perception of cyber attacks. In fact, participants in Aon's 2019 Global Risk Management Survey see cyber attacks/data breaches as a number six risk facing organizations today. The risk entered the Top 10 list for the first time (at number nine) in 2015 and it is projected to go from number six to number three in the next three years.

When we break it down by industries, banks, government agencies, healthcare, insurance and technology companies consider cyber attacks/data breaches as a number one risk. These sectors rely heavily on digital advances to improve operational efficiency and increase their competitiveness. They were the targets for the majority of mega cyber attacks in 2018.

Geographically, participants in North America see cyber attacks/data breach as a number one threat. According to Symantec, an American software company, the United States was the country most affected by targeted cyber attacks between 2015 and 2017, with 303 known large-scale attacks.[xliii] At the same time, a 2018 survey conducted at the World Economic Forum also showed that cyber attack was considered the number one concern by businesses in the United States and Canada. [xliv]

Rankings in the regions	
Asia Pacific	6
Europe	8
Latin America	14
Middle East & Africa	7
North America	1

Why have cyber attacks/data breaches been allowed to become so rampant? Aon's 2019 Cyber Security Risk Report highlights some of the vulnerabilities:

1. The rapid expansion of operational data from mobile and edge devices, along with growing reliance on third-party—and sometimes even fourth-party—vendors and service providers, are heightening cyber risks. A 2018 Ponemon Institute survey indicates that 59 percent of companies in the United Kingdom and United States experienced a data breach via a third-party. At the same time, only 35 percent rate their third-party risk management programs as effective.[xlv]

2. The combination of faster networks and vulnerable devices (the current worldwide rollouts of cellular IoT and the forthcoming transition to 5G) opens more doors to destructive threats.

3. Employees remain one of the most common causes of breaches. In a 2018 Aon survey, 53 percent of respondents said their companies experienced an insider-related attack within the previous year. When an employee of a large healthcare company inadvertently opened a phishing email, nearly 80 million patient records on his system ended up in the hands of a foreign government.

4. As the number of merger and acquisition deals rises (M&A deal value topped USD four trillion in 2018), companies with a flawless approach to cyber security might have acquired a target that lacks cyber protection measures.

5. Organized crime is now using former intelligence members for more sophisticated attacks, while state actors are both broadening the nature of their attacks and increasing their frequency.

Lastly, an ever-changing set of regulations from governments around the world compounds the difficulties of managing cyber risks.

Aon says most large companies in the above industries have purchased cyber insurance to defray the cost of breaches. The breadth and scope of cyber coverage has increased substantially since 2017. The percentages of companies purchasing cyber insurance in each industry are as follows:

- Banking – 75 percent
- Government – 58 percent
- Healthcare – 81 percent
- Insurance – 73 percent
- Technology – 69 percent

Given that technology continues to impact every job function, from the CEO to the entry-level intern, J. Hogg at Aon's Cyber Solutions believes that it is imperative for organizations to establish a comprehensive approach. Businesses must continually assess their overall cyber risk profile, remediate where recommended, and proactively manage their defenses.

7

Commodity price risk

Rankings in previous surveys

2019	7
2017	11
2015	11
2013	8
2011	8
2009	5

Ranked number 1 for the following industries:

Agribusiness

Consumer Goods Manufacturing

Energy (Oil, Gas, Mining, Natural Resources)

Food Processing and Distribution

Lumber, Furniture, Paper & Packaging

Metal Milling & Manufacturing

In 2018, the United States was embroiled in tit-for-tat trade battles with multiple countries, the biggest of which involved China. On July 6, when the U.S. imposed 25 percent tariffs on USD 34 billion worth of imported Chinese products, the commodity market became one of its first victims.

The Bloomberg Commodities Index, a measure of 26 raw materials, lost 2.7 percent during that week. Soybeans and other agricultural products have been the hardest hit, with prices falling to the lowest in almost a decade.[xlvi] If the trade war remains unresolved, experts even anticipate a significant 53 percent reduction in U.S. agricultural export value to China, from USD 19 billion in 2018 to USD 9 billion in 2019.[xlvii]

Meanwhile, since China was the biggest user of copper, its price sank to almost a one-year low during that week. Metal and energy markets were also caught by fears that the trade spat would set off a global economic slowdown.

Volatility in commodity markets is nothing unusual because commodities are sensitive to changes in the global macroeconomic landscape. In addition to the trade wars, the World Bank said commodity prices were affected by a number of factors in 2018: extreme weather conditions and political instability in many parts of the world, rising U.S. interest rates, an appreciation of the U.S. dollar, and financial market pressures in some emerging markets.[xlviii]

These factors have elevated concerns for commodity price risk. In Aon's 2019 Global Risk Management Survey, this risk has re-entered the Top 10 list, at number seven. Interestingly, commodity price scored a similarly high ranking (at number five) exactly 10 years ago, when political uncertainty and market volatility, equal to those of today, loomed large. Such similarity illustrates the interconnectedness of commodity price risk with that of economic slowdown/slow recovery. It also reflects the cyclical nature of participants' risk perception.

Overall, 45 percent of respondents indicate that their loss of income from commodity price risk has increased in the last 12 months.

As expected, commodity price is listed as a number one risk by respondents who represent agribusiness; consumer goods manufacturing; energy (oil, gas, mining and natural resources); food processing and distribution; lumber, furniture, paper, packaging; and metals, mining and manufacturing. Commodity price fluctuations have direct impact on these industries.

For example, according to the World Bank, energy prices gained three percent in 2018. Oil prices are expected to increase to USD 74/bbl in 2019 before easing to USD 69/bbl in 2020.[xlix]

Coal and natural gas prices have been supported by strong demand resulting from unusually high temperatures in Europe and Asia, which boosted demand for electricity, but prices are expected to moderate in 2019.

Rankings in the regions	
Asia Pacific	12
Europe	3
Latin America	5
Middle East & Africa	4
North America	11

Since the price of energy affects food production costs directly (through fuel use) and indirectly (through fertilizer and other chemical use), higher-than expected energy and fertilizer prices could push up the prices of grain, which is projected to edge up in 2019 because of favorable growing conditions.[l]

At the same time, the World Bank's Metals and Minerals Price Index dropped 10 percent in the third quarter of 2018. Although prices are expected to remain generally unchanged in 2019, the World Bank says they would go up if there is higher-than-expected demand from China resulting from its planned fiscal and monetary stimulus measures. Supply reductions due to stricter environmental policies could also help.[li]

Given the continued negative impact of commodity price volatilities, Aon believes that adopting a long-term strategy could help control costs. Some of the measures include:

- Do not speculate, and plan wisely. Devote time and resources to all decisions made and avoid situations that force you to purchase large quantities at unknown prices.
- Understand the cost of the commodity on other drivers in the business.
- Assess your supply chain and business interruptions exposure to see if they are directly linked to commodity price fluctuations. Based on that knowledge, purchase business interruption insurance to limit exposure to spot market pricing in a time of crisis.
- Strike a balance between long-term contracts and spot purchases to avoid peak market prices.

8

Cash flow/liquidity risk

Rankings in previous surveys

2019	**8**
2017	**12**
2015	**12**
2013	**9**
2011	**10**
2009	**7**

Ranked number 2 for the following industries:

Construction

Cash flow/liquidity risk refers to the possibility that an organization could fail to obtain the cash required to meet short or intermediate term obligations. According to CPA Australia, liquidity risk can arise from a number of scenarios within the business. They include unplanned reduction in revenue, business disruption, sustained reduction in profitability, unplanned capital expenditure, increase in operational costs, future debt repayments, and breach of loan covenants.[lii]

In Aon's 2019 Global Risk Management Survey, cash flow risk has returned to the Top 10 list (at number eight), following a six-year hiatus. Its rise in ranking is largely driven by demographic composition -- the majority of the survey participants represent small to medium-sized organizations (63 percent with revenue of USD 1 billion or less), which are more susceptible to cash flow risks.

Aon's findings correspond with those of two recent studies conducted by Intuit, a large business and financial software company, and by Euler Hermes, a credit insurance company. According to Intuit, which surveyed global companies relating to cash flow risk, 61 percent of participants say they are struggling with the threat. Intuit also found that 42 percent of small businesses have experienced cash flow issues in 2018.[liii]

In the Euler Hermes research, 58 percent of surveyed chief financial officers indicate that lack of cash flow predictability tops their concerns, and they feel ill-prepared to manage the risk.[liv]

Both Intuit and Euler Hermes attribute cash flow risks to economic uncertainty and financial market volatility. However, if we examine the historical perception or rankings of cash flow risk in Aon's surveys, we also notice the interconnectedness of cash flow risk with other threats on the Top 10 list.

The first interconnected risk is economic slowdown/slow recovery. Cash flow risk was ranked at number seven in Aon's 2009 survey, when participants simultaneously rate economic slowdown/slow recovery as the number one risk facing their organizations. It was at the onset of the global financial crisis. The global banking system experienced urgent demands for cash from counterparties, short-term creditors, and existing borrowers. Accordingly, the liquidity pressures forced banks to sharply curtail their loans. While the credit crunch restricted an organization's access to capital, the widespread economic downturn led to sustained reduction in profitability.

Cash flow/liquidity risk remained on Aon's Top 10 list in 2011 and 2013, along with economic slowdown/slow recovery, which continued to be ranked at number one. During those years, the global economy was slowly recovering. Even though fundamentals for generating cash flow had slowly improved on a global level, many industries still faced challenges driving top line growth. Some of the credit crunch and profitability issues of 2009 lingered.

Starting in 2015, the global economy began to rebound at a faster speed. The recovery has no doubt changed the perception of both the risks of economic downturn/slow recovery and cash flow/liquidity risk. In Aon's 2015 and 2017 surveys, the former slipped to number two while the latter was voted out of the Top 10 list.

In the fall of 2018, when the current Aon survey was conducted, the global market began bracing itself for another economic downturn. As a consequence, economic slowdown/slow recovery has once again claimed the top spot and cash flow has also re-entered the Top 10 list.

Rankings in the regions	
Asia Pacific	6
Europe	7
Latin America	6
Middle East & Africa	7
North America	14

Meanwhile, mass volatility in commodity prices has created uncertainty in cash flow management. When the prices for raw material rise, they increase an organization's operational costs. However, a downward trend in commodity prices, such as oil and metals, indicates slowing economic growth and weaker-than-anticipated demand.

From an industry perspective, respondents in the construction sector rate this risk at number two. Ken Simonson, chief economist for Associated General Contractors of America believes that the rising costs of materials from the trade wars on steel, aluminum, lumber and a wide variety of Chinese imports could blunt the development boom.[lv] In the U.K., the mounting fears over a no-deal Brexit are causing delays to new building projects and have squeezed developer demands.

How can companies secure adequate cash flow and capital access, especially during an economic downturn?

David Rhodes and Daniel Stelter recommend the following in the Harvard Business Review: [lvi]

- Monitor and maximize your cash position, by using a disciplined cash management system, reducing or postponing spending, and focusing on cash inflow.
- Reduce working capital. As a rule of thumb, most manufacturing companies can free up cash equivalent to approximately 10 percent of sales by reducing current assets, such as inventories and receivables.
- Optimize your financial structure and financing options. You should be looking for ways to strengthen your balance sheet, reduce debt and other liabilities and secure financing by taking advantage of lines of credit to provide liquidity for day-to-day operations.

9

Failure to innovate/meet customer needs

Rankings in previous surveys

2019	9
2017	6
2015	6
2013	6
2011	6
2009	15
2007	14

Predicted to be the number 1 risk for the following industries in 3 years' time:

Telecommunications & Broadcasting

Transportation Manufacturing (Non-Aviation)

In the February 2019 issue of Forbes magazine, Gene Farrel, an innovation consultant, reminds readers of a startling fact: back in 1950, the average age of a company on the S&P 500 was 60 years old, but today, it is under 20. With the average life span of companies shortening, Farrel says innovation and transformation are critical for businesses seeking to survive, let alone compete and win.[lvii]

To illustrate Farrel's point, a Danish consulting firm, Valuer, compiled a collage of photos that feature 50 corporations that have failed to innovate, and some have ended up going bankrupt.[lviii] The examples include some of the biggest names in the world:

Toys R Us, the famous children's toy store in the United States, closed its doors for good in July 2018 after it lagged behind in reinventing itself in the digital age.

BlackBerry, which led the world in smartphones and tablets in the early 2000s by offering a device with an arched keyboard and encryption, faded out after ignoring consumer demands for easier touch screen displays.

Hitachi, an electronic giant that used to dominate almost every household in Japan, is now operating at a loss because price-conscious consumers can no longer afford its products.

A British-French turbojet-powered airline created The Concorde, the world's fastest aircraft, which reduced the total time for trans-Atlantic flight to less than four hours. However, the airline ended its business in 2003 after failing to solve the challenges of high energy consumption and loud noises.[lix]

"Without a robust and resilient innovation strategy, no company can survive," Phil McKinney, CEO of CableLab commented on the photo collage.[lix]

Similar views are reflected in Aon's 2019 Global Risk Management survey, in which participants rate failure to innovate/meet customer needs as a top risk at number nine. It was ranked at number six from 2011 to 2017.

Rankings in the regions	
Asia Pacific	8
Europe	9
Latin America	23
Middle East & Africa	25
North America	4

Those in the publishing and printing industry perceive failure to innovate/meet customer needs as a number two risk. That is hardly surprising because the industry is trying to survive revenue shortfalls and staff downsizing due to a seismic shift in digital technology and people's reading habits. The rising cost of printing and shrinking ad rates are also threatening to put many companies out of business.

In addition, failure to innovate/ meet customer needs is projected to be a number one risk by representatives from telecommunications and broadcasters, and transportation manufacturers (non-aviation). In the telecommunications industry, where the lifetime of products continues to shrink, the race to market has intensified. When consumer needs and preferences are becoming increasingly fickle, innovation has become a necessity, not an option.

In the transportation manufacturing sector, companies are now competing with many tech giants, which are now experimenting with autonomous driving, e-cars, digital services and mobility platforms. Thus, attributes like technological innovation are moving rapidly to the top of what customers want in a vehicle. To maintain a leadership position in the market and to survive for the long haul, transportation manufacturers will have to virtually reinvent themselves—and quickly.

Since innovation means introducing something new or revolutionary to the market, one inevitably thinks of technology. In the digital age, Dave Power, an innovation expert suggests that one should look to disruptive technologies, such as artificial intelligence, blockchain or the Internet of Things for opportunities to transform the current playing field.[lx]

However, innovation can also be about small things or incremental changes, like creating original ideas, finding new ways to improve operational efficiency, or better communications with customers.

"If business success is your goal, make sure your innovation lines up with a critical customer problem that no one has solved. And if you're wondering what that problem is, ask your customers," said Dave Power in his article published on the website of Harvard Extension School.[lxi]

10

Regulatory/legislative changes

Rankings in previous surveys

2019	**10**
2017	**4**
2015	**3**
2013	**2**
2011	**2**
2009	**2**
2007	**2**

Ranked number 1 for the following industries:

Power/Utilities

In theory, regulations represent an important policy tool for addressing market failure, protecting both businesses and consumers, and advancing effective national policymaking. However, American economists such as Bentley Coffey, Patrick McLaughlin and Pietro Peretto argue that legislative and regulatory processes have often strayed from their original intent. In fact, regulations are becoming so burdensome and stifling that they have undermined their effectiveness by serving the purposes of special interests rather than the public interest.

In a new study commissioned by George Mason University's Mercatus Center, the three economists claim that regulatory accumulation -- the build-up of regulations over time -- reduced economic growth in the United States by an average of 0.8 percent per year from 1980 to 2012. In addition, when companies divert resources into regulatory compliance and similar activities, they invest less in activities that enhance productivity and growth.[lxii]

If regulatory accumulation had halted in the United States in 1980, the study hypothesized that consumers or businesses would have saved approximately USD 4 trillion, which equals USD 13,000 per American.[lxiii]

Participants in Aon's biennial Global Risk Management Survey tend to agree with the assessment in the Mercatus Center research. Since 2007, regulatory/legislative changes has occupied a high perch on Aon's Top 10 risk list. It was ranked at number two from 2007 to 2015, before slipping to number three in 2015 and number four in 2017.

In the current survey, regulatory/legislative changes has dropped, somewhat surprisingly, to number 10. However, respondents from the power/utilities sector still see it as a number one risk because their industry faces strict rules relating to safety, global air and water standards, and price reporting, as well as market and trade surveillance.

The overall slide in ranking is likely to be driven by the recent deregulation efforts of pro-business politicians in many parts of the world, such as the United States, the United Kingdom, Australia, Brazil, Hungary, Italy, Poland and Spain.

For example, in February 2017, U.S. President Donald Trump signed Executive Order 13771, which essentially mandated that "total incremental costs of all [new] regulations should be no greater than zero.[lxiv]

Rankings in the regions	
Asia Pacific	9
Europe	10
Latin America	7
Middle East & Africa	17
North America	8

One year later, in the fall of 2018, the Trump administration released its biannual report, which claims that the rules-out to rules-in ratio for significant regulatory actions in FY 2018 was actually four-to-one. Overall, the government introduced 14 significant new regulations while removing 57 old ones.[lxv]

Despite these global deregulatory campaigns, the compliance landscape is still clouded with uncertainty. For example, in May 2018, the Republican-controlled U.S. Congress passed a rollback of post financial crisis banking rules, which were known for their complex reporting and disclosure requirements. However, barely six months later, the pendulum swing occurred. Democrats took over the House of Representatives in the midterm elections. Soon after the new legislators were sworn in, the Democratic leadership openly expressed its intention of restoring some of the deleted measures relating to financial regulations.

Meanwhile, experts point out that regulations are proliferating rapidly in areas of emerging technologies. In its 2019 Cyber Security Risk Report, Aon claims that "cyber security regulations have gone viral" because laws, rules, standards and guidelines are being proposed and implemented in federal agencies, local legislatures and the business world. Complex and overlapping cyber regulations run the danger of actually creating more cyber risks, not less because compliance obligations overwhelm the chief information officer and a "check the box" mentality ends up replacing best cyber security practices. This does not even take into account the hefty fines for regulatory violations. For example, the European Union's General Data Protection Regulations or GDPR is intended to give control to individuals over their personal data and to simplify the regulatory environment for international businesses.[lxvi]

But in reality, the rules are becoming extremely complex and burdensome. The Brookings Institution says the changes in data collection, sharing, and analysis processes have placed significant financial burdens on businesses. Since the law covers all data collected from EU citizens, international corporations that do business there will have to comply. The fines for GDPR violations, according to Aon, may be up to USD 20 million or, if higher, four percent of an organization's annual revenue. For companies that were victims of the high-profiled data breaches in 2018, they could face a potential fine of USD 500 million or over USD 1 billion.[lxvii]

Regardless of how the regulatory landscape will evolve, companies have increasingly recognized that regulation is no longer a secondary concern, but is now a primary consideration in their business strategies. Rather than seeing it as a burden, they look at this risk as an opportunity to create a competitive advantage over peers who do not manage this process effectively.

Top 10 risks

	2019	2017	2015	2013	2011	2009	2007
1	Economic slowdown / slow recovery	Damage to reputation/brand	Damage to reputation/ brand	Economic slowdown/ slow recovery	Economic slowdown/ slow recovery	Economic slowdown/slow recovery	Damage to reputation/brand
2	Damage to reputation / brand	Economic slowdown/ slow recovery	Economic slowdown/slow recovery	Regulatory /legislative changes	Regulatory/ legislative changes	Regulatory/ legislative changes	Business interruption
3	Accelerated rates of change in market factors	Increasing competition	Regulatory/ legislative changes	Increasing competition	Increasing competition	Business interruption	Third-party liability
4	Business interruption	Regulatory/ legislative changes	Increasing competition	Damage to reputation/ brand	Damage to reputation/ brand	Increasing competition	Distribution or supply chain failure
5	Increasing competition	Cyber crime/ hacking/ viruses/malicious codes	Failure to attract or retain top talent	Failure to attract or retain top talent	Business interruption	Commodity price risk	Market environment
6	Cyber attacks / data breach	Failure to innovate/ meet customer needs	Failure to innovate/ meet customer needs	Failure to innovate/ meet customer needs	Failure to innovate/ meet customer needs	Damage to reputation	Regulatory/ legislative changes
7	Commodity price risk	Failure to attract or retain top talent	Business interruption	Business interruption	Failure to attract or retain top talent	Cash flow/liquidity risk	Failure to attract or retain staff
8	Cash flow / liquidity risk	Business interruption	Third party liability	Commodity price risk	Commodity price risk	Distribution or supply chain failure	Market risk (financial)
9	Failure to innovate / meet customer needs	Political risk/ uncertainties	Computer crime/ hacking/ viruses/ malicious codes	Cash flow / liquidity risk	Technology failure/ system failure	Third party liability	Physical damage
10	Regulatory / legislative changes	Third party liability (incl. E&O)	Property damage	Political risk/ uncertainties	Cash flow/liquidity risk	Failure to attract or retain top talent	Merger/acquisition/ restructuring

Top 10 risks by region

	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
1	Damage to reputation / brand	Accelerated rates of change in market factors	Economic slowdown / slow recovery	Economic slowdown / slow recovery	Cyber attacks / data breach
2	Increasing competition	Economic slowdown / slow recovery	Business interruption	Exchange rate fluctuation	Damage to reputation / brand
3	Business interruption	Commodity price risk	Accelerated rates of change in market factors	Political risk / uncertainty	Economic slowdown / slow recovery
4	Economic slowdown / slow recovery	Damage to reputation / brand	Damage to reputation / brand	Commodity price risk	Failure to innovate / meet customer needs
5	Accelerated rates of change in market factors	Business interruption	Commodity price risk	Accelerated rates of change in market factors	Business interruption
6	Cash flow / liquidity risk	Increasing competition	Cash flow / liquidity risk	Business interruption	Failure to attract or retain top talent
7	Cyber attacks / data breach	Cash flow / liquidity risk	Regulatory / legislative changes	Cash flow / liquidity risk	Increasing competition
8	Failure to innovate / meet customer needs	Cyber attacks / data breach	Distribution or supply chain failure	Cyber attacks / data breach	Regulatory / legislative changes
9	Regulatory / legislative changes	Failure to innovate / meet customer needs	Increasing competition	Interest rate fluctuation	Accelerated rates of change in market factors
10	Failure to attract or retain top talent	Regulatory / legislative changes	Capital availability / credit risk	Increasing competition	Distribution or supply chain failure

Top three risks by industry

Industry	Key Risk 1	Key Risk 2	Key Risk 3
Agribusiness	Commodity price risk	Climate change	Damage to reputation / brand
Aviation	Business interruption	Economic slowdown / slow recovery	Increasing competition
Banking	Cyber attacks / data breach	Capital availability / credit risk	Accelerated rates of change in market factors
Beverages	Business interruption	Commodity price risk	Climate change
Chemicals	Business interruption	Commodity price risk	Economic slowdown / slow recovery
Conglomerate	Economic slowdown / slow recovery	Regulatory / legislative changes	Accelerated rates of change in market factors
Consumer goods manufacturing	Commodity price risk	Damage to reputation / brand	Accelerated rates of change in market factors
Construction	Economic slowdown / slow recovery	Cash flow / liquidity risk	Capital availability / credit risk
Education	Damage to reputation / brand	Cyber attacks / data breach	Failure to attract or retain top talent
Energy (oil, gas, mining, etc.)	Commodity price risk	Accelerated rates of change in market factors	Business interruption
Food processing & distribution	Commodity price risk	Damage to reputation / brand	Distribution or supply chain failure
Government	Cyber attacks / data breach	Third-party liability (e.g. E&O)	Aging workforce & related health issues
Health care	Cyber attacks / data breach	Damage to reputation / brand	Increasing competition
Hotels & hospitality	Economic slowdown / slow recovery	Damage to reputation / brand	Business interruption
Insurance	Cyber attacks / data breach	Damage to reputation / brand	Concentration risk (product, people, geography, etc.)
Investment & finance	Damage to reputation / brand	Economic slowdown / slow recovery	Capital availability / credit risk
Lumber, furniture, paper & packaging	Commodity price risk	Economic slowdown / slow recovery	Business interruption
Machinery & equipment manufacturers	Economic slowdown / slow recovery	Increasing competition	Accelerated rates of change in market factors
Metal milling & manufacturing	Commodity price risk	Business interruption	Economic slowdown / slow recovery
Pharmaceuticals & biotechnology (life sciences)	Damage to reputation / brand	Accelerated rates of change in market factors	Distribution or supply chain failure
Power/utilities	Regulatory / legislative changes	Business interruption	Accelerated rates of change in market factors
Printing & publishing	Accelerated rates of change in market factors	Failure to innovate / meet customer Needs	Commodity price risk
Professional & personal services	Damage to reputation / brand	Cyber attacks / data breach	Failure to attract or retain top talent
Real estate	Economic slowdown / slow recovery	Asset value volatility	Property damage
Restaurant	Damage to reputation / brand	Business interruption	Distribution or supply chain failure
Retail trade	Damage to reputation / brand	Economic slowdown / slow recovery	Increasing competition
Rubber, plastics, stone & cement	Economic slowdown / slow recovery	Commodity price risk	Accelerated rates of change in market factors

Top three risks by industry continued

Industry	Key Risk 1	Key Risk 2	Key Risk 3
Technology	Cyber attacks / data breach	Disruptive technologies	Failure to innovate / meet customer needs
Telecommunications & broadcasting	Increasing competition	Cyber attacks / data breach	Economic slowdown / slow recovery
Textiles	Economic slowdown / slow recovery	Commodity price risk	Damage to reputation / brand
Transportation manufacturing (non-aviation)	Economic slowdown / slow recovery	Accelerated rates of change in market factors	Distribution or supply chain failure
Transportation services (non-aviation)	Economic slowdown / slow recovery	Business interruption	Damage to reputation / brand
Wholesale trade	Economic slowdown / slow recovery	Commodity price risk	Distribution or supply chain failure

Risk readiness for top 10 risks

We investigate organizations' risk readiness in every survey because it serves as a good barometer of risk management activity, sophistication and dynamism. As mitigants evolve around business risks and the broader environment, we are encouraged to see that a significant percentage of mid and large sized participating organizations have plans in place to address and manage risks. However, the overall risk readiness for the Top 10 risks dropped from 53 percent in 2017 to 51 percent.

In addition, the downward trend that emerged in previous surveys continued in the following three risk categories. We call them out because they are indicative of the broader landscape around risk preparedness:

First, preparedness for economic slowdown/slow recovery registered the lowest level across the globe, at only 26 percent, down from 30 percent in 2017 and 39 percent in 2015. Given that this risk remains largely an external threat caused by macroeconomic conditions, the lack of preparedness is understandable. Managing this exposure can be challenging because of the inability of an individual organization to influence the macroeconomic conditions and the limitations in optimizing operations economically to generate returns in a competitive environment. Therefore, it is logical that concern with preparedness is trending the same way as concern about the economy itself.

Secondly, risk readiness for increasing competition has dropped to 38 percent, down from 45 percent in 2017 and 49 percent in 2015. This reduction is linked to other broader trends such as digitization, as well as well-capitalized and fast moving disruptive business models. Increased globalization and lower barriers to entry (due to new technologies) in certain industries such as Financial Services and Transportation brought new players to many sectors.

Thirdly, failure to innovate and meet customer needs experienced an 11 percent reduction in risk readiness for similar reasons: digitization, changing business models and readily available alternative products and services to both consumers and corporations.

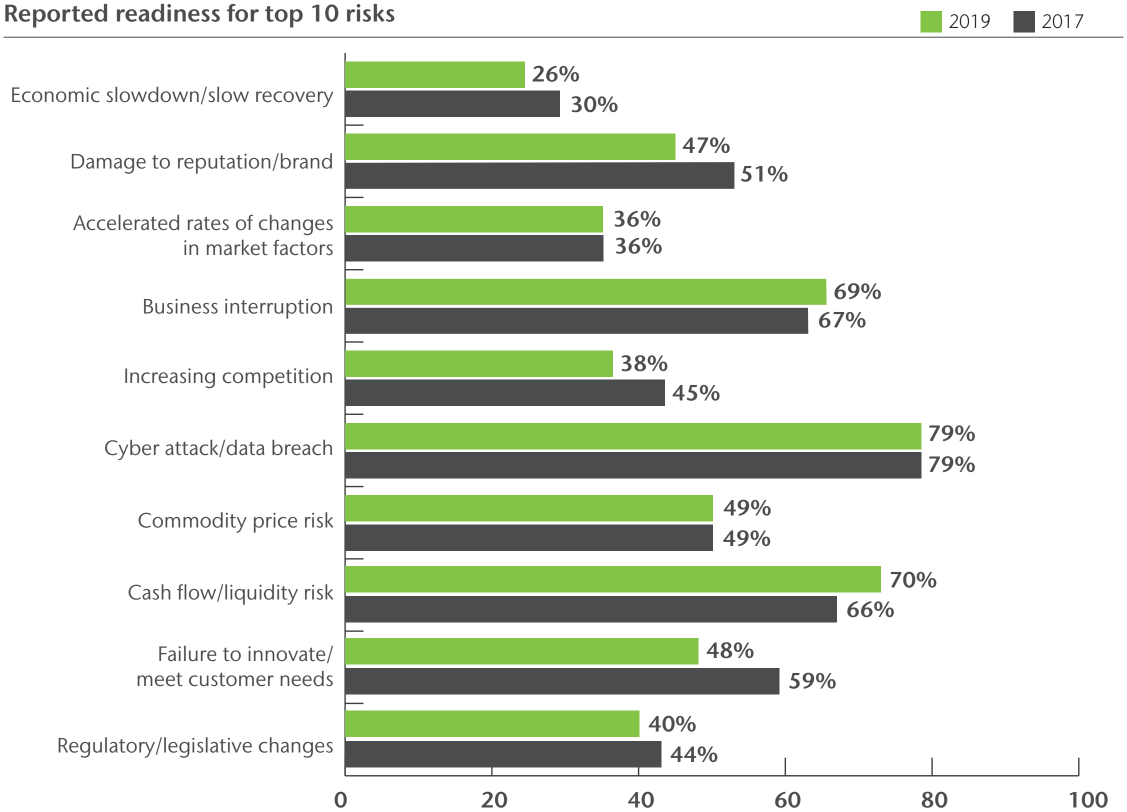
It is worth noting that preparedness for business interruption and cyber attacks/data breach reported the highest levels of risk readiness. The extensive media coverage of high-profile cyber attacks and related business interruption undoubtedly increased awareness, prompting many organizations to implement plans to protect themselves from the possible impact of such events. Additionally, since cyber risk is a relatively new exposure, many businesses feel that the mitigants they have put in place are current and up to date. That confidence positively influenced their perception of effectiveness.

When we drill down by industry, we notice that 20 sectors reported a reduction in risk readiness. This is comparable to 2017, when only 10 showed an improvement. There are also some notable disparities. Industries that are heavily regulated such as banking, power and utilities, aviation and government organizations trended higher than the other sectors, at 55 percent, 62 percent, 47 percent and 23 percent, respectively.

Geographically, the level of reported preparedness in Latin America improved, while the other geographies have either stagnated or declined in risk readiness.

In summary, Aon believes that the overall level of risk preparedness is lower than it should be. With a rising number of industries focused on risk management strategies, organizations could have access to tools and techniques to do a better job in improving preparedness, resilience and sustainability, and thus changing the emerging trend.

Reported readiness for top 10 risks



Average reported readiness for top 10 risks by region

Region	2019	2017
Asia Pacific	51%	66%
Europe	47%	47%
Latin America	49%	46%
Middle East & Africa	49%	58%
North America	58%	63%

Average reported readiness for top 10 risks by industry

Industry	2019	2017	Change
Agribusiness	48%	46%	2%
Aviation	47%	66%	-18%
Banking	55%	59%	-4%
Beverages	34%	55%	-21%
Chemicals	50%	50%	0%
Conglomerate	43%	54%	-11%
Construction	45%	40%	5%
Consumer goods manufacturing	47%	49%	-1%
Education	45%	55%	-9%
Energy (oil, gas, mining, natural resources)	52%	62%	-9%
Food processing and distribution	50%	52%	-2%
Government	23%	41%	-18%
Health care	47%	53%	-6%
Hotels and hospitality	52%	56%	-4%
Insurance	55%	64%	-9%
Investment and finance	53%	64%	-11%
Lumber, furniture, paper and packaging	46%	64%	-18%
Machinery and equipment manufacturers	53%	51%	1%
Metal milling and manufacturing	50%	50%	0%
Pharmaceuticals & biotechnology (life sciences)	42%	44%	-2%
Power/utilities	62%	59%	3%
Printing and publishing	61%	35%	26%
Professional and personal services	54%	51%	3%
Real estate	53%	53%	0%
Restaurants	42%	46%	-4%
Retail trade	54%	59%	-5%
Rubber, plastics, stone and cement	43%	49%	-6%
Technology	51%	59%	-8%
Telecommunications and broadcasting	49%	49%	1%
Textiles	39%	41%	-2%
Transportation manufacturing (non-aviation)	58%	50%	7%
Transportation services (non-aviation)	51%	47%	4%
Wholesale trade	42%	41%	1%

**For the 2019 survey industry category Nonprofits is included in Education category and Insurance has been extracted from Insurance, Investment and Finance to form a separate category.*

Losses associated with top 10 risks

Aon's 2019 survey shows that losses from the Top 10 risks have on average stayed unchanged from last year, at 26 percent. The result can be viewed positively, especially when organizations are now facing so many issues that they feel may impact them at some stage in the future, including increasing competition and accelerated rates of change in market factors (Brexit, trade wars, economic sanctions, etc).

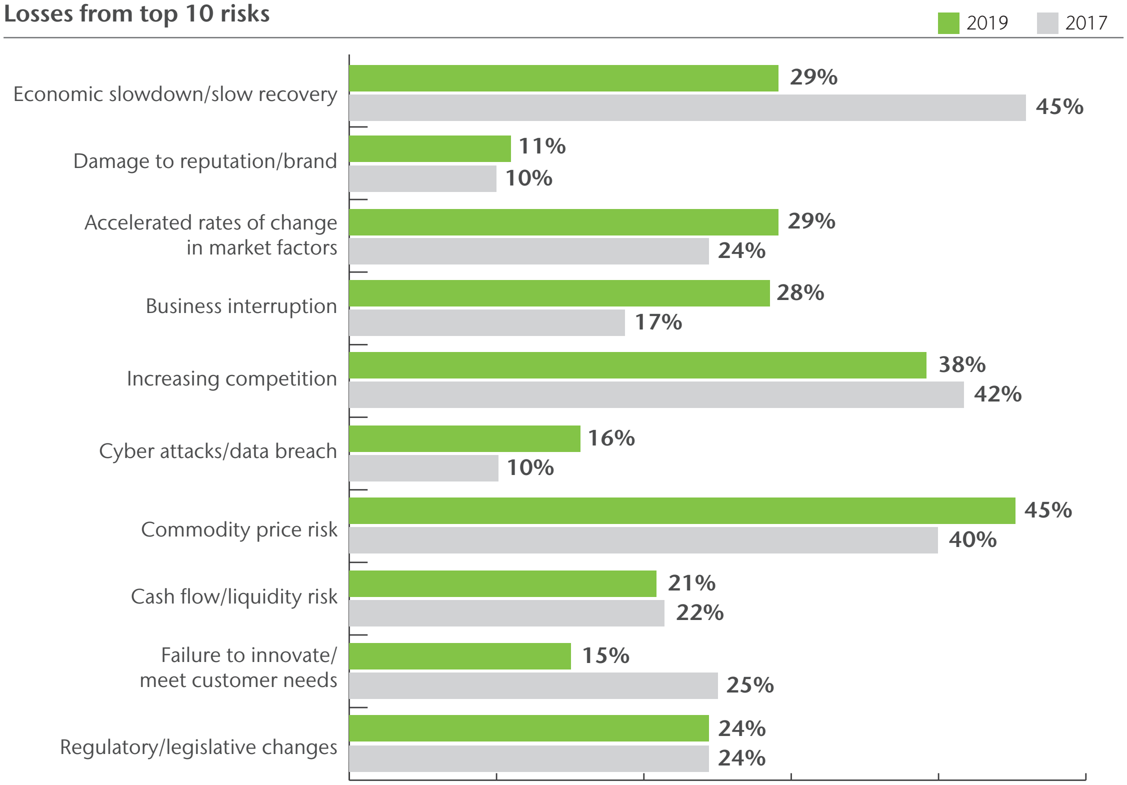
A closer examination of the losses from the Top 10 risks reveals that insurable or partially insurable risks, such as business interruption and cyber attacks/data breach are trending negatively and have experienced steep increases in losses of income. The frequencies and levels of these risks are evolving and escalating so fast that risk management solutions have not yet responded fast enough to prevent or mitigate losses.

In terms of tangible losses incurred, cyber security threats, which experts estimate could cost organizations an average of USD11.7 million, only ranked in eighth place. We believe that losses for cyber attacks could be underestimated for two reasons. First, the impact of many hackings and disruptions are not accurately reported because cyber-related losses are more often viewed as an operational expense.

Secondly, losses from cyber events, which have disrupted businesses, are being recorded in the business interruption category. Of course, we cannot discount the positive impact of rising public awareness and the proactive risk mitigation techniques taken by many organizations. These reasons could have contributed to the low ranking of cyber-related losses.

When breaking down by industry, we can see that three sectors - telecommunications (34 percent), agribusiness (32 percent) and manufacturing (30 percent) - suffered losses in excess of the average and that their results have deteriorated since 2017.

Losses from top 10 risks



Average reported loss of income from top 10 risks by region

Region	2019—Average loss of income experienced from top 10 risk in the last 12 months	2017—Average loss of income experienced from top 10 risk in the last 12 months
Asia Pacific	23%	23%
Europe	27%	23%
Latin America	27%	22%
Middle East & Africa	30%	31%
North America	23%	24%

Average reported loss of income from top 10 risks by industry

Industry	2019—Average loss of income experienced from top 10 risk in the last 12 months	2017—Average loss of income experienced from top 10 risk in the last 12 months	Change
Agribusiness	32%	18%	14%
Aviation	22%	18%	4%
Banking	19%	23%	-4%
Beverages	18%	21%	-2%
Chemicals	25%	22%	3%
Conglomerate	23%	23%	-1%
Construction	24%	18%	6%
Consumer goods manufacturing	27%	25%	2%
Education	17%	24%	-7%
Energy (oil, gas, mining, natural resources)	23%	30%	-7%
Food processing and distribution	23%	23%	0%
Government	19%	17%	2%
Health care	24%	29%	-6%
Hotels and hospitality	24%	27%	-3%
Insurance	22%	N/A	N/A
Investment and finance	22%	27%	-5%
Lumber, furniture, paper and packaging	25%	26%	-1%
Machinery and equipment manufacturers	31%	28%	3%
Metal milling and manufacturing	30%	23%	7%
Pharmaceuticals & biotechnology (life sciences)	20%	19%	1%
Power/utilities	24%	25%	-1%
Printing and publishing	45%	34%	11%
Professional and personal services	22%	26%	-3%
Real estate	25%	19%	6%
Restaurants	7%	31%	-24%
Retail trade	30%	27%	3%
Rubber, plastics, stone and cement	33%	19%	14%
Technology	28%	26%	1%
Telecommunications and broadcasting	34%	24%	10%
Textiles	10%	21%	-11%
Transportation manufacturing (non-aviation)	26%	21%	5%
Transportation services (non-aviation)	27%	28%	-1%
Wholesale trade	23%	16%	8%

**For the 2019 survey, industry category Nonprofits is included in the Education category and Insurance has been extracted from Insurance, Investment and Finance into its own separate category.*

Mitigation actions for Top 10 Risks

In Aon's 2019 survey, we added a new questionnaire, asking respondents to identify mitigation actions for their Top 10 risks. The intention is to understand which mitigants are most established, and where organizations might need more help and support in applying these actions.

About 45 percent of surveyed organizations say they have a risk management plan in place. Of this group, many are struggling to quantify their risks.

This trend, which cuts across all geographies and sizes of company, may also help explain why some risks, such as economic slowdown/ slow recovery, damage to reputation, increasing competition, and regulatory/legislative changes are ranked high on the Top 10 list, while others like political uncertainties and aging workforce are underrated. When an organization fails to assess and understand the magnitude of a risk, uncertainty may accelerate or underestimate its importance.

Geographically, organizations in the U.S. seem most adept at risk quantification, at 33 percent.

Insurance/risk finance plays a limited role in addressing top risks. Only 27 percent of the largest firms in our sample consider risk finance/ insurance. These clients may have more options around the use of captive insurance companies or access to alternative capital. They may also place greater emphasis on other risk management strategies, or simply do not believe that the insurance industry is providing adequate products to address their exposures.

Surveyed organizations seem to question the value of the traditional method of continuity planning as an effective way to respond to the most important risks. Only 10 to 30 percent of respondents - depending on revenue band - utilize continuity planning as a risk management strategy for their Top 10 risks. The fact that many on the Top 10 List are intangible or uninsurable risks may have contributed to the low percentage. However, it is quite surprising that many organizations have not developed crisis management plans for major risk events. Crisis management should be a key component of a business continuity plan.

Mitigation actions for Top 10 global risks

Risk description	Assessed risk	Quantified risk	Developed risk management plan	Evaluated risk finance/ transfer solutions	Developed continuity plans	Other
Economic slowdown / slow recovery	16%	11%	11%	6%	8%	1%
Damage to reputation / brand	34%	22%	31%	12%	21%	2%
Accelerated rates of change in market factors	26%	17%	19%	10%	13%	1%
Business interruption	55%	42%	47%	32%	44%	2%
Increasing competition	28%	17%	18%	7%	13%	2%
Cyber attacks / data breach	64%	41%	55%	36%	49%	5%
Commodity price risk	32%	26%	22%	17%	14%	2%
Cash flow / liquidity risk	50%	41%	37%	29%	24%	2%
Failure to innovate / meet customer needs	29%	16%	23%	6%	14%	5%
Regulatory / legislative changes	27%	14%	19%	7%	12%	2%

Mitigation actions for Top 10 risks by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Assessed risk	35%	34%	32%	35%	30%	40%
Quantified risk	24%	24%	22%	23%	20%	29%
Developed risk management plan	29%	28%	25%	29%	26%	35%
Evaluated risk finance/transfer solutions	16%	15%	14%	13%	14%	22%
Developed continuity plans	18%	20%	16%	20%	19%	22%
Other	3%	2%	3%	1%	1%	3%

More organizations (typically, about 10 percent more respondents) choose to apply general assessment techniques to their top risks rather than quantification techniques. Industries that appear best at quantifying risk are insurance, life sciences and printing & publishing.

In comparison, more insurance companies use risk modeling to assess their exposures (41 percent), even though some of the top risks in their sector are intangible - damage to reputation/brand and macro-economic market forces. Interestingly, only 23 percent of the surveyed banks say they deploy quantification techniques on their most significant risks.

It is surprising that risk finance and insurance only play a limited role in providing a solution to an organization's top risks. For asset-intense sectors such as real estate, hotels & hospitality and wholesale trade, one would expect to see insurance as a cornerstone of their risk management program. Given their deep concerns with economic slowdown, market changes and reputation, these sectors need to pursue alternative approaches to managing their risks.

For professional services and insurance firms, only 22 percent use insurance/risk finance to tackle their most significant risks. Since damage to reputation/brand and accelerated rates of change in market factors top their list of key concerns, the low percentage is understandable. In 14 of the participating sectors - or 42 percent of all of the 33 sectors in the survey - less than a quarter of respondents have a risk management plan for their most significant risks. Given the limitations of risk finance/transfer solutions, it would appear that many companies simply choose to tolerate the risk or to avoid it altogether through business strategies.

Mitigation actions for Top 10 risks by industry

Industry	Assessed risk	Quantified risk	Developed risk management plan	Evaluated risk finance/ transfer solutions	Developed continuity plans	Other
Agribusiness	27%	17%	22%	11%	11%	0%
Aviation	25%	18%	18%	11%	12%	2%
Banking	30%	23%	25%	14%	14%	2%
Beverages	24%	18%	18%	11%	11%	1%
Chemicals	28%	20%	21%	13%	15%	4%
Conglomerate	34%	25%	30%	13%	17%	2%
Construction	30%	20%	25%	15%	14%	2%
Consumer goods manufacturing	33%	23%	23%	13%	17%	2%
Education	30%	20%	25%	13%	19%	2%
Energy (oil, gas, mining, etc.)	33%	23%	26%	15%	19%	1%
Food processing & distribution	34%	23%	29%	16%	20%	2%
Government	15%	10%	10%	5%	9%	3%
Health care	31%	20%	26%	13%	16%	1%
Hotels & hospitality	30%	20%	25%	10%	16%	0%
Insurance	41%	31%	33%	21%	20%	0%
Investment & finance	34%	23%	27%	18%	18%	3%
Lumber, furniture, paper & packaging	28%	20%	22%	15%	14%	2%
Machinery & equipment manufacturers	31%	20%	27%	15%	17%	2%
Metal milling & manufacturing	32%	24%	27%	14%	19%	1%
Pharmaceuticals & biotechnology (Life sciences)	38%	28%	32%	18%	20%	3%
Power/utilities	33%	25%	27%	15%	16%	4%
Printing & publishing	38%	28%	29%	18%	16%	7%
Professional & personal services	39%	27%	36%	22%	23%	2%
Real estate	30%	21%	23%	11%	16%	2%
Restaurant	14%	10%	18%	8%	10%	0%
Retail trade	33%	24%	28%	18%	16%	1%
Rubber, plastics, stone & cement	21%	13%	17%	11%	13%	5%
Technology	32%	25%	31%	16%	20%	4%
Telecommunications & broadcasting	30%	21%	23%	12%	13%	2%
Textiles	19%	16%	14%	7%	13%	2%
Transportation manufacturing (non-aviation)	28%	19%	23%	13%	19%	1%
Transportation services (non-aviation)	31%	22%	30%	15%	19%	3%
Wholesale trade	23%	14%	18%	10%	13%	2%

Top 10 risks in the next three years

In every survey, Aon asks participants to project the top five risks facing their organizations in the next three years. It is an interesting proposition because their projections enable us not only to gauge what might be on the horizon, but also to compare what they have predicted with the actual results. This exercise gives us the opportunity to see how risk perceptions change and what factors are driving this change.

In Aon's 2017 survey, participants correctly predicted economic slowdown/slow recovery to become the number one risk in 2019. Given its direct link to broader economic conditions, commodity price risk was also anticipated as a Top 10 risk. It shows that organizations began to see signs of economic uncertainty two years before.

Other items on the Top 10 Risks, including failure to innovate, damage to reputation/brand, cyber attacks and increasing competition were also correctly projected. This reflects unchanging challenges in the commercial landscape.

An unexpected new entry to the Top 10 List is accelerated rate of change of market factors. Its steep rise can be attributed to the uncertainty arising from the protracted Brexit process, the drastic and unpredictable political and trade policies in the United States, as well as changing relations between the West and China. All of these events have dented confidence in global trade and the macro-economy.

Another surprise is business interruption, which was predicted in 2017 to move down to 21. However, with the proliferation of cyber attacks, which are disrupting businesses on a large scale, the perception of business interruption has evolved and changed.

In the next three years, economic slowdown/slow recovery is expected to remain at the top of the list, followed by accelerated rates of change in market factors. Commodity price risk will move up to number four. These three risks, which are closely related, reflect organizations' continued concern about the global economy and future trade conditions. When participants made these predictions, one can only assume that the U.S. trade wars and the Brexit chaos were hovering in the back of their minds.

Cyber attacks/data breaches, failure to innovate/meet customer needs, and increasing competition are projected to remain on the Top 10 List. This illustrates the impact of disruptive technologies and innovations, which not only deliver important benefits to businesses and consumers, but also create tremendous challenges.

Two existing risks, regulatory and legislative changes and cash flow/liquidity risk, are predicted to fall out of the Top 10 List in three years.

2019 Top 10

1. Economic slowdown/ slow recovery
2. Damage to reputation/ brand
3. Accelerated rates of change in market factors
4. Business interruption
5. Increasing competition
6. Cyber attacks/ data breach
7. Commodity price risk
8. Cash flow/liquidity risk
9. Failure to innovate / meet customer needs
10. Regulatory / legislative changes

Projected 2022

1. ↔ Economic slowdown/ slow recovery
2. ↑ Accelerated rates of change in market factors
3. ↑ Cyber attacks/ data breach
4. ↑ Commodity price risk
5. ↑ Failure to innovate / meet customer needs
6. ↓ Increasing competition
7. ↓ Business interruption
8. ↑ Failure to attract or retain top talent
9. ↓ Cash flow/ liquidity risk
10. ↓ Damage to reputation / brand

Where current top 10 risks are projected to be in 3 years

Risk description	Risk rank	Top ten risks 3 years from now
Economic slowdown / slow recovery	1	1
Damage to reputation / brand	2	10
Accelerated rates of change in market factors	3	2
Business interruption	4	7
Increasing competition	5	6
Cyber attacks / data breach	6	3
Commodity price risk	7	4
Cash flow / liquidity risk	8	9
Failure to innovate / meet customer needs	9	5
Regulatory / legislative changes	10	14

Geographically, organizations in all five regions consistently project economic slowdown to be on the Top Five List. Cyber attacks/data breach is predicted to be a number one concern for organizations in North America, and a top four risk for Europe and the Middle East.

Nearly 80 percent of all industry sectors have cited cyber attacks /data breach as one of their Top 10 risks for 2022. For the first time since the beginning of this survey in 2007, we see cyber attacks/data breach predicted as a Top 10 risk for Latin America by 2022.

In North America, an aging workforce and related health issues are predicted to be a number five risk for companies in three years' time. Thirteen out of 33 industry sectors have selected aging workforce and related health issues as one of their Top 10 risks in 2022. For participants in the government sector, it is projected to be the number one risk by 2022.

This is hardly surprising. The shift in age demographics of the workforce over the last decade is significant in many industries due to economic and societal trends. According to the United Nations, the global population aged 60 years or over numbered 962 million in 2017. The number is expected to double by 2050, to nearly 2.1 billion. The process of population aging is more pronounced in Europe and in North America, where more than one person in five was aged 60 or over in 2017. Other regions are catching up as well. The result is the highest workforce median age on record in many regions. In addition, about 50 percent of workers in the U.S. manufacturing industry are 45 and older. As a result, employers are experiencing increased challenges in injury prevention, workplace absence and rising medical costs. This will likely become even more pronounced in the near future.[lxviii]

Disruptive technologies are predicted to rise in importance and to rank number eight in Europe and nine in North America by 2022. It comes as no surprise that 16 industry sectors have selected disruptive technologies as one of their Top Five risks for 2022.

Top 5 risks in the next 3 years by region

	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
1	Economic slowdown/slow recovery	Accelerated rates of change in market factors	Accelerated rates of change in market factors	Economic slowdown/slow recovery	Cyber attacks / data breach
2	Cash flow / liquidity risk	Economic slowdown/slow recovery	Commodity price risk	Cyber attacks / data breach	Failure to innovate / meet customer needs
3	Increasing competition	Commodity price risk	Economic slowdown/slow recovery	Exchange rate fluctuation	Failure to attract or retain top talent
4	Accelerated rates of change in market factors	Cyber attacks / data breach	Cash flow / liquidity risk	Commodity price risk	Economic slowdown/slow recovery
5	Damage to reputation / brand	Increasing competition	Business interruption	Political risk / uncertainty	Aging workforce & related health issues

Top 3 risks in the next 3 years by industry

Industry	Key risk 1	Key risk 2	Key risk 3
Agribusiness	Commodity price risk	Climate change	Cyber attacks / data breach
Aviation	Failure to attract or retain top talent	Business interruption	Cyber attacks / data breach
Banks	Cyber attacks / data breach	Capital availability / credit risk	Accelerated rates of change in market factors
Beverages	Commodity price risk	Accelerated rates of change in market factors	Cyber attacks / data breach
Chemicals	Commodity price risk	Business interruption	Economic slowdown/slow recovery
Conglomerate	Economic slowdown/slow recovery	Accelerated rates of change in market factors	Failure to innovate / meet customer needs
Construction	Economic slowdown/slow recovery	Cash flow / liquidity risk	Capital availability / credit risk
Consumer goods manufacturing	Accelerated rates of change in market factors	Commodity price risk	Economic slowdown/slow recovery
Education	Damage to reputation / brand	Cyber attacks / data breach	Failure to attract or retain top talent
Energy (oil, gas, mining, natural resources)	Commodity price risk	Economic slowdown/slow recovery	Accelerated rates of change in market factors
Food processing and distribution	Commodity price risk	Exchange rate fluctuation	Increasing competition
Government	Aging workforce & related health issues	Cyber attacks / data breach	Disruptive technologies
Health care	Cyber attacks / data breach	Regulatory / legislative changes	Rising healthcare costs

Top 3 risks in the next 3 years by industry (cont'd)

Industry	Key risk 1	Key risk 2	Key risk 3
Hotels and hospitality	Accelerated rates of change in market factors	Economic slowdown/slow recovery	Cyber attacks / data breach
Insurance	Cyber attacks / data breach	Failure to attract or retain top talent	Accelerated rates of change in market factors
Investment and finance	Accelerated rates of change in market factors	Economic slowdown/slow recovery	Cyber attacks / data breach
Lumber, furniture, paper & packaging	Commodity price risk	Accelerated rates of change in market factors	Economic slowdown/slow recovery
Machinery & equipment manufacturers	Economic slowdown/slow recovery	Accelerated rates of change in market factors	Failure to innovate / meet customer needs
Metal milling & manufacturing	Commodity price risk	Economic slowdown/slow recovery	Accelerated rates of change in market factors
Pharmaceuticals & biotechnology (life sciences)	Accelerated rates of change in market factors	Distribution or supply chain failure	Disruptive technologies
Power/utilities	Regulatory / legislative changes	Cyber attacks / data breach	Business interruption
Printing & publishing	Commodity price risk	Cash flow / liquidity risk	Accelerated rates of change in market factors
Professional & personal services	Cyber attacks / data breach	Economic slowdown/slow recovery	Failure to attract or retain top talent
Real estate	Economic slowdown/slow recovery	Asset value volatility	Property damage
Restaurant	Accelerated rates of change in market factors	Workforce shortage	Commodity price risk
Retail trade	Accelerated rates of change in market factors	Economic slowdown/slow recovery	Cyber attacks / data breach
Rubber, plastics, stone & cement	Economic slowdown/slow recovery	Increasing competition	Accelerated rates of change in market factors
Technology	Cyber attacks / data breach	Disruptive technologies	Accelerated rates of change in market factors
Telecommunications & broadcasting	Economic slowdown/slow recovery	Failure to innovate / meet customer needs	Accelerated rates of change in market factors
Textiles	Economic slowdown/slow recovery	Commodity price risk	Counter-party credit risk
Transportation manufacturing (non-aviation)	Economic slowdown/slow recovery	Failure to innovate / meet customer needs	Accelerated rates of change in market factors
Transportation services (non-aviation)	Economic slowdown/slow recovery	Cyber attacks / data breach	Accelerated rates of change in market factors
Wholesale trade	Commodity price risk	Economic slowdown/slow recovery	Accelerated rates of change in market factors

Risk Management Department and Function

Risk Management Department and Function

Who is handling risk?

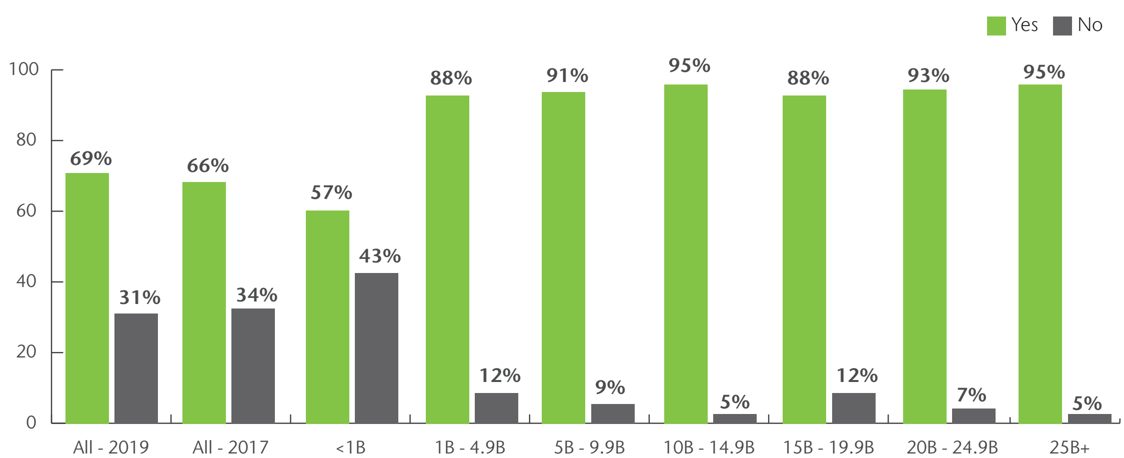
The majority of large companies have a formal risk management department in place.

While Aon's survey demonstrates the common risk themes shared across regions and industry sectors, it also provides insight into how organizations are organizing themselves to manage risk.

The larger a company's revenue, the more likely it is to have a formal risk management department. In this survey, 88 to 98 percent of companies greater than USD1 billion in revenue report this dedicated function.

Large companies generally have more formalized approaches to governance, with the board of directors or a board committee establishing policies on risk oversight and management.

Formal risk management/insurance department by revenue (in USD)



The situation is less clear for smaller companies (with turnovers under USD1 billion). About 57 percent say they have a formal risk management/insurance department. Individual organizations normally invest in a dedicated risk function when they have reached a threshold where there is sufficient complexity of operations and associated risk exposure.

Organizational reporting for risk management

Department	2019	2017
CFO/finance/treasury	42%	47%
Chief executive, president	27%	15%
Chief risk officer (CRO)	7%	10%
Other	5%	9%
General counsel/legal	9%	8%
Chief administrative officer	5%	4%
Human resources	1%	2%
Company secretary	2%	1%
Controller	1%	1%
Internal audit	1%	1%
Safety/security	0%	1%

Organizational reporting for risk management continues to be with Finance, but there is a growing trend of direct to CEO reporting.

Overall, the finance department continues to be responsible for risk management. This is to be expected for insurance because policy premiums and receivables fall into the financial sphere rather than business operations. There is, however, a trend among first-time participants in Aon's 2019 survey toward risk being reported into the chief executive/president. This shows the growing importance of risk management supporting growth and operational strategy.

Departments/functions that independently make key risk-management decisions

Function	All
Chief administrative officer (CAO)	17%
Chief executive officer (CEO)	65%
Chief financial officer (CFO)	57%
Chief risk officer (CRO)	5%
Company secretary	6%
Controller	11%
Finance dept.	20%
Human resources (HR)	26%
Internal auditors	12%
Legal dept. (General counsel)	23%
Risk management/insurance dept.	21%
Safety/ security team	14%
Treasurer	12%
Other	14%

The size of the risk management department

The size of the risk management department is typically five people or fewer.

Since the start of Aon's survey in 2007, risk management department staffing levels have remained static. In the current survey, 76 percent of respondents say they maintain one to five employees.

Department staffing by revenue (in USD)

Number of Employees	All-2019	All - 2017	<1B	1B–4.9B	5B–9.9B	10B–14.9B	15B –24.9B	20B – 24.9B	25B+
1 - 2	40%	46%	52%	33%	22%	11%	14%	25 B+	8%
3 - 5	36%	29%	35%	39%	39%	36%	29%	31%	31%
6 - 8	8%	10%	6%	11%	13%	14%	19%	8%	16%
9 - 11	5%	5%	3%	5%	11%	14%	19%	0%	6%
12 - 15	3%	3%	2%	4%	4%	8%	5%	8%	6%
16 - 20	2%	2%	1%	3%	2%	6%	0%	8%	10%
21 - 25	1%	1%	0%	1%	4%	6%	0%	0%	2%
26 - 30	1%	1%	0%	0%	1%	3%	0%	8%	2%
31 - 35	0%	0%	0%	0%	0%	3%	0%	0%	0%
36 - 40	0%	0%	0%	0%	0%	0%	0%	0%	0%
41 +	3%	3%	1%	4%	5%	0%	14%	23%	19%

As indicated in this and previous surveys, the size of a risk management department generally corresponds with an organization's revenue size. However, it is interesting to note some exceptions. A few large companies do have disproportionately small risk management teams, reflecting their internal resource constraints and economies of scale. Or, they simply have chosen to outsource some risk management activities to third-party vendors.

Viewed by sector, banks and insurance, as well as investment and finance companies report having large risk teams. This is also the case for 'asset intensive' operations such as energy, power & transportation, and 'people intensive' operations such as restaurants, retail, healthcare, education and government agencies.

Department staffing by industry

Industry	1-2	3-5	6-8	9-11	12-15	16-20	21-25	26-30	31-35	36-40	41+
Agribusiness	56%	15%	15%	4%	4%	4%	0%	0%	0%	0%	4%
Aviation	50%	18%	9%	9%	9%	5%	0%	0%	0%	0%	0%
Banking	13%	27%	6%	13%	6%	10%	2%	0%	2%	0%	21%
Beverages	46%	38%	8%	8%	0%	0%	0%	0%	0%	0%	0%
Chemicals	46%	36%	3%	3%	3%	5%	0%	5%	0%	0%	0%
Conglomerate	39%	23%	13%	10%	3%	10%	0%	0%	0%	0%	3%
Construction	46%	34%	10%	2%	3%	1%	0%	1%	0%	1%	1%
Consumer goods manufacturing	42%	33%	10%	10%	2%	0%	2%	2%	0%	0%	0%
Education	53%	31%	10%	2%	2%	2%	2%	0%	0%	0%	0%
Energy (oil, gas, mining, etc.)	34%	40%	4%	6%	4%	5%	0%	1%	0%	0%	4%
Food processing & distribution	50%	43%	0%	7%	0%	0%	0%	0%	0%	0%	0%
Government	47%	30%	10%	7%	3%	0%	0%	0%	0%	0%	3%
Health care	28%	50%	8%	4%	6%	0%	2%	0%	0%	0%	2%
Hotels & hospitality	50%	25%	8%	8%	0%	0%	8%	0%	0%	0%	0%
Insurance	25%	48%	8%	0%	3%	3%	5%	3%	0%	0%	8%
Investment & finance	22%	49%	11%	5%	5%	0%	3%	0%	0%	0%	5%
Lumber, furniture, paper & packaging	74%	24%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Machinery & equipment manufacturers	32%	53%	8%	0%	5%	3%	0%	0%	0%	0%	0%
Metal milling & manufacturing	58%	25%	6%	3%	0%	3%	3%	0%	0%	0%	3%
Pharmaceuticals & biotechnology (life sciences)	54%	33%	13%	0%	0%	0%	0%	0%	0%	0%	0%
Power/utilities	34%	34%	6%	6%	6%	6%	0%	4%	0%	0%	6%
Printing & publishing	50%	30%	20%	0%	0%	0%	0%	0%	0%	0%	0%
Professional & personal services	33%	42%	7%	4%	5%	3%	0%	0%	1%	0%	4%
Real estate	42%	36%	11%	7%	2%	2%	0%	0%	0%	0%	0%
Restaurant	29%	43%	0%	14%	0%	0%	0%	0%	0%	0%	14%
Retail trade	27%	40%	13%	7%	2%	2%	2%	0%	0%	0%	7%
Rubber, plastics, stone & cement	46%	23%	31%	0%	0%	0%	0%	0%	0%	0%	0%
Technology	42%	41%	7%	5%	0%	0%	0%	3%	0%	0%	2%
Telecommunications & broadcasting	28%	33%	11%	11%	0%	0%	6%	0%	0%	0%	11%
Textiles	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Transportation manufacturing (non-aviation)	50%	36%	9%	5%	0%	0%	0%	0%	0%	0%	0%
Transportation services (non-aviation)	26%	45%	12%	2%	3%	0%	2%	2%	0%	0%	9%
Wholesale trade	57%	35%	6%	2%	0%	0%	0%	0%	0%	0%	0%

Profile of risk management department

Given the resolution of the survey, the profile of the risk management department is rated almost seven out of 10. Smaller companies have rated slightly lower than that.

Given the backdrop of economic slowdown/slow recovery, which has been ranked at number one in this year's survey, there is more work to be done to improve the profile of the risk and insurance department within each organization. Interestingly, the profile of the risk department does not increase markedly within larger organisations.

While this number is similar to the result of the last survey, there is a slight negative trend across all regions. The result has been balanced somewhat by responses from the Middle East & Africa, where participants report a large increase in profile.

Profile of the risk management/insurance department function within organization by region

Region	Average Rank
All	6.77
Asia Pacific	6.86
Europe	6.60
Latin America	7.06
Middle East & Africa	7.03
North America	6.87

Note: Ranked on a 1 to 10 scale, with 10 being the highest rank

Approach to Rrisk Management, Risk Assessment and Cross-Functional Collaboration

Approach to Risk Management, Risk Assessment and Cross-Functional Collaboration

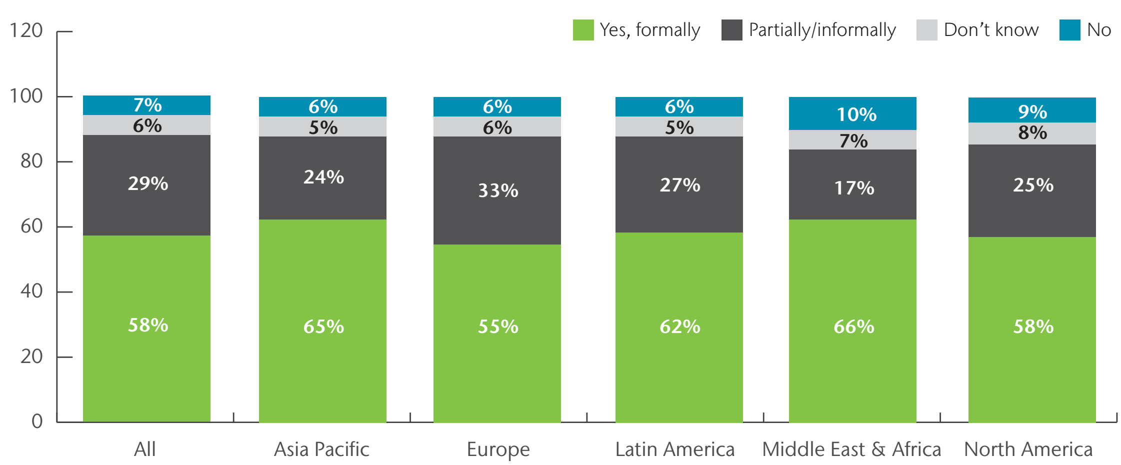
Policies on risk oversight and management

It is very encouraging to see that 87 percent of respondents say they have adopted either a formal or partially formal approach to risk oversight and management at the board level. This represents an increase of 11 percent from that in 2017. The result shows that companies place more importance on risk management than before.

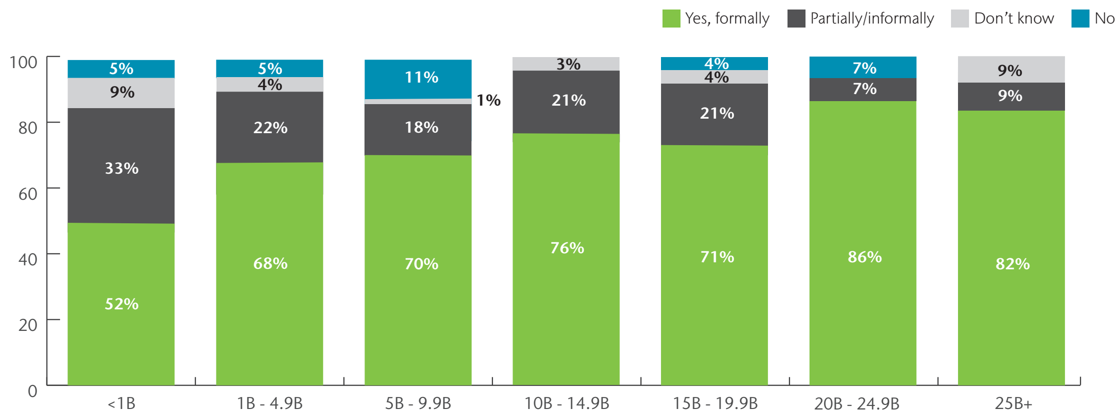
Large companies, with annual revenue greater than USD10 billion, tend to take more formalized approaches to governance, with the board of directors or a board committee establishing policies on risk oversight and management. This could be attributable to the fact that many of these organizations are likely publicly traded and subject to disclosure requirements on their risk oversight and management practices.

It is especially encouraging to see a 22 percent decline in the number of smaller to medium size organizations with annual revenue less than USD1 billion which indicate that they have no formal risk oversight and management policy in place.

Policies on risk oversight and management by region



Policies on risk oversight and management by revenue (in USD)



Cross-functional collaboration and key risk management decisions—who is involved?

There is an eight percent increase in the number of respondents who say that their organizations engage in cross-functional collaboration in risk management. While the high percentage is very encouraging, it also highlights the fact that almost one in five organizations still take a more siloed approach.

Regionally, we see a 16 percent increase in cross-functional collaboration –the largest recorded - in the Middle East & Africa, followed by a 10 percent increase in Europe. The reasons for this positive development could be connected to a number of high profile cases publicized in the media, which helped to highlight the negative effect of ignoring an enterprise-wide risk management approach and increased public awareness. The increase could also be driven by the fact that more organizations are collaborating with advisors or consultants who promote the idea of cross-functional collaboration.

As we stated in the previous report, many large organizations with thousands of colleagues and processes operate with multiple subsidiaries around the world and across numerous business functions. The scope and nature of such operational structures mean that risk responsibilities are now spread across corporate functions and operating divisions. Such complexities have made it very difficult for organizations to understand and respond to their integrated risk profile through a single business function or geography.

Aon's Risk Maturity Index Insight Report, developed in close collaboration with the Wharton School at the University of Pennsylvania, has identified three key factors that differentiate high and low risk maturity operations:

- *Awareness* of the complexity of risk
- *Agreement* on strategy and action
- *Alignment* to execute

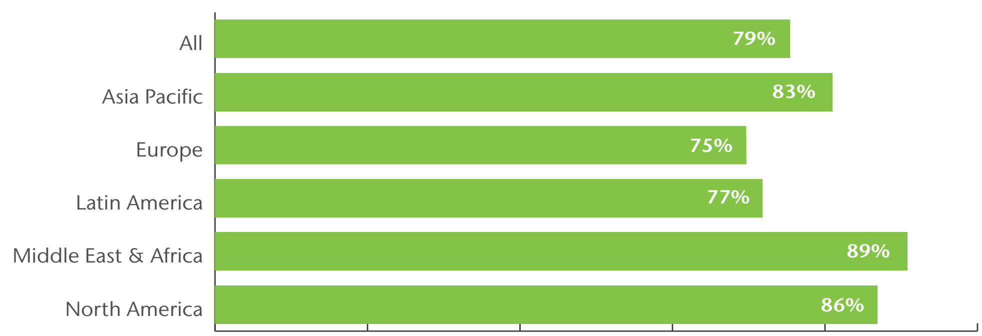
The report also points out that increasing performance along these dimensions requires a robust process that focuses on:

- the *identification* of strengths and weaknesses
- strong *communication* of risks and risk management across functions and at all levels of the organization
- building *consensus* regarding the steps to be taken

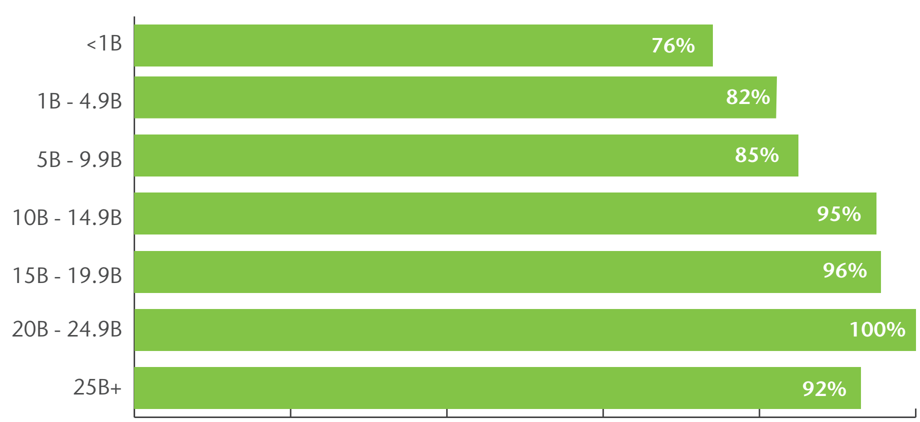
Involving people performing different functions and at various levels in the risk maturity assessment process enables a company to check its current status against these dimensions, providing the foundation for identifying areas for ongoing improvement.

Aon's survey shows that larger organizations (annual revenue over USD10 billion) with more complex operational structures tend to adopt more sophisticated practices to risk oversight and management. More than 90 percent say they engage in cross-functional collaboration while the number of smaller and medium-sized companies who do so increased from 65 percent in 2017 to 76 percent in 2019.

Risk management program with cross-functional input on key risks by region



Risk management program with cross-functional input on key risks by revenue (in USD)



Additional corporate functions involved in key risk management decisions

When it comes to a cross functional approach to key risk management decisions, the same positive trend that we have spotted in the area of adopting more formalized risk management processes continues. In comparison with the results in the last survey, we see an increase in all categories, especially in participation of the corporate strategy function, from 32 percent in 2017 to 51 percent in 2019. In addition, there is an increase in participation of the IT department. Given the growing awareness of cyber security threats, this increase is expected.

In the 2019 survey, we have introduced two new departments for respondents to select - Design & development, and research & development, both of which we believe should be part of an enterprise wide collaboration. Despite the large number of participating industry sectors that rely heavily on these departments for their commercial success, it is disappointing to see only a small percentage have selected these two departments, the lowest in all selections. In order to have a truly cross-functional approach, we believe that more organizations should incorporate all the listed departments in their decision-making process.

Additional functions involved in key risk management decisions by region

Function	All 2019	All 2017	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Corporate strategy	51%	32%	59%	49%	59%	44%	47%
Design & development (product/ solution)	17%	n/a	18%	16%	18%	6%	18%
Executive management	78%	73%	86%	75%	61%	72%	85%
Finance	78%	67%	81%	76%	74%	78%	82%
Human resources (HR)	51%	42%	57%	46%	51%	50%	56%
Information technology (IT)	58%	41%	65%	55%	43%	56%	65%
Internal audit	36%	33%	37%	34%	33%	50%	38%
Legal / compliance	64%	56%	63%	59%	60%	53%	76%
Operations	54%	47%	63%	44%	56%	69%	65%
Research & development	11%	n/a	11%	12%	11%	19%	10%
Risk committee / council	39%	35%	46%	35%	45%	59%	38%

Identifying and assessing major risks

Our research shows that companies continue to deploy a range of methods to identify risk.

At the board level, there appears to be a greater emphasis on more formalized assessments of risk, rather than general discussions on risk as part of the day-to-day running of the company. On average 50 percent of respondents adopt a board risk assessment process.

Surveyed organizations rely heavily on output from the internal audit process as a method for identifying risk, with 69 percent of firms with a turnover of between USD20-25 billion using this approach. Good corporate governance requires that audit and risk be kept separate. While these results do not necessarily point to an integrated function in respondent organizations, too much focus on control assurance may lead to new or emerging risks being overlooked or underestimated.

It is encouraging to see that a large number of respondents use external sources of data - be it external reports or industry analysis - to help inform their views on the key risks to their businesses. This trend is more significant with larger firms, with almost 60 percent of companies with revenues of more than USD15 billion using these sources of external validation. This approach to risk identification becomes more critical when the risks under consideration are macro-economic in nature, such as economic slowdown/slow recovery or changes in market forces.

Even though a structured, enterprise-wide approach to risk identification is becoming more commonplace, especially among large companies, over a third of surveyed organizations with revenues of over USD25 billion have yet to adopt such a formal structure. The finding is somewhat surprising because most of these large companies are likely to be listed on a stock exchange where a formal process for managing risk is required.

Regionally, companies in the Middle East & Africa are most likely to have a formalized approach. In comparison with organizations in North America and Europe, these regions were late adopters of enterprise risk management (ERM). However, they appear to have made great strides in being able to demonstrate that they are well risk managed entities in order to attract international investment.

Despite the fact the organizations continue to use a range of tools and sources of information to help them better understand their risks, it would seem that there is no substitute for senior management judgment and expertise. This is especially the case in North America where 67 percent of respondents turn to their most experienced leaders for insights, almost twice as frequent an approach as a more formalized ERM system. While the knowledge and experience of risk directors is an undoubtedly valuable asset, companies should be mindful of bias and limitation on personal perspective if they rely too heavily on the views of a few.

What concerns us is the fact that nearly one in 10 companies taking the survey have no formalized process in place at all. This would perhaps be expected in smaller companies or emerging markets, but our research shows that 12 percent of European and 10 percent of North American companies have no formal process for risk identification, and that six percent of companies with revenues of more than USD25 billion have no formal process at all. With the top risks in this year's survey being less insurable than ever before, not having a formalized risk management process sets a dangerous precedent.

Identification of major risks by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Board/management risk assessment	50%	64%	51%	30%	61%	46%
Board/management risk discussion (annual planning)	36%	44%	35%	21%	47%	39%
Board/management risk discussion (other)	31%	35%	28%	30%	17%	35%
External reports	36%	39%	33%	41%	47%	37%
Industry analysis	38%	40%	31%	33%	33%	53%
Risk info from internal audit process	44%	42%	41%	45%	64%	47%
Risk info from disclosure process	13%	14%	9%	9%	14%	21%
Risk info from compliance process	33%	39%	29%	28%	33%	38%
Senior management judgment & expertise	52%	57%	45%	45%	58%	67%
Structured process for risk Identification (enterprise-wide)	35%	39%	32%	36%	47%	35%
No formalized process	11%	8%	12%	16%	11%	10%

Identification of major risks by revenue (in USD)

Category	<1B	1B –4.9B	5B –9.9B	10B –14.9B	15B –19.9B	20B –24.9B	25B+
Board/management risk assessment	50%	46%	60%	53%	55%	69%	52%
Board/management risk discussion (annual planning)	34%	39%	51%	42%	36%	38%	33%
Board/management risk discussion (other)	30%	35%	39%	22%	36%	46%	32%
External reports	36%	36%	38%	39%	59%	31%	41%
Industry analysis	35%	39%	44%	53%	55%	54%	56%
Risk info from internal audit process	40%	49%	63%	58%	55%	69%	57%
Risk info from disclosure process	9%	16%	26%	31%	32%	23%	27%
Risk info from compliance process	30%	36%	48%	39%	50%	38%	51%
Senior management judgment & expertise	52%	58%	61%	53%	50%	54%	51%
Structured process for risk identification (enterprise-wide)	28%	46%	60%	44%	41%	69%	59%
No formalized process	11%	9%	8%	3%	9%	0%	6%

Effectiveness of risk identification and assessment practices

For any risk management program to be effective, it needs to be built upon a reliable foundation of risk identification and assessment. Fundamentally, if an organization cannot identify risks and subsequently quantify them, then it is very difficult to invest in appropriate mitigation.

In terms of risk identification, there are three important aspects to the resulting risk register that companies should address for the process to be effective:

1. Is the risk register complete? In other words, can the organization identify every foreseeable risk?

2. Is the risk register sufficient? Given that complete sufficiency might be an impossible aspiration, does the risk register contain enough information on risks and their dependencies to enable meaningful analysis?

3. Are the identified risks measurable?

The third aspect is quite fundamental to the process, and organizations can face issues around the accuracy of risk criteria, the repeatability of the process, the resolution of risk criteria (i.e. how much can the risk move before it is noticed?) and even the sensitivity of the process (i.e. is it quick enough to spot moving/emerging risks?).

Looking at the results of the survey, it is the smaller companies that are reporting the most need for improvement in risk identification and assessment.

Across the regions, respondents in Europe report the highest needs for improvement, while Asia Pacific has fewer needs to improve the effectiveness of risk identification and assessment.

Effectiveness of risk identification and assessment practices by region

Region	Score 1 – 4 High need for improvement	Score 5 – 7 Need for improvement	Score 8-10 Lower need for improvement	Average score
All	11.5%	51.8%	36.7%	6.68
Asia Pacific	8.4%	49.2%	42.4%	7.02
Europe	14.2%	54.4%	31.4%	6.42
Latin America	9.4%	46.1%	44.4%	6.87
Middle East & Africa	8.3%	52.8%	38.9%	6.92
North America	9.3%	50.9%	39.8%	6.88

Effectiveness of risk identification and assessment practices by revenue (in USD)

Region	Score 1 – 4 High need for improvement	Score 5 – 7 Need for improvement	Score 8-10 Lower need for improvement	Average score
<1B	12.7%	53.7%	33.6%	6.52
1B – 4.9B	12.5%	50.2%	37.3%	6.78
5B – 9.9B	4.7%	60.5%	34.9%	6.90
10B – 14.9B	2.9%	51.4%	45.7%	7.11
15B – 19.9B	0.0%	50.0%	50.0%	7.45
20B – 24.9B	0.0%	54.5%	45.5%	7.27
25B+	6.7%	30.0%	63.3%	7.58

Methods of evaluating efficacy of risk management

This section of the survey is probably the most critical of all the questions because it goes to the heart of the entire risk management process: have we made a difference? Most likely all our participants have been asking themselves if their efforts have reduced the probability or the resulting impact of risks occurring and also how they performed with regard to past risk based incidents.

The Aon Risk Maturity Index Insight Report has demonstrated that organizations with higher levels of risk maturity generally invest time and effort in reviewing the performance and effectiveness of their risk management programs. Measuring program effectiveness involves the following key areas:

- Reduction of Total Cost of Risk/VaR metrics

- Alignment of strategic risk management activities with the risk management plan and overall strategic objectives of the organization

- Identification of best practices and expansion of their application

- Identification of weak practices and taking correctional steps

- Performance benchmarking against peers

If we compare this year's survey results with those of 2017, we see an overall increase in the proportion of organizations evaluating their risk management programs.

For example, there is a reduction in the percentage of firms that are not rating effectiveness at all.

More companies are lowering their Total Cost of Risk or TCOR - North America being the most developed region in this regard and in contrast, the Middle East & Africa are using the TCOR measurement proportionally less.

Organizations are embedding risk into the business and looking at risk upsides. Asia Pacific being the most active in that area while the percentage in Europe is the lowest.

Breaking the efficacy analysis down by organizations' size, the general trend is that the larger the company, the more likely it is that effective risk management programs are being implemented.

Methods of evaluating efficacy of risk management by region

Category	All 2019	All 2017	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Do not measure effectiveness	23%	37%	28%	43%	38%	43%	25%
Compare historical results from risk events against effectiveness of risk management programs	19%	30%	37%	25%	28%	22%	43%
Lower Total Cost of Risk	51%	27%	21%	23%	13%	8%	46%
Identify/track involvement of risk management within organization	28%	27%	41%	24%	26%	32%	29%
Compare historical results of safety and loss control programs (i.e. decreasing losses, faster return-to-work)	25%	24%	27%	15%	24%	17%	45%
Evaluate the extent to which risk concepts are integrated into business investments and strategic decisions	38%	23%	35%	19%	27%	28%	26%
Identify income generated or other financial/ strategic benefits associated with a company captive	15%	7%	7%	4%	10%	13%	11%
Other	5%	4%	3%	3%	4%	4%	5%

Multinational Programs

Multinational Programs

International risks that may disrupt business, reduce earnings or otherwise hurt business remain formidable. This fact is true regardless of whether the international exposures are direct, indirect, known or unknown. As such, it is important to review risk management strategies to ensure that the techniques employed effectively address these exposures.

This section of the survey highlights respondents' comments on how they purchase, prioritize and control their multinational programs.

In summarizing the results, "globalization" is still ranked very low by survey participants in the 2019 survey, even though its ranking has edged up from 40 to 38. That said, many risks with international components remain high in the rankings, including geopolitics, distribution and supply chain failures, cyber attacks/data breach and regulatory/legislative changes. In addition, some geography-specific concerns have made their way onto the 2019 risk list, including BREXIT and GDPR, both of which have the potential to impact exposed organizations regardless of home office domicile.

Multinational insurance purchasing habits

From 2017 to 2019 there was a significant uptick in the number of surveyed organizations that controlled insurance purchases from the home office. This increase corresponds with the decrease in the number of respondents advising that they share control with their international offices.

These trends suggest that the increase may be supported by two shifts. First, respondents have matured in their approach to international risk finance and are focused on elimination of redundant and/or otherwise unnecessary local insurance purchases in order to reduce the spend outside of corporate programs. Secondly, there are more lines of coverage available in a "program" format, which allow more centralization of purchase.

Multinational programs remain an evolving mainstay in the arsenal of many multinational organizations for dealing with international risks. Shaped and driven by market expansion and maturity as well as the regulations that contribute to their structure and performance, the number of lines of business for these programs continues to rise.

Multinational insurance purchasing habits

Category	All 2019*	All 2017*	2-5	6-10	11-15	16-25	26-50	51+
Yes (HQ controls all global insurance)	68%	49%	70%	66%	59%	70%	72%	68%
Partially (HQ and local office share control)	23%	41%	18%	23%	30%	24%	23%	27%
No (Each local office controls its insurance)	9%	10%	12%	11%	11%	6%	5%	5%

** All represents respondents operating in more than one country.*

Types of multinational insurance coverage purchased

In sync with the increase in the number of respondents who exert greater control of insurance purchases at the global headquarters (vs. local operations) there are more lines of coverage being purchased in a "program" format than in 2017. As in the past, Aon would expect this trend to continue as insurers globalize more of their coverage capabilities, facilitating more "program" offerings.

Of notable interest are the small downward movements in reported program purchases for property & business interruption, general & products liability as well as workers compensation, even though they are the most frequent programs purchased from 2017 to 2019. There is no obvious explanation for these decreases, so this will be an area of interest for Aon's next survey.

Types of multinational insurance coverage purchased

Category	2019*	2017*	2-5	6-10	11-15	16-25	26-50	51+
Auto / motor vehicle liability	54%	46%	68%	59%	49%	53%	42%	43%
Crime	45%	40%	47%	42%	35%	48%	50%	46%
Directors & officers liability	78%	69%	77%	85%	74%	79%	80%	78%
Employers liability	61%	49%	67%	65%	54%	67%	55%	56%
General / public liability	81%	85%	84%	75%	80%	77%	84%	78%
Marine/ocean cargo	49%	48%	37%	47%	47%	53%	54%	61%
Product recall & contamination	29%	21%	23%	28%	25%	32%	40%	33%
Property damage & Business interruption	75%	79%	75%	74%	74%	75%	81%	73%
Trade credit	27%	18%	25%	29%	23%	23%	30%	34%
Workers compensation	48%	49%	58%	45%	38%	50%	45%	42%
Other	15%	11%	12%	18%	16%	15%	14%	17%

** All represents respondents operating in more than one country.*

Importance to multinational program purchase decision

Consistent with prior years, certainty of coverage, cost, and statutory compliance serve as each of the top drivers for multinational program purchasing decisions in the composite scores.

When assessing scores, certainty of coverage is number one across all demographics. The rest of the categories vary by respondent geography and size. For example, statutory compliance is the second most important driver for North American respondents and for those with revenue greater than USD10 billion.

Surveyed organizations outside of North America and companies with revenue less than USD10 billion ranked cost as the second most important driver. When looking at the remaining program purchase decision drivers across geography and revenue size, there are no single correlations that can be made. This reinforces the idea that multinational firms prioritize their approach to the purchase of multinational programs based on varied individual criteria.

Importance to multinational program purchase decision (1 being the highest priority)

Insurance Purchase	2019*	2017*	2-5	6-10	11-15	16-25	26-50	51+
Accounting (local risk transfer costs vs. Hq pay)	6	6	6	6	6	6	6	6
Certainty of coverage	1	1	1	1	1	1	1	1
Cost (most economical approach)	2	2	2	2	2	2	2	2
Fiscal compliance (premium pay and related taxes)	5	5	5	5	5	5	5	5
Program performance (local claims access, etc.)	4	4	4	4	4	3	4	4
Statutory compliance (access to local admitted coverage, where non-admitted is prohibited)	3	3	3	3	3	4	3	3

** All represents respondents operating in more than one country.*

Key Controls and Mitigation

Key Controls and Mitigation

Importance of insurance in companies

As more uninsurable risks entered the Top 10 List from 2015 to 2017, we wanted to find out from participants in the 2019 survey if the importance of insurance is matching this trend. With economic pressures and technological developments creating a new reality and new risks for organizations around the world, what role does insurance play? Has insurance become more or less important in the last five years? First, we look at the current rank of insurance across organizations before exploring how it has changed in the last five years.

The responses show that the importance of insurance as a discipline ranks higher than the profile of the risk and insurance department within corporations, with an average of 7.66 across the sample. At a time when insurance has proven to be an attractive way of mitigating volatility, the result is expected.

Organizations in Latin America and the Middle East place the most importance on insurance, with Europe bringing up the tail (with an average score of 7.16). Furthermore, company turnover seems to have little impact on the relative importance of insurance.

Importance of insurance in companies by region

Region	Average Rank
All	7.66
Asia Pacific	8.16
Europe	7.16
Latin America	8.43
Middle East & Africa	8.26
North America	7.96

Note: Ranked on a 1 to 10 scale, with 10 being the highest rank

Importance of insurance within organization in the last five years by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
More important	93%	96%	92%	96%	95%	90%
Less important	7%	4%	8%	4%	5%	10%

Importance of insurance within organization in the last five years by revenue (in USD)

Category	<1B	1B – 4.9B	5B – 9.9B	10B – 14.9B	15B – 19.9B	20B – 24.9B	25B+
More important	93%	92%	91%	95%	96%	86%	86%
Less important	7%	8%	9%	5%	4%	14%	14%

If we break it down by industry, we see a similar pattern. Beverage companies, restaurant groups, and rubber/plastic/stone/cement companies are unanimous on the more important role that insurance must play in their businesses now. This reflects the high insurable risk profile of these industries, and the unique sector challenges that can often result in a reduced appetite for risk and greater dependency on insurance as a mitigant for volatility.

While agreeing in principle that insurance has become more important, textile companies, retailers, and chemical corporations differ slightly in their responses. This could be due to more prominent market and business risk drivers among some of the sample, the use of alternative risk financing techniques and captive insurance companies, or a renewed focus on risk control and management.

About 90 percent of surveyed companies around the world value the important role of insurance in helping reduce volatility of performance. Among the largest companies in the sample - those with revenues of USD 20 billion, 86 percent consider insurance to be more important.

This small discrepancy might be explained by the limited role that insurance can play in addressing some of their most significant business risks.

Importance of insurance within organization in the last five years by industry

Industry	More important	Less important
Agribusiness	91%	9%
Aviation	93%	7%
Banking	96%	4%
Beverages	100%	0%
Chemicals	88%	12%
Conglomerate	96%	4%
Construction	95%	5%
Consumer goods manufacturing	91%	9%
Education	92%	8%
Energy (oil, gas, mining, etc.)	92%	8%
Food processing & distribution	94%	6%
Government	93%	7%
Health care	93%	8%
Hotels & hospitality	96%	4%
Insurance	90%	10%
Investment & finance	91%	9%
Lumber, furniture, paper & packaging	93%	7%
Machinery & equipment manufacturers	89%	11%
Metal milling & manufacturing	90%	10%
Pharmaceuticals & biotechnology (Life sciences)	95%	5%
Power/utilities	95%	5%
Printing & publishing	94%	6%
Professional & personal services	96%	4%
Real estate	94%	6%
Restaurant	100%	0%
Retail trade	87%	13%
Rubber, plastics, stone & cement	100%	0%
Technology	94%	6%
Telecommunications & broadcasting	96%	4%
Textiles	85%	15%
Transportation manufacturing (non-aviation)	93%	7%
Transportation services (non-aviation)	91%	9%
Wholesale trade	92%	8%

Determining limits of insurance

Organizations adopt different strategies to determine their limits, which is an important process to go through. Often companies underestimate their level of exposure to key risk events and can be underinsured as a result. Conversely, if limits are set too highly, capital is unnecessarily deployed on risk transfer, at the expense of business enabling activities.

The preferred approach to determining limits for companies all across the world is to rely on support from the broker or consultant. It is encouraging to see that the number of companies selecting this approach has increased by 20 percent overall. Management judgment also has a key role to play, ranking as the second most frequently deployed strategy among respondents. North American respondents favored peer benchmarking. Fewer businesses elsewhere picked this approach. Surprisingly, only 12 percent of surveyed companies in Europe choose to use risk modelling to determine limits. In an environment where technical pricing is re-emerging as a result of the changing insurance market, we would expect this approach to be more common.

Companies deploy a wider range of techniques to determine limits. External advice and peer benchmarks are the most frequently used.

For smaller companies, there is considerably more emphasis on management judgment, which is also the second most frequently deployed strateg for all companies with revenues up to USD5 billion. While still depending on this approach, the largest companies are also applying more objective or scientific data-driven decision making processes. This suggests growing scrutiny from senior executives on insurance policies. Risk managers should be able to demonstrate why they buy insurance coverage at the level they do.

Determination of limits by region

Category	All 2019	All 2017	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Broker or independent consultations	81%	61%	88%	81%	66%	72%	85%
Cost-benefit analysis (Premium cost vs. Limits purchased)	40%	45%	36%	36%	45%	36%	47%
Industry claims data (large loss)	25%	30%	16%	22%	23%	17%	37%
Management judgment & experience	49%	57%	49%	42%	47%	56%	65%
Peer benchmarks	29%	41%	25%	19%	16%	14%	57%
Risk modelling	20%	21%	19%	12%	25%	22%	31%
Scenario analysis	21%	25%	16%	17%	38%	19%	24%

Determination of limits by revenue (in USD)

Category	<1B	1B–4.9B	5B–9.9B	10B–14.9B	15B –24.9B	15B –24.9B	25B+
Broker or independent consultations	83%	77%	83%	78%	85%	92%	77%
Cost-benefit analysis (Premium cost vs. Limits purchased)	36%	44%	44%	56%	55%	67%	62%
Industry claims data (large loss)	17%	33%	44%	44%	50%	33%	62%
Management judgment & experience	47%	58%	54%	58%	55%	42%	62%
Peer benchmarks	19%	44%	56%	64%	70%	67%	67%
Risk modelling	12%	29%	38%	53%	55%	42%	59%
Scenario analysis	15%	31%	31%	39%	30%	50%	48%

Priorities in choice of insurer

For the third time, respondents rated coverage terms and conditions as a top criterion when selecting an insurer, followed closely by claims service & settlement, and value for money. All three categories have remained on top since 2015. This gives a clear message to insurers: concerns for competitive pricing continue to be tempered by having the broadest coverage and strong claim service.

With economic slowdown/slow recovery and accelerated rates of changes in market factors as participants' top risk concerns, we are not surprised that claims service and settlement remain so highly rated. During challenging economic times, the way in which a claim is managed can play a fundamental role in the ability of the insured to recover its business. Moreover, the speed with which the claim is addressed and paid can also directly impact the liquidity of the insured. As the insurance market continues to become more disciplined, it will be interesting to see if this category will rise in importance for participants in the future and how prominent insurers' claims propositions could become.

Two of the biggest changes in priorities are 1) the ability of the insurer to execute and deliver risk finance support proximate to global locations; and 2) industry experience. Both have jumped two spots. This highlights companies' dire need of a carrier which can support their international operations locally and also understand the needs of their specific industry.

It is interesting to note that financial stability, a top criterion for insurance buyers from 2007 to 2011, has been gradually downgraded to number five in this year's report. This change leads to the conclusion that many organizations now see this important indicator as more of a "hygiene factor" in the choice of an insurer.

The 2019 survey also shows that speed and quality of documentation, which is at the bottom of the list, may no longer be considered as a differentiating factor among insurers. The low ranking could represent a combination of factors. For example, the industry's standards have improved overall, making it less of an issue, or other factors on the list have become more relevant given the current environment.

Priorities in choice of insurer

Category	2019 Rank	2017 Rank	2015 Rank	2013 Rank	2011 Rank	2009 Rank	2007 Rank
Coverage terms and conditions****	1	1	1	Not Ranked	Not Ranked	Not Ranked	Not Ranked
Claims service & settlement***	2	2	2	1	3	3	4
Value (for money/price)	3	3	3	3	2	2	2
Industry experience	4	6	6	4	4	5	6
Financial stability and rating	5	4	4	2	1	1	1
Capacity	6	5	5	5	7	4	Not Ranked
Long-term relationship	7	8	7	6	6	6	Not Ranked
Ability to execute and deliver risk finance support proximate to global locations	8	10	9	8	9	8	8**
Flexibility/innovation/creativity	9	7	8	7	8	7	3*
Speed and quality of documentation	10	9	10	9	10	10	5

*This was the ranking for Flexibility only in the 2007 survey
** This was the ranking for Global Representation
***Settlement was added to Claims Services in 2013 survey and Prompt Settlement of Large Claims was removed
****2015 was the first year ranking for Coverage terms and conditions

Measuring Total Cost of Risk (TCOR)

In this year’s survey we have changed the question measuring the Total Cost of Risk TCOR. Before asking details regarding which categories of TCOR are being measured, we required participants to indicate first if they measure TCOR at all with a simple yes or no.

The results have given us reasons for concern. First, more than half of survey participants (57 percent) say that they do not invest in TCOR measurement. An organization’s TCOR comprises risk transfer costs (insurance premiums), risk retention costs (retained losses and claims adjustment costs), external (brokers, consultants and other vendors) and internal (staff and related) risk management costs. Consistently measuring and managing TCOR has proven to be one of the most effective ways to evaluate an organization’s risk management strategies.

Secondly, organizations who state they measure TCOR seem to have a variant understanding of what TCOR actually means. If we go by its technical explanation, those who measure TCOR should have selected all categories, and the values should show 100 percent. However, as we can see in the table showing the elements of TCOR measured, this is not the case. The misalignment, we assume, could center around the word "total." It appears that a sizable number of participants only measure selected elements of their TCOR, such as risk transfer cost. As the saying goes, you can’t manage what you don’t measure. When companies fail to measure all elements, they are leaving themselves open to potential future challenges.

Thirdly, many surveyed companies do not consider internal costs as part of the TCOR. This should be a cause of concern. Internal costs are as crucial as the other categories to show the full picture of risk management costs within organizations.

From a regional perspective, participants in North America have a broader understanding of the true definition of the Total Cost of Risk.

In addition, there is some degree of correlation between the percentage of respondents measuring full TCOR and an organization’s size. However, only a third of companies with revenues of over USD20-25 billion measure TCOR. We cannot find a clear explanation for this low percentage.

Measurement of Total Cost of Insurable Risk by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Yes	43%	42%	39%	58%	53%	47%
No	57%	58%	61%	42%	47%	53%

Measurement of Total Cost of Insurable Risk by revenue (in USD)

Category	<1B	1B–4.9B	5B–9.9B	10B–14.9B	15B –24.9B	15B –24.9B	25B+
Yes	38%	51%	54%	49%	75%	33%	68%
No	62%	49%	46%	51%	25%	67%	32%

Elements of Total Cost of Risk measured by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Risk transfer costs	79%	82%	71%	83%	63%	90%
Risk retention costs	68%	62%	60%	60%	47%	90%
External risk management costs	75%	76%	71%	57%	89%	89%
Internal risk management costs	57%	58%	53%	48%	79%	63%

Cyber Risk Assessment and Coverage

Cyber Risk Assessment and Coverage

Overall risk ranking

In this year's survey, cyber risk has slid down one place, from number five in 2017 to number six. This could illustrate the elevation of other risks that are direct results of an increasingly volatile geopolitical and economic climate. Moreover, the decrease could also be attributable to ‘cyber fatigue’ that is creeping into senior leadership teams due to the continued emphasis on security auditing, security reporting, privacy regulations, and media coverage of the latest ‘data breach.’

If companies are suffering from cyber fatigue, this would be disconcerting because the number of companies that are claiming cyber-related losses has doubled since 2015. Even though an increasing number of companies in North America are employing affirmative insurance coverage to protect their balance sheets from cyber events, the majority of those in other regions are not.

In 2018, intangible and digital assets represented USD19.82 trillion of the S&P 500 enterprise value (or 84 percent of assets) in comparison with USD122 billion or 17 percent of assets in 1975. Underpinning the strategic importance of digital transformation is an accelerated growth of investment in digital technology. According to the World Economic Forum, there will be USD 250billion in digital transformation investment over the next 10 years, which may unlock an additional USD20 trillion in productivity.

This investment would lead to a proliferation of digital, web-enabled devices in the business environment and throughout product categories. There were 8.7 billion IoT devices in 2012. Seven years later, that number has grown to 34.5 billion. By 2020, the McKinsey Global Policy Institute anticipates that there will be 50 to 100 billion IoT devices, which could add USD6.2 trillion in productivity.

At the same time, we are also seeing executives directing capital investment and strategic urgency toward digital transformation. It is now hailed as an enabler of continued growth and competitiveness. Accordingly, the down trending of cyber risk highlights a strategic imbalance between the commercial criticality of digital technology and the perception of cyber as a downside risk to that digital agenda. One cannot forget that two ransomware campaigns (WannaCry and Not Petya) have incurred more than USD3 billion in losses since Aon's last survey in 2017. Annually, companies are now bearing USD550 billion in cyber-related losses.

	2019	2017	2015
Risk rank	#6	#5	#9
Cyber risk assessment	59%	53%	42%
Effectiveness of coverage	93%	80%	78%
Insurance purchased	54%	33%	21%
Not purchased and no plans	32%	48%	61%
Captive utilization	16%	12%	8%
Loss of income	16%	10%	8%
Cyber risk readiness	79%	79%	82%

Cyber risk ranking by industries

Sectors that have been impacted the most by data breaches since the previous survey rate cyber attacks/data breach as a top risk concern.

Industry	Change from 2017
Banks	↑ 2
Government	↔ 1
Health Care	↑ 2
Insurance	↑ 2
Technology	↑ 3

Banks: up from number three - According to American Banker, 36 percent of companies said they experienced a severe cyber intrusion in 2019, up from 24 percent in 2017.

Government: at number one - Risk perception is likely driven by the increasing number of state-sponsored cyber campaigns on critical infrastructure (i.e. battlespace coordination), breaches of public service databases for espionage purposes (Singapore, Hong Kong, U.S., Sweden, Turkey, India, Australia, and the Philippines) and the weaponization of social media platforms for political misinformation campaigns (multiple countries).

Healthcare: up from number three - The industry is becoming vulnerable with the growth in online platforms providing diagnostics results, blood donors information sharing, and applications of wearables to provide healthcare diagnostics. There has been a dramatic increase in breaches of those online repositories.

Insurance: up from number three - This reflects an increasing number of attacks against health insurance providers.

Technology: up from number four - It is likely to be linked with massive breaches at multiple social media platforms and various high-profile government investigations into data privacy practices.

Meanwhile, the industries listed below have also been adversely affected by large-scale cyber attacks. Interestingly, their ranking of cyber risk has gone down from that in the last survey.

Pharmaceuticals & biotechnology (life sciences): number 13 (down from number 12) – Many life science companies suffered the crippling attacks by WannaCry and Not Petya ransomwares, which incurred more than USD300 million to USD500 million in losses.

Hotels and hospitality: number five (down from number three) – Similarly, this ranking runs counter to the trends of cyber attacks against the industry over the past two years.

Transportation services (non-aviation): number five (down from number three) – Similar to life science, cyber threats have become more impactful for transportation-related businesses.

Industry	Change from 2018
Pharmaceuticals & biotechnology (Life sciences)	↓ 1
Hotels and hospitality	↓ 2
Transportation services (non-aviation)	↓ 2

Risk ranking by regions

Participants in North America continue to lead in cyber risk ranking. Latin America lags behind all other regions across all performance metrics. Organizations there simply deploy appropriate risk evaluation, mitigation, and transfer strategies to tackle cyber risks.

	Latin America 2017	Latin America 2019	North America 2019	Global 2019
Risk perception	#18	#14	#1	#6
Cyber risk assessment	38%	43%	77%	59%
Effectiveness of coverage	56%	67%	96%	93%
Insurance purchased	9%	17%	81%	54%
Not purchased and no plans	71%	65%	13%	32%
Captive utilization	8%	11%	14%	16%

Interconnectivity of digital technology and cyber risk

Cyber risk assessment: Growing application of risk assessments, but silo vision still exists and true integration into ERM still lagging

The use of cyber risk assessments has risen 16 percent since 2015. However, only 59 percent apply any formal process to identify and evaluate cyber risks. This means that a significant number of boards and executives are making strategic risk management decisions with little to no data-driven insights when they tackle one of the most rapidly evolving risks.

What is inhibiting this advancement? It is likely that cyber assessment activities within organizations occur in discrete functional silos (security, technology, privacy, operational, legal).

Of those risk management teams that are involved in cyber risk assessment activities, there has been a positive increase in the application of quantification techniques to evaluate the financial exposures from cyber risks (40 percent, up from 23 percent in 2017).

Despite the increase, a majority of risk assessments are still not using any financial metrics to communicate the materiality of cyber exposure. In addition, outputs from these assessments are not presented in a way that senior executives can understand in the context of their financial risk appetite and that support data-informed capital allocation decision-making.

Although there appears to be a positive correlation between the upward trending of risk assessments and quantitative techniques and the increase in captive utilization (from eight percent in 2015 to 16 percent in 2019) and insurance procurement (21 percent in 2017 to 54 percent in 2019), risk management teams need to be more actively involved in bridging the gap between technical cyber risk assessment activity and the enterprise risk management framework.

Completion of cyber risk assessment by region

Region	Completed an assessment	Yes, quantitative	Yes, qualitative	Yes, both, quantitative & qualitative	Yes, but not sure what type	Not sure
All	59%	8%	20%	32%	19%	22%
Asia Pacific	58%	9%	23%	26%	12%	30%
Europe	55%	7%	18%	30%	23%	23%
Latin America	43%	6%	16%	21%	30%	27%
Middle East & Africa	56%	6%	25%	25%	17%	28%
North America	77%	12%	21%	44%	12%	11%

Completion of cyber risk assessment by revenue (in USD)

Revenue	Completed an assessment	Yes, quantitative	Yes, qualitative	Yes, both, quantitative & qualitative	Yes, but not sure what type	Not sure
< 1B	53%	7%	20%	26%	20%	27%
1B – 4.9B	72 %	11%	22%	38%	15%	13%
5B – 9.9B	81%	7%	21%	53%	11%	8%
10B – 14.9B	81%	16%	3%	63%	6%	13%
15B – 19.9B	87%	7%	13%	67%	7%	7%
20B – 24.9B	60%	0%	30%	30%	40%	0%
25B+	92%	15%	15%	63%	6%	2%

Completion of cyber risk assessment by industry

Industry	2019	2017
Agribusiness	39%	38%
Aviation	78%	69%
Banks	83%	71%
Beverages	53%	53%
Chemicals	62%	56%
Conglomerate	55%	50%
Construction	43%	36%
Consumer goods manufacturing	56%	40%
Education	67%	73%
Energy (oil, gas, mining, natural resources)	58%	59%
Food processing and distribution	50%	50%
Government	36%	58%
Health care	64%	57%
Hotels and hospitality	55%	56%
Insurance	85%	73%
Investment and finance	74%	73%
Life sciences	53%	50%
Lumber, furniture, paper and packaging	63%	62%
Machinery and equipment manufacturers	66%	45%
Metal milling and manufacturing	67%	39%
Non-aviation transportation manufacturing	56%	52%
Non-aviation transportation services	56%	44%
Power/utilities	55%	54%
Printing and publishing	75%	64%
Professional and personal services	73%	62%
Real estate	49%	60%
Restaurants	56%	40%
Retail trade	65%	47%
Rubber, plastics, stone and cement	30%	28%
Technology	78%	61%
Telecommunications and broadcasting	67%	50%
Textiles	30%	48%
Wholesale trade	39%	35%

**For the 2019 survey industry category, Nonprofits is included in the Education category and Insurance has been extracted from Insurance, Investment and Finance into its own separate category.*

Cyber insurance coverage

Since the 2015 survey, cyber risk has been rated as a Top 10 Risk in each report. During that period, premium growth in the cyber insurance market has more than doubled from approximately USD1.5 billion to USD4.5 billion.

In the past four years, across all key metrics, affirmative cyber insurance has been trending in a positive direction. This includes perceptions of the effectiveness of cyber insurance coverage (93 percent) and the number of companies purchasing cyber insurance (doubled to 54 percent).

	2015	2017	2019
Effectiveness of Coverage	78%	80%	93%
Insurance purchased	21%	33%	54%
Not purchased and no plans	61%	48%	32%

Purchase of cyber insurance coverage by region and industry

Utilization of cyber insurance has doubled since 2015. However, companies in Latin America continue to lag in the application of this affirmative insurance.

Since 2015, the number of surveyed companies that are not planning to leverage cyber insurance has reduced by half. The exception is Latin America, where the majority of surveyed (65 percent) companies say they are not considering cyber insurance.

North America continues to lead in cyber insurance purchases. The size of the North American market is almost two-thirds larger than the size of the next biggest regional market (Asia Pacific).

Purchase of cyber insurance coverage by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Insurance currently purchased	54%	54%	41%	17%	27%	81%
Plan to purchase	14%	15%	19%	19%	13%	6%
Not purchased and no plans to purchase	32%	31%	40%	65%	60%	13%

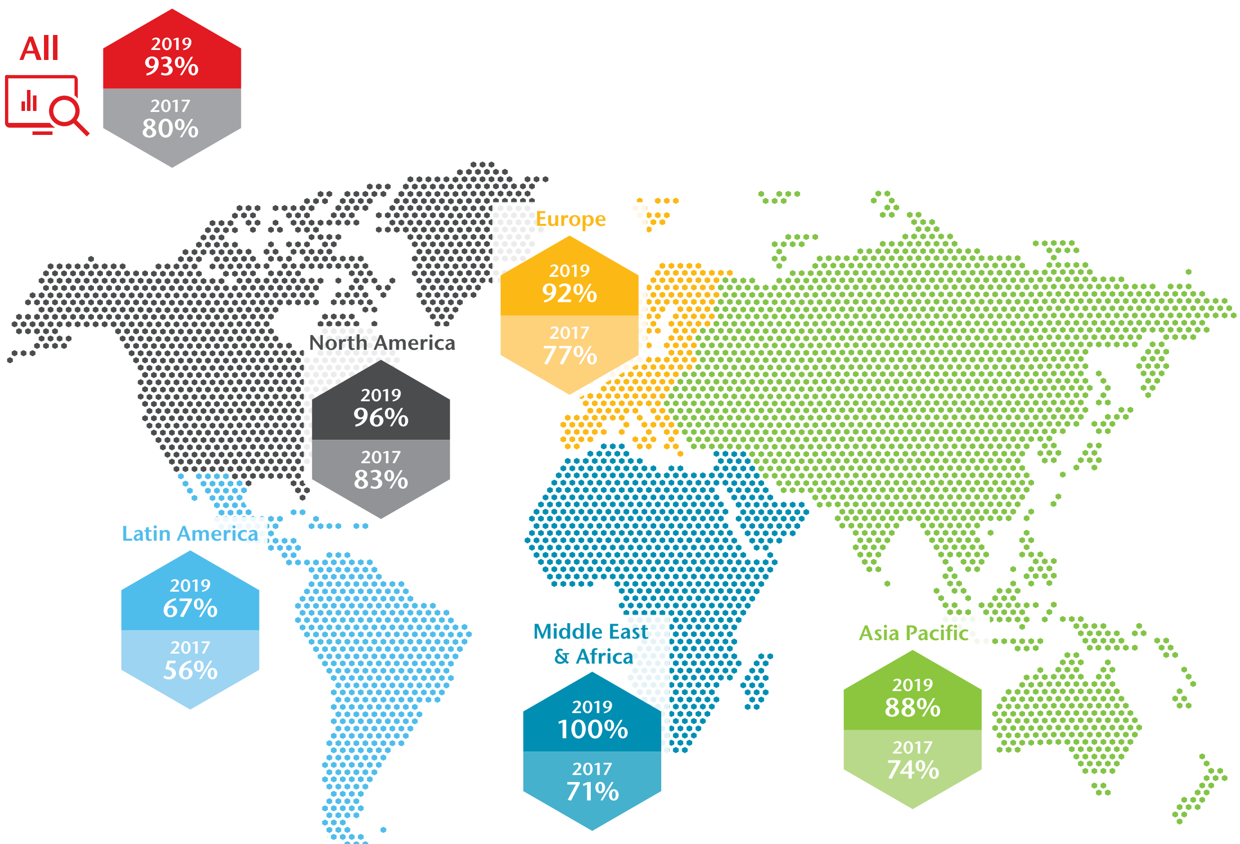
Purchase of cyber insurance coverage by revenue (in USD)

Category	Insurance currently purchased	Plan to purchase	Not purchased and no plans to purchase
<1B	47%	15%	38%
1B –4.9B	64%	14%	22%
5B –9.9B	60%	12%	28%
10B –14.9B	74%	4%	22%
15B –24.9B	77%	0%	23%
20 B – 24.9 B	67%	33%	0%
25 B+	69%	8%	23%

Purchase of cyber insurance coverage by industry

Industry	Insurance currently purchased	Plan to purchase	Not purchased and no plans to purchase
Agribusiness	13%	25%	63%
Aviation	69%	13%	19%
Banking	75%	10%	15%
Beverages	33%	11%	56%
Chemicals	48%	13%	39%
Conglomerate	45%	14%	41%
Construction	41%	28%	31%
Consumer goods manufacturing	39%	19%	42%
Education	75%	15%	10%
Energy (oil, gas, mining, etc.)	38%	17%	46%
Food processing & distribution	52%	7%	41%
Government	58%	8%	33%
Health care	81%	3%	17%
Hotels & hospitality	60%	10%	30%
Insurance	73%	4%	23%
Investment & finance	83%	9%	9%
Lumber, furniture, paper & packaging	52%	10%	38%
Machinery & equipment manufacturers	49%	20%	31%
Metal milling & manufacturing	28%	19%	53%
Pharmaceuticals & biotechnology (life sciences)	36%	21%	43%
Power/utilities	44%	8%	48%
Printing & publishing	70%	10%	20%
Professional & personal services	65%	11%	24%
Real estate	65%	10%	25%
Restaurant	40%	20%	40%
Retail trade	78%	11%	11%
Rubber, plastics, stone & cement	17%	0%	83%
Technology	69%	10%	20%
Telecommunications & broadcasting	55%	36%	9%
Textiles	0%	0%	100%
Transportation manufacturing (non-aviation)	17%	8%	75%
Transportation services (non-aviation)	44%	21%	35%
Wholesale trade	29%	17%	54%

Effectiveness of current cyber insurance coverage by region



Effectiveness of current cyber insurance coverage by revenue (in USD)

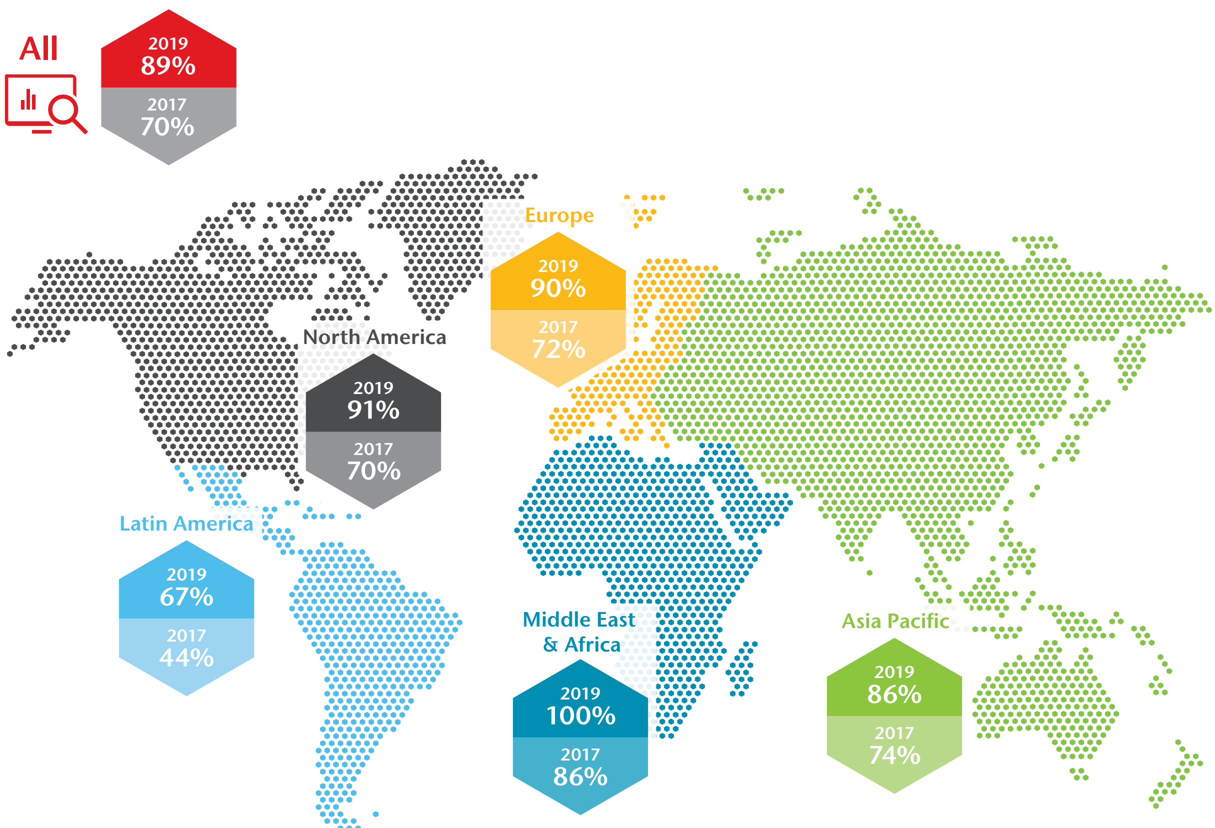
Revenue	2019	2017
<1B	96%	80%
1B –4.9B	92%	81%
5B –9.9B	86%	83%
10B –14.9B	88%	90%
15B –24.9B	70%	75%
20B – 24.9B	75%	67%
25B+	86%	78%

Effectiveness of current cyber insurance coverage by industry

Industry	2019	2017
Agribusiness	NA%	60%
Aviation	91%	60%
Banking	100%	78%
Beverages	67%	100%
Chemicals	91%	60%
Conglomerate	90%	75%
Construction	100%	79%
Consumer goods manufacturing	86%	75%
Education	93%	87%
Energy (oil, gas, mining, etc.)	100%	57%
Food processing & distribution	93%	88%
Government	100%	67%
Health care	93%	85%
Hotels & hospitality	83%	50%
Insurance	100%	N/A
Investment & finance	95%	87%
Lumber, furniture, paper & packaging	82%	100%
Machinery & equipment manufacturers	88%	71%
Metal milling & manufacturing	86%	40%
Pharmaceuticals & biotechnology (life sciences)	100%	100%
Power/utilities	100%	88%
Printing & publishing	100%	100%
Professional & personal services	92%	77%
Real estate	100%	93%
Restaurant	100%	33%
Retail trade	93%	89%
Rubber, plastics, stone & cement	100%	N/A
Technology	91%	83%
Telecommunications & broadcasting	83%	70%
Textiles	N/A	100%
Transportation manufacturing (non-aviation)	100%	100%
Transportation services (non-aviation)	80%	86%
Wholesale trade	86%	64%

For the 2019 survey industry category, Nonprofits is included in the Education category and Insurance has been extracted from Insurance, Investment and Finance into its own separate category.

Adequacy of limits for cyber insurance coverage by region



Adequacy of limits for cyber insurance coverage by revenue (in USD)

Revenue	2019	2017
<1B	94%	79%
1B –4.9B	87%	61%
5B –9.9B	80%	70%
10B –14.9B	76%	70%
15B –24.9B	60%	25%
20B – 24.9B	50%	50%
25B+	86%	59%

Adequacy of limits for cyber insurance coverage by industry

Industry	2019	2017
Agribusiness	NA	40%
Aviation	82%	60%
Banking	87%	67%
Beverages	100%	100%
Chemicals	82%	60%
Conglomerate	90%	75%
Construction	94%	74%
Consumer goods manufacturing	86%	50%
Education	87%	80%
Energy (oil, gas, mining, etc.)	89%	43%
Food processing & distribution	100%	75%
Government	86%	56%
Health care	86%	79%
Hotels & hospitality	100%	67%
Insurance	100%	N/A
Investment & finance	95%	74%
Lumber, furniture, paper & packaging	82%	100%
Machinery & equipment manufacturers	88%	71%
Metal milling & manufacturing	86%	60%
Pharmaceuticals & biotechnology (life sciences)	100%	0%
Power/utilities	91%	62%
Printing & publishing	86%	100%
Professional & personal services	92%	77%
Real estate	100%	100%
Restaurant	100%	33%
Retail trade	93%	63%
Rubber, plastics, stone & cement	100%	N/A
Technology	76%	78%
Telecommunications & broadcasting	100%	70%
Textiles	N/A	0%
Transportation manufacturing (non-aviation)	100%	0%
Transportation services (non-aviation)	80%	57%
Wholesale trade	86%	73%

**For the 2019 survey industry category, Nonprofits is included in the Education category and Insurance has been extracted from Insurance, Investment and Finance into its own separate category.*

Cyber captive utilization

The number of parent companies utilizing their captives to retain cyber risk has grown to 16 percent, almost doubling the 2017 figure.

Even though it still represents a relatively low number of captives, the growth rate has certainly accelerated.

The overall trend of captive participation in cyber coverage across the globe is predominantly in line with the 2017 predictions for 2022. As organizations are becoming more sophisticated buyers of cyber risk insurance, opportunities for captive insurance companies to participate in a complex program will continue to increase.

Given the nascent nature of the risk, it is encouraging to see broad participation across revenue bands. Again, this would reinforce attitudes toward both risk appetite and tolerance, as well as the different, yet, effective use of captives in cyber programs. This is consistent with industry trends and will continue to expand in the growing commercial marketplace.

We envisage incremental growth across the various regions in the next five years. As the market becomes mature, and more companies recognize the value of risk assessments and modelling, this will likely lead to a material premium level growth in captives.

The captive will evolve as a strategic tool for organizations that are dealing with cyber risk in an enterprise-wide approach. With the increased risk complexity and market dynamics, a captive can be used as a facility with which to harness expanded coverage and leveraging tailored response capabilities in the future. This will be equally applicable to both traditional and non-traditional captive stakeholders.

Captives

Captives

Organizations that use captives

Captives remain an integral part of the insurance industry landscape and an important component in the risk financing toolkit, not only for large multinational companies but also for an increasing number of smaller entities. While overall captive numbers are reducing globally, companies that do have active captives write more premiums, and cover an increasingly broader array of risks as part of an enterprise risk management approach to manage their total cost of risk. We view this as a positive indicator because captives are being utilized more effectively and more strategically to serve the needs of their parent organizations.

Companies in the energy, banking, chemicals, healthcare and pharmaceutical sectors have historically been among the most prolific users of captives due to their lack of commercial capacity. This year's survey results continue to reflect this but we are seeing growth in other sectors, where risk transfer options fall short of client needs.

Other common drivers include cost efficiency, the ability to use (re)insurance market capacity tactically and improved claims management. We also see an increased use of captives to meet the growing challenge of risks that affect intangibles. They are becoming an increasingly dominant component of clients' balance sheets.

Over the past two years, we have observed an increased use of protected cell companies (PCCs) by smaller companies as originally intended. As that market has grown, there is increasing support for insurance linked security transactions. We have also noted a significant increase in cells being deployed to access reinsurance market capacity and as a fronting solution, to navigate challenges caused by issues such as Brexit.

Organizations that use captives (including current and future use) by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Currently have a captive or active cell in a PCC	17%	12%	11%	27%	18%	27%
Plan to create a new or additional captive or cell in a PCC in the next 3 years	4%	3%	4%	3%	8%	3%
Don't have a captive or active cell in a PCC	79%	84%	85%	69%	74%	69%

While Aon's 2019 survey suggests a marked increase in captive use by companies in Latin America, we have not seen this trend in practice. This leads us to believe that it is more of a response to our survey than an indication of any underlying trend.

In absolute terms, North America and Europe continue to dominate the captive market. The proportion of respondents in these two regions confirming their use of captives or cells has remained steady. In our previous surveys, respondents indicated notable future interest in forming or using a captive in North America and Asia, but this has not materialized. Given the strong re-emergence of the enterprise risk management approach and a more disciplined approach to underwriting being taken by the risk transfer market, it is probably more realistic to claim that survey participants merely have plans for future use.

To expand on this, as the trading landscape becomes more complex, companies globally need to take a more enterprise-wide approach to assessing, managing and financing risks and will most likely be placing less reliance on "off the shelf" solutions provided by the insurance industry because in many cases, the terms and conditions do not fit their purposes.

Acknowledging the marked swing in responses from Latin America and to a lesser degree, Middle East and Africa, we think that the proportion of captives that are dormant and / or in run-off in North America stays unchanged from our previous survey. More of these types of captives are in Europe.

We continue to detect a steady trend of U.S. captives re-domesticating, leaving their offshore captive in run-off, despite recent tax reform in the U.S.. In Europe, the implementation of Solvency II in 2016 and the resulting increases in regulatory compliance costs have proved unsustainable for many captives. As a result, we expect that more small captives will go into run-off. Globally, there is a greater tendency for captive owners to use their captives tactically to cope with market terms and pricing and for monoline coverage. This has led to periods when they no longer actively underwrite bookended by periods of use.

Organizations that use captives (including current and future use) by revenue (in USD)

Category	1B	1B – 4.9B	5B – 9.9B	10B – 14.9B	15B – 19.9B	20B – 24.9B	25B+
Currently have an active captive or cell in a PCC	9%	26%	32%	54%	29%	75%	56%
Plan to create a new or additional captive or cell in a PCC in the next 3 years	3%	6%	5%	3%	19%	0%	2%
Don't have a captive or active cell in a PCC	88%	68%	64%	43%	52%	25%	43%

Our survey responses this year indicate significant growth in captive and PCC usage from companies with revenues below USD1billion and in the USD1billion to USD4.9 billion range. This can be attributed to the fact that mid-sized companies have adopted a more sophisticated approach to risk financing. At the same time, this market sector has used cells over the past two years for a combination of purposes: risk retention as well as reinsurance market access and fronting.

Indeed, the increased focus on total costs of risk optimization in corporate business plans, the enhanced ability of risk managers to access data and to use sophisticated and easier to maintain models, and a greater awareness of options for risk financing support this growth trend.

The fact that the highest growth occurs in the lower revenue bands suggests that the proliferation of PCC structures and formalized risk financing vehicle alternatives scale is becoming less of a barrier to access.

Current Captive or cell status by region

Region	Currently active	Dormant/run-off	Will close (within the next three years)
All	90%	7%	3%
Asia Pacific	94%	6%	0%
Europe	92%	6%	2%
Latin America	82%	14%	4%
Middle East & Africa	86%	0%	14%
North America	93%	5%	3%

Current Captive or cell status by revenue (in USD)

Revenue	Currently active	Dormant/run-off	Will close (within the next three years)
<1B	87%	10%	3%
1B – 4.9B	90%	8%	3%
5B – 9.9B	100%	0%	0%
10B – 14.9B	95%	5%	0%
15B – 19.9B	83%	17%	0%
20B – 24.9B	100%	0%	0%
25B+	91%	6%	3%

Current and future utilization of captives or cells

We note a significant shift in captive utilization within industry sectors. This could be caused by this year's respondent profile, which differs slightly from that of last year.

The top five industries with a captive are energy (oil, gas, and mining), banking, chemicals, healthcare and pharmaceuticals & biotechnology (life sciences).

Some of the common reasons for captive use for each of these industries include control over terms and conditions of cover being offered, cost efficiency, the tactical use of (re)insurance market pricing and capacity, and managing retained risk within a complex organization in a structured way.

The life sciences sector uses captives for program control and coordination but also as a means of addressing coverage challenges for risks such as clinical trials and product liability. In Aon's 2017 survey, respondents in this sector stated that they planned to increase their usage of captives. These predictions seem to have come true because the life science sector has registered the highest percentage of current captive utilization. Considering the planned rule changes relating to clinical trials within the European Union, it will be interesting to see how captives are used to meet these changing requirements.

Companies in the chemicals and energy industries (including mining) continue to use their captive tactically within a program structure and as an effective means of accessing significant tranches of capacity from the reinsurance market, where terms and conditions as well as pricing can better meet their needs.

In addition, we see increasing examples of how captives can help companies bring more control to the overall claims management process. This is particularly true with large complex claims involving business interruption. In fact, in many cases the inclusion of claims preparation clauses in captive insurance policies enables the risk manager to obtain the expertise needed to manage the claim efficiently. Otherwise, they have to refer all of the issues to the risk management department of the parent organization.

Captives in the healthcare industry are almost exclusively based in North America. Medical professional liability is the largest line underwritten, followed by general liability, workers compensation, property and cyber insurance. Also in this sector, we have seen a notable growth in cyber premium over the past two years. Given that cyber attacks/data breach has been ranked as the number one risk by companies in North America, we expect more companies that house large amounts of personal data to underwrite cyber risk in their captives in the coming years.

The majority of surveyed organizations without a captive are understandably in the government and textile segments. One exception is the education sector, which has started to increase its usage of captive facilities. We see this as a continuing trend toward a more sophisticated approach to risk management, especially in North America.

In our last survey, the hotels and hospitality sector participants indicated that they planned to increase captive usage. That did not materialize. Only four percent have reported current captive utilization in Aon's 2019 survey. Participants have indicated similar intentions to increase captive usage in the future. This is probably due to the fact that most participants represent smaller companies, rather than large international organizations or franchises.

In the restaurant industry, there is a notable increase in both current and planned future use because it was zero in both cases in our previous survey. This suggests that many participants in this year's survey represent larger organizations and that a uniform approach to program structure, capacity and pricing forms part of their objectives.

Organizations that have a captive or utilize a cell within a protected cell company by industry

Industry	Yes (currently)	Yes (within the next three years)	No
Agribusiness	15%	7%	78%
Aviation	11%	7%	81%
Banking	26%	2%	72%
Beverages	11%	6%	83%
Chemicals	27%	0%	73%
Conglomerate	23%	2%	75%
Construction	20%	6%	75%
Consumer goods manufacturing	24%	1%	74%
Education	17%	0%	83%
Energy (oil, gas, mining, etc.)	26%	3%	71%
Food processing & distribution	10%	1%	88%
Government	0%	0%	100%
Health care	26%	0%	74%
Hotels & hospitality	4%	16%	80%
Insurance	13%	3%	84%
Investment & finance	10%	5%	86%
Lumber, furniture, paper & packaging	14%	5%	81%
Machinery & equipment manufacturers	16%	3%	81%
Metal milling & manufacturing	13%	2%	86%
Pharmaceuticals & biotechnology (life sciences)	31%	6%	64%
Power/utilities	21%	3%	76%
Printing & publishing	13%	13%	75%
Professional & personal services	12%	5%	82%
Real estate	16%	5%	79%
Restaurant	11%	11%	78%
Retail trade	24%	7%	69%
Rubber, plastics, stone & cement	5%	0%	95%
Technology	14%	5%	81%
Telecommunications & broadcasting	22%	0%	78%
Textiles	0%	0%	100%
Transportation manufacturing (non-aviation)	17%	7%	76%
Transportation services (non-aviation)	15%	3%	82%
Wholesale trade	6%	4%	90%

Reasons for captives

Having given participants the option to simultaneously select multiple reasons for captives in this year's survey, we see a marked change in responses.

During previous years, when participants were allowed to select one option, the majority stated that their captive was at the core of their strategic risk management strategy. As expected, organizations citied more factors in the current survey. They include: cost efficiency, containing external insurance premium spend, and gaining more control over insurance programs.

With economic slowdown/slow recovery looming as a number one risk, it is probably not surprising that the cost of risk management programs is a key focus for organizations across all industries and sizes. Similarly, low interest rates and soft premium rates in the last 10 plus years have made cost efficiencies more difficult to achieve. As companies are taking a more disciplined approach to underwriting in the commercial risk transfer market, we see opportunities to focus more on coverage control and cost efficiency.

Reasons for captives by region

Category	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Cost efficiencies	63%	55%	60%	62%	71%	66%
Reduction of insurance premiums	51%	45%	48%	47%	57%	57%
Control on insurance programs	47%	65%	44%	49%	14%	46%
Strategic risk management tool	41%	42%	43%	24%	43%	47%
Cashflow optimization	31%	29%	33%	38%	71%	26%
Risk finance expense optimization	31%	32%	26%	27%	43%	34%
Access to reinsurance market	30%	39%	32%	20%	14%	31%
Ability to establish reserves	27%	19%	22%	22%	43%	34%
Finance uninsurable risks	24%	19%	21%	27%	29%	28%
Tax optimization	22%	23%	12%	20%	43%	28%
Other	7%	13%	8%	9%	0%	4%

Overall, when it comes to captive or cell utilization, participants in our survey do not appear to leverage data and analytics effectively to support risk identification. We do see evidence of companies utilizing data and analytics to control claims through better claims analytics across a broader range of companies. Historically, larger captive owners with revenues exceeding USD10 billion tend to take this approach. Now, more mid-sized companies are also utilizing data and analytics.

Reasons for captives by revenue (in USD)

Category	<1B	1B – 4.9B	5B –9.9B	10B – 14.9B	15B – 19.9B	20B – 24.9B	25B+
Strategic risk management tool	27%	49%	54%	42%	33%	67%	50%
Control on insurance programs	36%	49%	71%	63%	33%	78%	50%
Access to reinsurance market	13%	34%	39%	37%	50%	56%	50%
Cost efficiencies	63%	61%	71%	63%	67%	67%	68%
Ability to establish reserves	25%	25%	36%	21%	33%	33%	32%
Reduction of insurance premiums	42%	50%	68%	63%	50%	56%	59%
Tax optimization	22%	17%	21%	16%	33%	22%	35%
Cashflow optimization	42%	24%	29%	16%	67%	11%	26%
Finance uninsurable risks	17%	25%	32%	42%	50%	33%	18%
Risk finance expense optimization	27%	29%	36%	32%	33%	33%	35%
Other	8%	8%	0%	5%	0%	0%	6%

Key risks underwritten

What is particularly interesting about the following tables is the spread of risk being covered by captives globally. While property and casualty remain the dominant lines, we see an array of others. It suggests that traditional programs are being increasingly supplemented by industry specific risk covers, enabled by captives through the enterprise risk approach, which we have referenced throughout this section.

Current risks underwritten in a captive or cell within a PCC by region

Captive coverage	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Auto liability	34%	23%	21%	31%	14%	49%
Aviation	7%	10%	7%	9%	14%	5%
Catastrophe	28%	29%	33%	31%	0%	23%
Credit/trade credit	13%	13%	21%	16%	14%	5%
Contractor-controlled insurance program	11%	6%	14%	20%	29%	6%
Crime/fidelity	13%	19%	16%	7%	14%	12%
Cyber liability/network liability	16%	23%	16%	11%	57%	14%
Directors & officers liability	24%	29%	25%	29%	57%	18%
Employee benefits (excluding health/medical and life)	15%	19%	19%	20%	29%	8%
Employers liability/workers compensation	30%	16%	23%	24%	43%	39%
Employment practices liability	12%	10%	11%	11%	14%	14%
Environmental/pollution	17%	13%	19%	16%	14%	17%
Financial products	7%	10%	8%	9%	43%	4%
General /third-party liability	50%	39%	51%	31%	43%	59%
Health/medical	13%	13%	11%	22%	43%	10%
Life	12%	6%	12%	36%	14%	3%
Marine	18%	23%	23%	18%	14%	13%
Owner-controlled insurance program	7%	6%	7%	4%	14%	8%
Product liability & completed operations	21%	29%	24%	11%	14%	22%
Product recall/tampering	6%	10%	7%	7%	29%	3%
Professional indemnity / errors & omissions liability	24%	39%	20%	16%	14%	28%
Property (property damage/ business interruption)	48%	68%	51%	36%	43%	45%
Subcontractor default insurance	4%	3%	3%	2%	14%	6%
Terrorism	18%	19%	19%	16%	14%	19%
Third-party business	9%	10%	8%	4%	43%	10%
Warranty	6%	6%	5%	9%	14%	4%
Other	8%	6%	8%	7%	0%	10%

Future risks underwritten in a captive or active cell within a PCC by region

Captive Coverage	All	Asia Pacific	Europe	Latin America	Middle East & Africa	North America
Auto liability	18%	9%	15%	17%	0%	24%
Aviation	3%	9%	0%	8%	0%	2%
Catastrophe	15%	45%	7%	8%	0%	14%
Credit/trade credit	23%	18%	26%	50%	0%	14%
Contractor-controlled insurance program	11%	27%	15%	8%	0%	5%
Crime/fidelity	16%	18%	7%	25%	0%	19%
Cyber liability/network liability	34%	45%	30%	33%	0%	36%
Directors & officers liability	16%	27%	7%	33%	0%	14%
Employee benefits (excluding health/medical and life)	16%	18%	19%	8%	0%	17%
Employers liability/workers compensation	14%	9%	7%	25%	0%	17%
Employment practices liability	13%	18%	4%	17%	0%	17%
Environmental/pollution	12%	18%	11%	17%	0%	10%
Financial products	16%	9%	26%	17%	0%	12%
General /third-party liability	28%	27%	19%	58%	0%	26%
Health/medical	24%	18%	26%	17%	0%	26%
Life	12%	9%	7%	50%	0%	5%
Marine	10%	0%	4%	33%	0%	10%
Owner-controlled insurance program	10%	0%	19%	25%	0%	2%
Product liability & completed operations	12%	9%	11%	17%	0%	12%
Product recall/tampering	10%	0%	7%	8%	0%	14%
Professional indemnity / errors & omissions liability	15%	9%	22%	17%	0%	12%
Property (property damage/ business interruption)	25%	36%	19%	33%	100%	21%
Subcontractor default insurance	3%	0%	4%	8%	0%	2%
Terrorism	10%	9%	7%	25%	100%	5%
Third-party business	10%	0%	7%	8%	100%	12%
Warranty	11%	0%	11%	8%	0%	14%

It is encouraging to see that companies across all regions and revenue sizes have indicated that they are planning to underwrite new risks in captives or cells. It comes as no surprise that the percentage for larger organizations is higher. In Asia Pacific and Latin America, where captive usage has been traditionally low, we see a big appetite for new captive risks to be underwritten. We are keen to find out if this sentiment will be borne out during our next survey in 2021. While property, business interruption, workers compensation, general liability and auto liability continue to be the most common risks underwritten by captives, the spread of future risks written in captives continues to broaden.

As captives are planning to diversify their programs, there is an increased focus on industry specific solutions. Such focus is influencing the business written by captives, making them more relevant to the organizations they support. At the same time, the maturity of the risk management community continues to develop in a trading environment that includes more data than ever, and easier access to the tools and expertise to support decision making.

Cyber liability, which was at 12 percent in 2017, stands at 16 percent in our current survey. Cyber risk continues to be at the forefront and many captive owners (34 percent) see it as a risk to be potentially underwritten in the future, the highest percentage across all lines.

This corresponds with planning activities within Aon's captive client portfolio, where many companies tend to apply a common approach to cyber risk management and employ better data analysis to evaluate the financial materiality of these exposures. Denial of recent high profile claims arising from cyber events have also highlighted the need for contract certainty. It will be interesting to see how this resonates with captive owners across all industry sectors in the coming years.

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Methodology

This web-based survey addressed both qualitative and quantitative risk issues. Responding risk managers, CROs, CFOs, treasurers and others provided feedback and insight on their insurance and risk management choices, interests and concerns.

Aon Centre of Innovation and Analytics conducted, collected and tabulated the responses. Other Aon insurance and industry specialists provided supporting analysis and helped with interpretation of the findings.

All responses for individual organizations are held confidential, with only the consolidated data being incorporated into this report. Percentages for some of the responses may not add up to 100 percent due to rounding or respondents being able to select more than one answer. All revenue amounts are shown in US dollars.

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With more than 1300 risk professionals in over 50 countries worldwide the risk consulting business of Aon plc, delivers risk management solutions designed to optimize client's risk profiles. Our suite of services encompasses risk consulting; risk control and claims; and captive management. Aon's global risk consulting team helps clients to understand and improve their risk profile. We do this by identifying and quantifying the risks they face; by assisting them with the selection and implementation of the appropriate risk transfer, risk retention, and risk mitigation solutions; and by ensuring the continuity of their operations through claims consulting.

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