Marsh

New catastrophic risks and insurance market challenges

Global Technology Industry Risk Study 2022

March 2022

Contents

Forward

The demand for the connectivity, convenience, and productivity provided by technology keeps increasing. As the world returns to a new normal in the wake of COVID-19, the push continues for digital solutions for employment, education, entertainment, and commerce.

But rising demand is increasing the challenges that threaten a service disruption for tech companies. The threats to technology resilience — whether natural, accidental, or criminal — have never been more acute. And if your technology services power the global economy, an outage is not just an inconvenience; it can be catastrophic for your customers and your business.

Traditional insurance solutions have not kept pace with the risks of a technology outage. Insurance rates globally have increased. Capacity is tight as underwriters scrutinize both existing and emerging risks. And many companies cannot find markets to insure their emerging business models.

Marsh's *2022 Global Technology Industry Risk Study* examines this confluence of issues for technology companies. Demand is up. Risks are high. Available solutions are often inadequate.

Despite the challenges, technology companies continue to serve their clients, expand into new markets, and develop new products and services. Risk management solutions for technology companies need to be just as innovative and dynamic to enable innovation. And as catastrophic risks change, tech companies need to evolve a new approach to address them.

In this report we will discuss the risks that are of greatest concern for technology companies and examine how leading organizations are rethinking their risk management strategies in light of the changing environment.

Our findings are based on responses to our survey from more than 175 technology risk professionals from companies around the globe. We thank all our respondents for their insights in this seventh edition of our annual report.

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"... if your technology services power the global economy, an outage is not just an inconvenience; it can be catastrophic for your customers and your business."

Increasing concern with catastrophic tech risks

Although natural disasters remain a key risk for many technology companies, our survey respondents expressed more concern concerned about cyberattacks or product errors (see Figure 1).

Many production facilities are in earthquake-prone areas, and climate change is stoking hurricanes, cyclones, tornadoes, and wildfires at unprecedented levels. But most technology companies have backup facilities that allow them to keep products and solutions up and running in the event of a natural disaster.

Just 25% of survey respondents said that a natural disaster that affects a key facility is a catastrophic risk, placing it fourth on the list for technology companies.

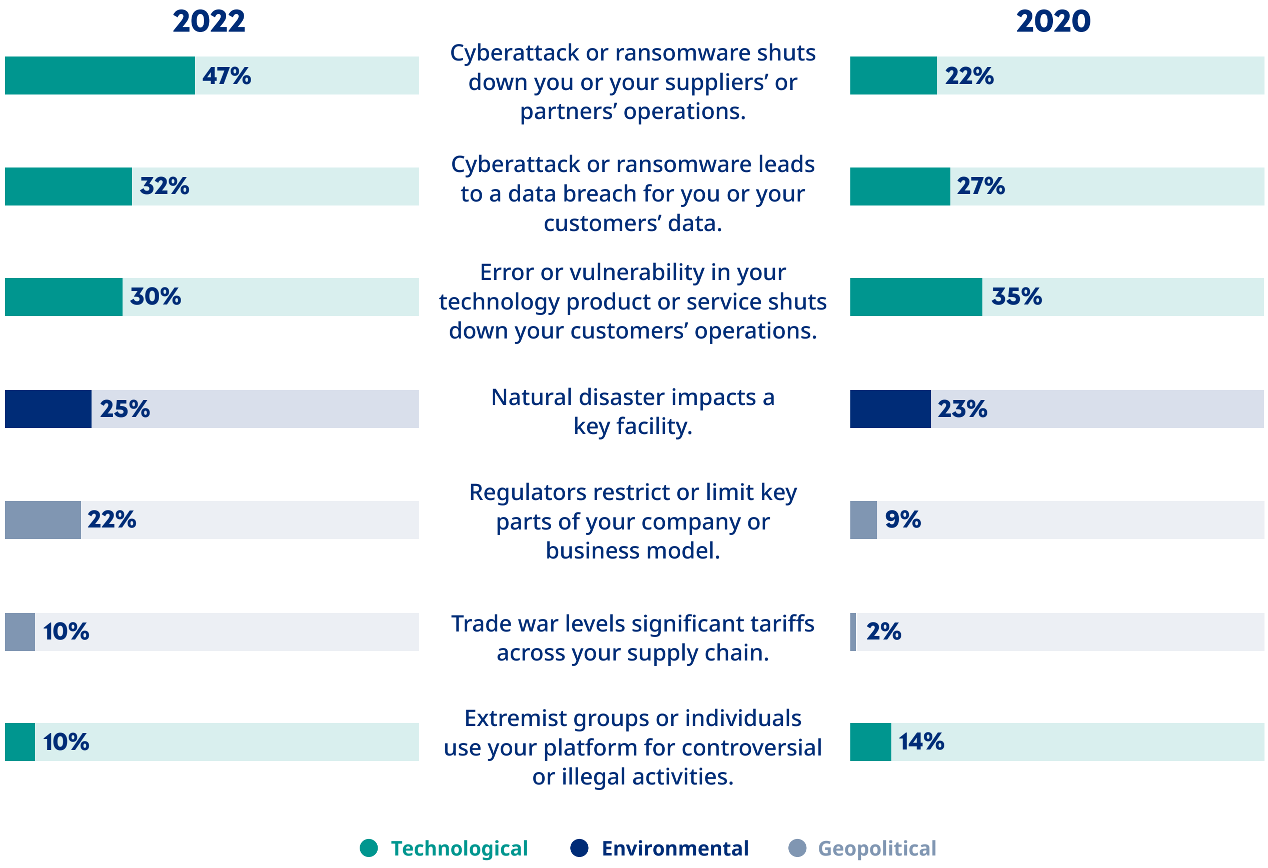
Respondents were far more concerned with the impact of ransomware and product errors. Nearly half of respondents considered a ransomware attack that shuts down their operations or that of a key supplier to be a catastrophic risk. This was more than double the response to this question in 2020.

Ransomware concerns placed second on the list of concerns this year. About one-third of respondents said a ransomware attack leading to a data breach would be a catastrophic risk for their company. Third on the list was a product error or vulnerability leading to a shutdown of a customer's operation; two years ago, this was the survey's top catastrophic risk concern.

As technology companies cross borders and provide international solutions, the effects of geopolitical forces become more severe. This is reflected in a significant growth in concern about regulatory restrictions and trade wars. Concerns about a catastrophic regulatory restriction more than doubled since 2020; companies considering a trade war to be a catastrophic risk was five times higher than two years ago.

01| Catastrophic ransomware concerns double in two years

Which of the following scenarios would you view as a catastrophic loss for your company — a loss whose damages exceed your insurance limits and/or your cash reserves?

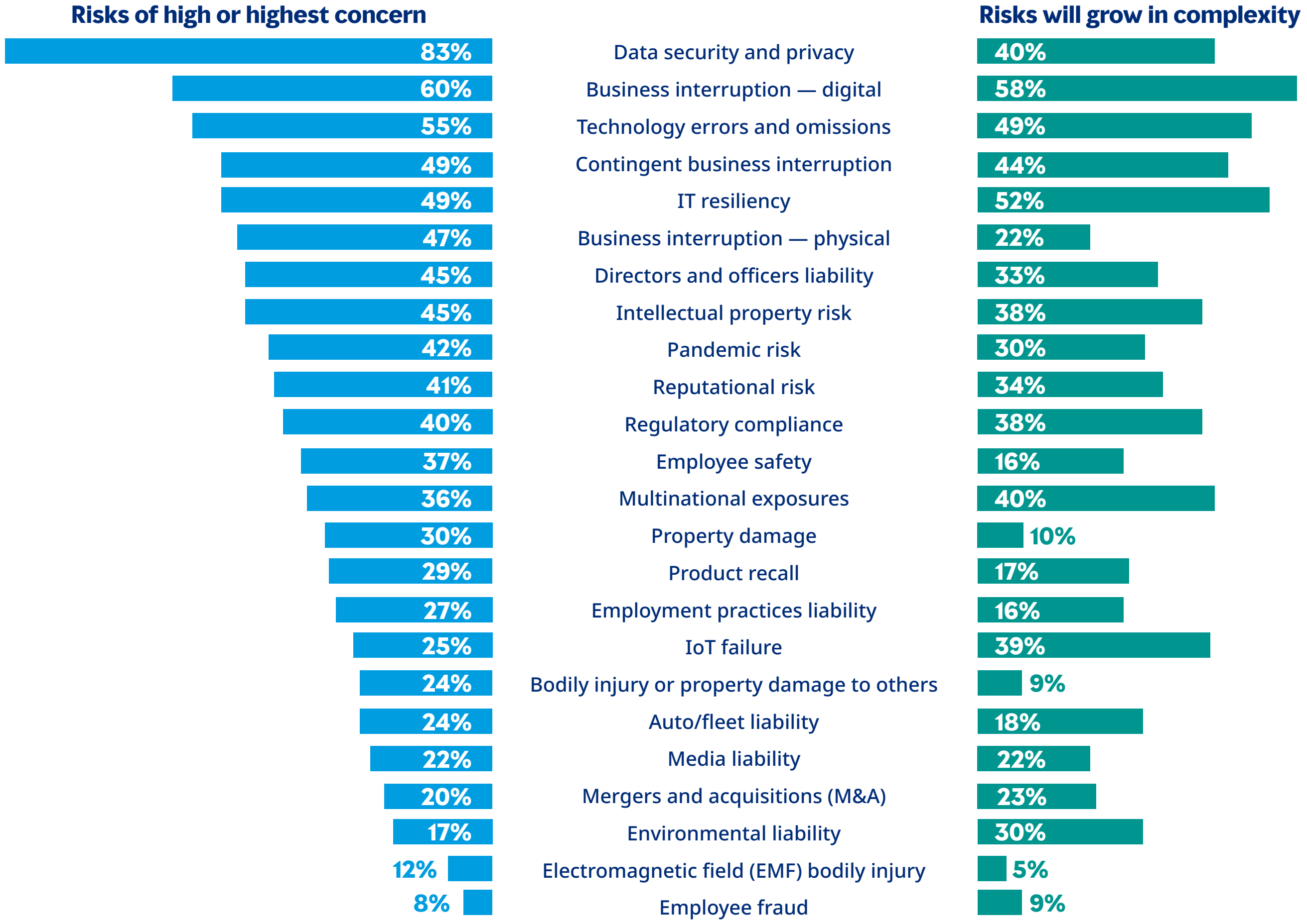


Resiliency risks remain in top positions

Events do not need to be catastrophic to threaten a technology company’s resilience.

Even smaller outages, failures, or attacks can pose a risk to tech companies where availability, speed, and customer trust are most valued. It is not surprising that the top six risks for tech companies all related to keeping systems running, and have generally dominated the list since this survey began in 2015, with data security and privacy filling the top spot every year (see Figure 2).

02| Top risks for tech companies in 2022



A closer look at four risks

Uncertainties and delays in the supply chain were the most consistently cited risk for tech companies in 2022. Respondents ranked **contingent business interruption** as the number four overall risk. Staff shortages, political uncertainty, and weather events have all led to supply chain disruptions. Tech companies have been forced to reassess just-in-time manufacturing principles and reconfigure the location of production facilities to adapt to supply chain delays.

Pandemic risk ranked ninth on the list, despite the shutdowns and interruptions that many technology companies experienced due to COVID-19. Tech companies experienced supply chain delays and interruptions; but in general, the pandemic served as an accelerator for digital solutions and services. The shift to remote work as tech companies worked to protect their employees has not inhibited growth, and was viewed as a lower risk.

Tech companies are frequently the acquirer or the target in **mergers and acquisitions (M&A)**. According to Refinitiv, deal making in the US technology industry totaled $1.1 trillion in 2021, an increase of 71% compared to 2020. Yet tech risk leaders ranked M&A as one of their lowest concerns, at number 21 in 2022. The volume of deals and the low level of concern show that M&A is not an off-strategy risk for tech companies, but a normal part of their business model. The frequency of M&A deals suggests that tech companies have robust and clear processes for managing related risks, and that available insurance solutions are deemed sufficient. Tech companies are also embracing insurance as a tool for mitigating transactional risk. Marsh placed more than 250 transactional risk insurance placements for tech companies in 2021 — more than for any other industry.

One potential blind spot relates to **bodily injury or property damage to others**, which less than a quarter of respondents viewed as a top risk. However, as technology products and services are integrated into autonomous transportation, medical devices, and the metaverse, among others, the risk of bodily injury and property damage increases. The fact that 91% of respondents did not rate this is as growing risk is a potential concern. Risk leaders should re-examine how their products and services are being used, and what physical liabilities could exist in the event of a technology failure as they move into new industries and their products are used in new areas.

Top-level discussions stall on catastrophic risks

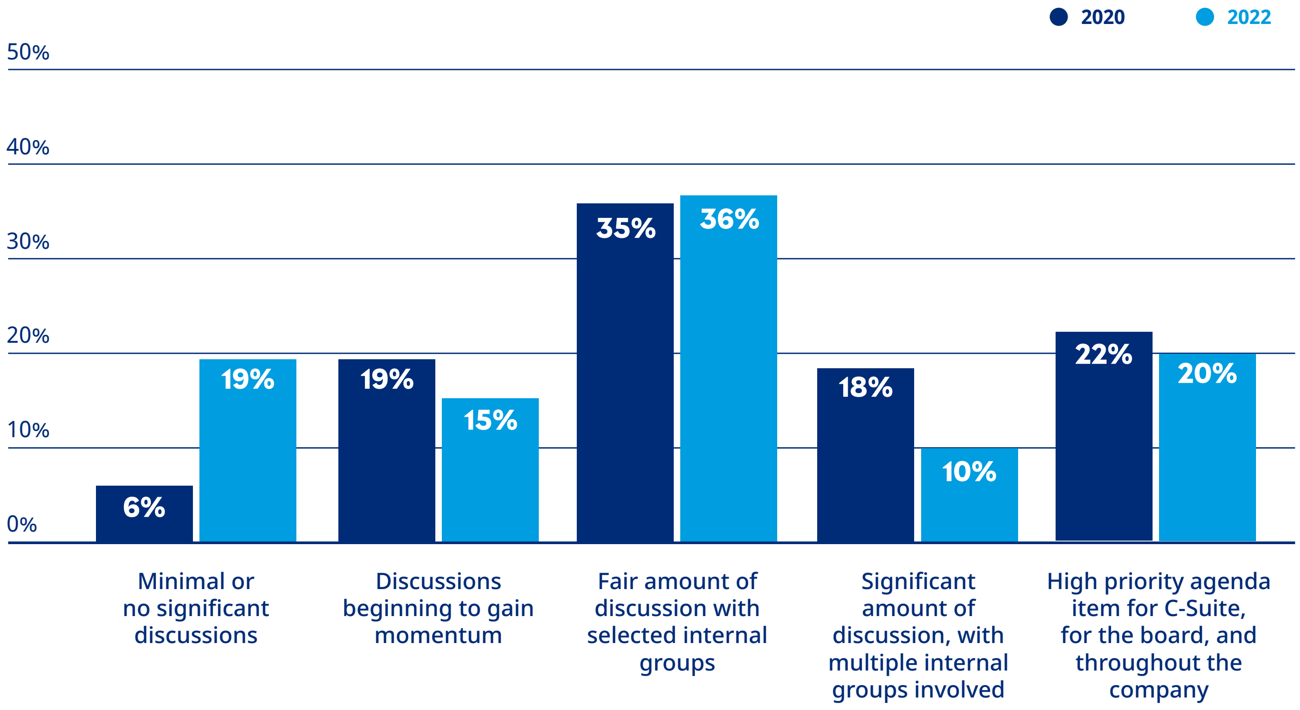
Although catastrophic risks were viewed as increasing, senior-level engagement is not keeping pace. Two years ago, just one-fifth of tech companies said they discussed catastrophic tech risks at the C-suite level; this did not change in 2022.

A limited discussion of catastrophic risk not only limits a company's ability to engage all resources to understand and mitigate the challenge, it creates risk for executives and board members. In the US, Delaware courts recently issued several decisions addressing the oversight responsibilities of directors, suggesting growing legal scrutiny. This could have important implications for directors with oversight of a company's cybersecurity and related risks. A failure by boards to adequately monitor "mission critical" risks could be considered a breach of fiduciary duty.

Respondents clearly indicated that catastrophic technology risks are increasing — but 80% said their companies were not discussing those risks at the board level (see Figure 3). Depending on a company's business model, technology risks may be considered mission critical risks that boards should be kept informed about.

03| C-suite engaged in catastrophic discussions at only 20% of tech companies

How extensive are the discussions within your company around evolving catastrophic loss scenarios?



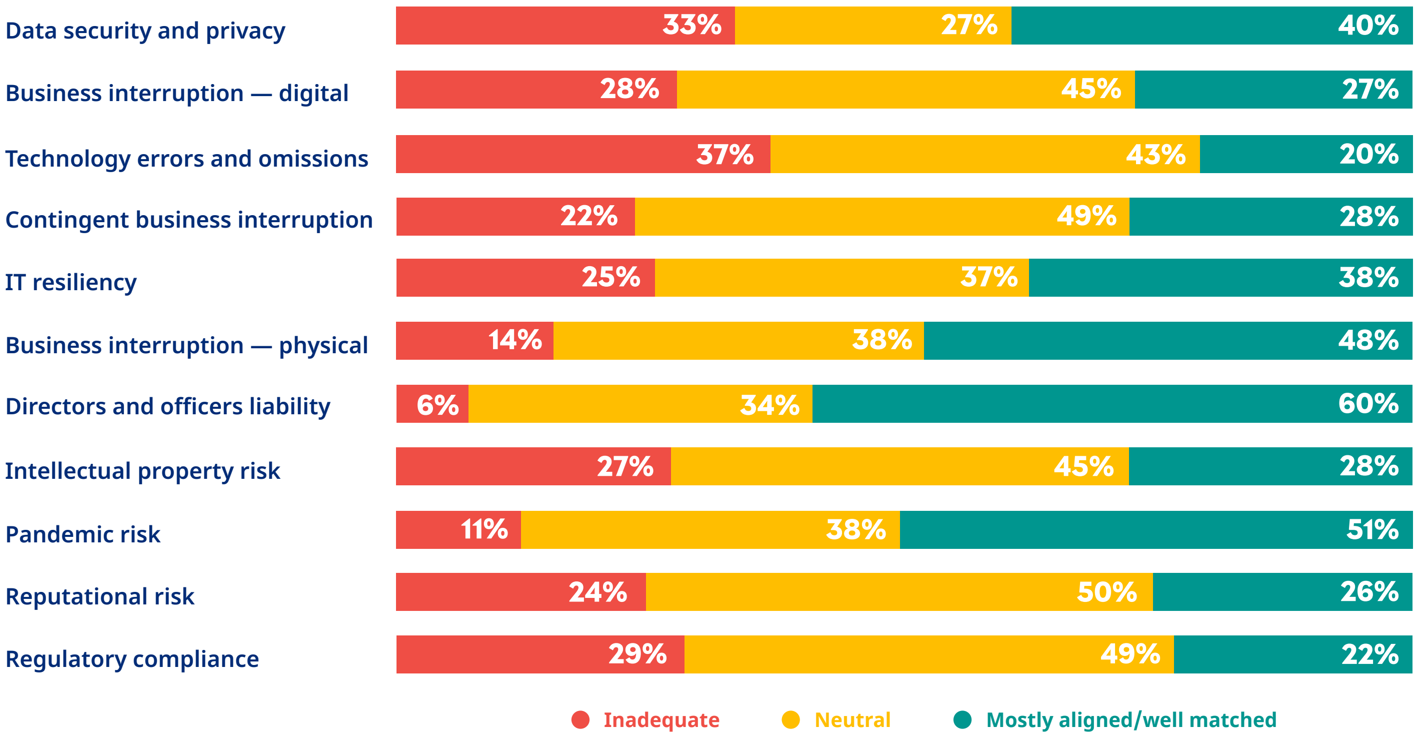
Current solutions not adequately addressing top risks

Tech risk survey respondents said they are generally not satisfied with the current risk transfer solutions for their top risks — more than 25% of respondents ranked insurance solutions for four out of the top five risks as inadequate (see Figure 4).

Risk leaders at technology companies are realizing that current market-available risk transfer programs may not fully meet their organization’s needs. These products generally have not kept up with evolving business models and the increase in catastrophic tech risks. Since some loss scenarios are specifically excluded and others — such as ransomware — are generally sub-limited, many clients are retaining more of their risk.

04| Current risk transfer solutions not always adequate

For those portions of risk being transferred, how would you rate currently available insurance solutions (terms and conditions, capacity, and pricing)?

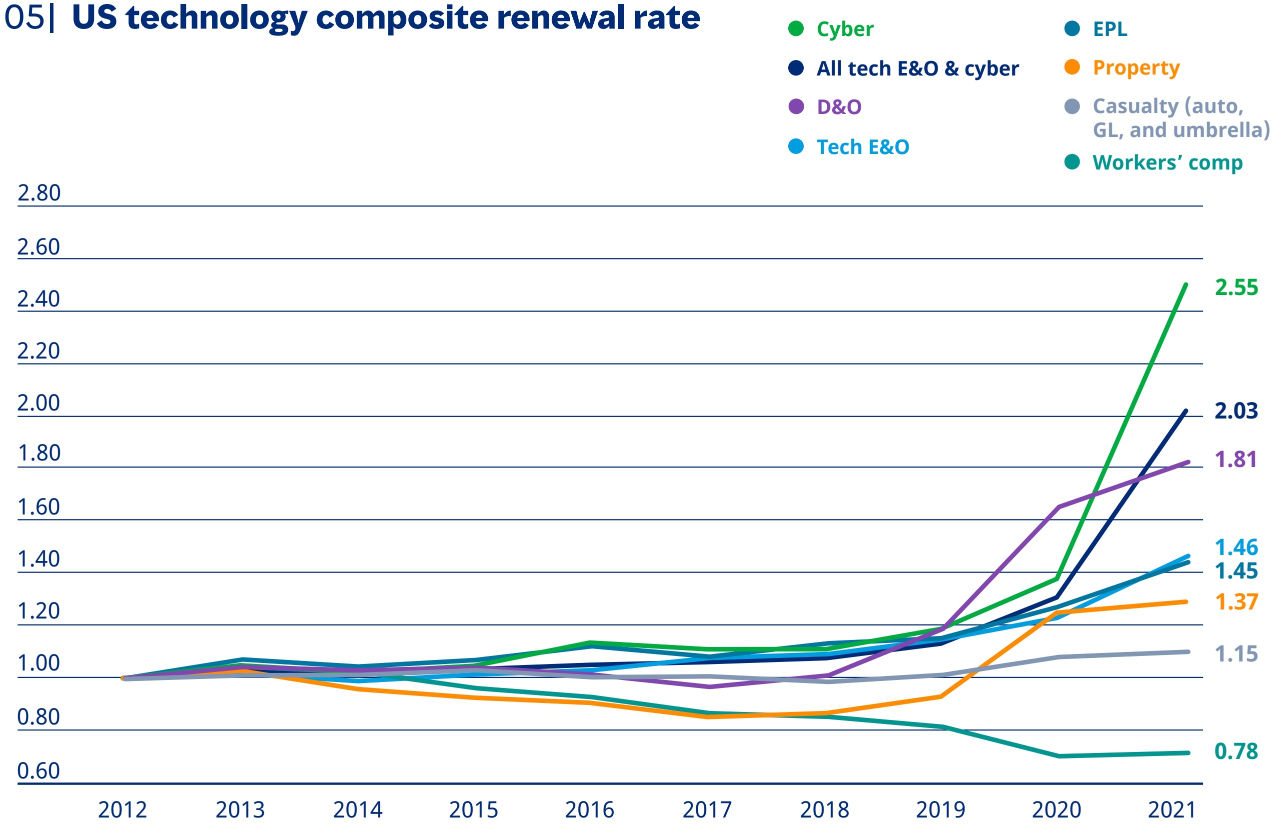


Tech companies facing higher insurance costs

Insurance costs for some lines of coverage — especially cyber, tech errors and omissions (E&O), and directors and officers liability (D&O) — have increased significantly in the past few years (see Figure 5). Cyber insurance in the fourth quarter of 2021 cost 2.5 times what it did in 2012, while tech E&O and D&O coverage cost twice and 1.8 times 2012 rates respectively.

The [recent Delaware law](#) allowing captives to provide Side A D&O insurance may provide an alternative risk funding approach for tech companies. Senate Bill 203, which passed the legislature unanimously on January 27, 2022, specifies that companies can provide D&O coverage to their board members and executives through a captive. Notably, it expressly indicates that companies can include Side A coverage in captives to cover a loss that may otherwise be non-indemnifiable by the company.

05| US technology composite renewal rate



Source: *Marsh Global Placement & Specialties, Data and Analytics, PlaceMAP*

Off-the-shelf is off the table

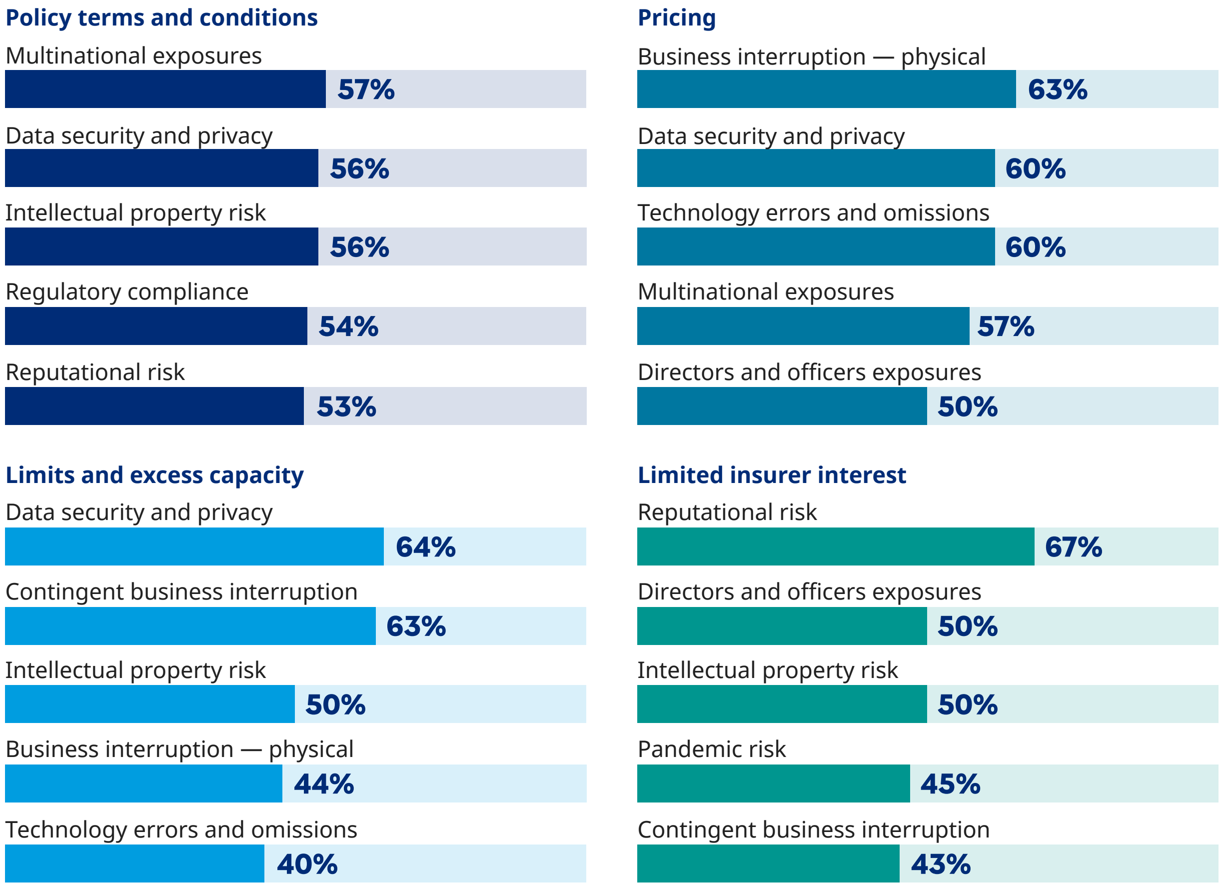
Insurance policy terms and conditions for many top risks drove as much, if not more, dissatisfaction as pricing (see Figure 6). Inadequate limits and challenges purchasing excess capacity also drove dissatisfaction. And this is only when coverage is available — many respondents said there was limited insurer interest in their key risks.

Together, rising prices, narrowing terms and conditions, and low limits and excess capacity demonstrate that off-the-shelf insurance solutions alone cannot fulfill tech companies' risk management needs. On average, dissatisfaction with risk transfer solutions was driven primarily by policy terms and conditions (52%), followed by pricing with 51% of respondents, while 37% thought it was due to limited insurer interest or competition, and 20% believing limits and excess capacity to be the primary factor. Innovative technology companies look to fill these insurance market gaps through robust risk mitigation strategies, captives, alternative risk transfer products, parametric solutions, and other sources, ranging from working capital to debt solutions.

As these market challenges persist, we have seen a significant increase in the number of tech clients' whose risk management plans contemplate the use of captives and alternative risk transfer solutions. Risk finance optimization exercises and risk modeling can help organizations better understand the range of solutions available to manage risks.

06| Dissatisfaction with insurance companies goes beyond pricing

What factors most drove your dissatisfaction with risk transfer solutions for these risks?



Majority of tech companies continue to aggressively market their programs

As dissatisfaction with available insurance solutions increased, tech companies more aggressively marketed their programs (see Figure 7). In addition to marketing efforts to increase competition and find capacity, tech companies increased retentions, sub-limited selected coverages, and reevaluated towers.

All of which is unlikely to overcome limited insurer appetite for some risks.

Over half of respondents took on more risk by increasing retentions, and 25% reduced limits. Although many tech companies have sufficient capital to allow them to absorb losses, those resources may be better used for innovation and other growth strategies.

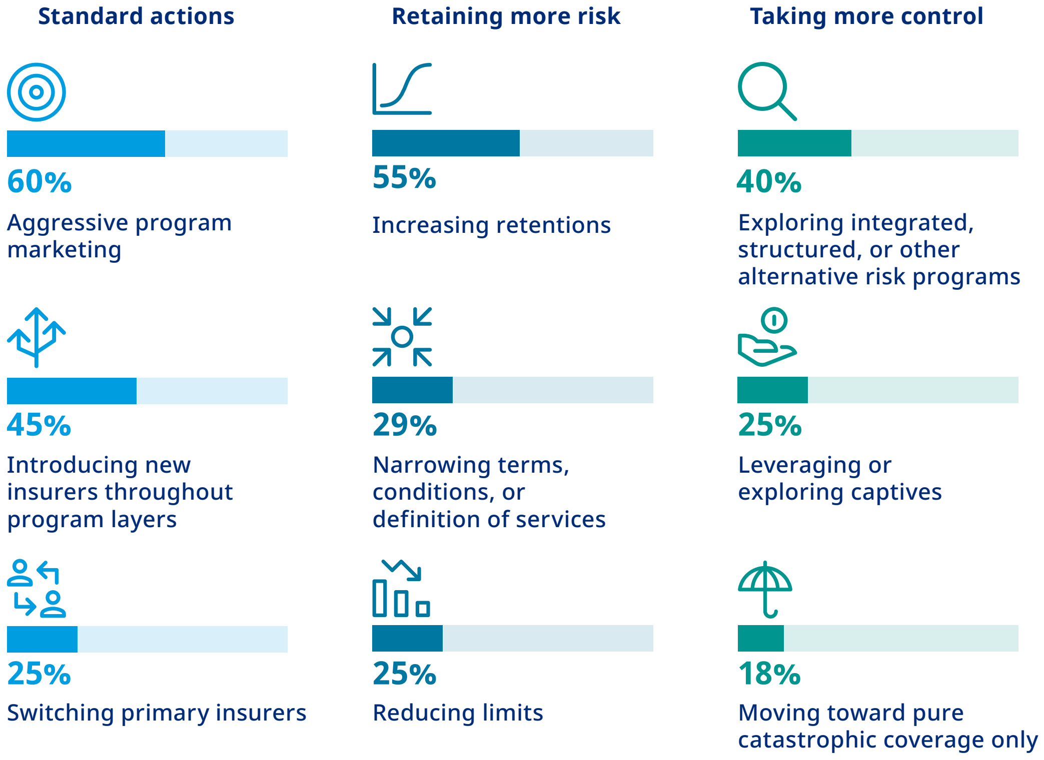
As new risks emerge, we believe that new solutions will need to emerge and market-available solutions must adapt to provide the best coverage to technology companies.

Many technology companies report that they are considering alternative risk transfer solutions. Among survey respondents, 40% said they are exploring integrated, structured, or other alternative risk programs, and 25% said they are looking into captives. These companies are on a path to take more control of their risk management solutions, although the numbers did not increase over last year. With a challenging insurance market and increasing catastrophic risks, more companies are likely to consider these solutions.

Many respondents not only adjusted their program structure, but re-thought their entire approach to risk management and insurance (see Figure 8). Most were not making large-scale changes to insurance purchasing strategy, although some said they considered shifts, ranging from transferring only catastrophic losses to buying only compulsory coverages, either for legal or contractual reasons.

07| Aggressive program marketing and increasing retentions are preferred remedies for a tough market

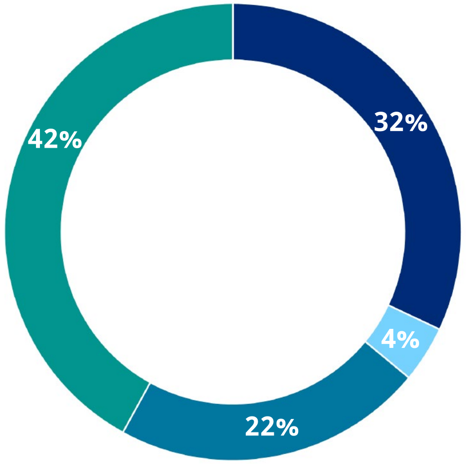
Foundational shifts in risks and the insurance markets are leading many tech companies to reassess why and how they buy insurance. To what extent is your company thinking about the following?



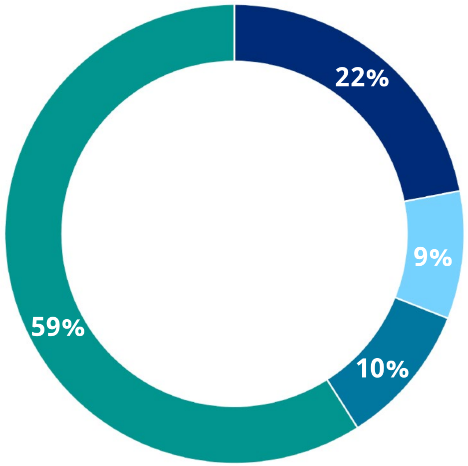
08| Tech companies considering shifts in insurance purchasing strategy

Foundational shifts in risks and the insurance markets are leading many tech companies to reassess why and how they buy insurance.
To what extent is your company thinking about the following:

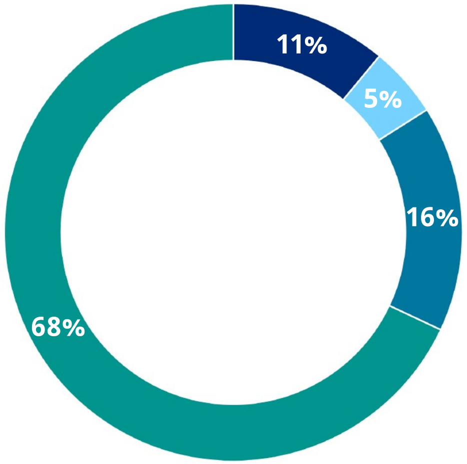
Increasing retentions and moving toward catastrophic coverages only.



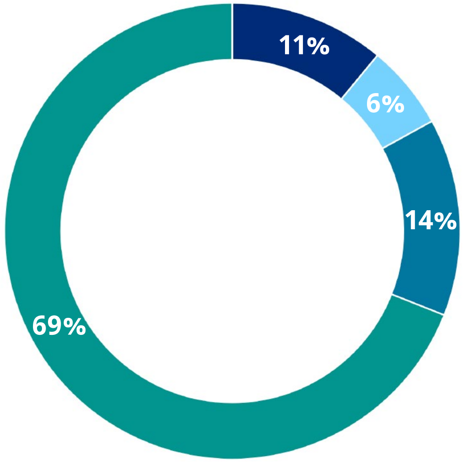
Leveraging a captive to provide flexibility to retain risks when market pricing is not in line with expectations.



Buying only compulsory coverages and retaining all other losses.



Developing your own insurance solutions by expanding owned insurance operations.



- We are already doing this
- We are implementing this in the next year
- We are evaluating this for longer-term implementation
- Not considering

Growth creates opportunities, but also potential blind spots

Successful technology companies never stand still. They constantly seek new growth opportunities, develop new ways to engage with customers, and innovate new business models.

Our survey reflected this trend, with every respondent noting that they were developing new products and solutions, and 75% saying they were using existing products and solutions in new ways (see Figure 9).

Others are exploring technology partnerships and M&A activity to drive revenue growth in 2022.

But innovation can bring new risks. Tech risk leaders, for example, may have a good handle on the risks that come from existing products and may understand how tech partnerships may change a risk profile. But when existing products are used in new ways, unexpected risks may emerge.

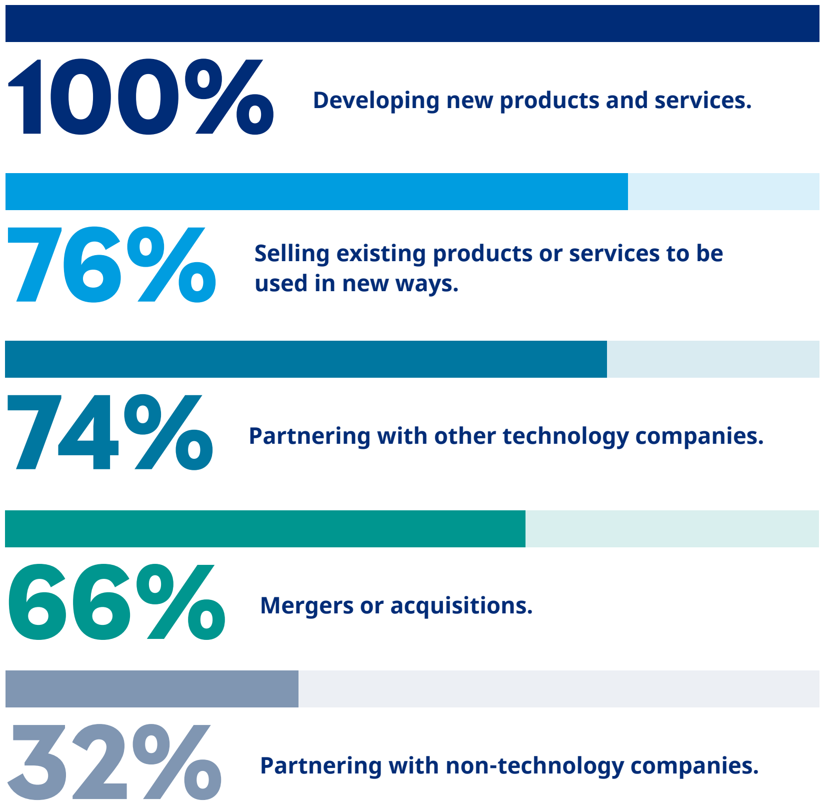
And partnerships with non-technology companies could mean the emergence or increase of other issues, such as workforce, supply chain, inventory, and casualty risks. As tech companies expand their customer base and product offerings, risk leaders should identify and address potential blind spots in their risk programs.

Risk managers can help their companies avoid blind spots. As more than 40% of respondents noted, identifying off-strategy risks will help risk management to enable growth (see Figure 10).

As technology companies continue to expand their products and services and venture into new markets, off-strategy risks will become more common. With catastrophic risk for tech companies growing, identifying and mitigating off-strategy risks will help separate successful and thriving technology companies from those that are merely surviving.

09| Tech companies constantly evolving

How is your company expanding its products/service offerings? (Multiple selections allowed)



Three trends to watch

Eye on the metaverse

The fast-growing metaverse — a combination of augmented, virtual, and mixed reality — is expected to become the preferred medium for social and business engagement. Major technology companies are investing in hardware, software, and content to power this new platform. One company even changed its name to reflect this expected growth opportunity.

As social and business interactions move into the metaverse, new risks will emerge. Tech companies are likely engaged with the metaverse in a varity of ways including, delivering the foundational infrastructure, focusing on user interfaces, creating the social environment, or moving into meta-commerce. The risks related to the metaverse are not clear now, and risk managers should tread cautiously as their companies start to engage in this new environment.

Digital errors, physical consequences

Although physical liabilities resulting from an error or vulnerability in tech products or services are increasing, they were not high on our survey respondents' radars.

But as tech companies' products and services are integrated into real world applications, tech risk leaders should closely examine their risk management programs to ensure they adequately cover those exposures. Check, for example, whether you have the right coverage if your software leads to errors in self-driving cars or medical devices. Risk leaders should also explore whether their limits are sufficient in case cybercriminals exploit a flaw in your code to shut down critical infrastructure, such as a water treatment facility.

Expanding directly into physical risks

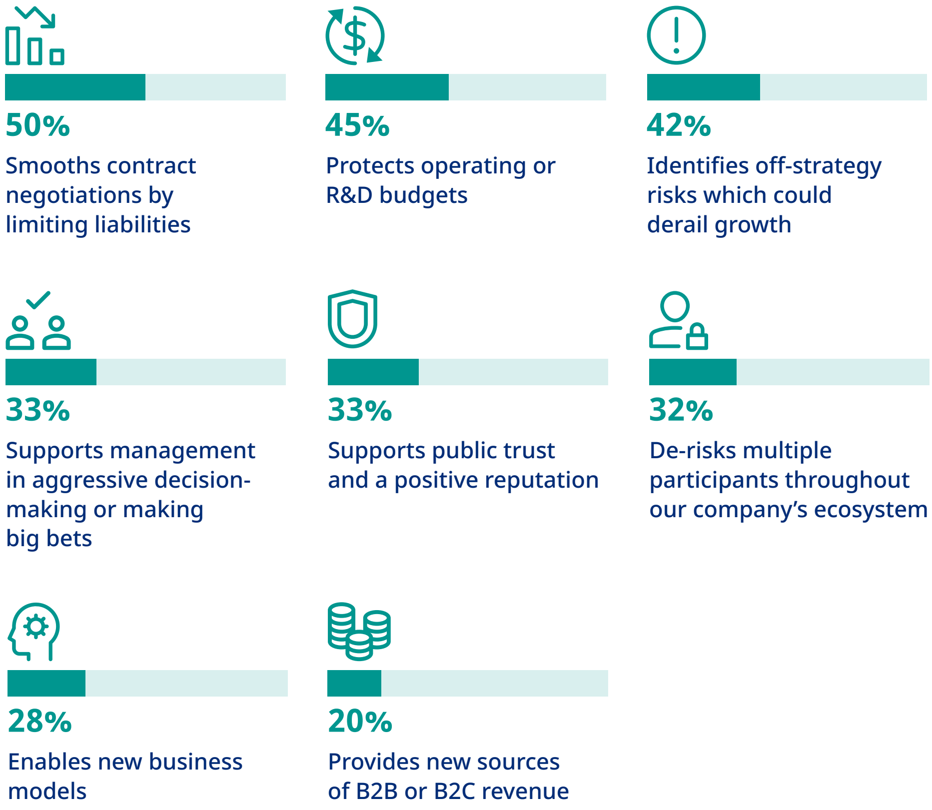
Vertical integration, expanding products and services, and regulations are driving more technology companies to change their business models to include more physical assets, such as e-commerce platforms adding warehouses to better control inventory and supply chain risks.

With these expansions come new risks, including changing regulations around the definition of an employee, which would require shifting from contractor-based to employee-based business models and introduce workers' compensation requirements.

Technology risk leaders should check that their insurance and risk management programs have accounted for this wide range of risks.

10| Risk management instrumental in helping companies avoid blind spots

Increasingly our tech clients view risk management and insurance as an enabler of growth. How does risk management and insurance enable growth within your organization? (Select all that apply)

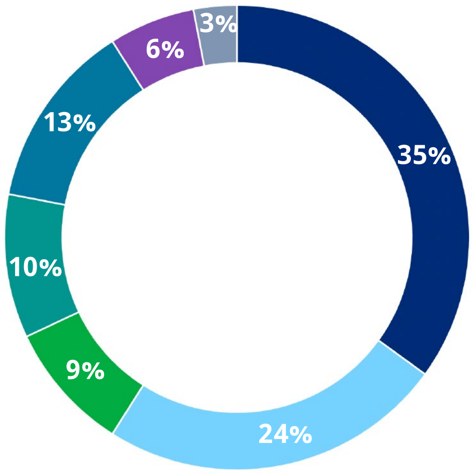


Survey demographics

Company business models of respondents (multiple selections allowed)

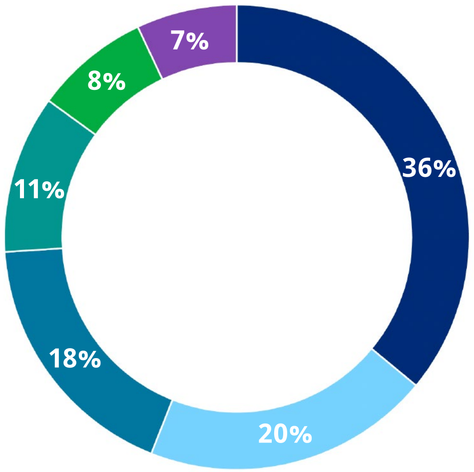
Business model	Share
Autonomous technologies	13%
Broadcasting	7%
Business process outsourcing	10%
Communications services	18%
Data processing	16%
Digital health	9%
E-commerce	10%
Electronic components	25%
Enterprise software	16%
Financial services	16%
Financial technologies	8%
Gaming/esports	4%
Government contracting	9%
Hardware and equipment	21%
Hosting/cloud services	17%
IT infrastructure	18%
Media content (film, television, publications)	8%
Media delivery	7%
Mobility solutions	7%
Payments	5%
Personal electronics	6%
Retail/distribution	5%
Search and information services	6%
Sharing economy	4%
Social media	5%
Software	34%

Position/business area



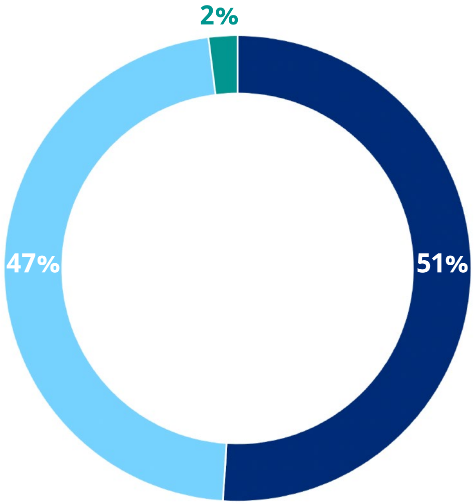
- Risk management
- Finance
- CEO, founder, investor
- Operations
- Legal
- IT
- Human resources

Annual revenue (in USD)



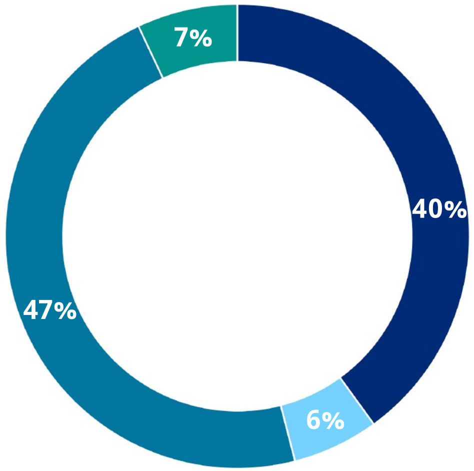
- $5 billion or more
- $1 billion to $4.9 billion
- $250 million to $1 billion
- $100 million to $250 million
- Less then $100 million
- Prefer not to answer

Company type



- Private company
- Public company
- Nonprofit

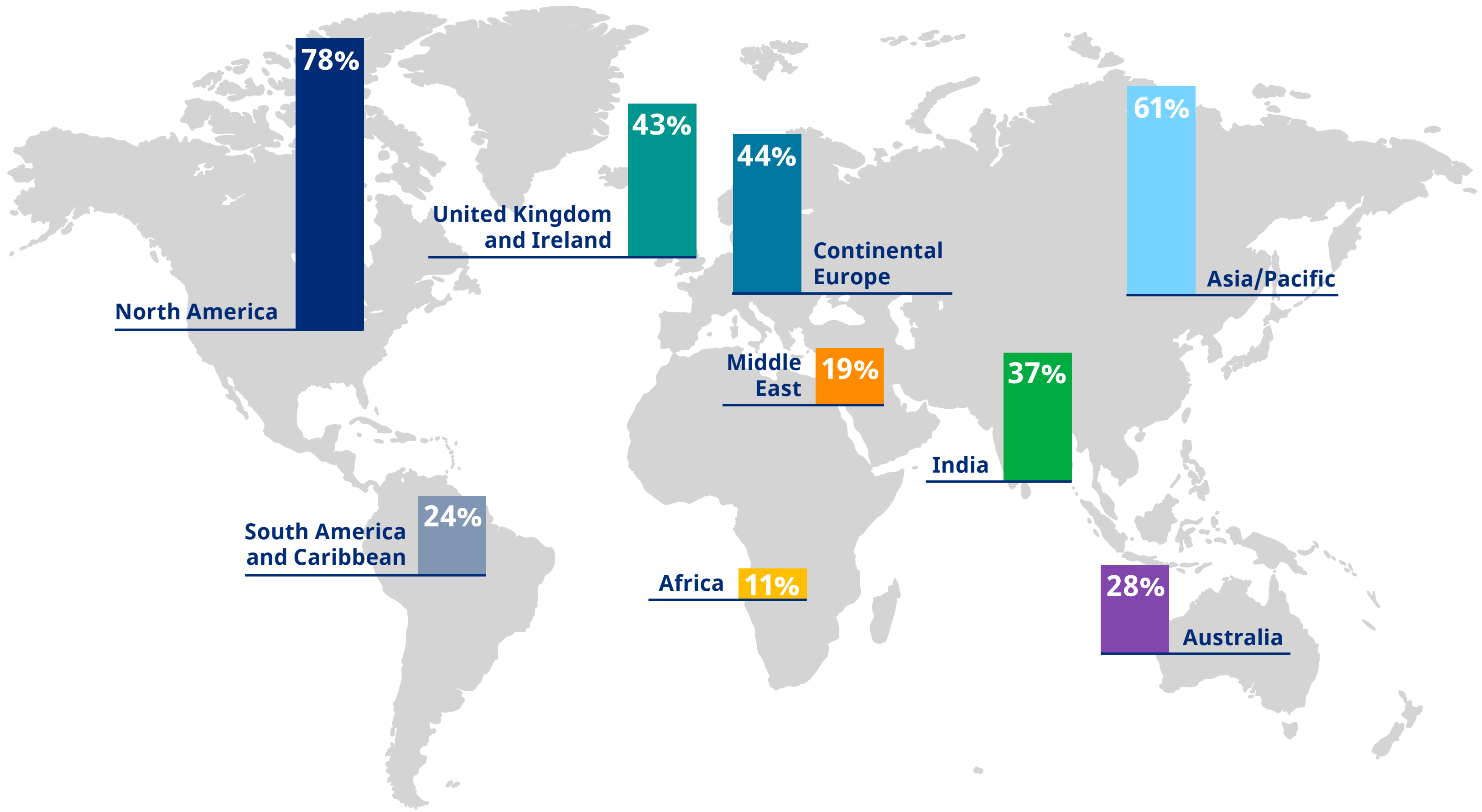
Company headquarters



- Asia/Pacific
- Australia
- North America
- Africa, Continental Europe, United Kingdom & Ireland

Geographies with risk exposures

In which geographies does your company have significant risk exposures?



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