A detailed view of a quantum computing cryostat, showing a complex assembly of gold-colored components and a black cylindrical cooling system, set against a dark blue background with fiber optic cables.

**Quantum computing's  
growing presence in the  
corporate world**



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# Foreword

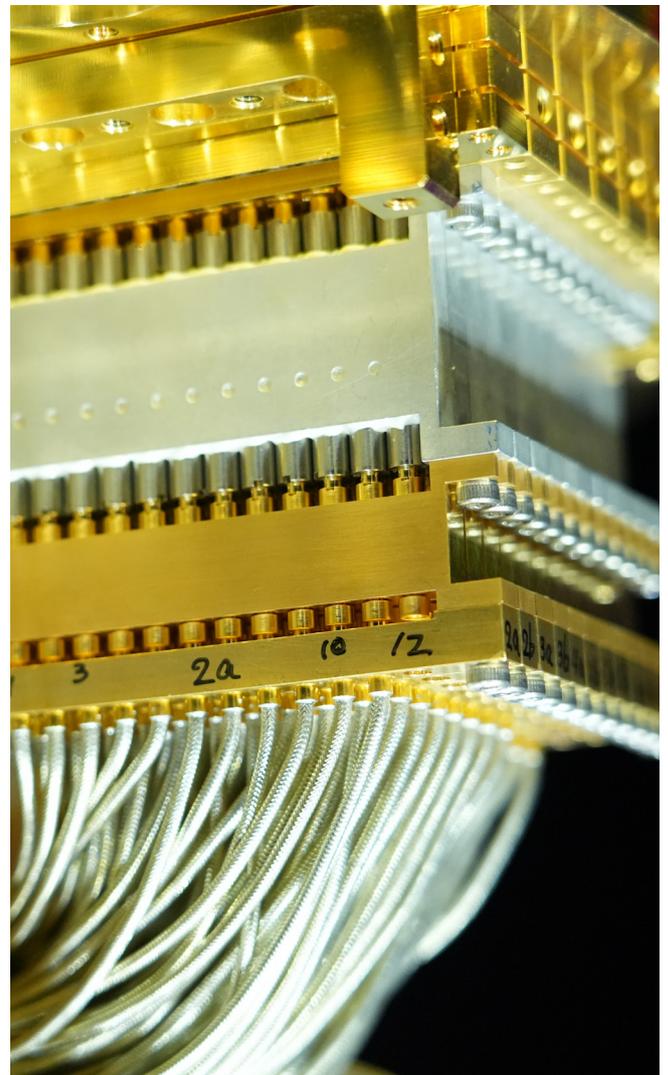
Quantum computing has for a long time seemed like a distant and theoretical concept. But science now shows that it's a viable technology that's only years, not decades, away from practical impact. This acceleration has profound implications for the corporate landscape and for society at large.

Quantum computing will make it possible to solve classes of problems that are fundamentally beyond the reach of today's systems. It will unlock dramatically improved approaches to logistics and supply chain optimization, financial risk modeling, portfolio management, resource allocation, and the discovery of new materials and life-saving drugs. At the same time, its arrival will force a reassessment of cyber security and impact many of the other technologies we use today.

As Fujitsu's Dr. Ellen Devereux, Quantum Computing Consultant, observes: "Quantum computing is exciting not just for what we think it can do, but for the possibilities we haven't yet imagined."

So how is the business world currently positioned for this technology? Research conducted by FT Longitude on behalf of Fujitsu, involving 300 senior executives representing a range of geographies and industries, shows that many are already thinking seriously about quantum computing – and are acting on it. For some, it's already providing rewards.

But there are also many nuances. Not everyone has the same set of priorities, and there are challenges and blind spots to avoid. This executive summary explores all of these findings.



# Key findings

96%

of executives expect quantum computing to bring benefits to their organization at some point, and just over a quarter are already seeing some business benefits from their exploration

82%

say that AI's rapid advances over recent years have been a reality check for them on how quickly technology advancements can accelerate

58%

plan to include quantum computing in their strategic planning discussions this year

73%

of public sector and defense organizations are actively assessing quantum computing use cases that could help them solve pressing problems, compared with only 32% of other sectors

# The reality is widely accepted. The question is about timing.



Our research findings show that there's broad conviction in quantum computing's business value. Almost all executives (96%) expect it to benefit their organization. A meaningful minority have already moved beyond informal exploration, with just over one-quarter (28%) reporting worthwhile advantages from their quantum efforts so far.

The difference is not belief, but timing and commitment. Only 20% see quantum as overhyped or too distant. Only about three in ten organizations have started building their quantum computing readiness, while most (67%) are taking a "wait and see" approach.

## Most organizations plan to build their quantum computing readiness this year

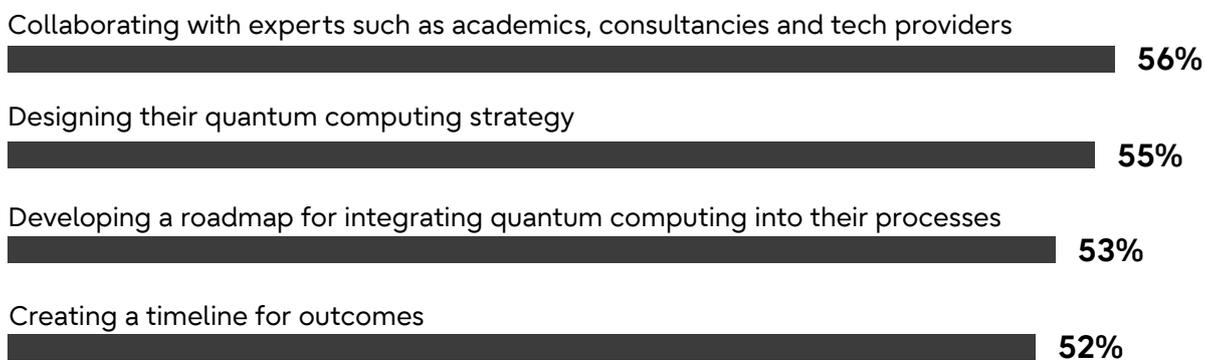
Yet momentum is building. Consistent with the strong level of overall interest, the majority (56%) of executives say they plan to take action on their quantum computing readiness over the next 12 months. For instance, 66% will be attending quantum computing conferences to build awareness, and 58% will factor quantum computing into their strategic planning discussions.

## Figure 1. The measures organizations plan to explore in the next 12 months to build quantum computing readiness

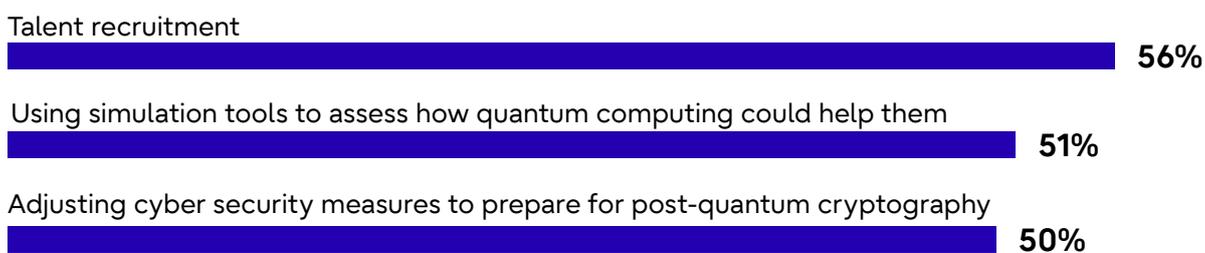
### Thinking



### Planning



### Doing



Quantum computing journeys are already under way for many. About four in ten organizations already include quantum computing in their strategic planning discussions. They're taking their cue from broader digital transformation experiences: 82% of executives say that learnings from emerging tech initiatives, such as AI, are improving their approach to quantum computing.

Companies that are the most proactive are benefiting. The research finds a group of fast movers: organizations that are more advanced in quantum computing readiness than others. On average, 54% of this fast-moving group are already seeing value from their quantum computing efforts.

Fast movers are 34 percentage points ahead of the mainstream group on making smarter tech investment decisions to future-proof

“ Discovering practical use cases of quantum computation is not a simple process. It requires a deep understanding of the way the business works, as well as how the technology itself works. ”

**Shinji Kikuchi, project director at Quantum Laboratory in Fujitsu Limited**

their systems and platforms. They're also 42 percentage points ahead on learnings-driven improvements to long-term strategy (70% of fast movers).

Cyber security benefits are a priority for fast movers: 53% say their exploration efforts have increased their understanding of the cyber security threats attached to quantum computing. And 77% of fast movers are already adjusting their cyber security measures to prepare for post-quantum cryptography shifts. This is a crucial step in a digital-first world, given consensus that many current public key encryption methods would not withstand attacks enabled by sufficiently capable quantum computers. But only 17% of the mainstream group are doing the same, leaving themselves at risk of “harvest now, decrypt later” (HNDL) attacks where hackers steal data today and then decrypt it once technology allows. So the fast movers will have a resilience edge.

Fast movers' advantage goes beyond security factors and extends into innovation and strategic growth. The majority (55%) have identified at least one quantum computing

use case that is likely to enhance their performance in the future, compared with only 23% of the mainstream group. This could be attributed to a lack of focused intent from the mainstream group, as only 27% are actively assessing use cases that could help them solve pressing problems, compared with more than nine in ten of the fast movers.

Interestingly, even though most of the mainstream group haven't started assessing potential use cases for quantum computing, the majority assume that finding viable use cases will not be a dominant challenge.

Shinji Kikuchi, the project director at Quantum Laboratory in Fujitsu Limited, offers cautions around this finding: “Discovering practical use cases of quantum computation is not a simple process. It requires a deep understanding of the way the business works, as well as how the technology itself works.”

We will return to the fast movers in the final chapter, but first let's explore the characteristics of the mainstream group further.

# Is “wait and see” the safe approach?

The prevailing approach to quantum computing is largely passive. The majority of respondents (67%) on average haven't started to build their quantum computing awareness in a targeted way. They haven't deployed basic measures such as routinely monitoring industry updates or attending quantum

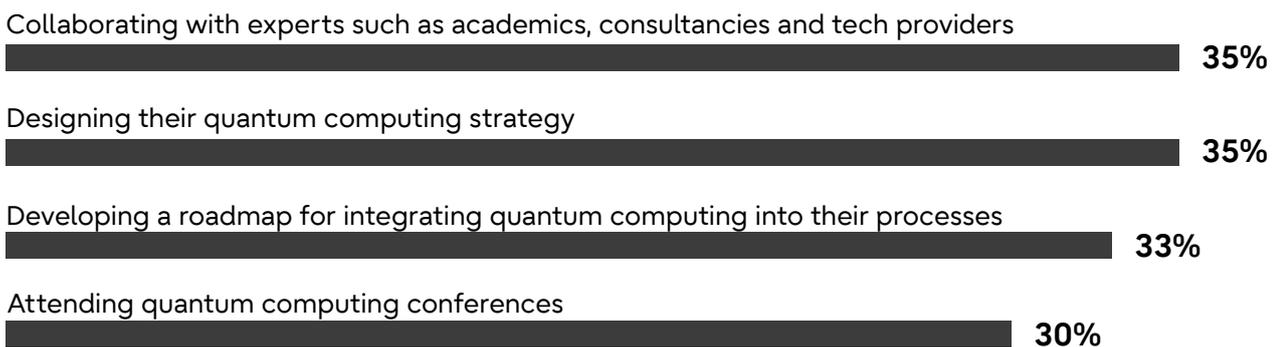
computing conferences to stay informed. But only 20% of executives say that quantum computing is too far off to be relevant to their business. There seems to be a gap between intent and action.

**Figure 2. The proportion of organizations building their quantum computing readiness**

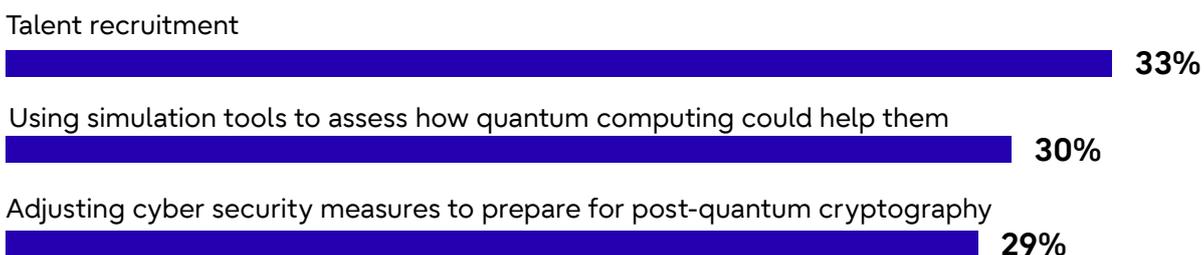
## Thinking



## Planning



## Doing



When organizations are taking action, most are focusing on earlier, conceptual stages such as internal discussions and industry surveillance, instead of more concrete actions such as adjusting their cyber security measures.

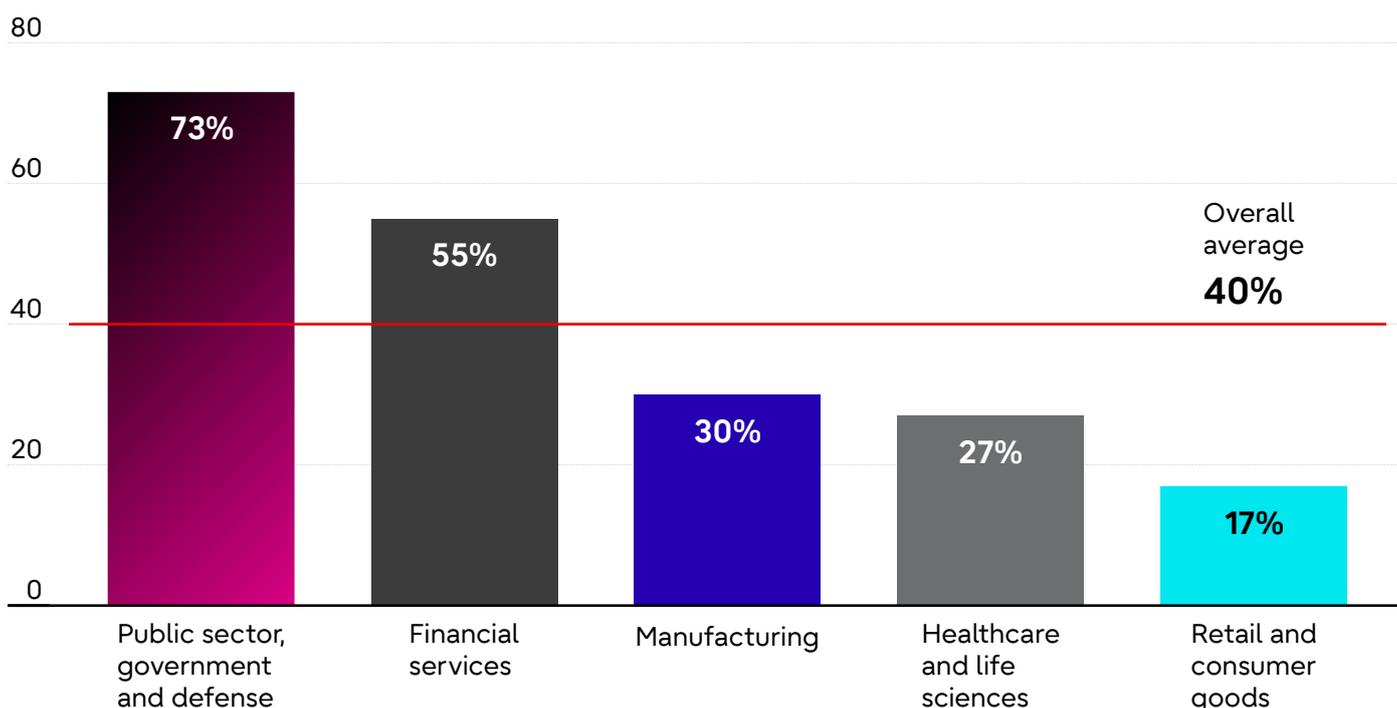
“Being too hands-off comes with risk.” says Dr. Devereux. “The emergence of ‘harvest now, decrypt later’ attacks is one example of where organizations need to understand the impacts of quantum computing today.”

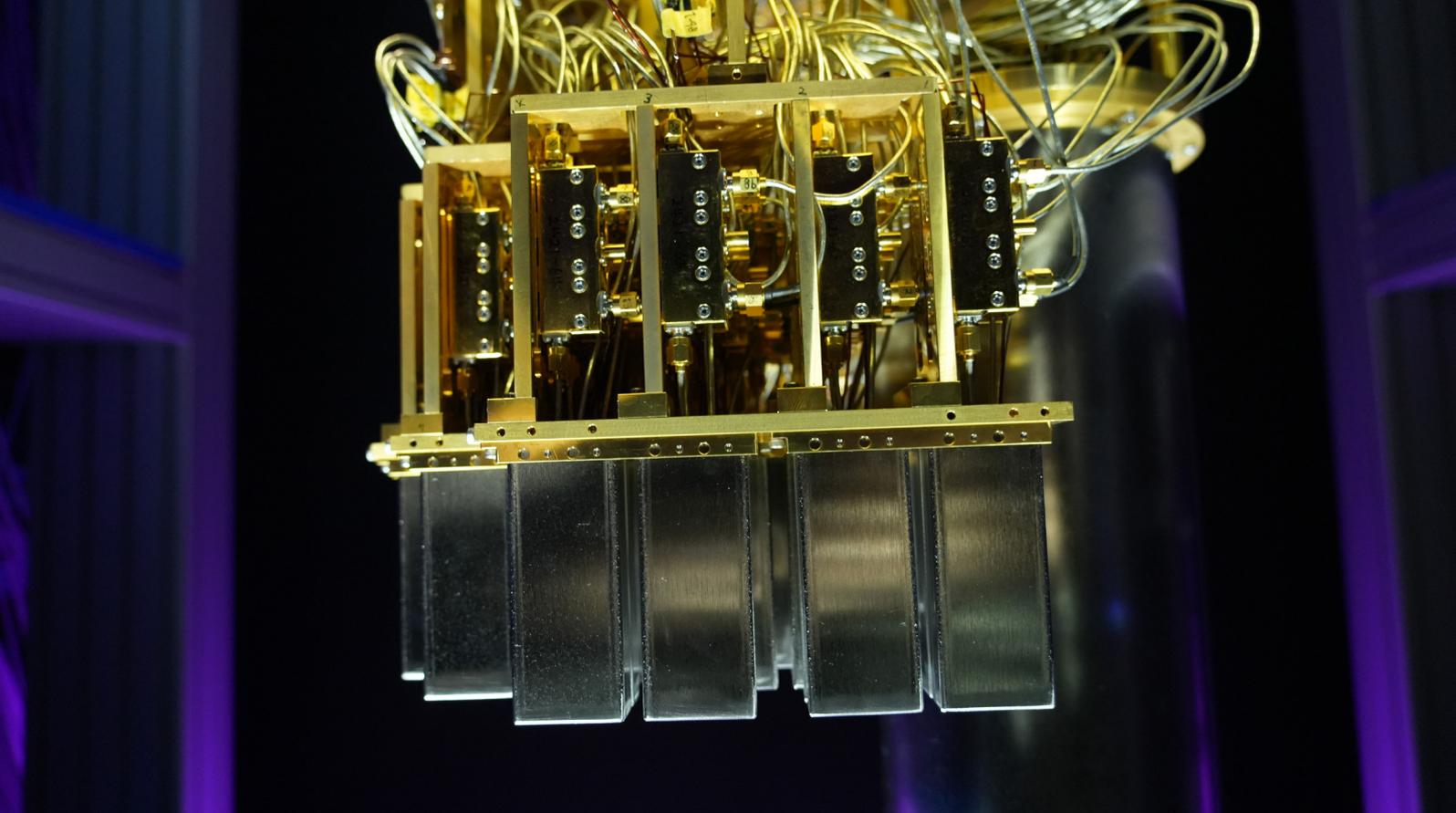
As we highlighted in the last chapter, mainstream companies appear to be underestimating quantum computing use-case mapping, even though use-case evaluations will establish whether the technology is worthwhile for an organization. Overall, the minority are examining use

cases (figure 3), and most haven't identified a valid use case yet. But the mainstream group doesn't expect this to be a significant problem for them in the future (figure 5). Some industries, such as the public sector and financial services, have more momentum than others.

The findings here suggest that many companies have been viewing quantum computing as just another tech initiative, rather than as a potential strategic business model disruptor. While there may be good reasons not to run too fast with an emerging technology, most organizations confirm that, to date, they haven't even been monitoring quantum computing developments in a structured way. It's clear that their current approach lacks deliberate intent.

**Figure 3. Sectors that are actively assessing use cases for quantum computing**





## The risk of unintentional drift

There are inconvenient truths that make this passive, “wait and see” approach problematic.

First, it exposes organizations to greater disruption and risk if advances in quantum computing technology arrive sooner than expected. And surprising technological leaps forward do happen, as we’ve seen with AI. Eight in ten executives (82%) say that AI’s rapid advances in recent years have been a reality check for their organization on how quickly technology advancements can accelerate. About half (51%) say these reality checks have happened frequently over recent years, which indicates that acceleration isn’t an occasional shock but a persistent feature of the landscape.

Second, multi-year timelines are needed to prepare businesses for quantum computing. Most executives acknowledge that delays in delivering new technology are common. Almost six in ten organizations (59%) admit that their emerging technology projects,

including quantum computing, take longer than expected because of competing priorities for innovation investment and technology resources.

Because of this, lack of intent with quantum computing will, in time, leave late-moving companies scrambling to catch up. Fast movers, meanwhile, are exploiting the benefits arising from the technology. The next five years represent a critical window of opportunity.

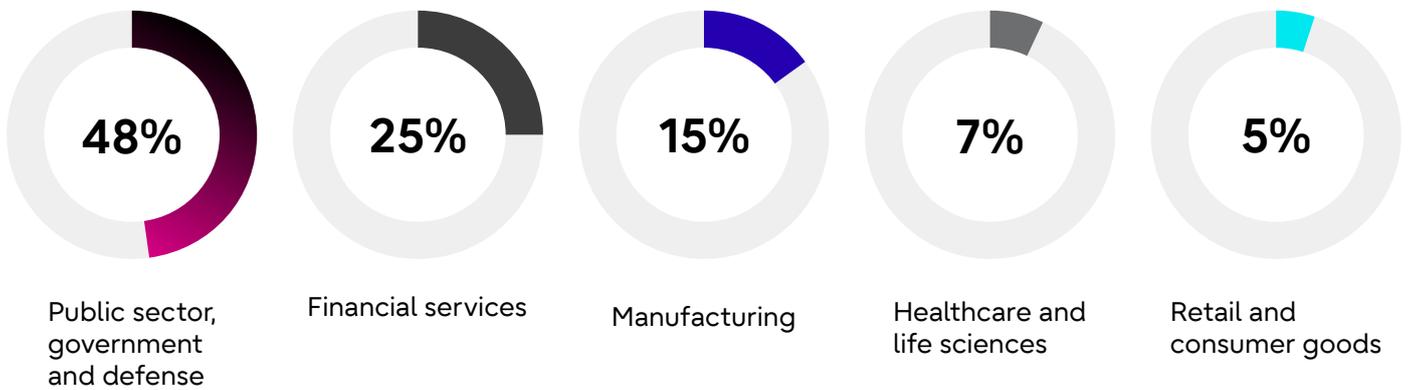
But things do appear to be changing. Most of the mainstream group plan to be more intentional. The majority (56%) on average intend to take action in the next 12 months to develop their quantum computing readiness. To avoid falling behind, companies will need to make sure this intention becomes a reality – especially given that 63% of executives say their organization diverts attention or investment away from quantum computing efforts in favor of nearer-term technologies such as AI.

# Lessons from the fast movers

As we discovered in Chapter 1, our research finds that a small group of organizations are fast movers that are prioritizing quantum computing. There are higher concentrations of fast-moving organizations in certain

sectors and territories. For instance, out of the countries featured, the UK, Singapore and the US have the highest proportions of fast movers.

**Figure 4. Who are the fast movers?**



Looking at the sector distribution (in figure 4), fast movers are most likely to be found in public sector, government and defense sectors. They're least likely to be found in the retail and consumer goods sectors.

The variation in maturity across sectors is to be expected, because some industries are likely more likely than others to see more immediate impacts from quantum computing. The threat to national security from quantum computing is a likely root cause for this heightened focus in the public sector.

Quantum computing requires substantial investments, so governments are being lobbied to provide millions in fiscal support to their nation's private sector so it can keep pace with others globally.

## The defining behaviors of fast movers

Fast movers stand out because they have clear priorities and are actively addressing the core hurdles to practical quantum adoption. The rest are less deliberate.

**Figure 5. The main challenges executives expect from their quantum computing journeys**

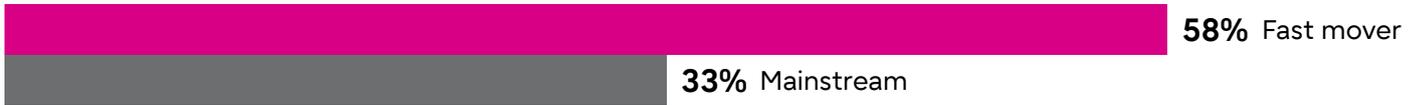
**Having the right skills internally**



**Knowing which partners to engage with**



**Security concerns with quantum computing tech**



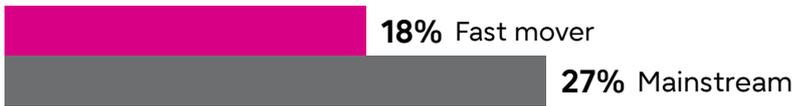
**Skepticism about viability of quantum computing**



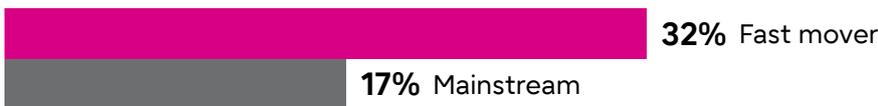
**Lack of clear ownership or governance for quantum computing related decisions**



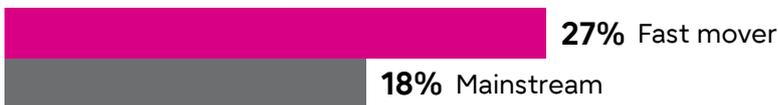
**Difficulties making an investment case to obtain budget**



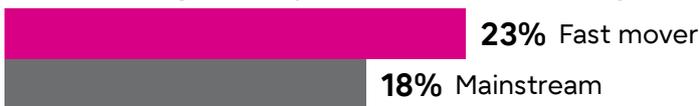
**Quantum computing related cyber-security threats**



**Impatience for the long-time horizon currently needed for quantum computing**



**Understanding where quantum fits with other key technologies and competing tech priorities**



**Understanding how quantum can solve our challenges and how to identify viable use cases**

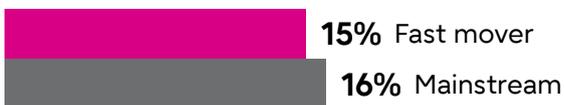
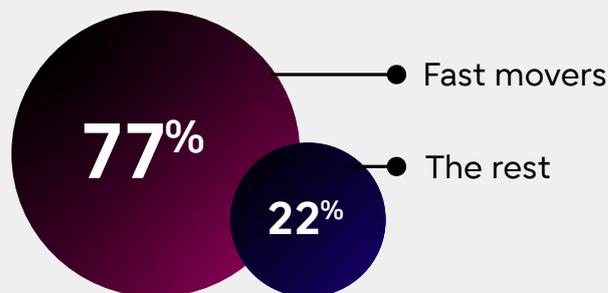


Figure 5 shows that skills gaps, partnerships and security concerns are the primary threats to quantum computing journeys. Elsewhere in the research, the fast movers demonstrate that they're already tackling these areas.

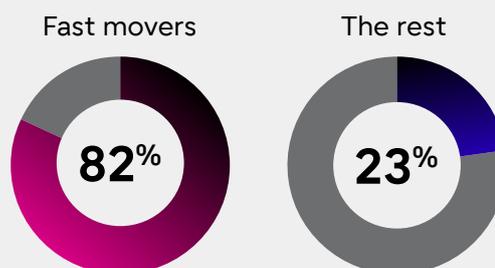
### Skills gaps

77% of fast movers are already working on talent recruitment strategies, compared with 22% of the rest.



### Knowing which partners to engage with

82% of fast movers are already experimenting with external collaborations, compared with 23% of the rest.

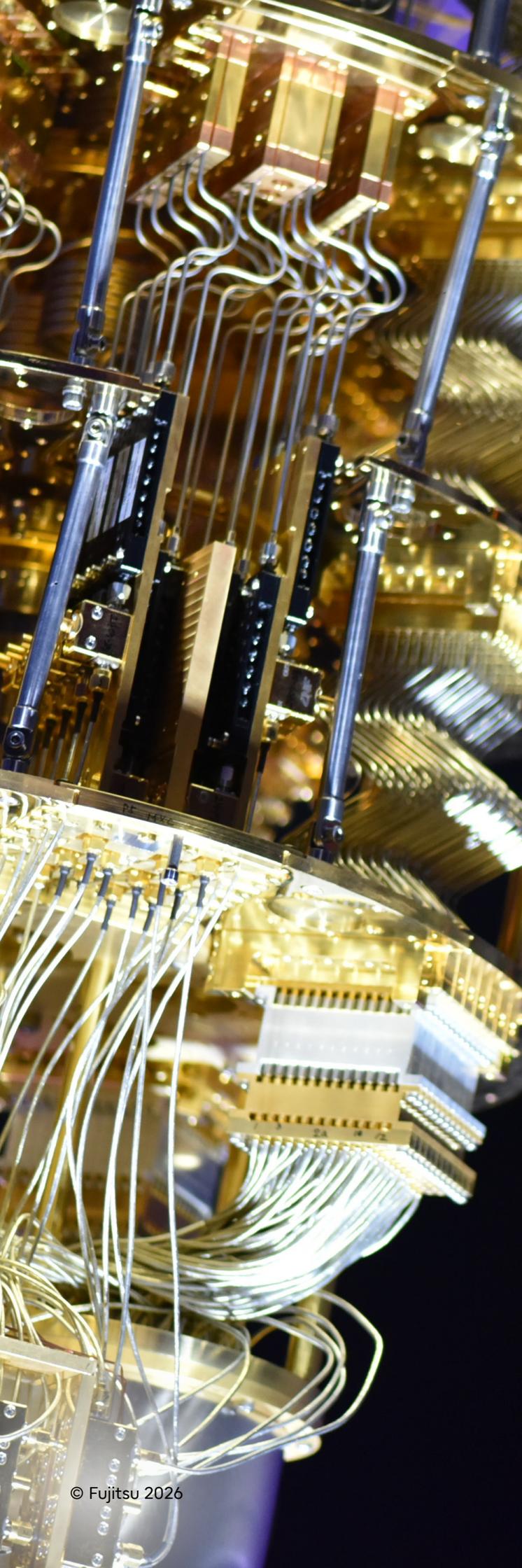


### Security by design

Fast movers are more concerned about quantum computing security (58% say this is their main challenge, compared with 33% of the rest). Almost all (98%) heavily involve their cyber teams early in emerging technology projects. And just over three-quarters of fast-moving organizations are already updating their cyber security measures to prepare for post-quantum cryptography shifts. These proactive actions will help to guard against HNDL attacks.



Fast movers are more concerned about quantum computing security



The findings also indicate that fast movers structure their quantum computing exploration programs differently. They're more likely to spend time understanding how complementary emerging technologies such as quantum and AI interconnect and amplify each other (58% do this frequently, compared with 33% of the mainstream group). They're also more likely to use what they have learned from their other emerging technology journeys to enhance their quantum computing efforts (70% compared with 43%).

Interdisciplinary collaboration has its benefits, but fast movers also prioritize ringfencing time and attention for quantum computing (23 percentage points higher than the rest). Fast movers also appear to be better at protecting resources for quantum computing. The mainstream organizations are more than twice as likely as fast movers to say they frequently divert resources and investment away from quantum computing and toward other technologies.

# In summary

Our research reveals a strong consensus among business leaders about the value of quantum computing. Virtually all of the executives in our survey expect it to deliver tangible benefits to their business at some point. But the largely passive stance adopted by many organizations risks underestimating both the pace of technological progress and the preparation required to capitalize on it.

Encouragingly, most organizations intend to take a more deliberate approach to quantum computing over the next 12 months. As they translate ambition into action, they would benefit from following the example of today's fast movers.

We leave the final word to Dr. Devereux.

"The power of quantum computing lies not only in its proven advantages, but also in the future breakthroughs," she says. "This report demonstrates that business leaders believe this too."

## About the respondents

The study is based on a survey of 300 executives from six countries: Australia, Canada, India, Singapore, the UK and the US, with equal representation from each.

There are representatives from five categories of industries:

- Financial services (banking, insurance, capital markets, payments, wealth and asset management)
- Manufacturing (industrial manufacturing, automotive, chemicals, process manufacturing, electronics and high tech)
- Healthcare and life sciences (healthcare providers, pharma, biotechnology, medical devices, digital health)
- Retail and consumer goods (retail, e-commerce, consumer packaged goods (CPG), luxury and fashion, hospitality)
- Public sector, government and defense (government, public agencies, education, defense, national security, cyber defense)

The entire sample is composed of senior leadership, with 30% of respondents sitting at C-level and 70% sitting at C-1 or C-2.

Note that percentages in the figures of this document have been rounded for clarity, so the percentages may not add up exactly to 100%.

