Marsh

The velocity of risk

Tech risk management challenges accelerate

Global Technology Industry Risk Report 2024

Contents

Foreword

The technology sector continues to evolve at an unprecedented pace, bringing with it a new era of challenges and opportunities for risk managers. *The velocity of risk* encapsulates the essence of the current landscape — a world where risks not only emerge more rapidly, but also evolve with increasing magnitude and complexity.

Simultaneously, global economic conditions have led to considerable cost management and strategic challenges for practically all technology companies.

From economic uncertainties to the intricacies of regulatory compliance and the advent of artificial intelligence (AI), the spectrum of risks is broadening. In this dynamic environment, effective risk management has never been more critical. The ability to anticipate, understand, and mitigate risks is paramount to both organizational resiliency and trust. This report, based on a comprehensive survey of over 200 tech companies across 16 countries, aims to provide you with a deep dive into the accelerating challenges we face.

Our findings reveal a tech industry at a crossroads, actively seeking innovative solutions to navigate these turbulent times. As you delve into this year's report, I encourage you to reflect on the insights shared and consider how they can be applied to fortify your risk management strategies and build trust with key stakeholders.

Let us arm ourselves with the knowledge and foresight to turn these challenges into opportunities for growth and resilience.

Tom Quigley
Technology Practice Leader

Economic challenges spur choices and changes in tech companies

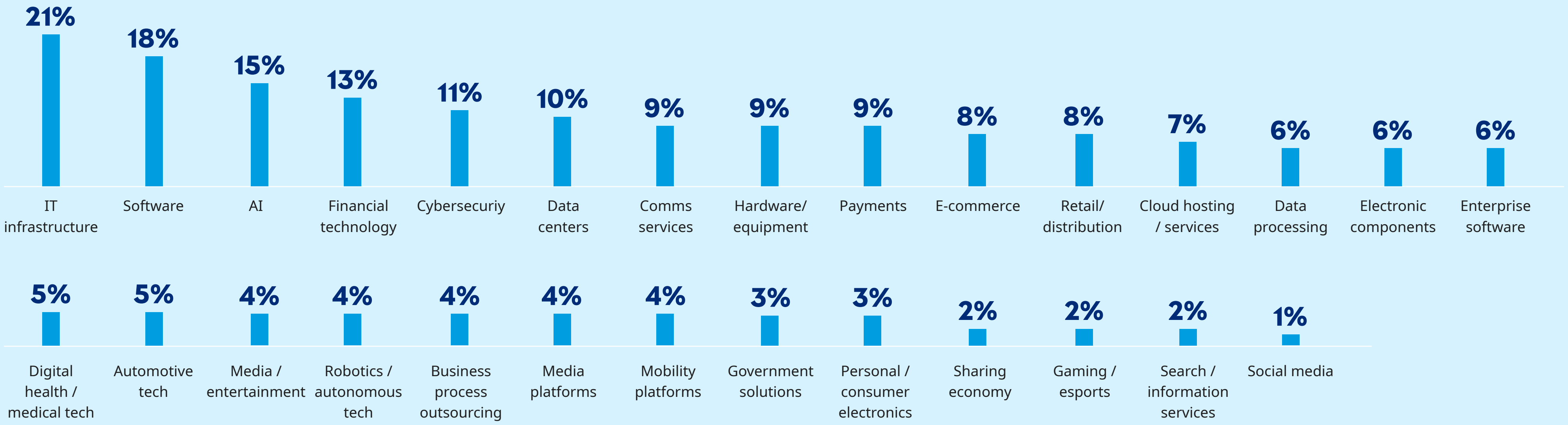
Driven by sluggish economic growth and uncertainty over the past year, roughly eight out of 10 tech companies surveyed (77%) are considering important actions to strengthen their business (see Figure 1). In particular, nearly half of respondents (47%) said their companies are considering direct cost reduction initiatives, while over one-third are rethinking their ability to retain risk and their sources of funding for risk losses. Nearly one third are considering workforce reductions or restructurings.

The likelihood that organizations take these actions varies, based mainly on each company's strategies for future growth and plans to expand their current offerings. For instance, companies seeking growth through investments in new technologies are more likely to be re-evaluating sources of risk capital to fund losses (46%), while those seeking growth by focusing on stability and resilience are more likely to be taking multiple actions, including reducing direct costs (62%), preserving capital by retaining risk (54%), and re-evaluating the way they fund risk losses (48%).

Companies seeking to expand their offerings through mergers or acquisitions are more likely to be taking direct cost cutting measures (64%) than those that aren't. While most organizations look at acquisitions for growth purposes, this is also typically a time when they are looking for pure operational cost efficiencies. On the other hand, those looking to partner with other tech companies are more likely to be preserving capital and rethinking their ability to retain risk (53%). And firms looking to partner with non-tech companies are more likely to be re-evaluating sources of risk capital to fund losses (59%) and reducing or restructuring their workforces (47%). Adapting to internal changes and budget constraints, while proactively pursuing growth, is part of the challenge tech companies face in optimizing their risk management approaches.

01| Actions being considered due to economic challenges

02| Wide product and service offerings underscore complexity of technology companies.



In addition to adopting different strategies to cut costs and drive growth, tech companies around the globe also encompass a myriad of distinct organizational and operational structures, from one- or two-person startups focused on individual clients or solutions to multibillion-dollar global enterprises that employ tens of thousands and offer the full gamut of software, hardware, and technology-related services. The 201 respondents in this year's survey sample represent companies based in 16 different countries across four major regions, spanning the full range of revenue tiers and organization types. These respondents also comprise the full range of levels and titles — from CEOs and owners to senior executives and department heads to team leads and analysts — as well as seven different organizational functions or departments.

The tech sector's inherent complexity is reflected in the plethora of products and services offered by these organization. The 201 companies represented in this year's survey sell or support 28 different products and services, including IT infrastructure, cybersecurity services, electronic hardware and components, and software and other solutions that are tailored to various industries and user bases, such as finance, automotive, health, e-commerce, and media/entertainment (see Figure 2).

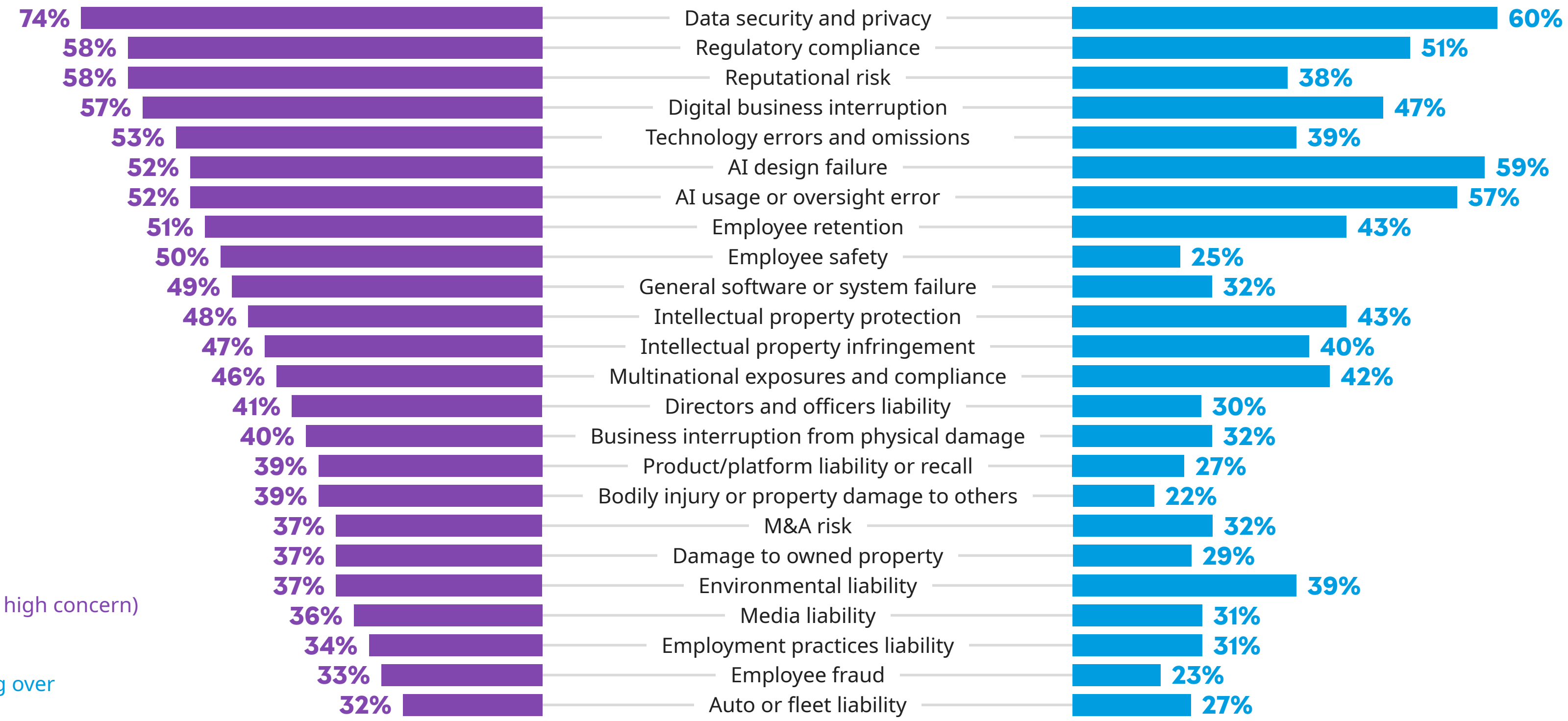
The economic challenges and diverse strategies and offerings within a complex industry landscape make risk management both a major priority and a massive undertaking for any company competing in the tech space.

Risk concerns are rising, driven by complexity and change

Data security and privacy remains the top concern for tech companies, a trend we have seen since we started the survey eight years ago.

But as tech companies continue to operate in a complex landscape, they face several interrelated risks on a continuous basis, many of which pose major concerns. We asked respondents how they viewed 24 distinct risks, both currently and as a concern in the next three to

03| **Risk concerns are rising, driven by complexity and change**



Risks of high concern
(% rating each risk somewhat high or very high concern)

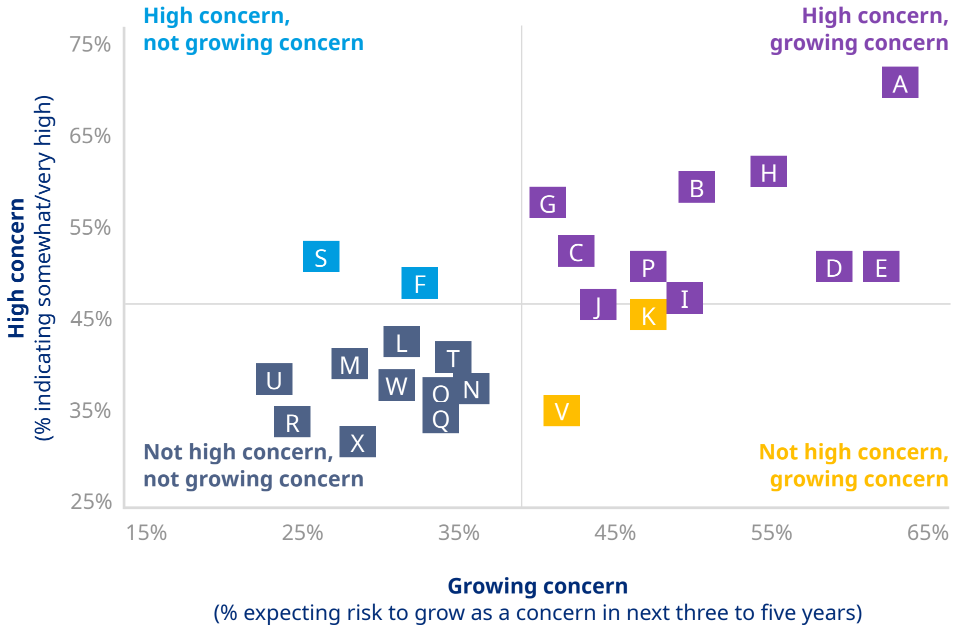
Risks of growing concern
(% expecting risk to grow more concerning over next three to five years)

five years. More than half of respondents rated eight risks as highly concerning. In contrast, only three risks were rated highly concerning by a majority of respondents in last year's survey. In addition, most of this year's respondents noted that they expect that four of those eight risks — data security and privacy, regulatory compliance, AI design failure, and AI usage or oversight error — will become greater concerns over the next few years. The prominence of regulatory and AI-related risks — which ranked second and third among risks of growing concern — reflects the velocity at which tech companies must recognize and adapt to new changes and trends impacting the industry, whether imposed externally by regulators or driven internally by the development of new platforms and processes.

Technology risks appear to be the top concern for tech companies, with five out of the six risks in this category being both of high concern currently and also growing concern in the coming years (see Figure 4). A number of business risks — including reputational risk, regulatory compliance, and employee retention — are also high on respondents' radar. And while respondents identified employee safety and general software or system failure as high concerns currently, these are not expected to grow more concerning in the coming years. On the other hand, environmental liability and multinational exposures and compliance — both of which are currently not a high concern — are expected to become more challenging in the coming years. This is in line with an increase in overall civic and regulatory scrutiny of technology companies on a global basis, together with more emphasis on the responsible and sustainable production of technology components.

The fact that more than half — 14 out of 24 — of risks are considered major concerns, growing concerns, or both underscores how complex and challenging it is for tech companies to effectively understand, quantify, and manage the full range of risks they face today, especially considering the rapid evolution of technology and the accompanying risks.

04| Risks of high concern versus growing concern



Technology risks	A	Data security and privacy
	B	Digital business interruption
	C	Technology errors and omissions
	D	AI usage or oversight error
	E	AI design failure
	F	General software or system failure
Business risks	G	Reputational risk
	H	Regulatory compliance
	I	IP protection
	J	IP infringement
	K	Multinational exposures and compliance
	L	Directors and officers liability
	M	Product/platform liability or recall
	N	M&A risk
	O	Media liability
	P	Employee retention
	Q	Employment practices liability
	R	Employee fraud
Physical risks	S	Emloyee safety
	T	Business interruption from physical damage
	U	Bodily injury or property damage to others
	V	Environmental liability
	W	Damage to owned property
	X	Auto or fleet liability


“ The technology sector continues to evolve at an unprecedented pace, bringing with it a new era of challenges and opportunities for risk managers.

Technology risks are fundamental and critical

Technology risks represent the biggest area of concern for tech firms globally; survey respondents ranked all six technology risks among the top 10 most concerning risks overall, underscoring how fundamental and critical technology is to the operations of these organizations, as well as all of their clients and customers. Among survey respondents, 82% rate at least one technology risk as highly concerning to their business (see Figure 5). Technology risks also comprise four of the top five risks that tech companies expect to become more concerning to their business over the next three to five years.

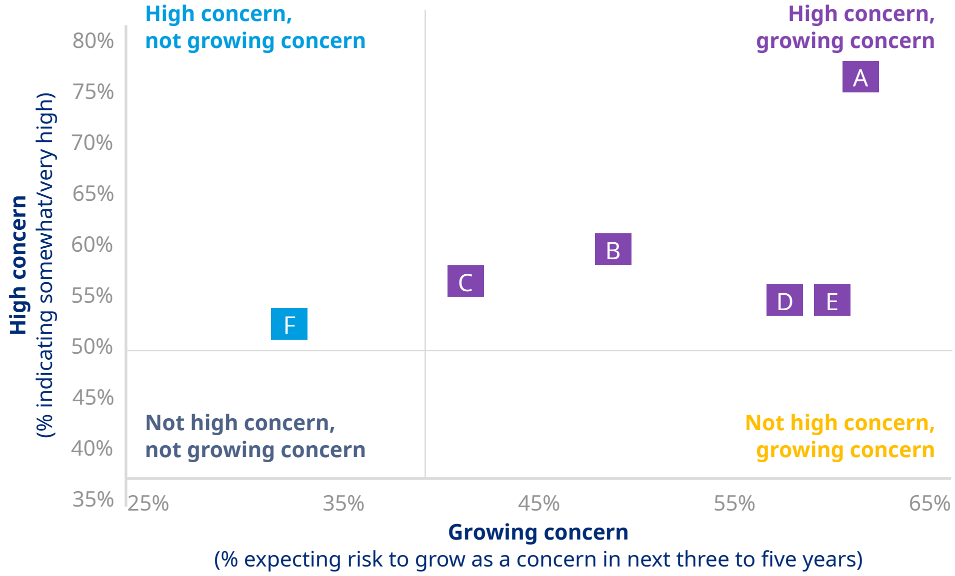
05| Top technology risks for tech companies

Data security and privacy	74%
Digital business interruption	57%
Technology errors and omissions	53%
AI usage or oversight error	52%
AI design failure	52%

In particular, the risk associated with data security and privacy is the primary concern for tech companies in this area, with 74% rating them as major concerns for their business today. This risk is also expected to become a greater concern over the next three to five years, according to 60% of survey respondents (see Figure 6). Digital business interruption and technology errors and omissions are also among the top five technology risks, both cited as highly concerning by the majority of companies in this year's survey.

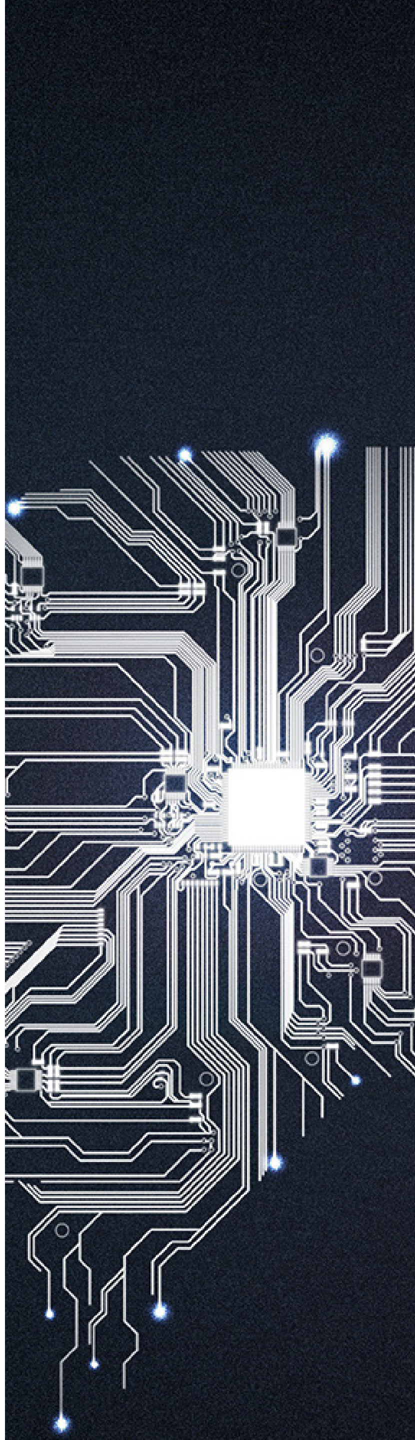
AI design failures and AI usage or oversight errors emerged as the sixth and seventh most concerning risks overall, with over half of the tech firms surveyed reporting high levels of concern over these issues. These areas also rank second and third among the risks that companies expect to become bigger concerns in the near future. Seven in 10 technology companies expect at least one of these AI-related risks to become a growing concern for their business — a figure that skews significantly higher (81%) among organizations with annual revenues exceeding $1 billion. This is likely due to the fact that larger organizations are more likely to be using, or expect to use, AI, compared to smaller organizations, and tend to have a higher level of exposure to AI-related failures or errors. Our survey indicates that AI design failure is also significantly more concerning to technology companies based in North America (58%) compared to those headquartered in other regions (32%). This is likely driven by the higher usage of AI among North American tech firms — a topic discussed in detail in later sections of this report.

06| Technology risks of high concern vs. growing concern



Technology risks ordered by concern

A	Data security and privacy
B	Digital business interruption
C	Technology errors and omissions
D	AI usage or oversight error
E	AI design failure
F	General software or system failure



Business risks revolve around regulation, reputation, and employee retention

Business risks — including commercial and operational perils, such as IP-related and regulatory risks and those tied to employee retention and fraud — represent the second-highest area of concern for tech companies. The vast majority of our respondents (81%) consider at least one business risk to be highly concerning (see Figure 7). Three business risks — reputational risk, regulatory compliance, and employee retention — are among the top ten most concerning risks overall, with each one identified as a major concern by over half of respondents. Reputational risk and regulatory compliance are tied as the second most concerning risks overall, but regulatory compliance is expected to become a bigger concern for technology companies over the next three to five years.

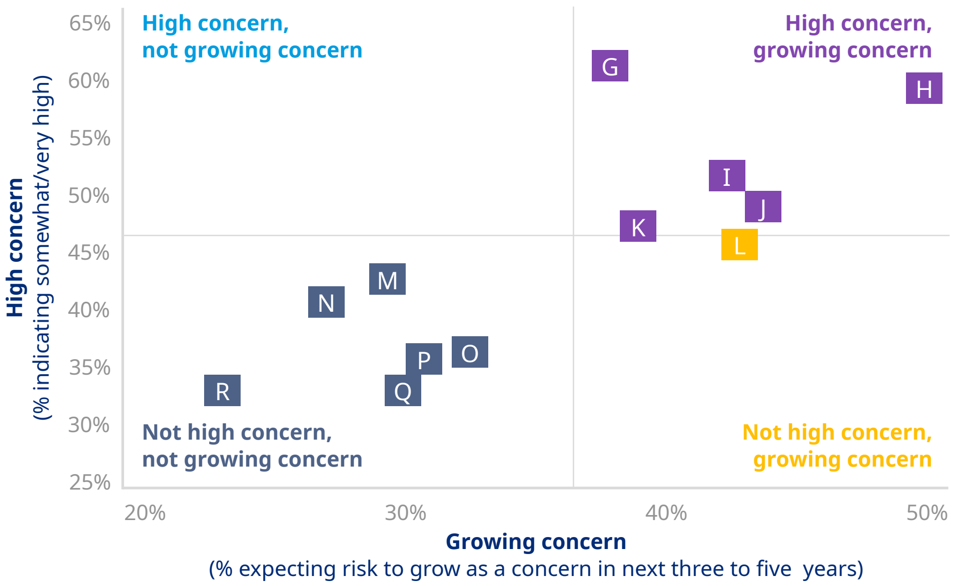
07| Top business risks for technology companies

Reputational risk	58%
Regulatory compliance	58%
Employee retention	51%
IP protection	48%
IP infringement	47%

IP-related risks and multinational compliance and exposures are secondary issues within the category of business risks, with just under half of survey respondents identifying these as highly concerning. However, our survey indicates that both of these risks are expected to become more pronounced concerns over the next three to five years. Respondents ranked reputational risk, regulatory compliance, employee retention, and IP protection and infringement among the most concerning risks today and those most likely to become bigger issues in the coming years (see Figure 8). In addition, multinational compliance and exposures, which was not ranked among the main current concerns by respondents, is expected to become a bigger issue in the future, most likely due to increased regulatory oversight and emerging regulations on a global basis.

A majority (72%) of technology companies with revenues between US$500 million and US$1 billion consider IP infringement a major concern, compared to 47% of all respondents. It's worth noting that as companies grow and their portfolio of offerings expands, they are more likely to see both offensive and defensive actions. Similarly, employee fraud is also a higher concern among these high revenue companies, with 53% ranking it a top concern, compared to 33% of all respondents. This is an area of interest that warrants further investigation.

08| Business risks of high concern vs. growing concern



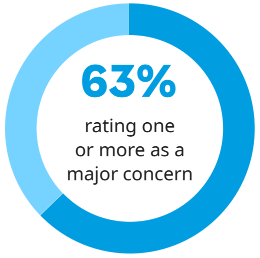
Business risks ordered by concern

G	Reputational risk
H	Regulatory compliance
I	Employee retention
J	IP protection
K	IP infringement
L	Multinational exposures and compliance
M	Directors and officers liability
N	Product/platform liability or recall
O	M&A risk
P	Media liability
Q	Employment practices liability
R	Employee fraud

Physical risks remain salient, especially in key sectors

We asked survey respondents about six “physical risks,” including employee safety, environmental liability, and property damage. The nature of their operations means that many tech firms have relatively fewer key physical assets or operations, resulting in a smaller proportion of respondents expressing significant concern about physical risks. In fact, only 63% rated at least one physical risk as a major concern, compared to other risk areas where over 80% view at least one risk as a major concern. The sole risk in the group to rank among the top 10 most highly concerning overall is employee safety, selected by 50%.

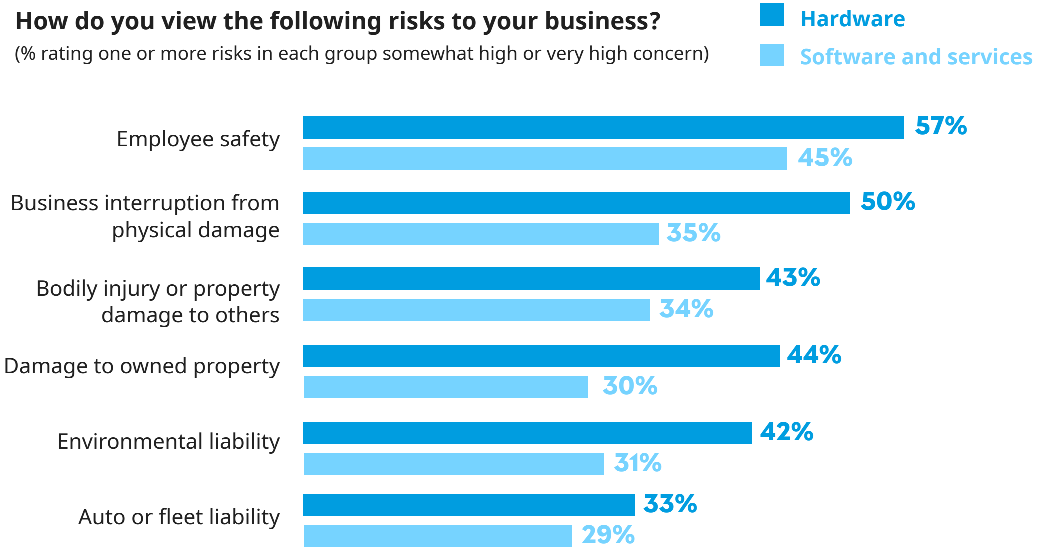
09| Top physical risks for tech companies

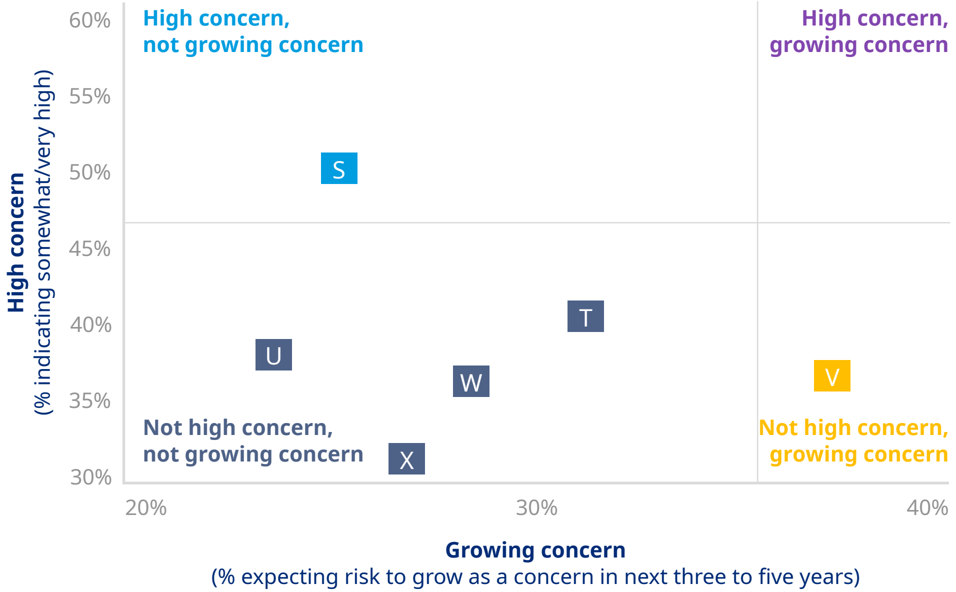


Employee safety	50%
Business interruption from physical damage	40%
Bodily injury or property damage to others	39%
Environmental liability	37%
Damage to owned property	37%

How do you view the following risks to your business?

(% rating one or more risks in each group somewhat high or very high concern)





While physical risks may not rank high on the agenda for the majority of tech companies, especially considering the more pressing concerns related to technology and business risks, these risks could have significant repercussions on some tech firms. For instance, hardware companies (those selling devices, components, equipment, and other physical tech products, like drones) are significantly more likely to rate five out of the six physical risks as major concerns, compared to companies selling primarily software and services (see Figure 10). Hardware companies have demonstrated that, ensuring robust risk mitigation measures for physical risks is a critical imperative, especially considering their vulnerability to property risks and supply chain challenges.

It is important to note that physical risks may become more relevant to the entire tech industry, depending on future trends and changes in the market. For instance, while our survey results show that environmental liability is not considered as a major concern at the moment, a significant share of respondents expect it to become a bigger concern over the next three to five years (see Figure 11).

The expectation for environmental liability to become more challenging is likely related to the urgent global focus on environmental sustainability, especially in line with regulatory developments. And, if regulators or trade organizations enact new rules pertaining to employee safety or fleet liability — for example, for autonomous drones or delivery fleets — we may see these quickly become pressing risks for more tech companies to take into account in their overall approaches to risk management and regulatory compliance.

Physical risks ordered by concern

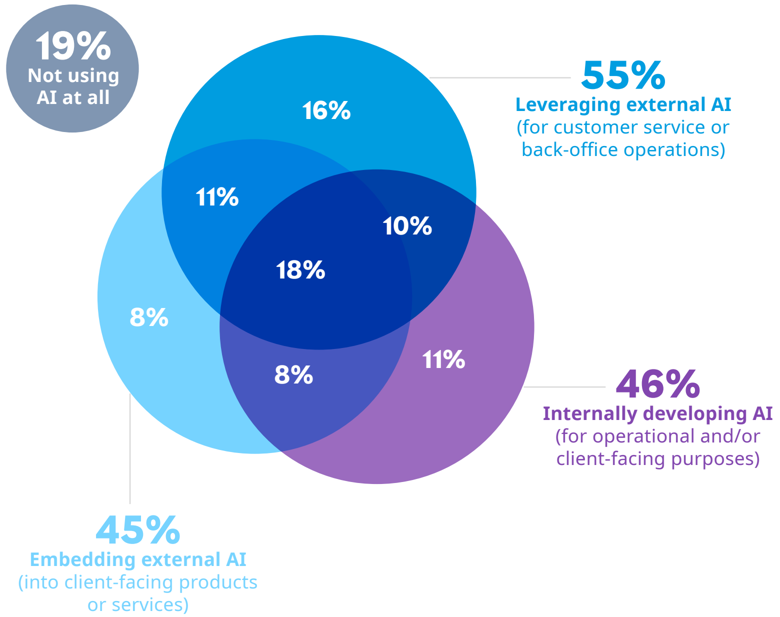
S	Emloyee safety
T	Business interruption from physical damage
U	Bodily injury or property damage to others
V	Environmental liability
W	Damage to owned property
X	Auto or fleet liability

Development and adoption of AI is creating new concerns

AI has experienced dramatic advances in recent years, both within and beyond the tech industry. And while many companies are already leveraging AI to improve business processes, they need to consider the potential risks — from model development and output to infrastructure, operations, and usage — and take action to safeguard their operations. In this year's report, we take a closer look at the rise of AI within the global tech industry, examining where and how tech firms are leveraging the technology, current concerns about AI-related risks, and actions they are taking to manage these risks.

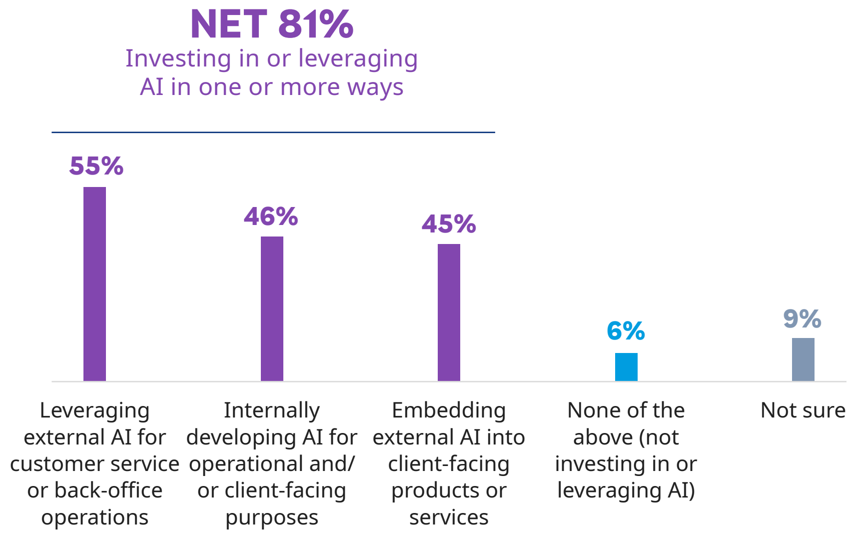
Our survey results indicate that most tech companies are already leaning into AI, often in multiple ways (see Figure 12). Over half (56%) of respondents report leveraging external AI solutions for customer service or back-office operations, while 45% are embedding external AI into client-facing products or services (see Figure 13). Just under half (46%) have developed internal AI systems, either for operational and/or client-facing purposes. Altogether, 81% of surveyed companies report investing in or leveraging AI in at least one of these three ways, a stark difference from the 6% indicating that they are not investing in or leveraging AI at all.

12| Detailed view of how tech companies are investing in/leveraging AI



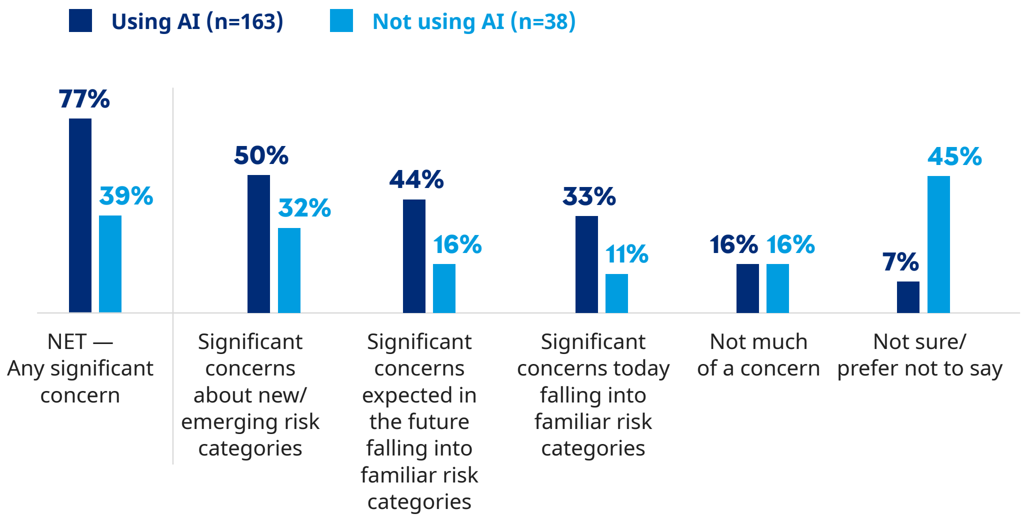
It is worth noting that this survey question asked about investment in AI, which means that some of the companies represented may be allocating funding toward AI development or implementation but not necessarily applying AI to their own business in any significant way. Still, there are clear indications that the tech industry is moving quickly to adopt and implement AI, both for back-office and client-facing purposes. This is especially true in North America, where a significantly larger share of respondents (87%) report using AI in one or more ways. Our survey data shows that tech firms in North America are over two times more likely than those based in other regions to be leveraging externally developed AI for customer service or back-office operations (64% versus 27%).

12| How tech companies are investing in/leveraging AI



*Note: 3% selecting "prefer not to say" not shown in chart.

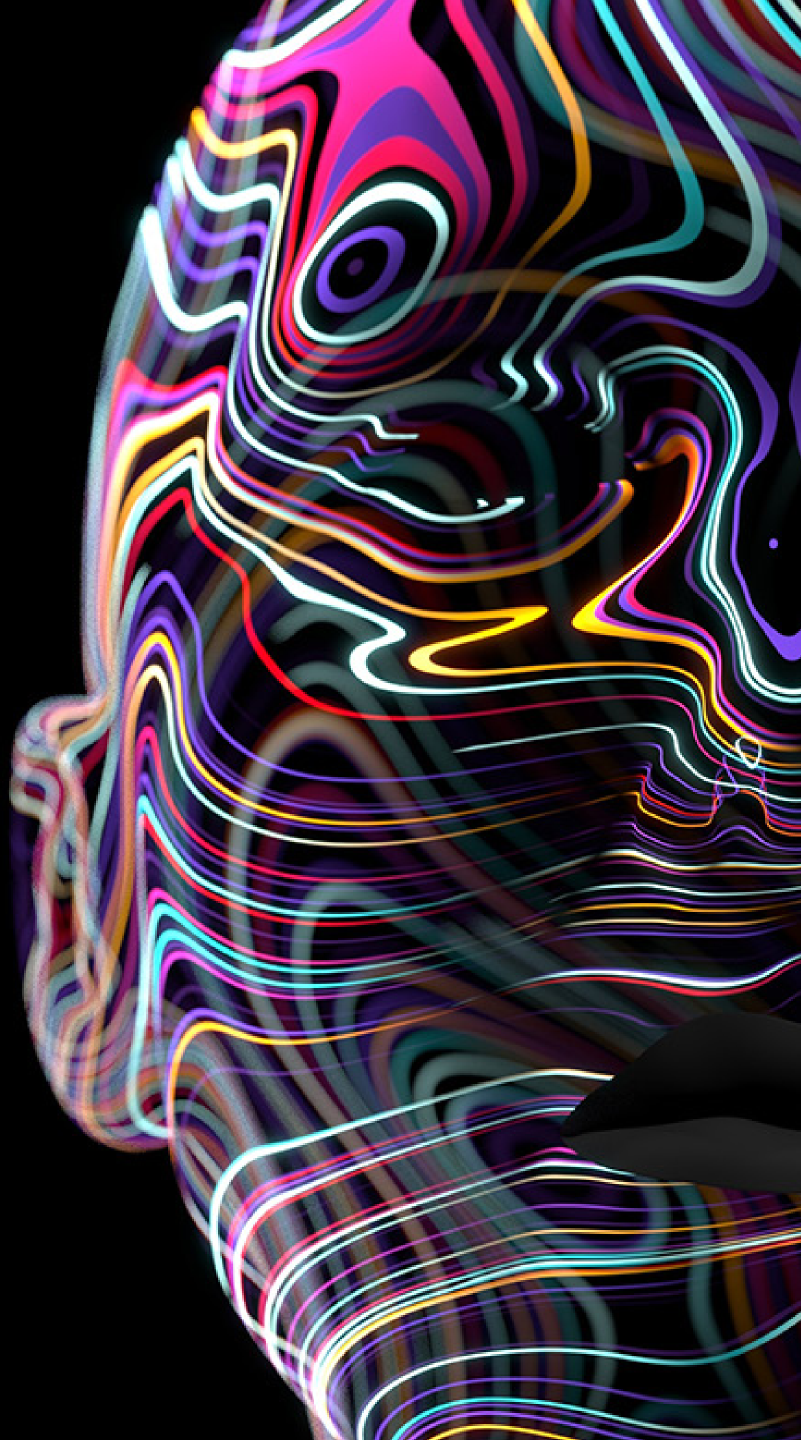
14| AI risk concerns among those using versus not using AI



As AI usage continues to increase at a rapid pace, so too do tech companies' concerns about related risks (see Figure 14). Our survey showed this to be especially true for the majority of companies already in the process of developing or adopting AI, which are far more likely to have one or more significant concerns about risks posed by the technology than peers not using AI, including concerns about new and emerging risk categories and about current and future risks that fall into existing risk categories.

This year's survey data indicates that even companies not currently using AI are at least potentially concerned about the kinds of risks AI might pose for their business. These respondents, however, may not yet be fully familiar with the kinds of risks that AI could pose or the appropriate levels of concern. It is clear that additional research, education, and advice is urgently needed, enabling both current AI users and those that don't use this technology to better understand, identify, and devise strategies to safeguard against pertinent AI-related risks.

“ It is prudent for companies that are not currently using AI directly to take a proactive approach and incorporate AI risks into their overall mitigation strategies.



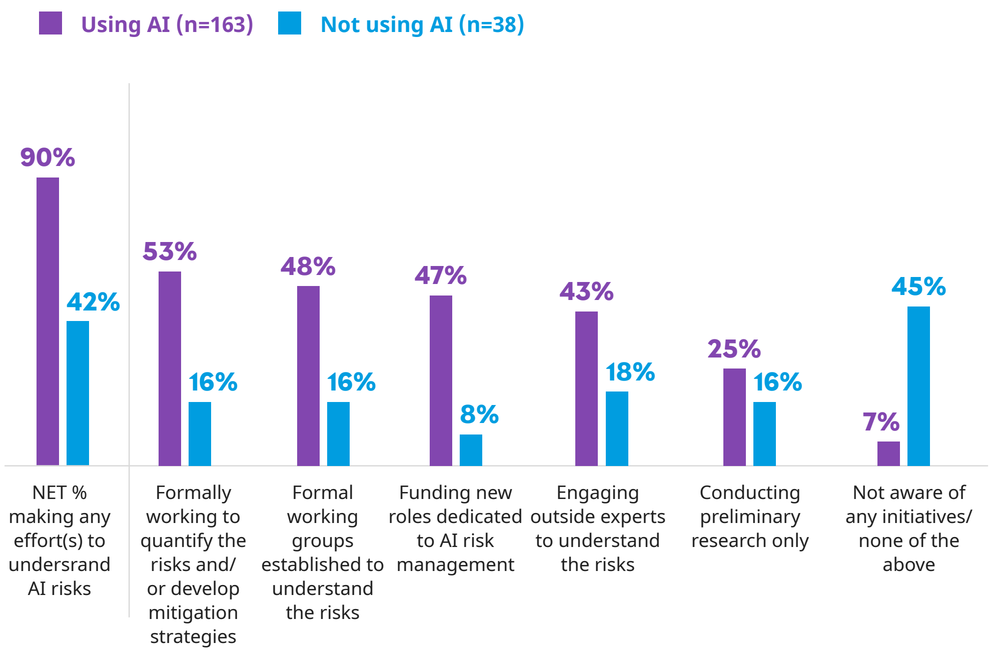
Companies are taking early steps to understand AI risks

There is clear recognition that AI implementation can introduce new risks, with survey respondents indicating that their firms are taking initial, but important, steps to identify and mitigate these challenges.

The majority (90%) of respondents whose company is currently using AI and 42% of those not using AI said their organization is taking one or more steps to better understand AI risks. More than half of respondents whose companies are already using AI said their firm is taking formal action to quantify the risks and address them (see Figure 15). Other popular actions highlighted by respondents whose companies are using AI include the engagement of external experts, funding of new internal roles dedicated to AI risk management, or establishing formal working groups for the purpose of understanding AI risks. Around 25% reported they are still at the earliest stages of conducting preliminary research, while 7% say their organization is not taking any action to understand risks. Firms in North America are typically more likely to fund new roles dedicated to AI risk management and engage outside experts, which makes sense, given the much higher usage of AI reported by North American companies.

Among non-users of AI, 45% are not taking any of the actions we asked about, while 16% are conducting preliminary research. It is important to note that lack of AI usage does not mean these companies are immune to AI risks considering that they operate in an inherently complex and highly interconnected industry, in which many of their commercial clients, partners, and vendors may already be using AI. It is therefore prudent for companies that are not currently using AI directly to take a proactive approach and incorporate AI risk management into their overall risk mitigation strategies.

15| **Tech company efforts to understand AI risks**

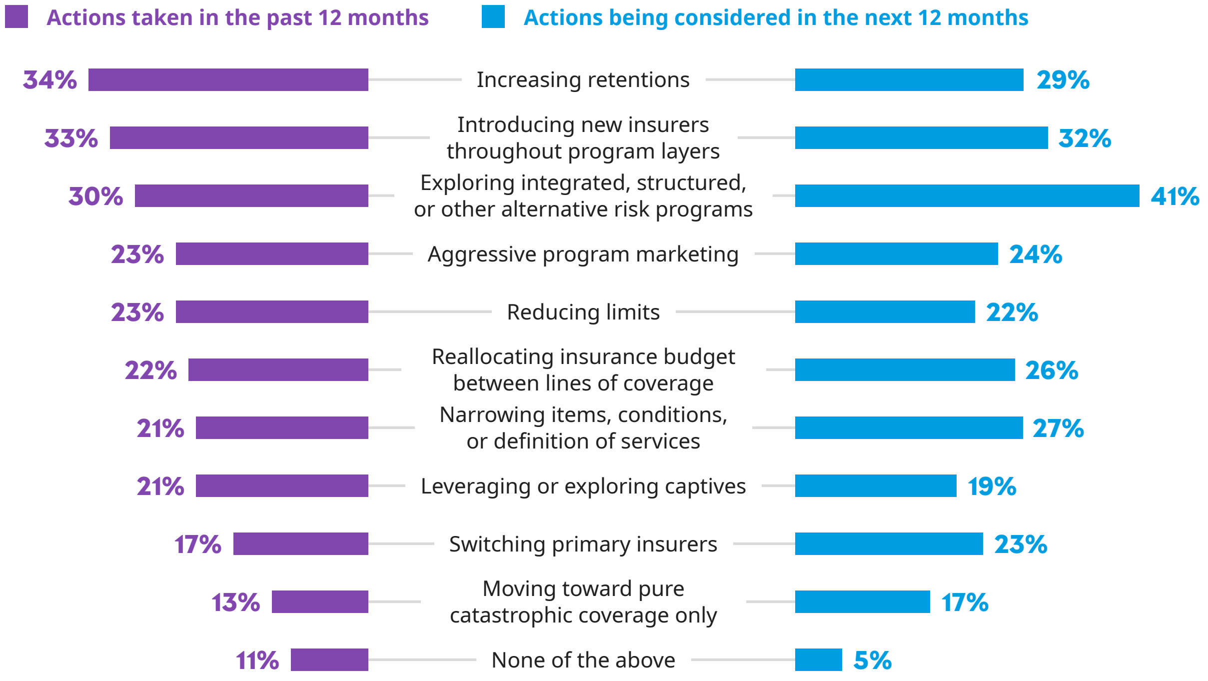


*Note: 3% selecting "prefer not to say" not shown in chart.

Firms are seeking control and exploring alternatives as risks accelerate

Tech firms face a wide array of daunting risks, which require clear risk management and mitigation strategies. The wide gamut of risk management strategies makes selecting the most effective actions a complex task. Furthermore, today's challenging economic landscape is putting pressure on budgets, making the selection of appropriate actions more complex as organizations seek to cut costs or maximize efficiencies in their approaches to risk management.

16| Risk management actions taken in past year and considered for next year



*Note: 9% selecting "not sure/prefer not to say" not shown in chart.

*Note: 12% selecting "not sure/prefer not to say" not shown in chart.

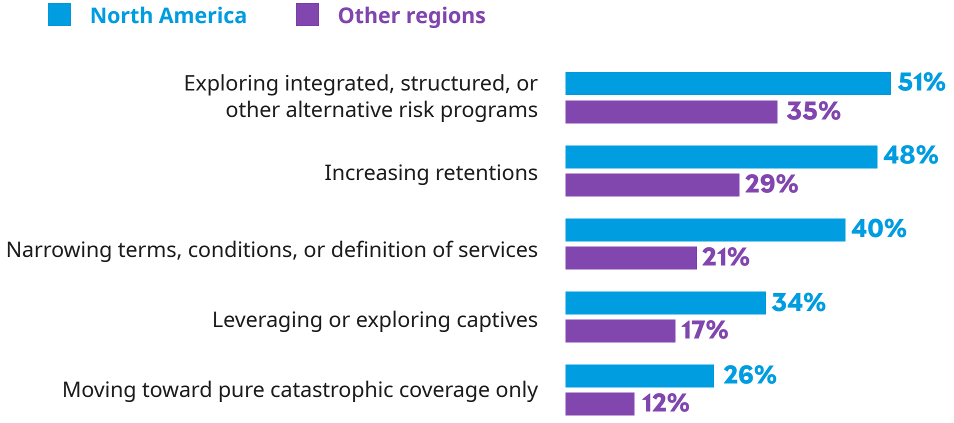
Tech companies are mainly focusing on increasing risk retentions, introducing new insurers throughout program layers, and exploring integrated, structured, or other alternative risk programs as they seek to optimize their risk management approaches in the current, challenging pricing, capacity, and budgetary environment (see Figure 16). Overall, 60% of respondents said their firms have taken at least one of these three actions in the prior year, while 61% said they are likely to consider taking these actions over the next year. Companies in North America are especially likely to take one or more of these three actions, with 76% of respondents from the region having either already done so or considering doing so (versus 60% of respondents based in other regions).

There is increased interest in alternative risk programs, with 41% of respondents saying they are likely to consider exploring these over the next year compared to 30% of respondents in last year's survey and in line with 40% in 2022. There was no notable difference in the uptake of other risk management actions compared to the previous year.

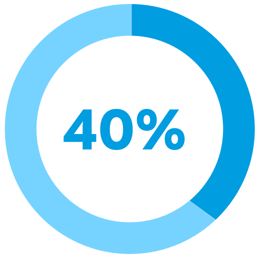
There were regional and sectoral nuances when it comes to the likelihood to take some of the less-common risk management actions. For example, tech firms in North America are significantly more likely to be exploring alternative risk programs; increasing retentions; narrowing terms, conditions, and service definitions; leveraging or exploring captives; and moving toward pure catastrophic only coverage compared to tech firms in other regions (see Figure 17). Companies that sell mainly hardware and physical tech products are significantly more likely than those that sell mainly software or services to be leveraging or exploring captives and switching primary insurers (see Figure 18).

While the extent of actions taken by firms varies, this year's survey clearly shows that most tech companies are taking or considering multiple actions to adjust and optimize their risk management strategies. On average, respondents said their companies have taken two to three actions over the past year and will likely consider two or three additional actions over the next year. As tech firms continue to compete within today's complex, fast-changing risk environment, they must continuously revise and refine their risk management strategies to effectively and efficiently safeguard against the many technological, commercial, and operational threats they face.

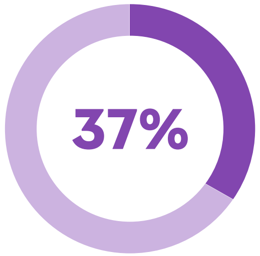
17| Risk management actions taken in past year and considered for next year by region



18| Risk management actions taken in past year and considered for next year by company type (hardware/software)



40% of hardware companies are leveraging or exploring captives, compared to 26% of software companies.



37% of hardware companies are switching primary insurers, compared to 27% of software companies.

Looking ahead

Overall, tech companies face a daunting number and variety of highly concerning risks, with major threats emanating from all three digital, commercial, and physical realms:

- Among technology risks, data security and privacy, digital business interruption, and technology errors and omissions are seen as the biggest risks, with AI design failure and AI usage or oversight errors emerging as significant new concerns.
  - It is especially urgent for tech companies to attend to AI-related risks considering the large share of tech firms that are already adopting and applying AI technologies to their business, both on the client-side and in back-office operations. Current users of AI tech, and even non-users, should be taking initial, proactive steps to at least understand AI-related risks, with the ultimate goal of effectively quantifying and mitigating them.
- New and changing regulations, threats to brand or company reputations, and the challenge of employee retention top the list of major business concerns for most tech firms. It is imperative to ensure that all three of these factors are fully considered and addressed in the context of each firm's general risk management program.
- Maintaining employee safety is the number one priority in the physical risks category. But tech firms must also keep an eye on potential risks tied to environmental liability, as many expect these to become more of a concern in the next few years.

Tech companies are simultaneously facing economic pressure, leading to workforce reductions, overall cost cutting, and, in many cases, restructuring. This, in combination with insurance market price capacity constraints and pricing challenges, has led many tech companies to rethink their ability to retain risk and to re-evaluate risk funding sources.

To counter the off-strategy risks identified in this report, tech firms are taking a range of steps intended to optimize both their internal operations and their approaches and investments in risk management. When it comes to risk management, the majority of respondents said they are increasing retentions, introducing new insurers throughout program layers, and/or exploring alternative risk programs. The bottom line is that most tech companies are taking new actions to manage risks, rather than sticking with the same approach. These new approaches could have multiple benefits, putting tech companies in a better position to manage emerging risks while also addressing budgetary and insurance market challenges and at the same time retaining flexibility, which could be critical in being able to manage future risks. In a risk environment as complex and fast-changing as the tech industry, inaction on risk management is not an option.

RISK MANAGEMENT CHALLENGES

Accelerating risk uncertainty

Innovation and the velocity of risk

Acute and systemic impacts

Risk interconnections

+

Fundamental risk management challenges

Business success = greater exposures

Underwriting concerns and realities

Budget constraints and competing demands on capital

The path forward for effective risk management is not an easy one, as tech companies face accelerating risk uncertainty and at the same time grapple with fundamental risk management challenges. Looking forward, we believe there are five key areas warranting renewed focus:

1. **Continual risk identification —** The velocity of risk means there is no time to rest. We have moved from annual to semi-annal, and now continual risk identification.

2. **Bespoke risk quantification —** The complexity and interconnection of many emerging risks require new approaches, new data sets, and innovative ways to quantify exposures.

3. **Adaptable risk program —** With both cyclical and foundational shifts in underwriting, capacity, and pricing, companies need to better leverage alternative program structures and sources of risk capital to build flexibility into their risk transfer programs.

4. **Expansive stakeholder engagement —** Risk management must go well beyond balance sheet protection to address risks throughout companies' entire ecosystem, including customers, partners, regulators, and more.

5. **Persistent financial discipline —** While the need for financial discipline never changes, the velocity of risks requires never-ending diligence to ensure there are no surprises that drain resources required to support innovation and growth.

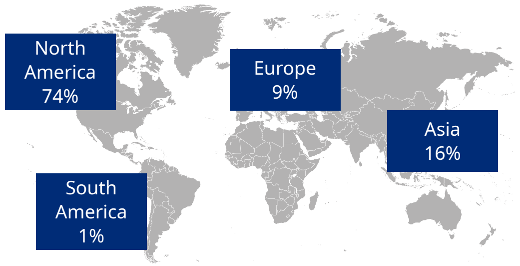
Survey demographics

The Global Technology Industry Risk Survey was conducted online among 201 respondents responsible for risk management at tech companies based in 16 different countries. Survey fieldwork was conducted between November 2023 and January 2024.

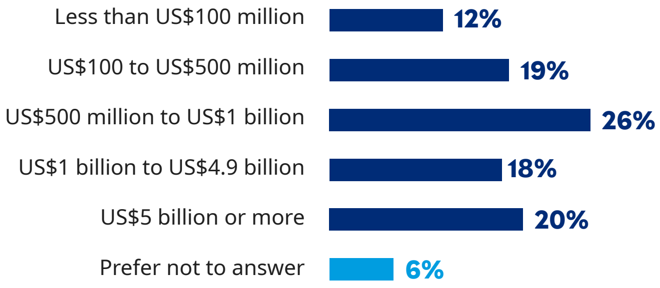
The demographic and firmographic distribution of this year's survey sample is detailed in the following charts and figures:

19| Organizational profile of technology companies (based on survey respondents)

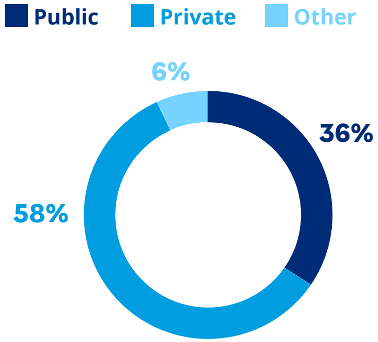
Headquarters



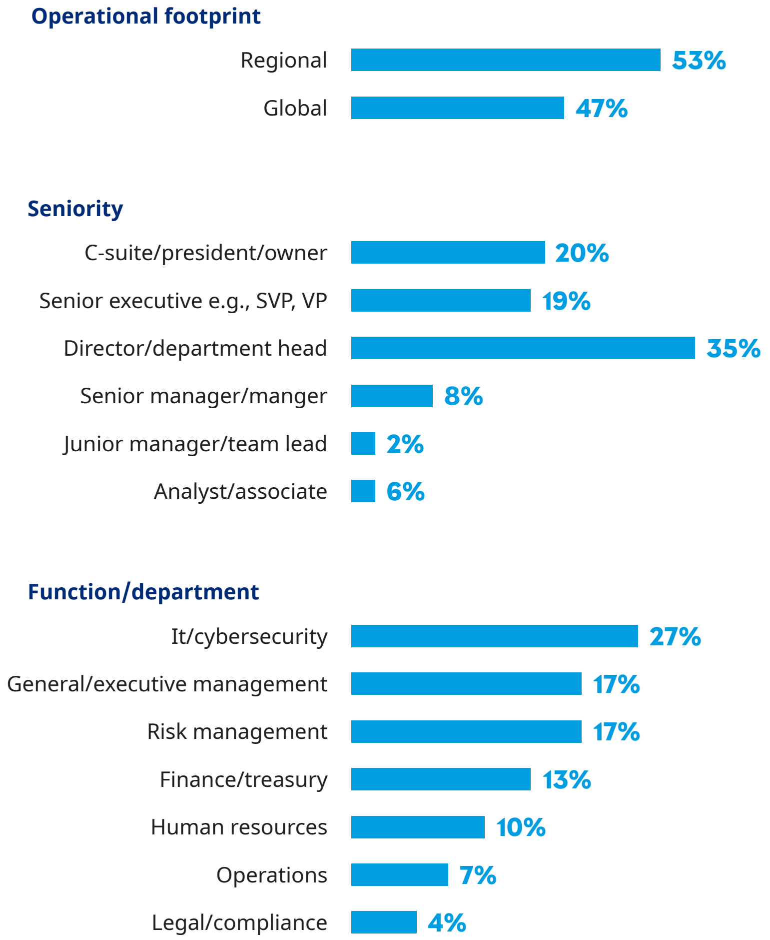
Annual revenue



Organization type



20| Organizational profile of technology companies (based on survey respondents — continued)



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