ACCELERATED BUSINESS

The rise of next-generation connectivity

Sponsored by: **Sprint** Business

Accelerated business:
The rise of next-generation connectivity
Sponsored by Sprint Business

Connectivity is the lifeblood of digital transformation. Without speedy and reliable networks, data cannot be transmitted and transactions, communications and commerce itself are forestalled. However, on occasion, a new breakthrough in connectivity upends the status quo, unleashing new innovations in business and disrupting the hold of incumbents. We may be on the cusp of such an event.

The fifth generation of wireless networking technology, otherwise known as 5G, should be viewed in this light. It will virtually eliminate "latency"—the time it takes for data to travel between points—and dramatically accelerate information processing. The consumer applications are widely known. The business applications, on the other hand, are slowly coming to light.

This report, which is based on a survey conducted by The Economist Intelligence Unit and sponsored by Sprint Business, uncovers a race that is already under way in the US to secure business opportunities resulting from technologies enabled by next-generation connectivity. Indeed, 77% of respondents say such use cases will completely change customer expectations of what their company is capable of.

The survey of 400 executives in the US from seven industries was conducted in November 2018 to December 2018 and focused on technologies enabled by lower latency. The respondents are from companies with annual revenue ranging from US$500m to US$5bn or more, and half are C-suite executives. In this report, we will refer to the use cases of next-generation connectivity, which are augmented/virtual reality, automation, machine-to-machine communication, remote control of devices and infrastructure, and smart sensors, and how companies are approaching related business opportunities.

The key findings are:

- **A large majority of US companies are aware of the upcoming transformational impact of 5G, and are seeking to grasp the opportunity**. In particular, they are prioritising technologies enabled by lower latency such as the Internet of Things (IoT), with seven in ten respondents (71%) saying that such business opportunities are a current priority. Companies where these opportunities are considered to be an "essential" priority are two times more likely to expect a significant improvement in revenue growth by 2020.

  Takeaway: in order to secure investment for these emerging technologies, businesses will need to communicate the potential commercial benefits to their stakeholders.

- **Besides the growth opportunities posed by 5G, companies are also acutely aware of the systemic threat posed to their business—and potentially entire sector—by this next generation of wireless technology.** As a consequence, companies are also seeking first-mover advantage to ensure they are not swept

up by the competition, with more than half of respondents (53%) saying they will be investing in new digital technologies in the next two years to exploit business opportunities.

Takeaway: if they haven't already, businesses should consider making technologies enabled by next-generation connectivity enterprise-wide priorities for growth, because, chances are, the competition already has.

- **Despite the enthusiasm for 5G, product cycles are in an early phase**. Fewer than 10% of survey respondents are ready to launch products, run test marketing or create a prototype enabled by next-generation connectivity (such as launching pilot IoT programmes on existing networks). Nonetheless, there is general optimism across the board, with respondents who feel they need to improve the most actually consistently the most confident about being able to capitalise on opportunities.
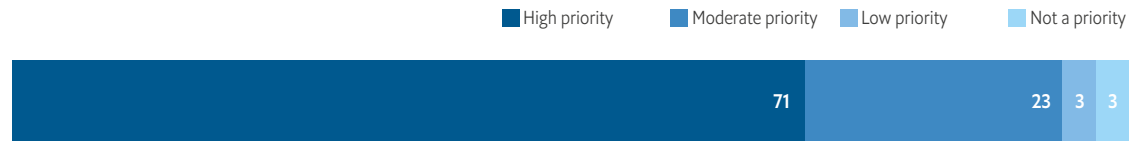
Takeaway: identifying areas in an organisation most in need of improvement, such as speed of decision-making, customer experience or digital capabilities, can assist management in prioritising which next-generation technology to invest in. Consider forming a task force to pinpoint weak spots.

- **Of course, next-generation connectivity will bring with it concurrent security concerns**. Among respondents, the most frequently cited challenge to pursuing opportunities related to use cases of next-generation connectivity is IT security, coming just ahead of concerns about customer privacy and budget constraints.

Takeaway: as they pursue opportunities in the IoT, machine learning, augmented reality and other emerging technologies, business decision-makers should be working in partnership with their IT departments to ensure system resilience and security.

What priority are business opportunities related to next-generation connectivity?
(% of respondents)

■ High priority ■ Moderate priority ■ Low priority ■ Not a priority

| 71 | 23 | 3 | 3 |

Source: The Economist Intelligence Unit

High hopes

While each generation of wireless networking technology has been accompanied by a marked enhancement in connectivity, the potential offered by lower latency necessitates a step change in business investment and innovation. The overwhelming importance that firms place on this technological transformation is evident in the survey, with a significant majority of executives (71%) believing that business opportunities resulting from use cases such as augmented reality, automation, machine-to-machine communication, control of remote devices and physical infrastructure or smart sensors are either a high or an essential priority to their companies. Furthermore, 77% of respondents believe that these kinds of opportunities will increase in priority in the next two years.

The overwhelming interest of respondents in next-generation connectivity is driven by both optimism about the revenue implications and a fear of being left behind. In the first instance, respondents who view next-generation connectivity as an "essential" priority are nearly three times more likely than those who describe it as a moderate priority to expect a significant improvement in revenue growth in two years. They are also two times more likely than other respondents to expect revenue growth of more than 6% in 2019.

At the same time, however, the same respondents also tend to be much more concerned than others about future disruption by competitors. They are nearly three times more likely to think their competition will disrupt the way they operate by 2020. This is a crucial point, since the fear of competitive

Most significant impact of lower-latency in my industry in two years
(% of respondents)

Greater potential for growth	59
Increased competition external to my industry	49
Increased competition within my industry	47
Consolidation within my industry	39
Shift in customer profile	35
Change of industry leaders	31
There will be no significant effects	3

Source: The Economist Intelligence Unit. Respondents were asked to select three answers.

> **Real time is a dynamic that will drive down costs and expenses, so, if you're not going to do this and your competitors are, then they will get ahead.**
>
> *Herbert Blum, global head of the telecommunications practice at Bain, a consultancy.*

disruption is driving an urgency to adopt use cases and capitalise on them. Most companies see a greater potential for growth in the future but many also see more competition coming.

To some extent, companies have to focus on something if their biggest competitors are, too. "There is no choice here. Real time is a dynamic that will drive down costs and expenses," says Herbert Blum, global head of the telecommunications practice at Bain, a consultancy. "So, if you're not going to do this and your competitors are, then they will get ahead."

Selling to consumers versus selling to businesses

There is an interesting divergence between B2C (business to consumer) and B2B (business to business) companies in how urgently they are approaching opportunities stemming from next-generation connectivity. Notably, consumer-focused companies are currently more likely to be focused on the accompanying next-generation technologies, with 74% of B2C
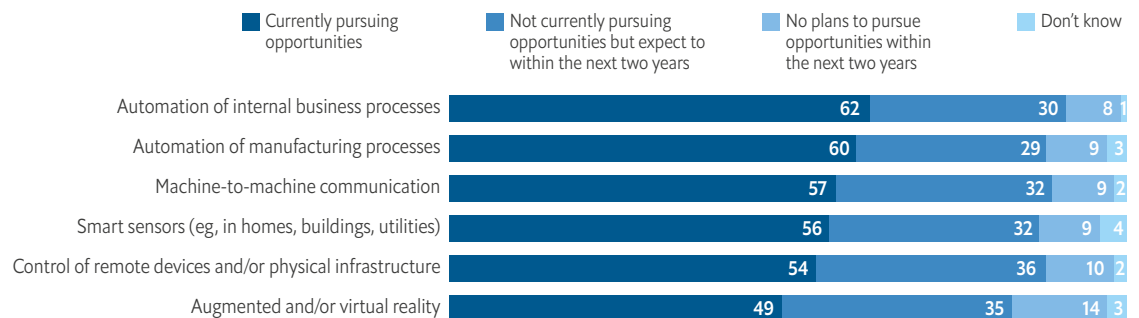
companies saying they are a priority compared with 53% of B2B companies. In addition, nearly twice as many B2C companies say they are generating ideas for new products and services compared with B2B companies (43% vs 24%).

The reason that B2C companies have more frequently than B2B companies focused on related opportunities may have to do with how convinced executives are about the commercial applications. When asked to what extent their organisation's financial results will improve in two years as a result of next-generation connectivity opportunities, 43% of B2C respondents said that revenue would improve significantly, much higher than the 30% of B2B companies.

In terms of the types of business opportunities that companies, B2B or B2C, are focused on, respondents appeared especially geared towards automation—an innovation that could have enormous implications in streamlining operations and boosting firms' administrative efficiency. This trend is especially apparent in the energy and transportation sectors.

Business opportunities resulting from new technologies.
(% of respondents)

	Currently pursuing opportunities	Not currently pursuing opportunities but expect to within the next two years	No plans to pursue opportunities within the next two years	Don't know
Automation of internal business processes	62	30	8	1
Automation of manufacturing processes	60	29	9	3
Machine-to-machine communication	57	32	9	2
Smart sensors (eg, in homes, buildings, utilities)	56	32	9	4
Control of remote devices and/or physical infrastructure	54	36	10	2
Augmented and/or virtual reality	49	35	14	3

Source: The Economist Intelligence Unit

> "
> **The story that businesses must learn to tell is about the benefits of low latency while proving to clients that they can be trusted with customer data.**
>
> *Vishal Gupta,*
> *chief technology officer of Unisys.*

Respondents from the energy sector, for example, place a higher-than-average priority on next-generation connectivity. Automation is a particularly important business strategy for energy companies (notably utilities, such as in the case of smart meters), with 54% of respondents from the sector saying they have introduced it in their companies, much higher than the 40% of all respondents.

A solid majority of energy sector respondents (64%) say they are also pursuing opportunities regarding remote devices and physical infrastructure, higher than the survey average of 54%.

Similarly, respondents from the transportation sector are mainly focused on the same applications, and they have a stronger-than-average confidence about their ability to exploit these opportunities. Seventy-one percent of transportation sector respondents also say are pursuing opportunities related to smart sensors, much higher than the survey average of 56%.

The importance of remote devices in transportation is clear, when considering their role. When combined with artificial intelligence systems, such devices can, among other things, detect when industrial machines are failing before humans do, track products from raw material to finished product and enable autonomous vehicles such as shipping vessels to navigate oceanic routes.
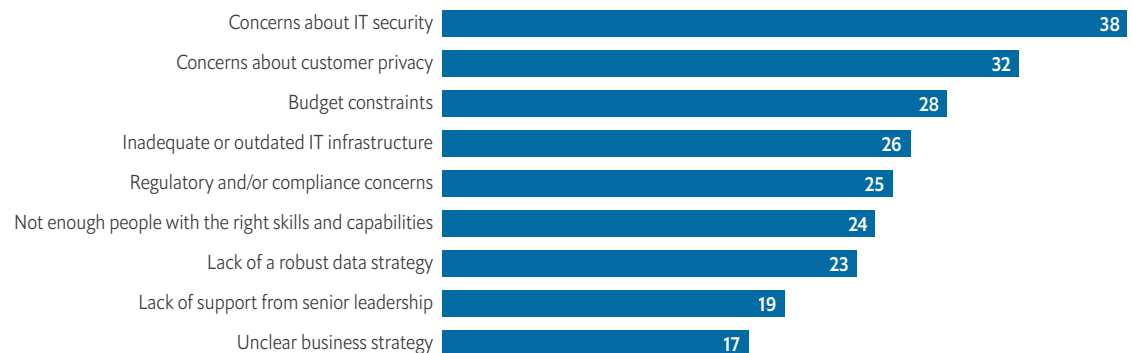
Security and trust

As companies explore the opportunities arising from the next generation of connectivity, they are also similarly mindful of the challenges. With an eye on the multiple high-profile data and cyber failings reported in the media, winning the trust of customers is thus viewed as paramount. This is evident in the survey, with the two most frequently cited challenges being IT security and customer privacy.

"The story that businesses must learn to articulate is how the low latency in 5G creates significant business benefits for their employees, customers and partners," says

Challenges to pursuing opportunities with next-generation technologies
(% of respondents)

Challenge	%
Concerns about IT security	38
Concerns about customer privacy	32
Budget constraints	28
Inadequate or outdated IT infrastructure	26
Regulatory and/or compliance concerns	25
Not enough people with the right skills and capabilities	24
Lack of a robust data strategy	23
Lack of support from senior leadership	19
Unclear business strategy	17

Source: The Economist Intelligence Unit. Respondents were asked to select three answers.

Vishal Gupta, chief technology officer of Unisys, an IT services company. "In addition, businesses will need to prove that they can be trusted with enormous customer data and they will need to communicate the strength of their security and privacy measures to protect this data.

Bain's Mr Blum is confident that the ways in which detection and investigation of threats to IT systems will also improve. "Low-latency technology is an important means to enable better security. It will bring to bear massive computational power, for a very specific context and point in time, to better deal with relevant system and user vulnerabilities."

Self-improvement

In addition, there are significant internal challenges to exploiting the next generation of connectivity. In particular, 61% of respondents say they need to improve more in digital capabilities to exploit potential business opportunities. This was relatively consistent across all corporate segments covered in the research.

Fewer than 10% of respondents are ready to launch new products or services (6%), conduct test marketing (6%) or create prototypes (7%). More than half of respondents (56%) are still either generating ideas for new products and services or screening them.

Conclusion:
No time for complacency

The survey data suggest that these are relatively early days for the technologies covered in this report, but this is no time for complacency. If anything, the amount of improvement that respondents say their companies have to undertake is an indication of how serious this race really is. It also is an indication of how confident companies are that these opportunities will lead to positive outcomes.

Respondents who say they need to improve in the most areas of their companies are also consistently the most confident about being able to exploit business opportunities related to next-generation connectivity. On average, 87% of respondents who say their companies need improvement across eight areas covered in the study (digital capabilities, business process efficiency, product/service innovation, speed to market, speed of business decision making, customer experience, brand awareness and customer loyalty) also say that they are confident about successfully exploiting the business opportunities. By contrast, 68% of respondents who indicated their companies did not need as much improvement also say they are confident about capitalising on opportunities.

It is therefore not a contradiction to say that companies that have an upper hand with the IoT, machine learning, augmented reality and other technologies that will be enabled by next-generation connectivity know they need the most improvements. For them, being able to identify where they to improve puts them a step ahead. That's key with these opportunities, since there is no time to waste.

Appendix

In the next two years, which of the following are the most important steps your company will need to take to exploit business opportunities?
Select three
(% of respondents)

Invest in new digital technologies

53

Upgrade its network infrastructure

47

Develop new products and/or services

46

Hire people with more relevant skills

38

Acquire new businesses

22

Partner with other companies in the same industry

20

Restructure how the company is organized

19

Partner with third parties from other industries

16

Change its business model

14

Divest parts of the company

13

Change its senior leadership

13

Which of the following strategies is your company doing or will in the next two years to support the steps identified in the previous question?
Select all that apply
(% of respondents)

Creating a platform for new digital products and/or services
| 53

Conducting customer and/or market research
| 44

Implementing agile development processes
| 42

Introducing automation to increase efficiency
| 40

Engaging external consultants to transform my company's business model and/or processes
| 40

Establishing digital innovation lab(s) and/or a center of excellence
| 39

Accessing a partner's platform for new digital products and/or services
| 36

Revisiting data management and governance practices
| 36

Incubating new business models
| 26

To what extent are business opportunities resulting from lower-latency technologies a current priority at your company?
Select one
(% of respondents)

Not at all a priority
| 3

A low priority
| 3

A moderate priority
| 23

A high priority
| 41

An essential priority
| 30
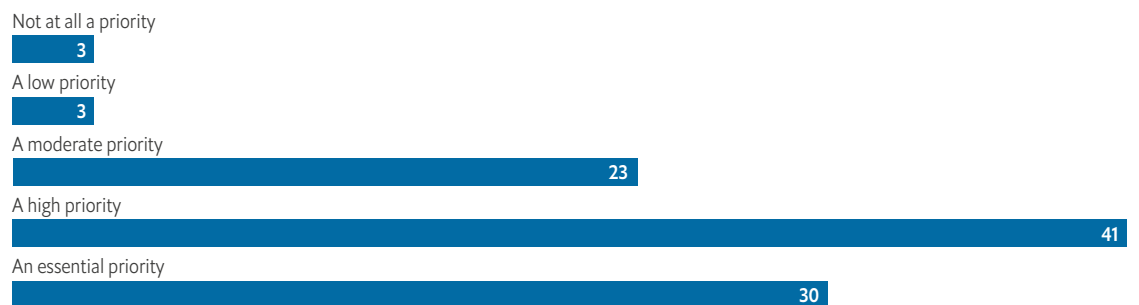
Two years from now, how will the priority of business opportunities resulting from lower-latency technologies change?
Select one
(% of respondents)

Decrease significantly in priority
7

Decrease somewhat in priority
3

Stay the same
13

Increase somewhat in priority
39

Increase significantly in priority
38

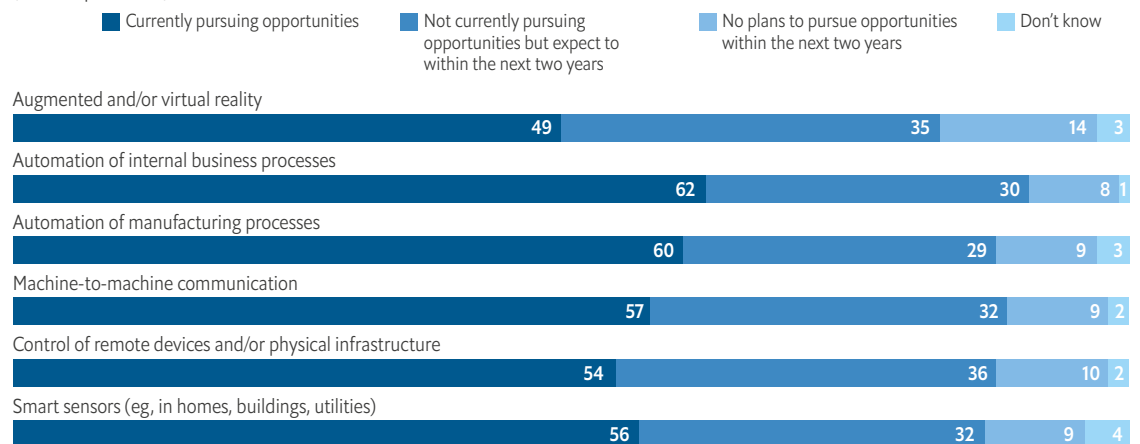**For the following use cases of low-latency technologies, please indicate if your company is currently pursuing business opportunities or is expected to do so within the next two years.**
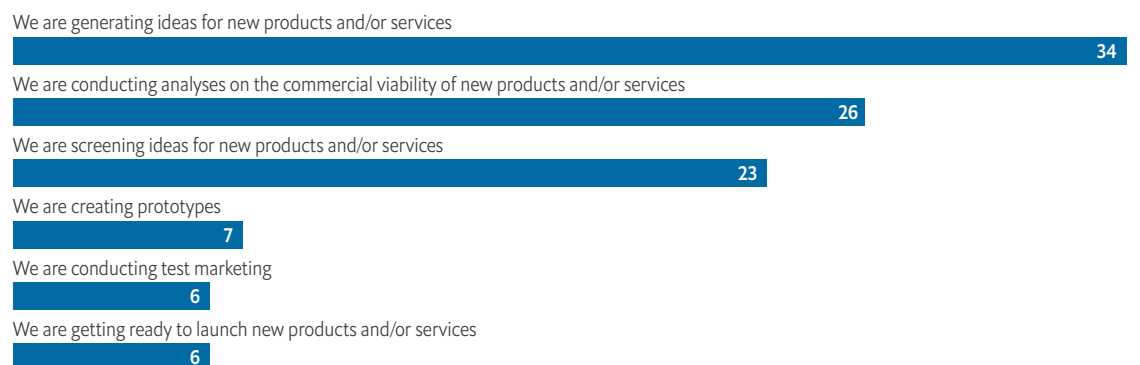Select one
(% of respondents)

- Currently pursuing opportunities
- Not currently pursuing opportunities but expect to within the next two years
- No plans to pursue opportunities within the next two years
- Don't know

Augmented and/or virtual reality
| 49 | 35 | 14 | 3 |

Automation of internal business processes
| 62 | 30 | 8 | 1 |

Automation of manufacturing processes
| 60 | 29 | 9 | 3 |

Machine-to-machine communication
| 57 | 32 | 9 | 2 |

Control of remote devices and/or physical infrastructure
| 54 | 36 | 10 | 2 |

Smart sensors (eg, in homes, buildings, utilities)
| 56 | 32 | 9 | 4 |

Thinking of the business opportunities that you identified in the previous question, which of the following best describes the stage which your company is primarily at?
Select one
(% of respondents)

We are generating ideas for new products and/or services
34

We are conducting analyses on the commercial viability of new products and/or services
26

We are screening ideas for new products and/or services
23

We are creating prototypes
7

We are conducting test marketing
6

We are getting ready to launch new products and/or services
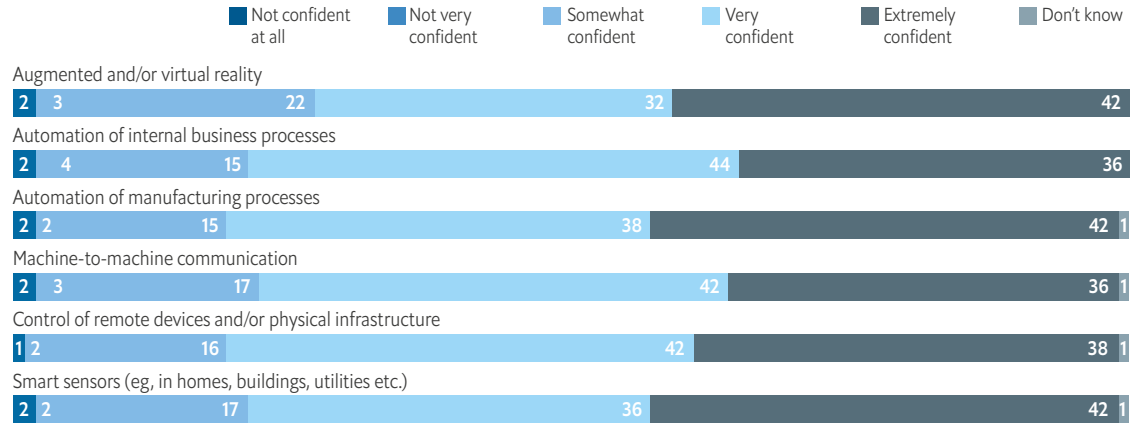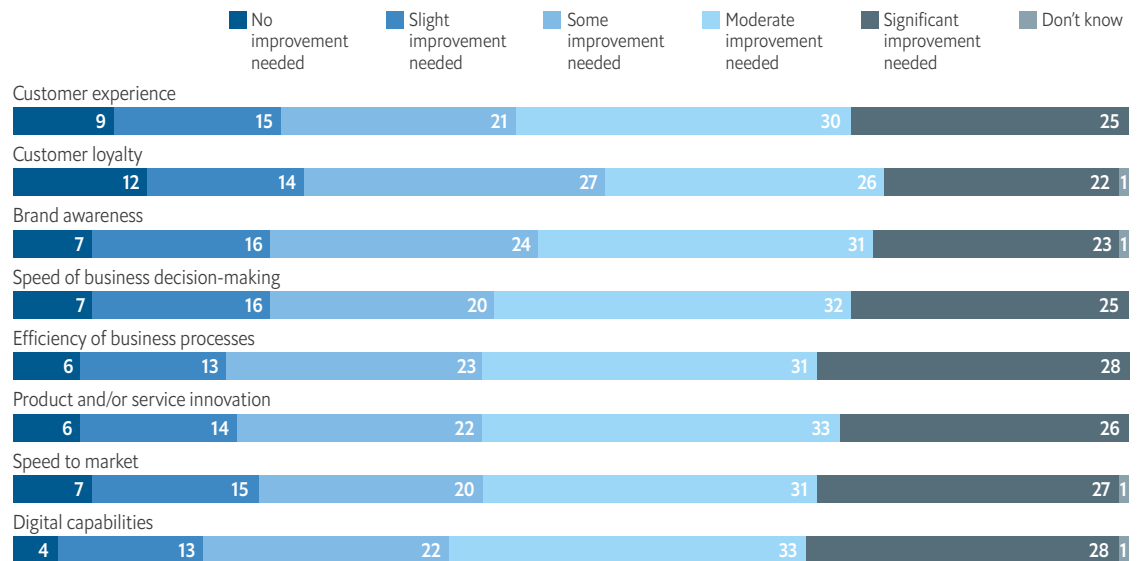6

How confident are you in your company's ability to exploit the business opportunities for each use case identified in the previous question?
(% of respondents)

■ Not confident at all ■ Not very confident ■ Somewhat confident ■ Very confident ■ Extremely confident ■ Don't know

Augmented and/or virtual reality
| 2 | 3 | 22 | 32 | 42 |

Automation of internal business processes
| 2 | 4 | 15 | 44 | 36 |

Automation of manufacturing processes
| 2 | 2 | 15 | 38 | 42 | 1 |

Machine-to-machine communication
| 2 | 3 | 17 | 42 | 36 | 1 |

Control of remote devices and/or physical infrastructure
| 1 | 2 | 16 | 42 | 38 | 1 |

Smart sensors (eg, in homes, buildings, utilities etc.)
| 2 | 2 | 17 | 36 | 42 | 1 |

To what extent will your company need to improve in the following areas to exploit opportunities resulting from lower-latency technologies?
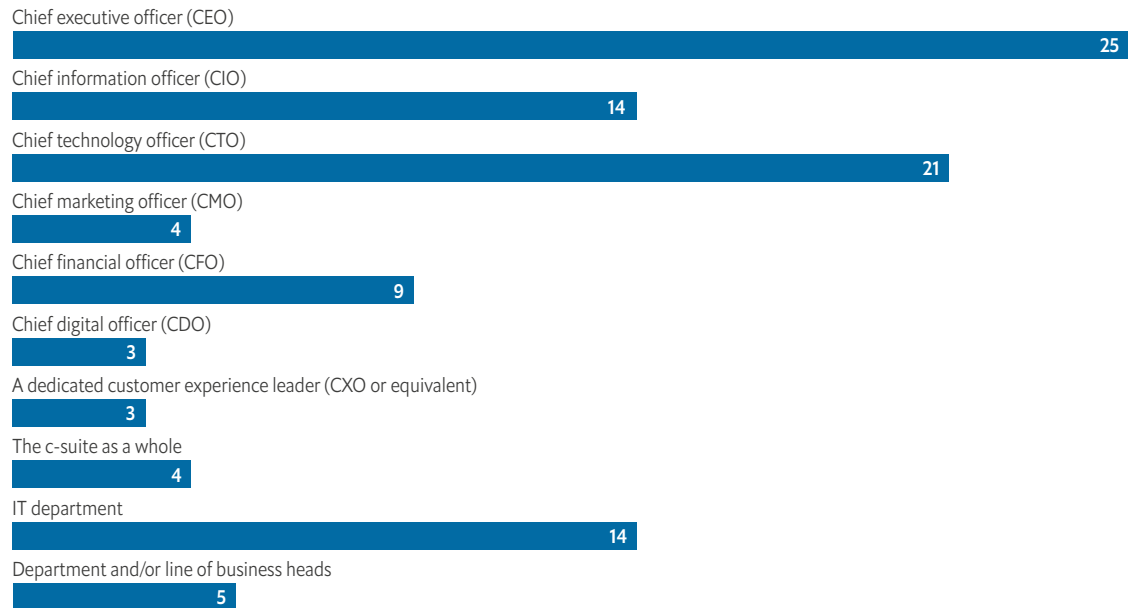(% of respondents)

■ No improvement needed ■ Slight improvement needed ■ Some improvement needed ■ Moderate improvement needed ■ Significant improvement needed ■ Don't know

Customer experience
| 9 | 15 | 21 | 30 | 25 |

Customer loyalty
| 12 | 14 | 27 | 26 | 22 | 1 |

Brand awareness
| 7 | 16 | 24 | 31 | 23 | 1 |

Speed of business decision-making
| 7 | 16 | 20 | 32 | 25 |

Efficiency of business processes
| 6 | 13 | 23 | 31 | 28 |

Product and/or service innovation
| 6 | 14 | 22 | 33 | 26 |

Speed to market
| 7 | 15 | 20 | 31 | 27 | 1 |

Digital capabilities
| 4 | 13 | 22 | 33 | 28 | 1 |

Who has the primary responsibility of ensuring your company is prepared to take advantage of business opportunities resulting from lower-latency technologies?
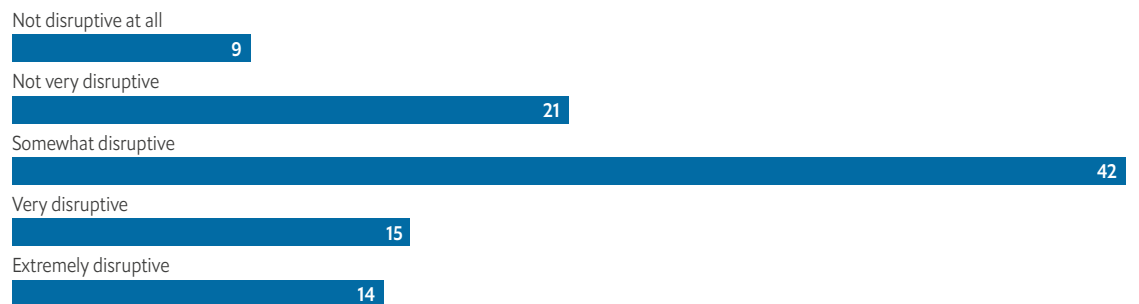Select one
(% of respondents)

Chief executive officer (CEO)
25

Chief information officer (CIO)
14

Chief technology officer (CTO)
21

Chief marketing officer (CMO)
4

Chief financial officer (CFO)
9

Chief digital officer (CDO)
3

A dedicated customer experience leader (CXO or equivalent)
3

The c-suite as a whole
4

IT department
14

Department and/or line of business heads
5

Two years from now, how much do you expect competitors leveraging lower-latency technologies will disrupt the way your company currently operates?
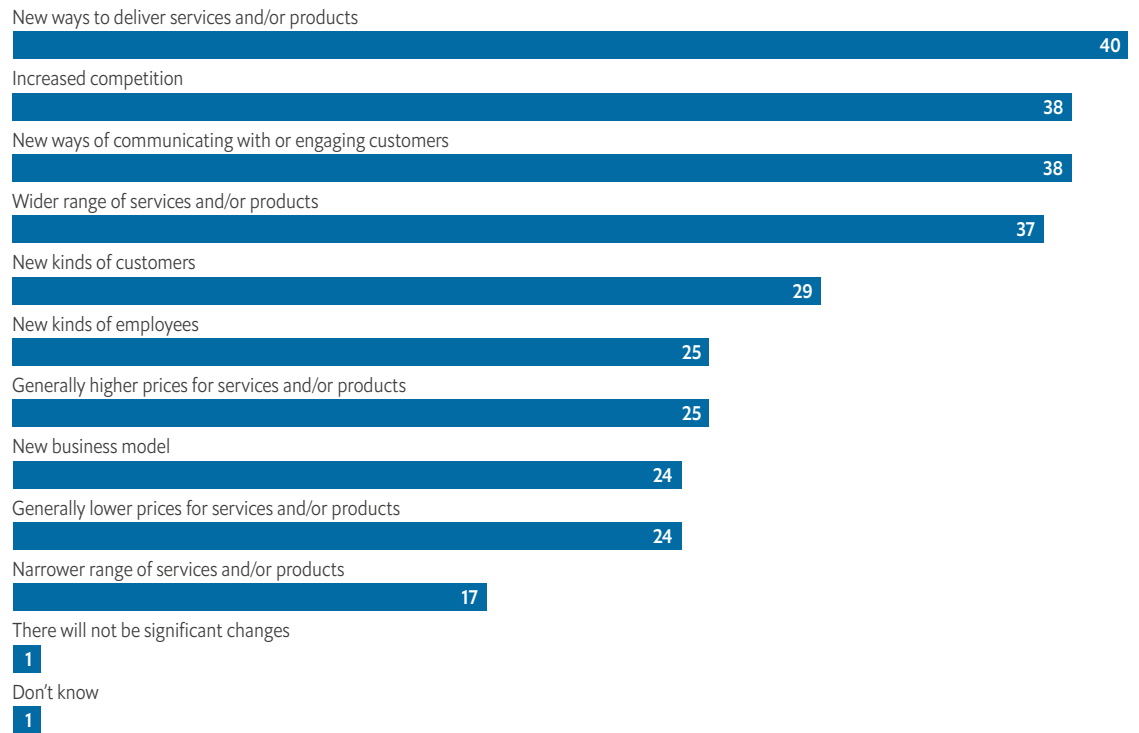Select one
(% of respondents)

Not disruptive at all
9

Not very disruptive
21

Somewhat disruptive
42

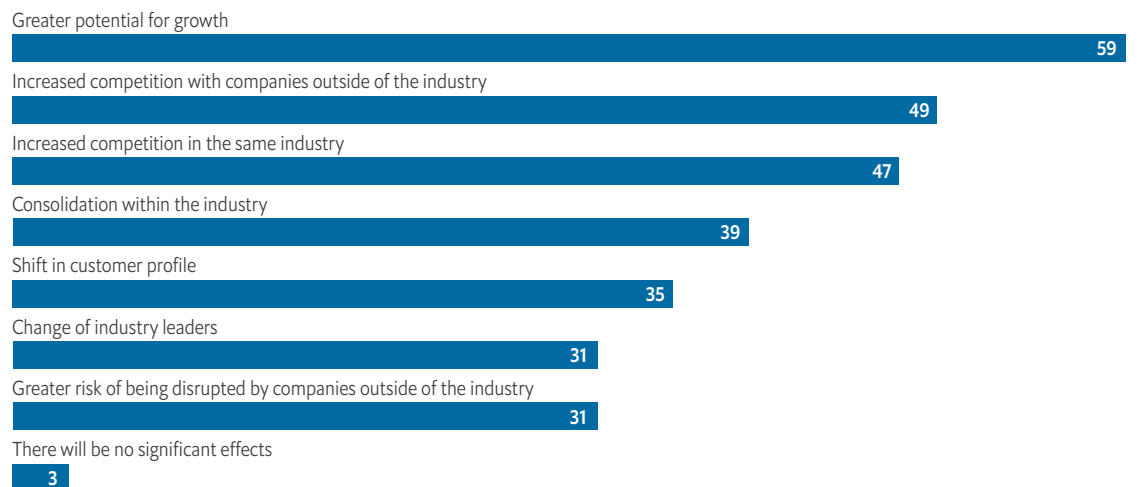Very disruptive
15

Extremely disruptive
14

Two years from now, which of the following will be the most significant changes resulting from lower-latency technologies at your company?
Select three
(% of respondents)

New ways to deliver services and/or products
40

Increased competition
38

New ways of communicating with or engaging customers
38

Wider range of services and/or products
37

New kinds of customers
29

New kinds of employees
25

Generally higher prices for services and/or products
25

New business model
24

Generally lower prices for services and/or products
24

Narrower range of services and/or products
17

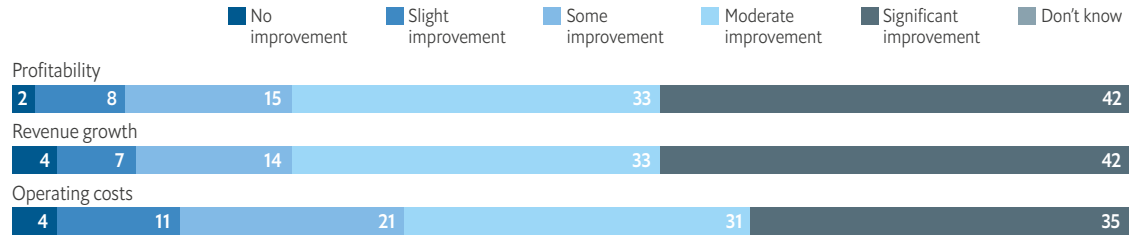There will not be significant changes
1

Don't know
1

Two years from now, which of the following will be the most significant effects of lower-latency technologies on your company's industry?
Select three
(% of respondents)

Greater potential for growth
59

Increased competition with companies outside of the industry
49

Increased competition in the same industry
47

Consolidation within the industry
39

Shift in customer profile
35

Change of industry leaders
31

Greater risk of being disrupted by companies outside of the industry
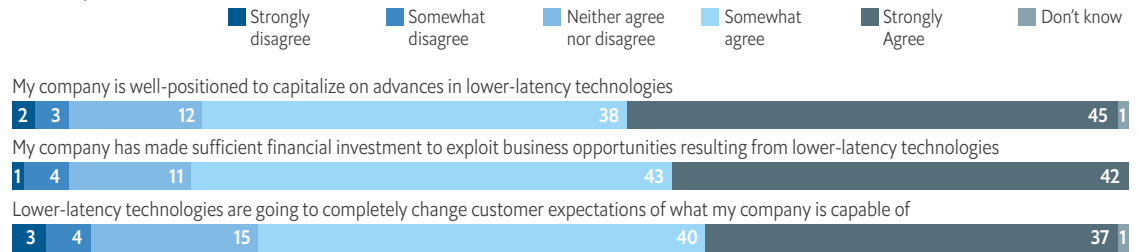31

There will be no significant effects
3

Two years from now, to what extent do you expect your company's financial results to improve as a result of business opportunities resulting from lower-latency technologies?
(% of respondents)

- No improvement
- Slight improvement
- Some improvement
- Moderate improvement
- Significant improvement
- Don't know

Profitability

| 2 | 8 | 15 | 33 | 42 |

Revenue growth

| 4 | 7 | 14 | 33 | 42 |

Operating costs

| 4 | 11 | 21 | 31 | 35 |

To what extent do you agree or disagree with the following statements?
(% of respondents)

- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly Agree
- Don't know

My company is well-positioned to capitalize on advances in lower-latency technologies

| 2 | 3 | 12 | 38 | 45 | 1 |

My company has made sufficient financial investment to exploit business opportunities resulting from lower-latency technologies

| 1 | 4 | 11 | 43 | 42 |

Lower-latency technologies are going to completely change customer expectations of what my company is capable of

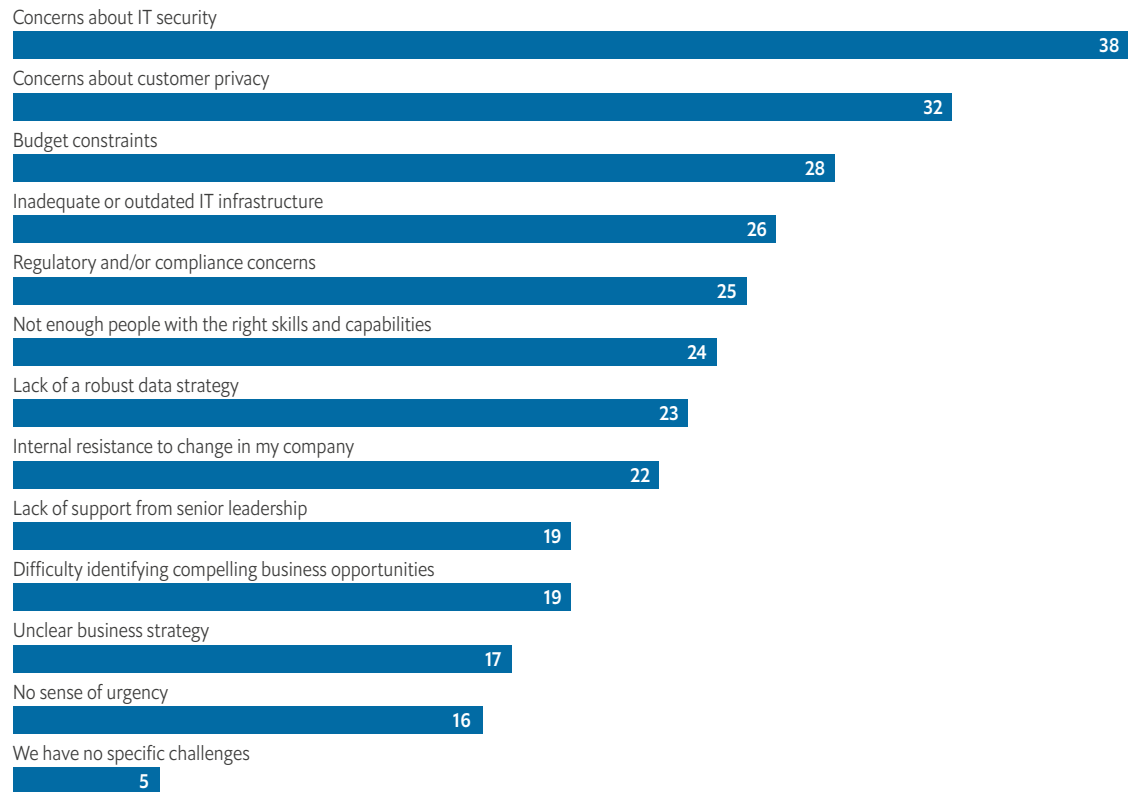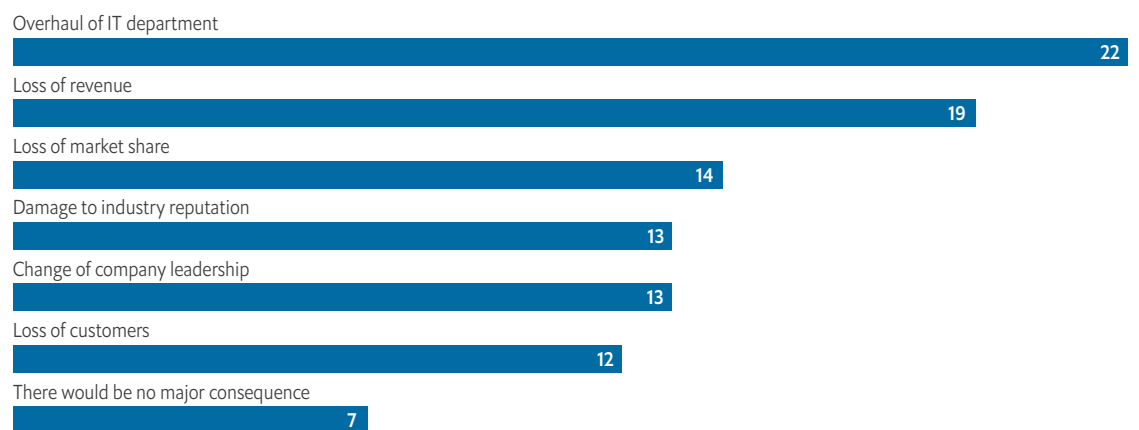| 3 | 4 | 15 | 40 | 37 | 1 |

Which of the following are the three most significant challenges at your company to pursuing business opportunities resulting from lower-latency technologies?
Select three
(% of respondents)

Concerns about IT security
38

Concerns about customer privacy
32

Budget constraints
28

Inadequate or outdated IT infrastructure
26

Regulatory and/or compliance concerns
25

Not enough people with the right skills and capabilities
24

Lack of a robust data strategy
23

Internal resistance to change in my company
22

Lack of support from senior leadership
19

Difficulty identifying compelling business opportunities
19

Unclear business strategy
17

No sense of urgency
16

We have no specific challenges
5

Two years from now, which of the following would be the most significant consequence if your company is unable to exploit opportunities resulting from lower-latency technologies?
Select one
(% of respondents)

Overhaul of IT department
22

Loss of revenue
19

Loss of market share
14

Damage to industry reputation
13

Change of company leadership
13

Loss of customers
12

There would be no major consequence
7

Which of the following best describes your company's primary customer base?
Select one
(% of respondents)

Both consumers and businesses

45

Mostly consumers

36

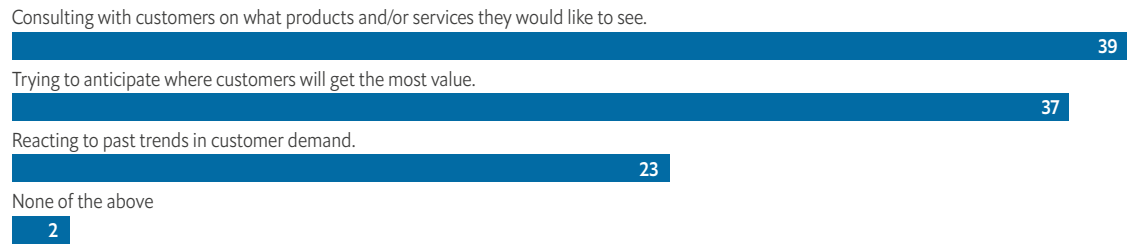Mostly businesses (including governments and non-profit organizations)

20
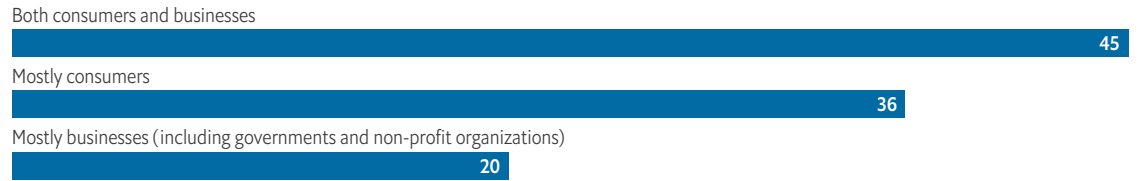
Which of the following best completes the statement below?
With regard to lower-latency technologies, my company is primarily...
Select one
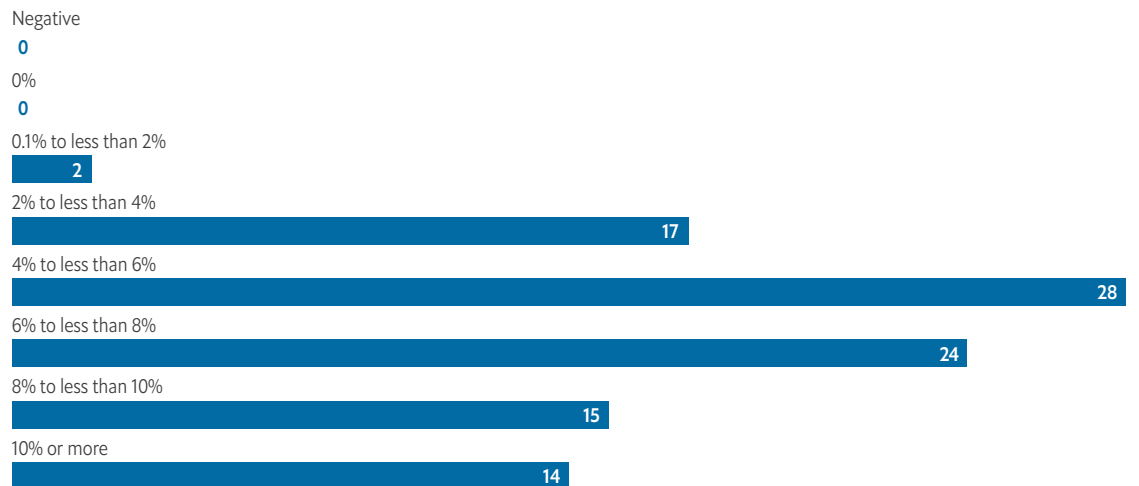(% of respondents)

Consulting with customers on what products and/or services they would like to see.

39

Trying to anticipate where customers will get the most value.

37

Reacting to past trends in customer demand.

23

None of the above

2

What is your company's expected annual revenue growth for the calendar year ending 2019?
Select one
(% respondents)

Negative
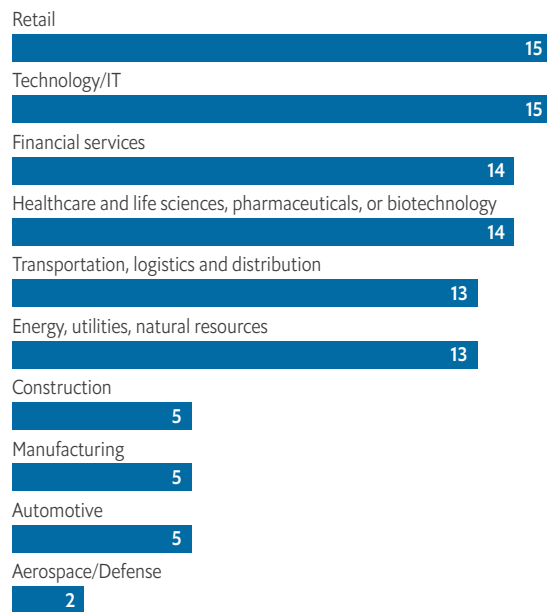
0

0%

0

0.1% to less than 2%

2

2% to less than 4%

17

4% to less than 6%

28

6% to less than 8%

24

8% to less than 10%

15

10% or more

14

In which US state are you personally located?
Select one
(% of respondents)

South
31

Northeast
25

Midwest
22

West
22
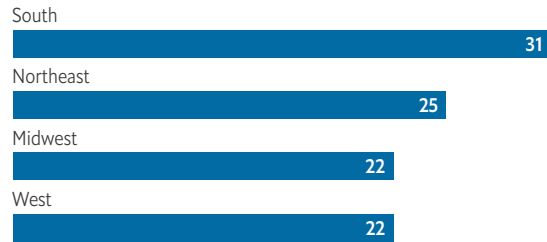
What is your organization's primary industry?
Select one
(% of respondents)

Retail
15

Technology/IT
15

Financial services
14

Healthcare and life sciences, pharmaceuticals, or biotechnology
14

Transportation, logistics and distribution
13

Energy, utilities, natural resources
13

Construction
5

Manufacturing
5

Automotive
5

Aerospace/Defense
2

What is your organization's annual global revenue in US dollars?
Select one
(% of respondents)

Less than US$500m
0

US$500m to less than US$1bn
50

US$1bn to less than US$5bn
36

US$5bn or more
14
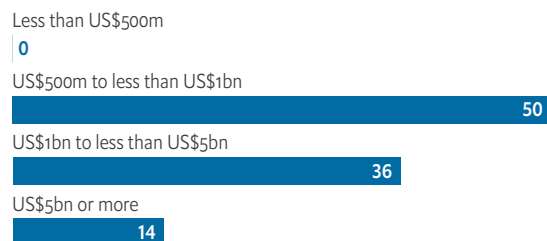
Which of the following best describes your title?
Select one
(% of respondents)

VP/Director
28

CIO/CTO/CISO/Head of IT/technology or equivalent
25

Head of department
14

CEO or equivalent
7

CFO/Head of finance or equivalent
6

Head of business unit
5

COO/Head of operations or production or equivalent
5

Chief strategy officer/Head of strategy or equivalent
4

Other C-level executive, specify
3

MD/EVP/SVP
3
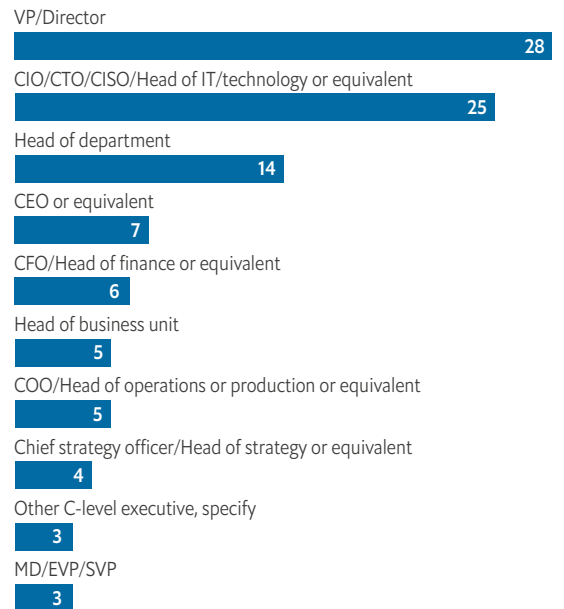
What is your main functional role?
Select one
(% of respondents)

IT/technology
45

Sales
11

Operations/production
9

Finance
9

Customer service
9

General management
9

Strategy/business development
7

R&D
1

Software/application development
1

To what extent are you personally involved in your organization's decision-making as it relates to the following?
(% of respondents)

■ Not involved at all ■ Slightly involved ■ Somewhat involved ■ Very involved

Developing new digital products and services

| 4 | 24 | 72 |

Setting corporate strategy

| 32 | 68 |

While every effort has been taken to verify the accuracy of this information, The Economist Intelligence Unit Ltd. cannot accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in this report. The findings and views expressed in the report do not necessarily reflect the views of the sponsor.