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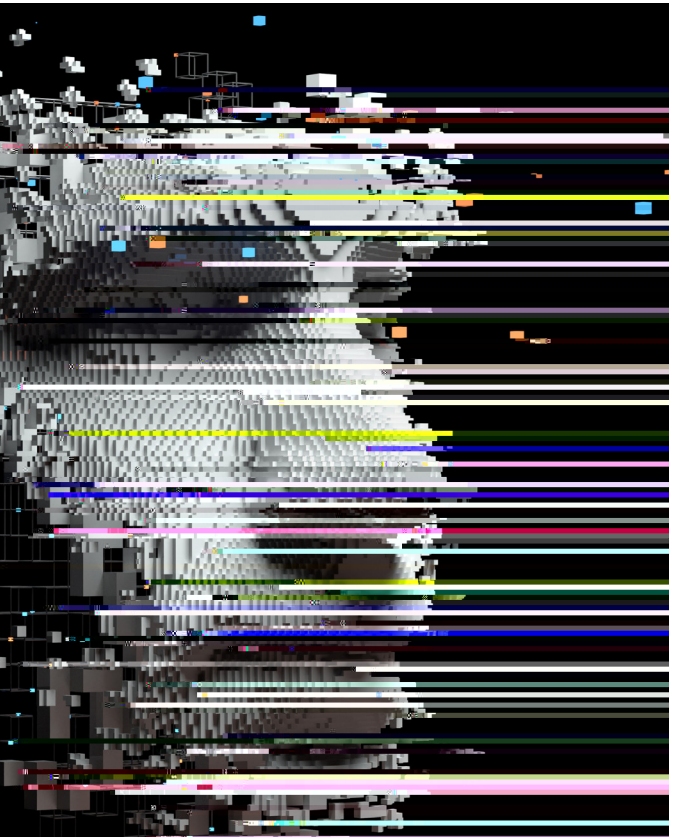

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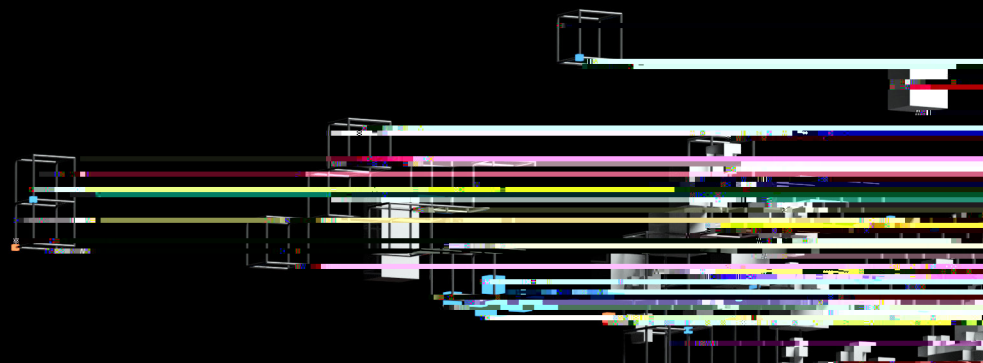
Foreword

After more than a decade of strong growth, the technology industry is going through a reset, triggered mainly by shifting economic realities.

Global economies are slowing, and access to capital is pausing as investors assess the economic landscape. Supply chain issues are affecting hardware sales, and tech companies are announcing layoffs at levels not seen in 20 years.

Our *Global Technology Industry Risk Study 2023* shows how economic uncertainty is affecting risk management at technology companies as they focus on resetting priorities to respond to existing and emerging risks.

To understand technology companies' responses to global economic uncertainty, we surveyed over 300 risk



Economic slowdown challenging tech growth

The ever-increasing reliance on technology and connectivity has propelled tremendous growth in the tech industry. But as countries recovered from the COVID-19 pandemic, 2022 brought new challenges. Record rates of inflation, interest rate hikes, and the prospect of a global recession now threaten the tech industry's continued growth. Global information technology spending is forecast to have grown less than 1% in 2022, down from 10.2% the previous year.

With capital markets largely paused as they keep a close watch on economic indicators, many tech startups face the prospect of stalled growth. Even established firms are looking closely at expenses and signaling a slowdown. Many major tech companies recently reduced their workforces through headline-grabbing layoffs, while others adjusted their 2023 growth goals downward and indicated they will reduce or freeze hiring.

Valuations also declined significantly as the overall market became more volatile. Deal volumes went down by more than 20% in the third quarter of 2022; median deal sizes declined by close to 30%, with late-stage deals seeing the sharpest decline, almost 50%.

69% **taking action to reduce costs**

Source: *Global Technology Industry Risk Study 2023*

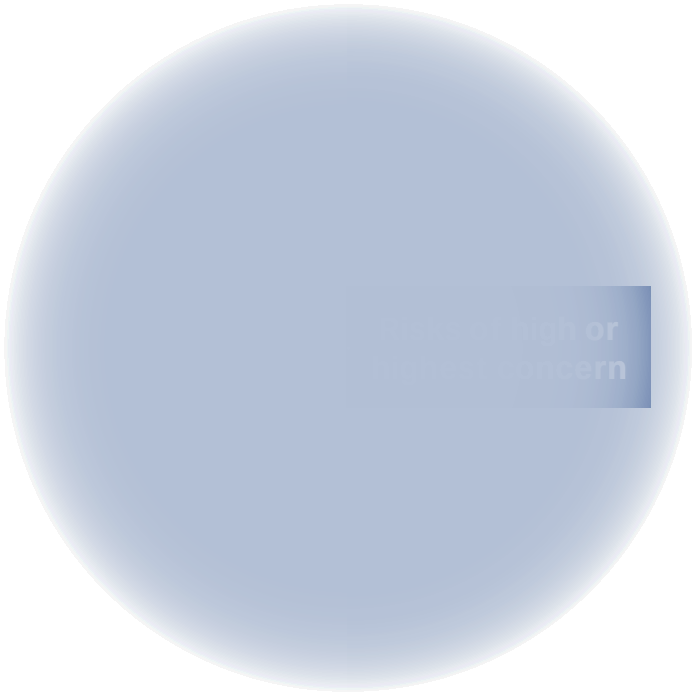
Economic environment leading to cost cutting measures, including layo f s

Demand for tech products shot up during the pandemic as lockdowns forced an increased dependence on technology for both businesses and individuals. But the reopening of societies and increased in-person interactions has softened demand. Further, supply chain disruptions have continued plaguing the industry, at times impacting production levels.

More than 80% of q ɹ ' x M m ⁎ ¾

02| Technology risks remain top concerns

How do you view the following risks to your business? How do you view the following risks changing in the next three to five years?



Source: *Global Technology Industry Risk Study 2023*

People risks may complicate existing challenges

Safeguarding business continuity through securing data, keeping systems online, and ensuring that computer code functions properly is top of mind for tech companies. But this would not be possible without the highly skilled tech employees — from cloud security specialists and security operations to programmers and web developers — who work to keep systems running e f ciently and e f ectively.

The importance of a strong workforce is highlighted in our survey data. While technology is often thought of as automated, technical, and operating within a sterile environment, more than two-thirds of survey respondents said that workforce and employee risk factors contributed to each of the top f ve risks.

This comes at a time when close to half of respondents indicated that their organizations are either implementing layo f s or slowing down hiring in response to di f cult economic conditions (see Figure 1).

A tighter workforce and job security concerns can have a signi f cant impact on operations and potentially exacerbate existing and emerging risks (see Figure 3). Aside from potentially slowing down production, delaying the release of new products or services, and slowing sales of current o f erings, a stretched or distracted workforce can heighten cybersecurity risks. In the year ending April 2022 there were more than 714,000 job openings for cybersecurity roles or skills posted in the US. The global shortage is believed to be 3.4 million.

Human error, for example, is a major contributor to cyber breaches, and believed to be the root cause of the vast majority of cybersecurity breaches. Mercer's *People Risks 2022* report found that cybersecurity and data privacy is the top people risk for communications, media, and technology companies. Workers who are stretched with more responsibilities, including covering for colleagues who have been laid o f or resigned, are more likely to make a mistake, increasing the overall risk.

Development of new o f erings persevering despite di f cult economic conditions

60%

of companies are marketing new uses for existing products or services

Source: *Global Technology Industry Risk Study 2023*

Despite potential sta f ng shortages and pressure to cut costs, technology companies are cognizant of the need to forge ahead with innovative product and service o f erings to grow revenue. The vast majority of survey respondents (see Figure 4) said their companies are developing new products or developing new relationships to expand revenue.

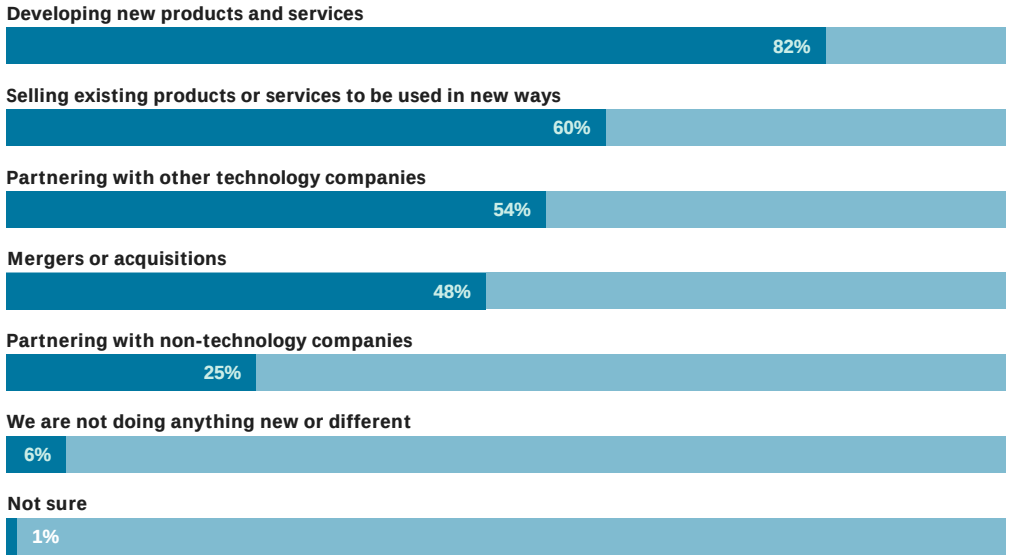
But innovation can also bring new risks. Autonomous vehicles (read more on page 15), for example, may lead to injuries for both the vehicle occupant and others, as well as property damage. And the metaverse may lead to the potential for bodily injury when using AR headsets or haptics, while the absence regulatory clarity may exacerbate the risks it presents (read more on page 11).

Tech companies may also face evolving risks when introducing fresh uses for existing products and services, which 60% of survey respondents said they are doing. These may include embedding o f -the-shelf integrated circuits into new products, adding new services to existing platforms, or expanding payment options into existing applications.

Although tech risk leaders have years of experience identifying, measuring, and mitigating the risks of their products in traditional technology business models, di f erent uses can change the risk. This requires tech risk leaders to look beyond traditional technology risk benchmarks to fully understand the expanded risk pro f les of their products or services. Increasingly, tech companies should revisit traditional business risk pro f les to understand how they can be adjusted to f t their tech-enabled business models.

04| Products and services development ongoing despite economic challenges

How is your company expanding its products/service o f erings? Select all that apply.



Source: *Global Technology Industry Risk Study 2023*

RISK FOCUS: METAVERSE

Largely unregulated space raises new risk questions

The opportunities in the metaverse are enormous, from allowing customers to virtually try on clothes to use in human or avatar form, to providing more immersive customer service experiences, to improving the reach and delivery of education, to leveraging AR technology to increase access to healthcare. And as AR/VR headsets and haptic wearables become more technologically developed and more affordable, adoption of the metaverse is likely to become more widespread.

But organizations that have already established or are considering establishing a presence in the metaverse — as are more than a third of our survey respondents — need to think beyond the opportunities and consider the fast-evolving set of risks.

While some risks are familiar, such as those related to e-commerce and the potential of a cyber event, others are less straightforward. For example, while only one-fifth of our survey respondents listed bodily injury as a risk of high concern, today there is limited data showing the potential longer term health implications arising from prolonged use of VR headsets. There may also be physical injury risks if haptic wearables malfunction.

Additionally, the current lack of regulatory clarity leads to significant questions about liabilities. For example, how is property defined in a virtual environment? And with many transactions taking place using cryptocurrencies, insurance coverage for potential losses is still being put to the test.

Further, there are questions about the regulatory oversight of assets in immersive environments. For example, who is responsible and under which jurisdiction if a client's avatar is assaulted by a malicious third-party actor inside a company's virtual store that operates on a decentralized metaverse platform? Organizations need to stay on top of the latest regulations and be aware of the potential reputational and legal repercussions of operating in the metaverse.

3 actions to mitigate metaverse risks

As organizations explore augmented reality and immersive opportunities within the metaverse, they should consider taking the following actions:

Stay abreast of **regulatory developments** to determine potential responsibilities and learn from emerging

RISK FOCUS: ADVANCED AUTOMOTIVE

Autonomous mobility risks gathering momentum

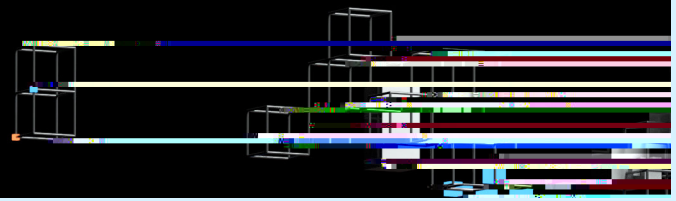
WHO WILL BUILD THE CAR OF THE FUTURE?

Technology has spearheaded an evolution in nearly every part of the automobile. From lane departure warnings and electric engines to automatic braking sensors and entertainment and navigation consoles, the automobile of 2023 is hardly recognizable when compared to its 1923 predecessor.

But the design and assembly process for creating cars has remained similar to that of a Model T. A single company designs and assembles the final product today — just like Henry Ford did.

As technology companies both collaborate and compete with traditional automotive companies, that model is beginning to shift to something closer to the way technology products are manufactured. Some companies will continue to design and assemble themselves, but newer automotive companies will likely bifurcate the process.

We will likely start to see one company research and design the product before partnering with a contract manufacturer to create the final product. That outsourced assembler will likely build cars for a number of different brands — similar to the way existing contract manufacturers work within the global tech supply chain. Still, there will likely remain companies that retain design and assembly in house and others may take a more blended zapproach.



Regulatory compliance

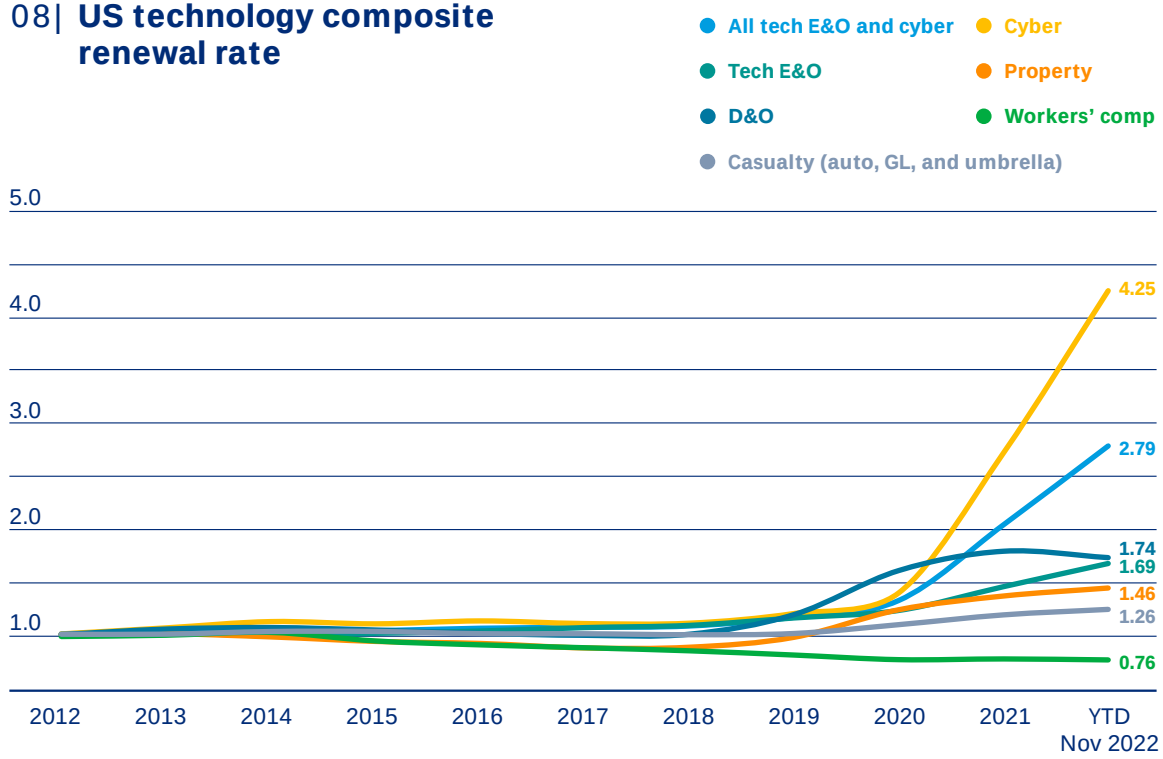
Numerous regulations have an impact on the mobility industry, and keeping up with changing regulations in di f erent jurisdictions is challenging. For example, the General Data Protection Regulation (GDPR) in the European Union has inspired similar regulation in the United States.

Tech companies face large increases for key insurance lines

Technology companies should prepare for potential challenges for some of their key insurance lines going forward. Marsh tracked the cost of seven key coverages since 2011 for tech companies. We found that only workers' compensation premiums are lower in 2022 than they were in 2012 (see Figure 8).

Cyber premiums have more than quadrupled for tech companies since 2012 — with especially large jumps since 2019. And although D&O rates are starting to plateau, property rates have shown a rise in the last two years.

08| **US technology composite renewal rate**



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

Persistent premium increases over the last decade, which have recently started to slow, have driven many technology firms to take more aggressive actions to preserve capital and protect their operations. In fact, close to 40% of survey respondents said they have switched or are considering switching primary insurers this year in response to price increases (see Figure 9).

Note that 25% of respondents to our 2022 survey and 24% of respondents to our 2021 survey said they were switching primary insurers, even though the market was also difficult when data was being collected in 2020 and 2021, with double-digit average increases.

As they have in past years, respondents have shown eagerness to seek new insurers throughout the program layers.

These shifts may indicate a continued move by tech companies toward retaining key risks rather than transferring them. And if tech companies no longer rely as heavily on insurance to

Optimizing risk management

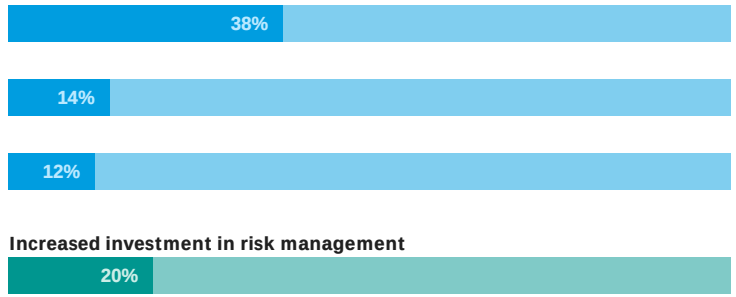
The global economic slowdown has affected organizations across regions and industries, leading to difficult decisions. The majority of survey respondents reported a need to adapt their risk management decisions to respond to economic conditions, with only 35% saying that the company's risk management decisions were not affected.

Those that had to shift the ways they manage risks are doing so in different ways. Some tech companies are changing their risk strategies or cutting back on investments in risk management, whether it means reducing human resources, risk mitigation projects, or investments in digital risk platforms.

Despite the challenging economic landscape, some companies continue to prioritize risk management. In fact, 20% of survey respondents said their companies are actually increasing their investment in risk management (see Figure 10). Considering the current economic uncertainty, this suggests that these firms view their risk management departments as key strategic partners for growing revenue and protecting the organization.

10| Difficult economic conditions affecting risk management departments

In what ways has the economic slowdown and tightened access to capital affected risk management decisions at your company already? Select all that apply.



Embracing risk management as a cost control tool

Source: *Global Technology Industry Risk Study 2023*

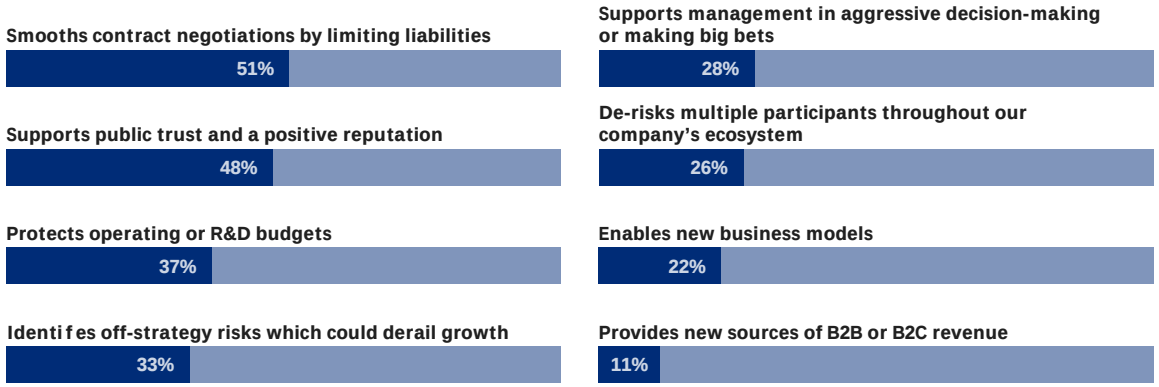
Enabling growth

There is a shift in the way tech companies view risk management as an enabler of growth. Close to half of respondents said risk management and insurance support public trust and a positive reputation (see Figure 11). This is a signi fcant shift from 2022, when 33% pointed to the role risk management plays in enabling public trust and positive reputation.

This change also comes at a time when reputational risks for tech companies have increased signi fcantly. As more companies recognize the potential repercussions of reputational damages, it is important for risk management teams to focus on identifying and quantifying potential reputational challenges and work to fnd ways to manage and mitigate these risks.

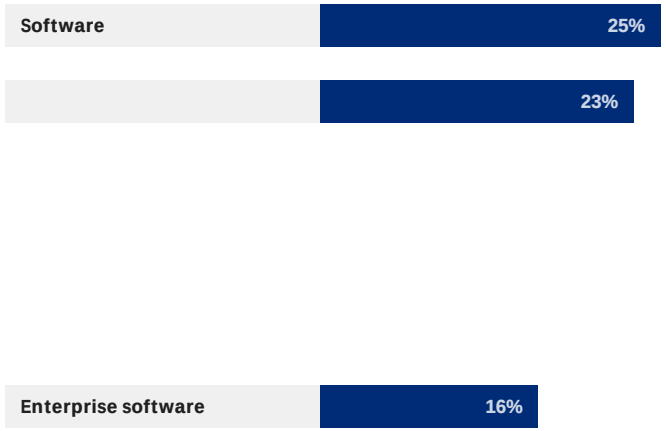
11| Changing perception of risk management

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.



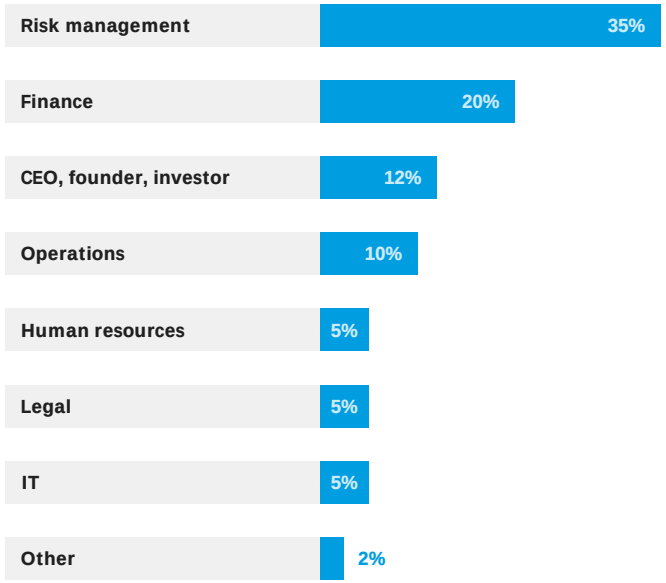
Survey demographics

12| Business models of respondents show a varied landscape

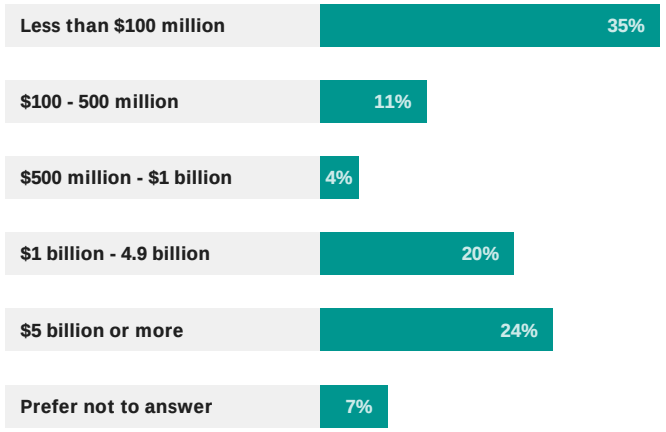


Survey demographics

13| Position / business area



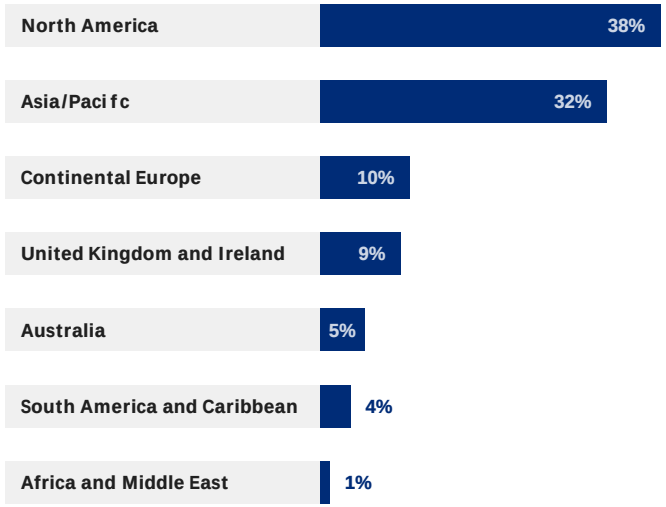
14| Annual revenue (in USD)



15| Company type

Survey demographics

16| Company headquarters



17| Risk exposure by geography

In which geographies does your company have significant risk exposures? Select all that apply.

Marsh's Global Technology Industry Practice

Marsh's Global Technology Industry Practice delivers decades of experience to its diverse and innovative clients from specialized hubs around the world — including our San Francisco Technology Center of Excellence. Our colleagues have a thorough understanding of emerging technology trends by sitting at the heart of technology innovation. Beyond general technology knowledge, Marsh has also developed specialists who focus on specifc sectors of technology risk including:

Marsh's technology industry expertise

Local, specialized tech expertise in **100+**

Committed to the **85%** of clients that are high-growth, middle-market companies.

Placing **$4B** in premium annually.

4,000+ tech clients, globally.

Served by a global network of **600+** dedicated tech risk management professionals.

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