

Nokia 5G Readiness Report

Data breakdown - regional findings and methodology

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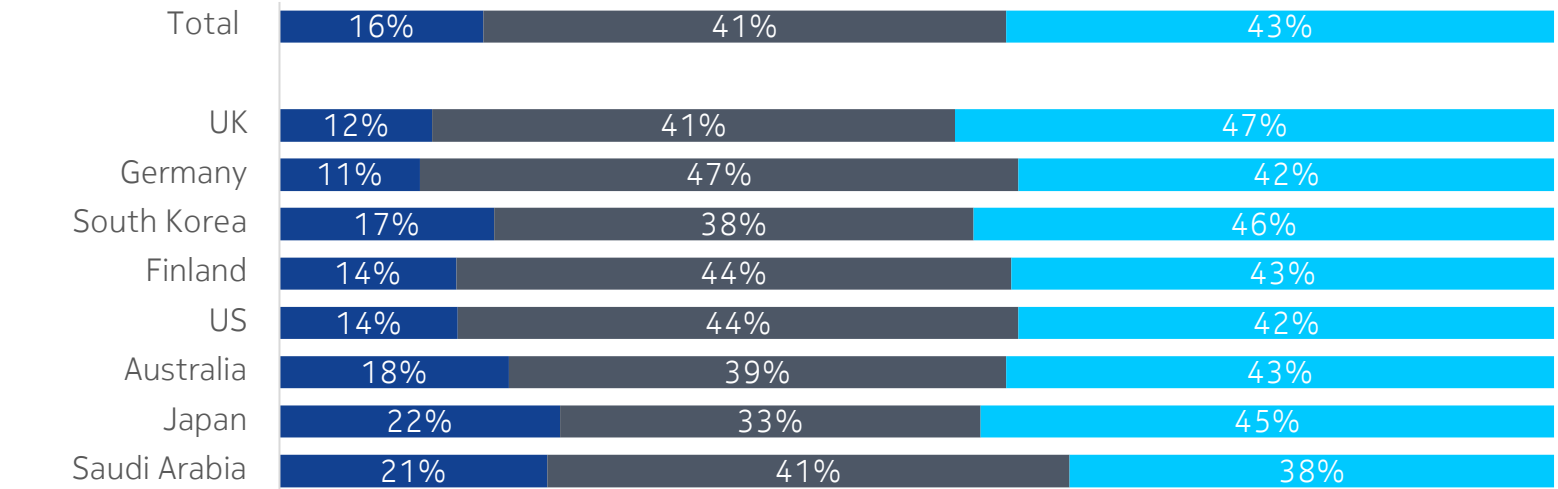
Global findings

Growth is on the horizon

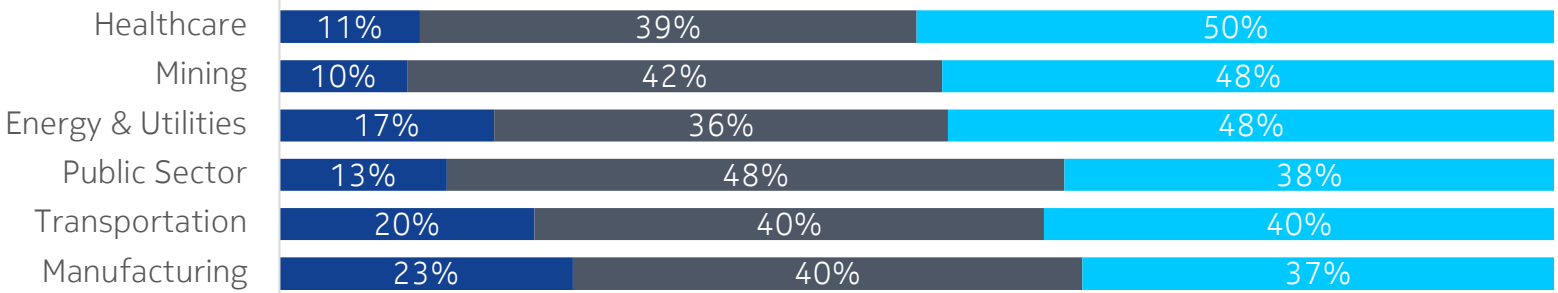
43% of technology decision makers have increased their overall investment in their strategic technology planning. This represents a 27% net increase in the number of budgets that have increased.

■ We have reduced our overall investment
 ■ Our investment levels have not changed
 ■ We have increased our overall investment

Market



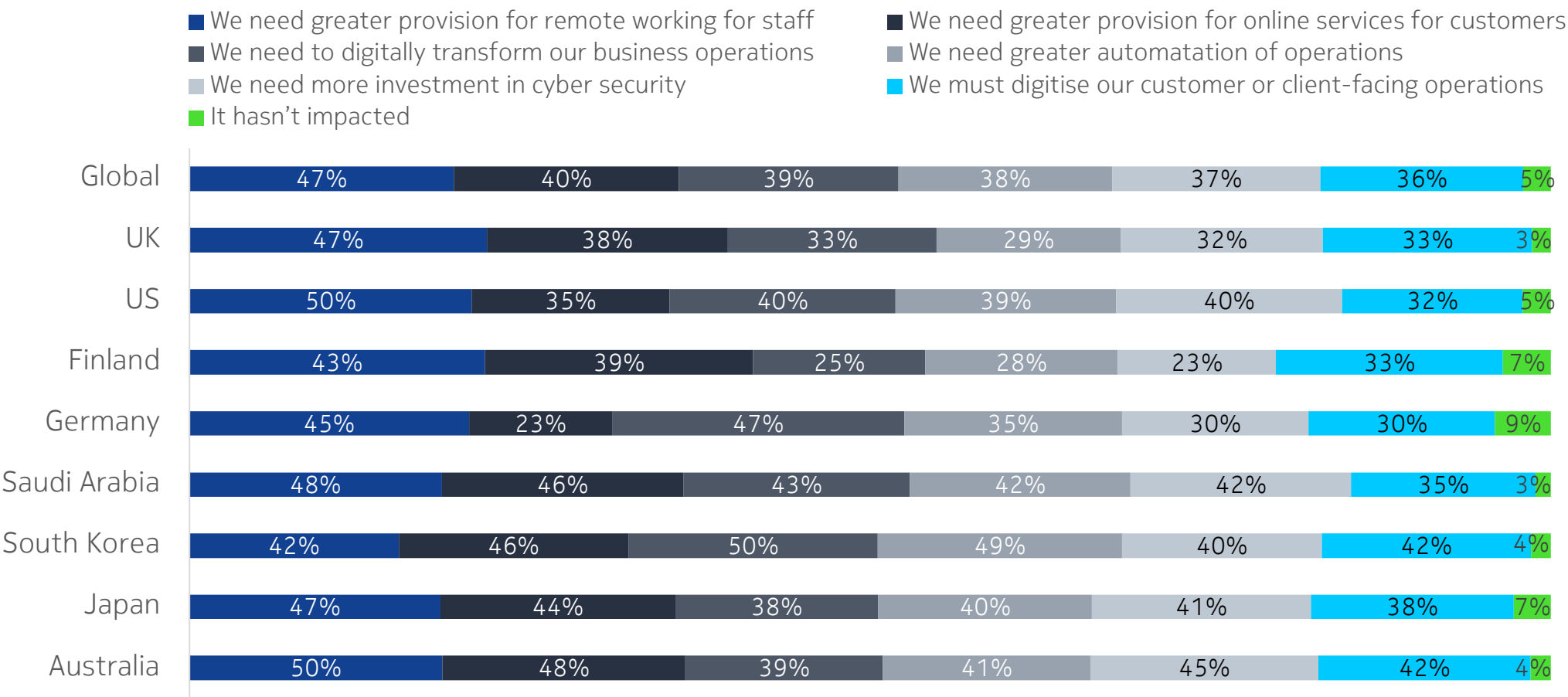
Sector



Net change in those investing more	
Total	+27%
UK	+35%
Germany	+31%
South Korea	+29%
Finland	+29%
US	+28%
Australia	+25%
Japan	+23%
Saudi Arabia	+17%
Healthcare	+39%
Mining	+38%
Energy & Utilities	+31%
Public Sector	+25%
Transportation	+20%
Manufacturing	+14%

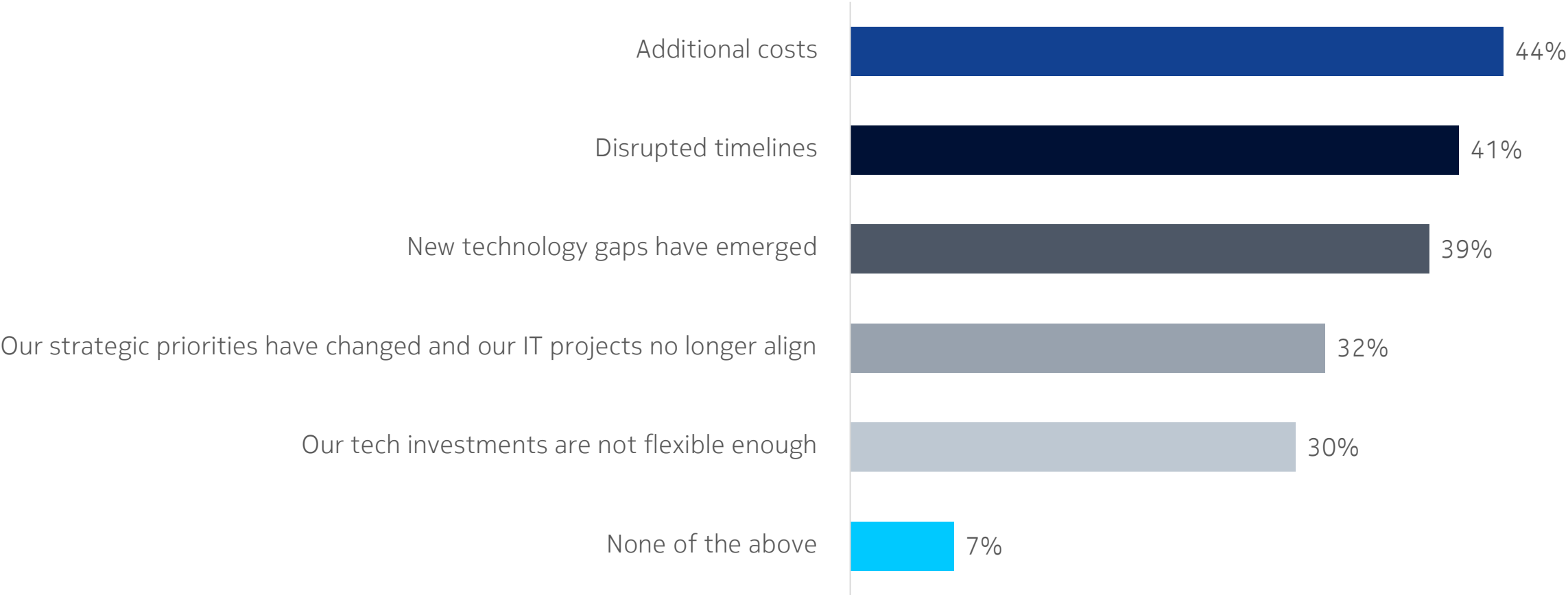
The extent to which the pandemic has impacted business technology requirements

95% of technology purchasers have had their technology requirements impacted by COVID-19



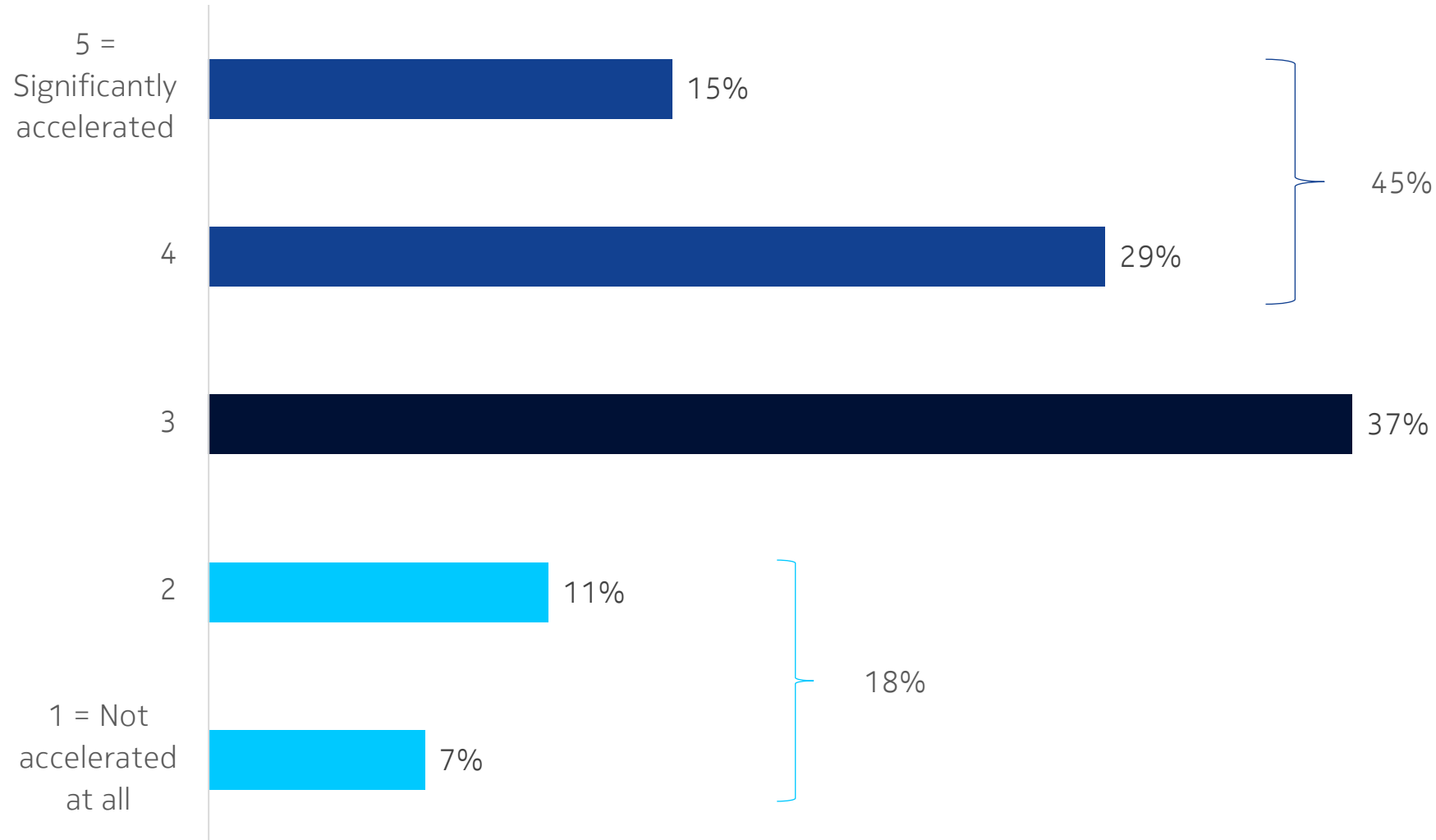
The COVID impact

Additional costs (44%), disrupted timelines (41%) and the emergence of new technology gaps (39%) have been the most prevalent impacts of COVID-19 on technology road maps.



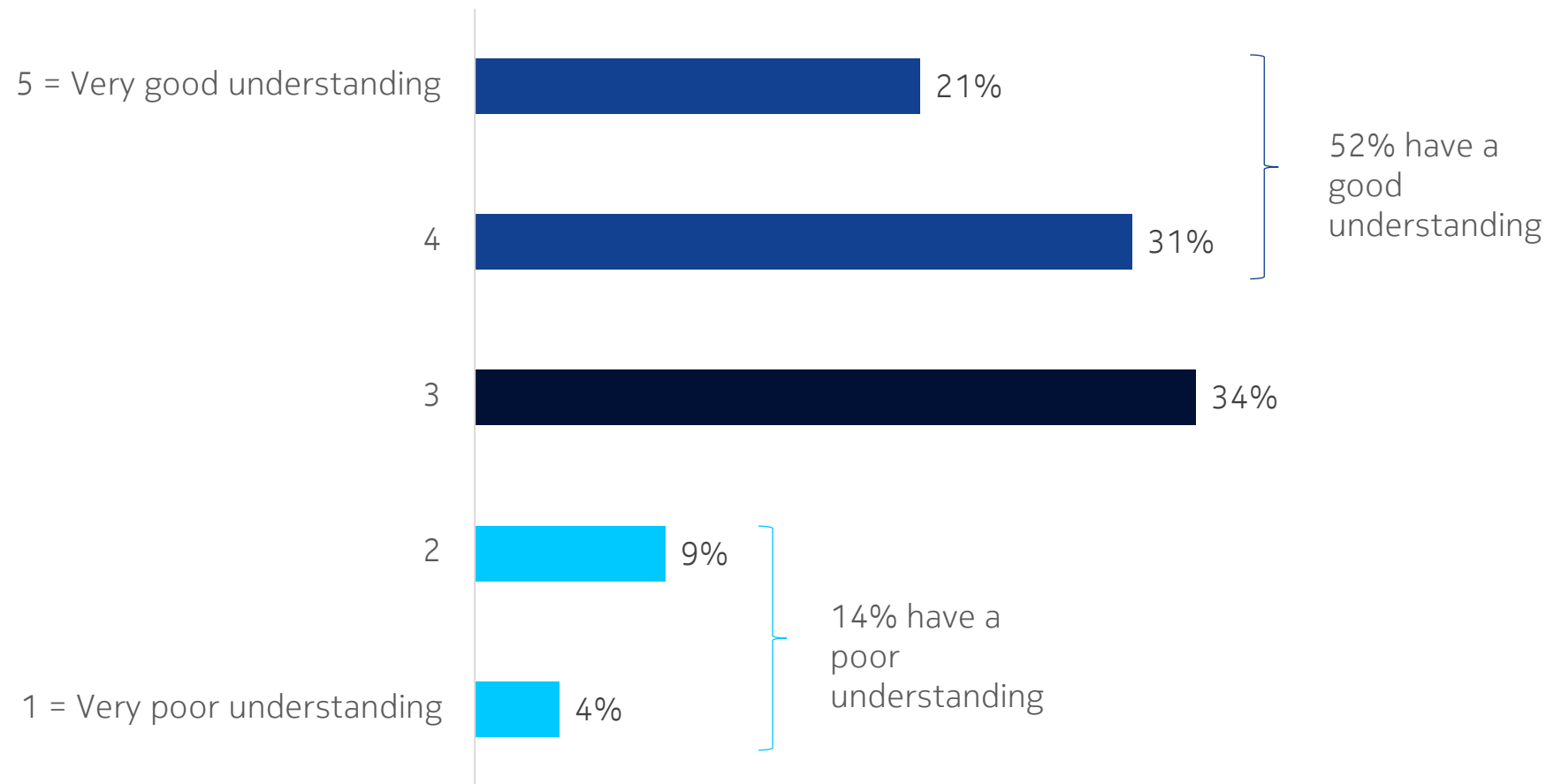
Digital transformation - the COVID effect

45% have expediated their digital transformation program due to COVID-19.



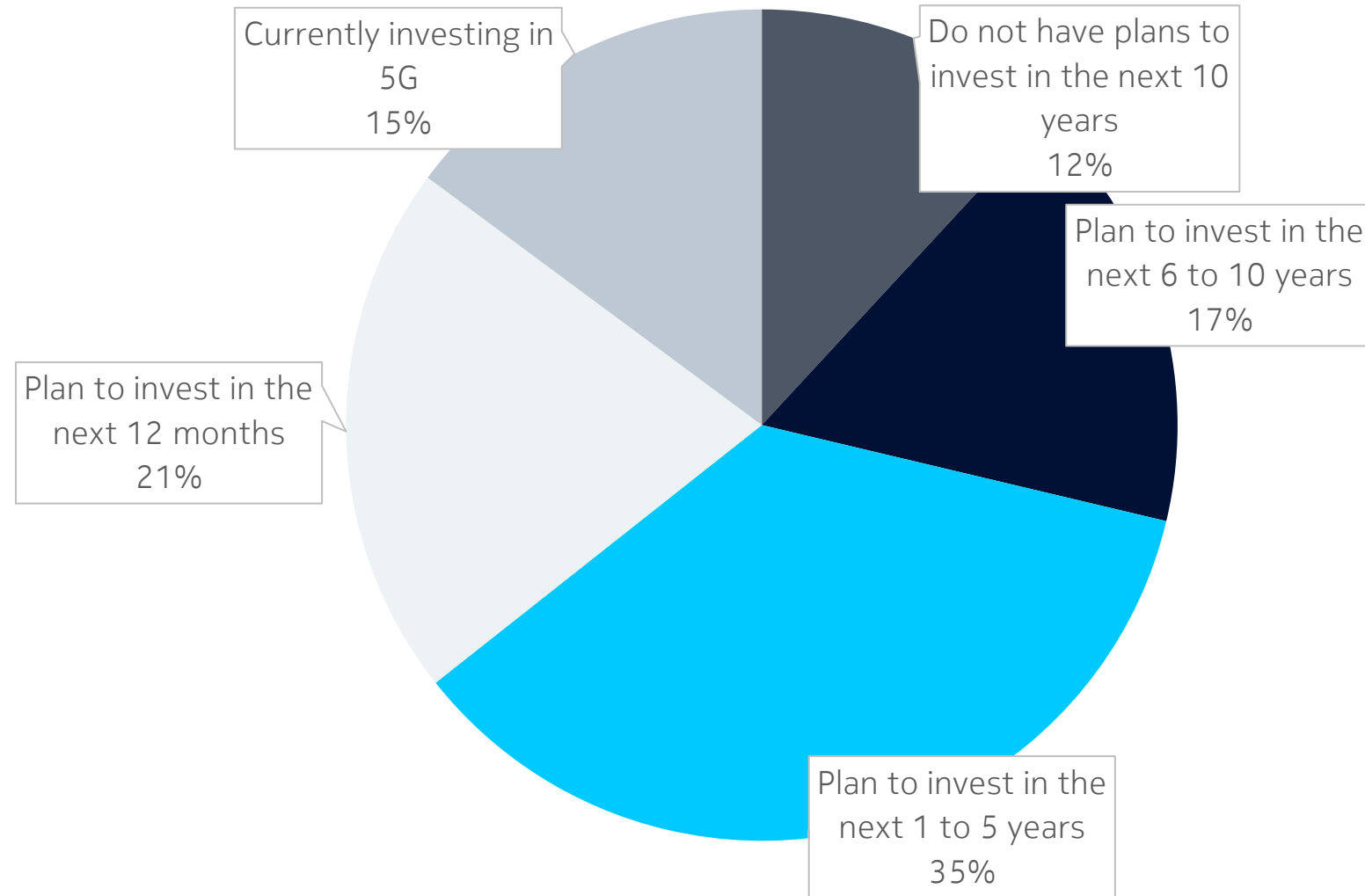
Levels of understanding are still mixed

Only half of technology decision makers (52%) think there is a good understanding of 5G in their organization



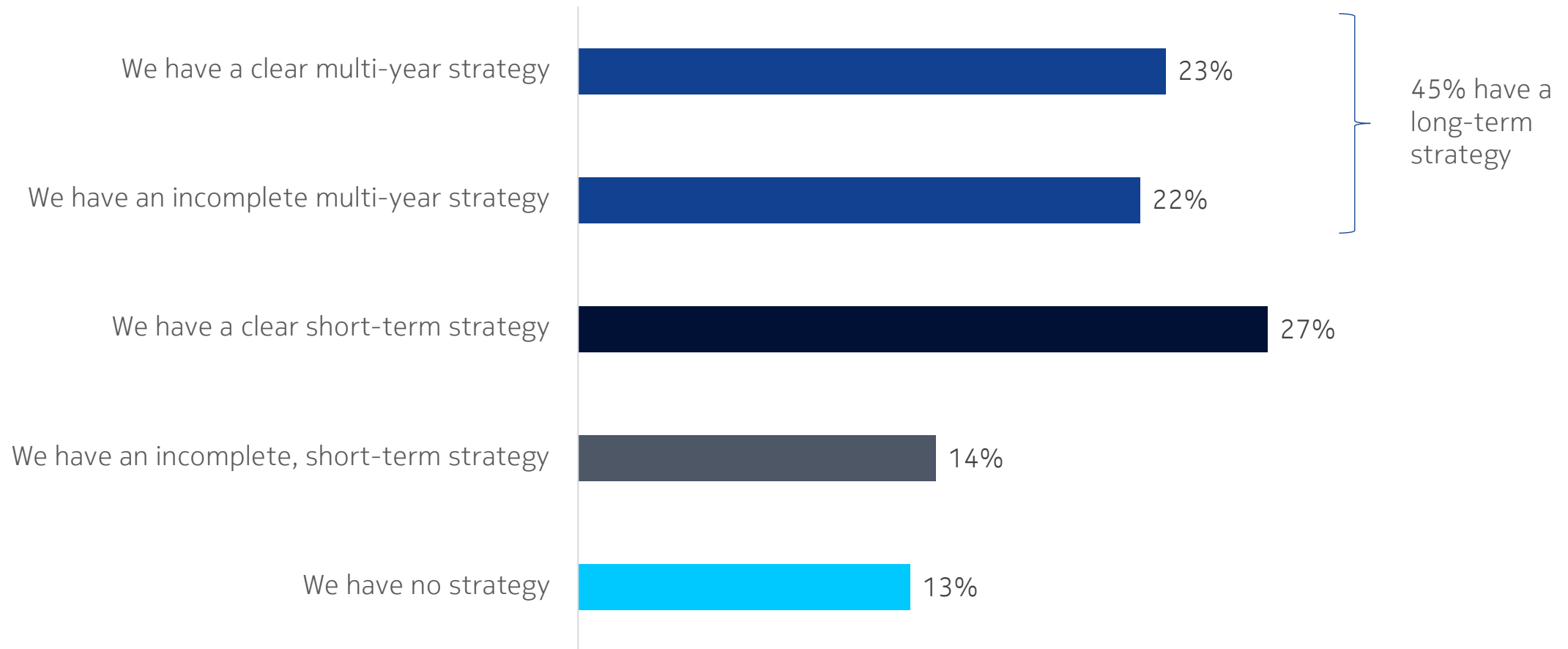
Planning for 5G

15% are currently investing in 5G; with 71% planning investment in the next 5 years



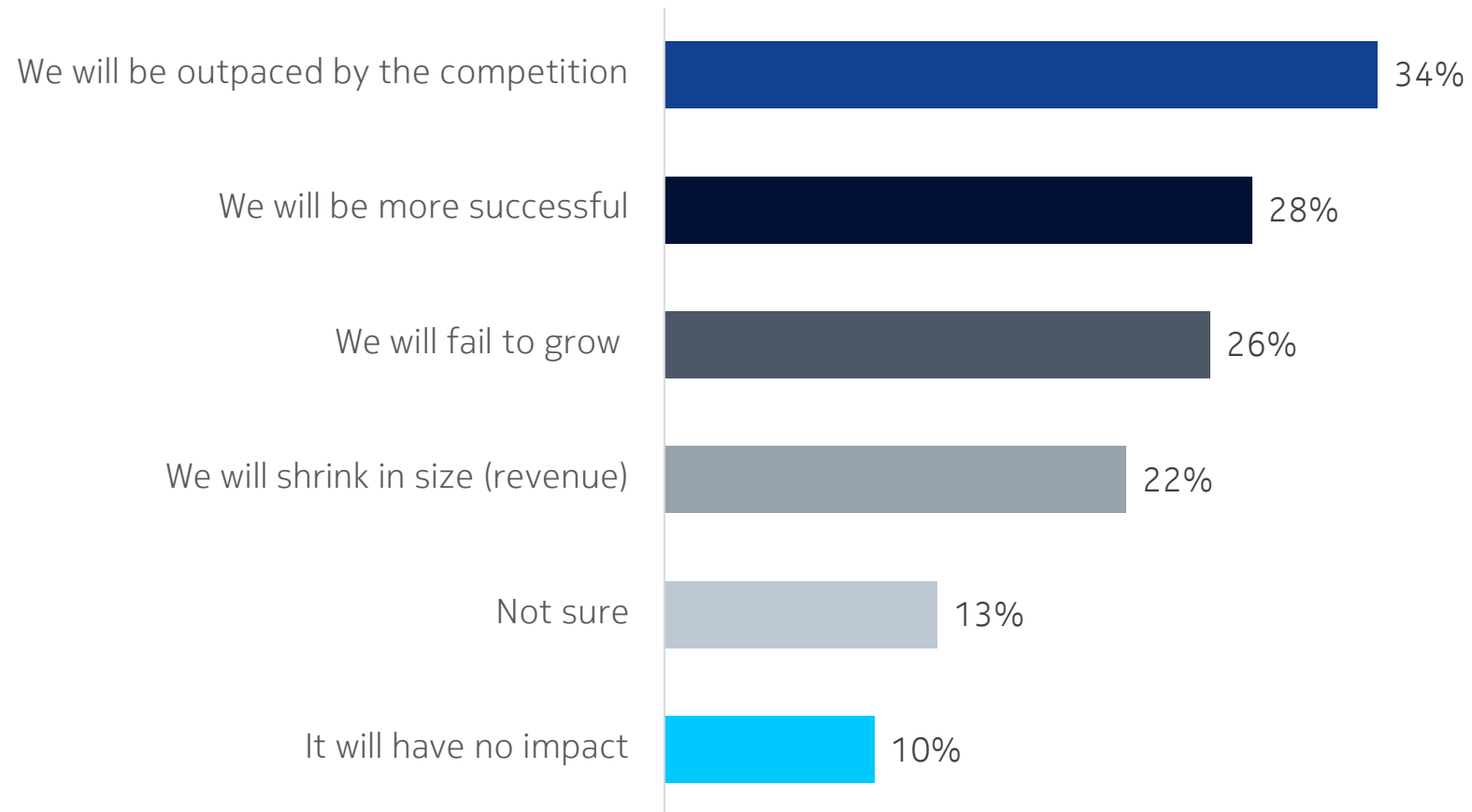
A short or long-term approach?

45% of technology decision makers have a long term 5G strategy
Just over 1 in 10 have no strategy whatsoever (13%)

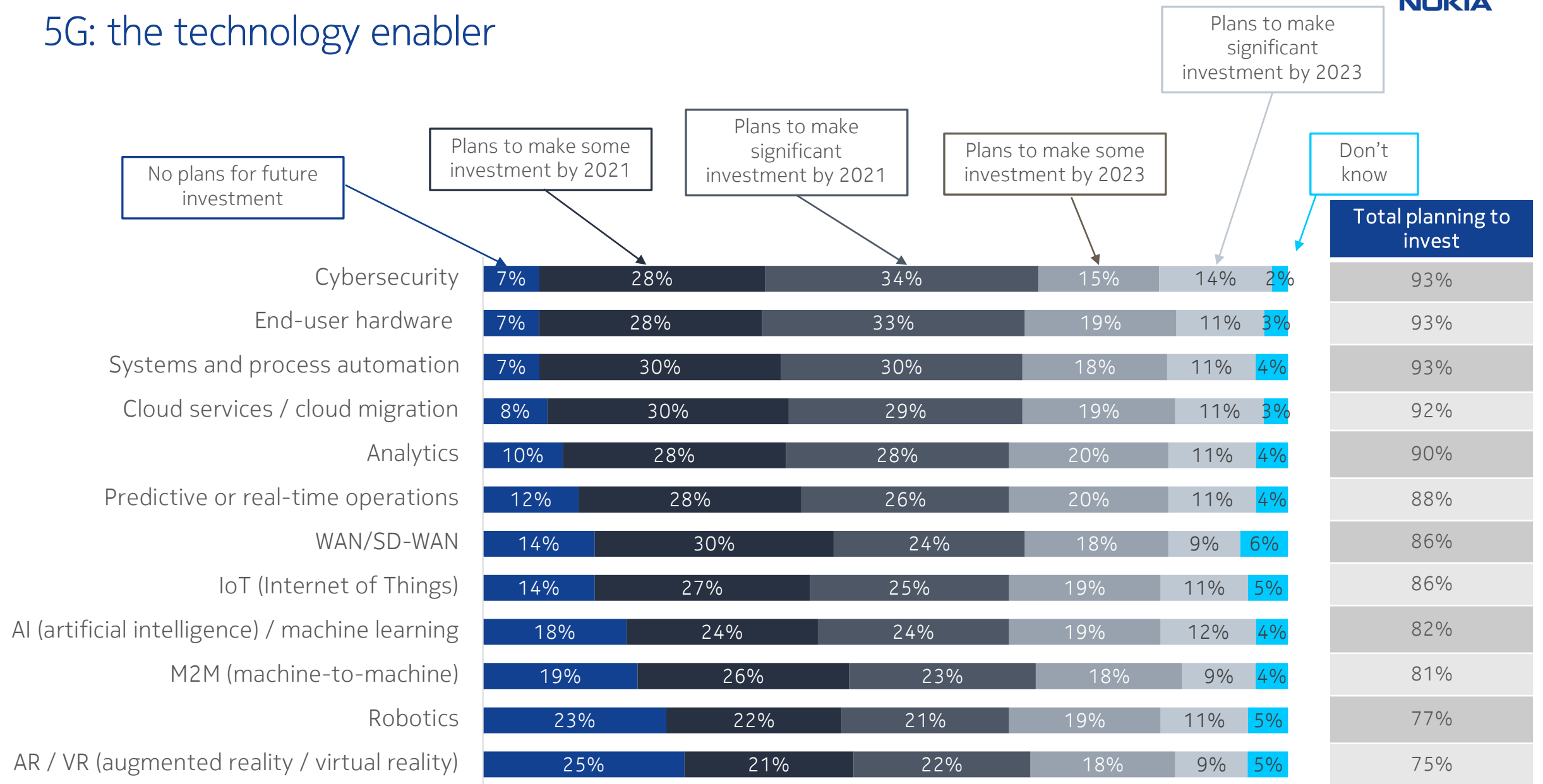


The risks of standing still

A third of organizations fear being outpaced by the competition should they not invest in 5G.



5G: the technology enabler

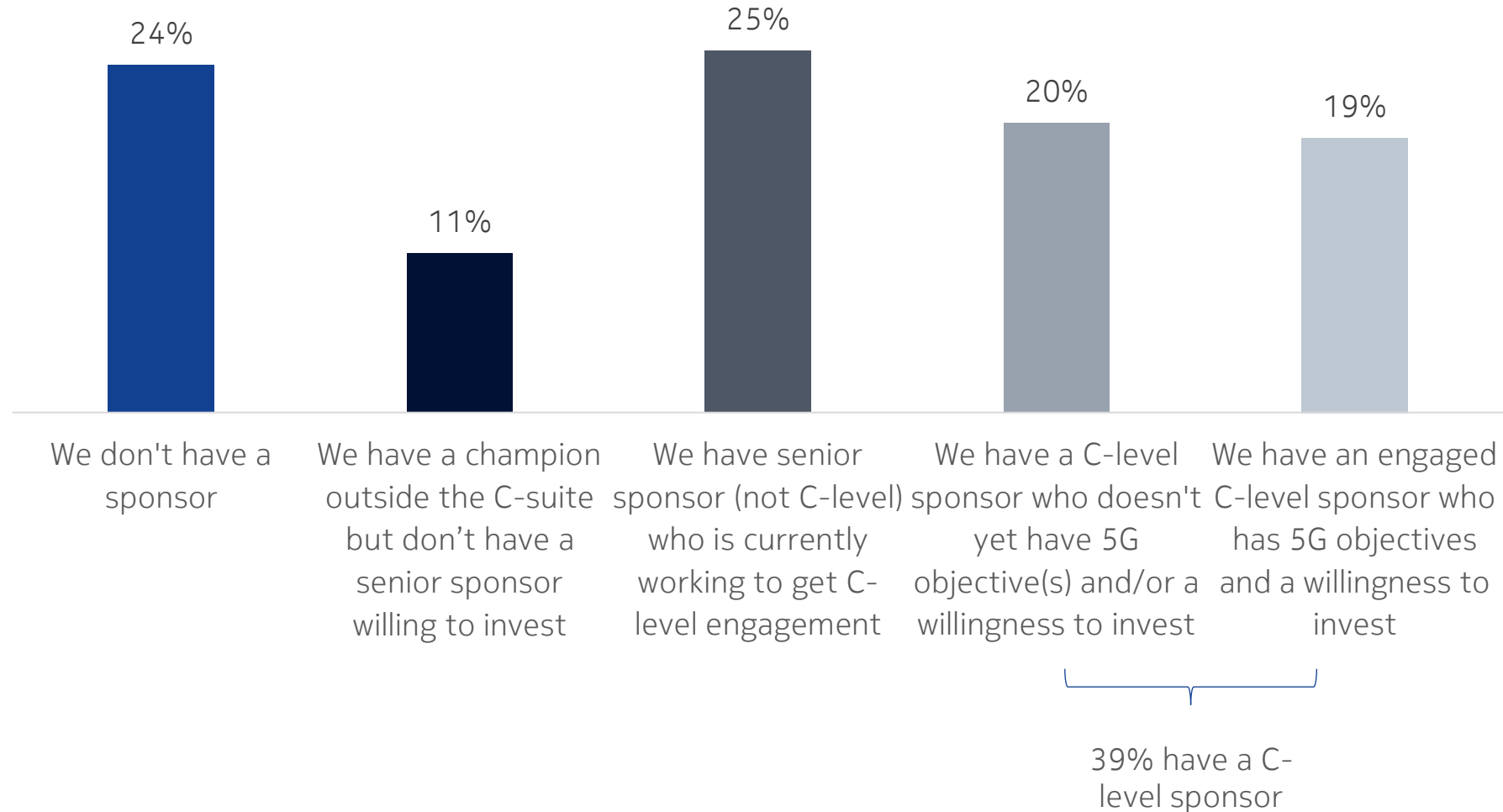


Q. Which of the following will your organization invest in over the next 2-3 years?

Base: 1628

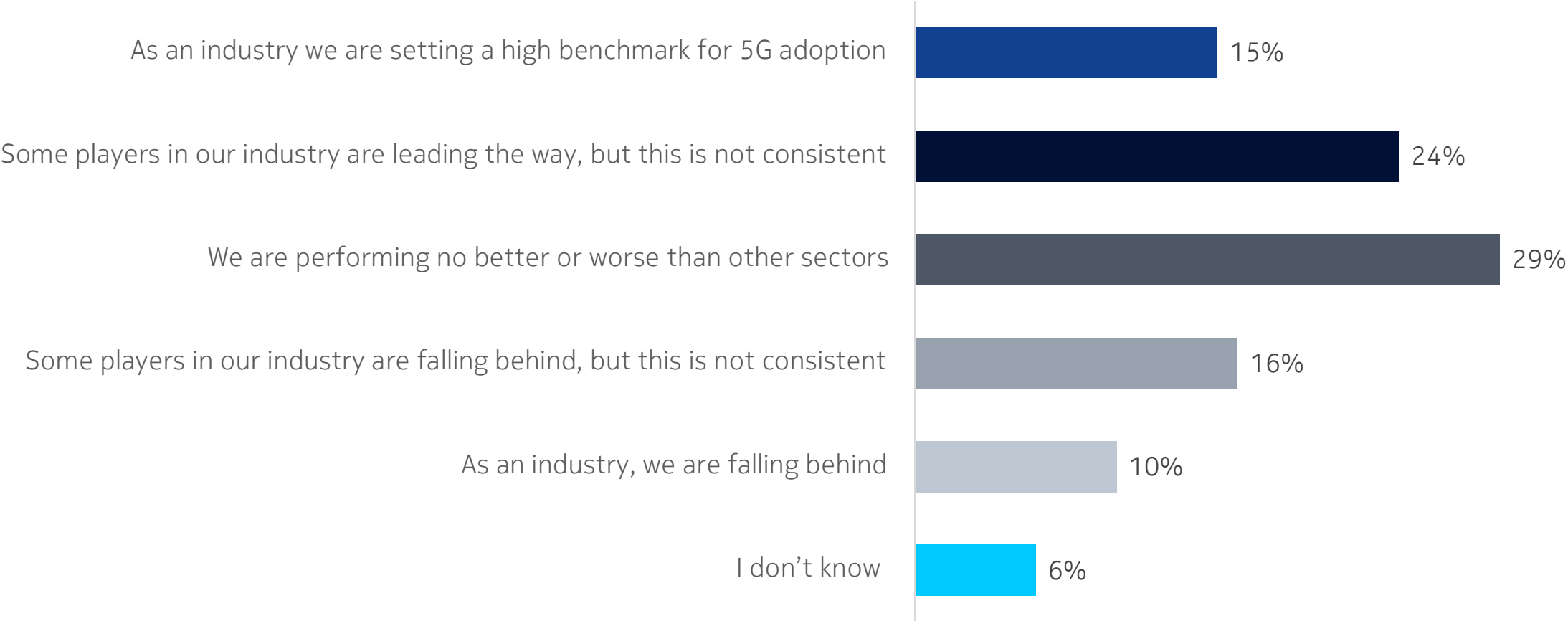
Leading from the top?

40% of organizations have a C-level sponsor for 5G implementation but a quarter don't have any 5G champion within management (24%)



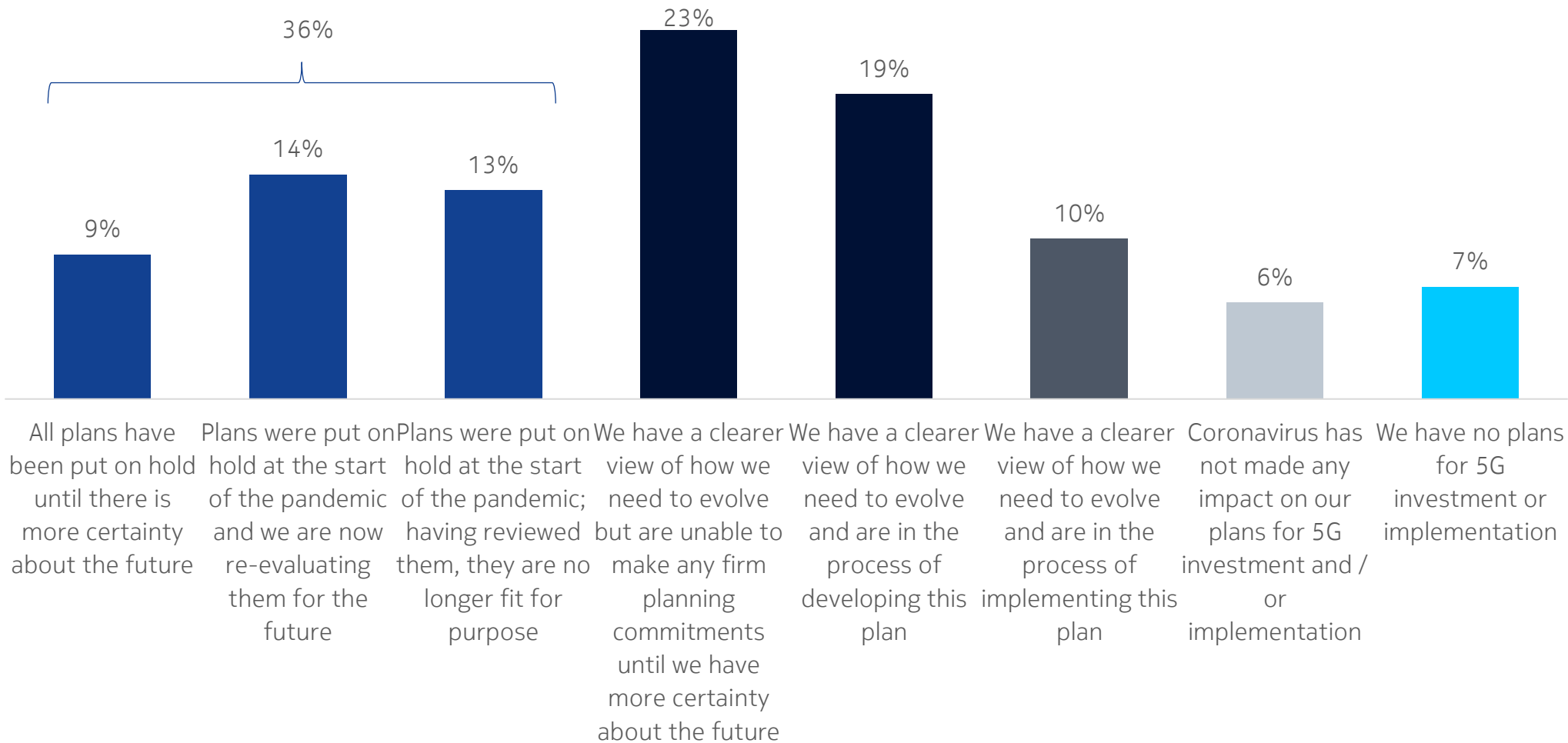
5G: Few are resting on their laurels

Businesses aren't overstating their place: they are most likely to feel that their industry is middling in terms of 5G adoption.



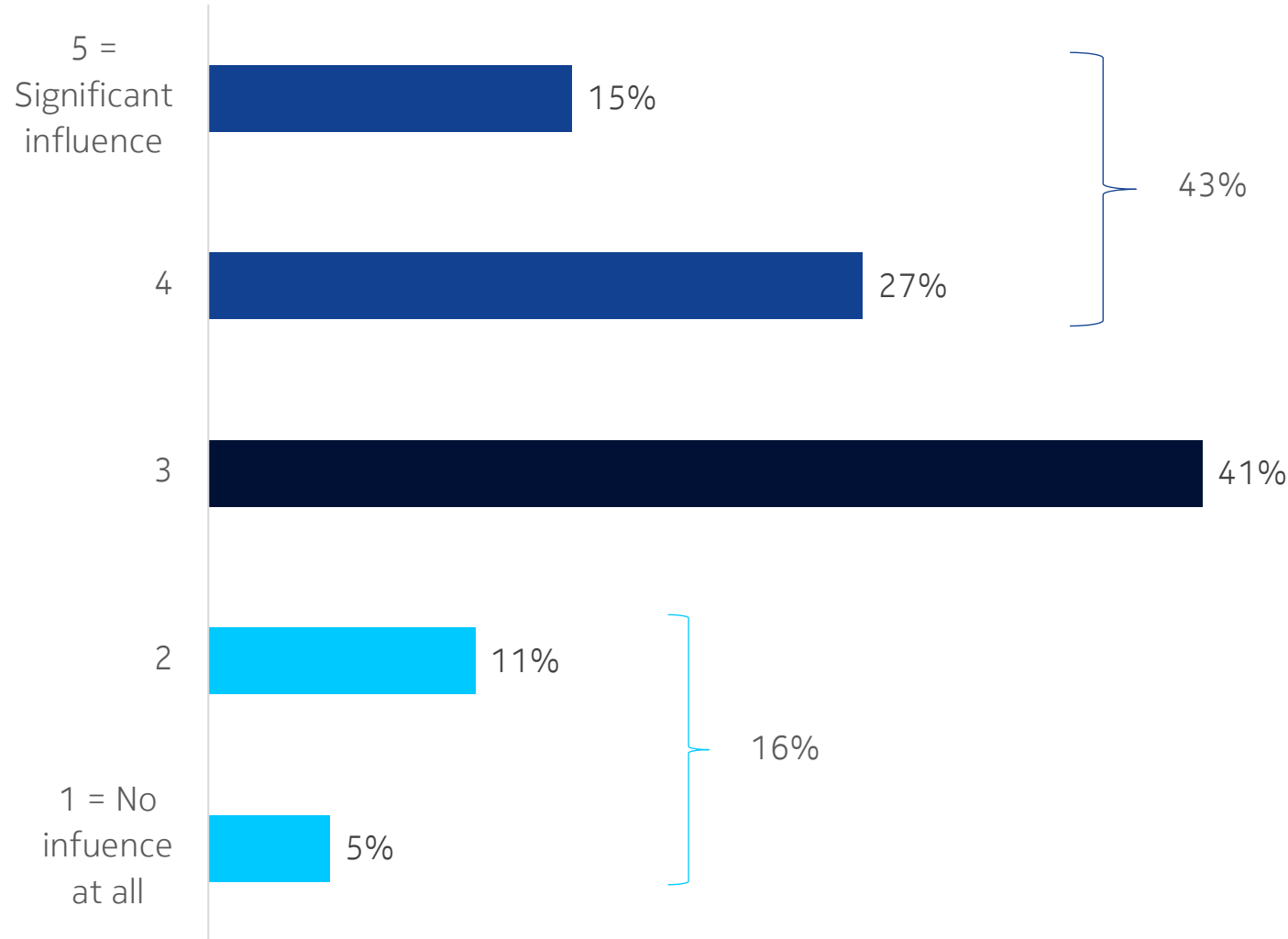
5G: Where next, post-COVID?

1 in 10 are not implementing a clearer 5G investment plan due to COVID-19
 Just over a third (36%) are still on hold



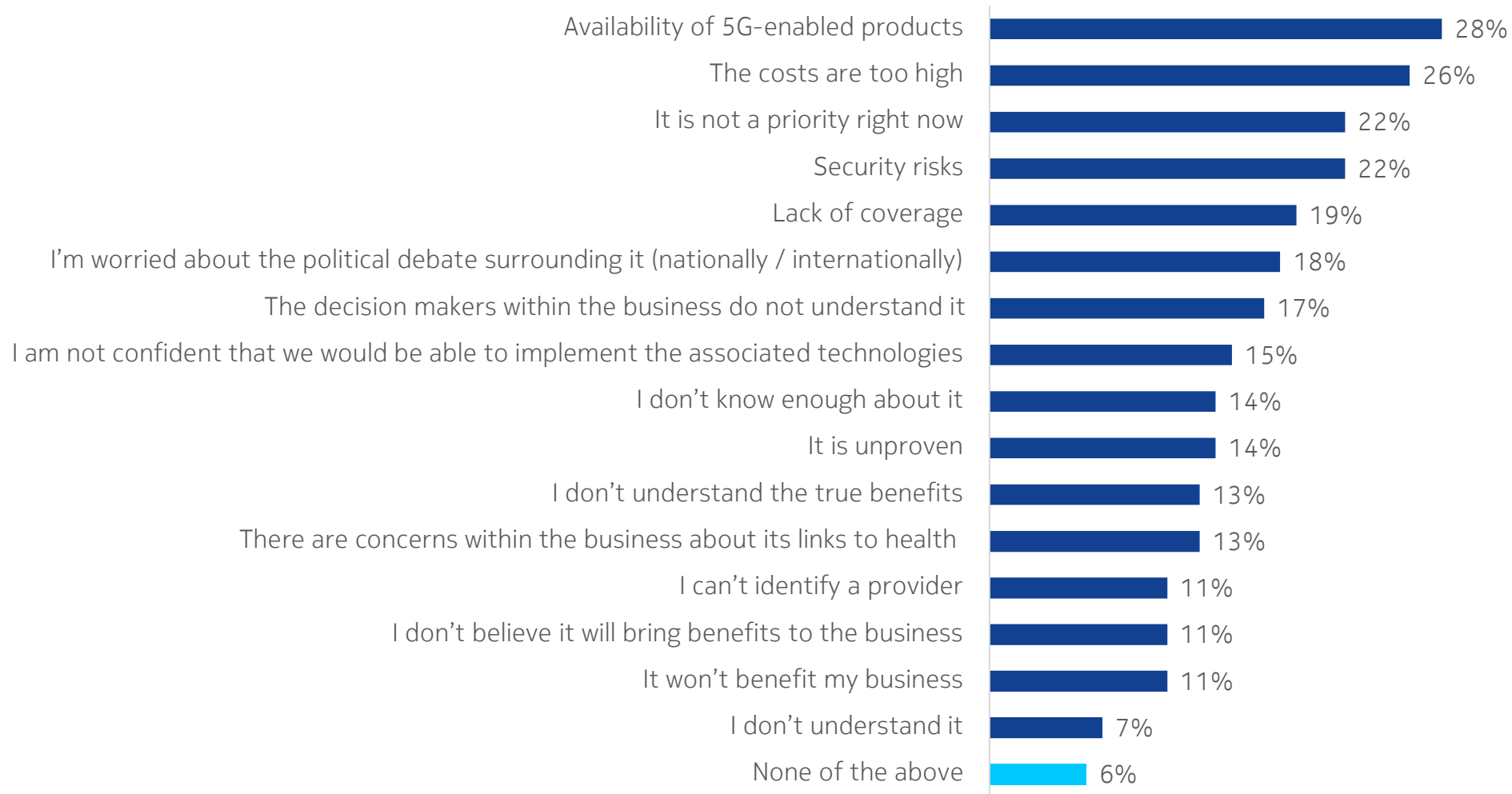
5G: The benefits of the unknown

The unknown potential of 5G being fully introduced is an influence on those who are the most ready for 5G in their organization.



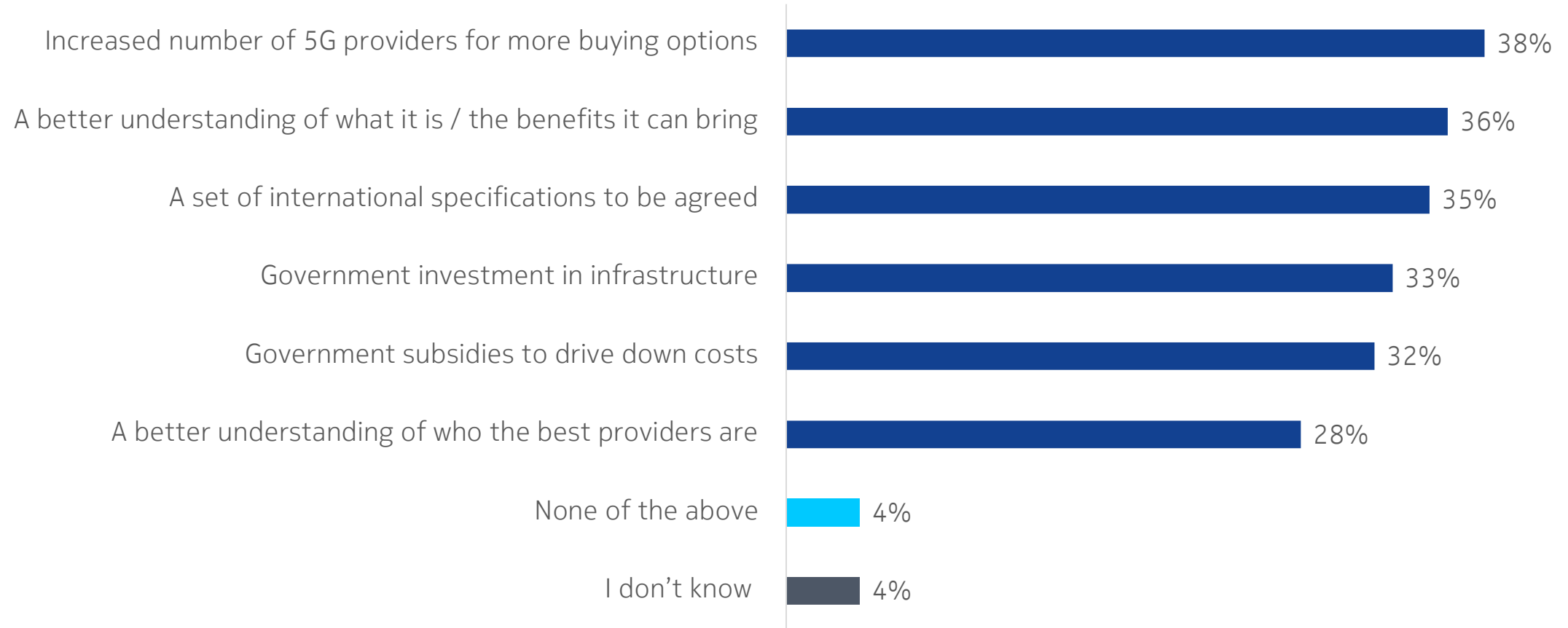
5G: What's stopping organizations?

Availability of 5G enabled products and costs are the biggest barriers to 5G investment



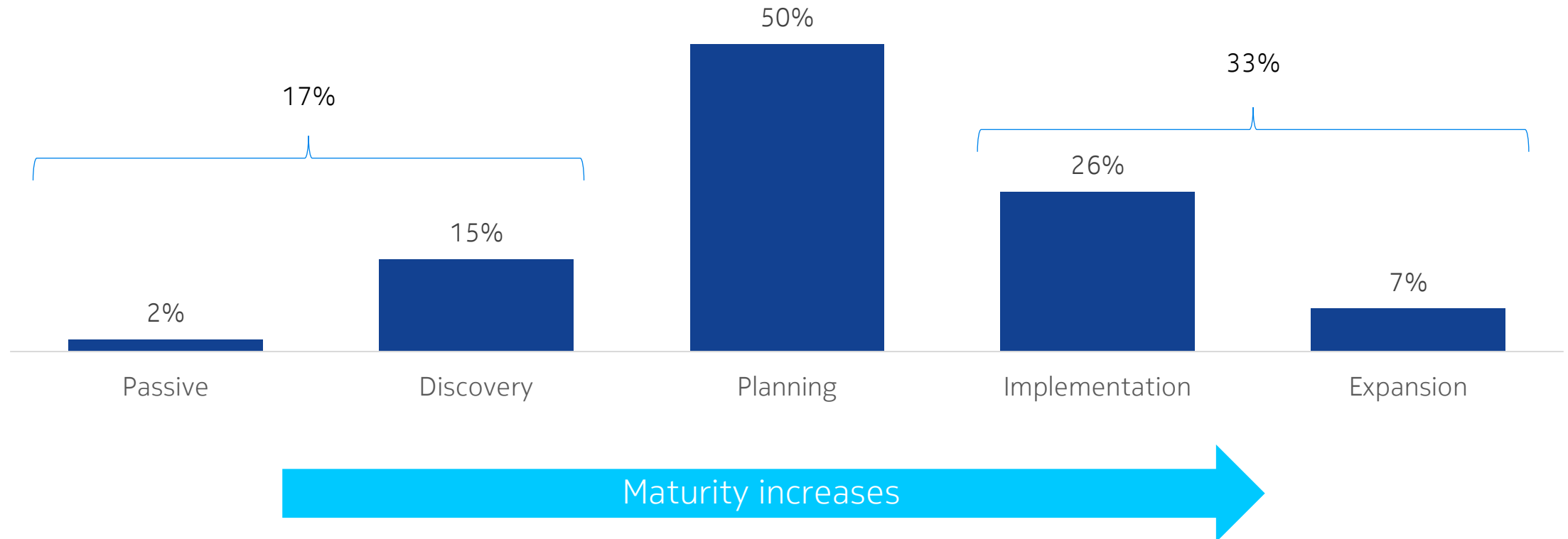
How can they get there?

More 5G providers and a better understanding of the benefits would encourage greater investment in 5G



5G maturity – the current picture

Globally, a third of organizations are at the top end of 5G maturity (33%), with 7% at the highest level; just under 1 in 5 (17%) have lower 5G maturity; and half occupy a middle ground.

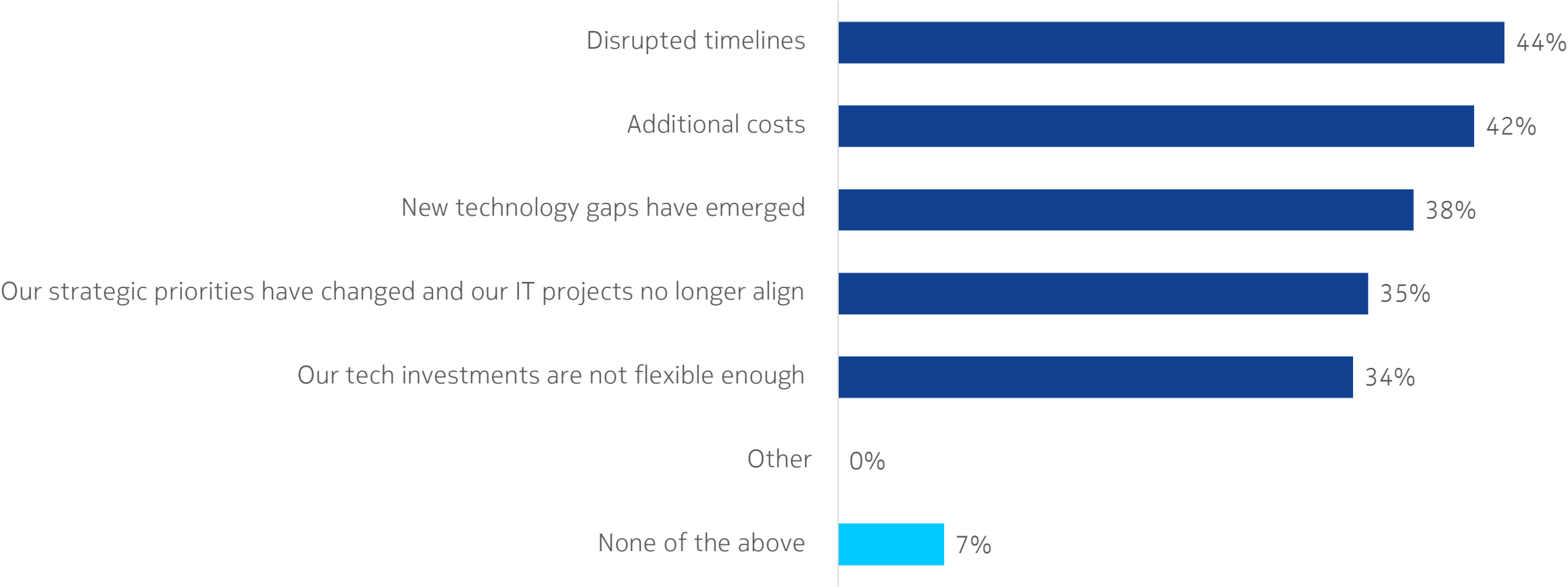




Australia

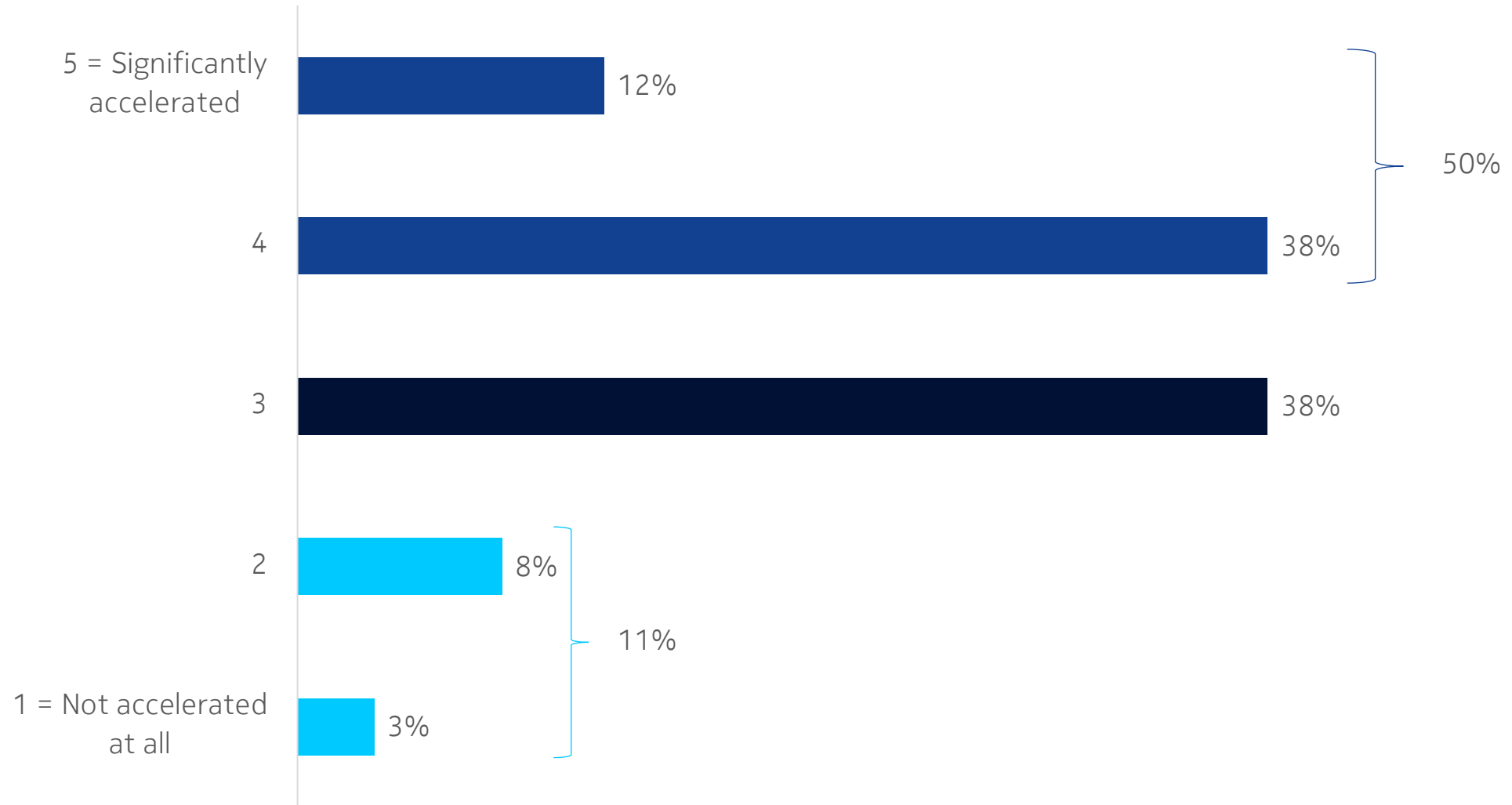
The COVID impact

Disrupted timelines (44%), additional costs (42%) and the emergence of new technology gaps (38%) have been the most prevalent impacts of COVID-19 on technology road maps



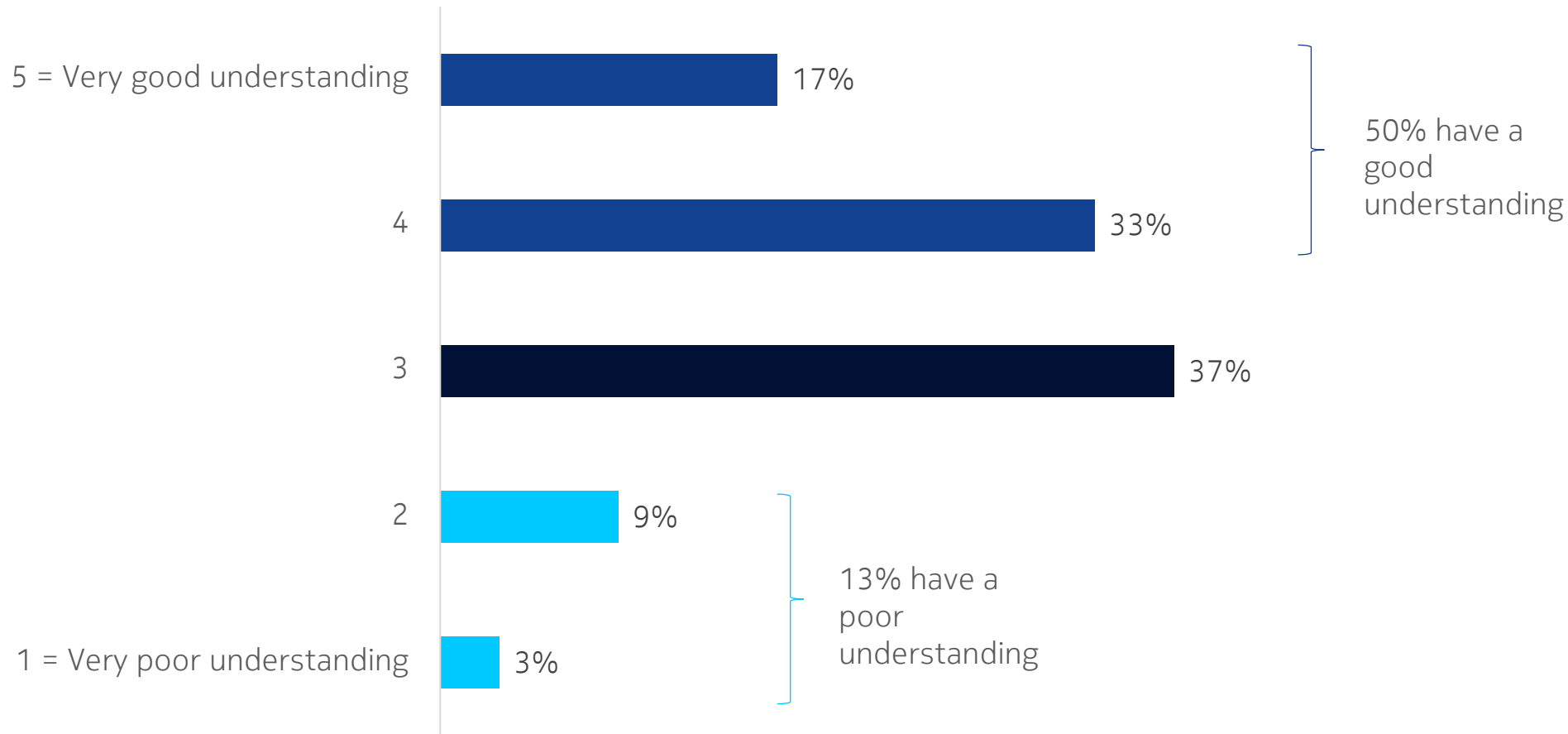
Digital transformation - the COVID effect

Half have expediated their digital transformation program due to COVID-19 (50%)



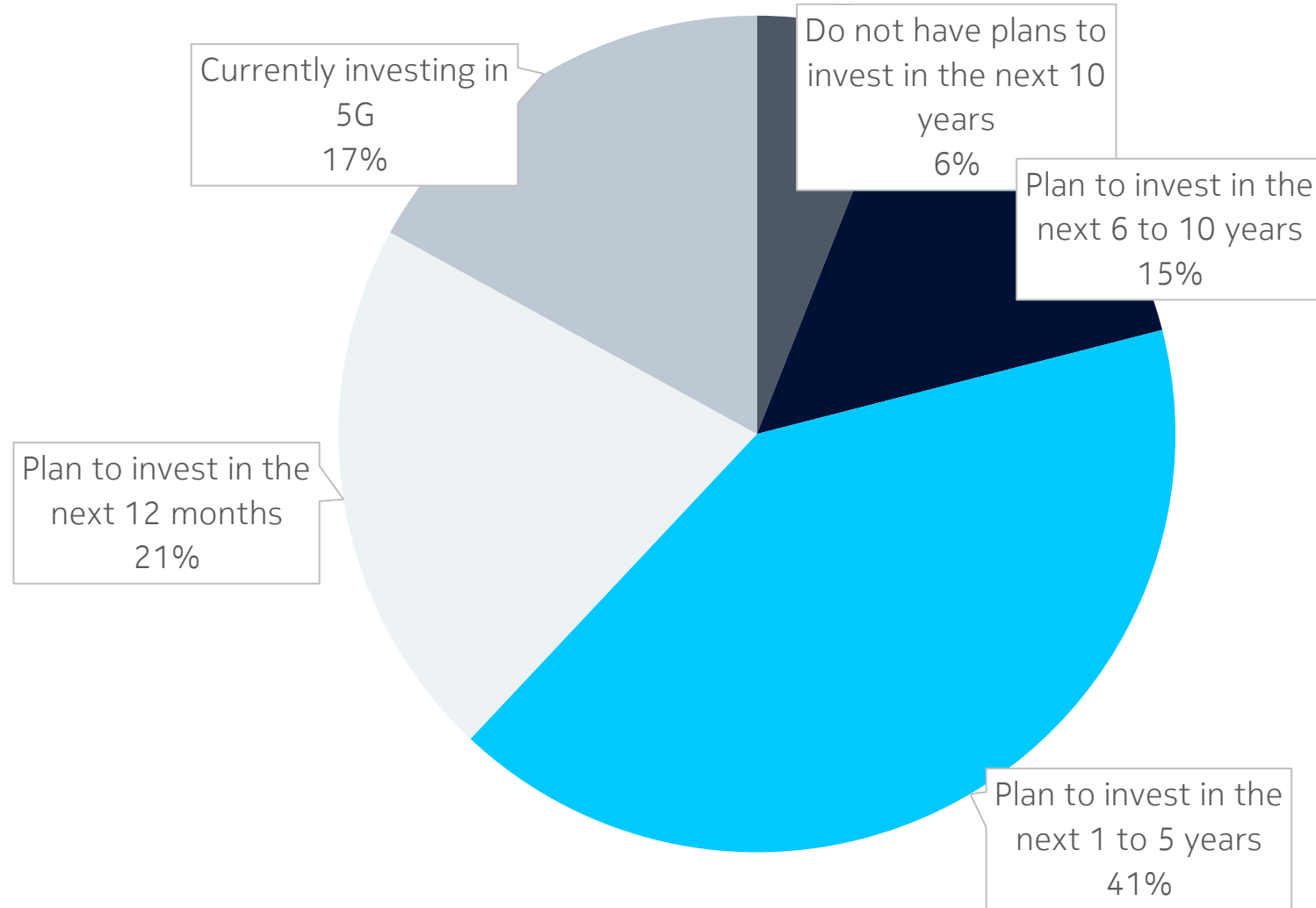
Levels of understanding are still mixed

50% think there is a good understanding of 5G in their organization



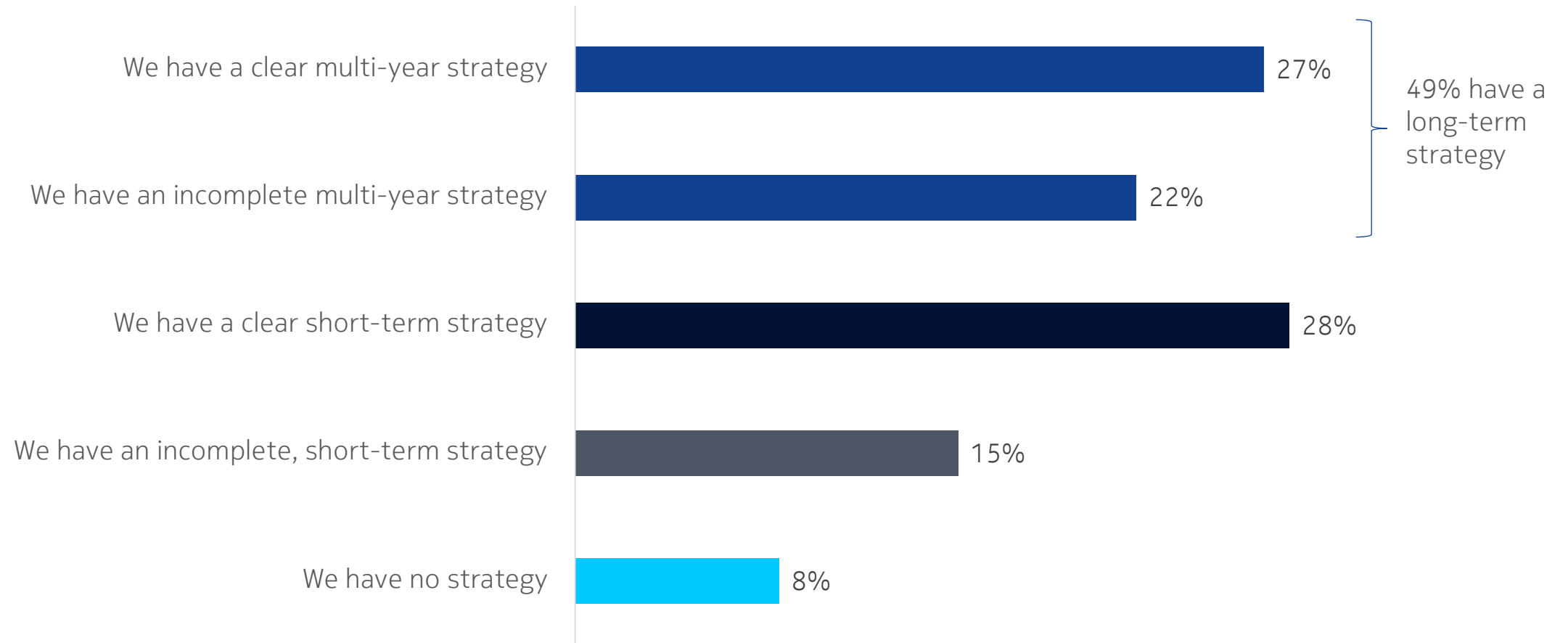
Planning for 5G

17% are currently investing in 5G; with 79% planning investment in the next 5 years



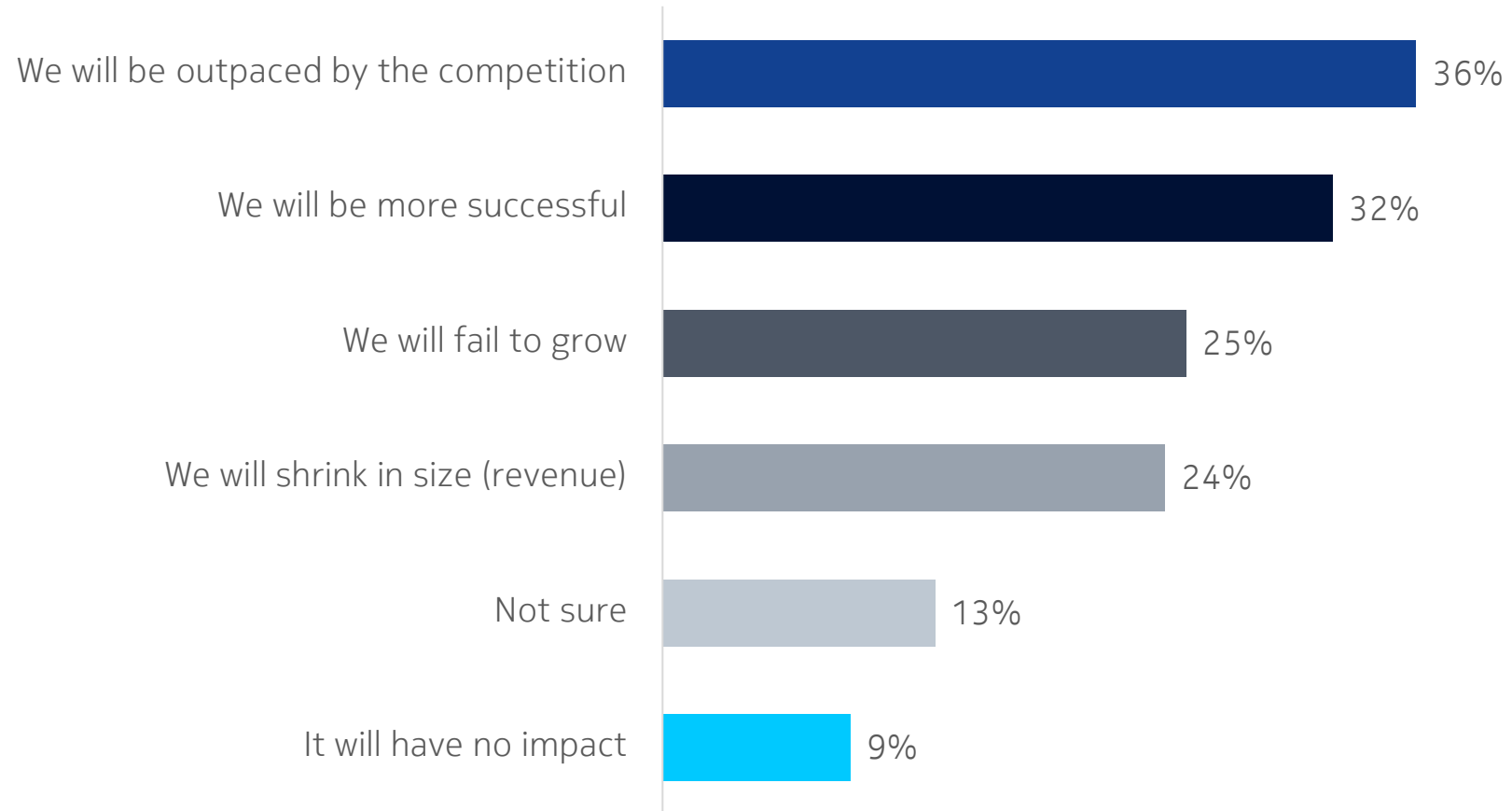
A short or long-term approach?

49% of technology decision makers have a long term 5G strategy
Just under 1 in 10 have no strategy whatsoever (8%)



The risks of standing still

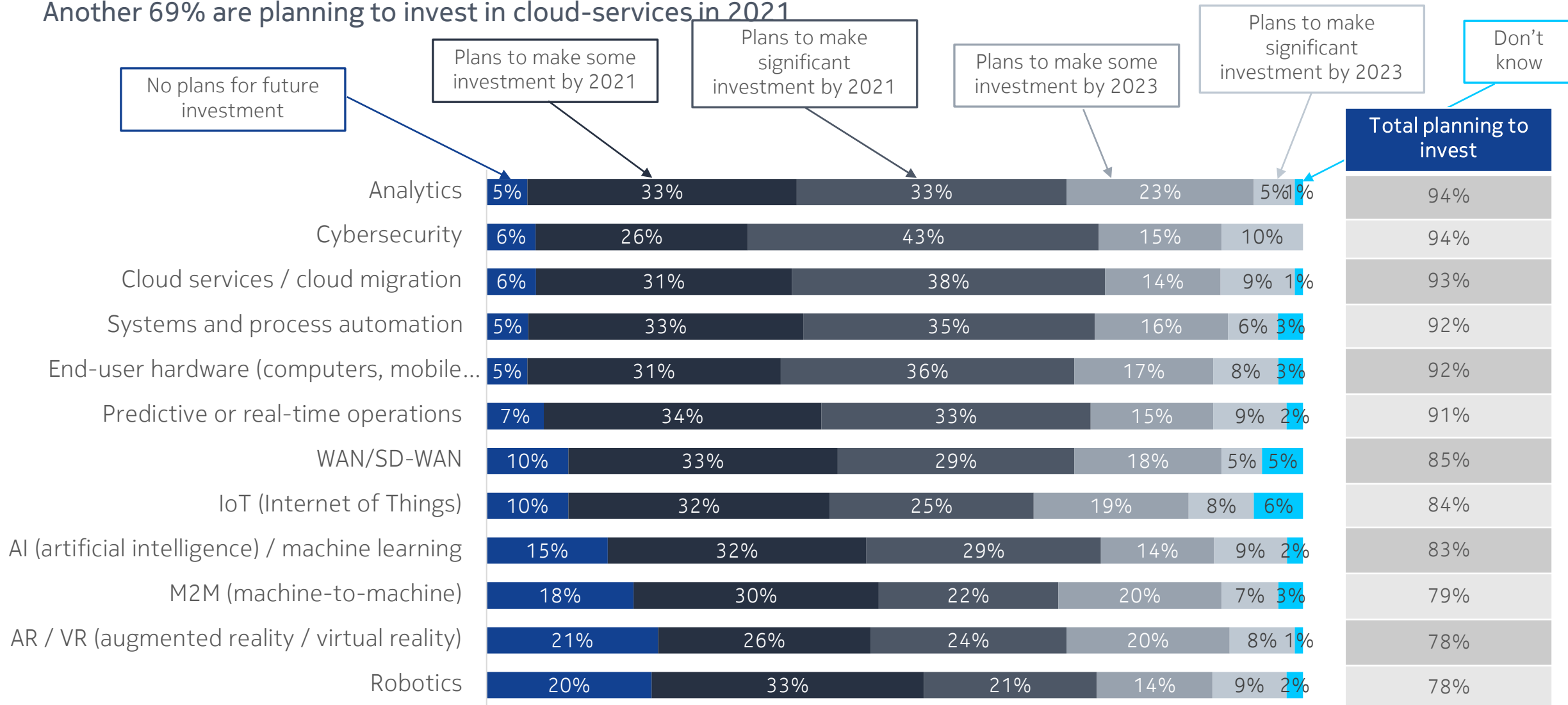
Over a third fear being outpaced by the competition should they not invest in 5G (36%), however 32% feel whatever their 5G investment they will still be successful



5G: the technology enabler

69% of technology buyers are planning investment in cybersecurity in 2021

Another 69% are planning to invest in cloud-services in 2021

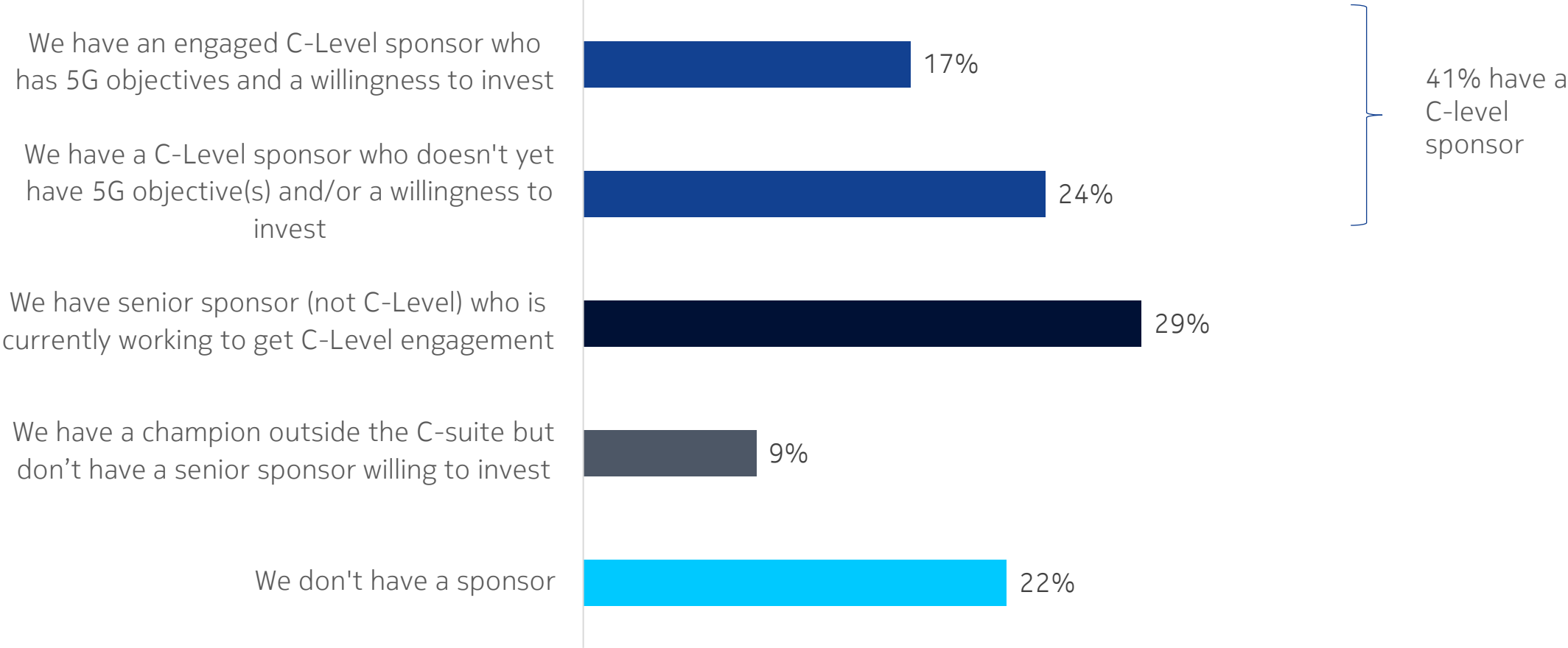


Q. Which of the following will your organization invest in over the next 2-3 years?

Base: 203

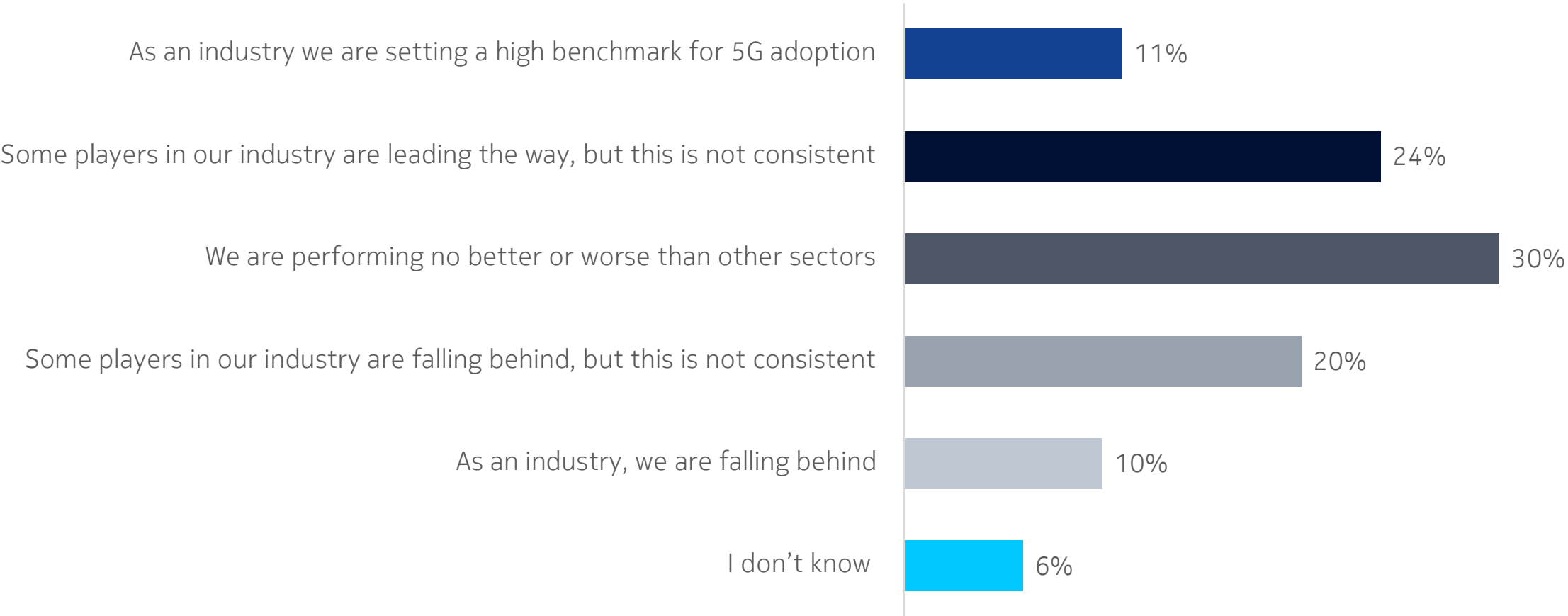
Leading from the top?

41% have C-Level sponsor for 5G implementation in their organization
 Almost a quarter don't have any 5G championing from management (22%)



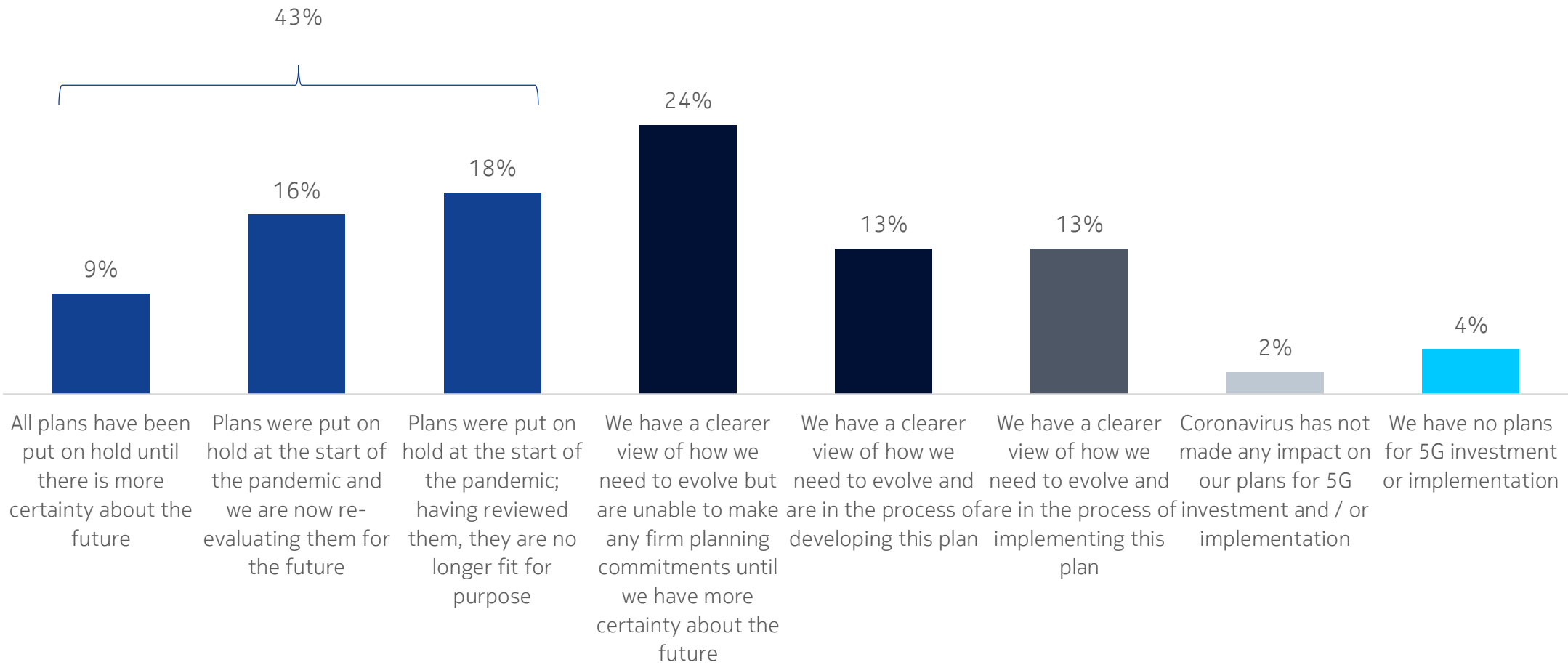
5G: Few are resting on their laurels

Businesses are more likely to feel that their industry is middling in terms of 5G adoption, with only 11% setting a high benchmark



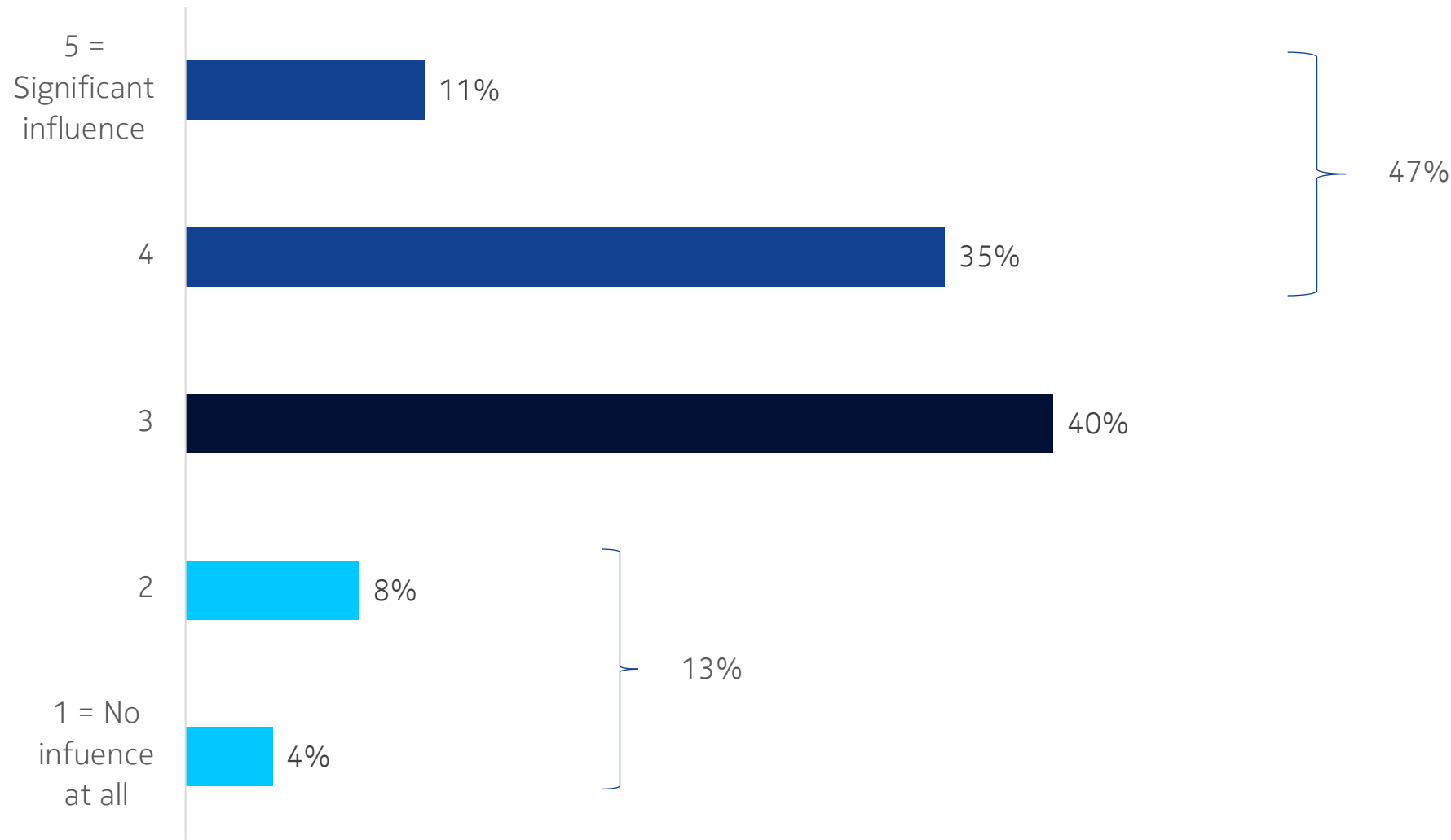
5G: Where next, post-COVID?

Just over 1 in 10 (13%) are now implementing a clearer 5G investment plan due to COVID-19
 43% are still on hold



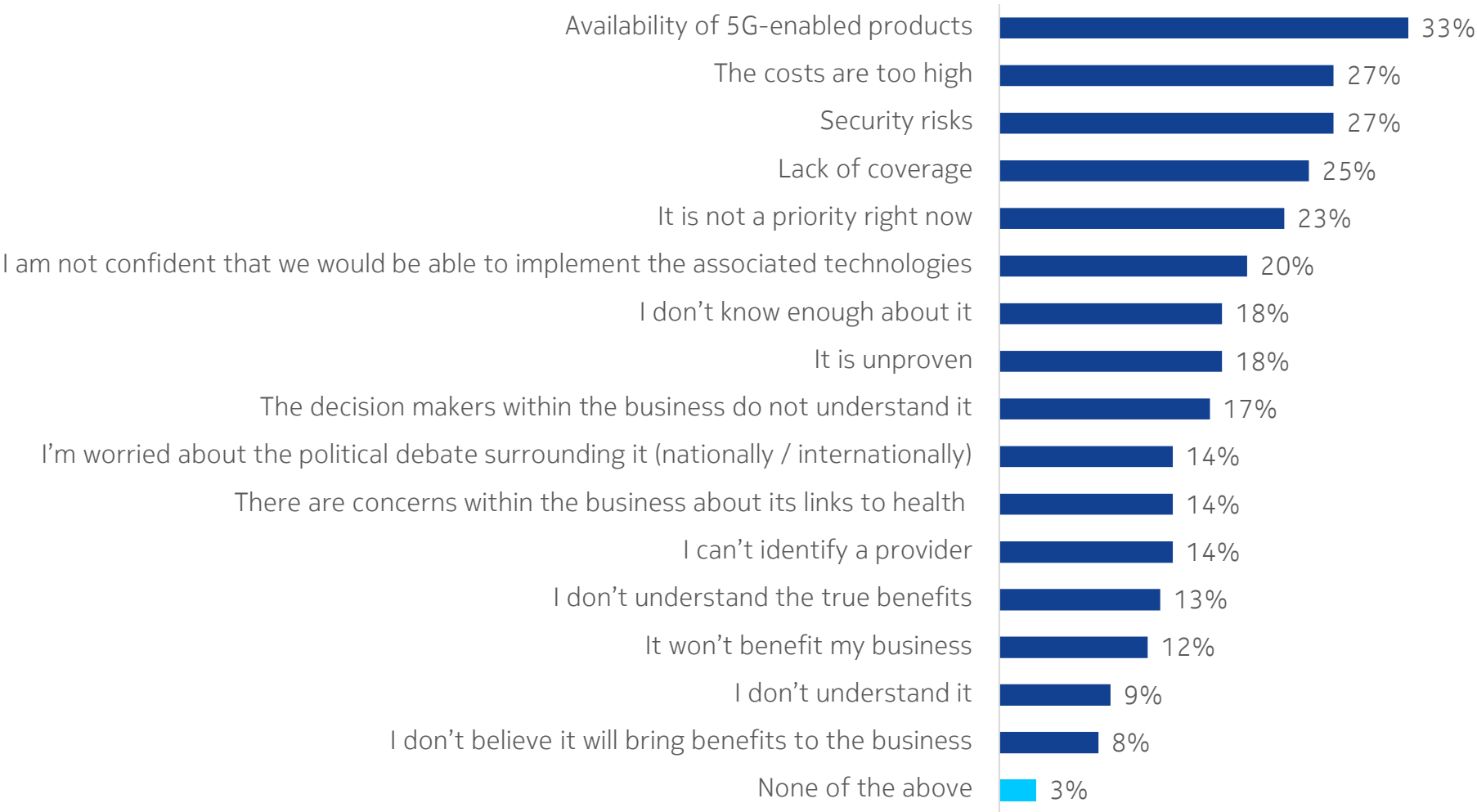
5G: The benefits of the unknown

The unknown potential of 5G being fully introduced is an influence on 47% of decision makers



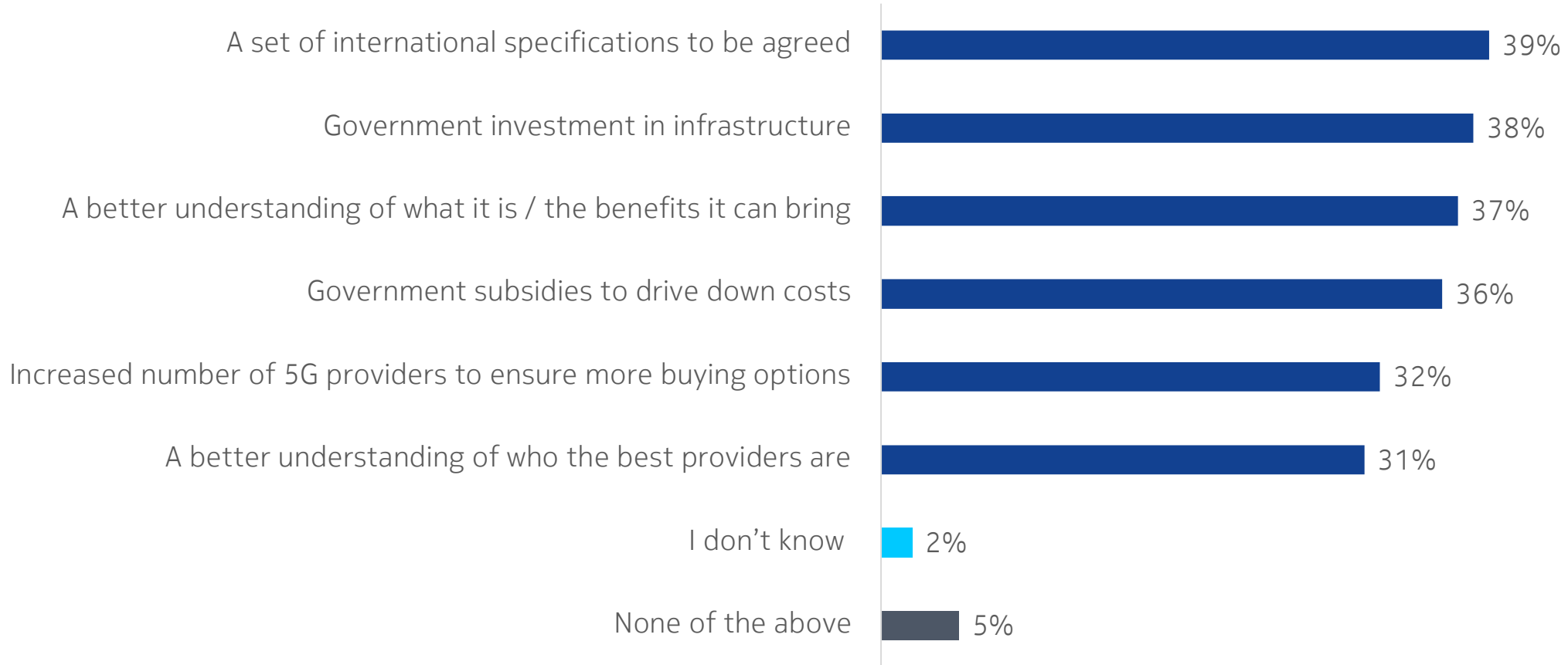
5G: What's stopping organizations?

Availability of 5G enabled products, costs and security risks are the biggest barriers to 5G investment



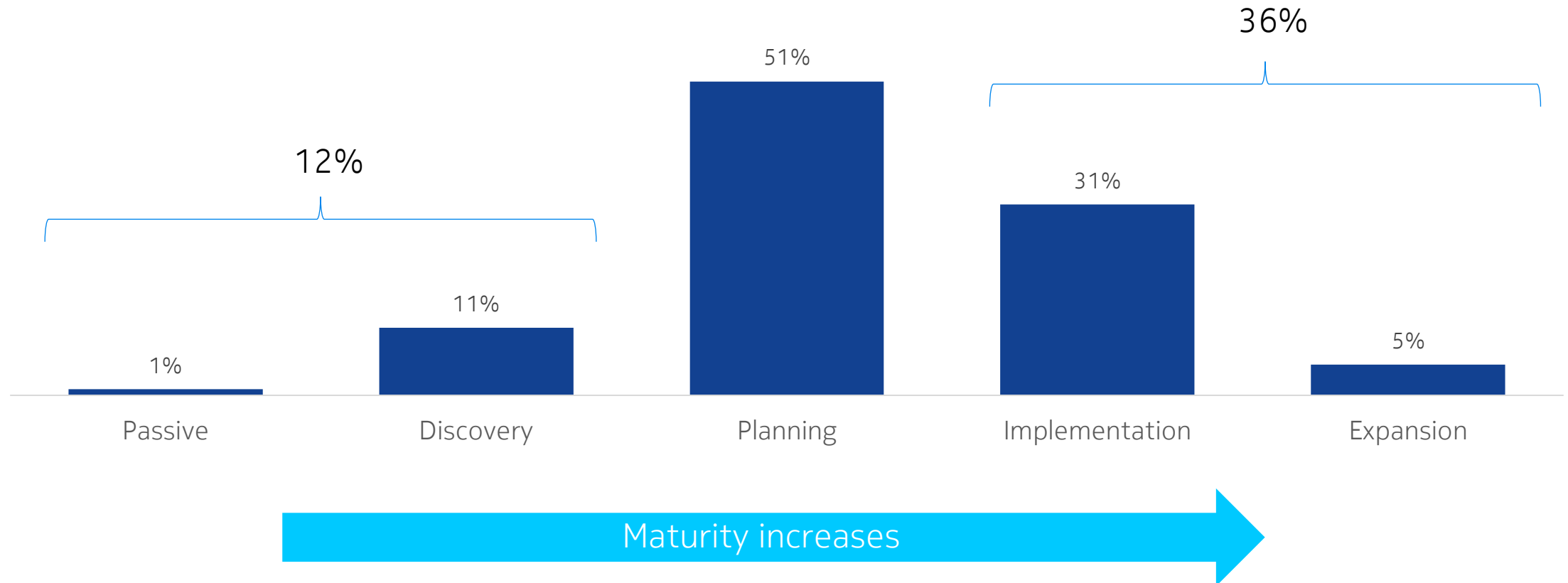
How can they get there?

A lack of international specifications for 5G networks is holding back greater investment and implementation.



5G maturity – the current picture

Over a third of Australian organizations are at the top end of 5G maturity (36%), with 5% at the highest level; 12% have lower 5G maturity; and 51% occupy a middle ground



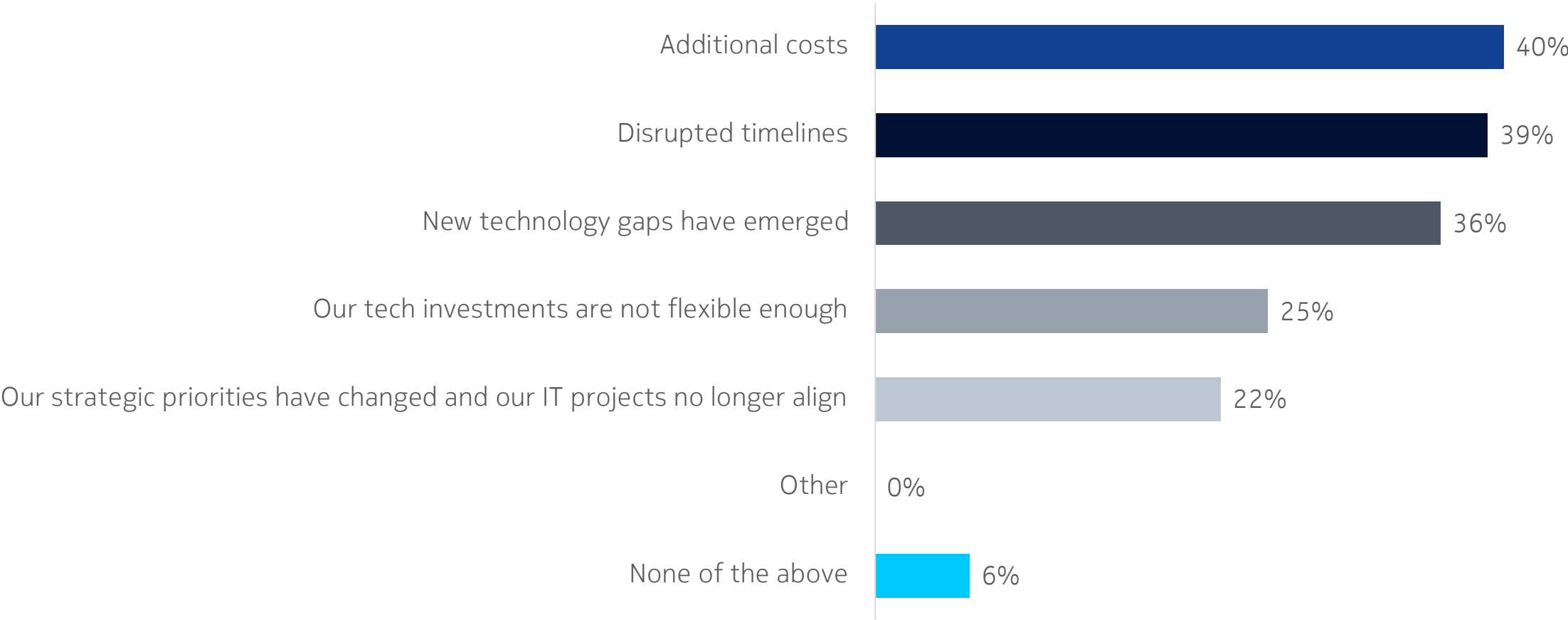


Finland

NOKIA

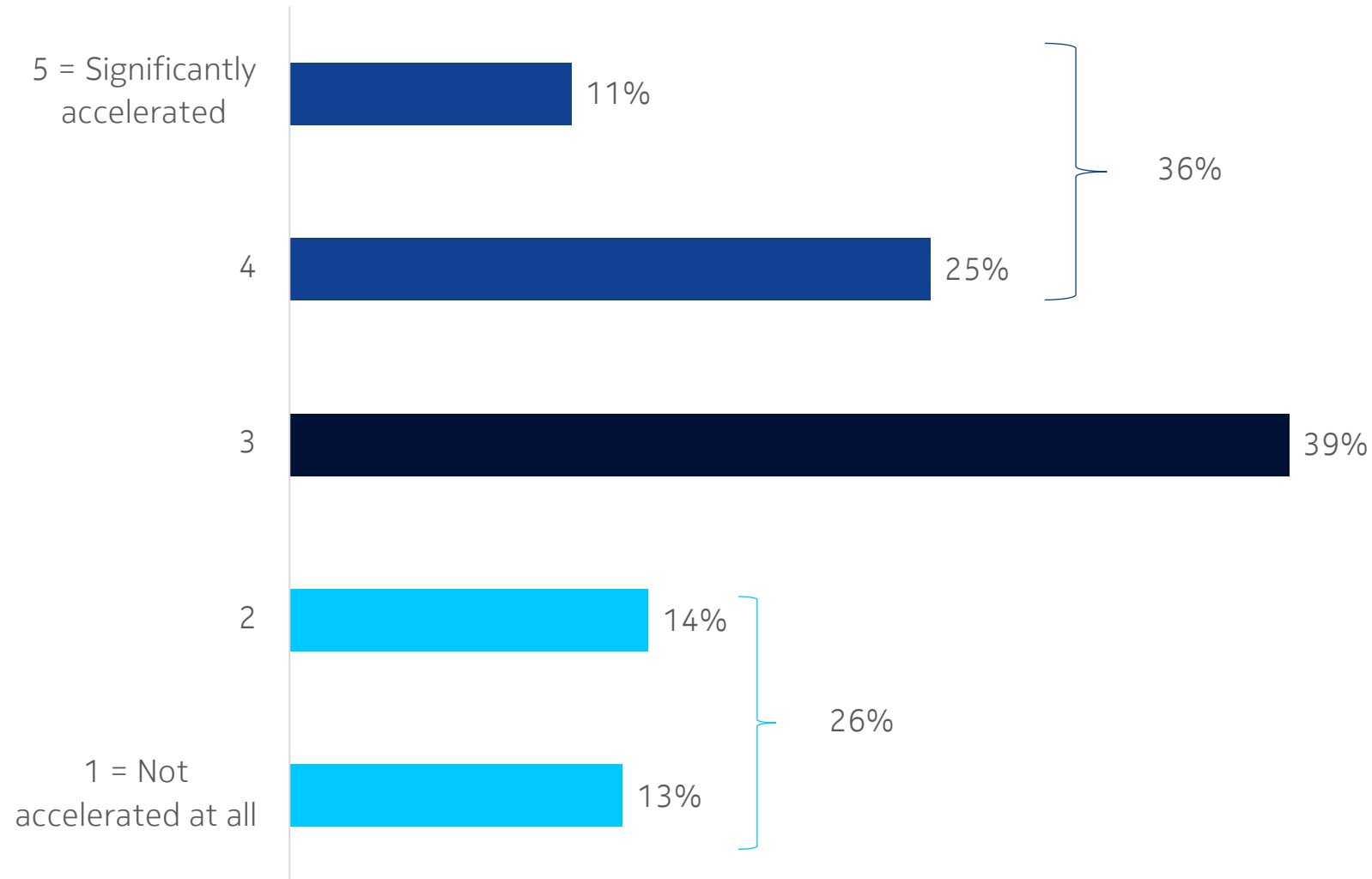
The COVID impact

Additional costs (40%), disrupted timelines (39%) and the emergence of new technology gaps (36%) have been the most prevalent impacts of COVID-19 on technology road maps



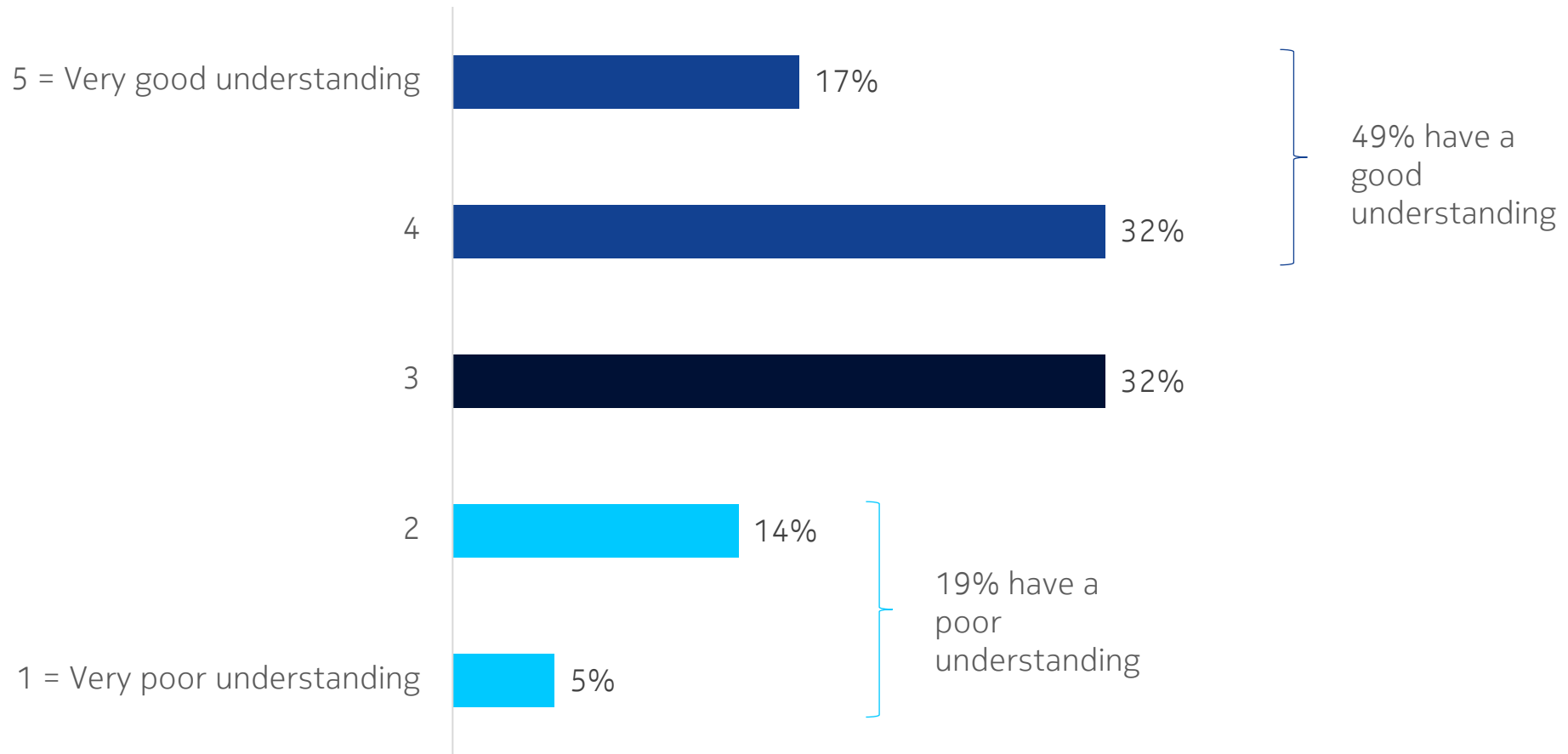
Digital transformation - the COVID effect

36% have expediated their digital transformation program due to COVID-19



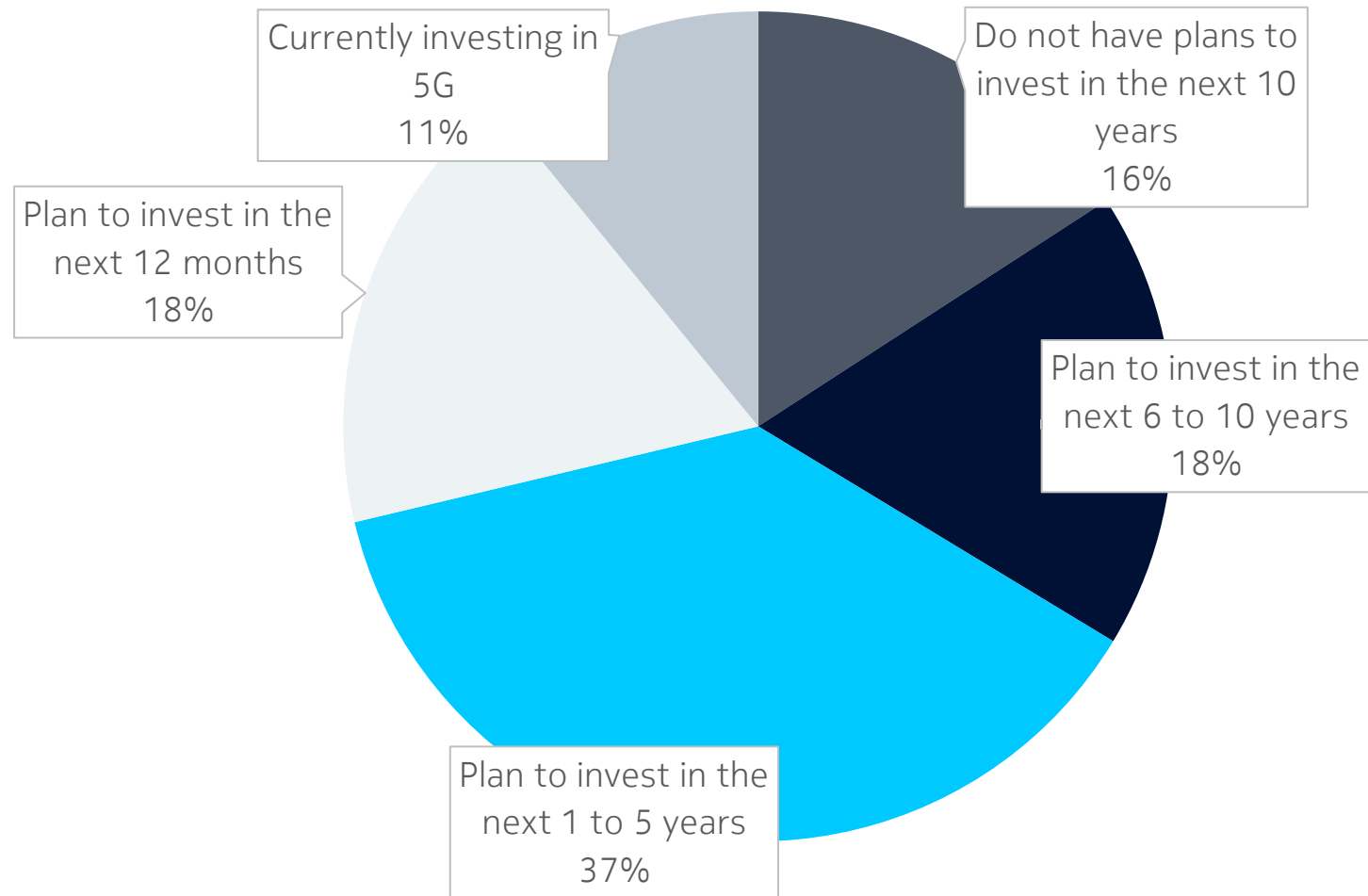
Levels of understanding are still mixed

49% think there is a good understanding of 5G in their organization



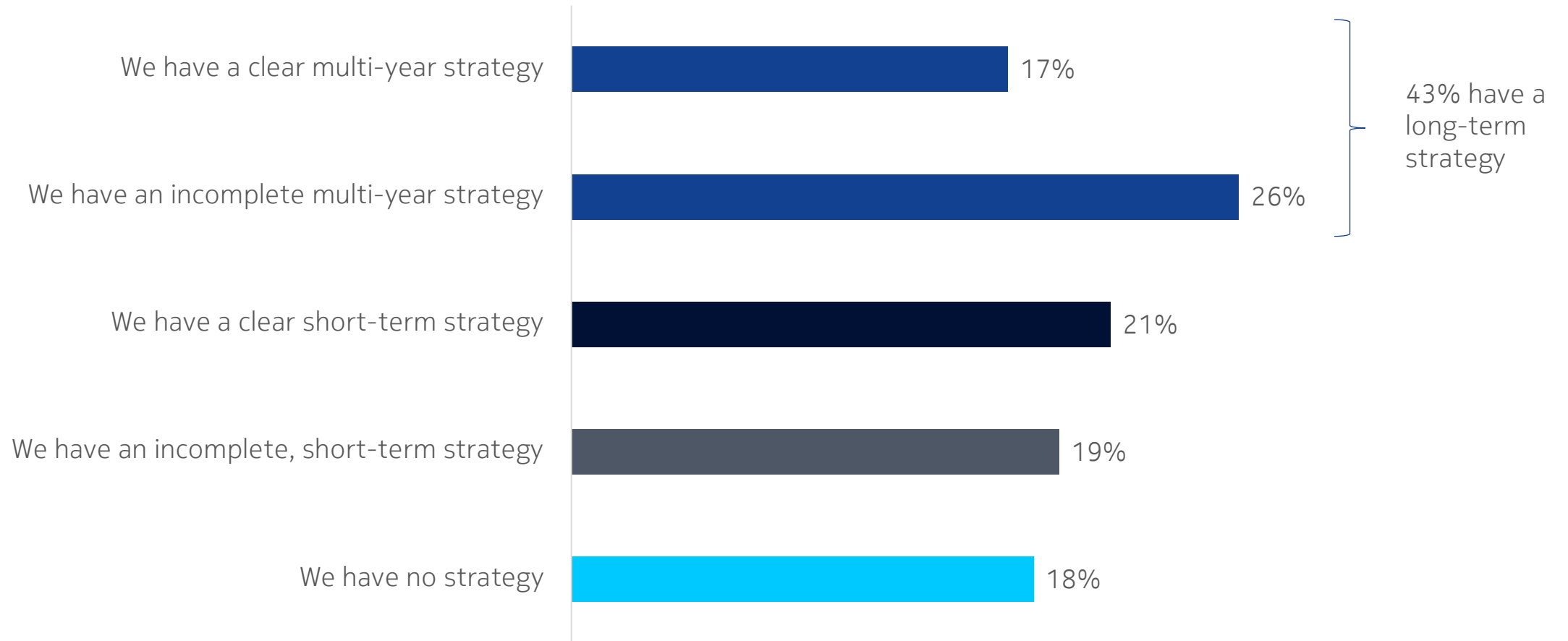
Planning for 5G

11% are currently investing in 5G; with 67% planning investment in the next 5 years



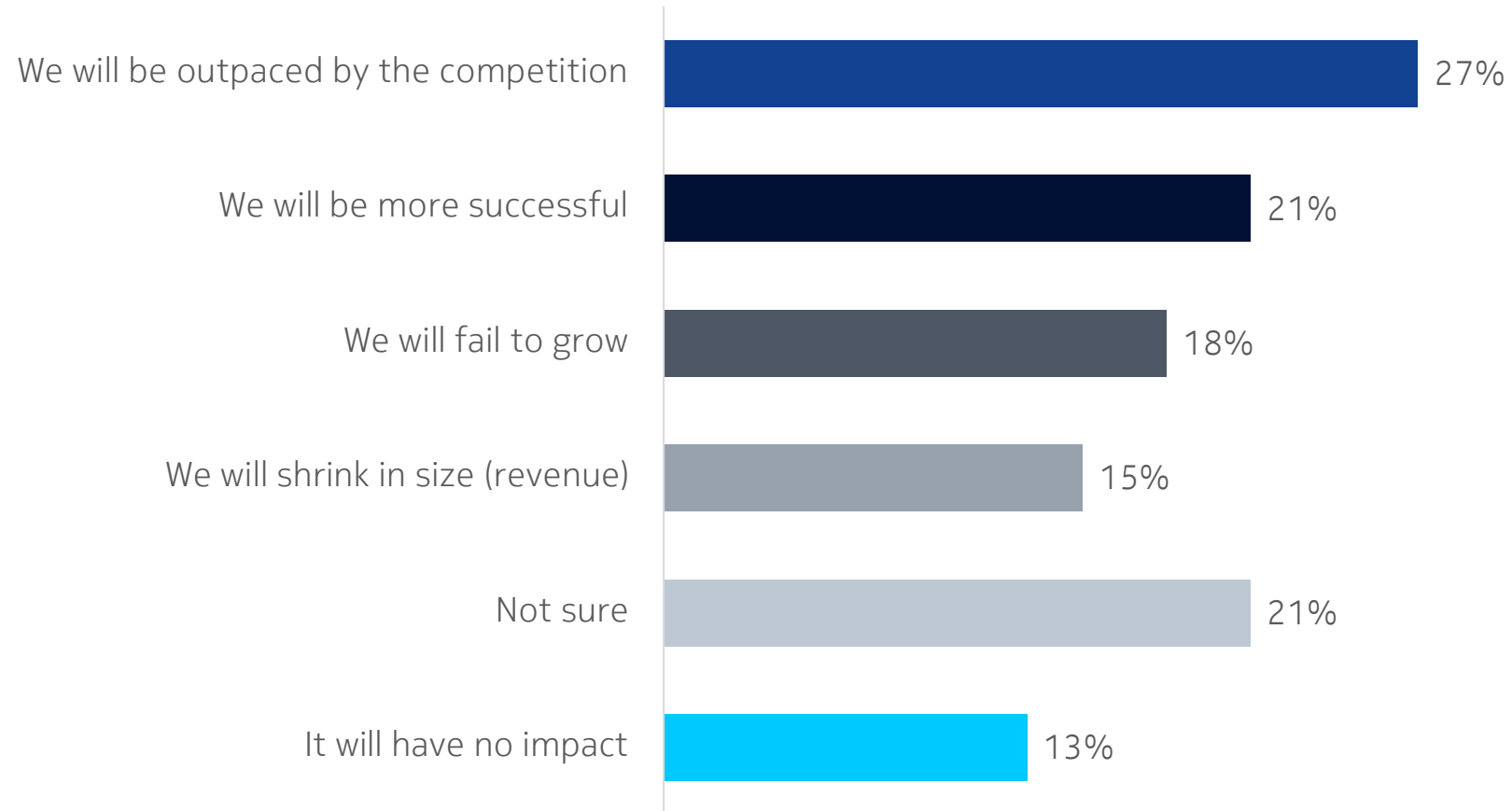
A short or long-term approach?

43% of technology decision makers have a long term 5G strategy
Just under 1 in 5 have no strategy whatsoever (18%)



The risks of standing still

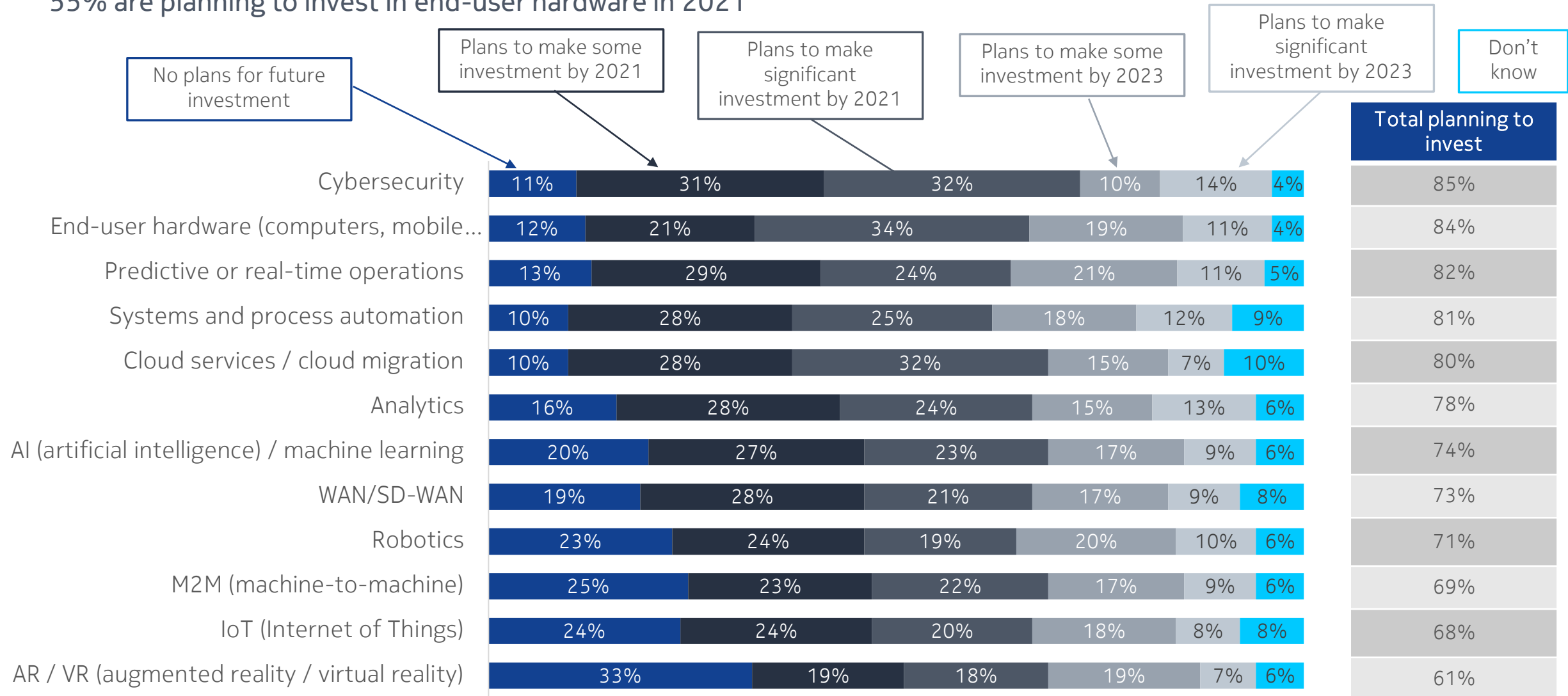
A quarter fear being outpaced by the competition should they not invest in 5G (27%), however 21% feel whatever their 5G investment they will still be successful



5G: the technology enabler

63% of technology buyers are planning to investment in cybersecurity in 2021

55% are planning to invest in end-user hardware in 2021

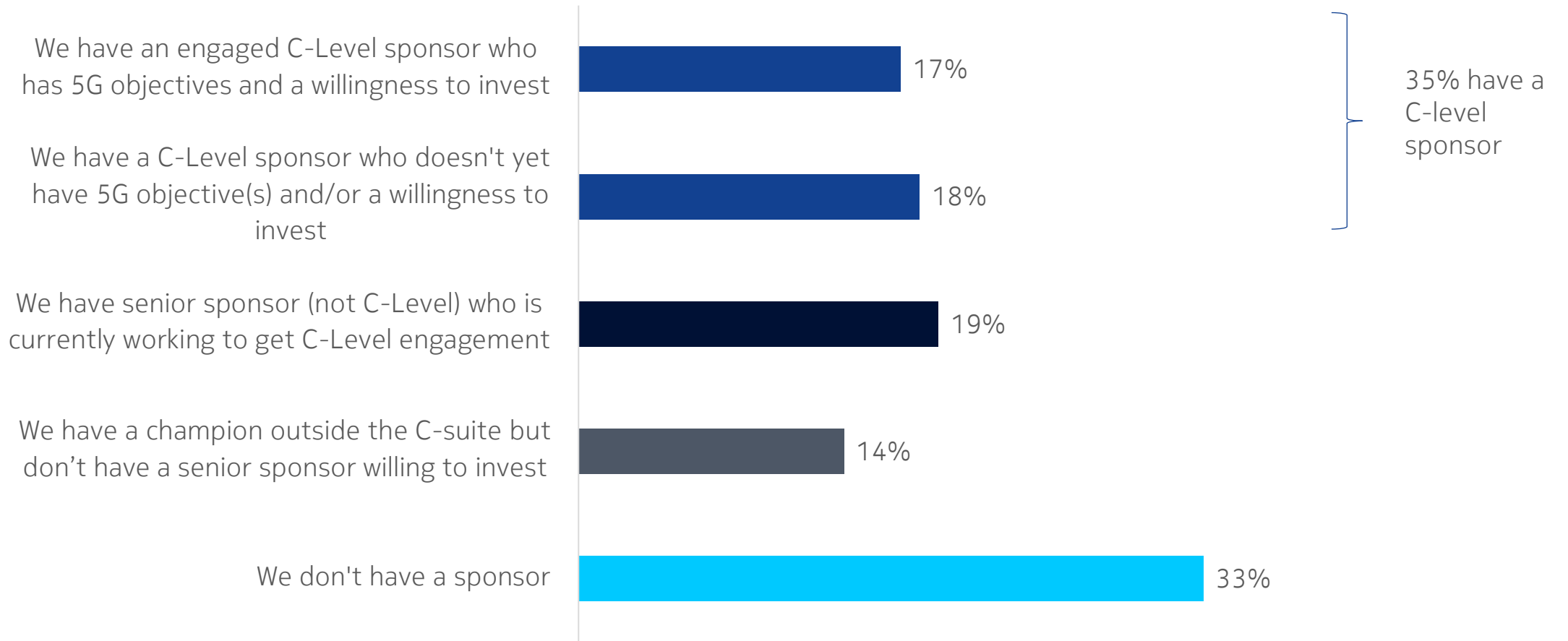


Q5. Which of the following will your organization invest in over the next 2-3 years?

Base: 200

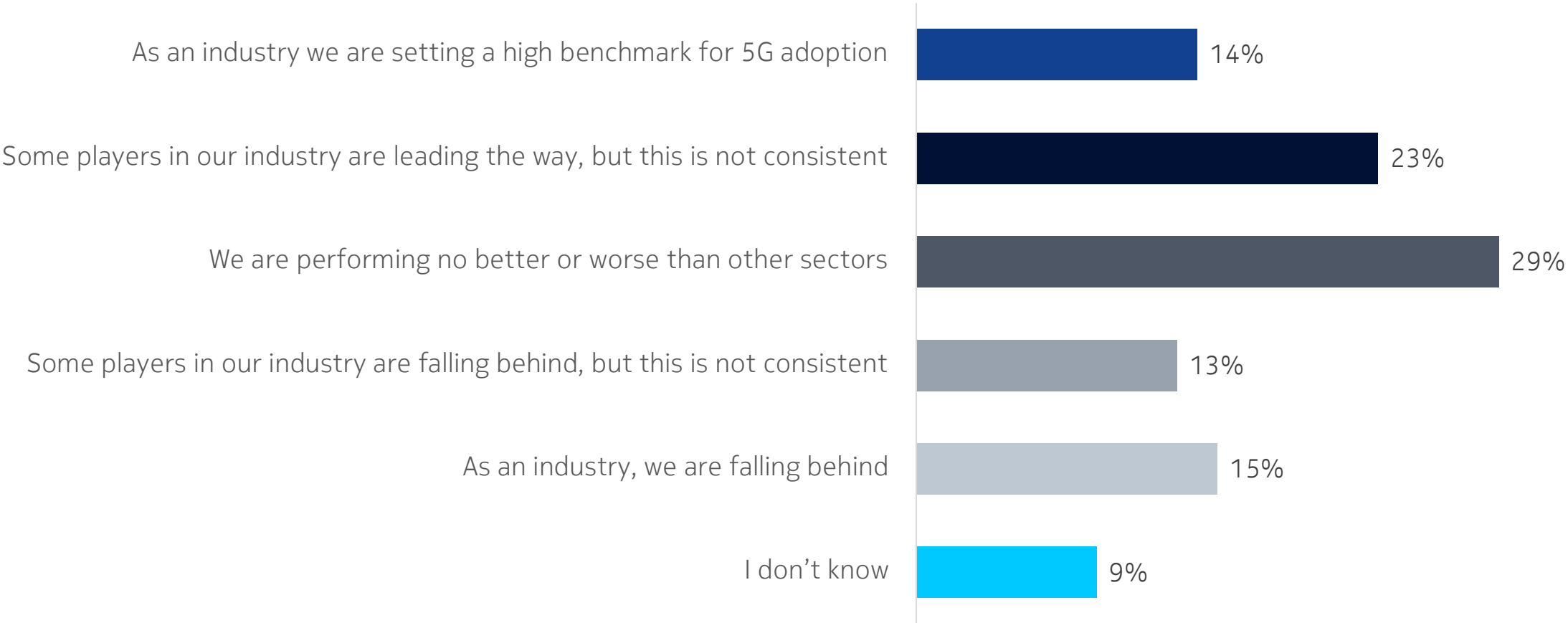
Leading from the top?

35% have C-Level sponsor for 5G implementation in their organization
 A third don't have any 5G championing from management (33%)



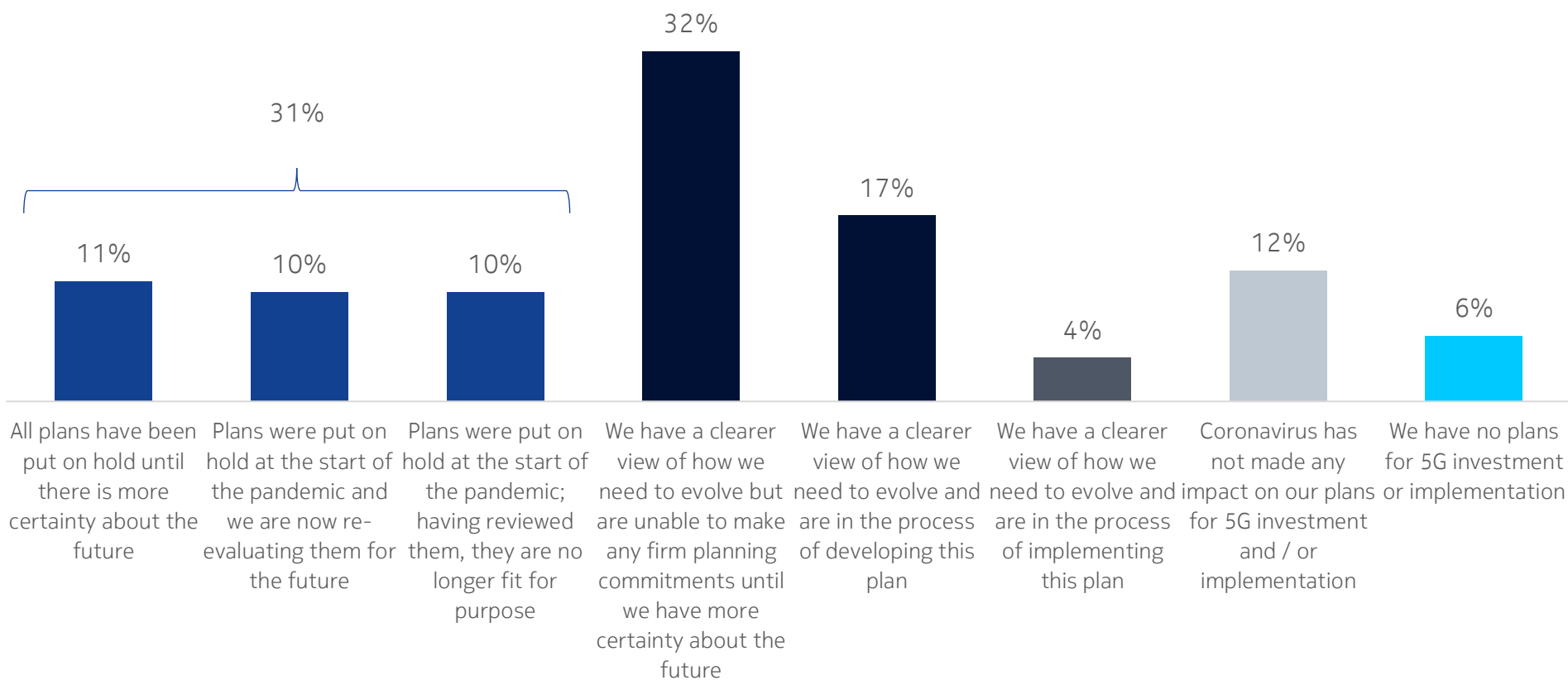
5G: Few are resting on their laurels

Businesses are more likely to feel that their industry is middling in terms of 5G adoption, with 14% setting a high benchmark



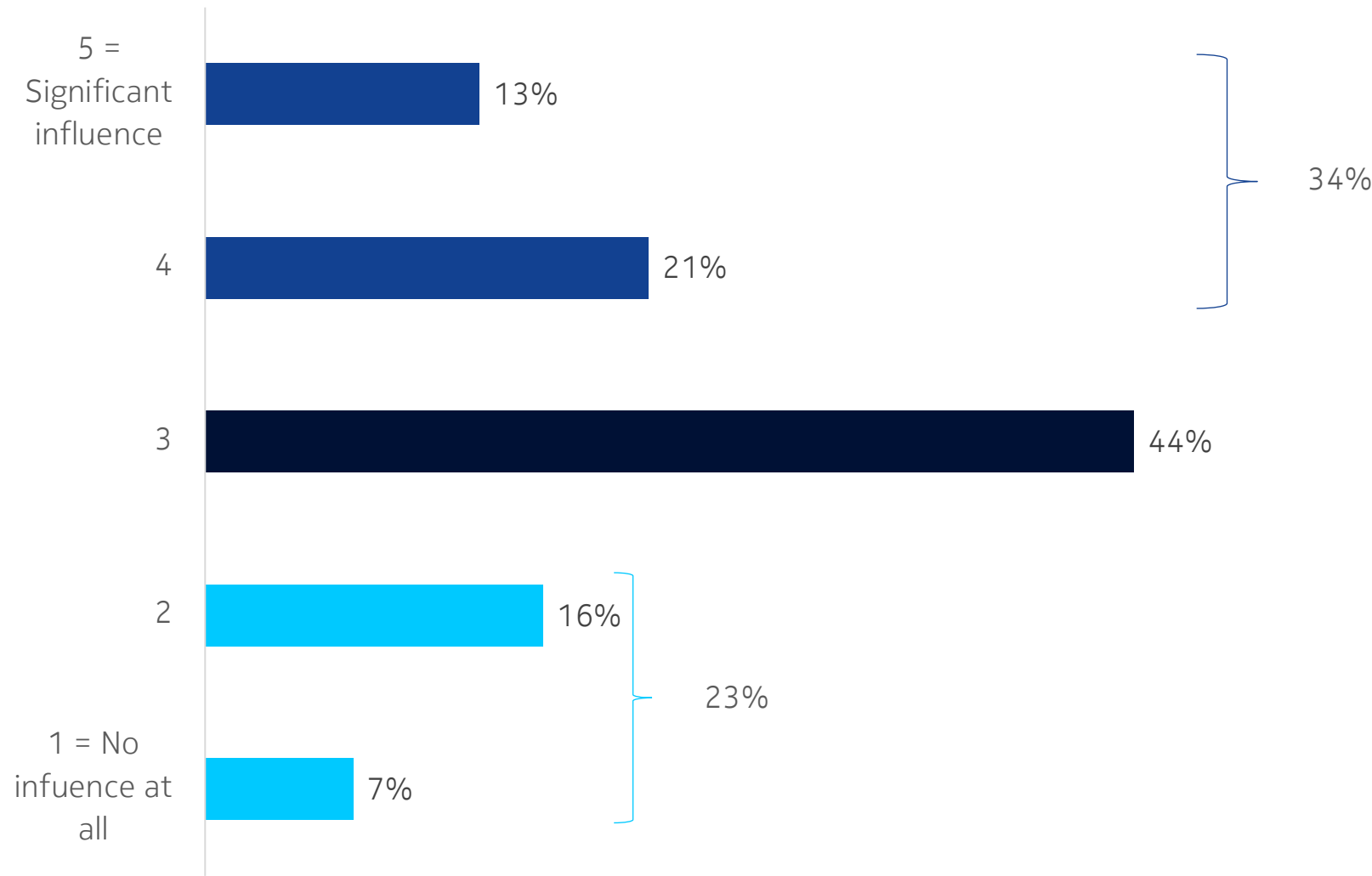
5G: Where next, post-COVID?

Only 4% are now implementing a clearer 5G investment plan due to COVID-19
 31% are still on hold



5G: The benefits of the unknown

The unknown potential of 5G being fully introduced is an influence on 34% of decision makers



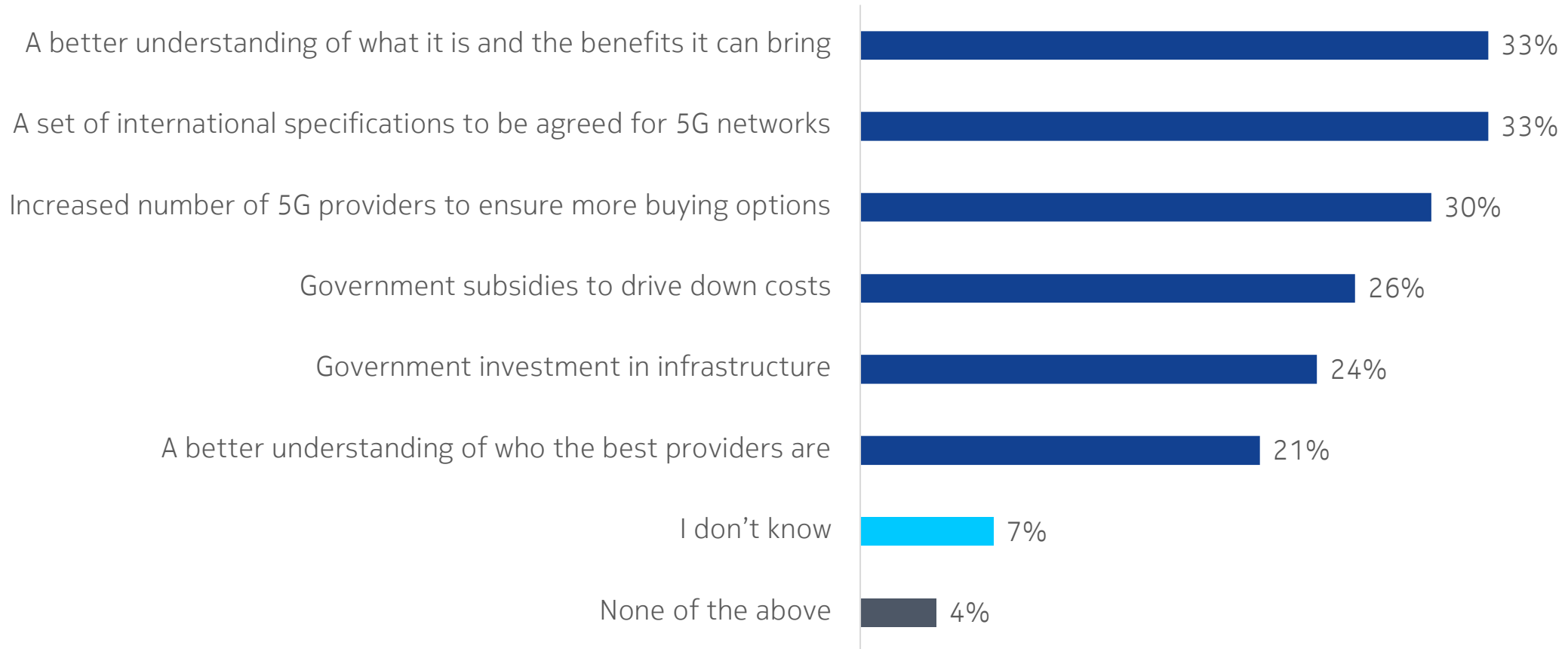
5G: What's stopping organizations?

Availability of 5G enabled products and lack of priority are the biggest barriers to 5G investment



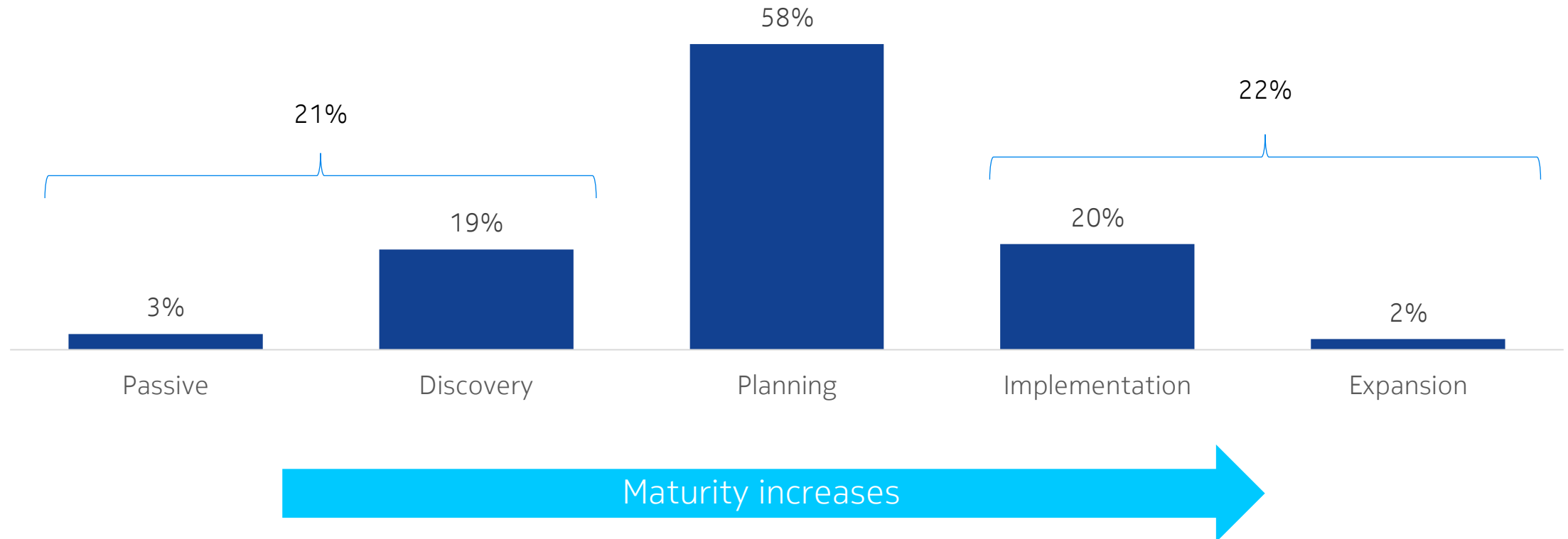
How can they get there?

A lack of understanding of 5G and its benefits, and a lack of agreed international specifications are holding back greater investment and implementation.



5G maturity – the current picture

Over a fifth of Finnish organizations are at the top end of 5G maturity (22%), with 2% at the highest level; 21% have lower 5G maturity and 58% occupy a middle ground



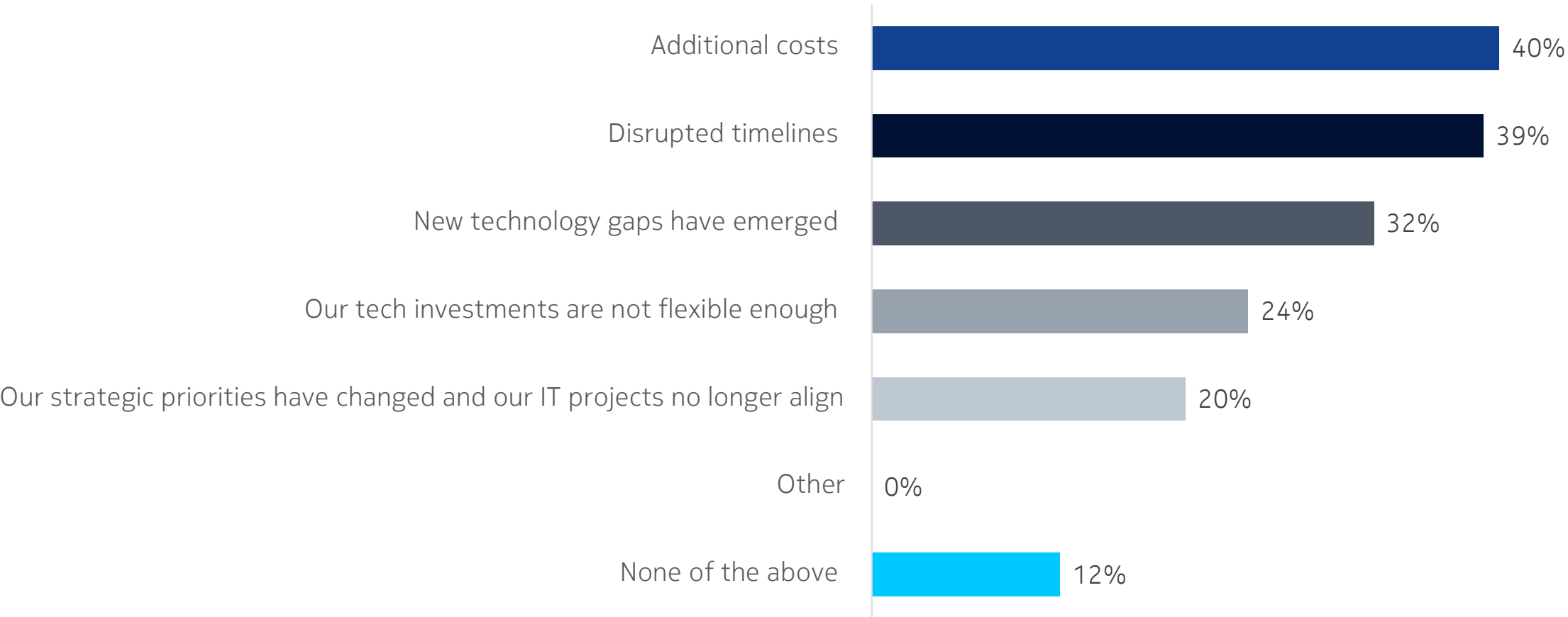


Germany

NOKIA

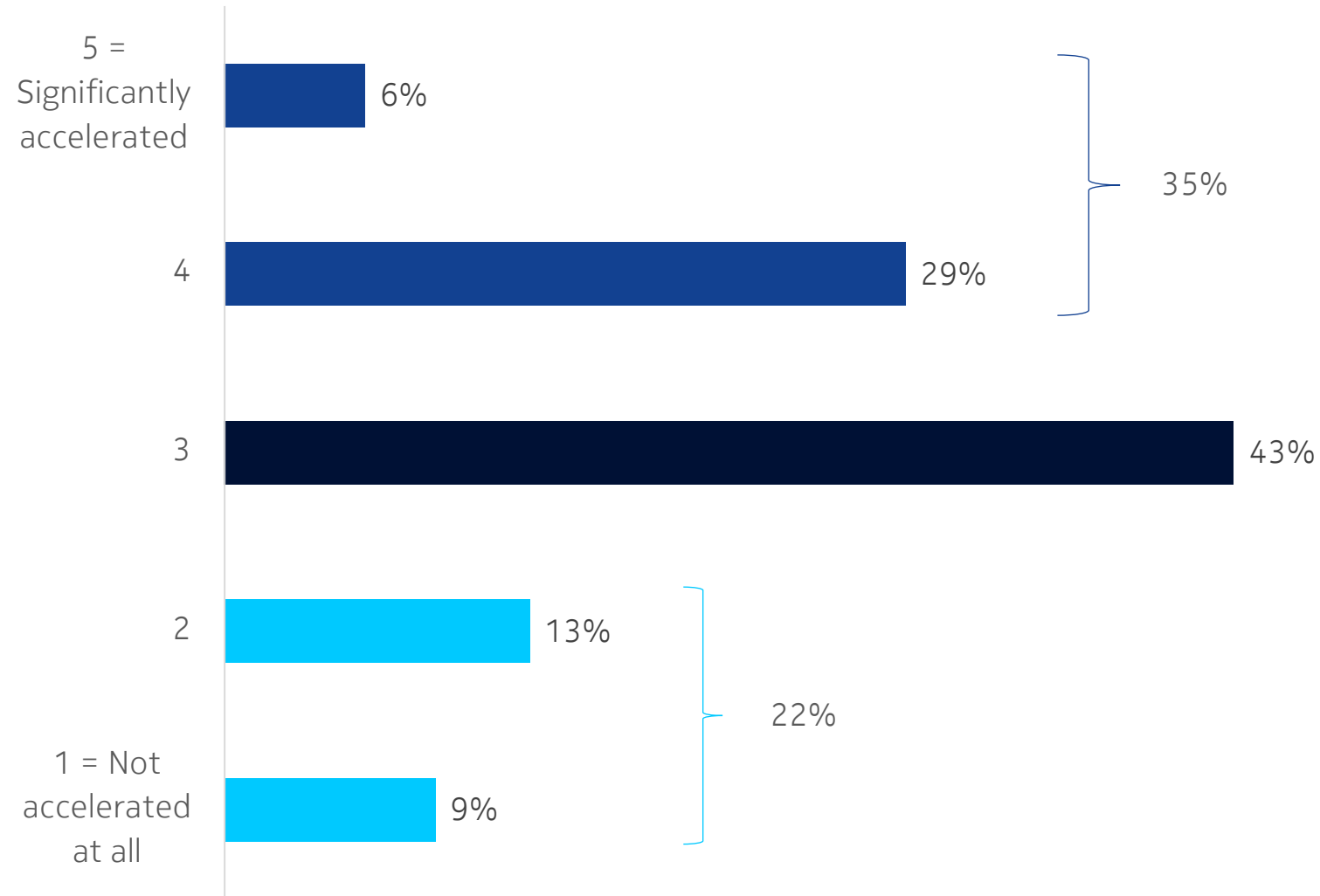
The COVID impact

Additional costs (40%), disrupted timelines (39%) and the emergence of new technology gaps (32%) have been the most prevalent impacts of COVID-19 on technology road maps



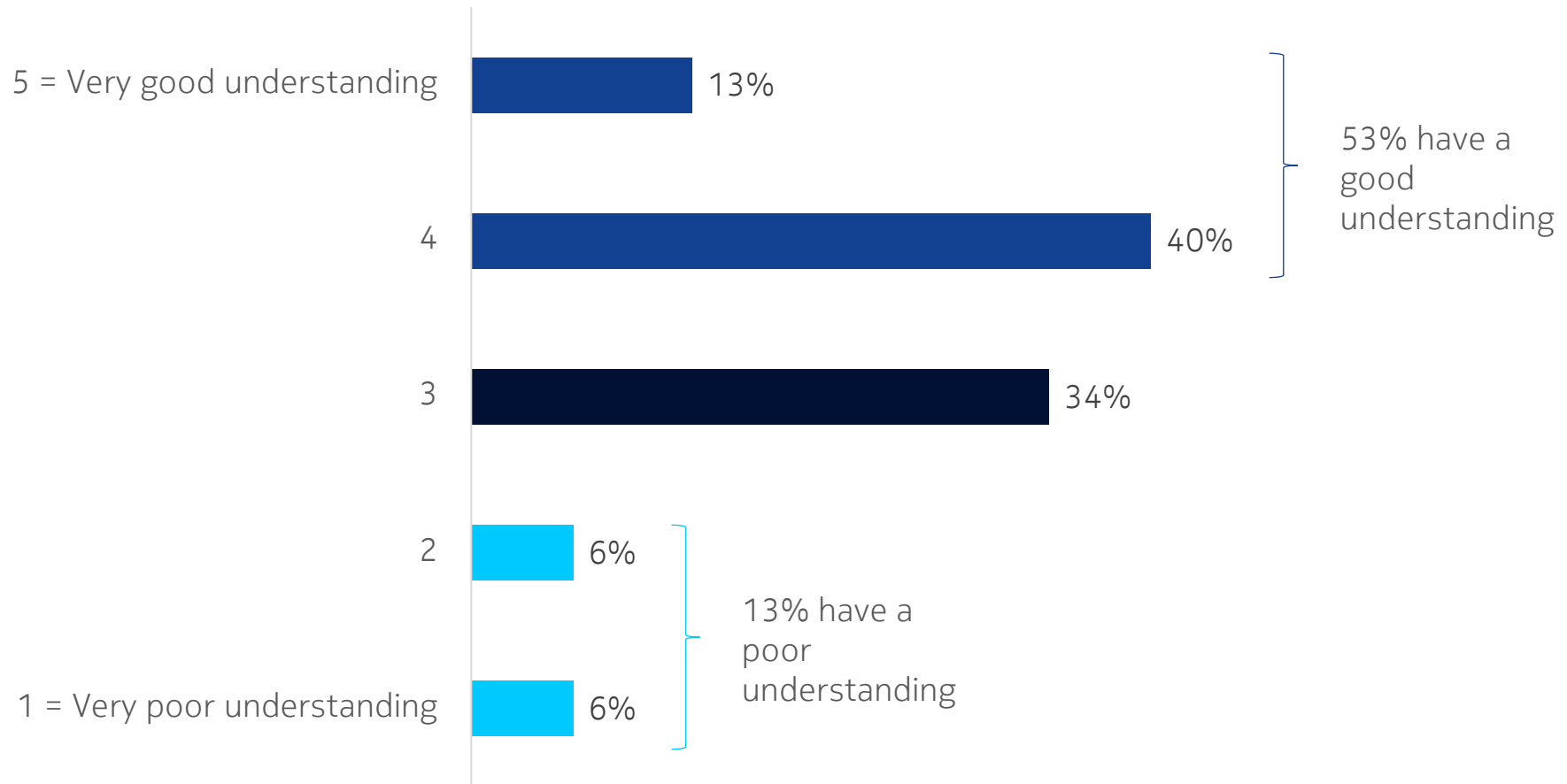
Digital transformation - the COVID effect

35% have expediated their digital transformation program due to COVID-19



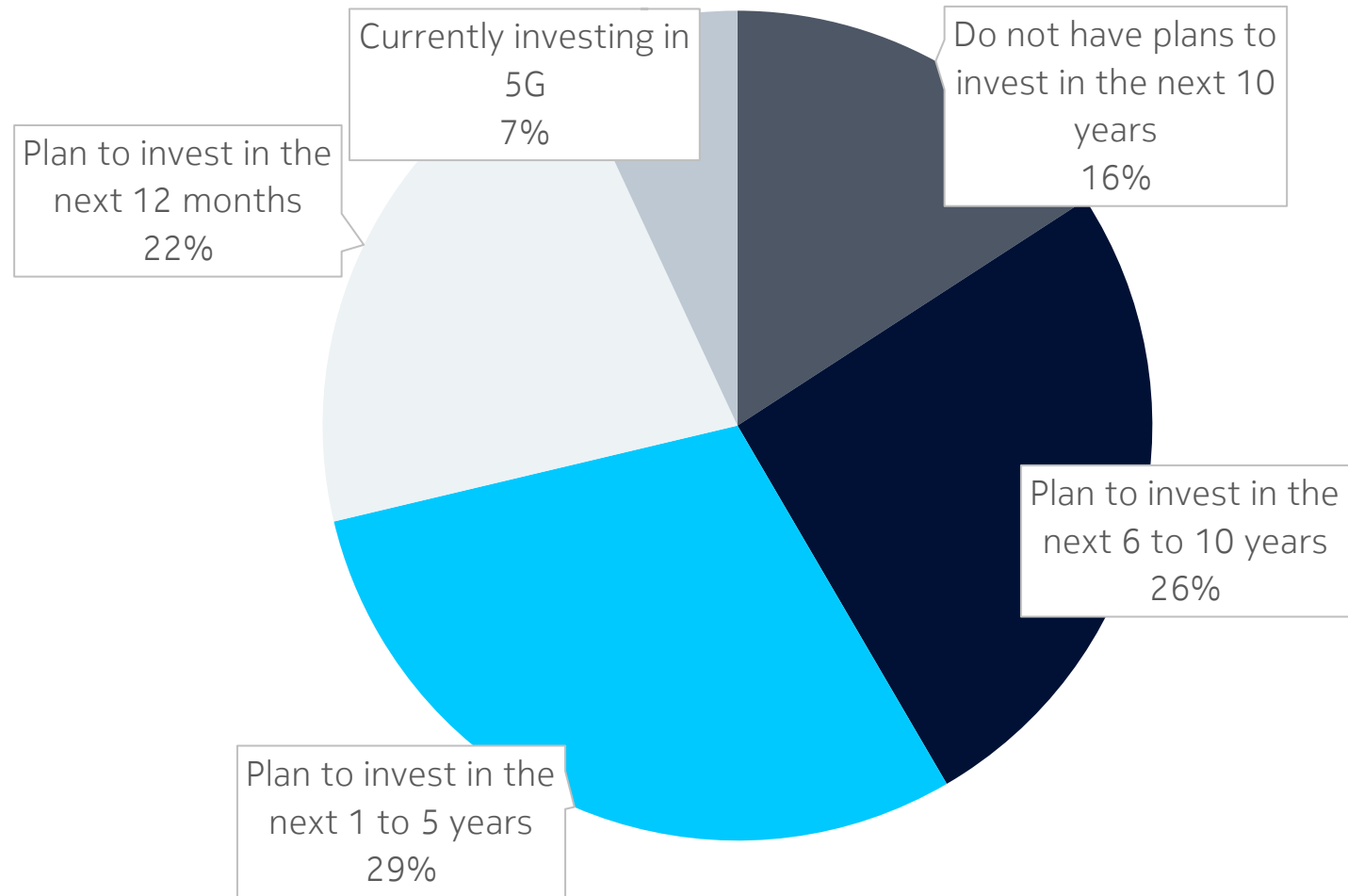
Levels of understanding are still mixed

53% think there is a good understanding of 5G in their organization



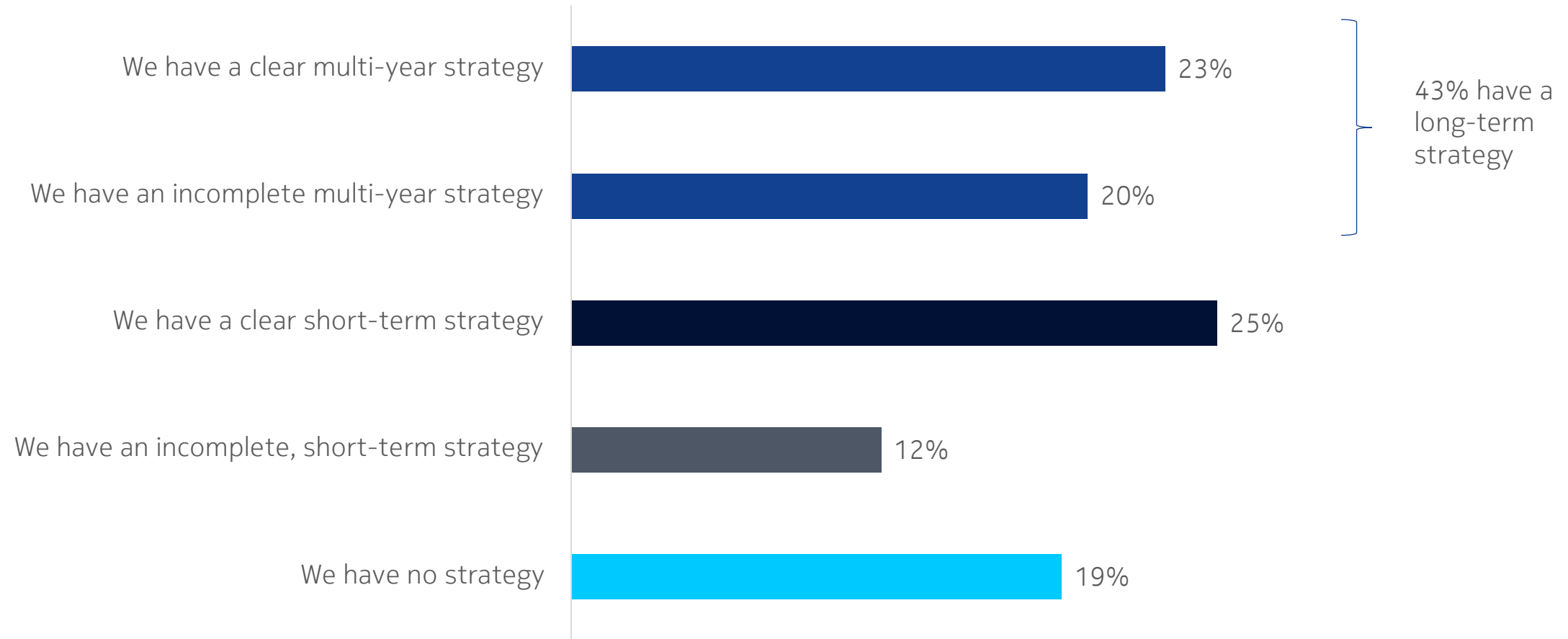
Planning for 5G

7% are currently investing in 5G; with 84% planning investment in the next 10 years



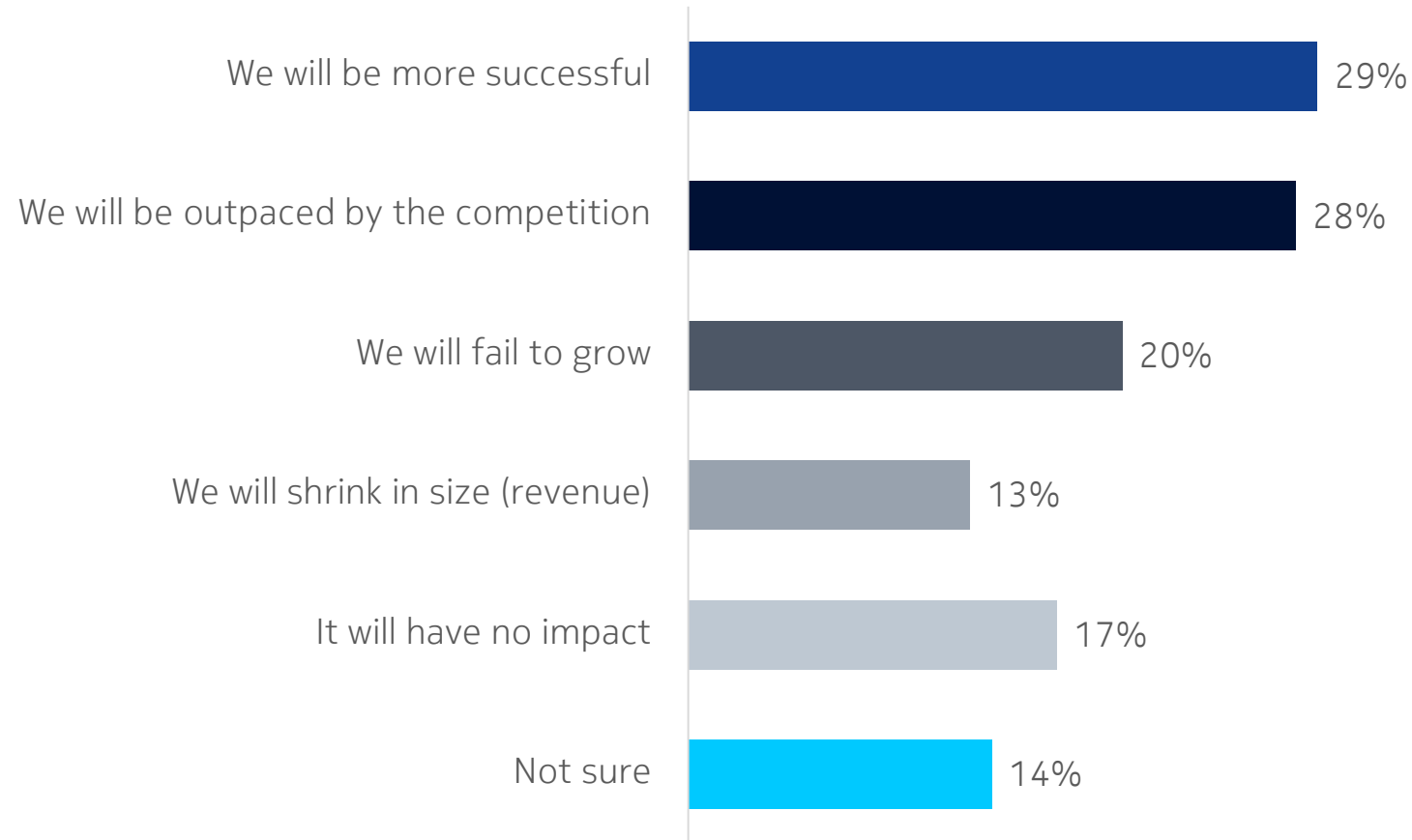
A short or long-term approach?

43% of technology decision makers have a long term 5G strategy
 Just under 1 in 5 have no strategy whatsoever (19%)



The risks of standing still

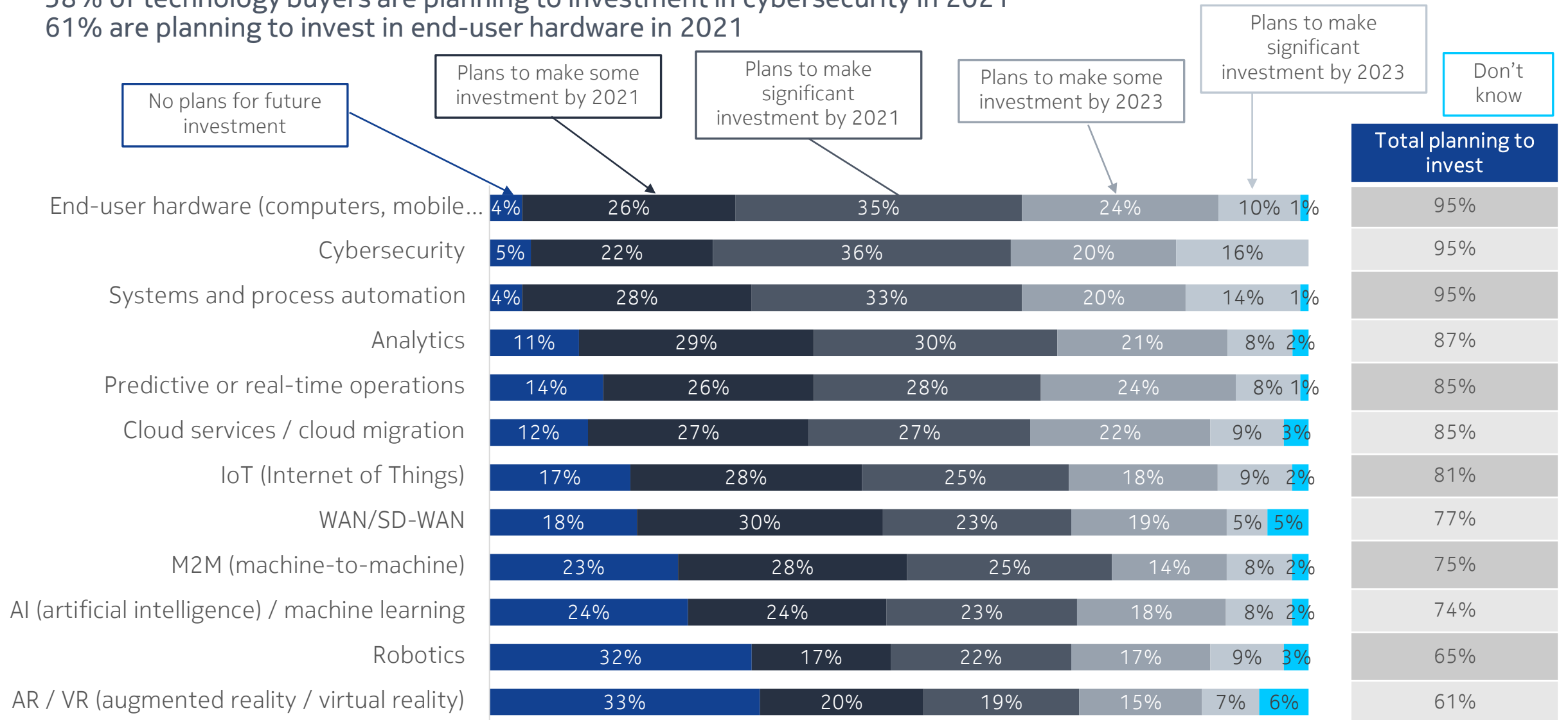
28% fear being outpaced by the competition should they not invest in 5G, however 29% feel whatever their 5G investment they will still be successful



5G: the technology enabler

58% of technology buyers are planning to investment in cybersecurity in 2021

61% are planning to invest in end-user hardware in 2021

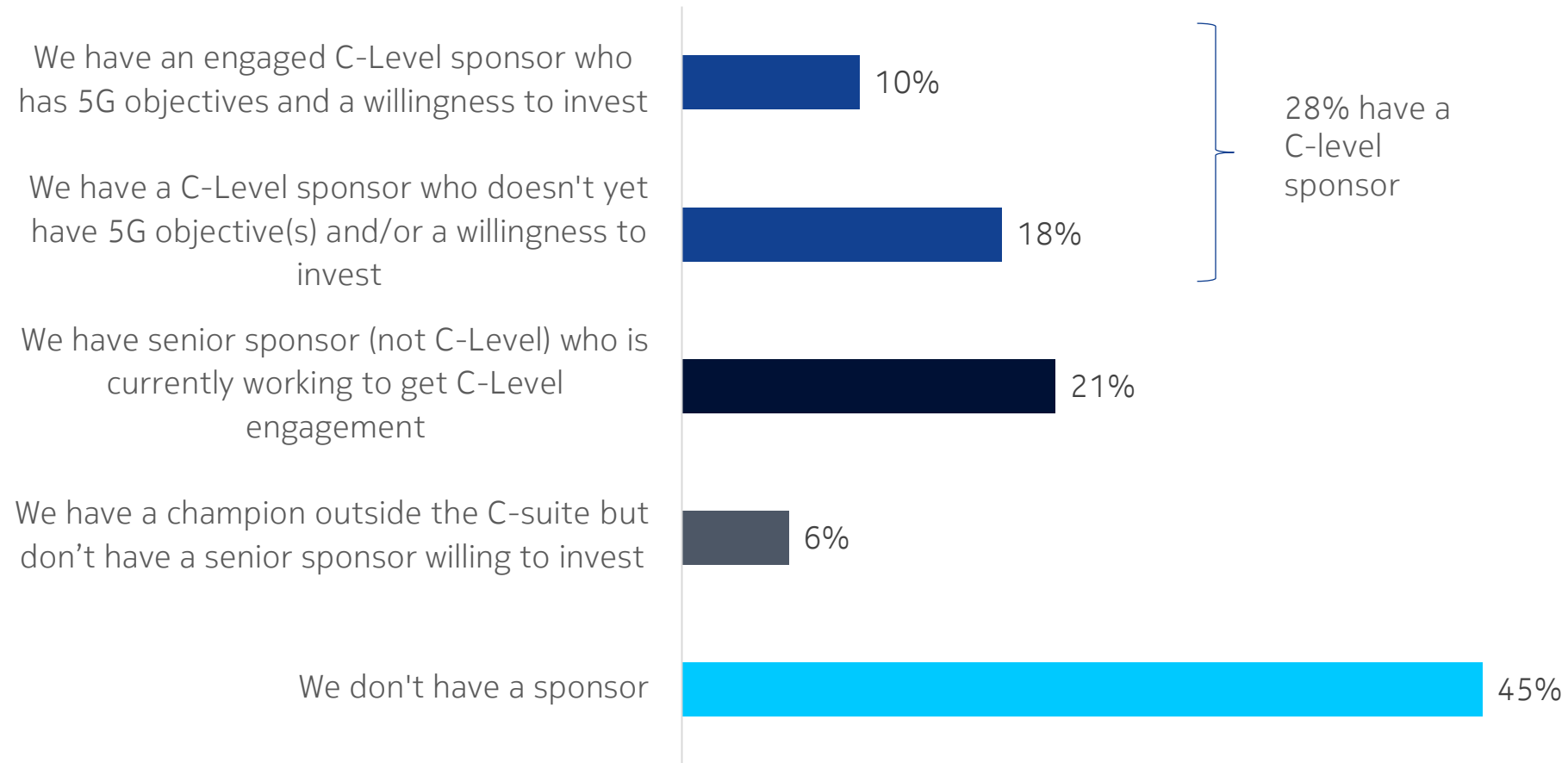


Q. Which of the following will your organization invest in over the next 2-3 years?

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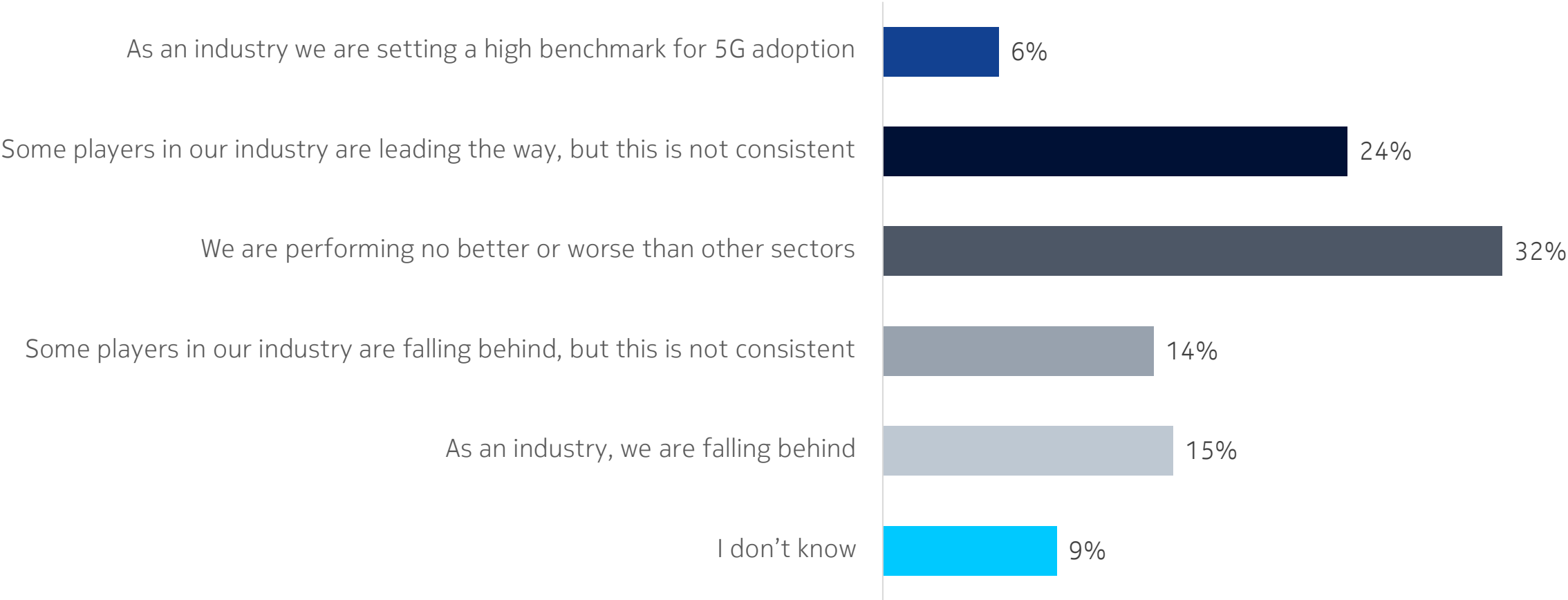
Leading from the top?

45% don't have a sponsor at all for 5G implementation in their organization
Just over a quarter have a C-level sponsor (28%)



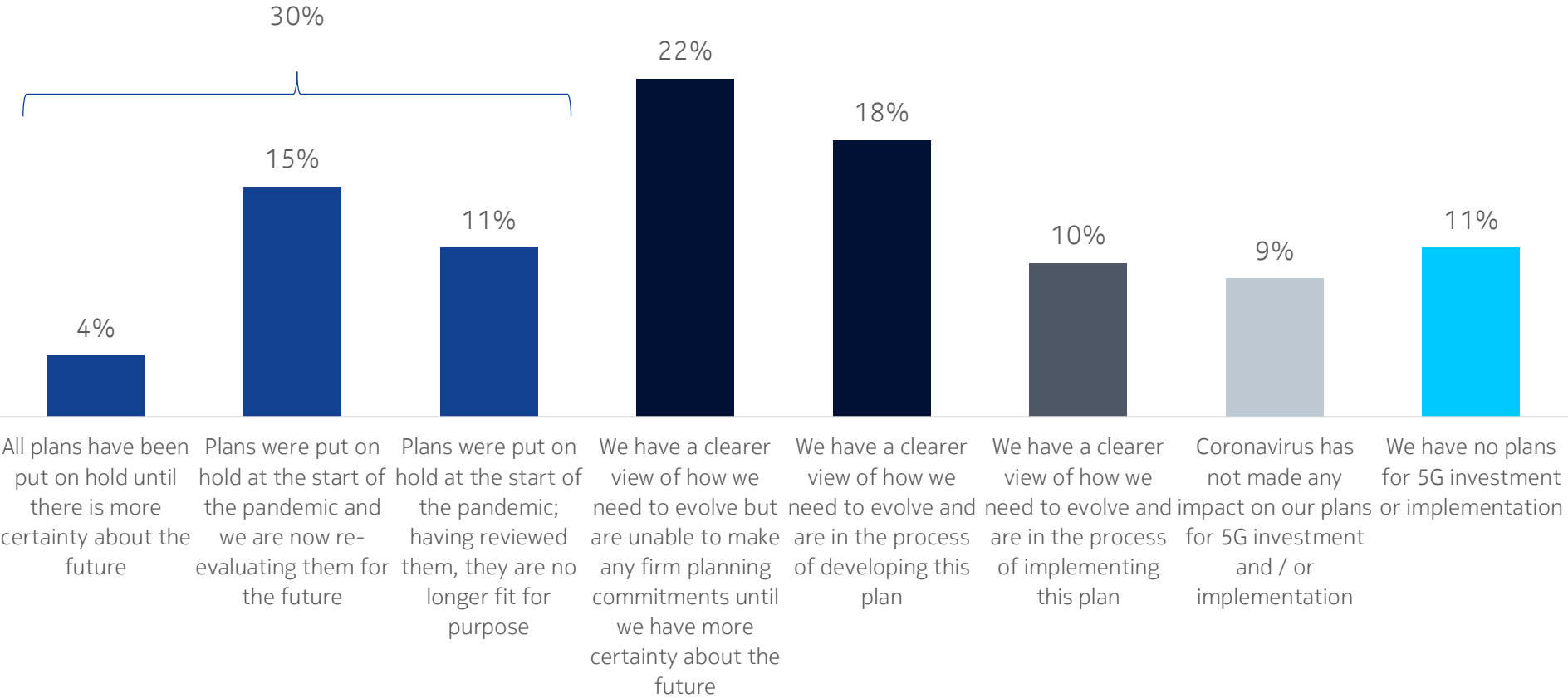
5G: Few are resting on their laurels

Businesses are more likely to feel that their industry is middling in terms of 5G adoption, with 6% setting a high benchmark



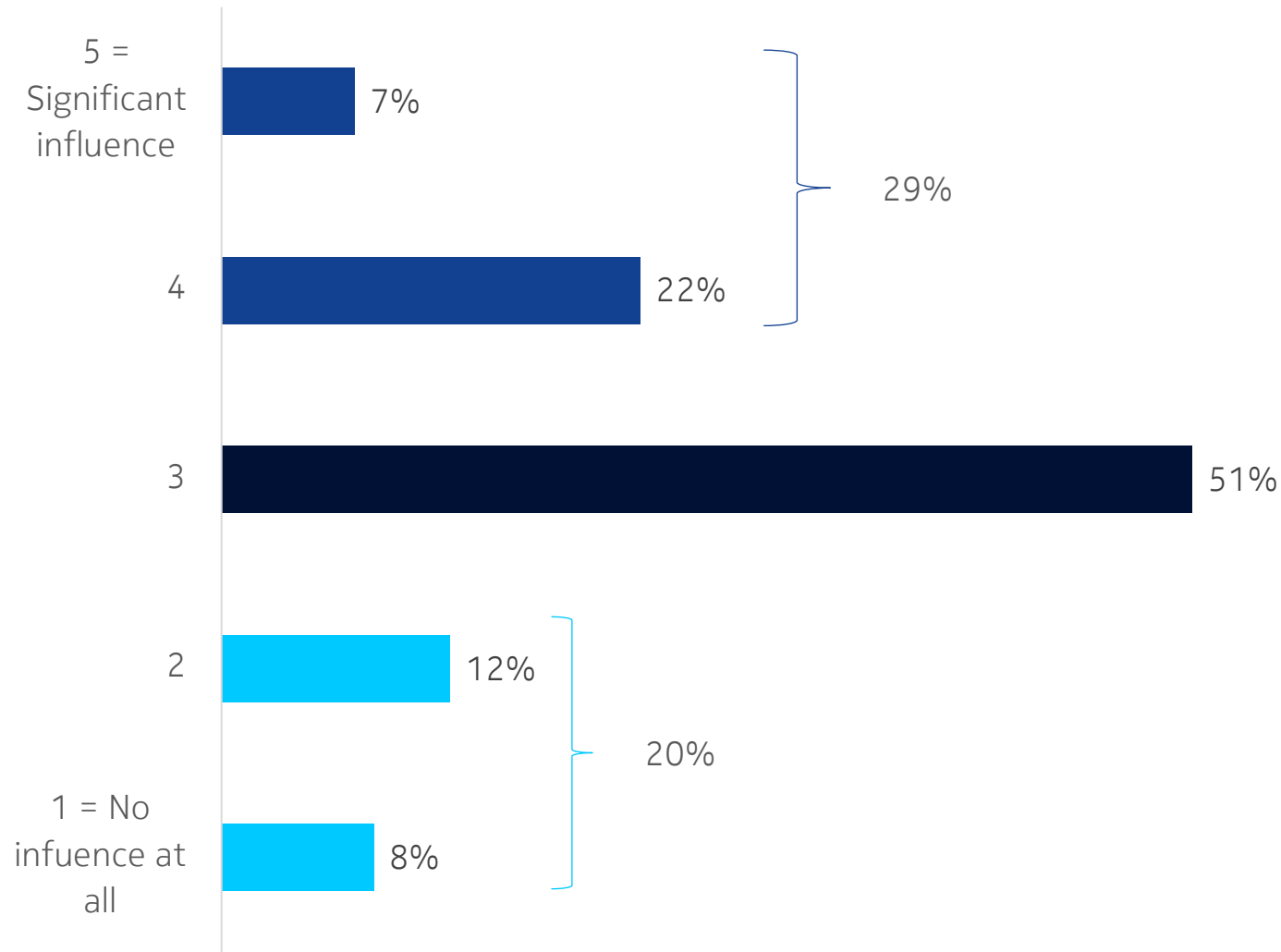
5G: Where next, post-COVID?

1 in 10 (9%) are now implementing a clearer 5G investment plan due to COVID-19
 30% are still on hold



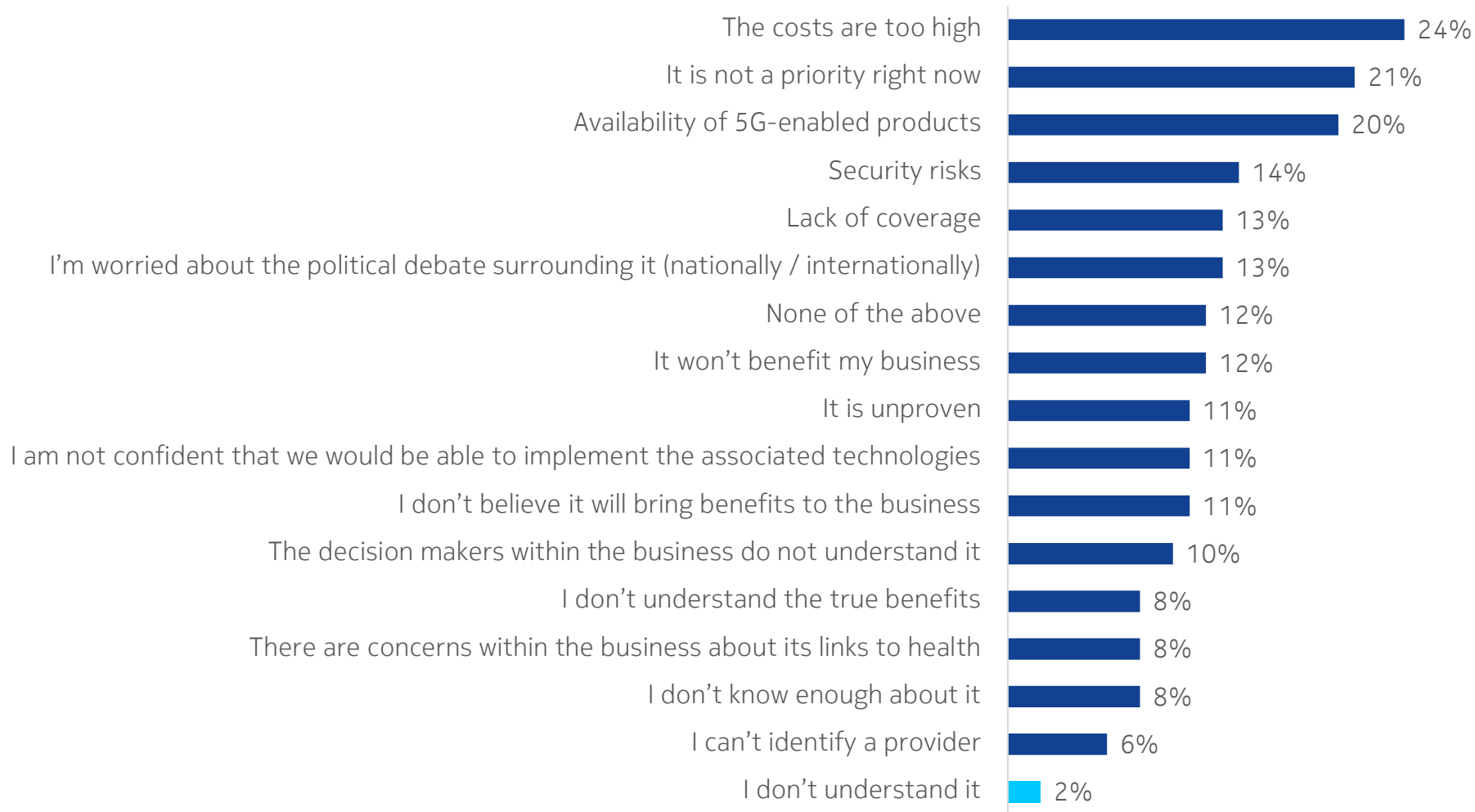
5G: The benefits of the unknown

Just under a third (29%) say the unknown potential of 5G is an influence on their decision to invest



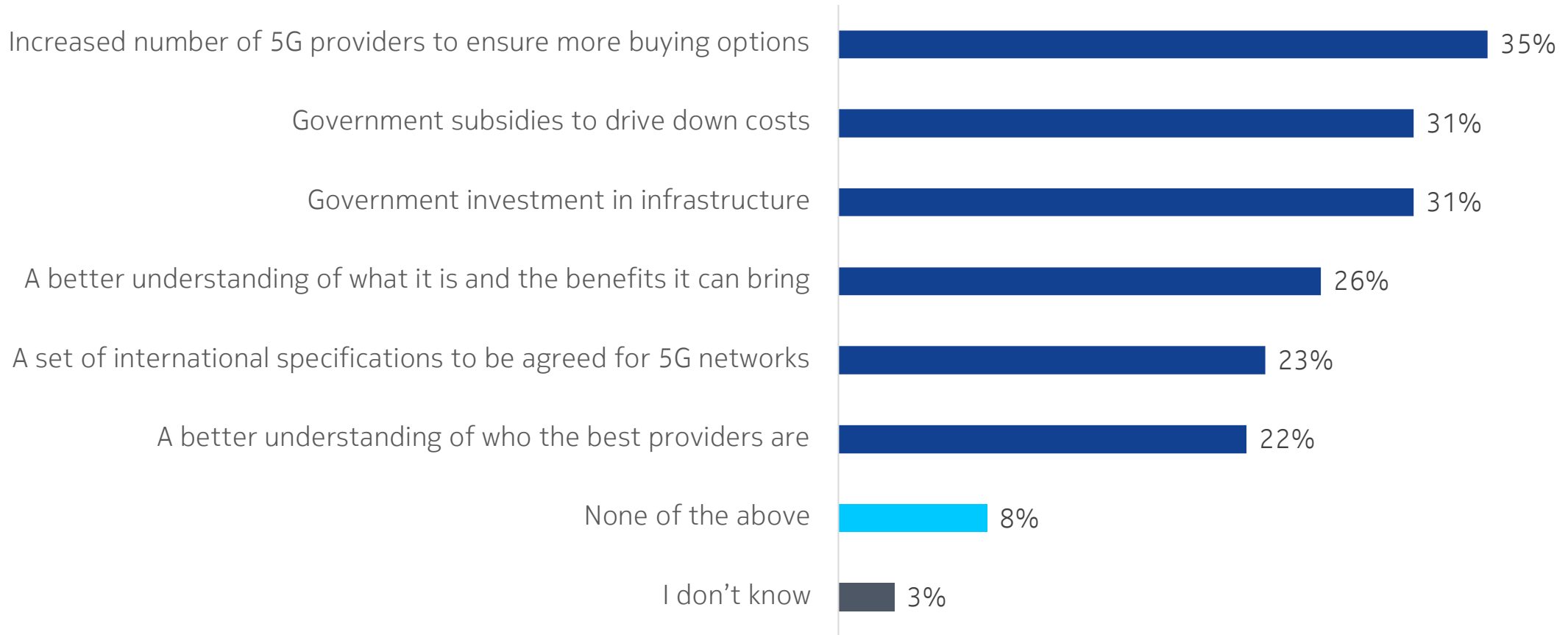
5G: What's stopping organizations?

Costs and a lack of priority are the biggest barriers to 5G investment



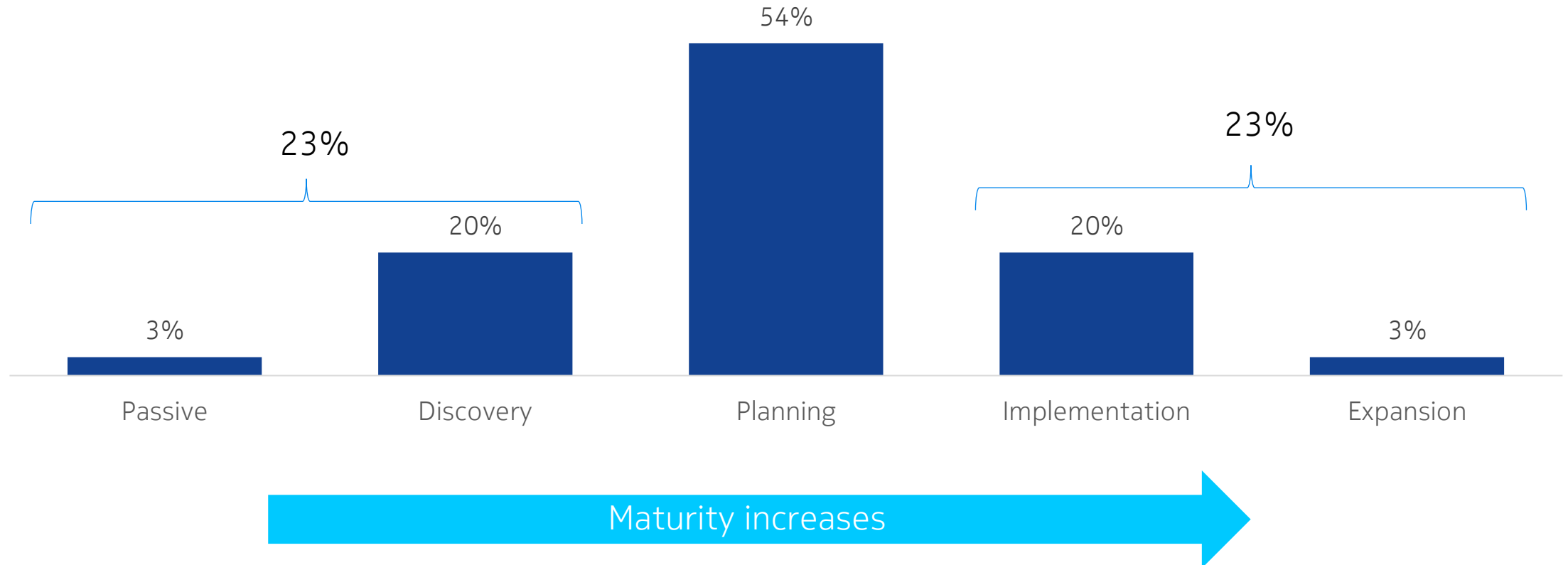
How can they get there?

A lack of 5G providers in the marketplace is holding back greater investment and implementation.



5G maturity – the current picture

Over half of German organizations occupy a 5G middle-ground of readiness; 23% have lower 5G maturity; and are at the top end of 5G maturity (23%), with 3% at the highest level

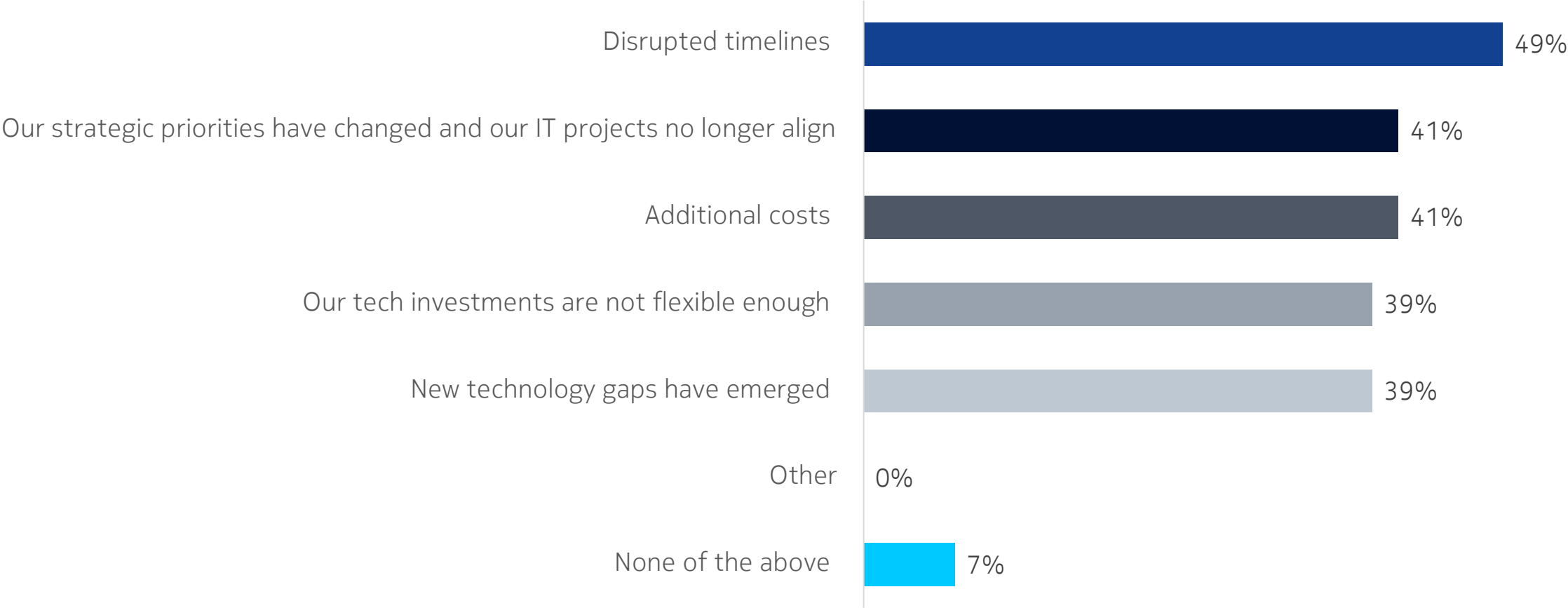




Japan

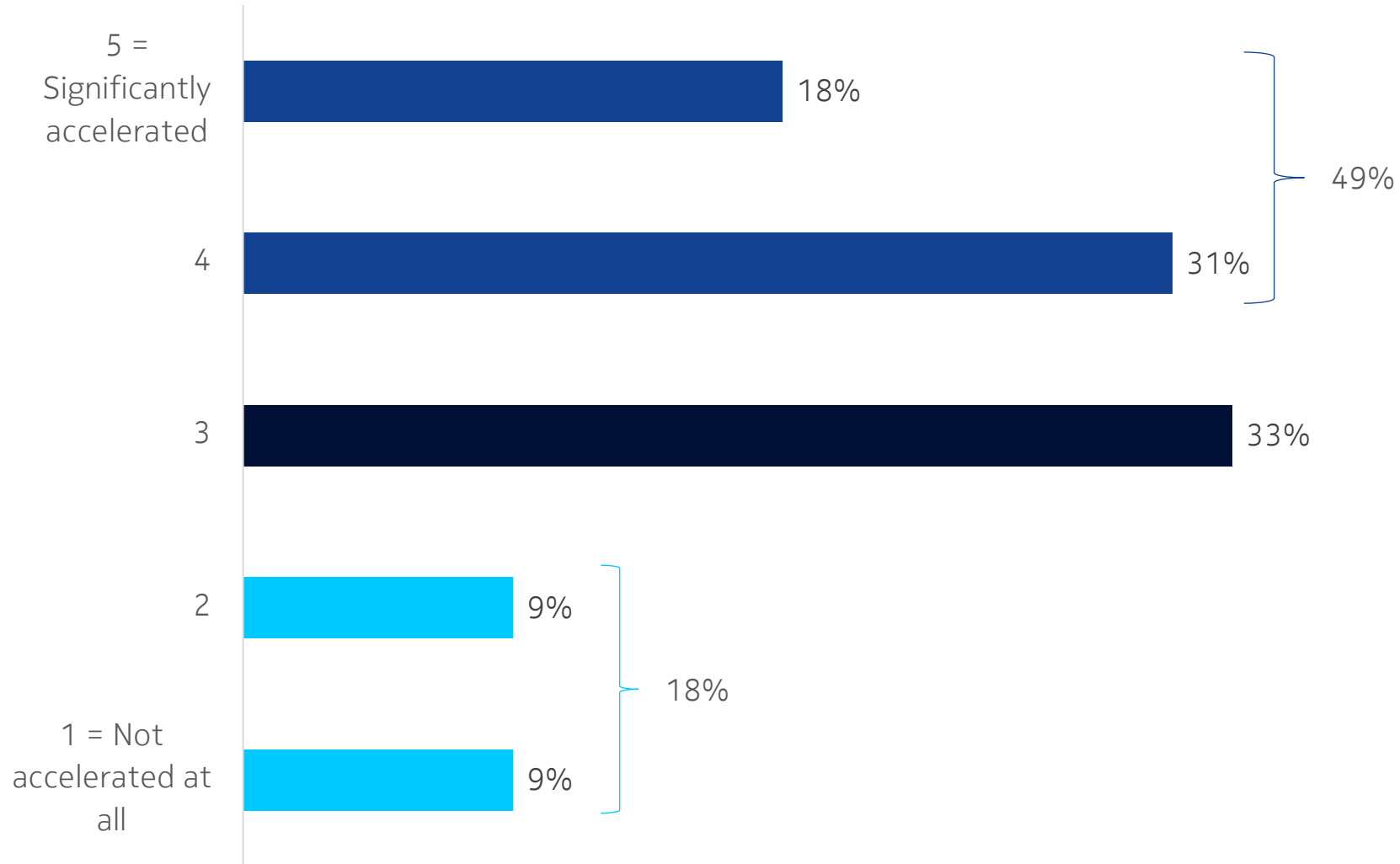
The COVID impact

Disrupted timelines (49%), changing strategic priorities (41%) and additional costs (41%) have been the most prevalent impacts of COVID-19 on technology road maps



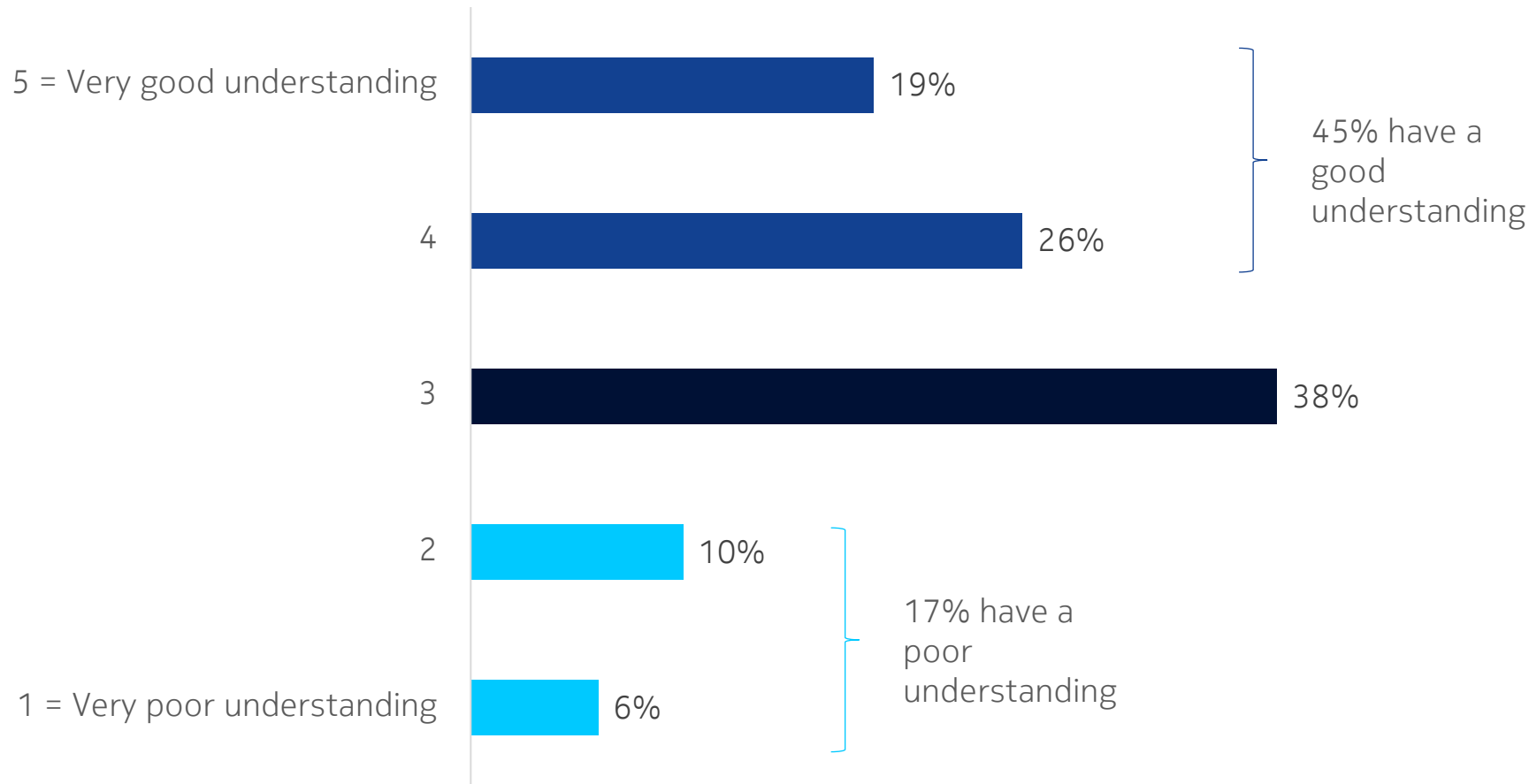
Digital transformation - the COVID effect

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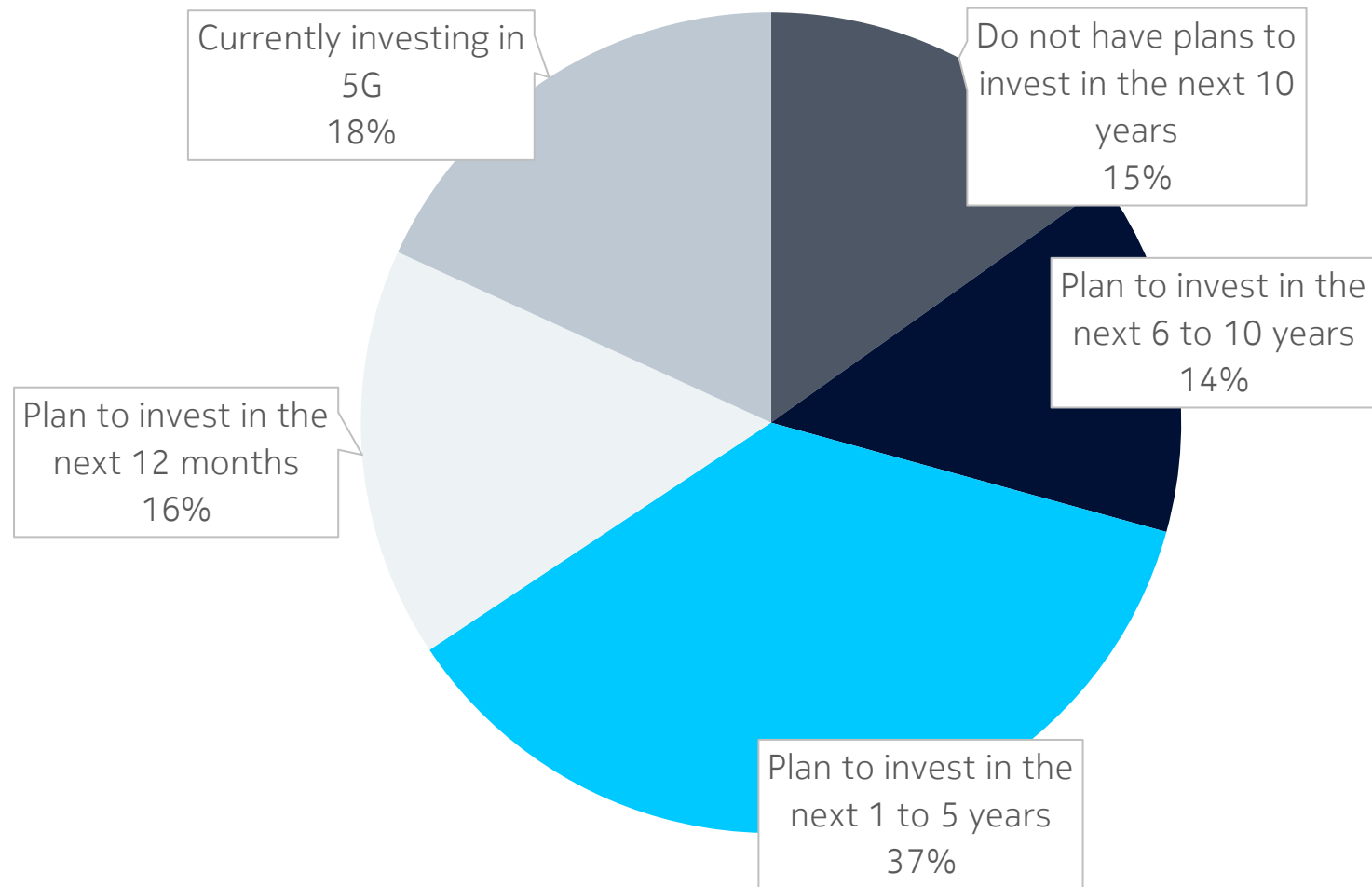
Levels of understanding are still mixed

45% think there is a good understanding of 5G in their organization



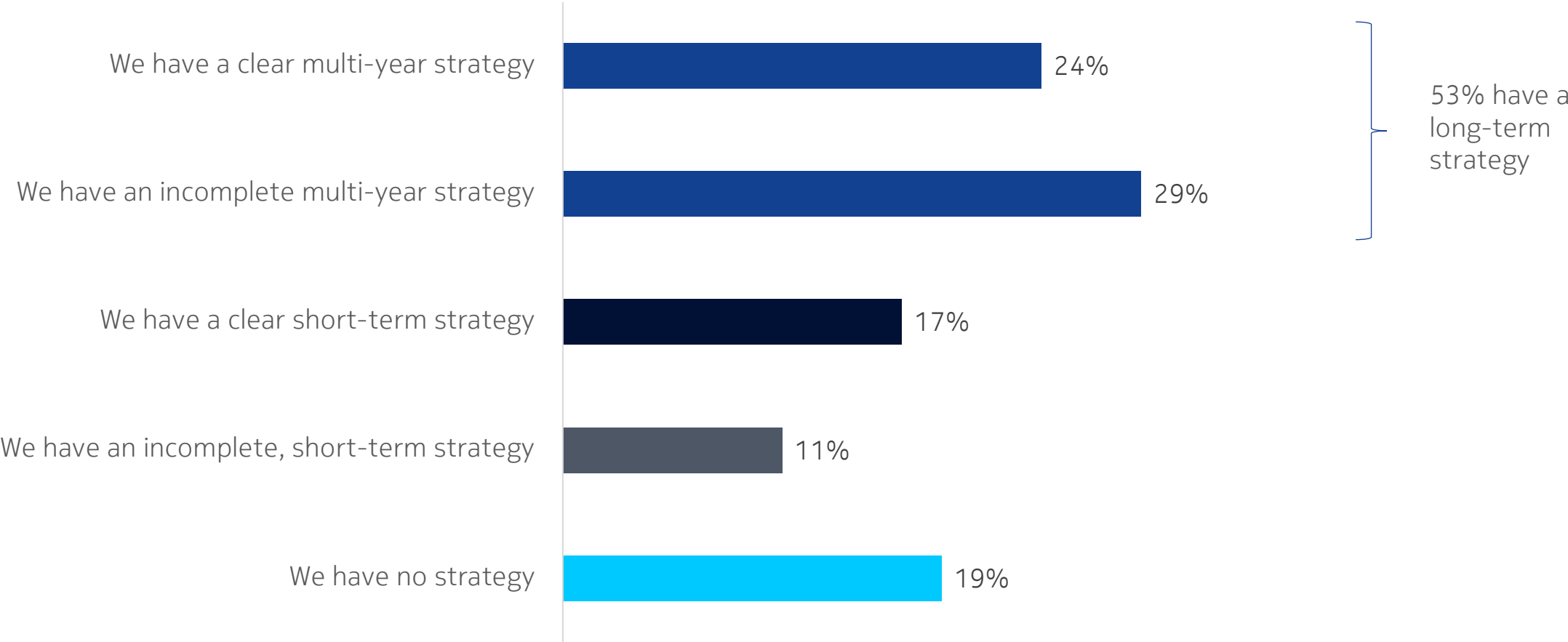
Planning for 5G

18% are currently investing in 5G; with 70% planning investment in the next 5 years



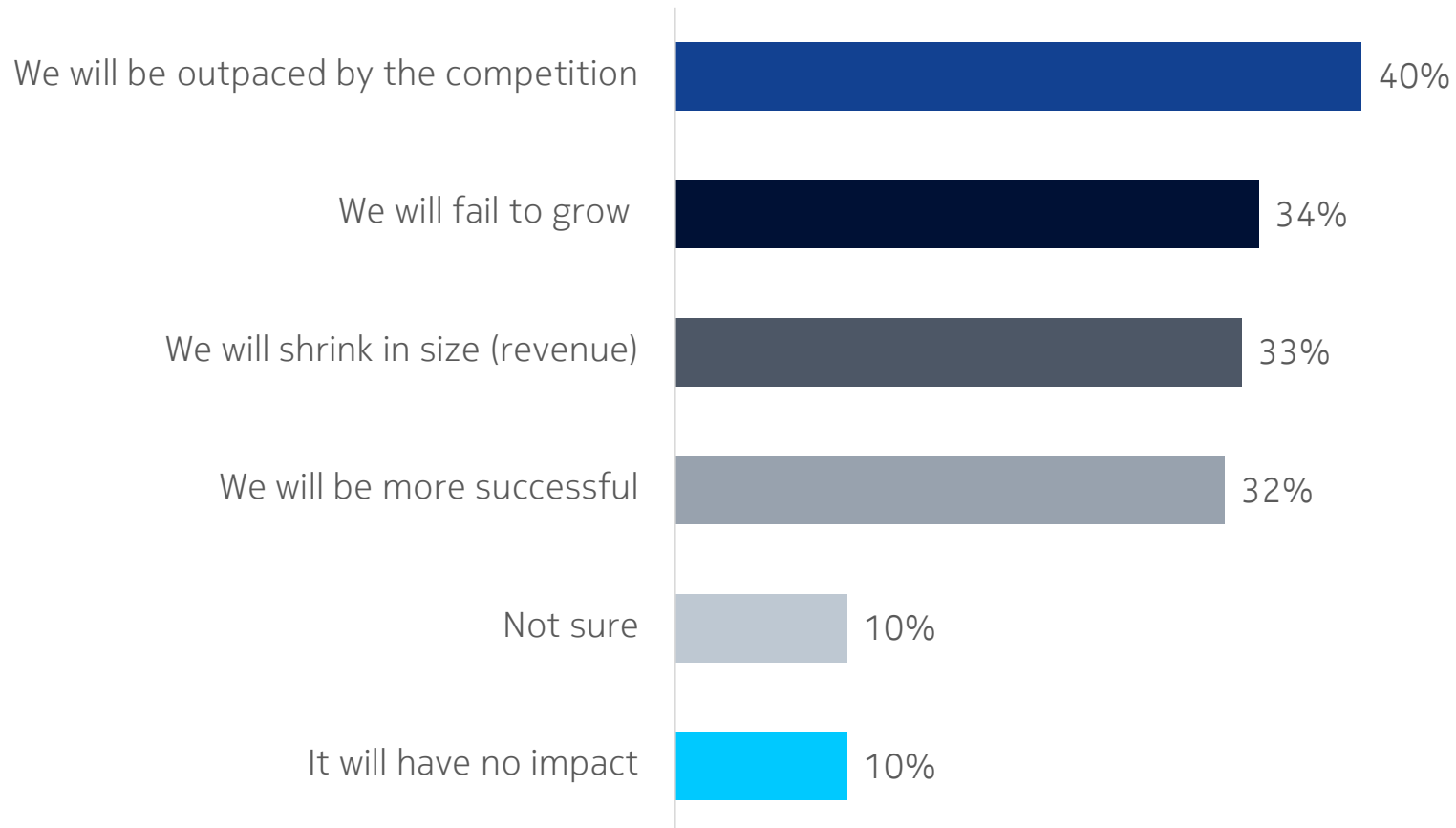
A short or long-term approach?

53% of technology decision makers have a long term 5G strategy
 1 in 5 have no strategy whatsoever (19%)



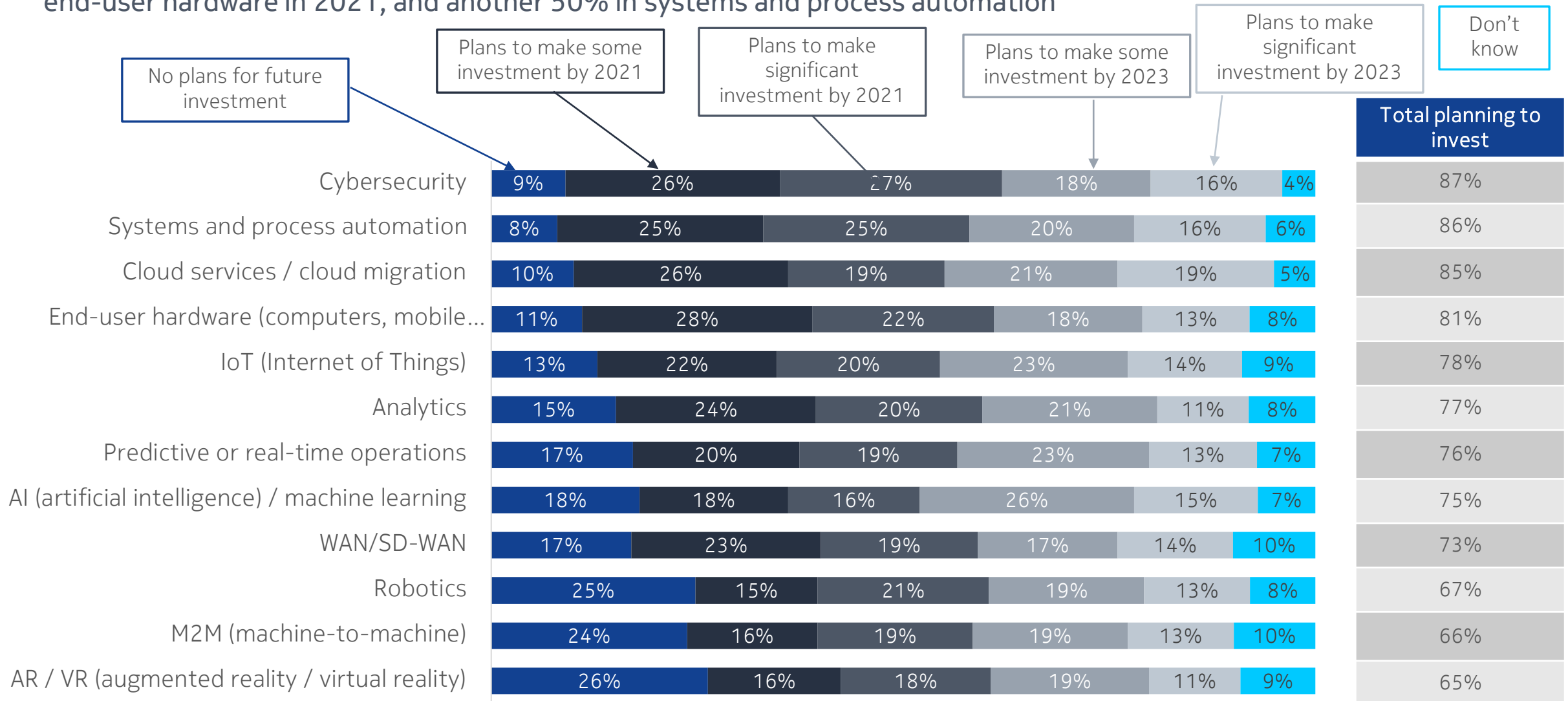
The risks of standing still

2 in 5 fear being outpaced by the competition should they not invest in 5G, however 32% feel whatever their 5G investment they will still be successful



5G: the technology enabler

53% of technology buyers are planning to investment in cybersecurity in 2021; 50% are planning to invest in end-user hardware in 2021, and another 50% in systems and process automation

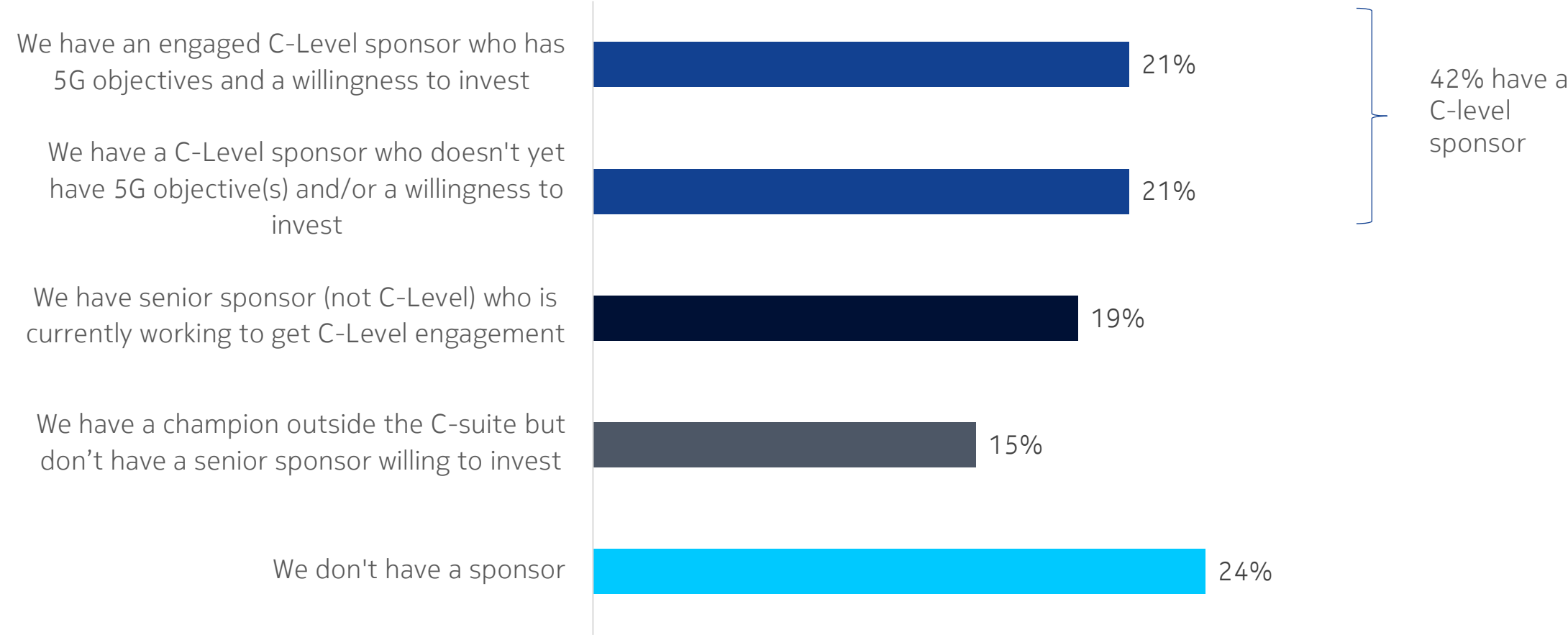


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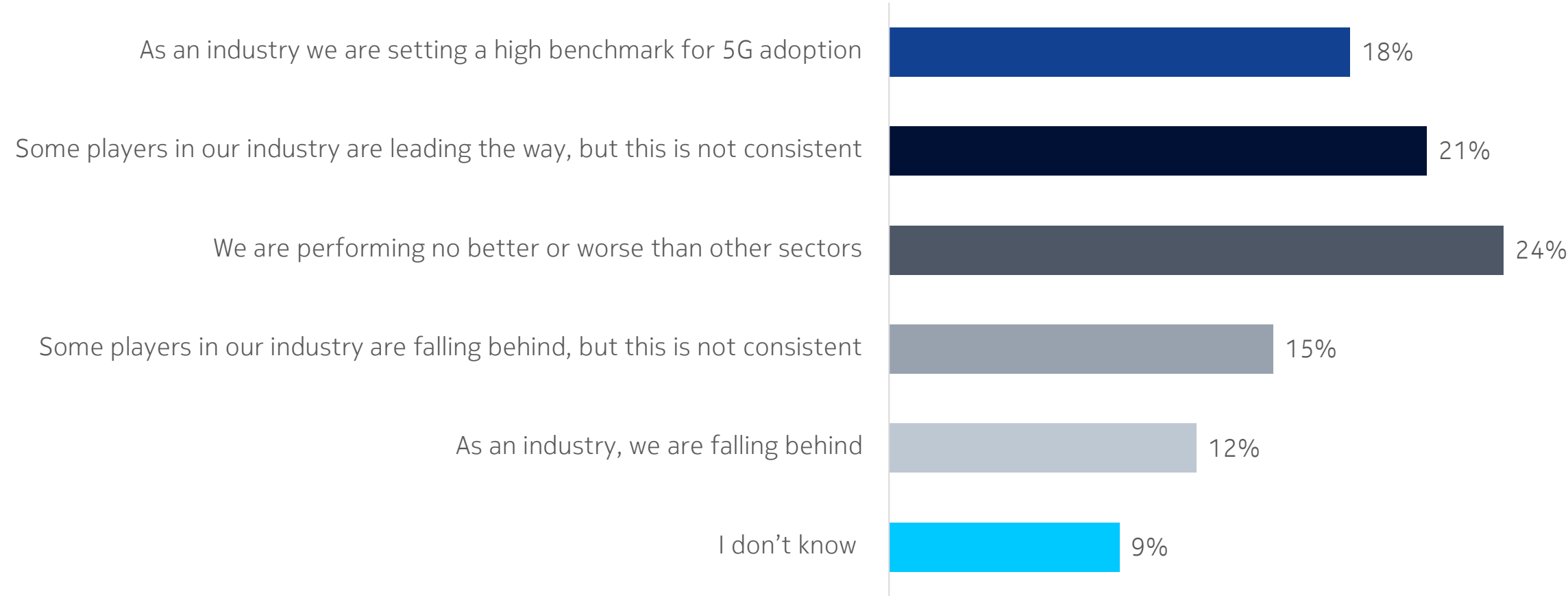
Leading from the top?

42% have C-Level sponsor for 5G implementation in their organization
 A quarter don't have any 5G championing from management (24%)



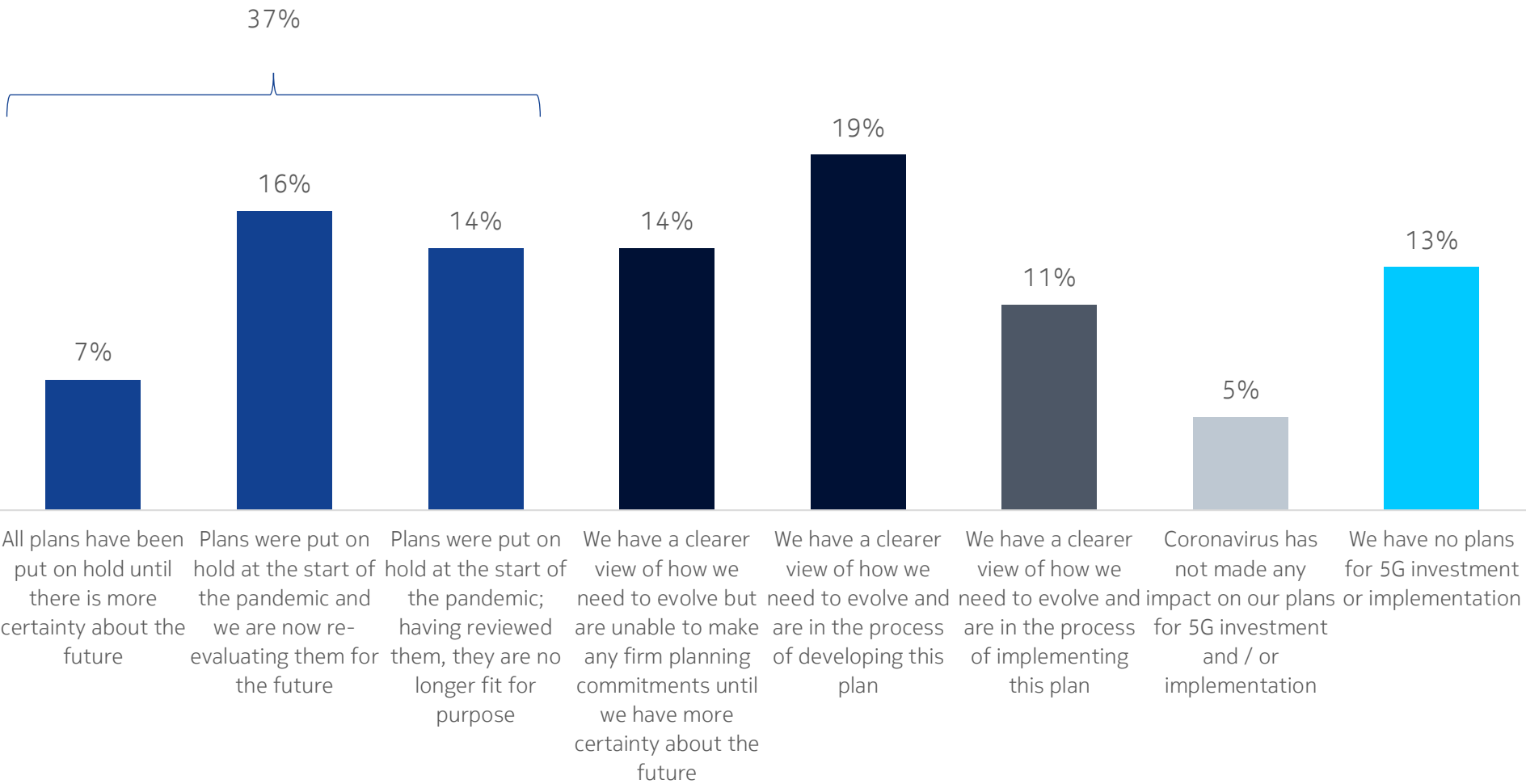
5G: Few are resting on their laurels

Businesses are more likely to feel that their industry is middling in terms of 5G adoption, with 18% setting a high benchmark



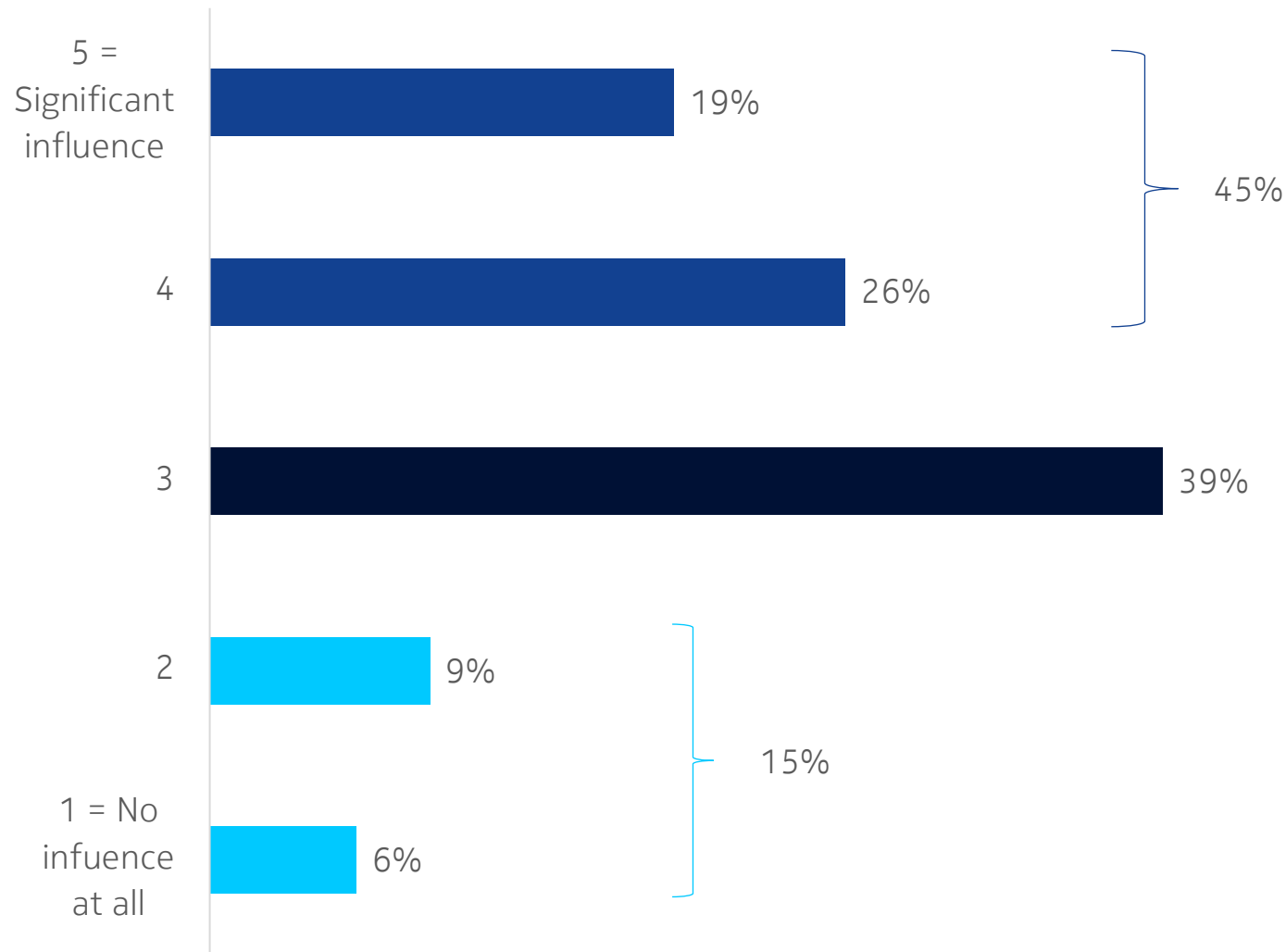
5G: Where next, post-COVID?

1 in 10 (11%) are now implementing a clearer 5G investment plan due to COVID-19
 37% are still on hold



5G: The benefits of the unknown

The unknown potential of 5G being fully introduced is an influence on 45% of decision makers



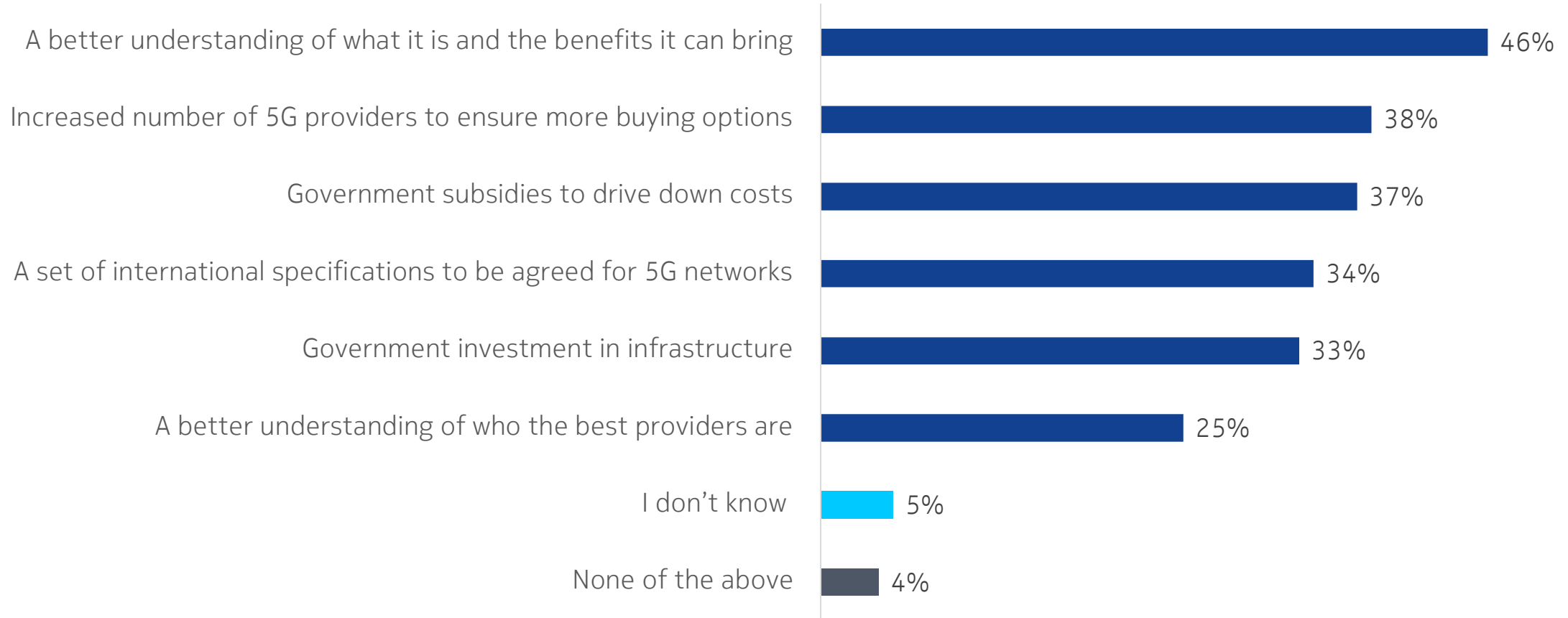
5G: What's stopping organizations?

Lack of 5G priority and costs are the biggest barriers to 5G investment



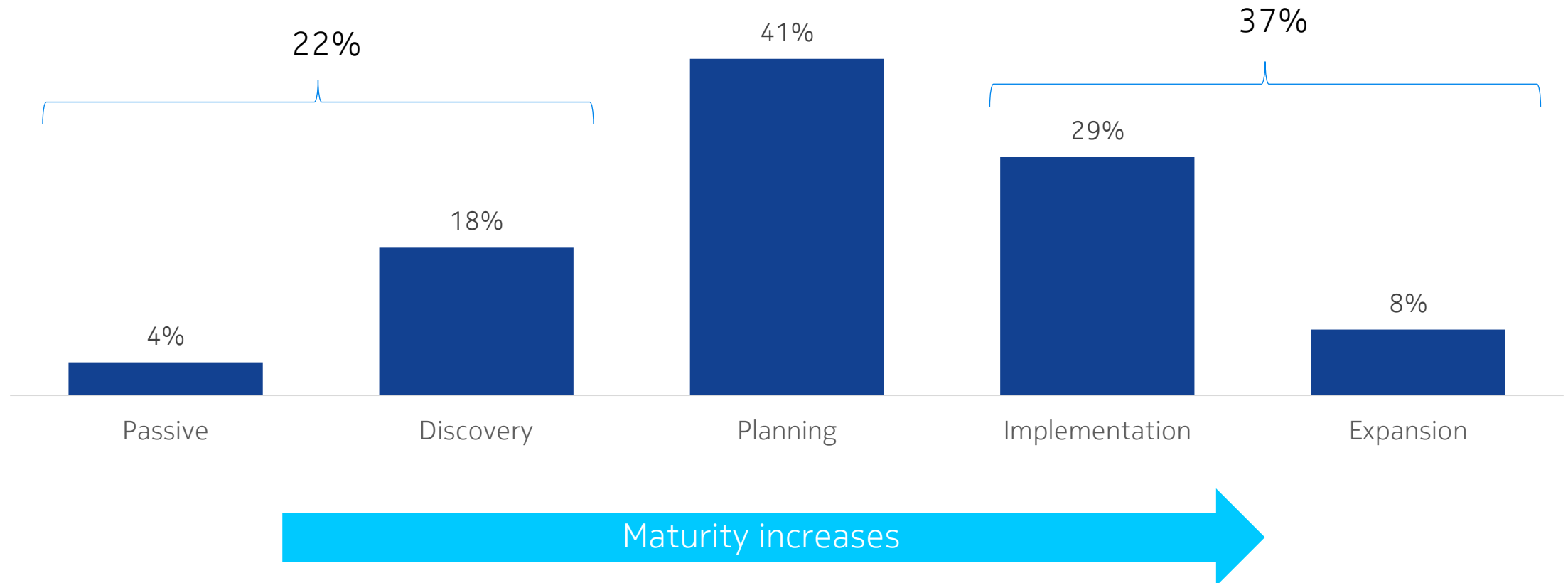
How can they get there?

A lack of understanding of 5G is holding back greater investment and implementation.



5G maturity – the current picture

Over a third of Japanese organizations are at the top end of 5G maturity (37%), with 7% at the highest level; 22% have lower 5G maturity; and 41% occupy a middle ground

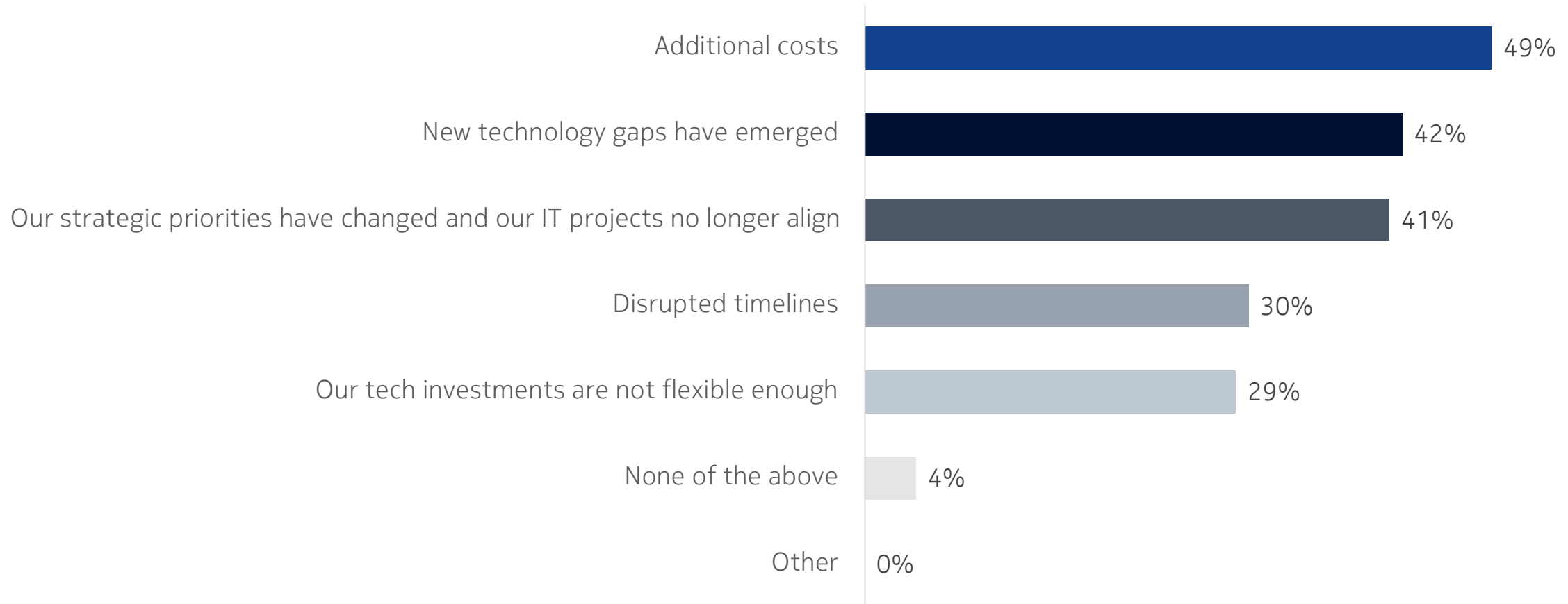




Saudi Arabia

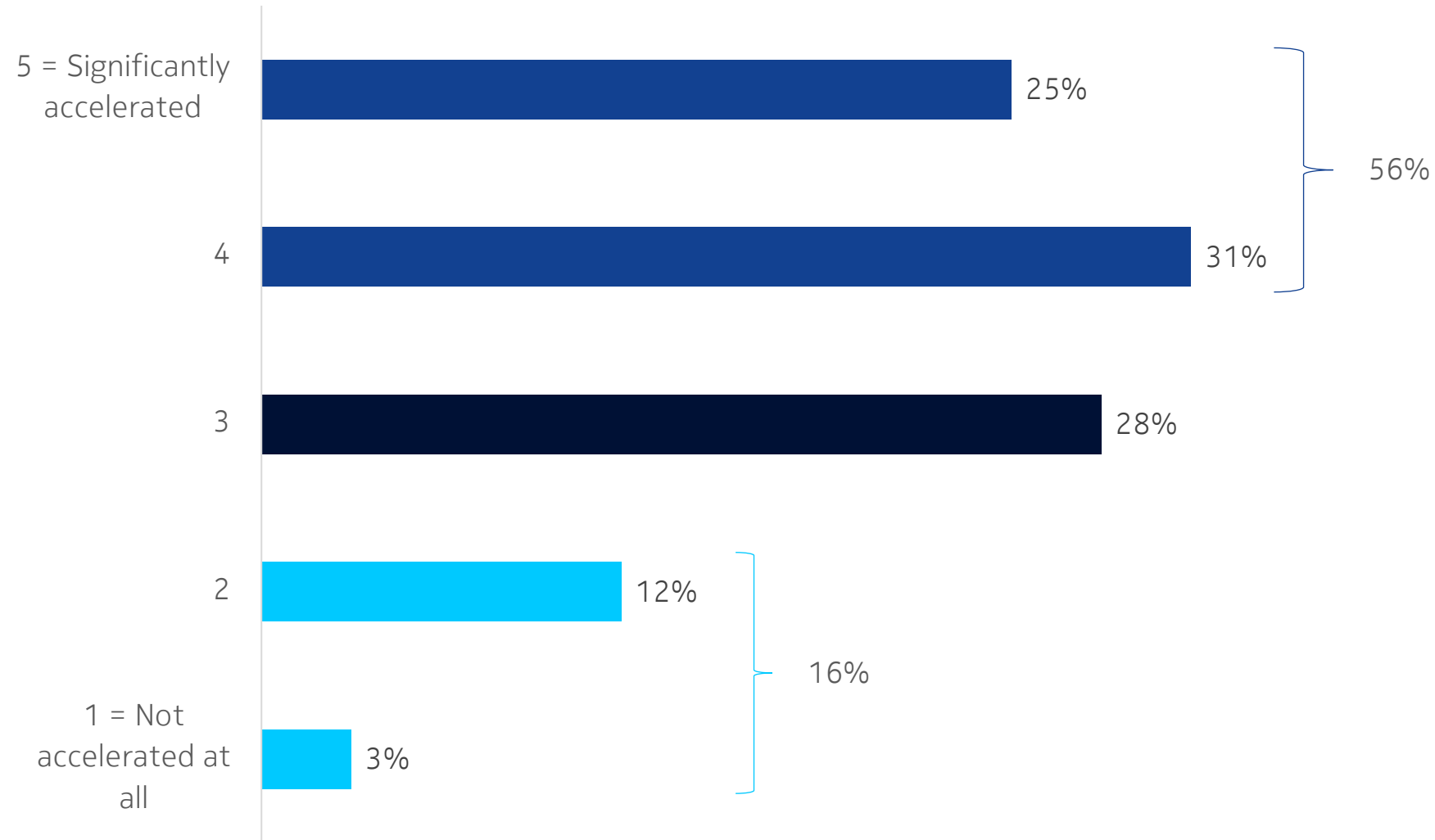
The COVID impact

Additional costs (49%), the emergence of new technology gaps (42%), and misaligned IT projects due to different strategic priorities (41%) have been the most prevalent impacts of COVID-19 on technology road maps



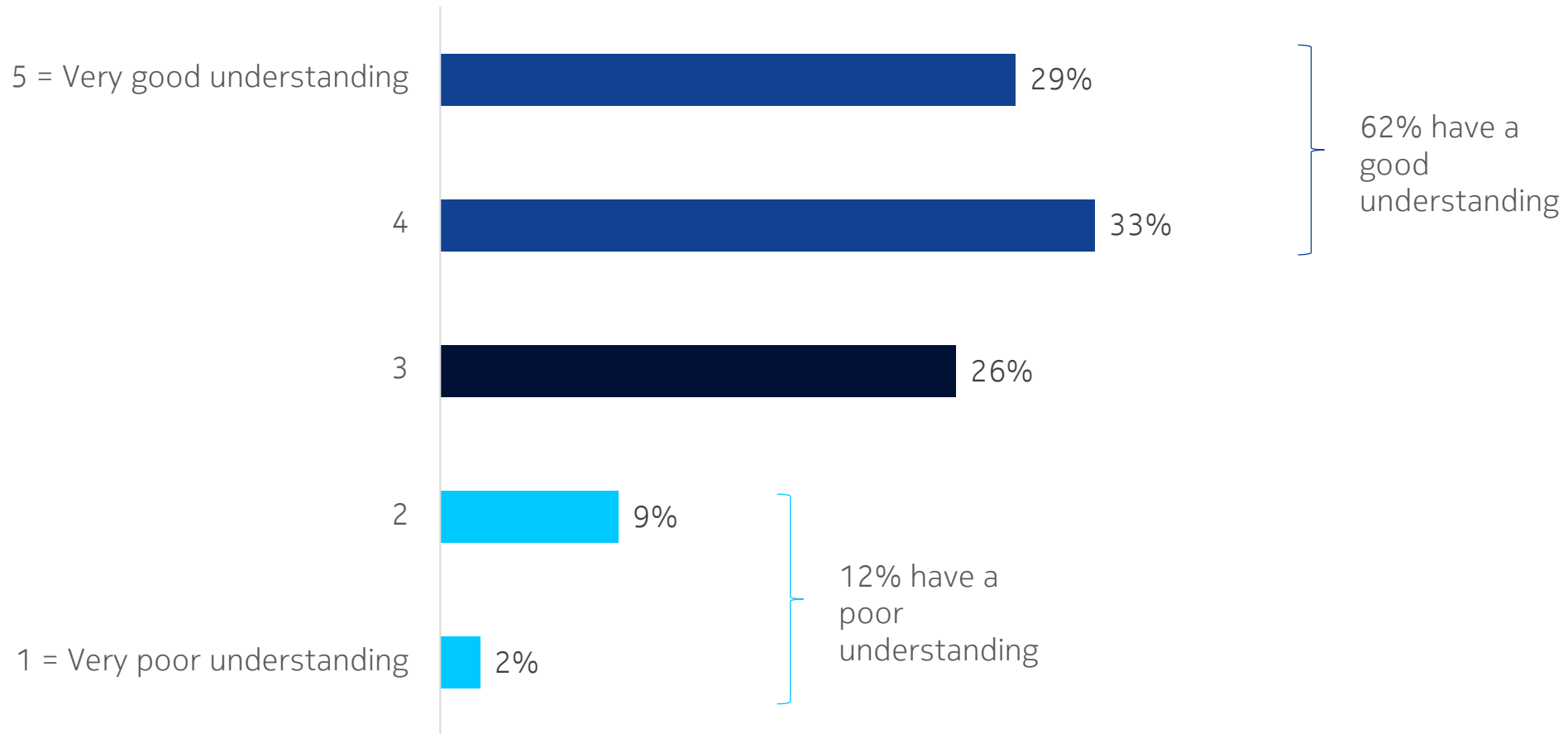
Digital transformation - the COVID effect

56% have accelerated their digital transformation program due to COVID-19



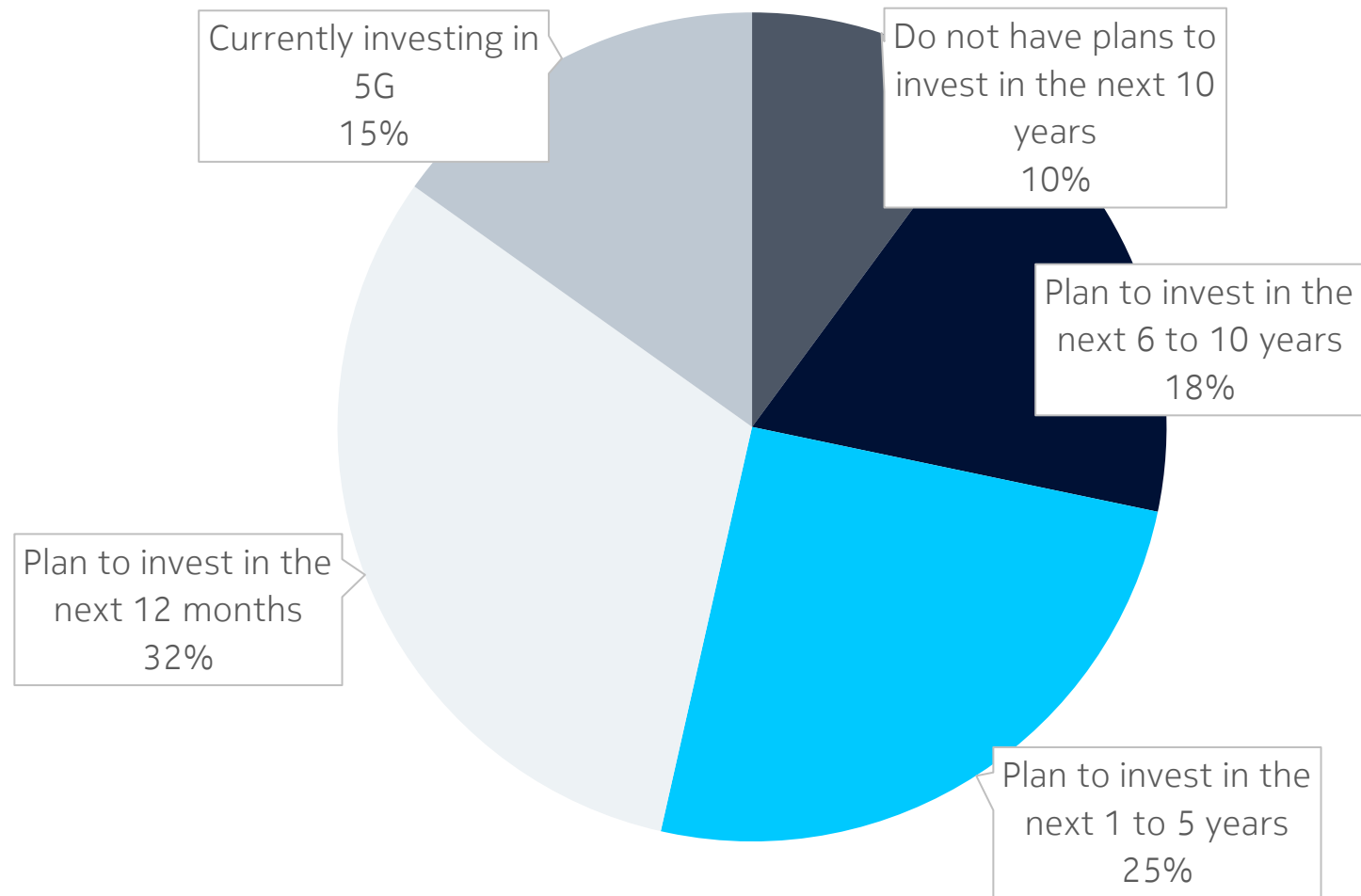
Levels of understanding are still mixed

62% think there is a good understanding of 5G in their organization



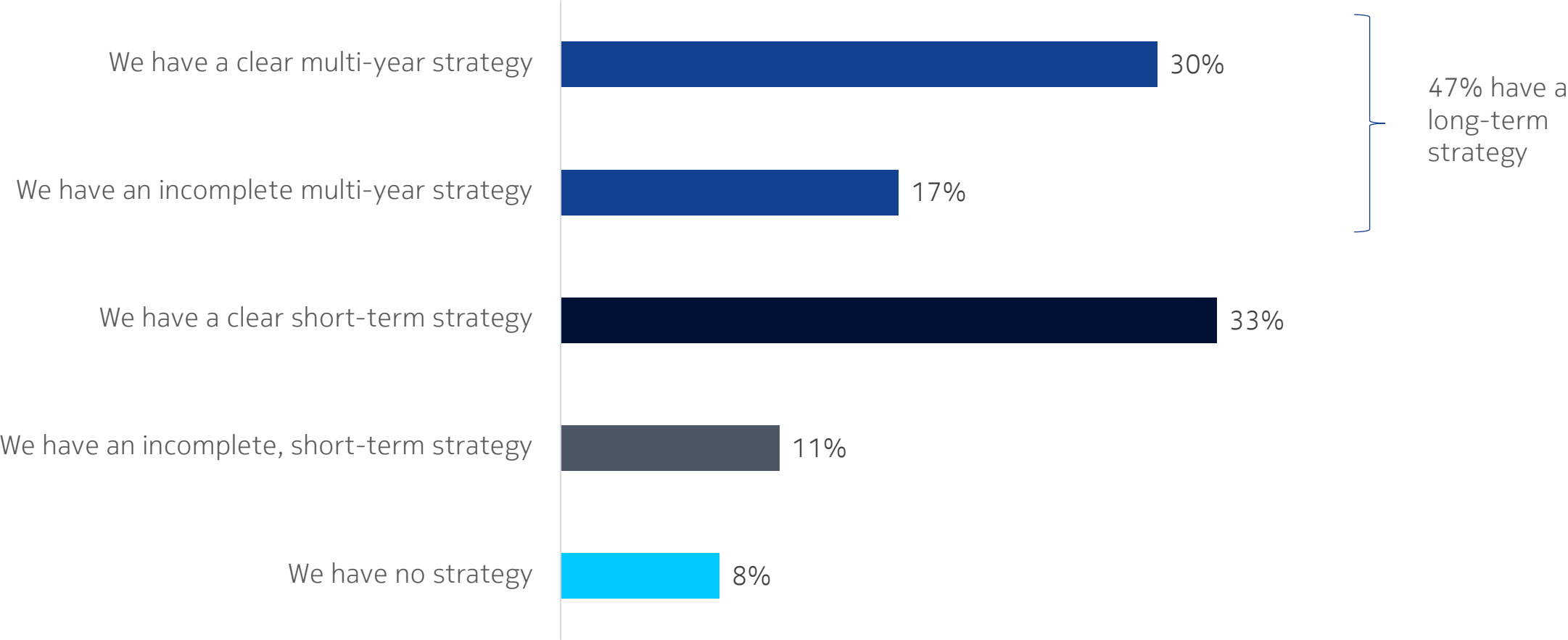
Planning for 5G

15% are currently investing in 5G; with 71% planning investment in the next 5 years



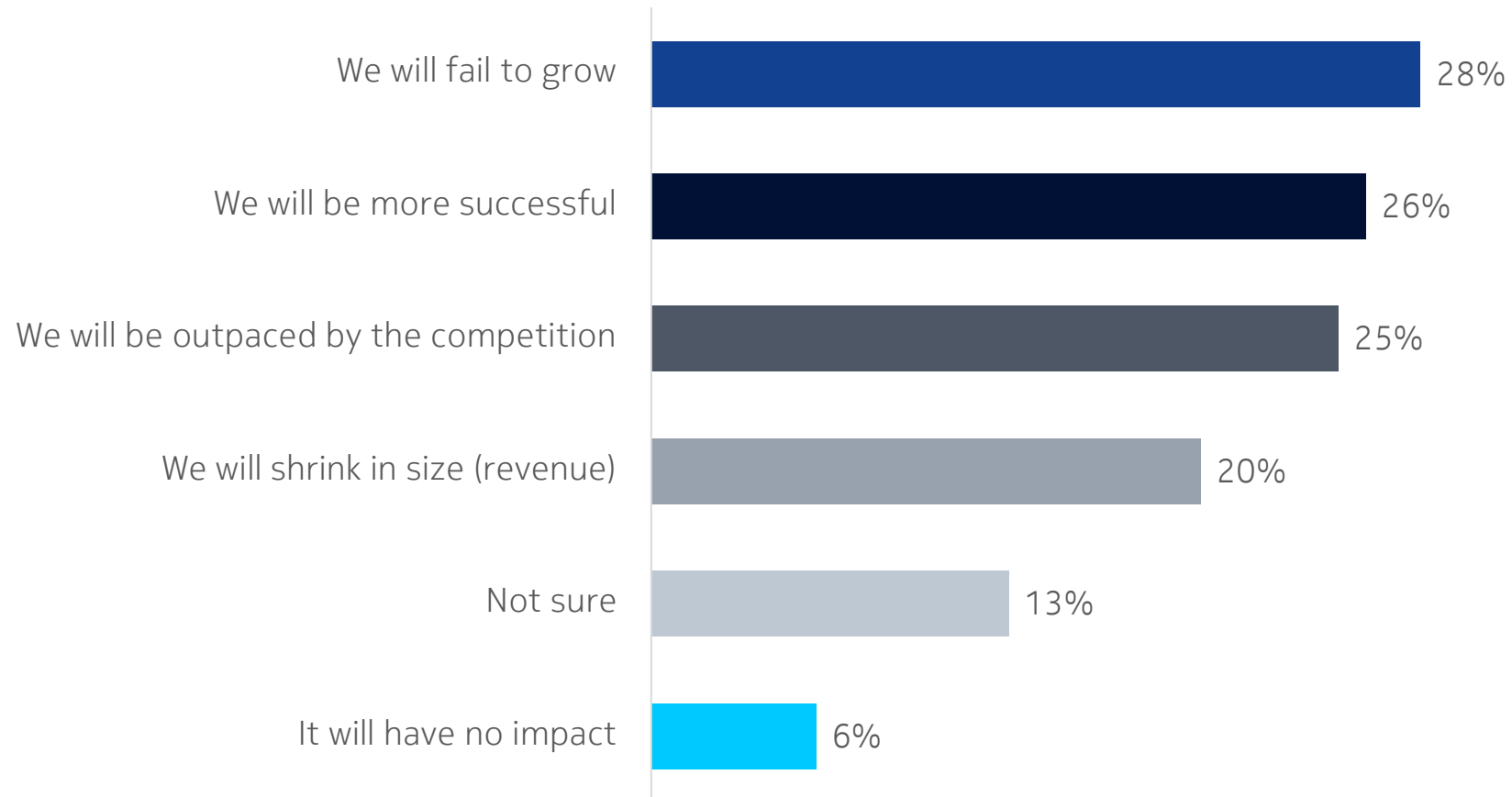
A short or long-term approach?

47% of technology decision makers have a long term 5G strategy
 Just under 1 in 10 have no strategy whatsoever (8%)



The risks of standing still

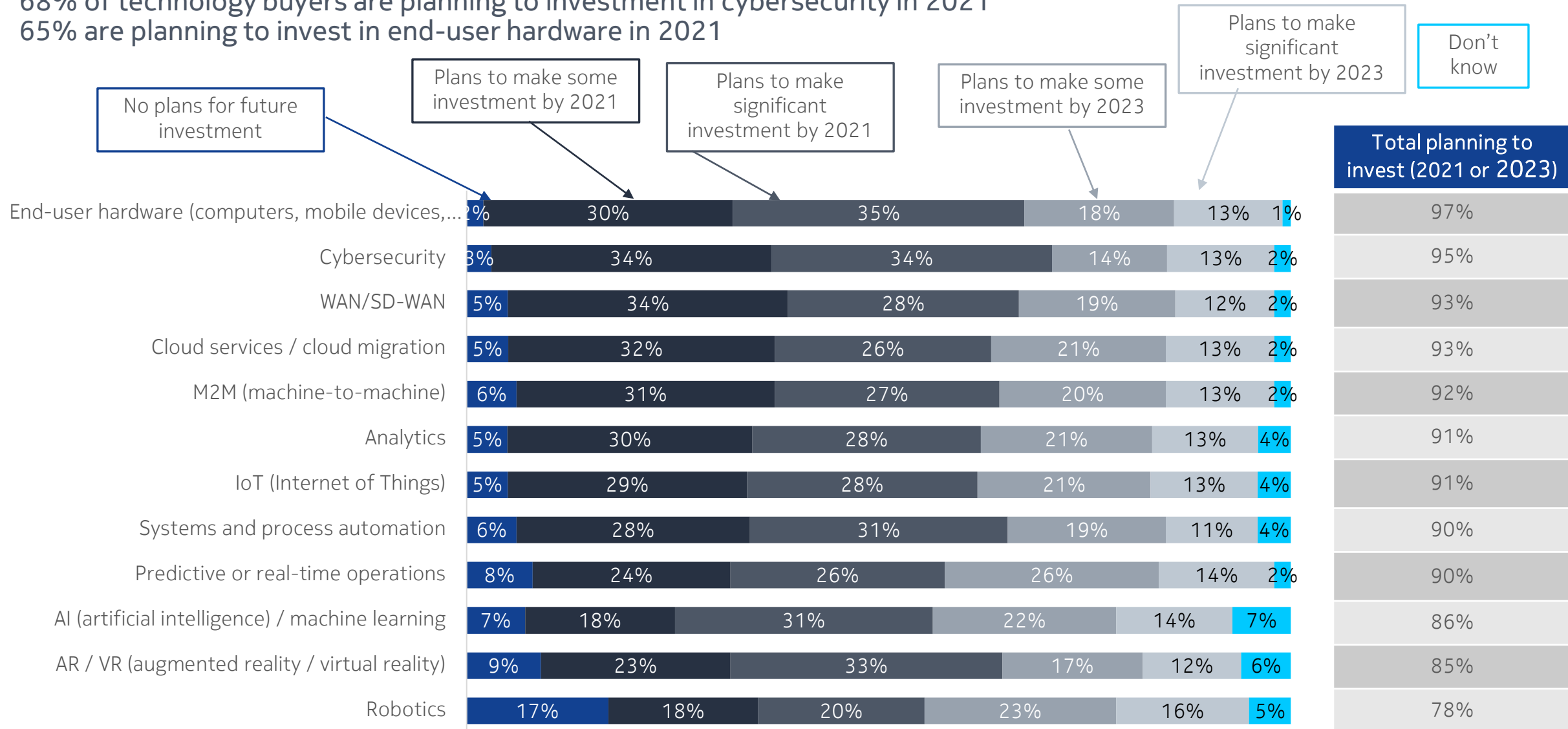
Over a quarter fear they will fail to grow should they not invest in 5G (28%), however 26% feel whatever their 5G investment they will still be successful



5G: the technology enabler

68% of technology buyers are planning to investment in cybersecurity in 2021

65% are planning to invest in end-user hardware in 2021

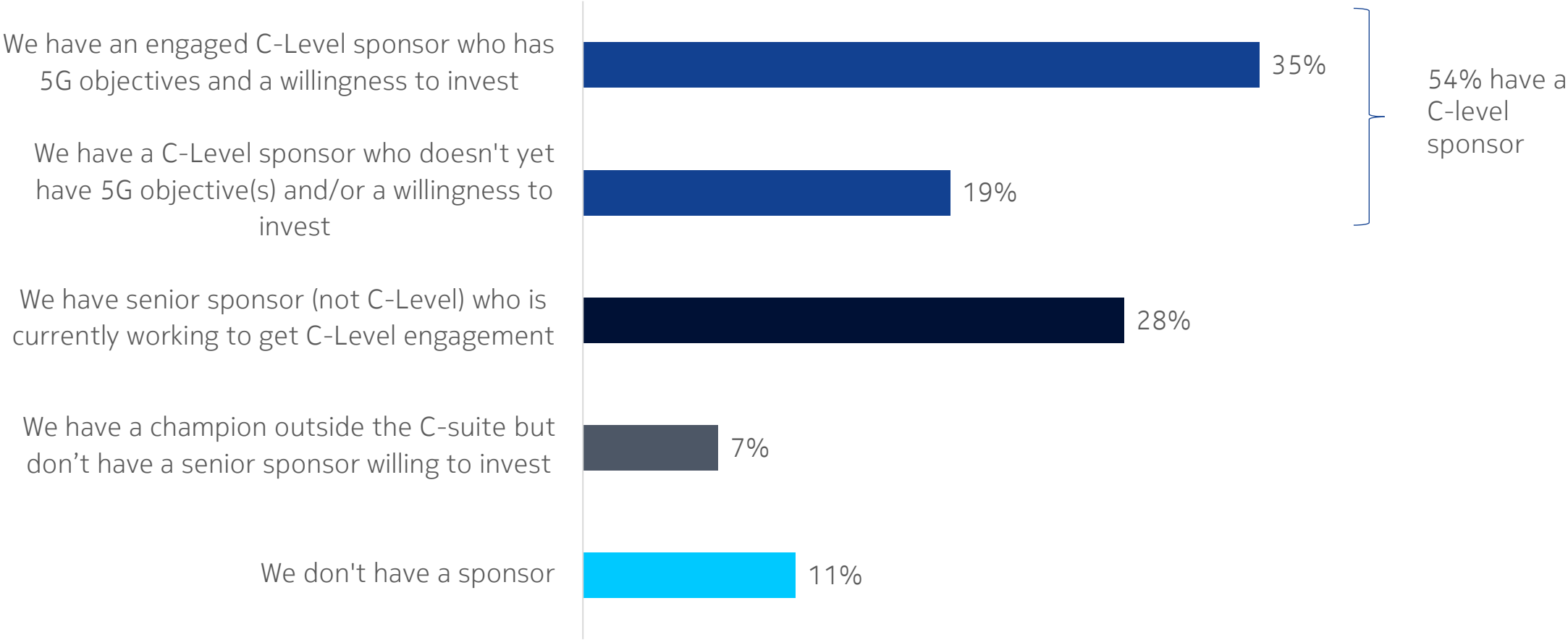


Q. Which of the following will your organization invest in over the next 2-3 years?

Base: 202

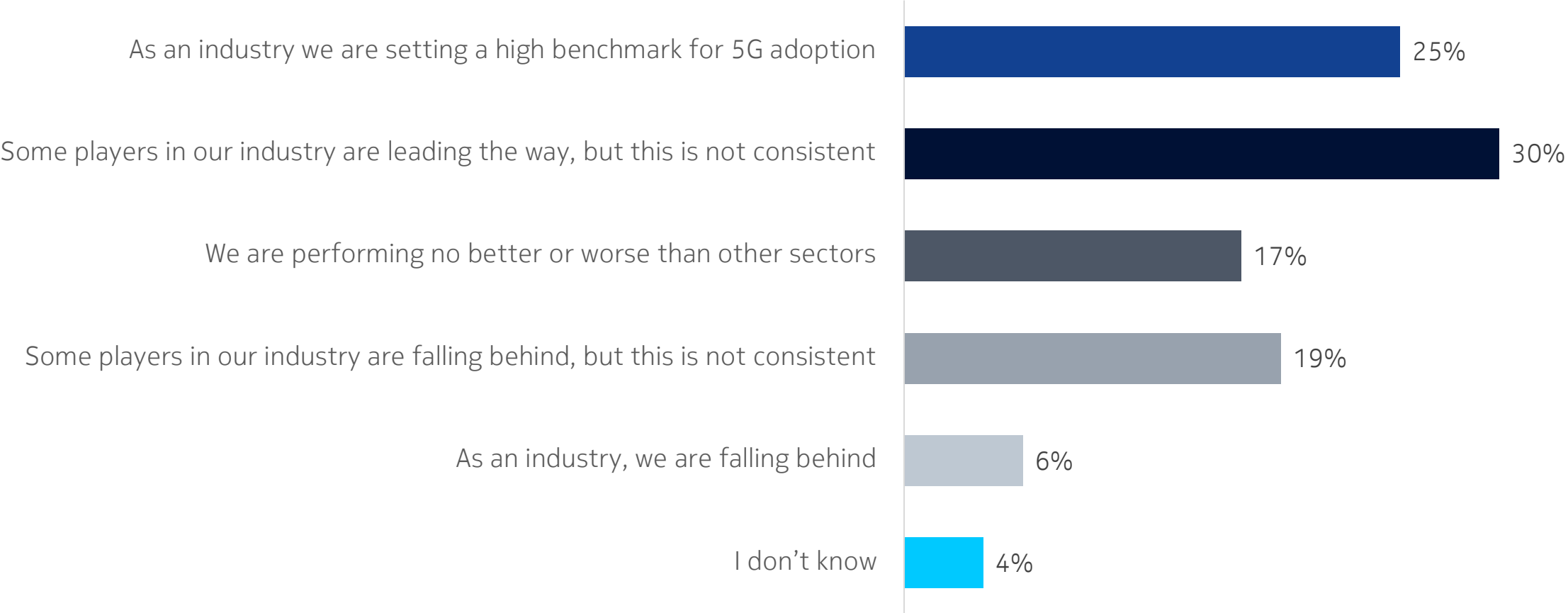
Leading from the top?

54% have C-Level sponsor for 5G implementation in their organization
 Only 1 in 10 don't have any 5G championing from management (11%)



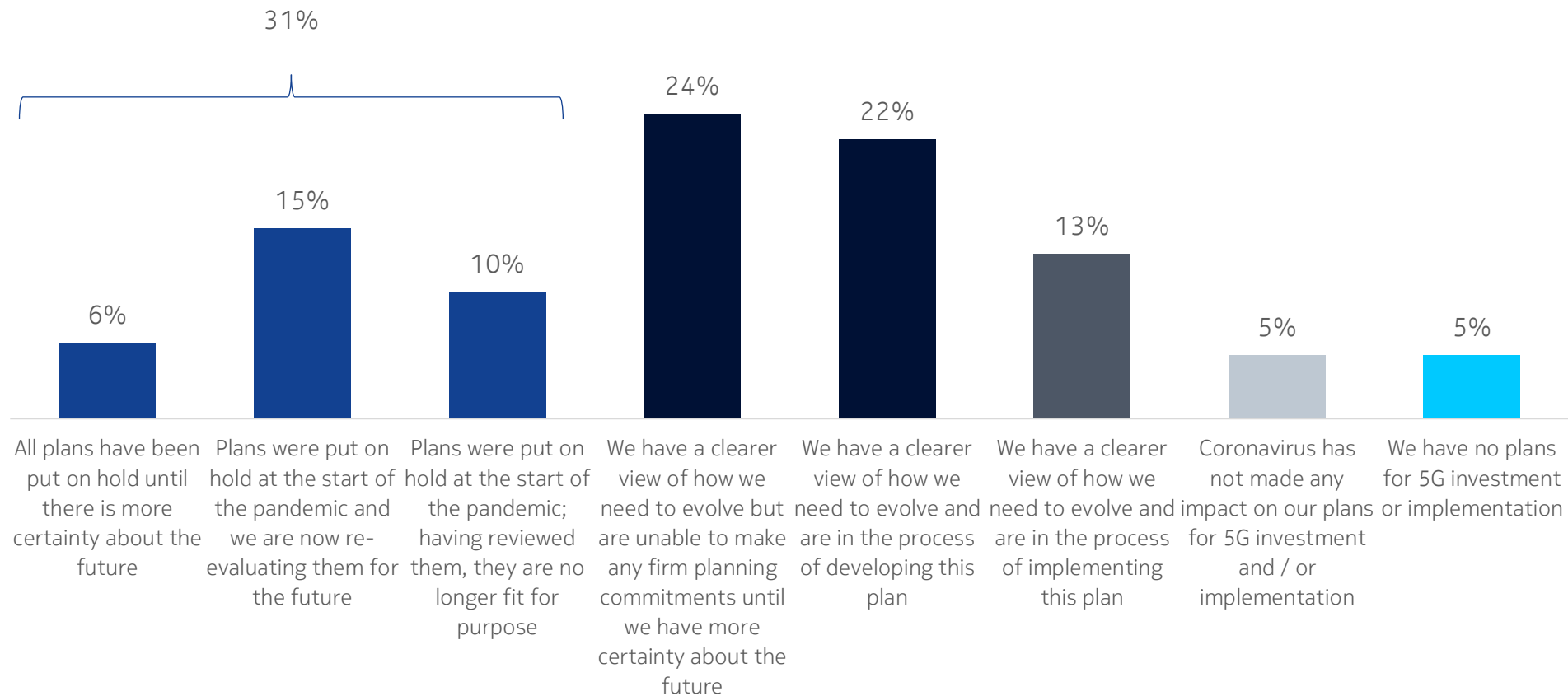
5G: Few are resting on their laurels

Businesses are more likely to feel that only some players in their industry are leading the way in terms of 5G adoption (30%), while 25% believe they themselves are setting a high benchmark



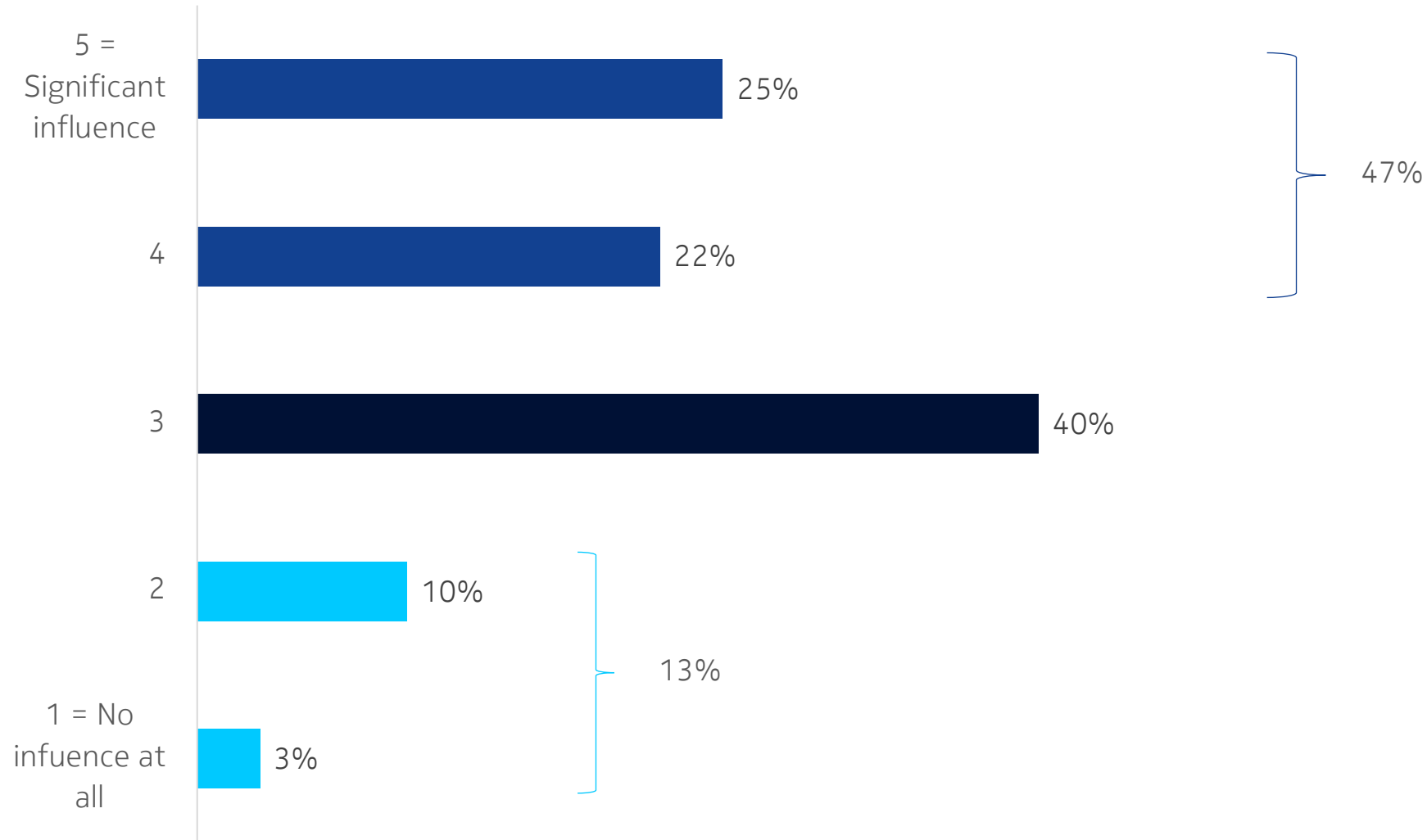
5G: Where next, post-COVID?

Over 1 in 10 (13%) are now implementing a clearer 5G investment plan due to COVID-19
 31% are still on hold



5G: The benefits of the unknown

47% of technology buyers are motivated to invest in 5G by it's unknown potential



Q. A comprehensive list of what 5G can do is impossible to put together because it's not possible to predict every disruptive technology, app or unintended consequence of the network being introduced. To what extent does / will this prospect influence

Base: 202

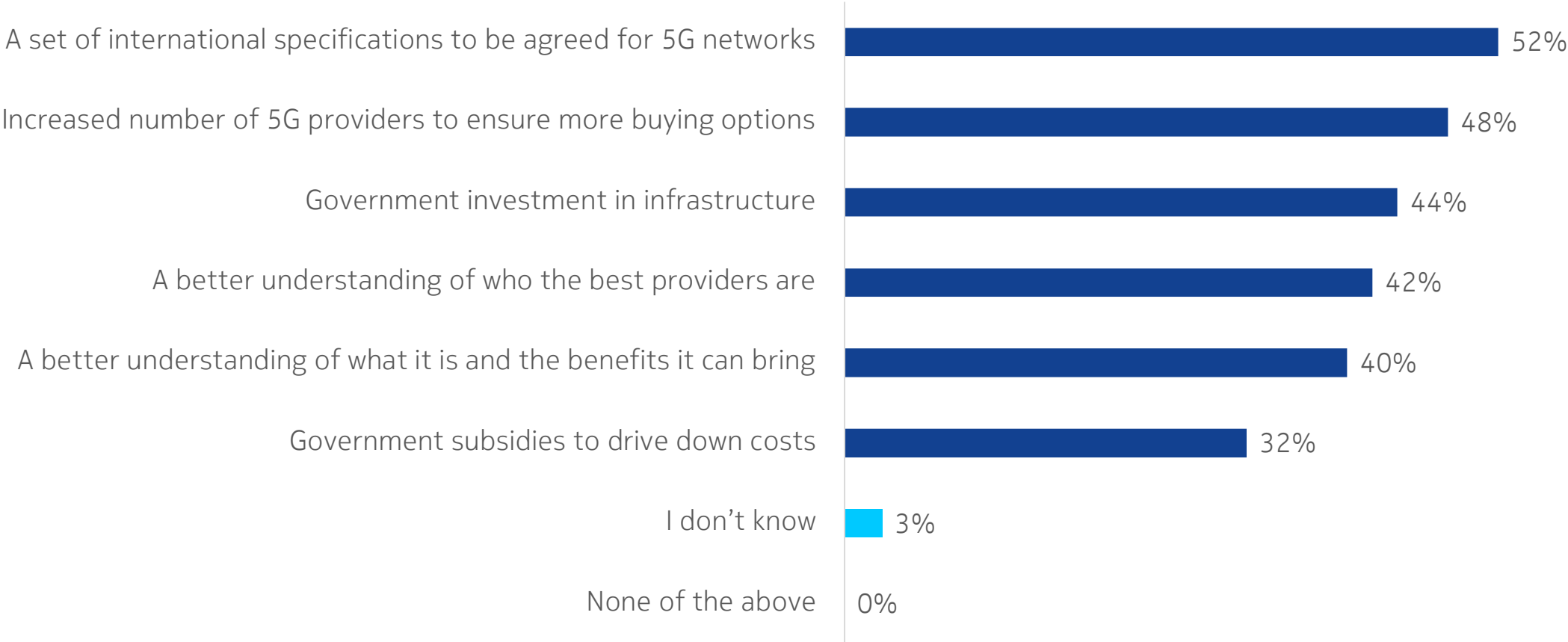
5G: What's stopping organizations?

Availability of 5G enabled products and costs are the biggest barriers to 5G investment



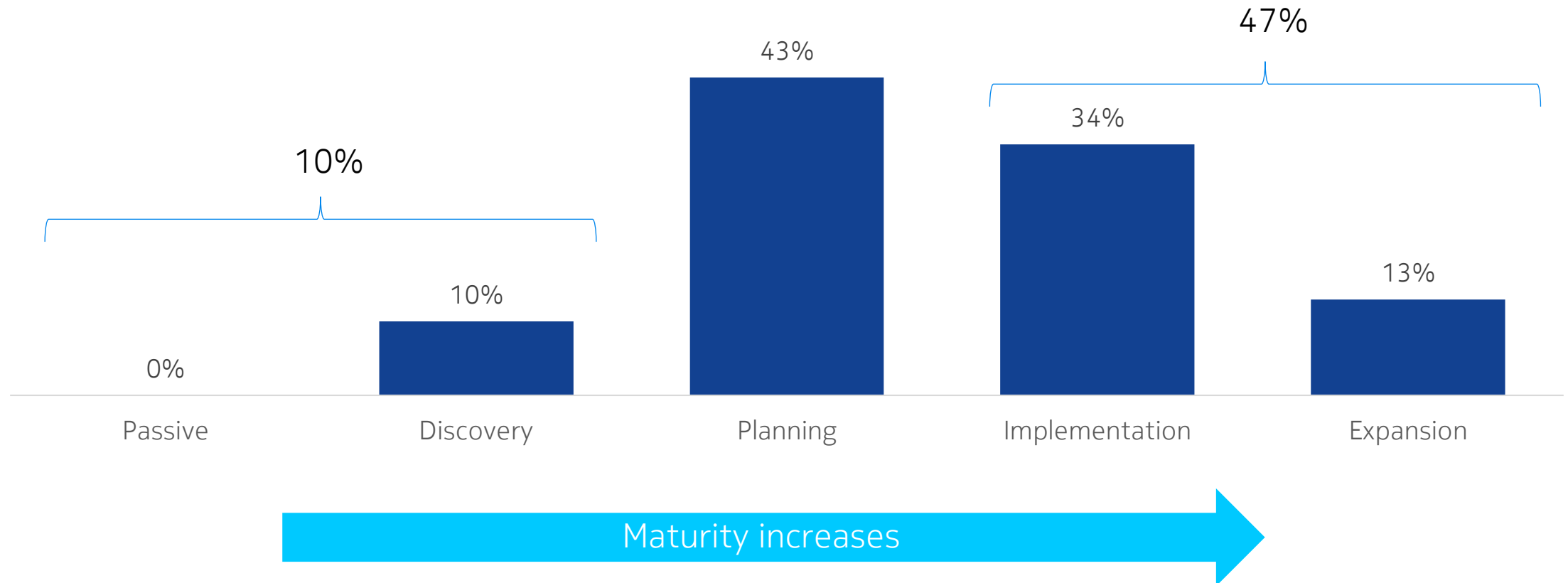
How can they get there?

A lack of international specifications agreed for 5G networks is holding back greater investment and implementation.



5G maturity – the current picture

Nearly half of Saudi Arabian organizations are at the top end of 5G maturity (47%), with 13% at the highest level; 10% have lower 5G maturity; and 43% occupy a middle ground

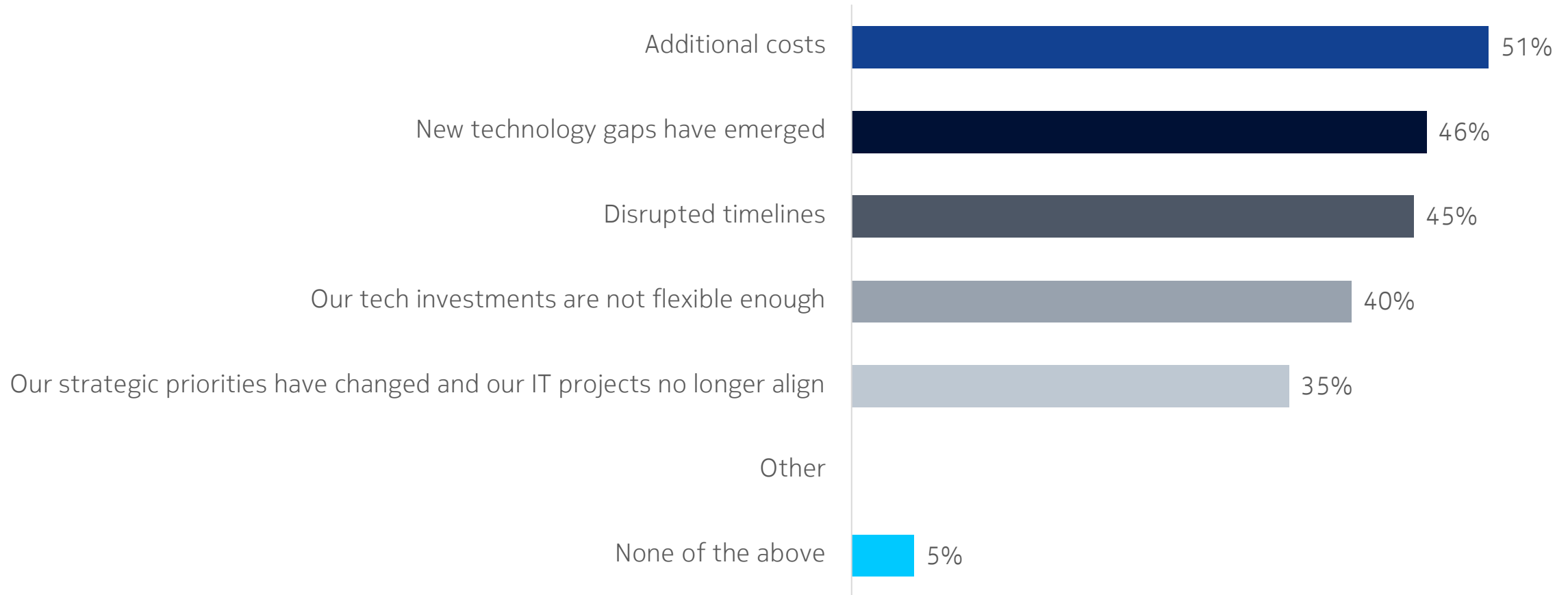


South Korea



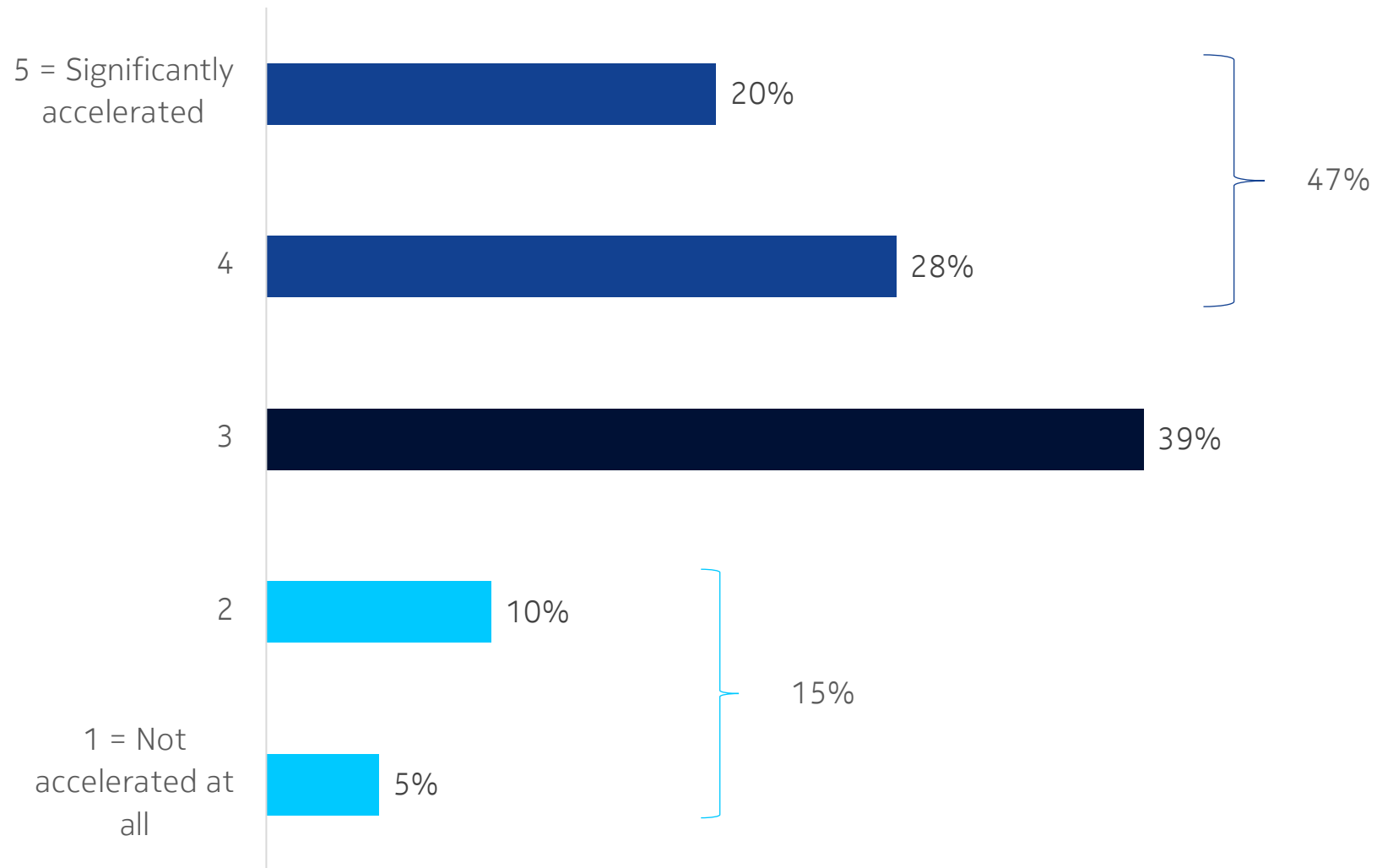
The COVID impact

Additional costs (51%), the emergence of new technology gaps (46%) and disrupted timelines (45%) have been the most prevalent impacts of COVID-19 on technology road maps



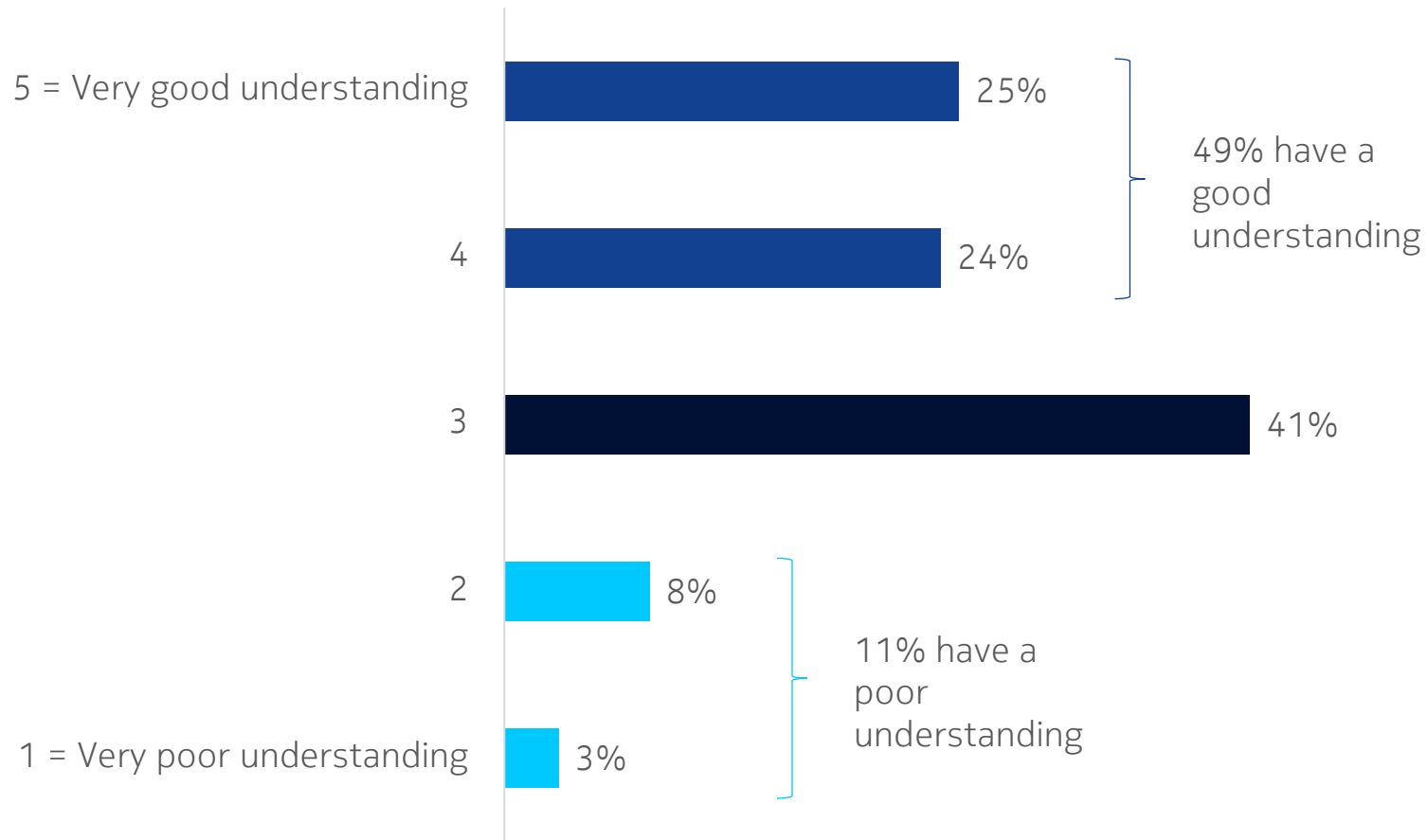
Digital transformation - the COVID effect

47% have expediated their digital transformation program due to COVID-19



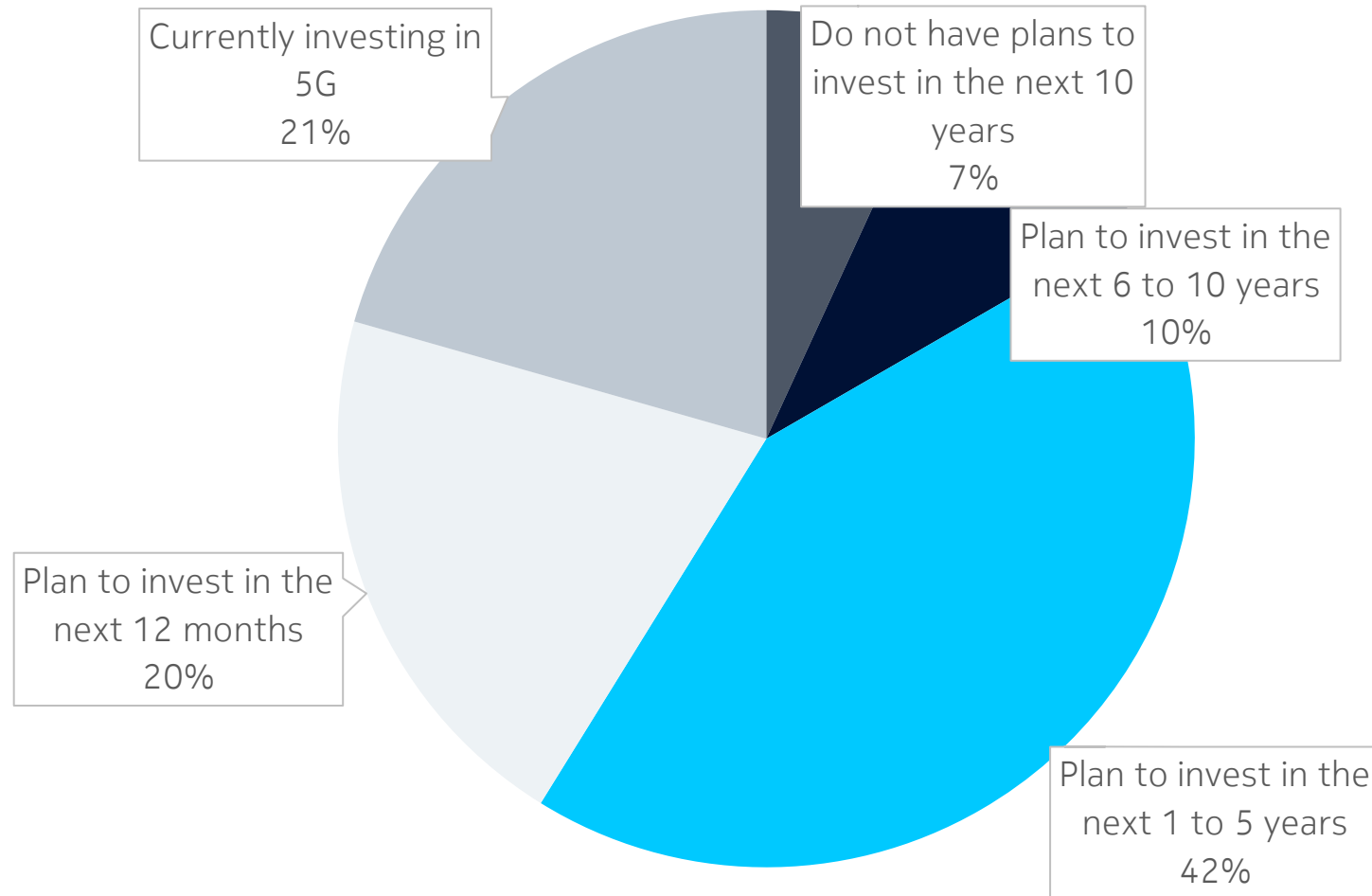
Levels of understanding are still mixed

49% think there is a good understanding of 5G in their organization



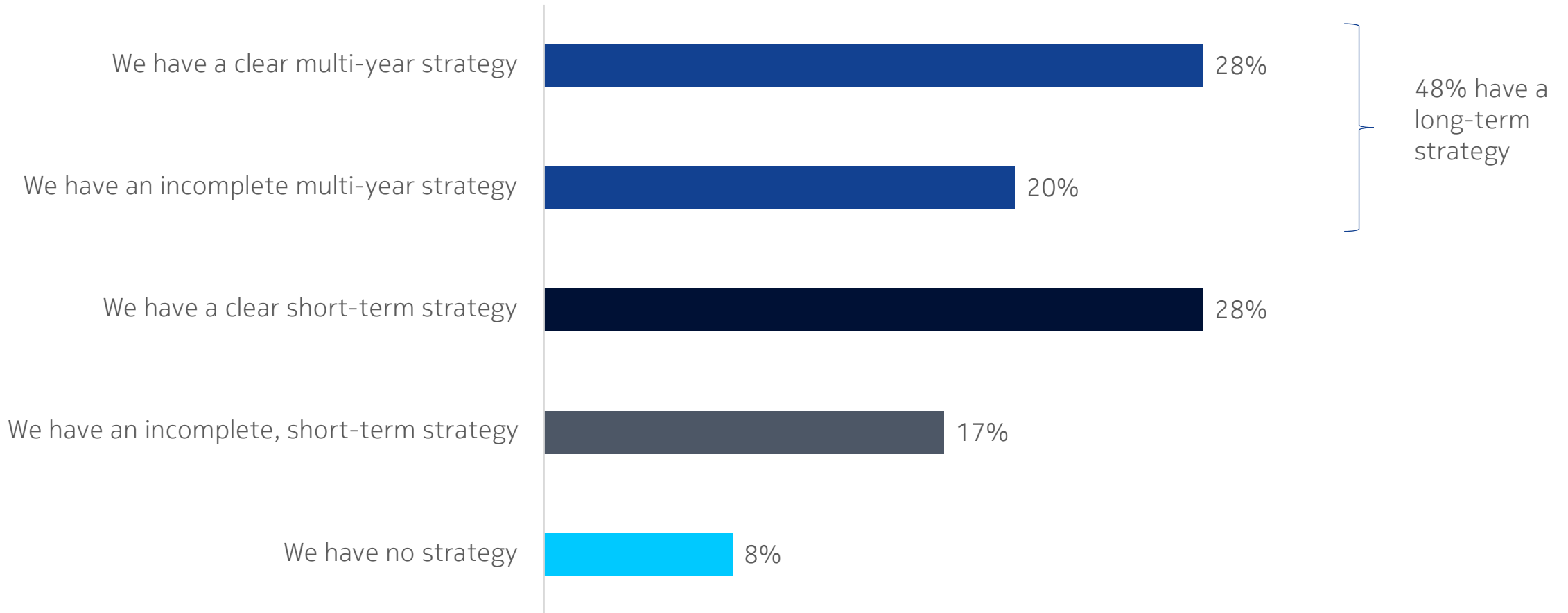
Planning for 5G

21% are currently investing in 5G; with 94% planning investment in the next 10 years



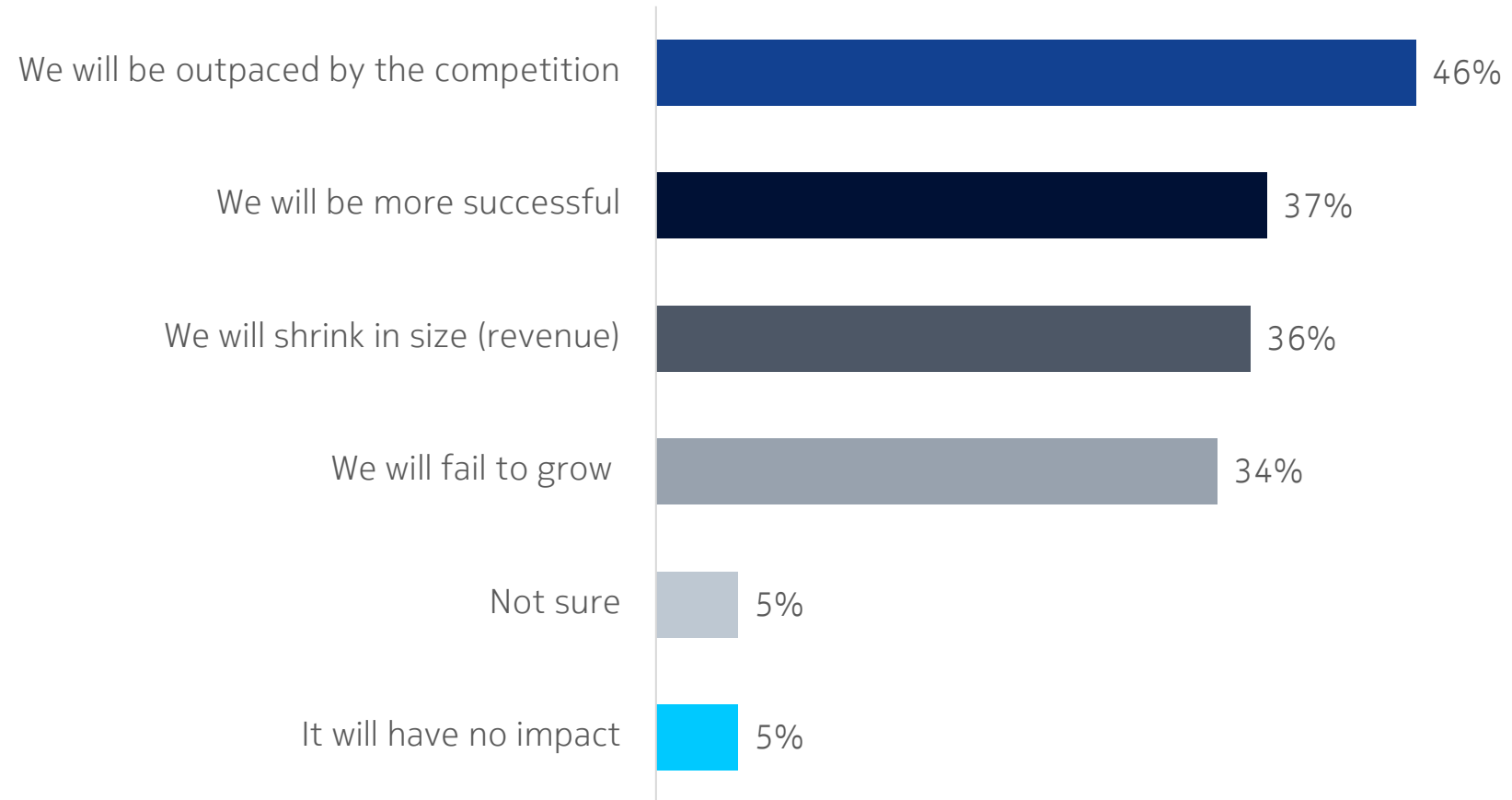
A short or long-term approach?

48% of technology decision makers have a long term 5G strategy
 Just under 1 in 10 have no strategy whatsoever (8%)



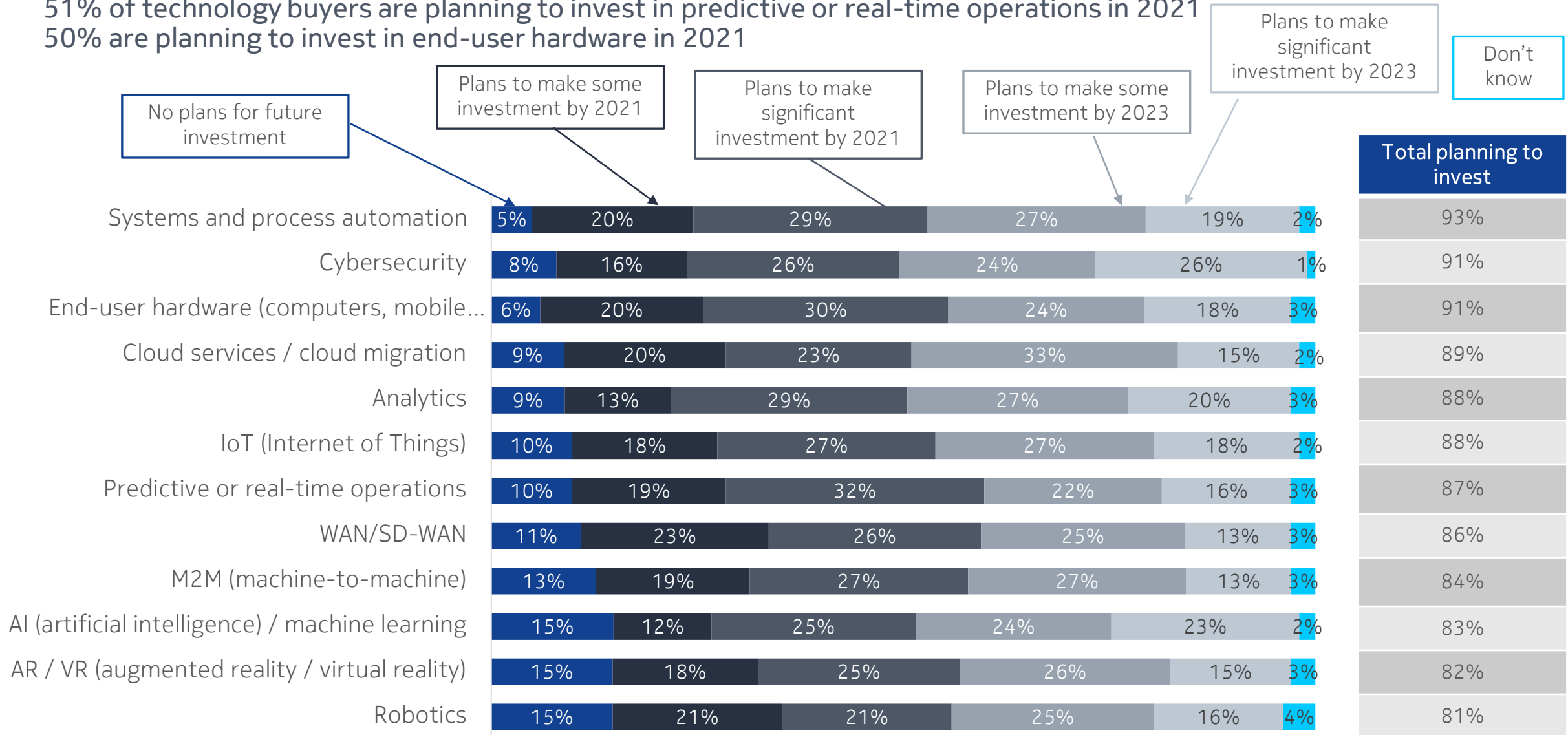
The risks of standing still

Almost half fear being outpaced by the competition should they not invest in 5G (46%), however 37% feel whatever their 5G investment they will still be successful



5G: the technology enabler

51% of technology buyers are planning to invest in predictive or real-time operations in 2021
50% are planning to invest in end-user hardware in 2021

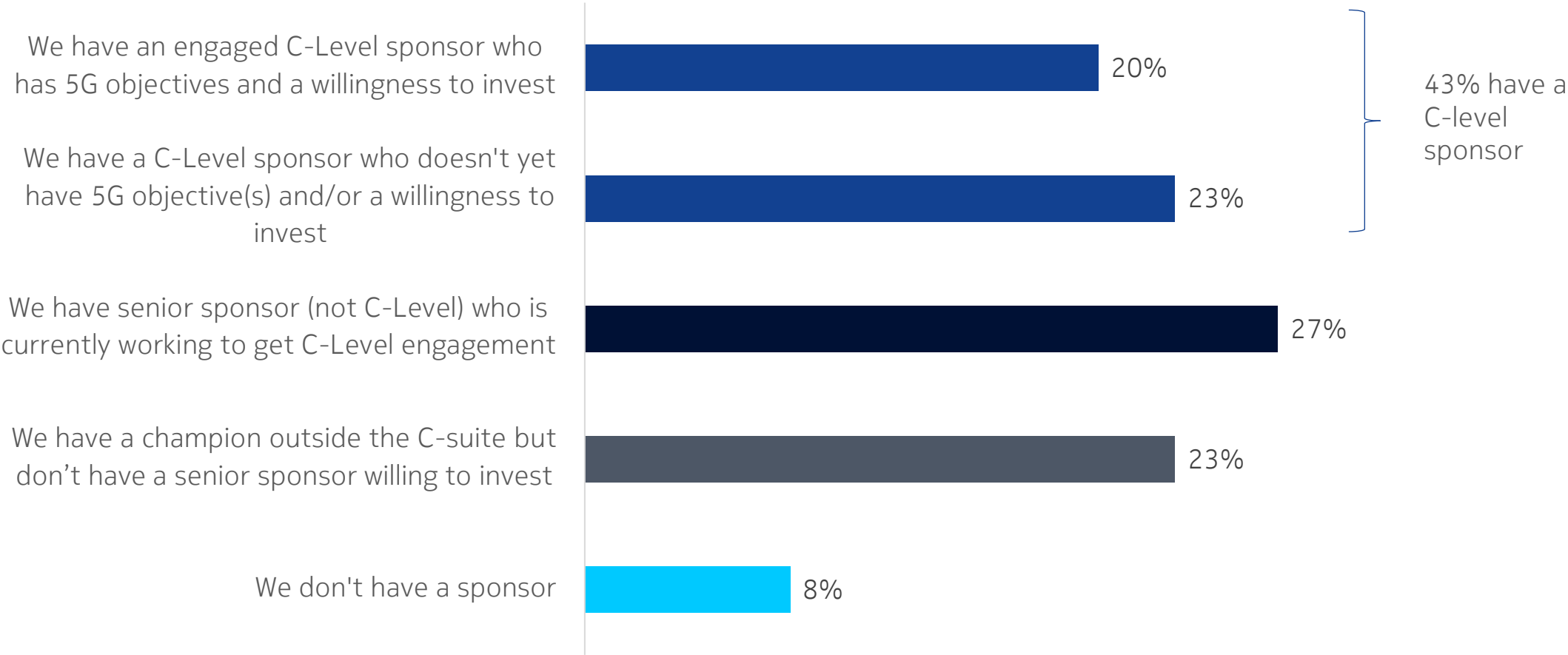


Q. Which of the following will your organization invest in over the next 2-3 years?

Base: 200

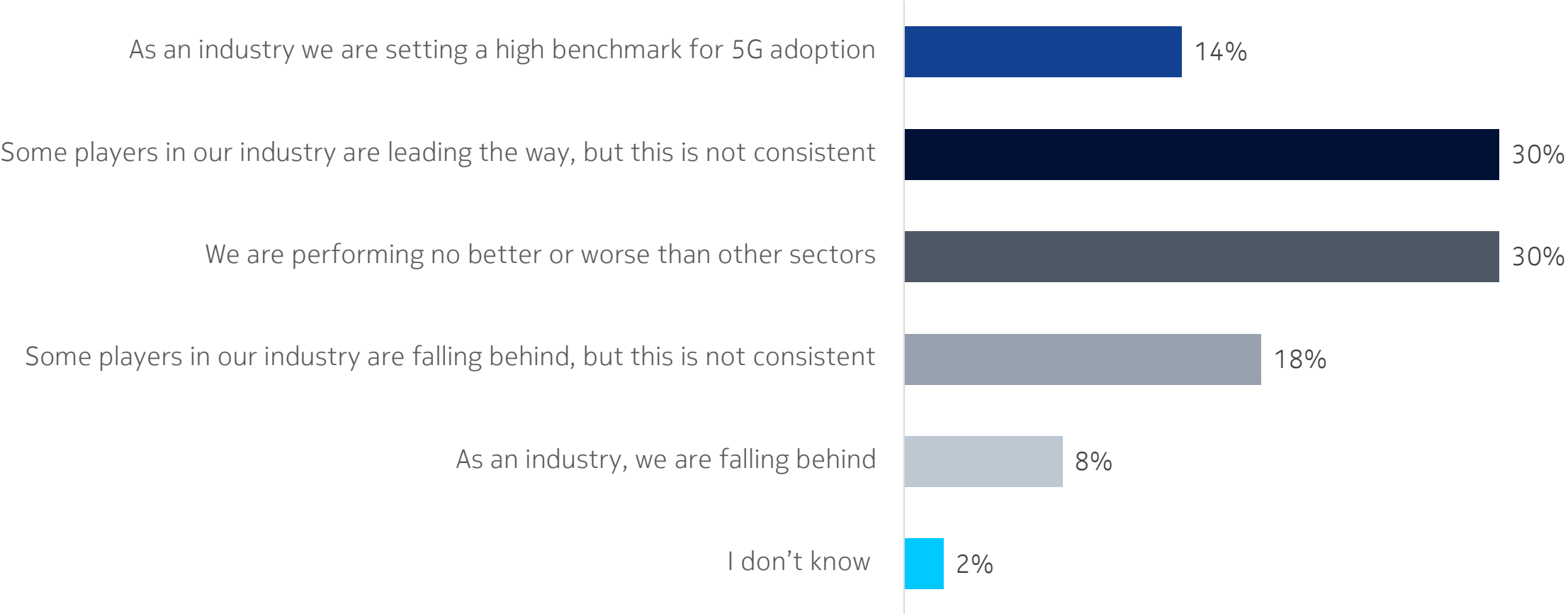
Leading from the top?

43% have C-Level sponsor for 5G implementation in their organization
 Only 1 in 10 don't have any 5G championing from management (8%)



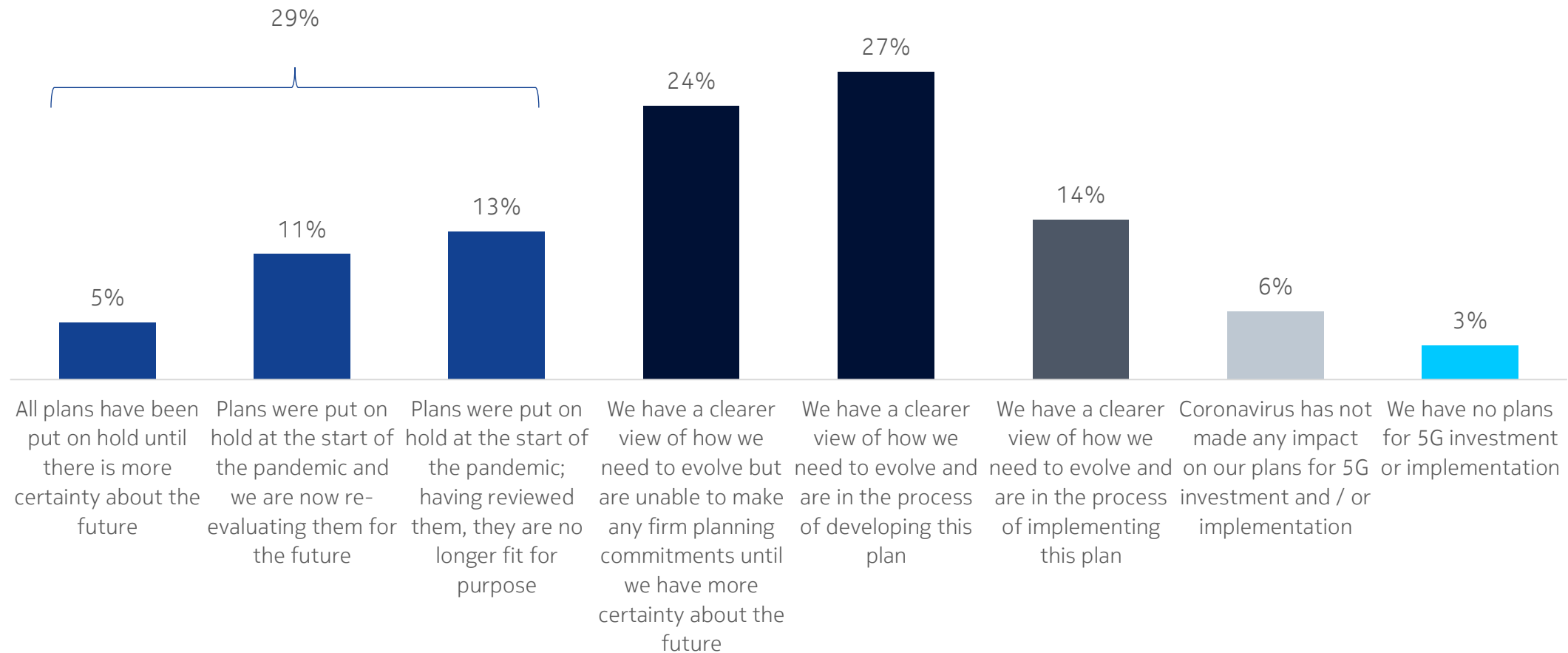
5G: Few are resting on their laurels

Businesses are equally likely to feel that their industry is middling in terms of 5G adoption, or that some players in their industry are leading the way but that this is not consistent (30%)



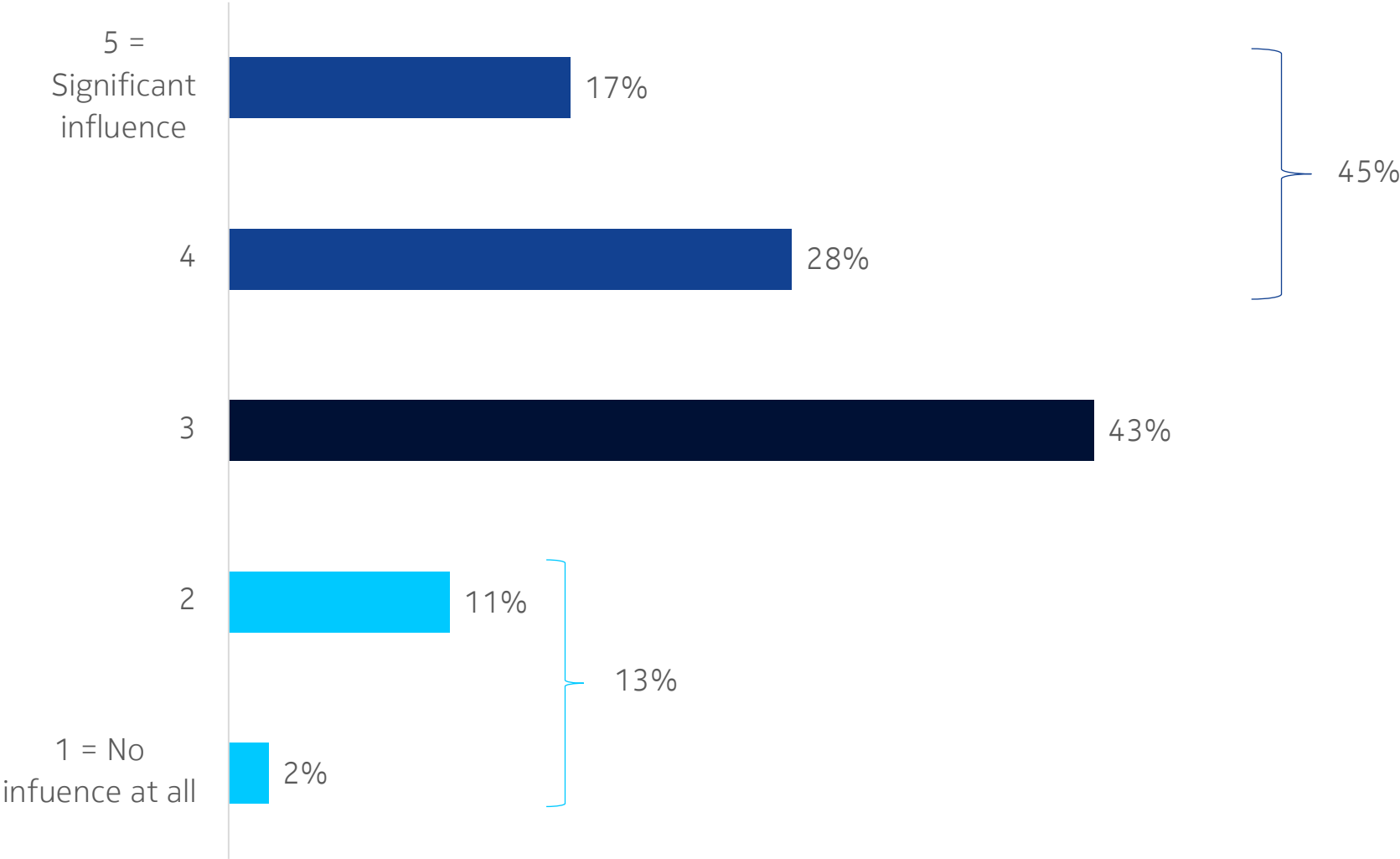
5G: Where next, post-COVID?

Over 1 in 10 (14%) are now implementing a clearer 5G investment plan due to COVID-19
 29% are still on hold



5G: The benefits of the unknown

The unknown potential of 5G being fully introduced is an influence on 45% of decision makers



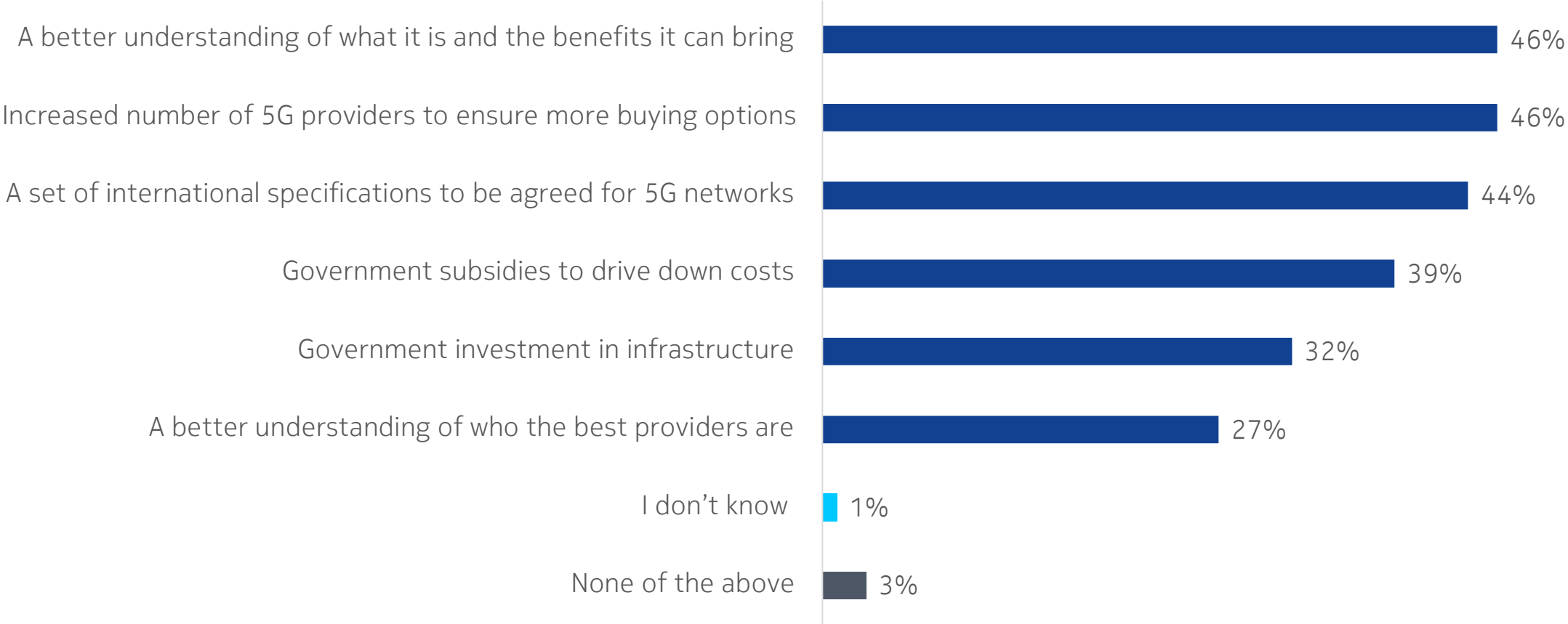
5G: What's stopping organizations?

Costs and availability of 5G enabled products are the biggest barriers to 5G investment



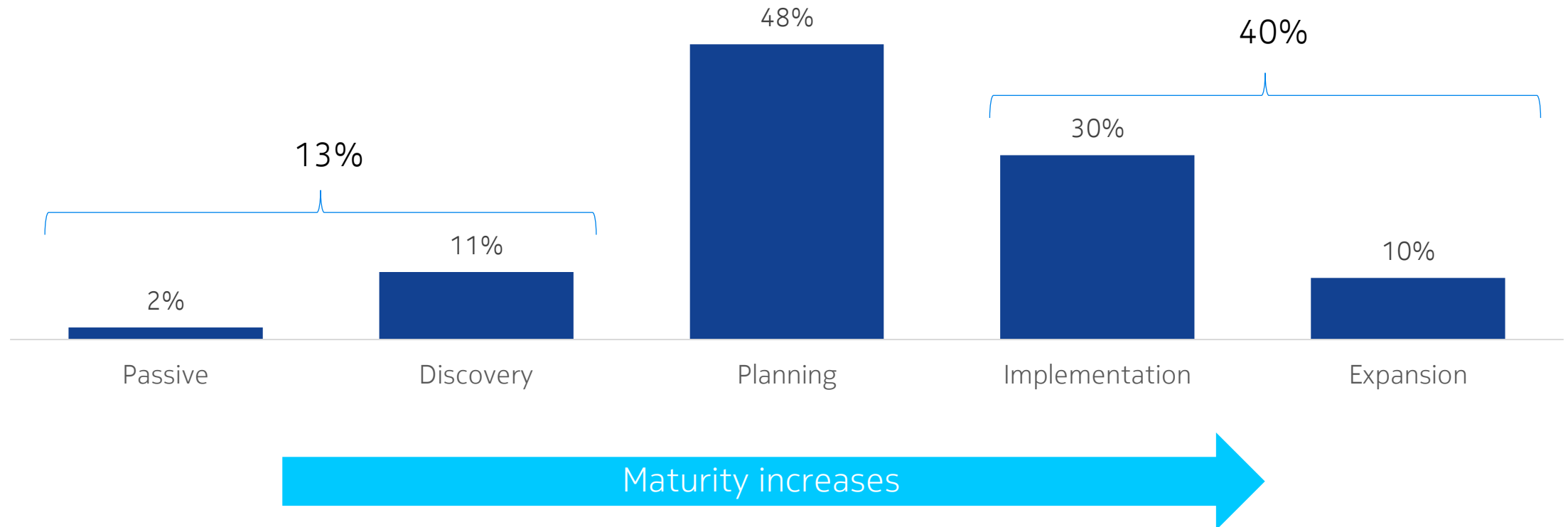
How can they get there?

A lack of understanding of 5G and its benefits, and a lack of 5G providers are holding back greater investment and implementation.



5G maturity – the current picture

Two in five South Korean organizations are at the top end of 5G maturity (40%), with 10% at the highest level; 13% have lower 5G maturity; and 48% occupy a middle ground



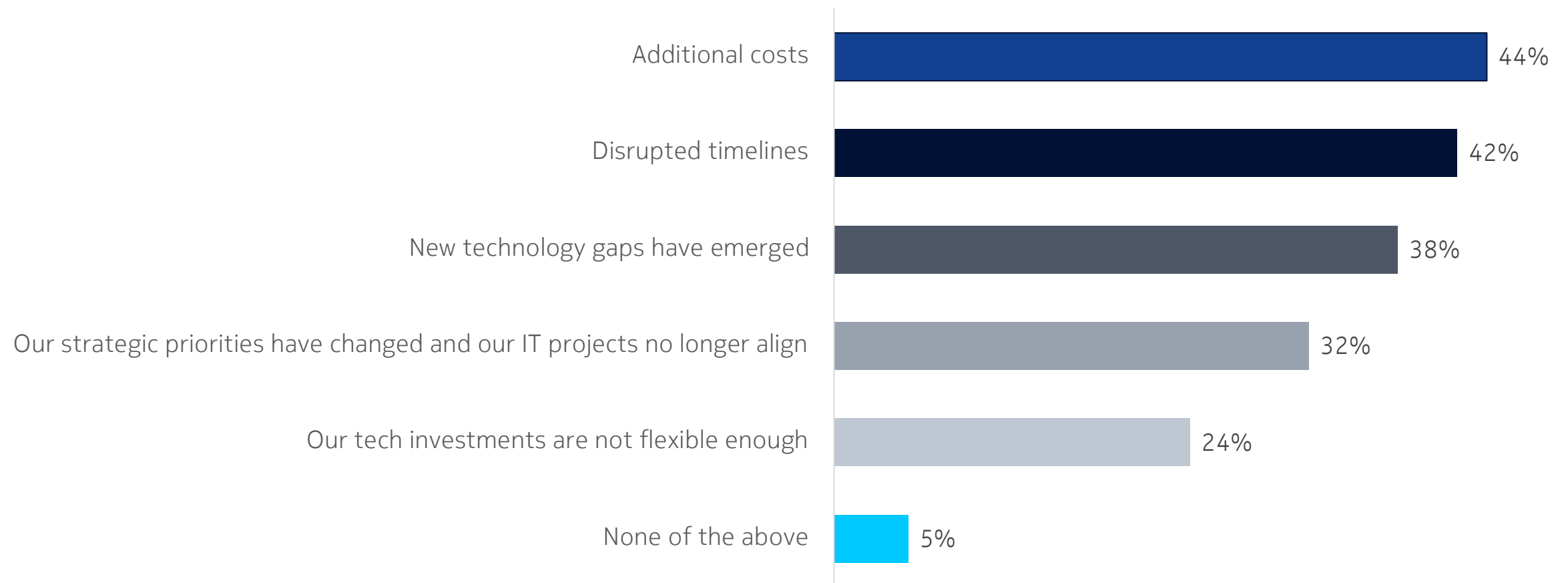
United Kingdom



NOKIA

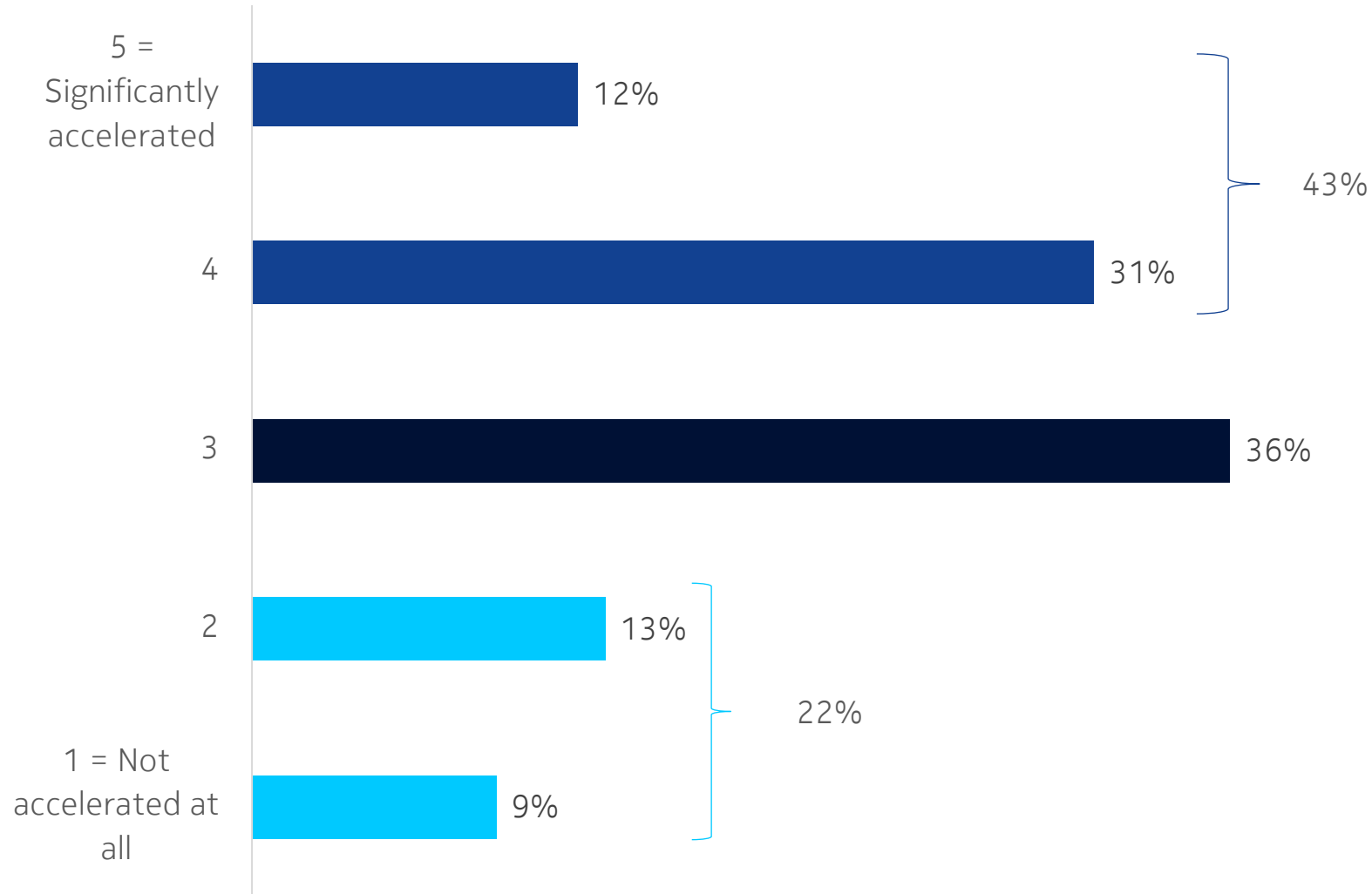
The COVID impact

Additional costs (44%), disrupted timelines (42%) and the emergence of new technology gaps (38%) have been the most prevalent impacts of COVID-19 on technology road maps



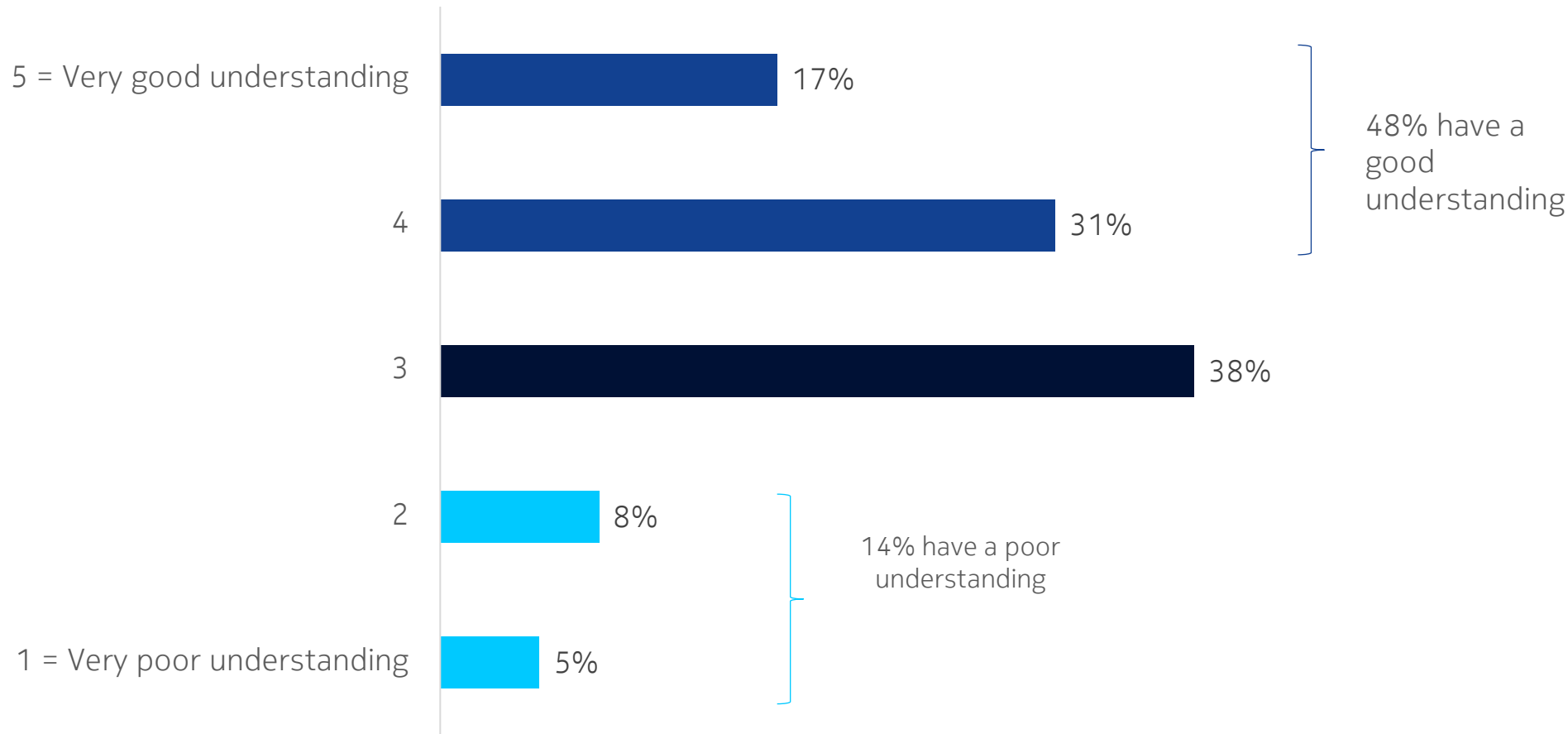
Digital transformation - the COVID effect

43% have expediated their digital transformation program due to COVID-19



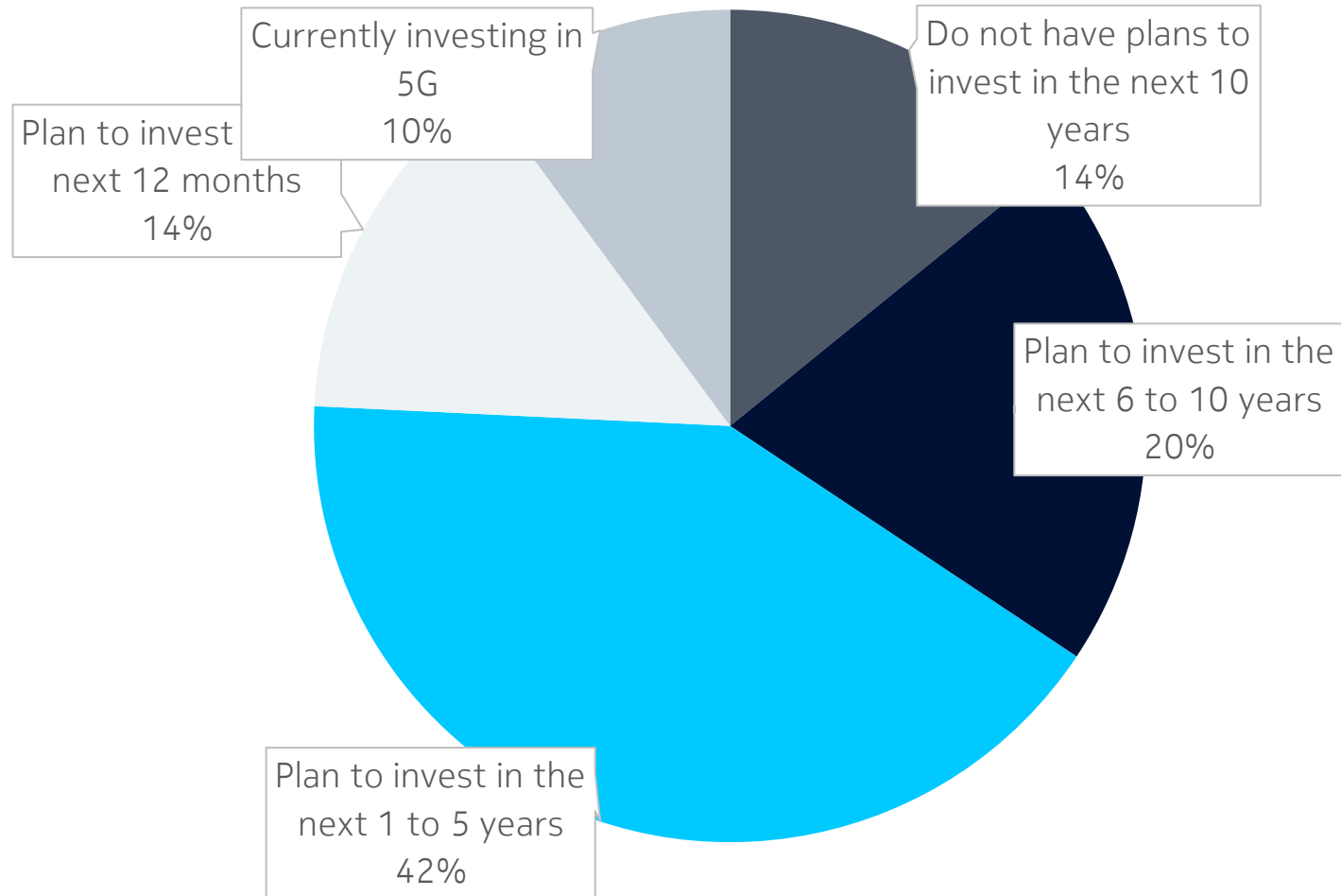
Levels of understanding are still mixed

48% think there is a good understanding of 5G in their organization



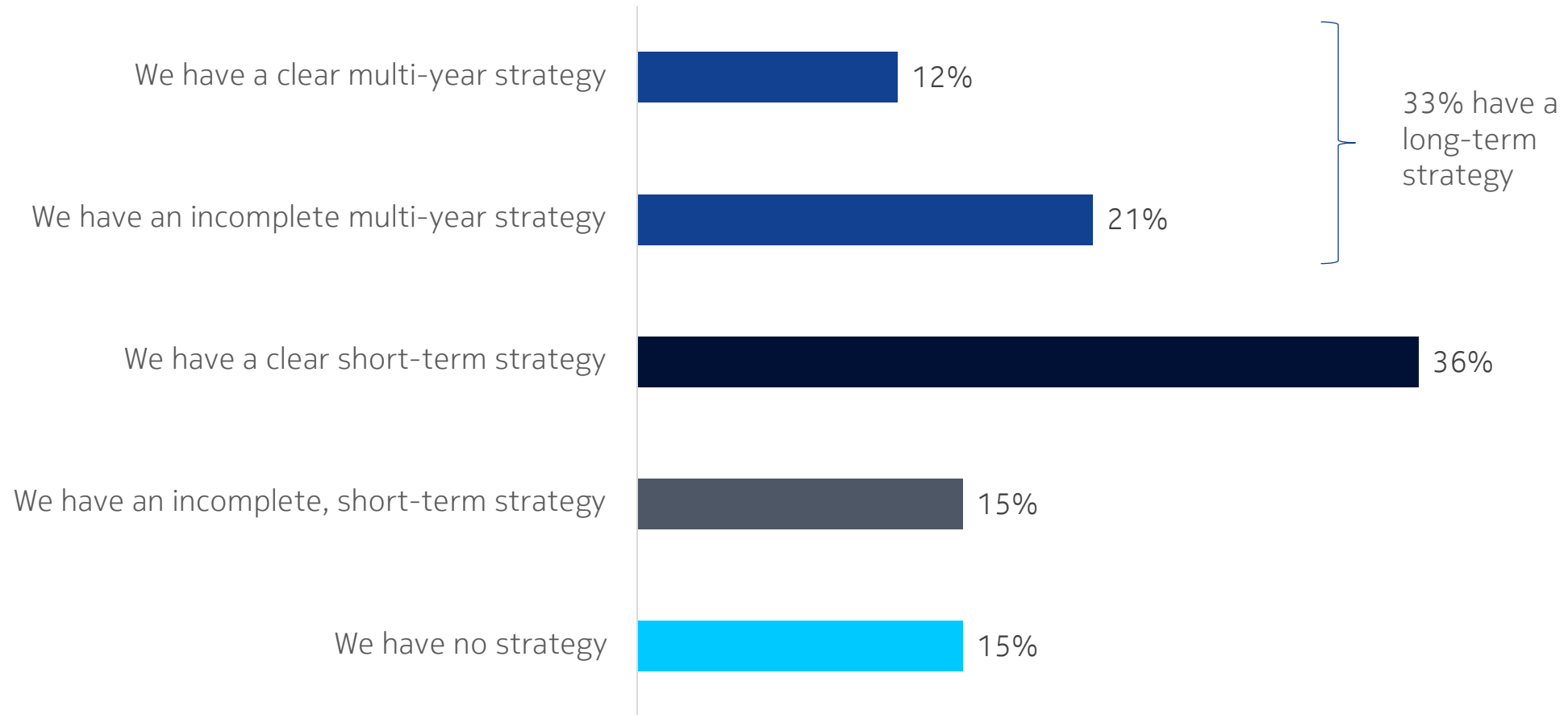
Planning for 5G

10% are currently investing in 5G; with 65% planning investment in the next 5 years



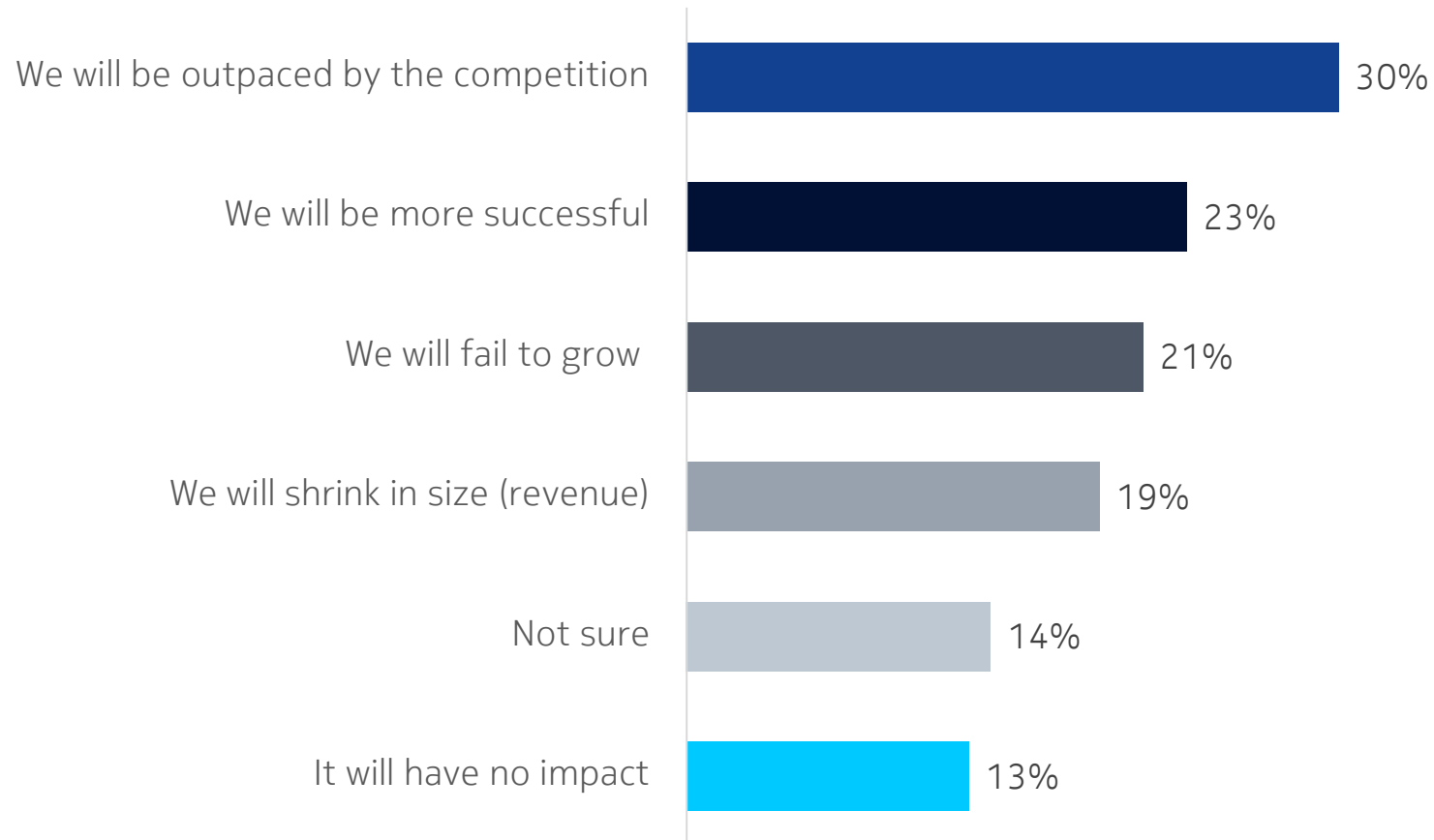
A short or long-term approach?

33% of technology decision makers have a long term 5G strategy
Just over 1 in 7 have no strategy whatsoever (15%)



The risks of standing still

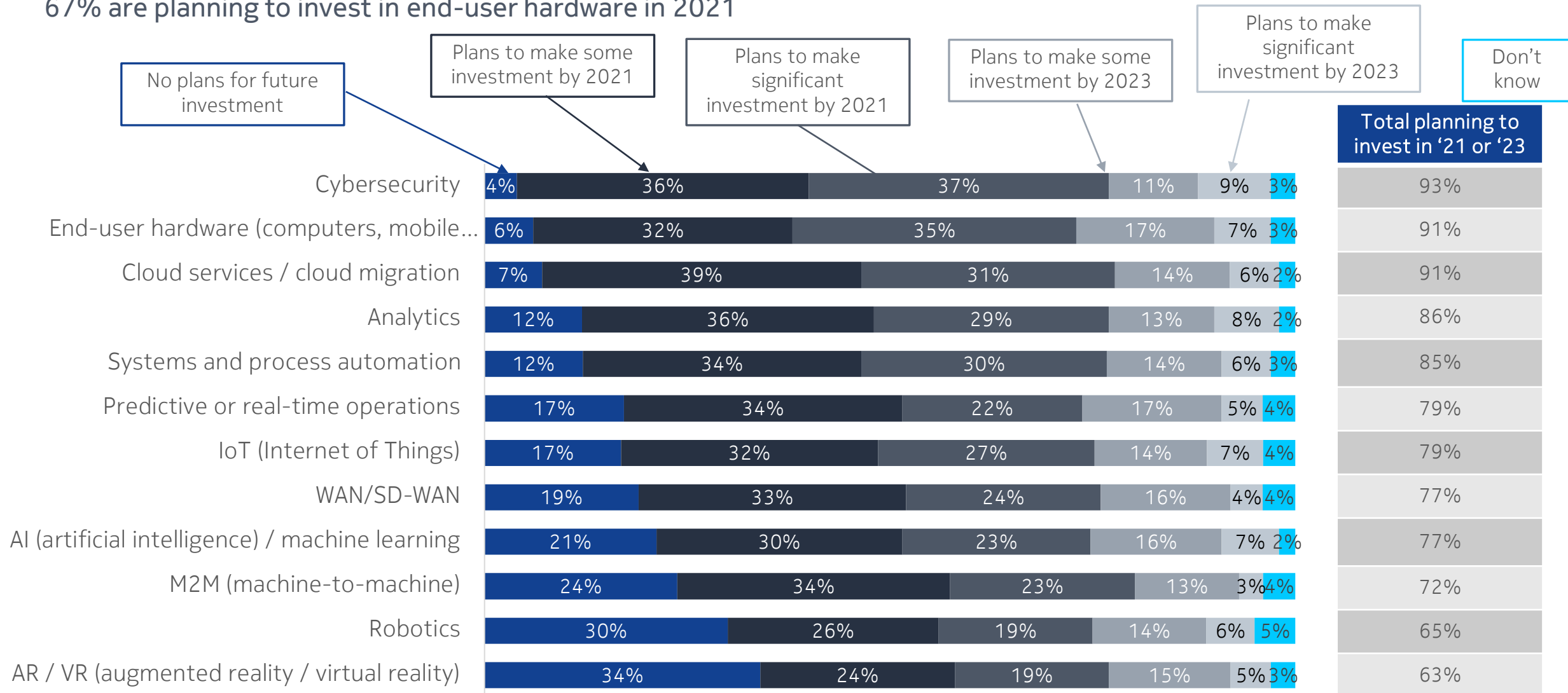
Nearly 1 in 3 fear being outpaced by the competition should they not invest in 5G, however 23% feel whatever their 5G investment they will still be successful



5G: the technology enabler

73% of technology buyers are planning to investment in cybersecurity in 2021

67% are planning to invest in end-user hardware in 2021

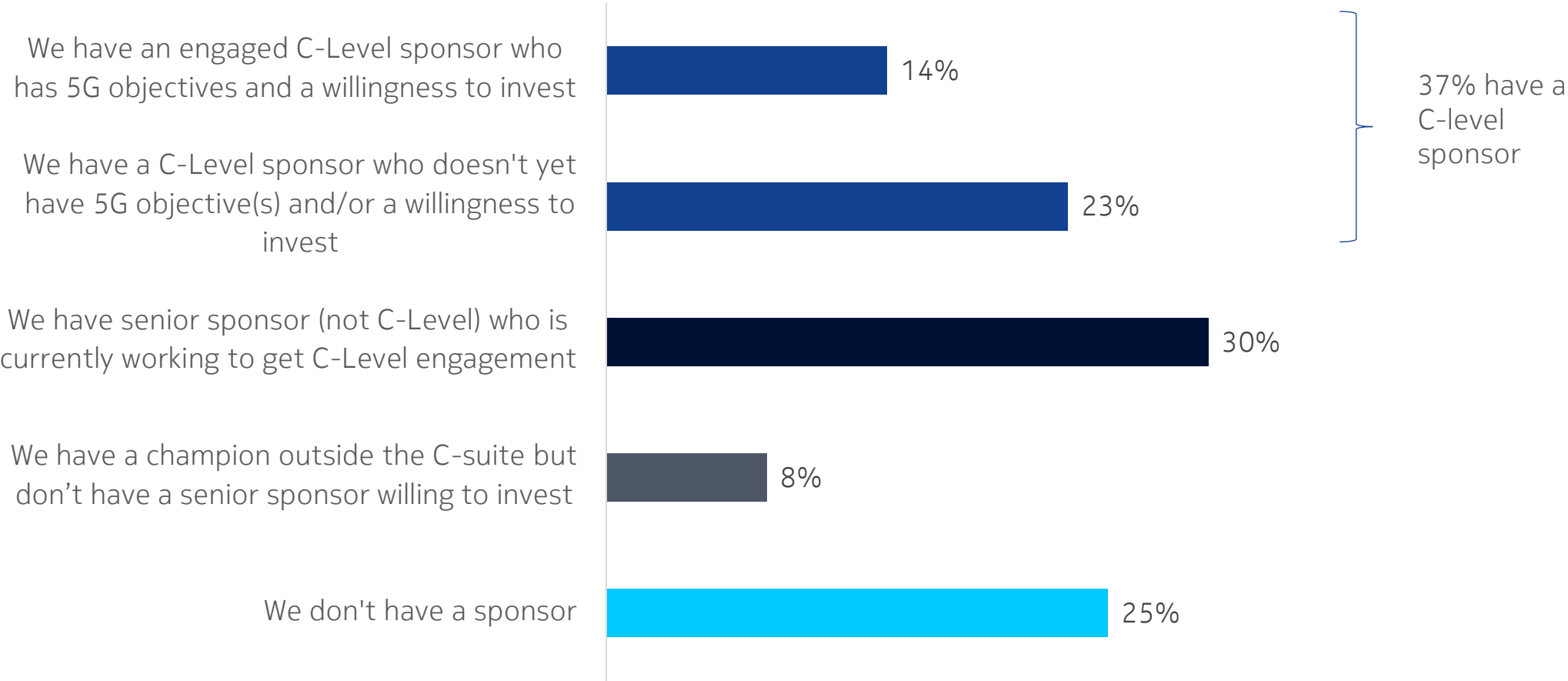


Q. Which of the following will your organization invest in over the next 2-3 years?

Base: 207

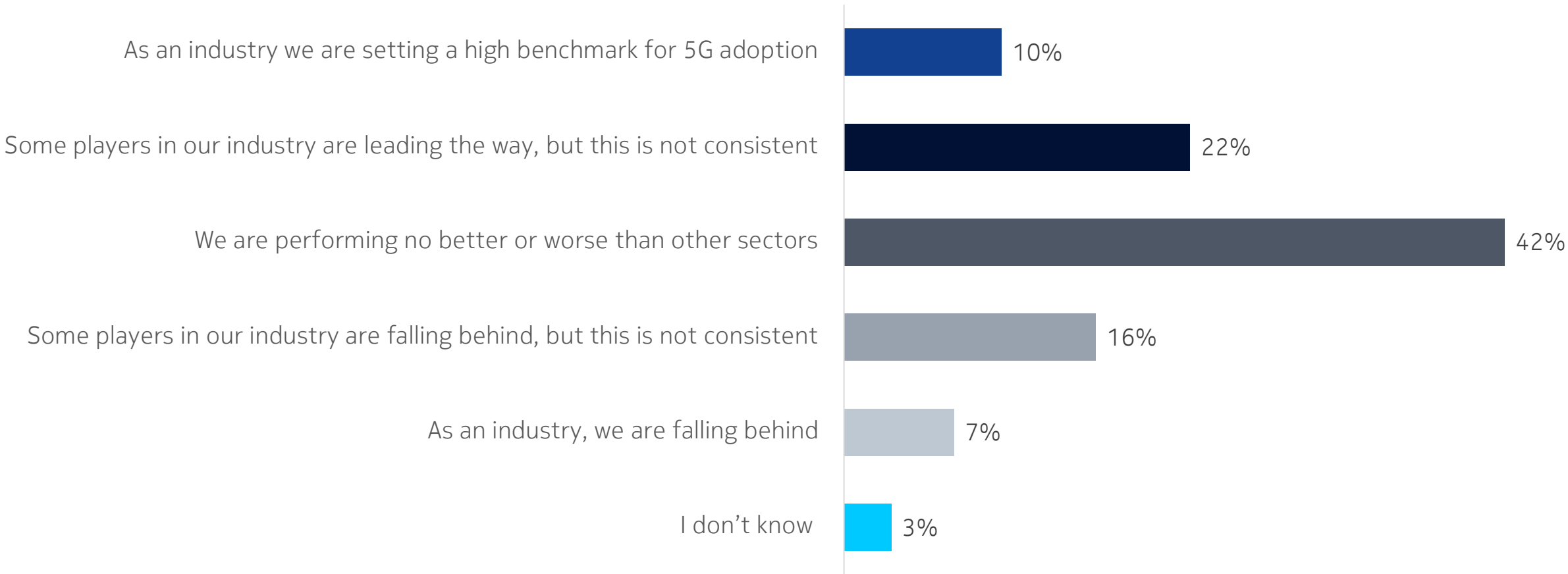
Leading from the top?

37% have C-Level sponsor for 5G implementation in their organization
 A quarter don't have any 5G championing from management (25%)



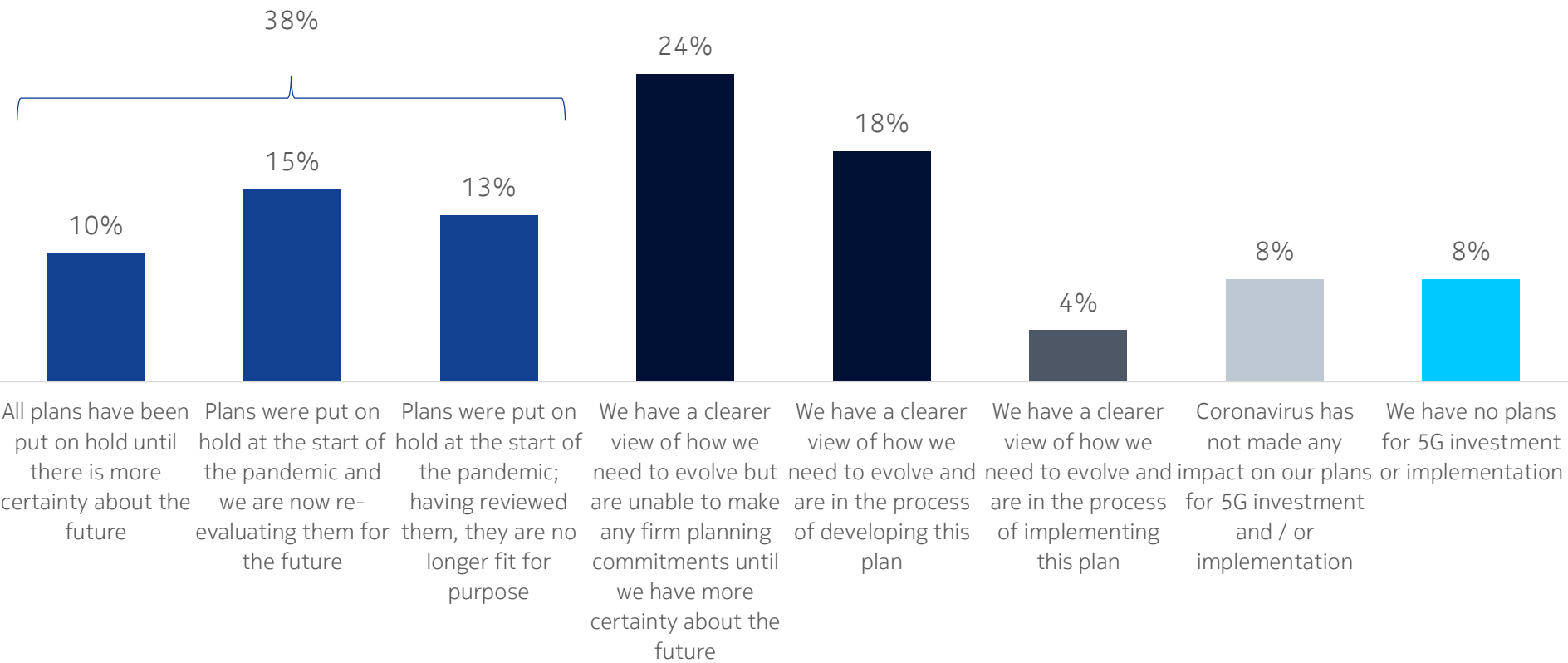
5G: Few are resting on their laurels

Businesses are more likely to feel that their industry is middling in terms of 5G adoption, with 10% setting a high benchmark



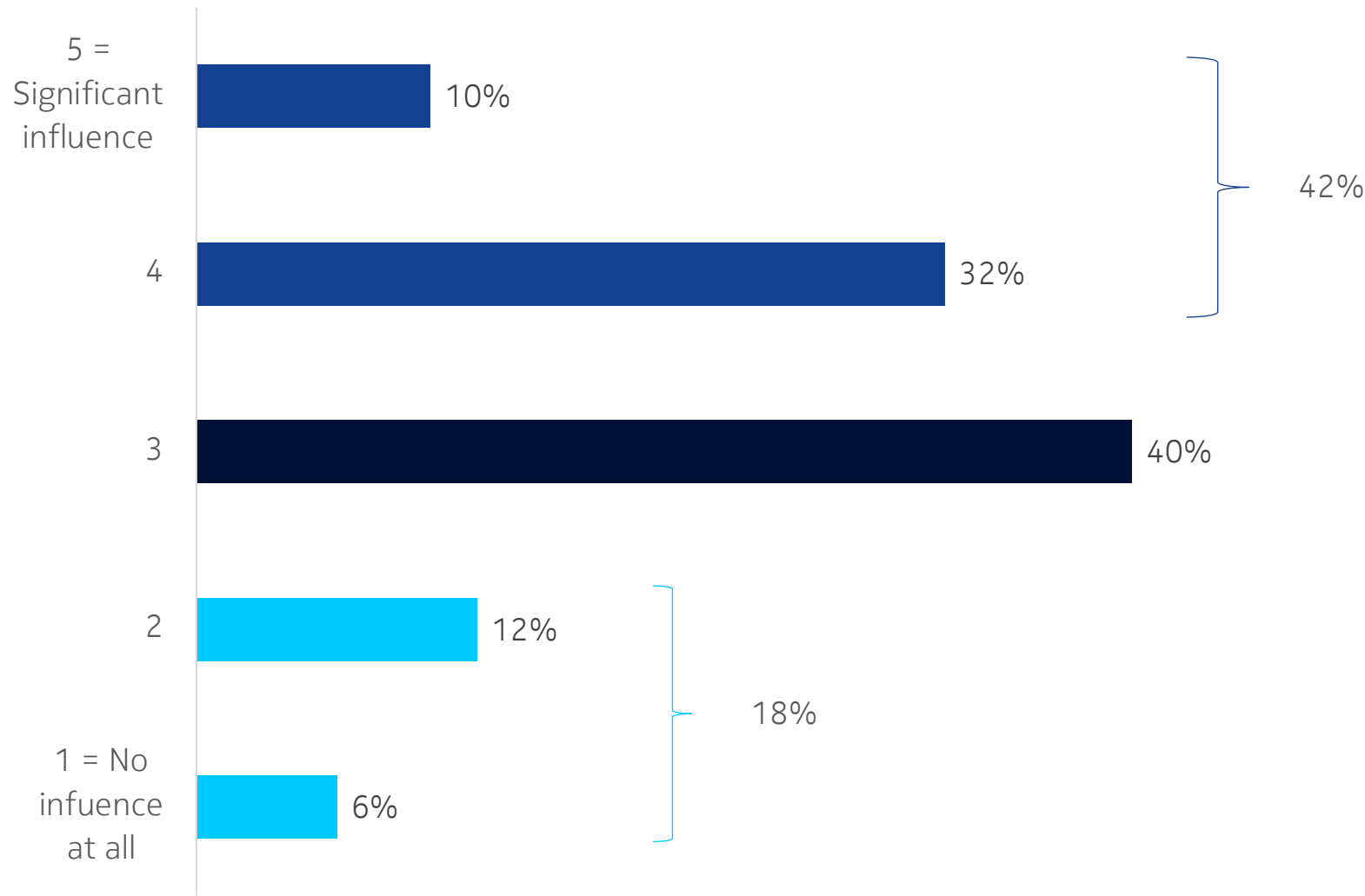
5G: Where next, post-COVID?

Just 4% are now implementing a clearer 5G investment plan due to COVID-19
 38% are still on hold



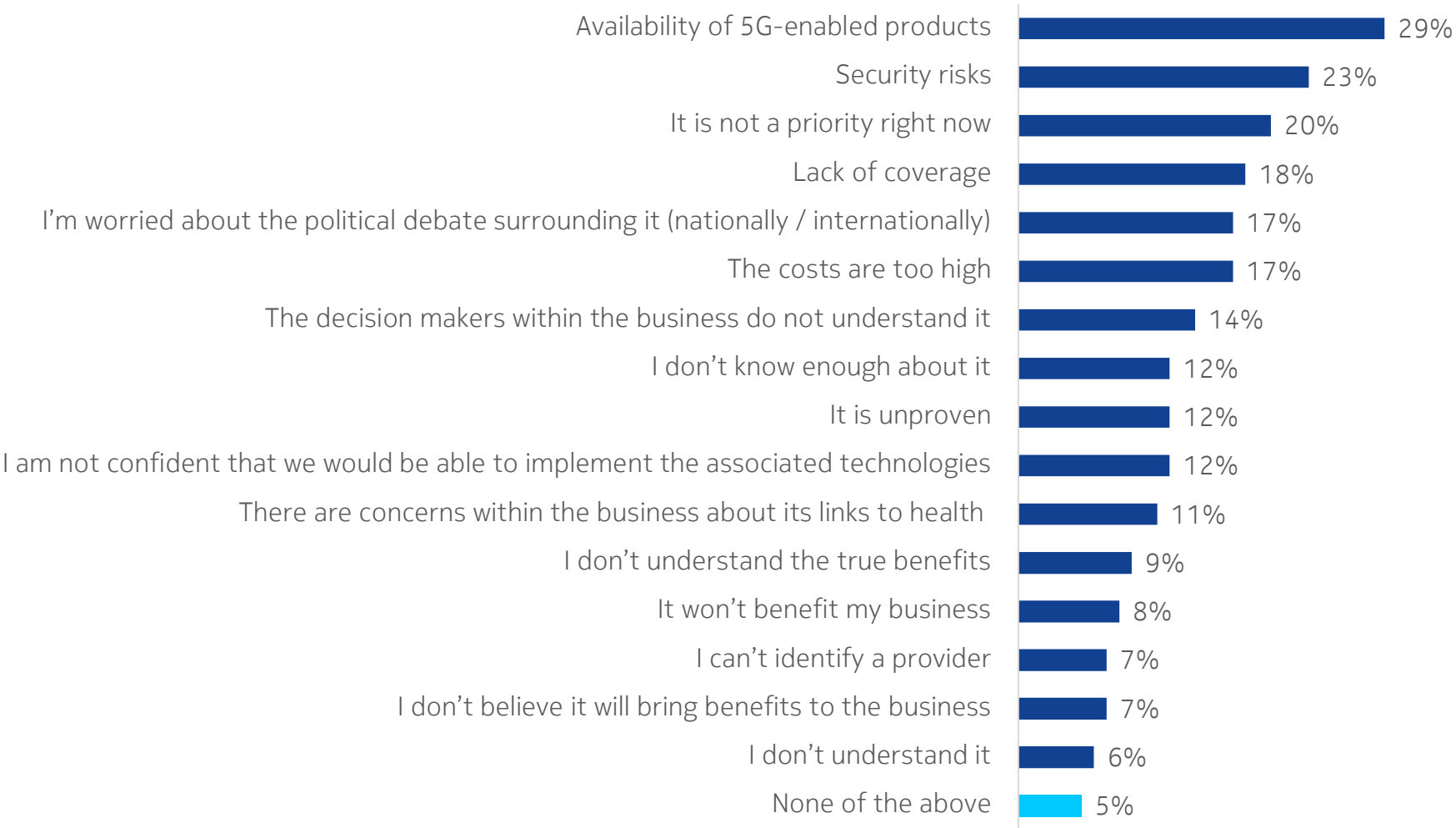
5G: The benefits of the unknown

42% are influenced by the unknown potential of 5G in their investment decision



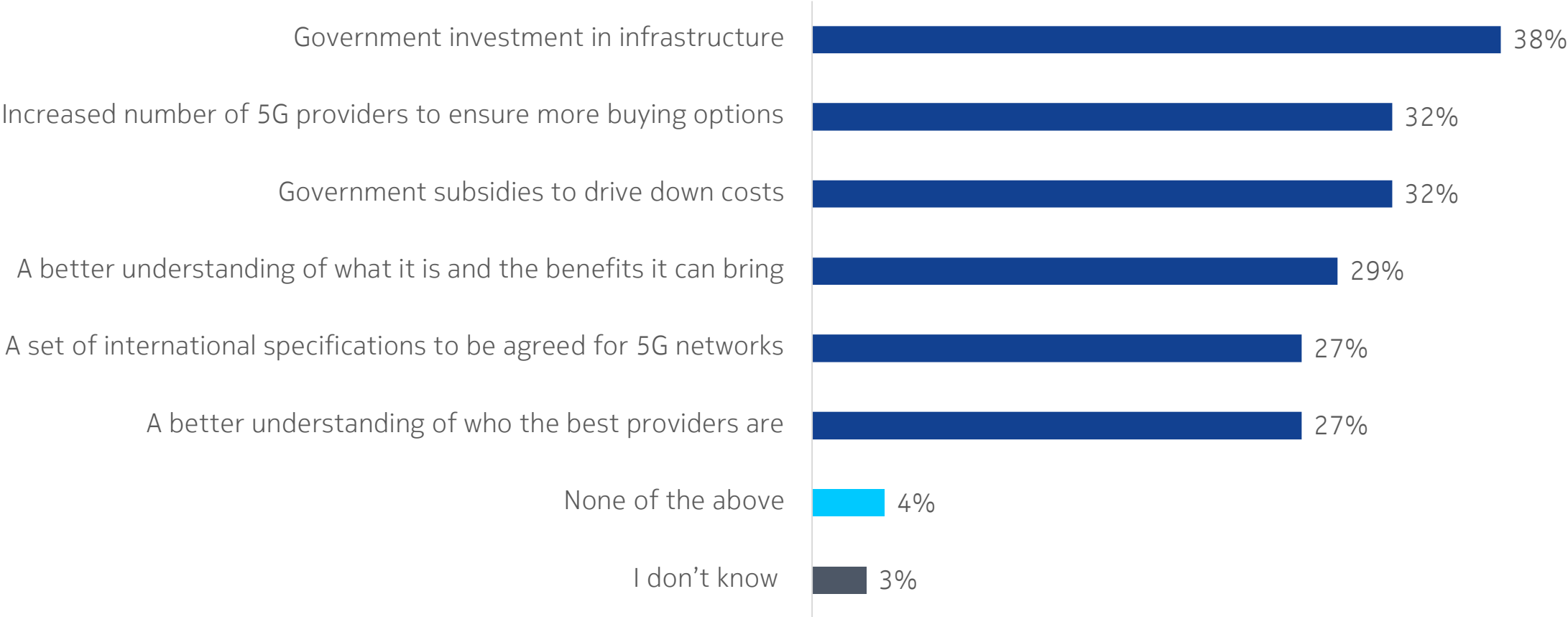
5G: What's stopping organizations?

Availability of 5G enabled products and security risks are the biggest barriers to 5G investment



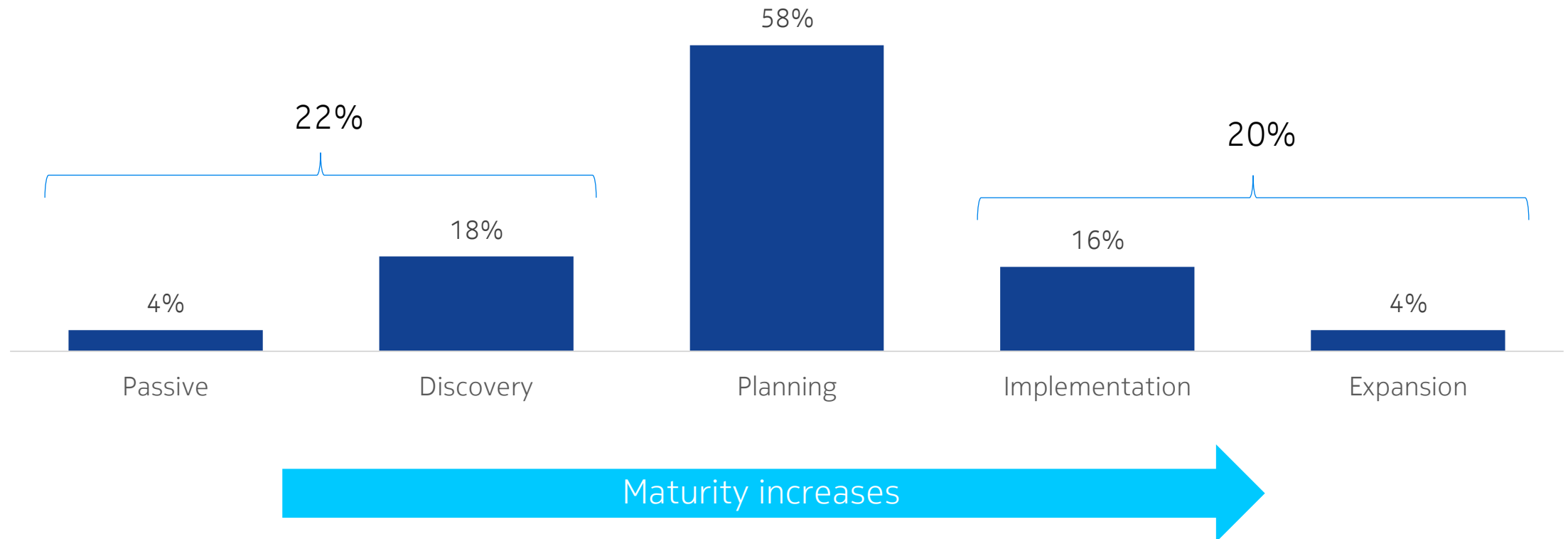
How can they get there?

More Government support in terms of both investment in infrastructure and subsidies to drive down costs would boost investment in 5G, as well as an increased number of providers



5G maturity – the current picture

A fifth of British organizations are at the top end of 5G maturity (20%), with 4% at the highest level; 22% have lower 5G maturity; and 58% occupy a middle ground



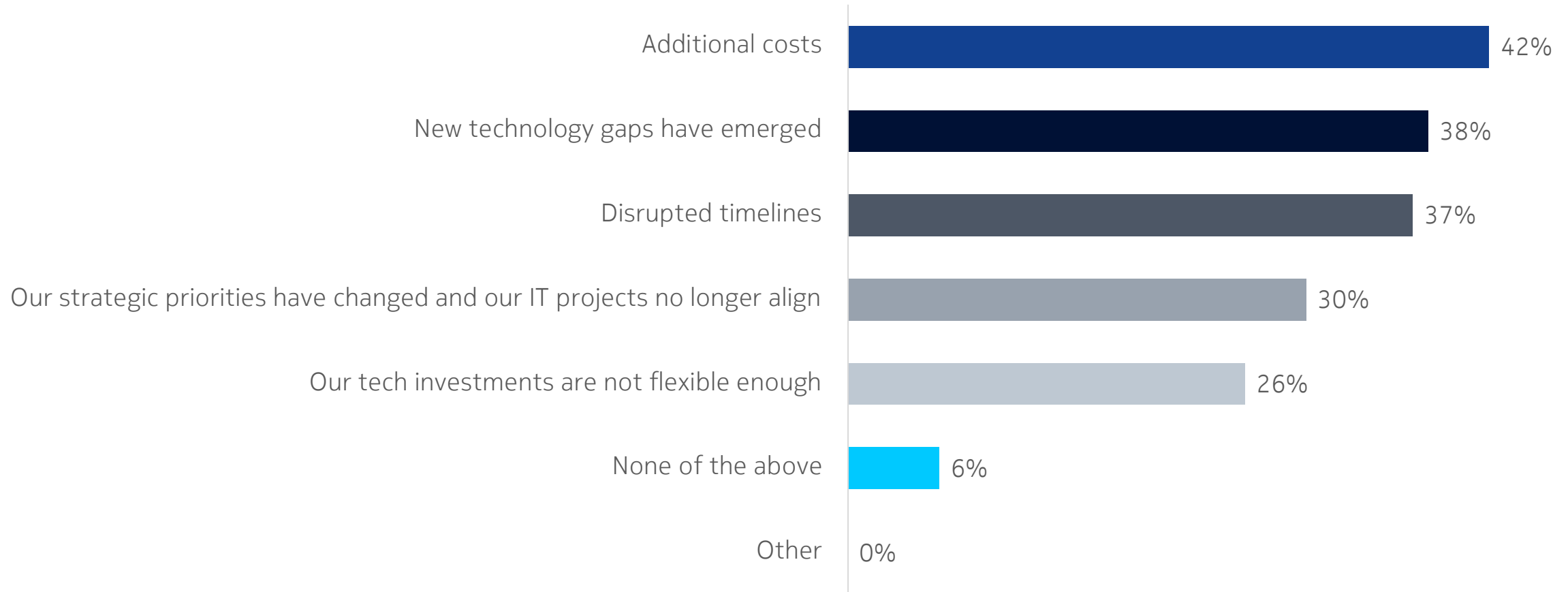
United States



NOKIA

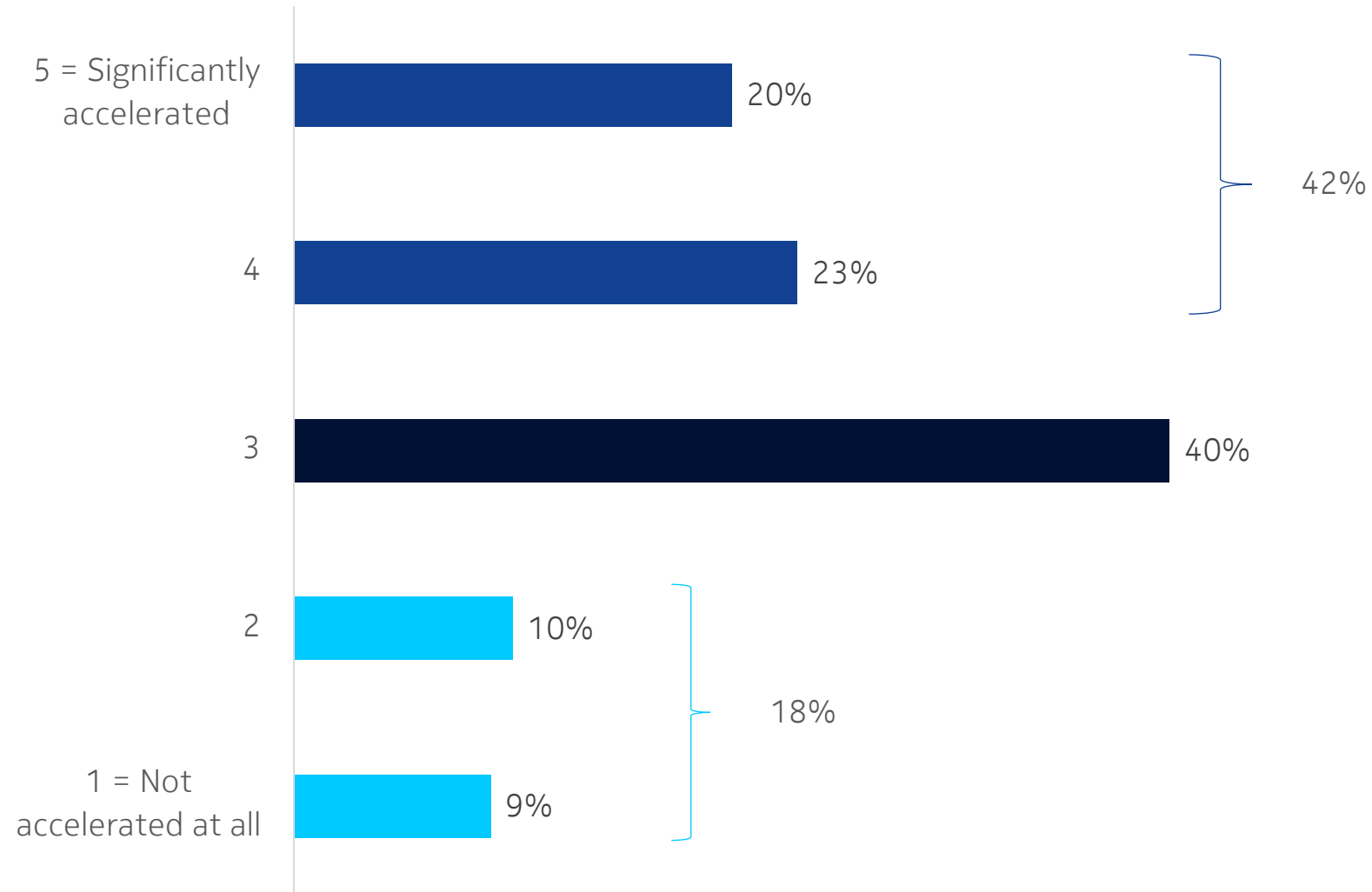
The COVID impact

Additional costs (44%), disrupted timelines (42%) and the emergence of new technology gaps (38%) have been the most prevalent impacts of COVID-19 on technology road maps



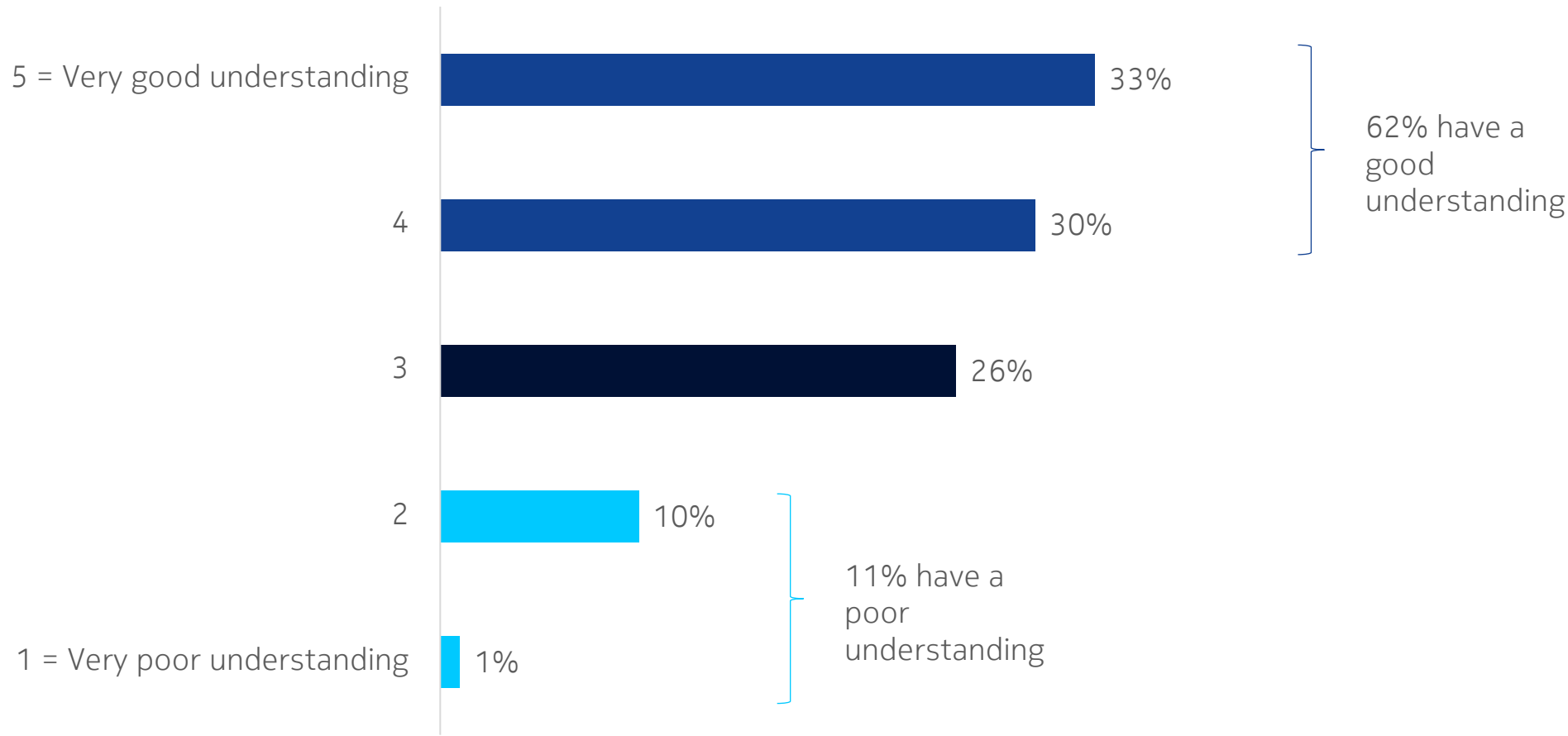
Digital transformation - the COVID effect

42% have expediated their digital transformation program due to COVID-19



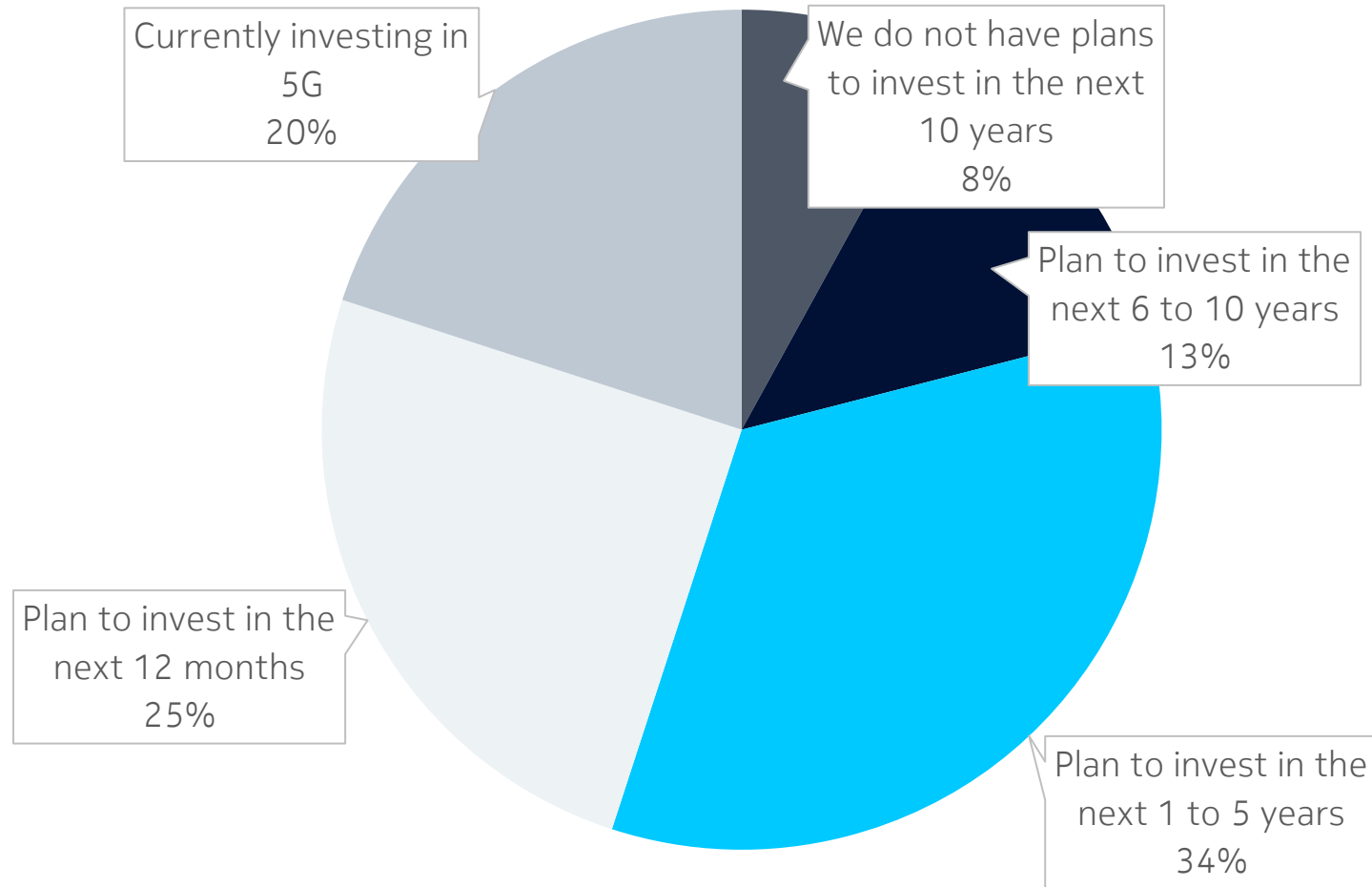
Levels of understanding are still mixed

62% think there is a good understanding of 5G in their organization



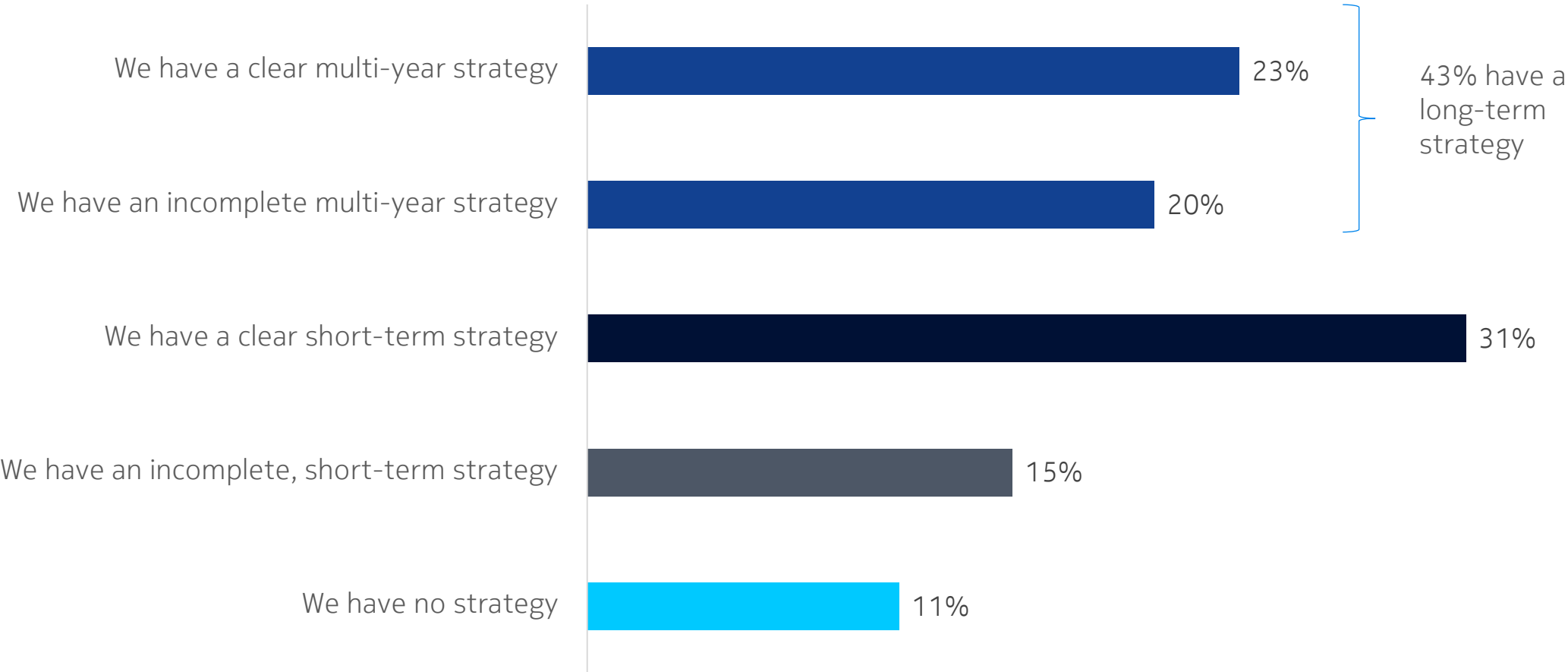
Planning for 5G

20% are currently investing in 5G; with 79% planning investment in the next 5 years



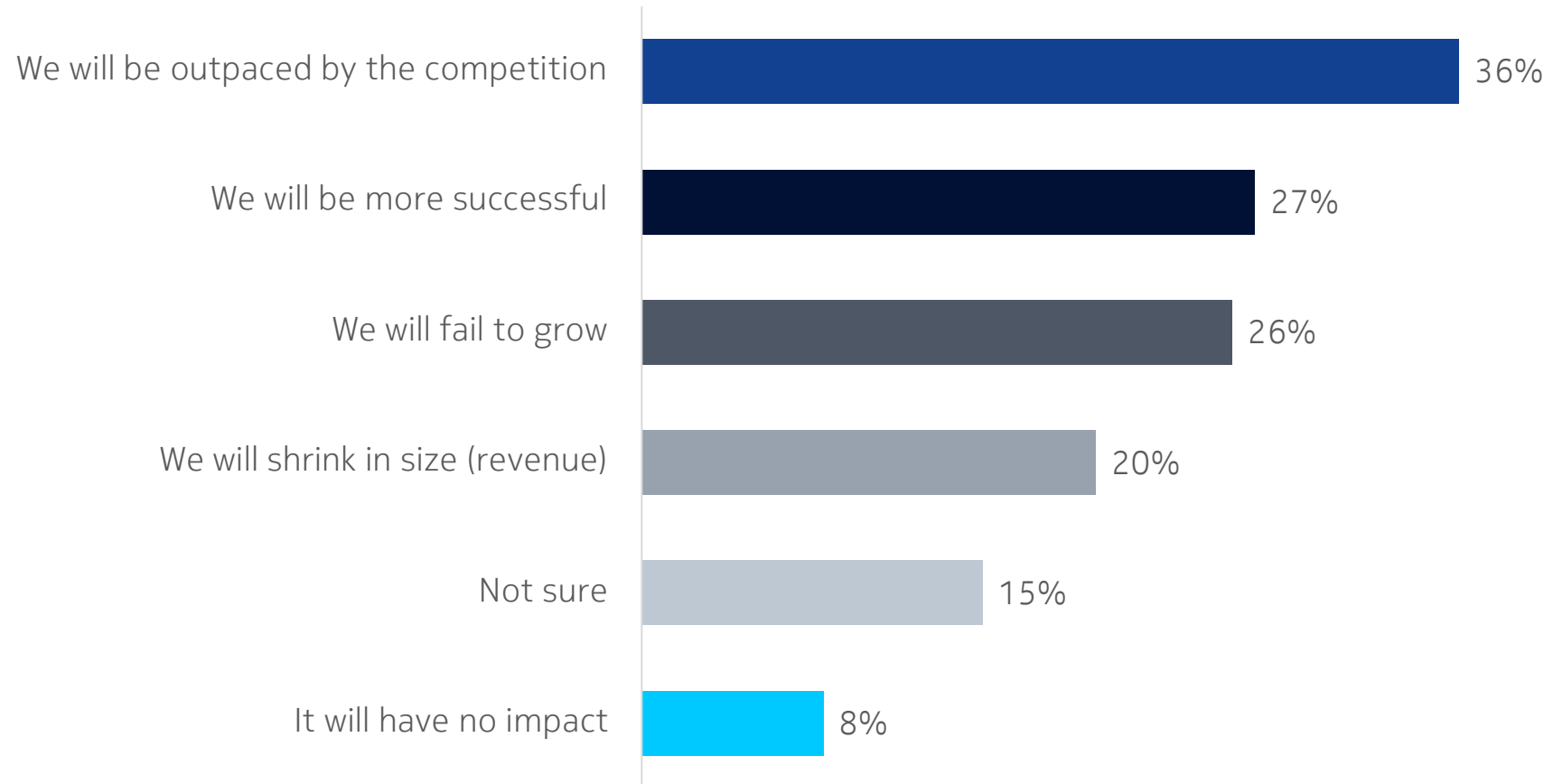
A short or long-term approach?

43% of technology decision makers have a long term 5G strategy
 Just over 1 in 10 have no strategy whatsoever (11%)



The risks of standing still

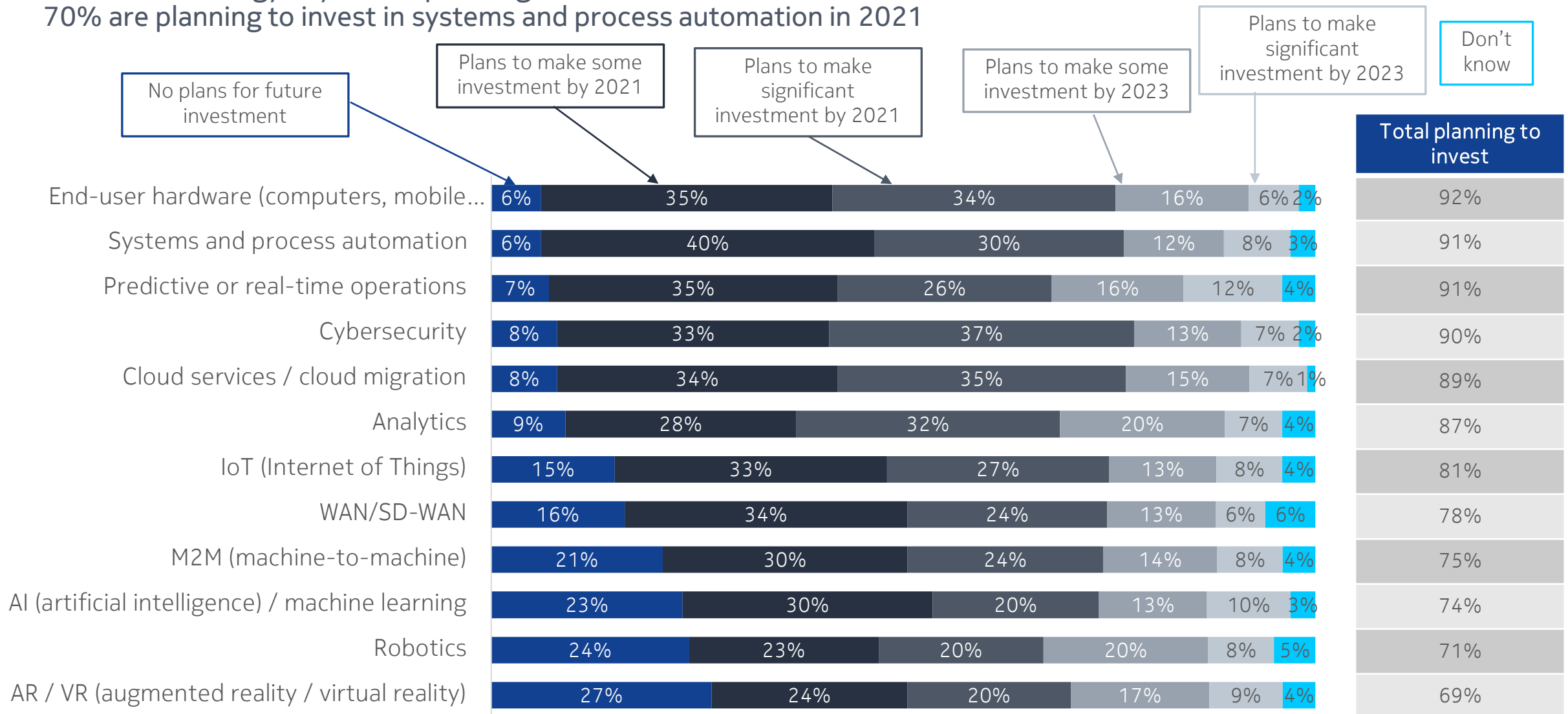
Over a third fear being outpaced by the competition should they not invest in 5G, however 27% feel whatever their 5G investment they will still be successful



5G: the technology enabler

69% of technology buyers are planning to investment in end-user hardware in 2021

70% are planning to invest in systems and process automation in 2021

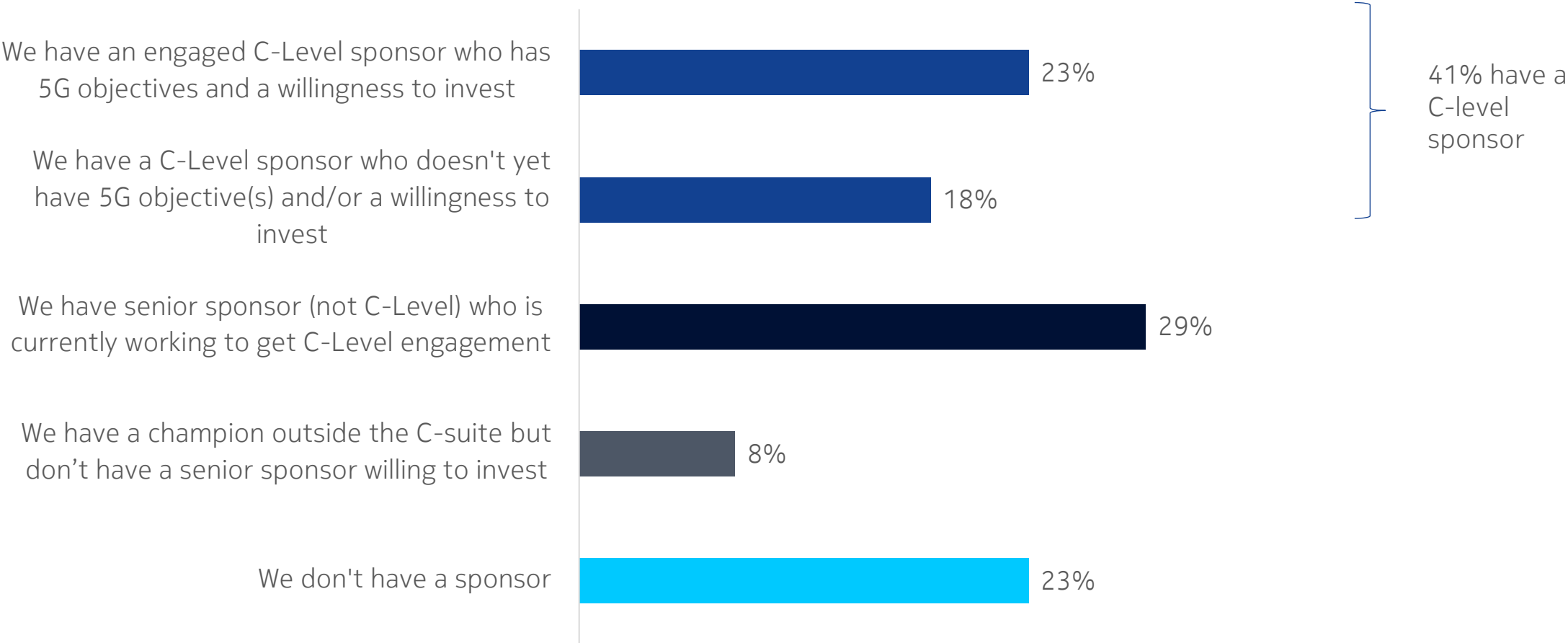


Q. Which of the following will your organization invest in over the next 2-3 years?

Base: 210

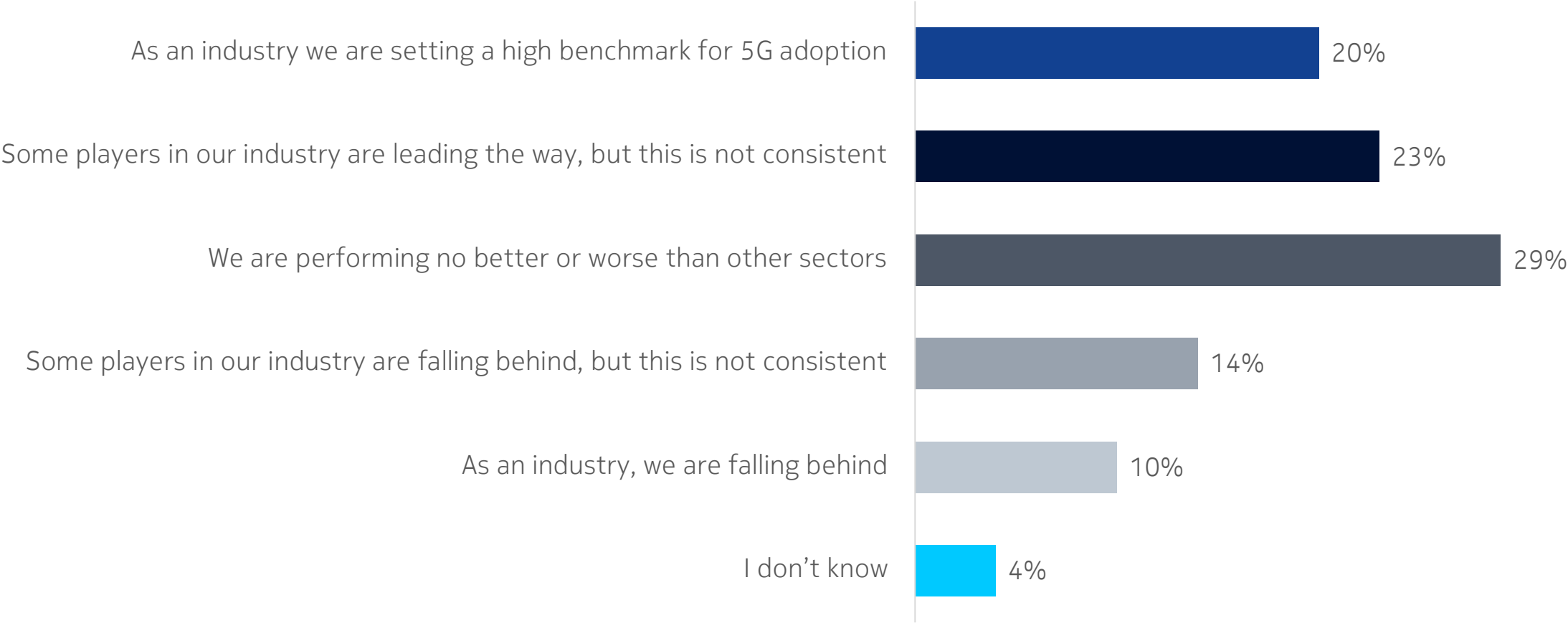
Leading from the top?

41% have C-Level sponsor for 5G implementation in their organization
 A quarter don't have any 5G championing from management (23%)



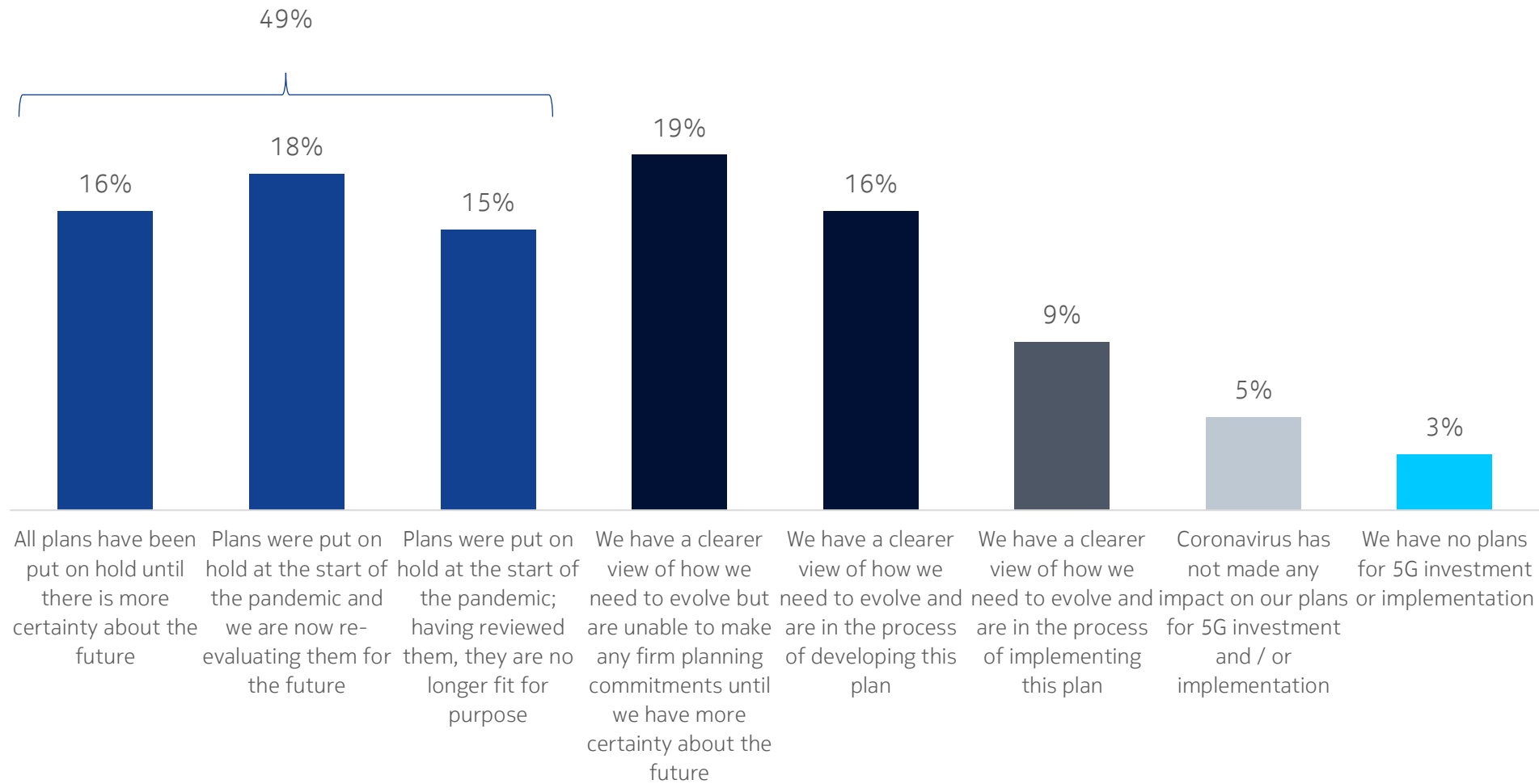
5G: Few are resting on their laurels

Businesses are more likely to feel that their industry is middling in terms of 5G adoption, with 20% setting a high benchmark



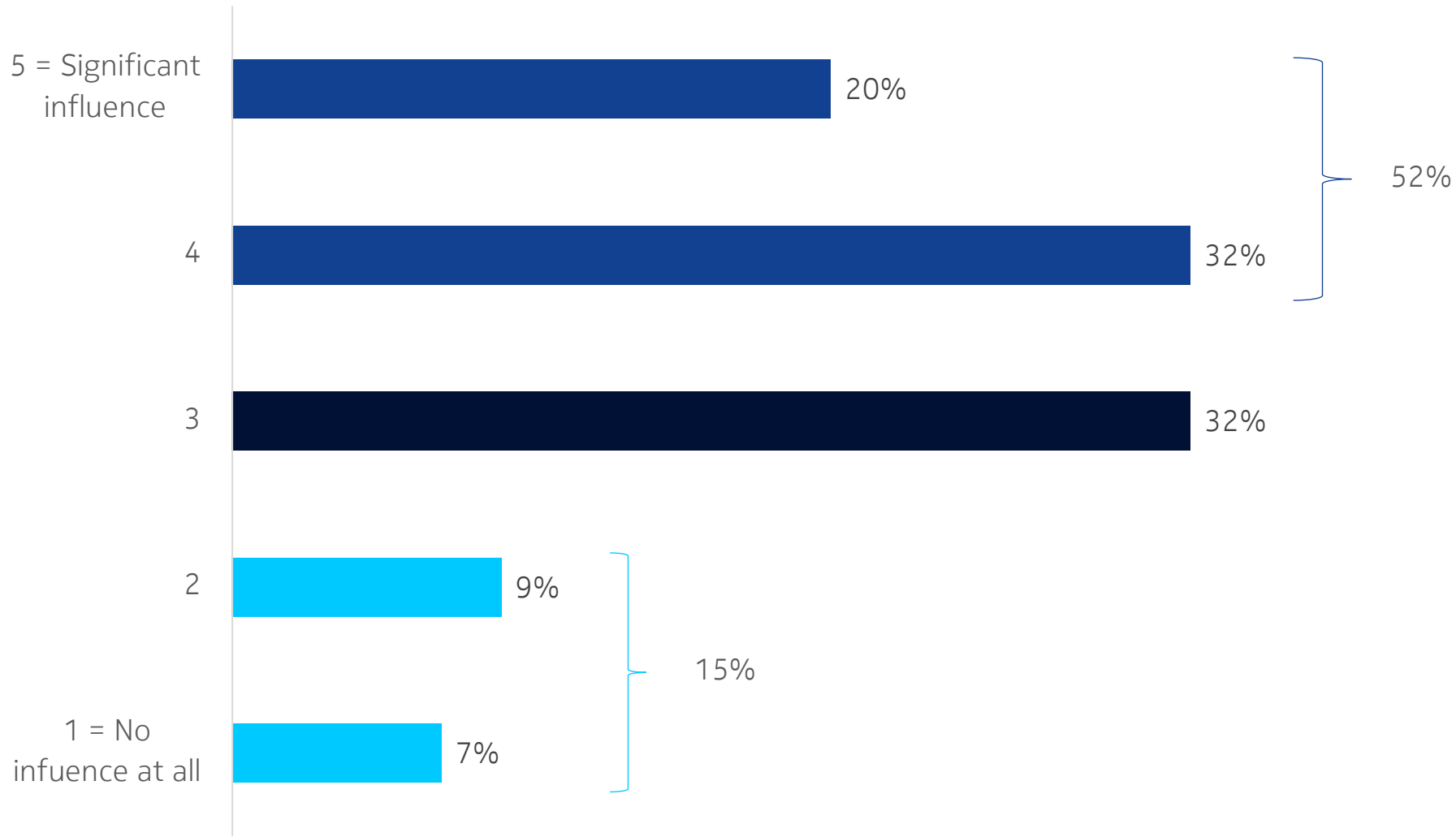
5G: Where next, post-COVID?

1 in 10 (9%) are now implementing a clearer 5G investment plan due to COVID-19
 49% are still on hold



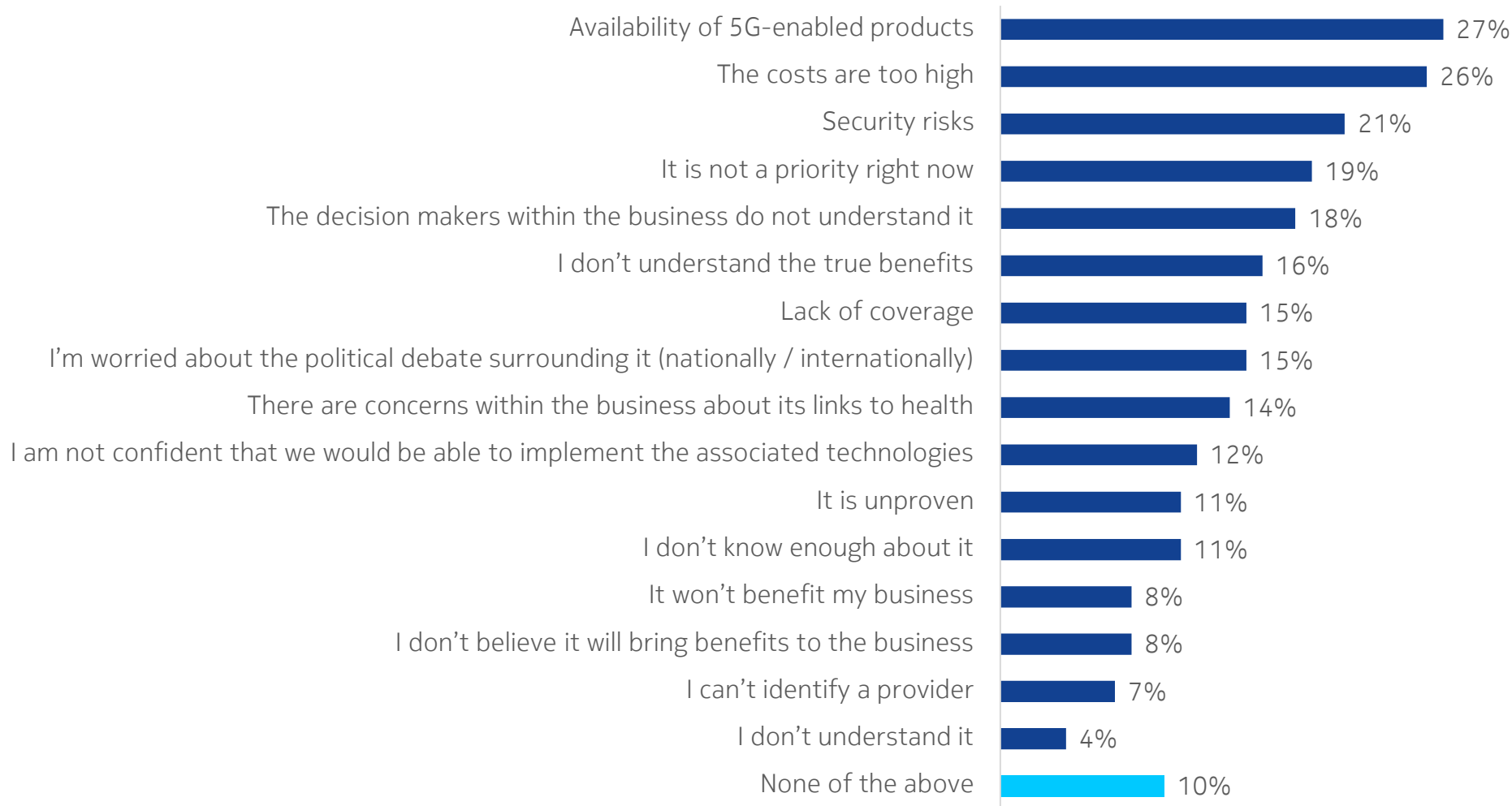
5G: The benefits of the unknown

52% of technology buyers are motivated to invest in 5G by it's unknown potential



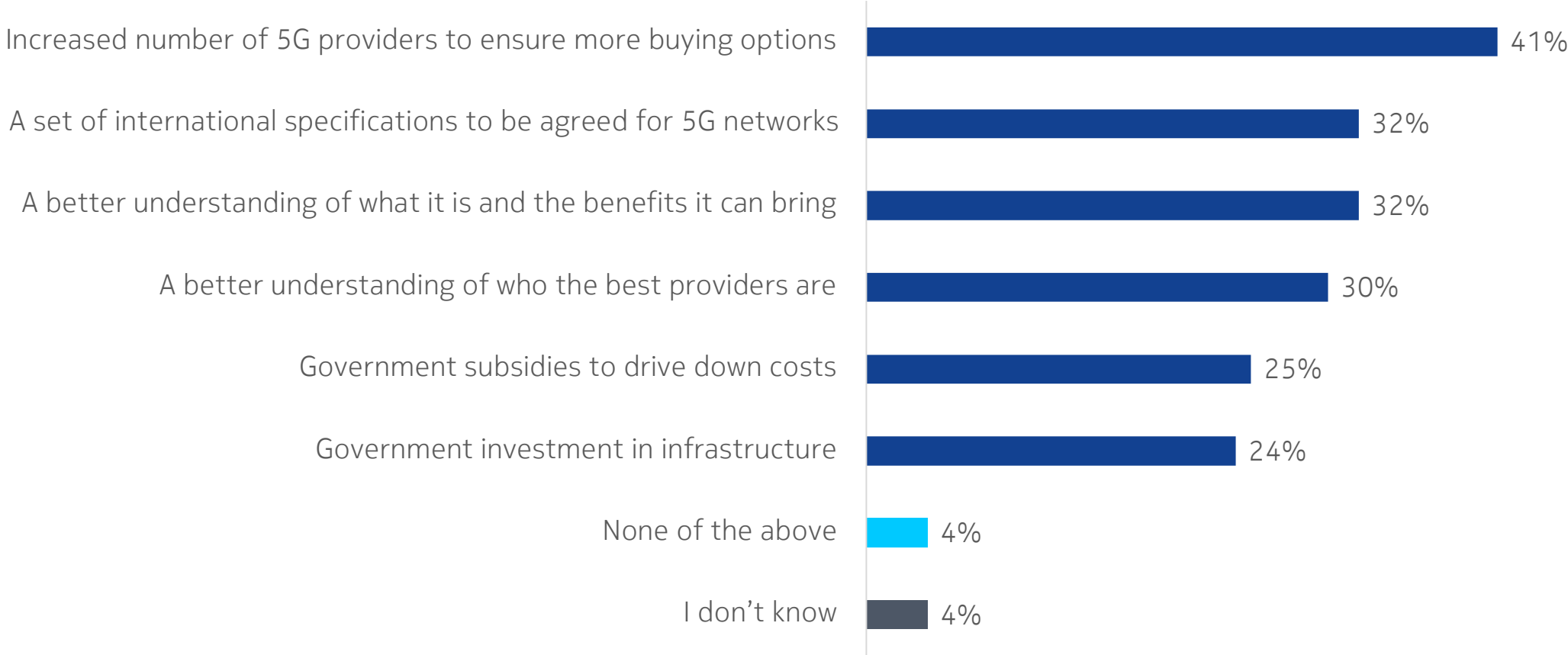
5G: What's stopping organizations?

Availability of 5G enabled products and costs are the biggest barriers to 5G investment



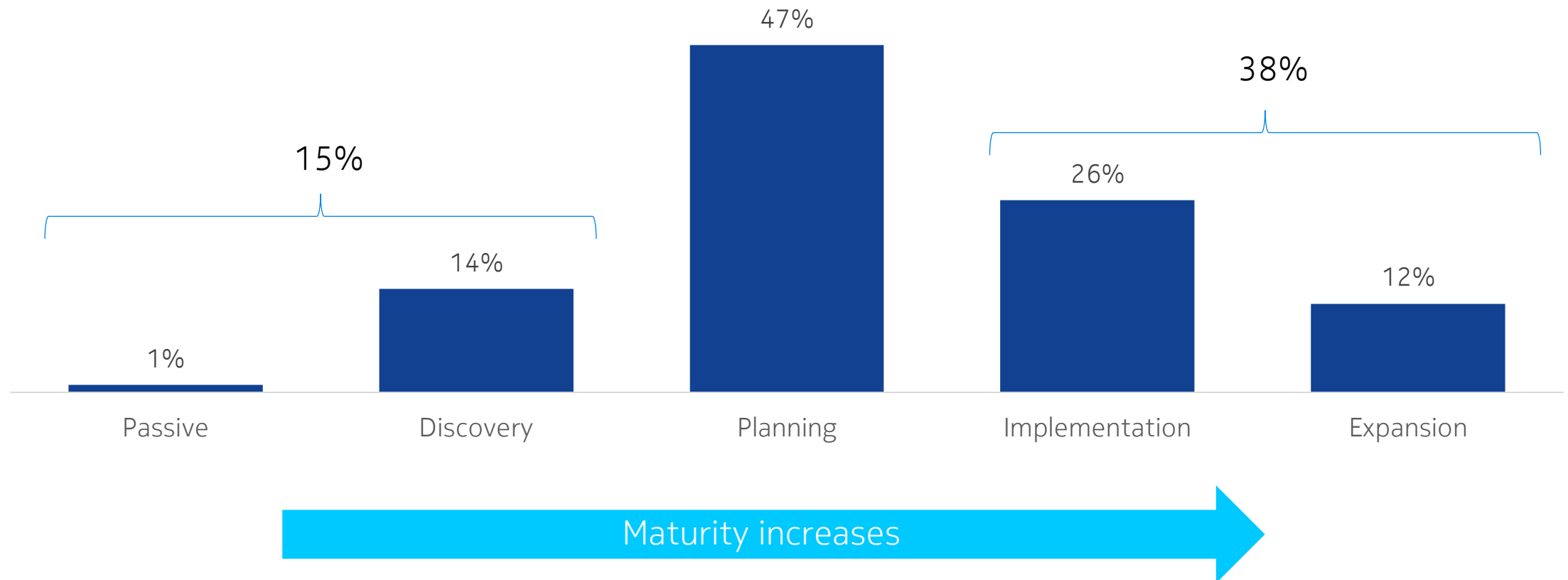
How can they get there?

A lack of 5G providers in the marketplace is holding back greater investment and implementation.



5G maturity – the current picture

Nearly two in five American organizations are at the top end of 5G maturity (38%), with 12% at the highest level; 15% have lower 5G maturity; and 47% occupy a middle ground

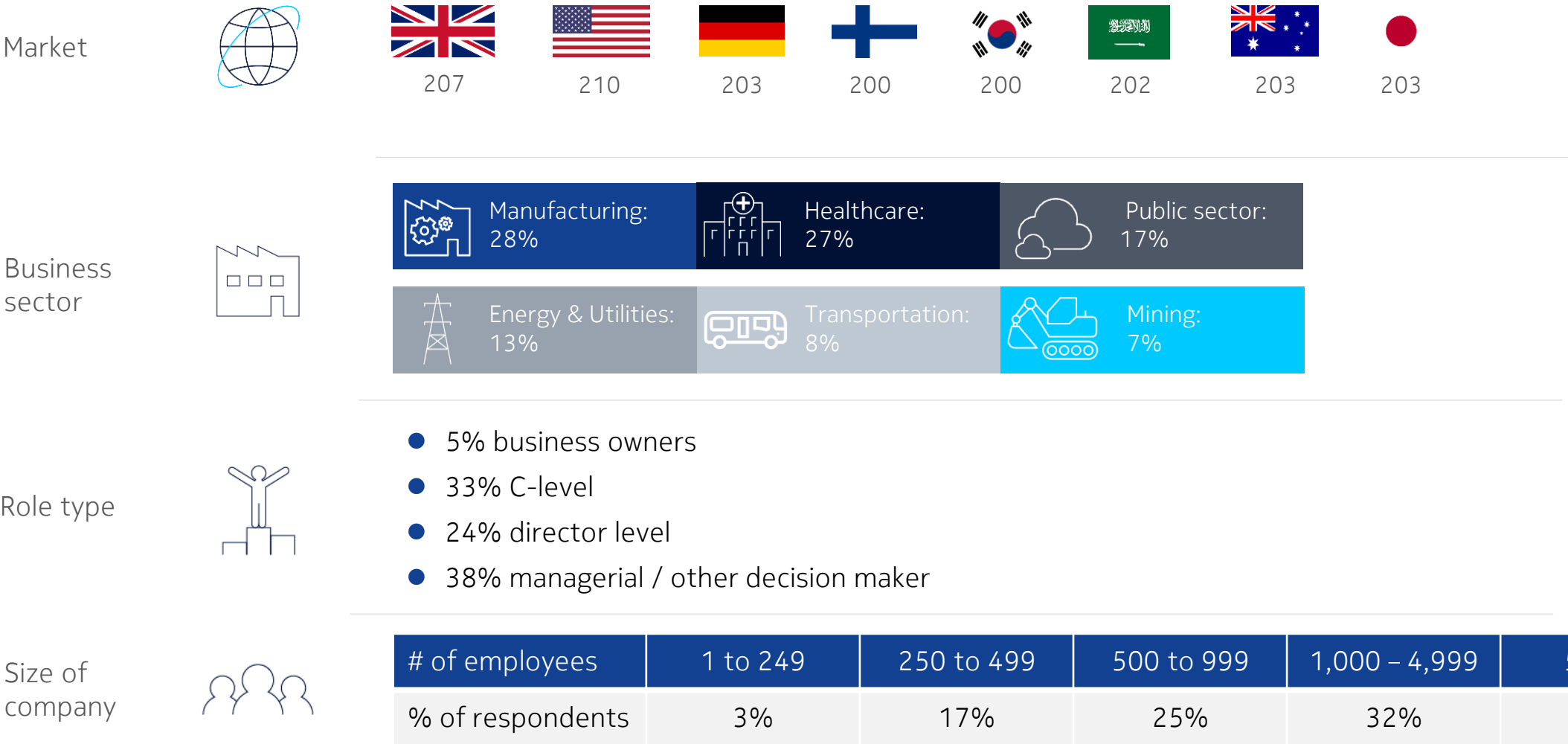


Survey methodology and demographics

We surveyed 1,628 technology purchasing decision makers in eight markets and across six industry sectors in July and August 2020. This fieldwork was carried out during the COVID-19 pandemic.

Demographics

Total respondents: 1,628





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About Nokia

We create the technology to connect the world. Only Nokia offers a comprehensive portfolio of network equipment, software, services and licensing opportunities across the globe. With our commitment to innovation, driven by the award-winning Nokia Bell Labs, we are a leader in the development and deployment of 5G networks.

Our communications service provider customers support more than 6.4 billion subscriptions with our radio networks, and our enterprise customers have deployed over 1,300 industrial networks worldwide. Adhering to the highest ethical standards, we transform how people live, work and communicate. For our latest updates, please visit us online www.nokia.com and follow us on Twitter @nokia.

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