

Dell Technologies

Digital Transformation

Index II

*Global Benchmark Indicates Businesses Status of Digital Transformation
Across the Globe and How They are Performing in this Digital Age*

VANSON BOURNE RESEARCH FINDINGS & METHODOLOGY



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Section 1: Research Methodology

Research Methodology

Vanson Bourne

BIENNIAL STUDY

The DT Index debuted in 2016 to create a repeatable methodology that maps digital transformation progress of mid- to large-sized companies across the world.

4,600 QUANTITATIVE

Responses from Director, C-Suite, mid-size to enterprise w/key functions

- Finance
- Sales
- IT/Tech
- Customer services
- Marketing
- Production & Manufacturing
- Owner/ Executive
- R&D
- Digital
- Customer Experience
- Logistics and Supply Chain

12 INDUSTRIES

- Automotive
- Financial Services
- Public Healthcare
- Private Healthcare
- Technology and Telecoms
- Insurance
- Life Sciences
- Manufacturing
- Media and Entertainment
- Oil and Gas
- Retail and Consumer

42
COUNTRIES/REGIONS

AMERICAS

Argentina, Brazil, Canada, Chile, Colombia, Mexico, US

APJC

Australia, China Mainland, India, Indonesia, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan, Thailand

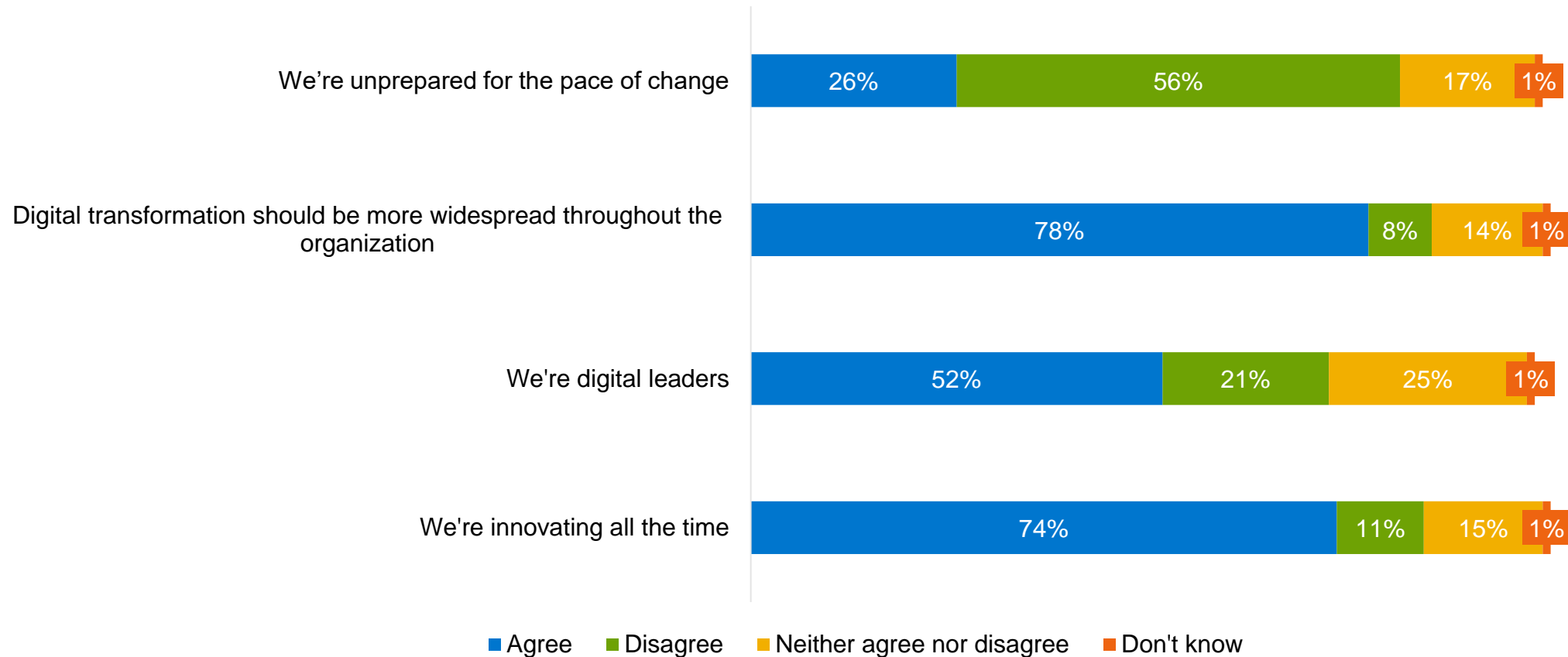
EMEA

Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Netherlands, Norway, Poland, Portugal, Russia, South Africa, Spain, Sweden, Switzerland, Turkey, UAE & Saudi Arabia, UK

Section 2:

Future Outlook and Disruptive Trends

Response to Digital Transformation Today



78% believe digital transformation should be more widespread throughout their organization

“To what extent do the following statements reflect your organization’s response to the pace of digital disruption?” Base: all respondents (4600)

Five Year Outlook For Their Organization

We'll be active members of an ecosystem of innovators – sharing best practice



We'll struggle to meet changing customer demands



We'll struggle to prove we're a trustworthy organization



I'm worried we'll be left behind



We'll be a digital leader in our industry



We'll disrupt rather than be disrupted



■ Agree ■ Disagree ■ Neither agree nor disagree ■ Don't know

49% will struggle to prove they're a trustworthy organization

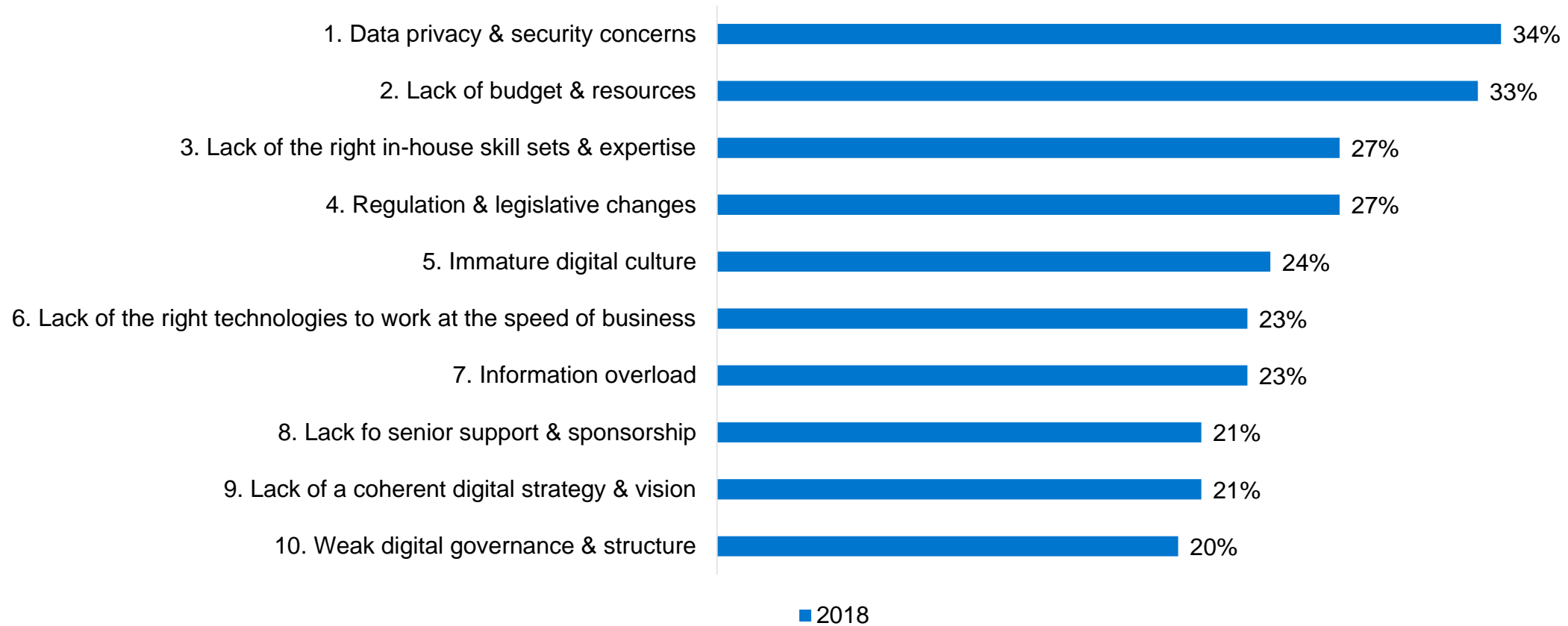
Just 17% strongly agree they will disrupt rather than be disrupted

"Looking to the next 5 years, to what extent do you agree with the following statements about your organization?" Base: all respondents (4600)

Section 3:

Barriers to Transformation

Barriers To Digital Progress



“What are the main barriers to achieving digital transformation within your organization?” Base: all respondents (4600) Only showing top 10 answers (out of 13)

Barriers To Digital Progress: 2016 to 2018

2016

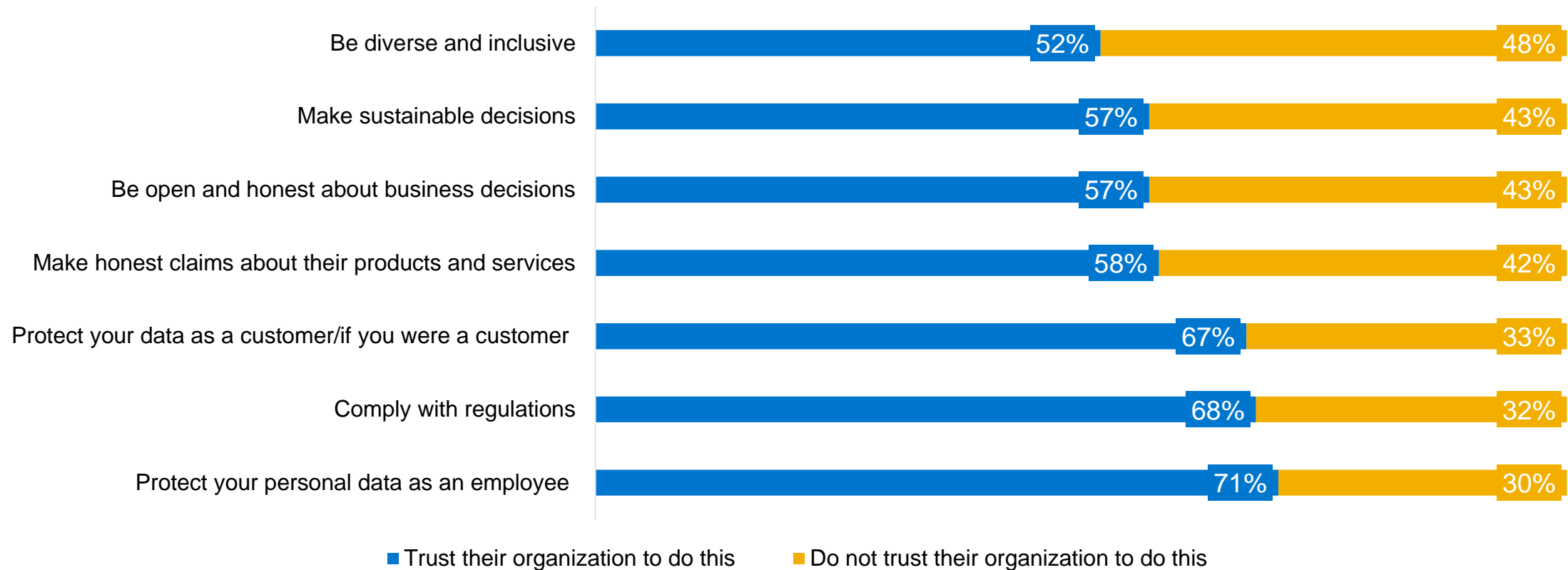
1	Lack of budget & resources
2	Lack of the in-house right skills sets and expertise
3	Lack of senior support & sponsorship
4	Lack of the right tech to work at the speed of business
5	Data privacy & security concerns
6	Reactive approach to competitor activities
7	Lack of a coherent digital strategy & vision
8	Immature digital culture
9	Regulation & legislative changes
10	Fragmented & siloed computing environment
11	Weak digital governance & structure
12	Unable to extract valuable insights from data
13	Information overload

2018

1	↑	Data privacy & security concerns
2	↓	Lack of budget & resources
3	↓	Lack of the in-house right skills sets and expertise
4	↑	Regulation & legislative changes
5	↑	Immature digital culture
6	↓	Lack of the right tech to work at the speed of business
7	↑	Information overload
8	↓	Lack of senior support & sponsorship
9	↓	Lack of a coherent digital strategy & vision
10	↑	Weak digital governance & structure
11	↓	Reactive approach to competitor activities
12	↓	A fragmented or siloed computing environment
13	↓	Unable to extract valuable insights from data

“What are the main barriers to achieving digital transformation within your organization?” Base: all 2018 respondents (4600) and all 2016 respondents (4000)

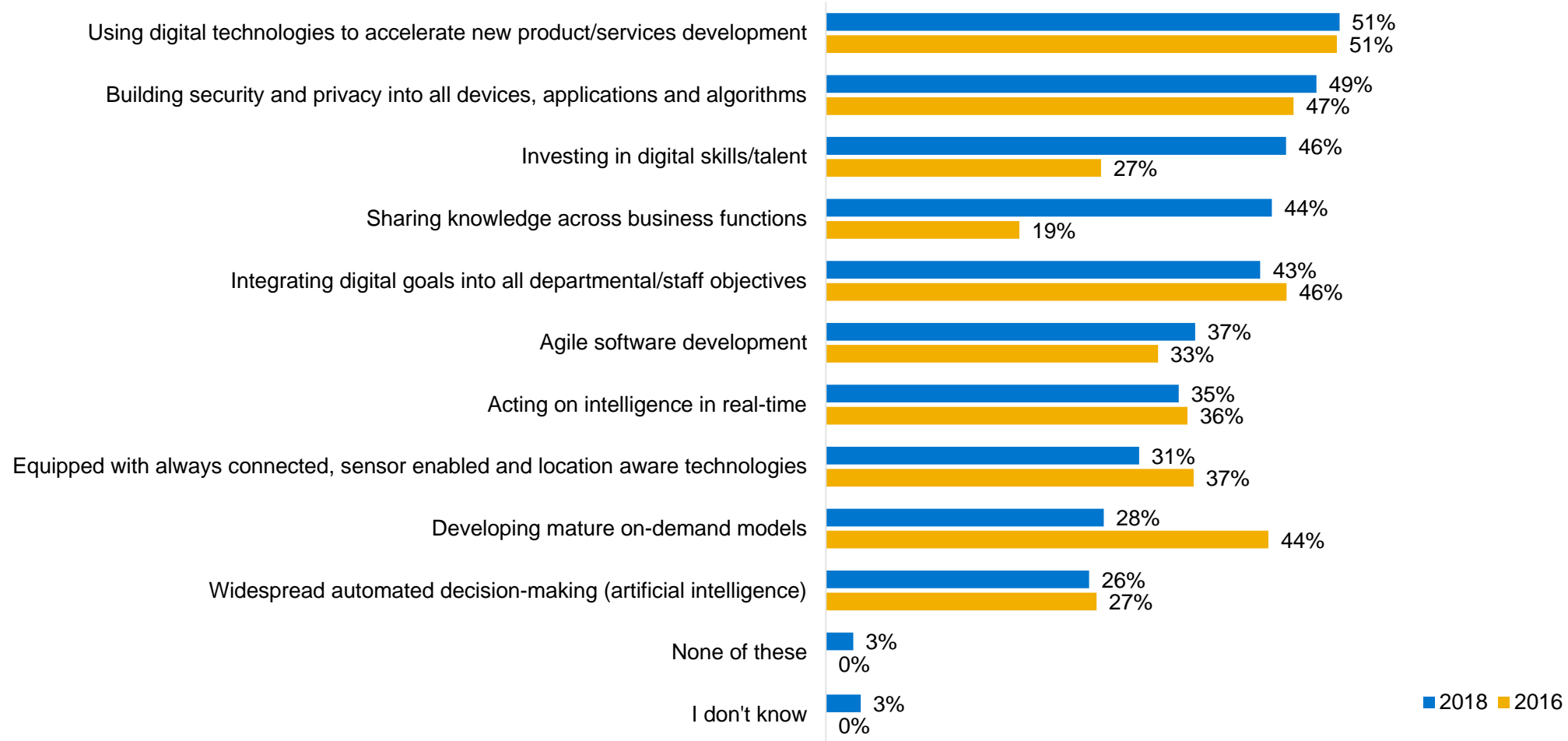
Leaders' Confidence in Their Organizations to:



“Do you trust your organization with the following?” Base: all respondents (4600). Respondents who did not select ‘trust’, were interpreted as not trusting their organization in the relevant regard.

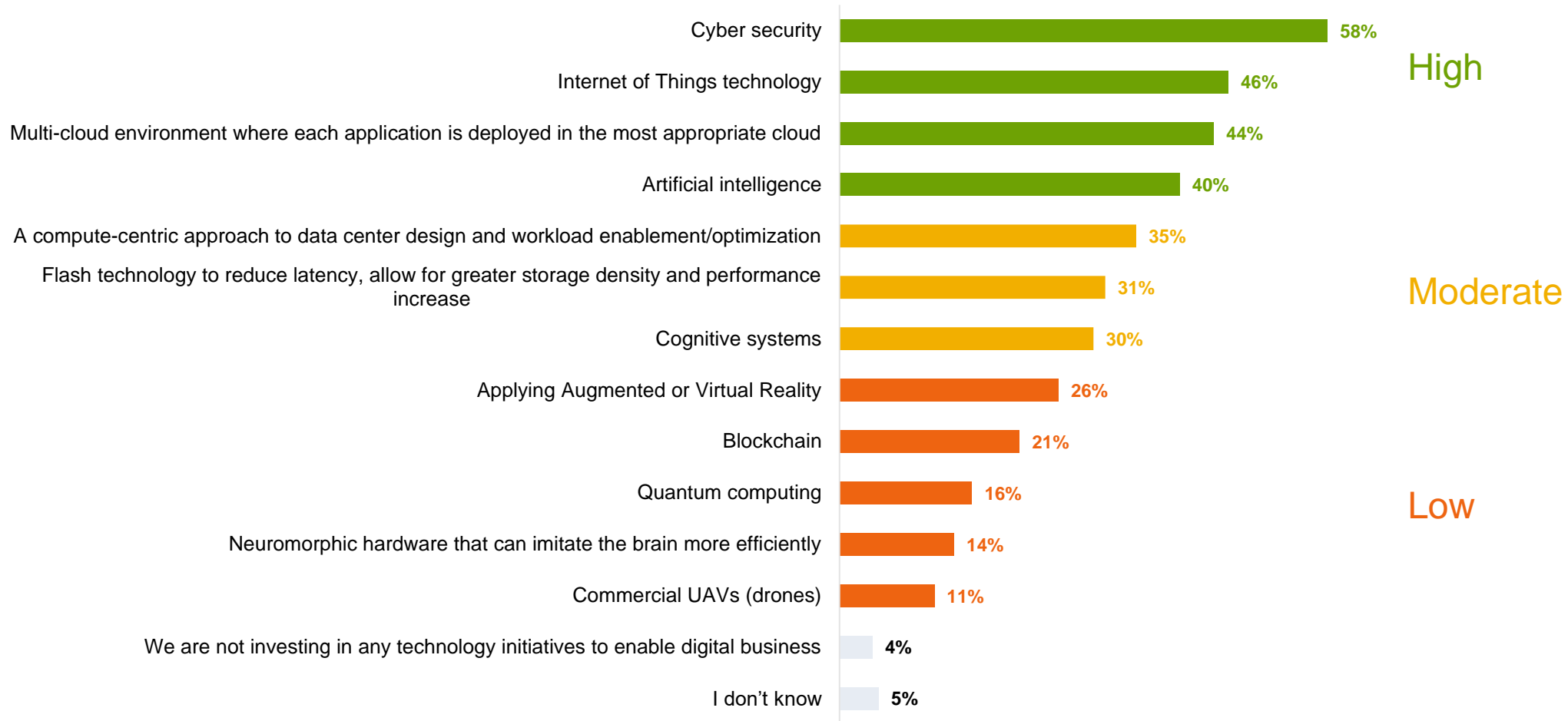
Section 4: How Will Organizations Transform?

How Organizations Are Transforming Today



“Thinking about what a digital business looks like, which of the following is your organization doing?” Base: all 2018 respondents (4600) and all 2016 respondents (4000)

Technology Investment Plans Over the Next 1-3 Years



“What new innovations or solutions is your organization investing in over the next 1-3 years to enable digital business?” Base: all respondents (4600)

Technology Investment Plans: 2016 to 2018

2016

1	Converged Infrastructure
2	Flash Technology
3	Analytics, Big Data & Data Processing
4	Internet of Things (IoT) Technology
5	Next-Generation Mobile Applications
6	Multi-Cloud Environment
7	Capabilities For Application Acceleration
8	Artificial Intelligence
9	Open-source Technology
10	Cognitive Systems

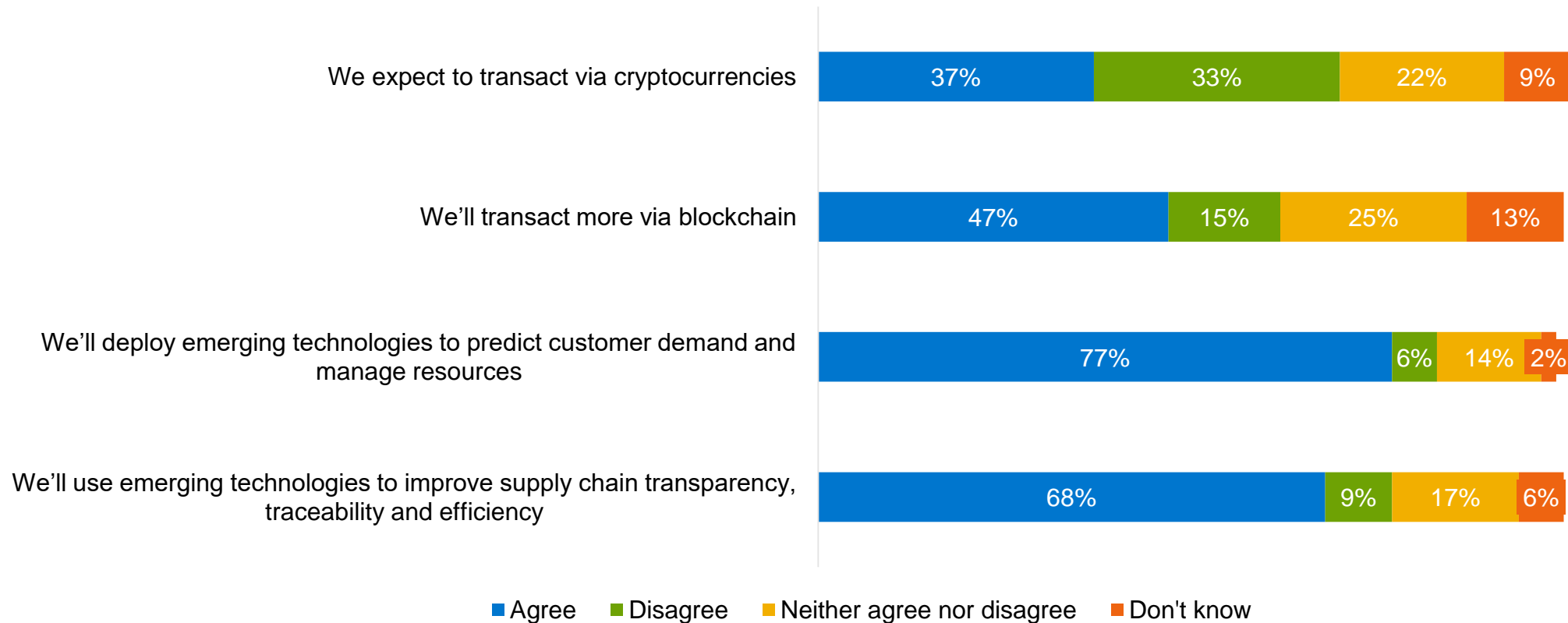
2018

1	Cybersecurity
2	Internet of Things (IoT) Technology
3	Multi-Cloud Environment
4	Artificial Intelligence
5	A Compute-Centric Approach
6	Flash Technology
7	Cognitive Systems
8	Virtual Reality/ Augmented Reality
9	Blockchain
10	Quantum Computing

“What new innovations or solutions is your organization investing in over the next 1-3 years to enable digital business?” Base: all 2018 respondents (4600) and all 2016 respondents (4000)

Embracing emerging technologies

Five year plans



"Looking to the next 5 years, to what extent do you agree with the following statements about your organization?" Base: all respondents (4600)

Section 5:

Delivering Expected Improvements in Business Outcomes

Business Outcome Improvements (KPIs) Expected Within 5 Years

1 Productivity rates 62%

2 Profitability 62%

3 Revenue growth 62%

4 Customer retention 52%

5 Return on IT investment 49%

6 Employee engagement 46%

7 Relative market share 40%

8 Customer advocacy 39%

9 Employee retention 37%

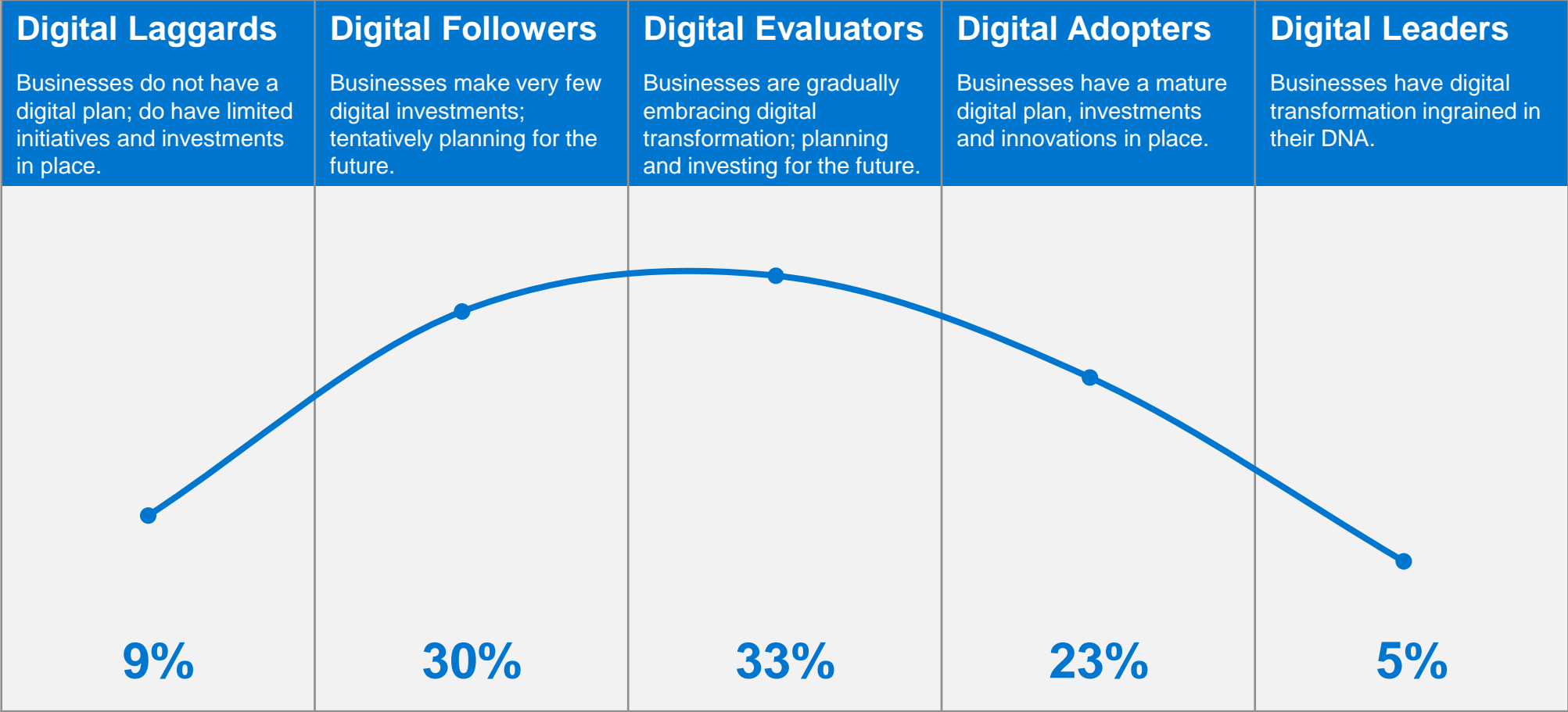
"Which business outcomes (KPIs) will most likely increase within five years by embarking upon a successful digital strategy?" Base: all respondents (4600)

Section 6:

The Digital Transformation Index II Benchmark

Digital Transformation Index II

How are companies performing?

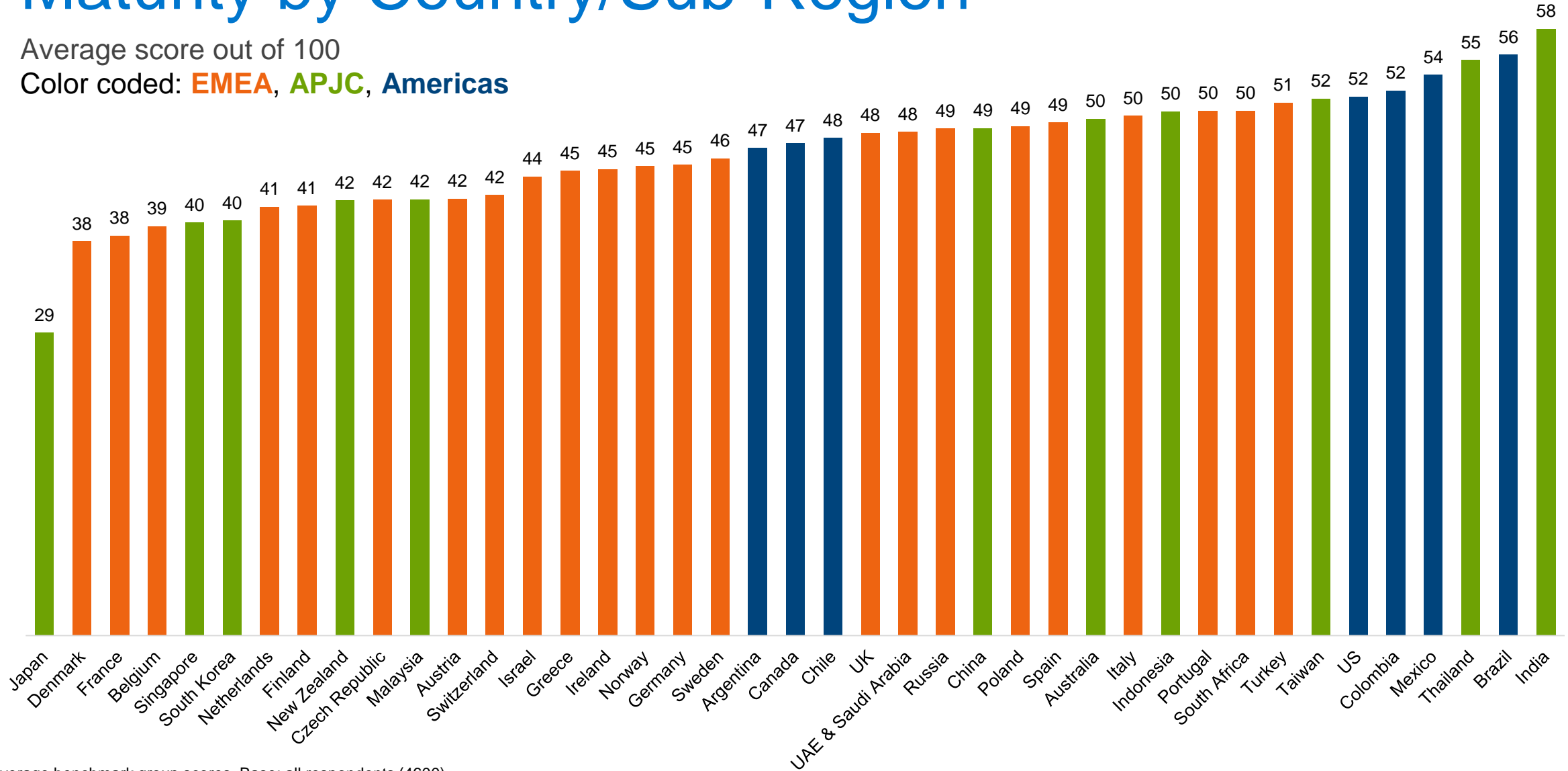


Benchmarking group respondents fell into. Base: all 2018 respondents (4600)

Maturity by Country/Sub-Region

Average score out of 100

Color coded: **EMEA**, **APJC**, **Americas**



Average benchmark group scores. Base: all respondents (4600)

Most and Least Mature by Country



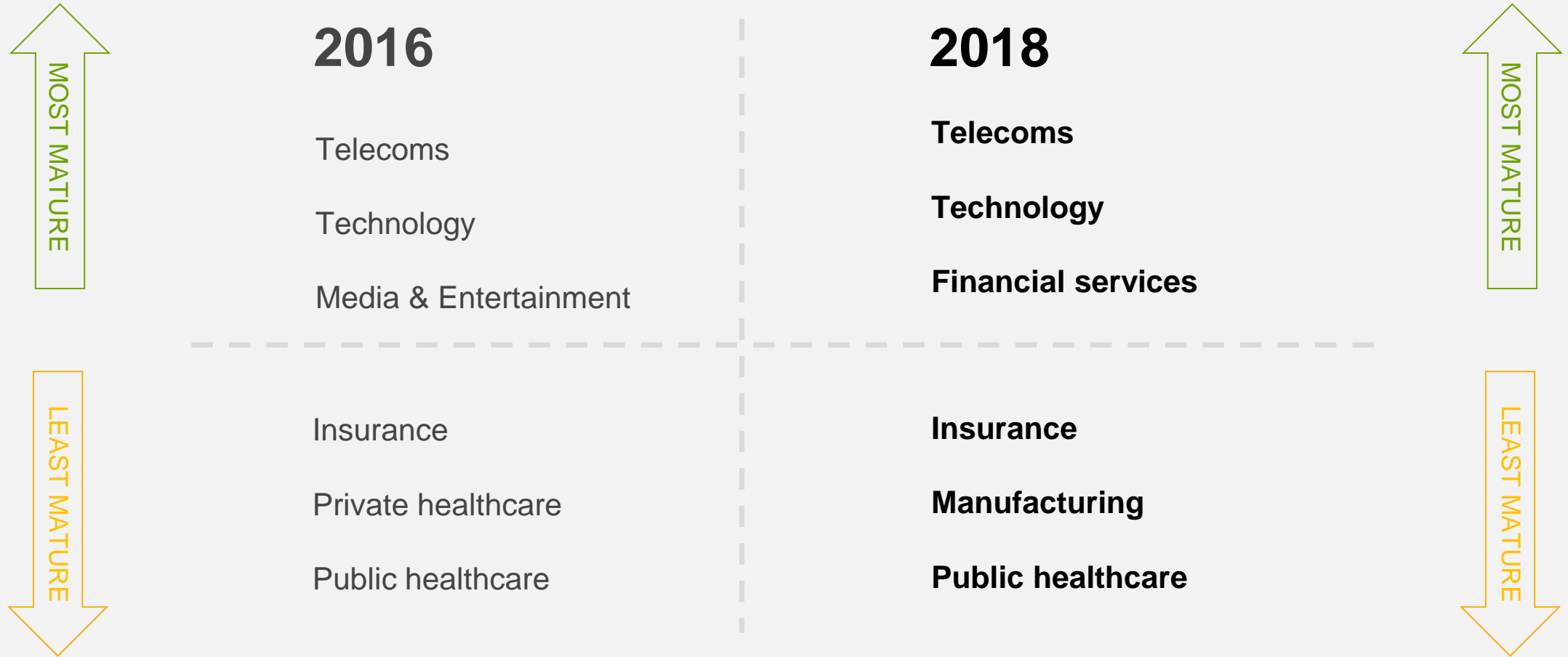
Maturity By Industry: 2016 to 2018 Comparison

Average score out of 100

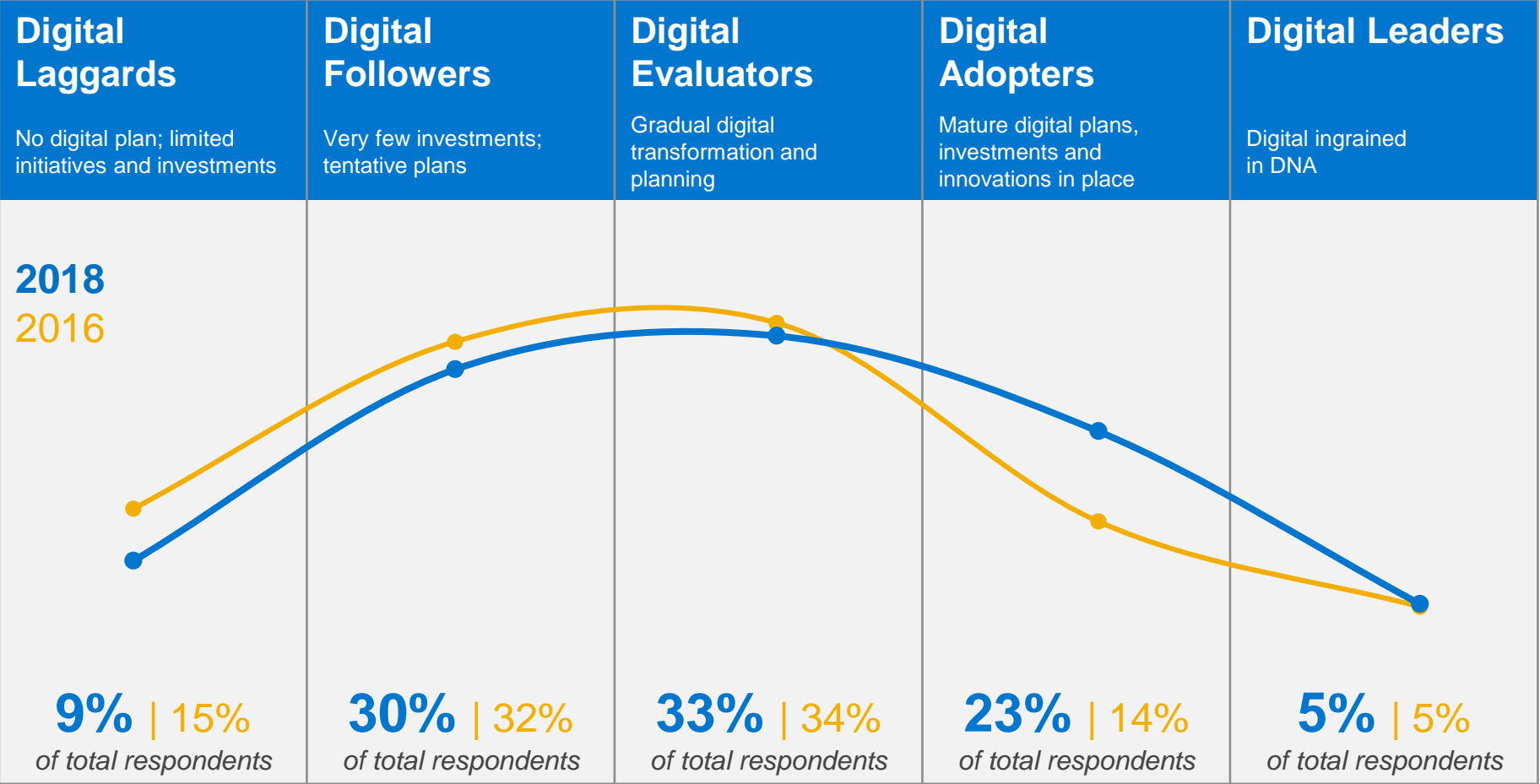


Benchmarking group respondents fall into. Base: all 2018 respondents (4600) and all 2016 respondents (4000)

Most and Least Mature by Industry



Digital Transformation Index: 2016 to 2018



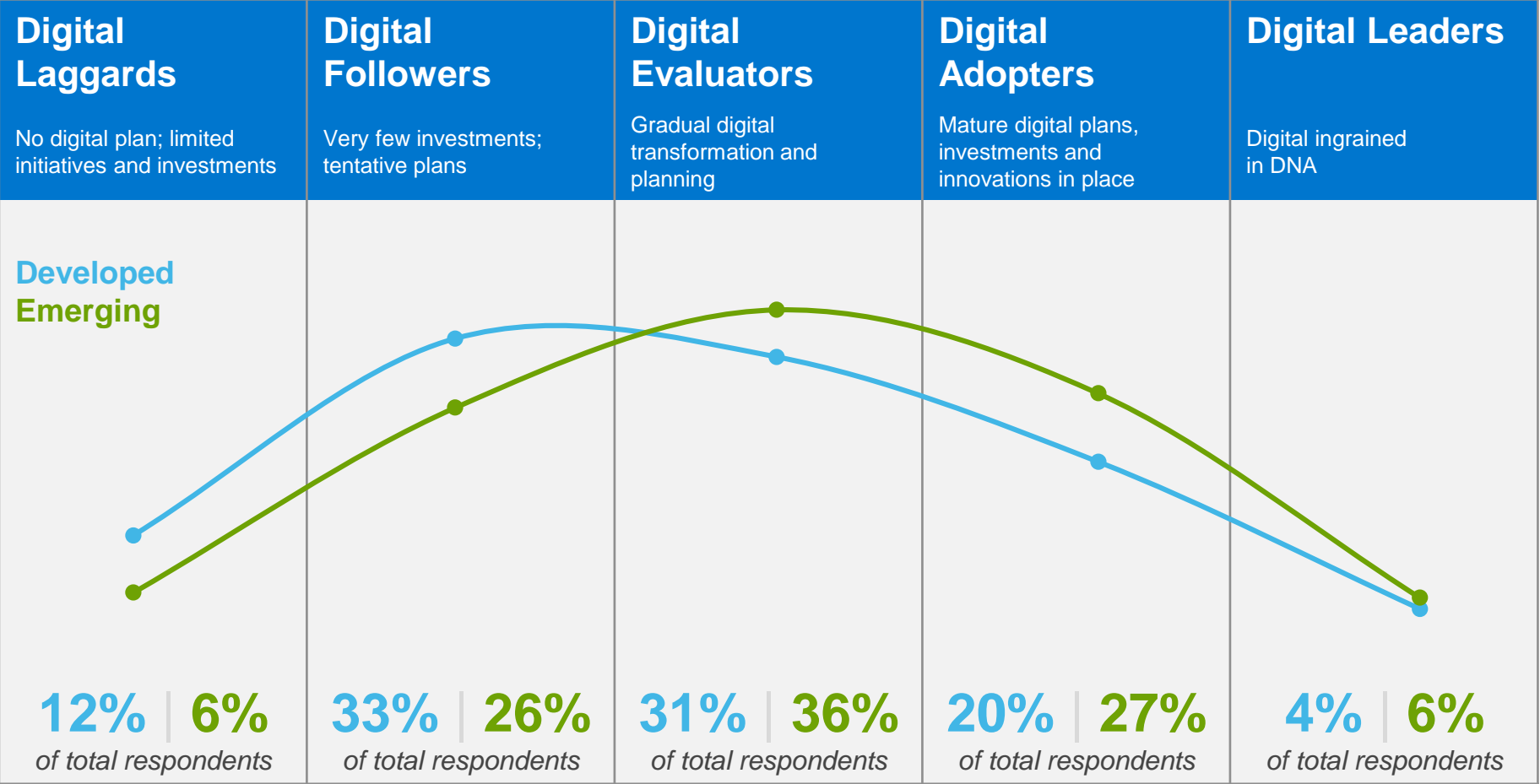
- No progress in the Digital Leader group
- Little improvement in the Digital Adopters and the Digital Laggards group
- Majority of businesses remain behind the digital maturity curve

Benchmarking group respondents fell into. Base: all 2018 respondents (4600) and all 2016 respondents (4000)

Section 7:

Benchmark Analysis by Emerging & Developed Markets

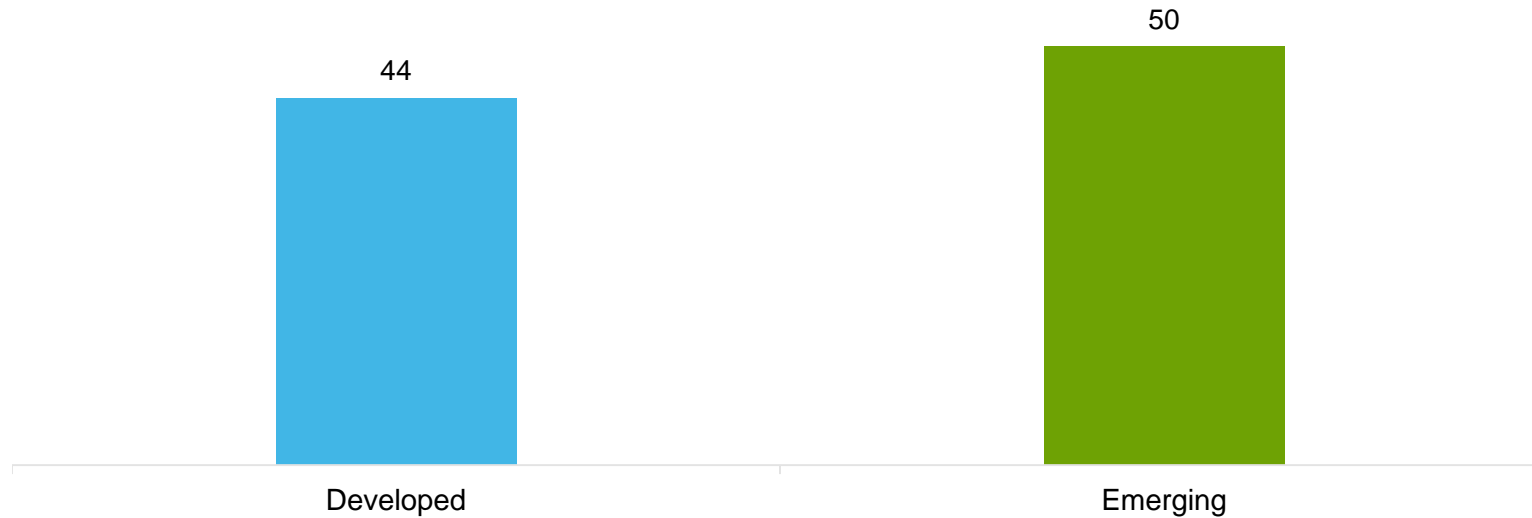
Measuring Transformation in Emerging & Developed Markets



Benchmarking group respondents fell into. *Split by developed vs. emerging markets.* Base: all respondents (4600); Developed and Emerging status was defined using the [FTSE classifications](#)

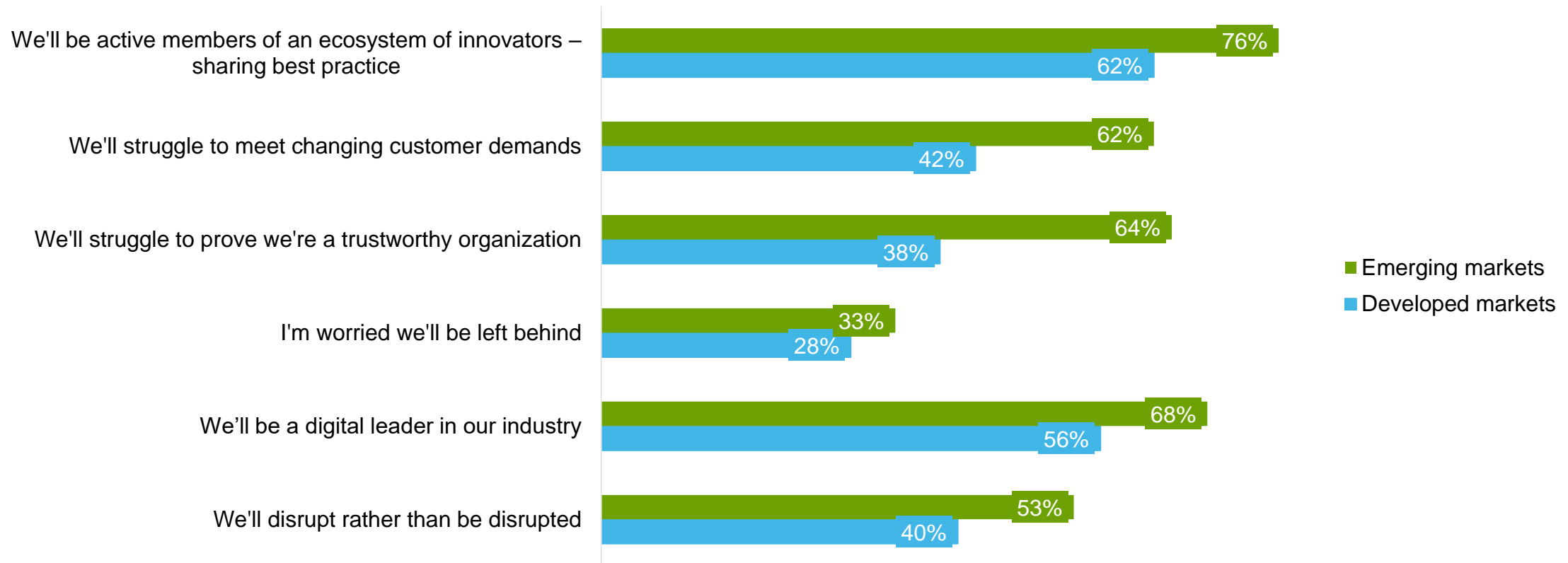
Maturity by developed vs. emerging markets

Average score out of 100



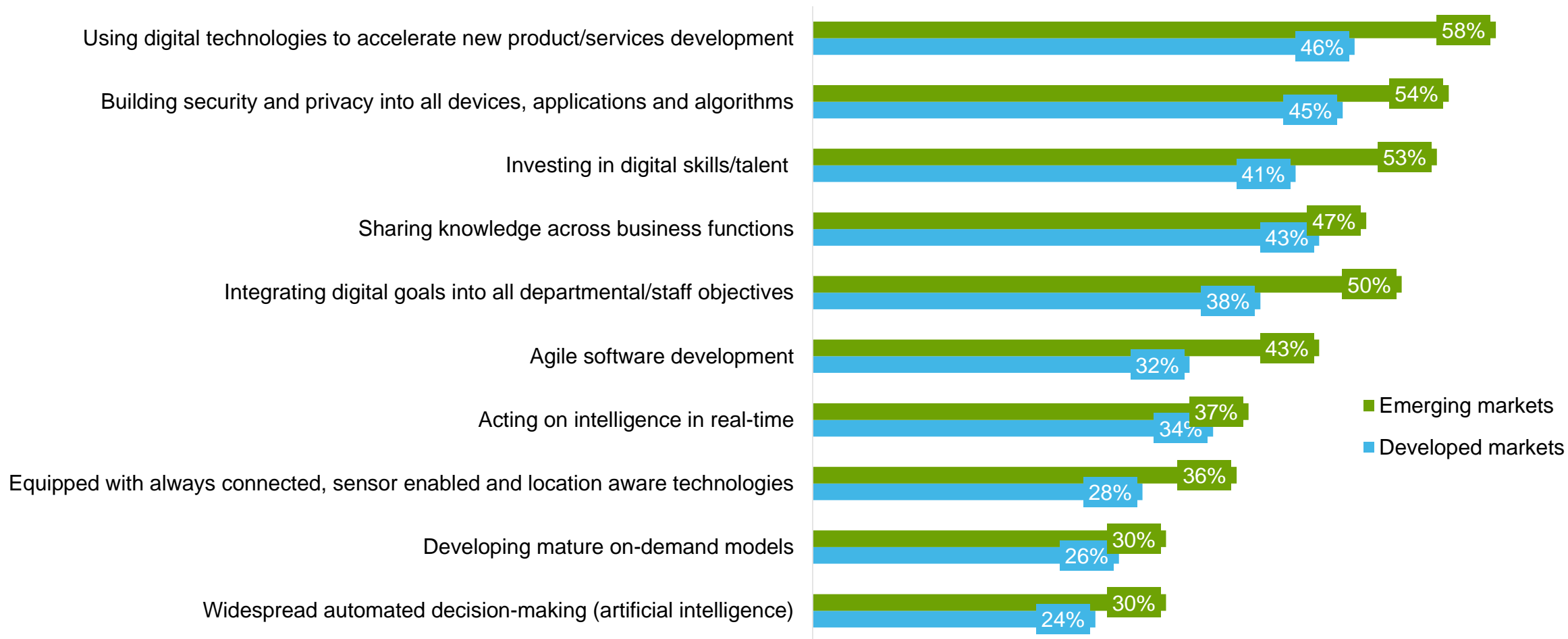
Base: all respondents, split by developed vs. emerging (4600) (Analysis showing the average scores)

Five Year Outlook For Their Organization



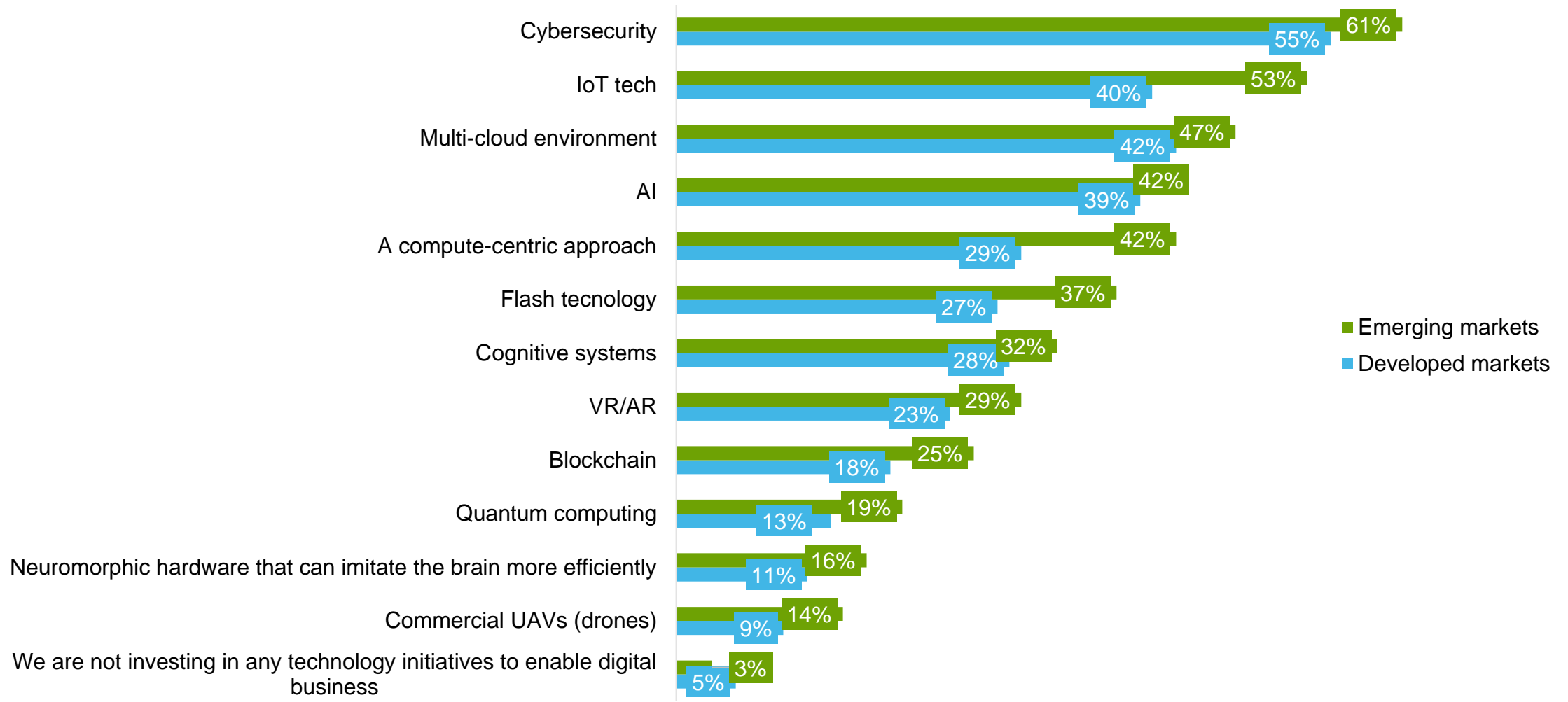
“Looking to the next 5 years, to what extent do you agree with the following statements about your organization?” split by developed vs. emerging markets. Base: all respondents (4600)

How Organizations Are Transforming Today



“Thinking about what a digital business looks like, which of the following is your organization doing?” split by developed vs. emerging markets. Base: all respondents (4600)

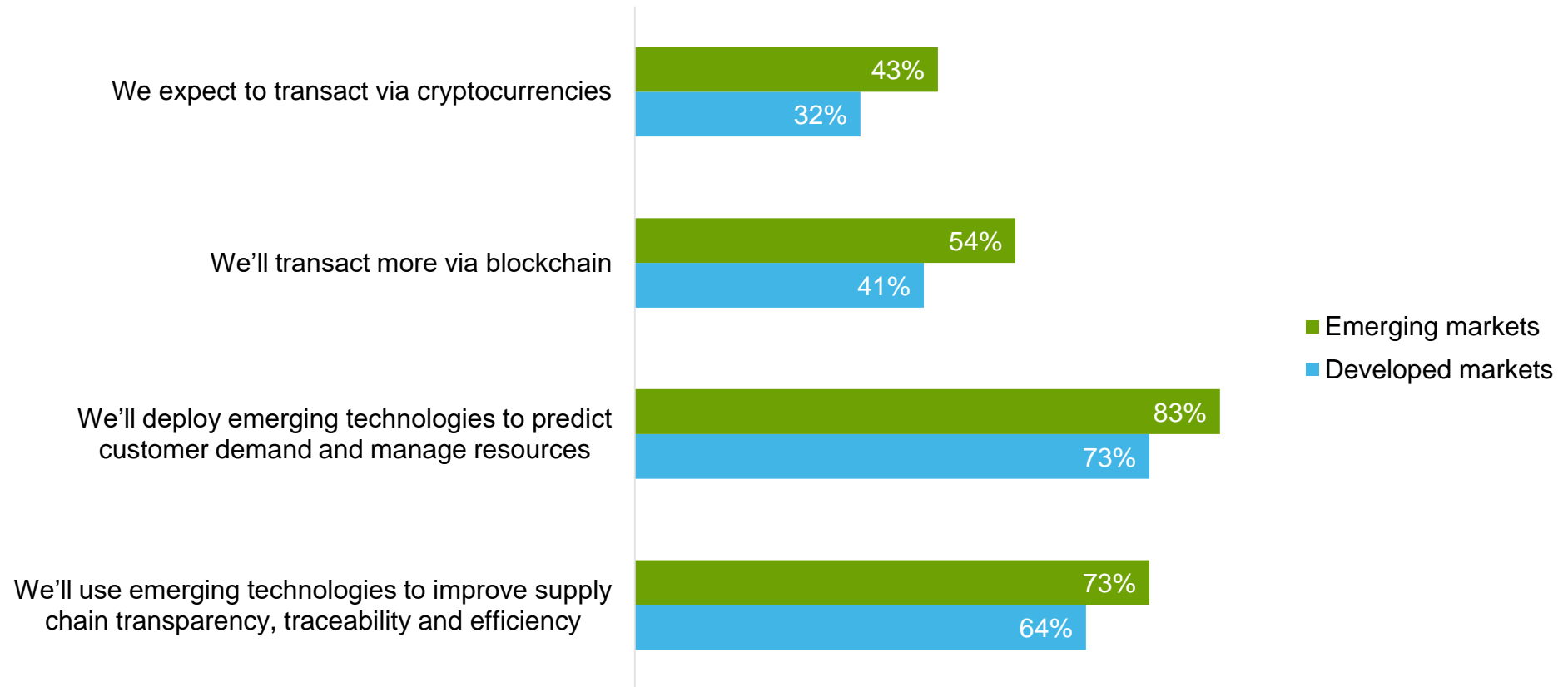
Investment Plans Over The Next 1-3 Years



“What new innovations or solutions is your organization investing in over the next 1-3 years to enable digital business?” split by developed vs. emerging markets. Base: all respondents (4600)

Embracing emerging technologies

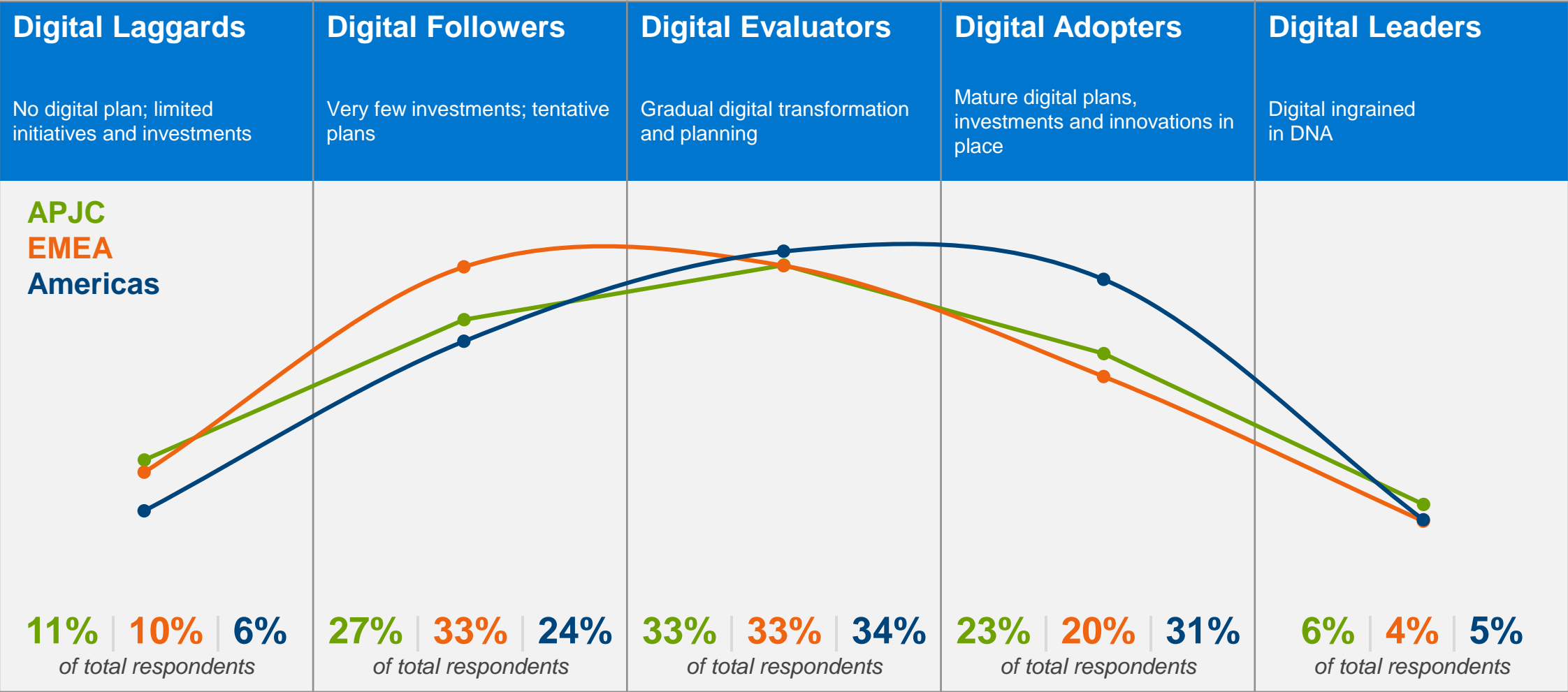
Five year plans



"Looking to the next 5 years, to what extent do you agree with the following statements about your organization?" split by developed vs. emerging markets. Base: all respondents (4600)

Section 8: Benchmark Analysis by Region

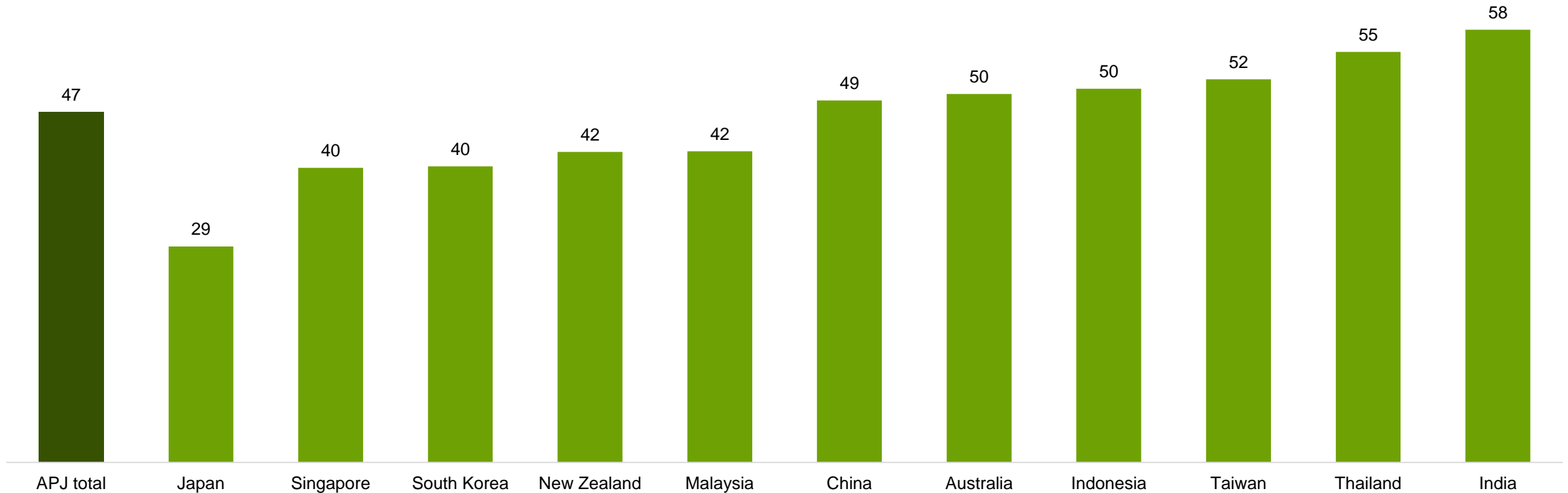
Mapping Digital Transformation Progress In Region



Benchmarking group respondents fell into. Base: all respondents, split by region (4600)

Maturity by APJC Countries/ Regions

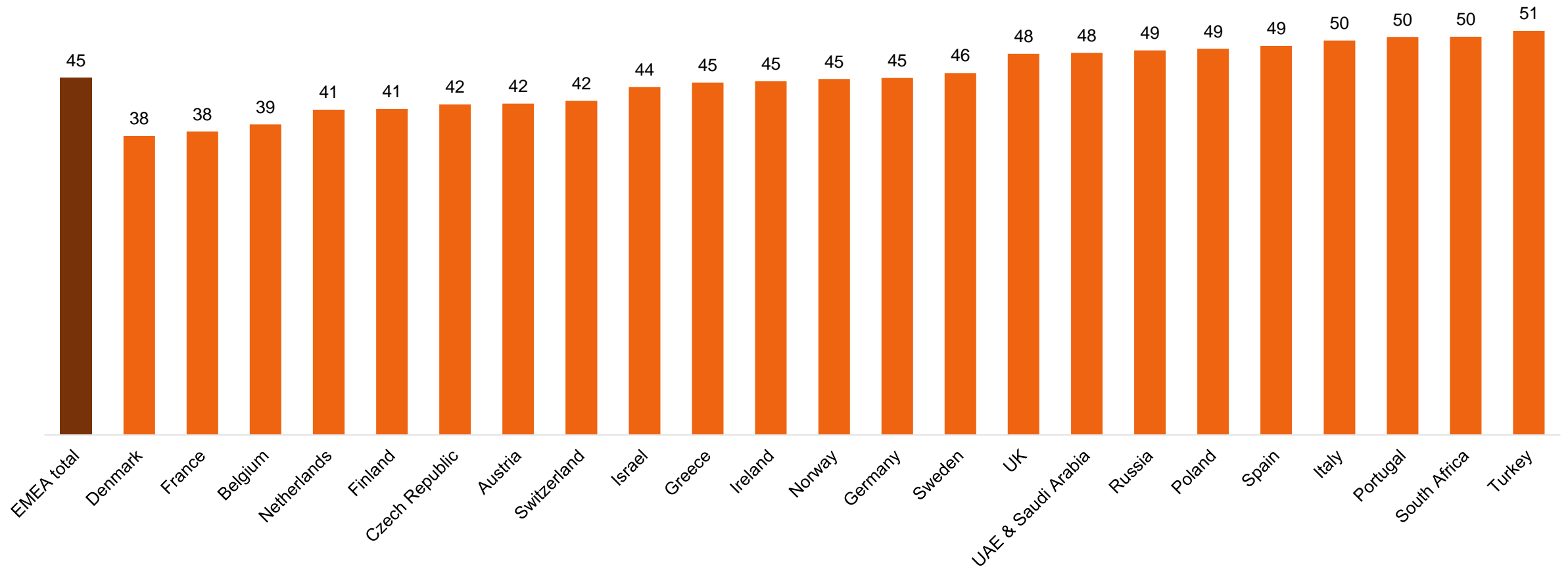
Average score out of 100



Average benchmark group scores. Base: all 2018 APJC respondents (1300) (Analysis showing the average scores)

Maturity by EMEA Countries

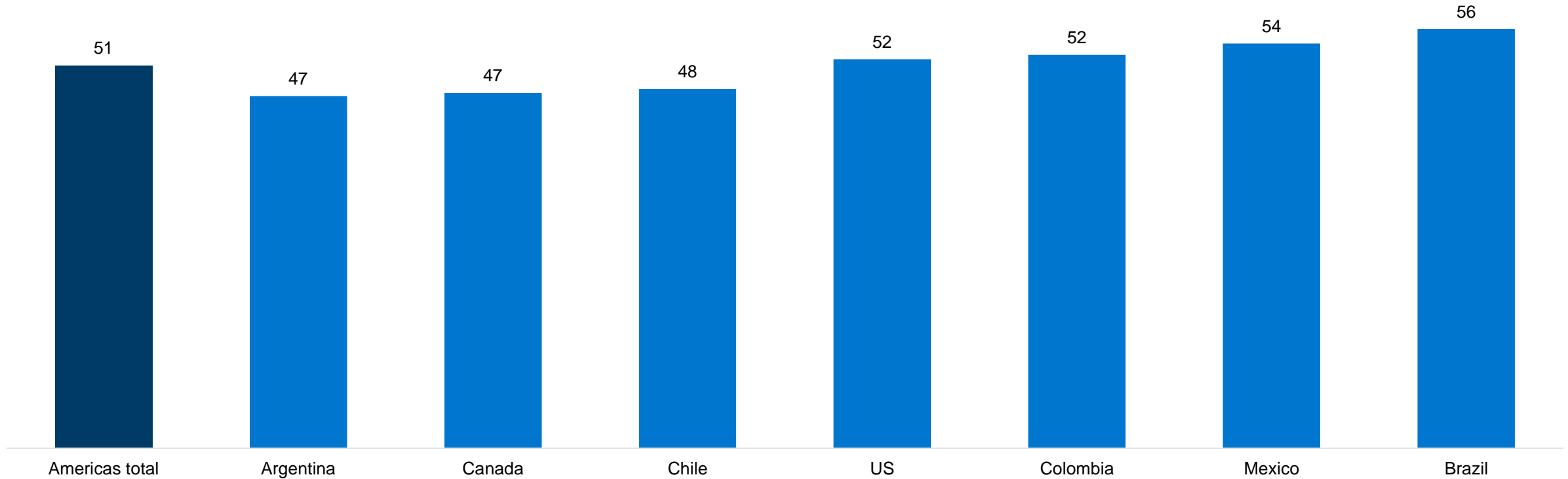
Average score out of 100



Average benchmark group scores. Base: all 2018 EMEA respondents (2500) (Analysis showing the average scores)

Maturity by Americas Countries

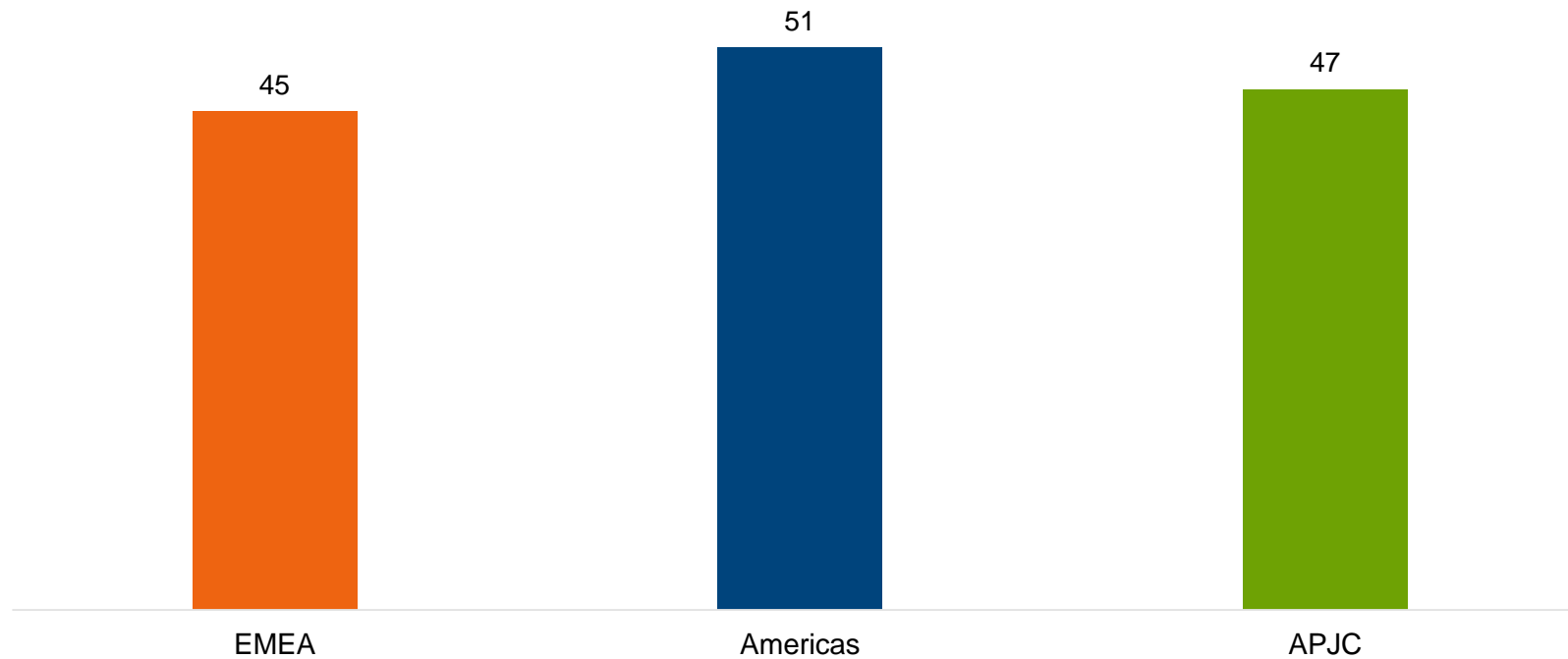
Average score out of 100



Average benchmark group scores. Base: all 2018 Americas respondents (800) (Analysis showing the average scores)

Maturity by Region

Average score out of 100



Average benchmark group scores. Base: all respondents, split by region (4600) (Analysis showing the average scores)

Section 9: Appendix

Regional Spotlights

APJC

EMEA

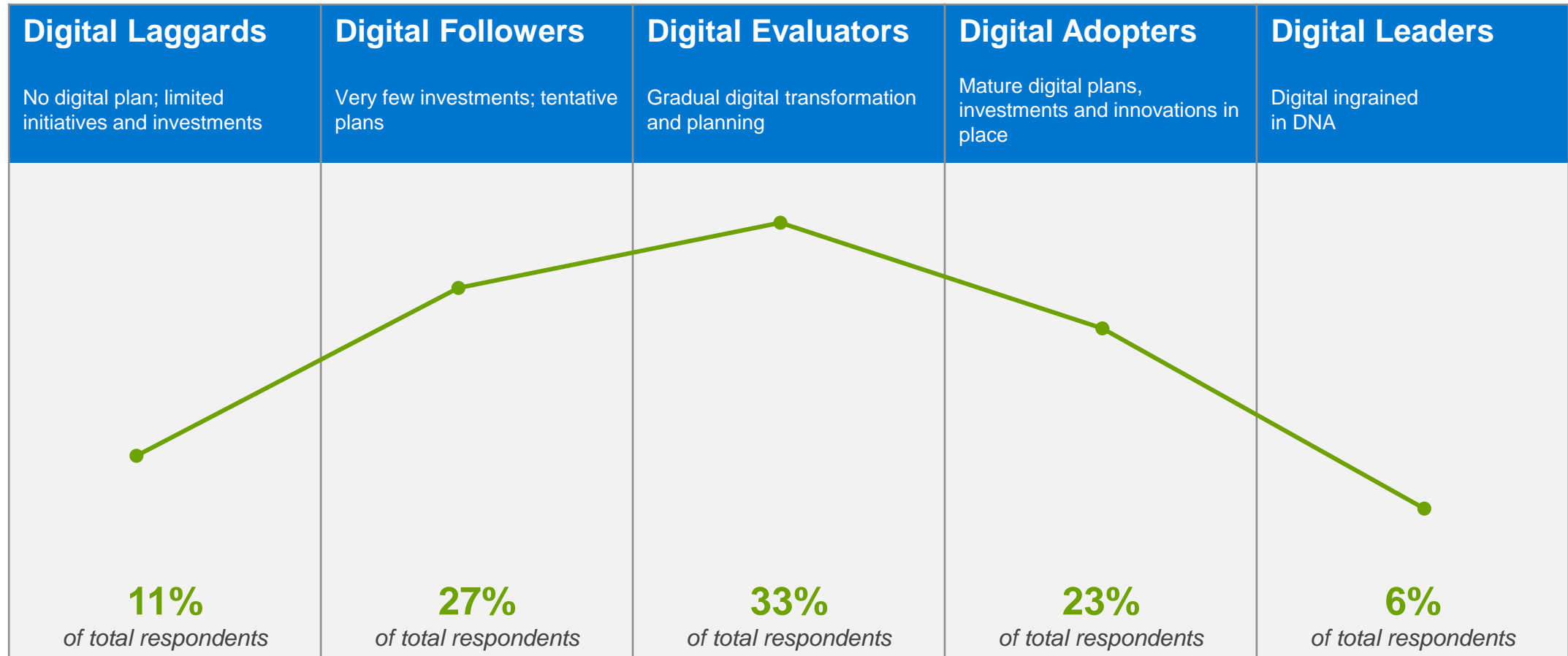
AMERICAS

APJC



Digital Transformation Index

How are companies performing?



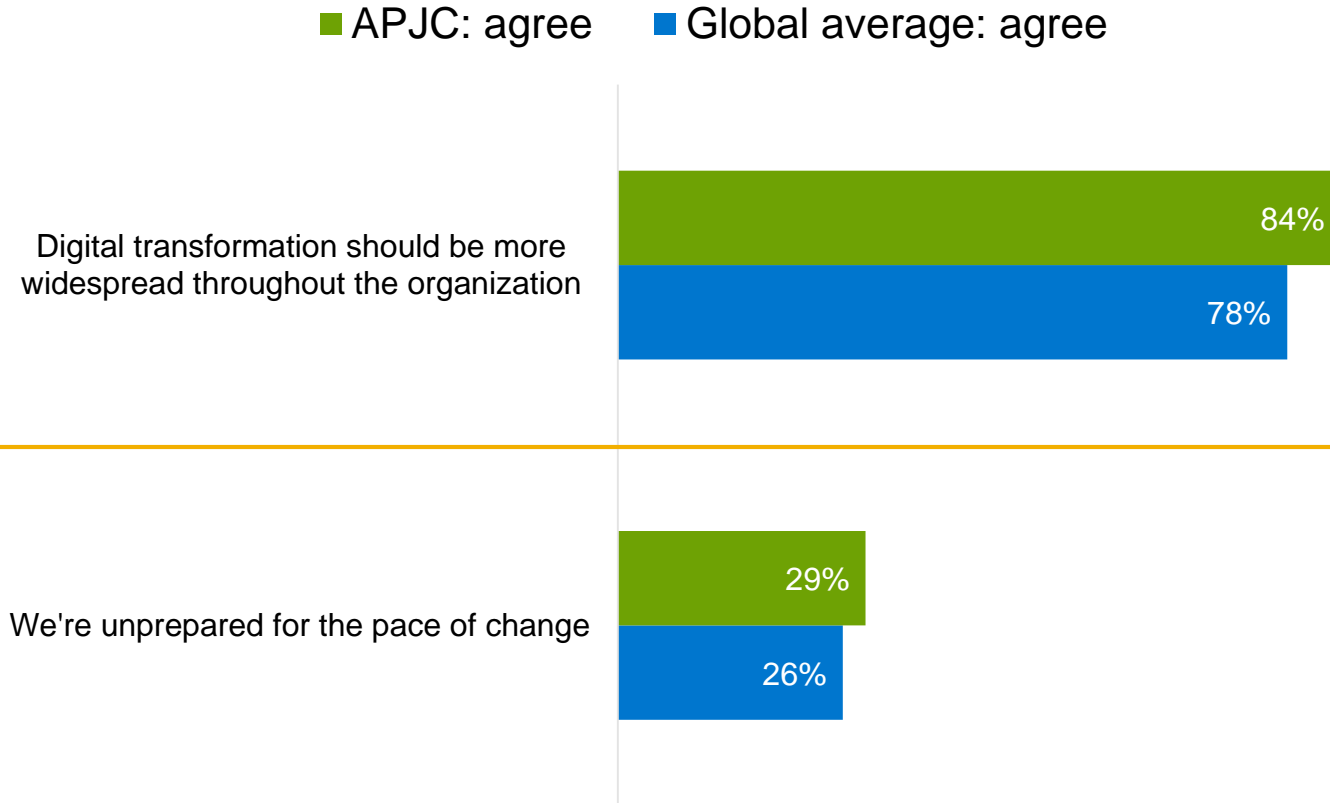
Benchmarking group respondents fell into. Base: all respondents, split by region (4600)

Most and Least Mature: 2016 and 2018



Pace of Digital Disruption and Business Impact

Response to pace of digital disruption TODAY



Country/Region spotlight

Highest	Lowest
---------	--------

Taiwan: 92%	Japan: 66%
India: 91%	New Zealand: 76%
Thailand: 90%	Australia: 80%
Taiwan: 43%	China: 18%
Japan: 39%	Indonesia/Singapore: 23%
South Korea: 32%	Malaysia: 27%

“To what extent do the following statements reflect your organization’s response to the pace of digital disruption?”. Base: all respondents (4600); APJC (1300)

Five Year Outlook for their Organization

■ APJC ■ Global average

Country/Region spotlight

Highest
 Thailand: 94%
 China: 84%
 Taiwan: 74%

Lowest
 South Korea: 9%
 Japan: 26%
 Indonesia: 27%

We'll disrupt rather than be disrupted



I'm worried we'll be left behind



Highest
 Japan: 50%
 Malaysia: 48%
 Taiwan: 47%

Lowest
 Australia: 18%
 India: 25%
 New Zealand: 26%

We'll struggle to meet changing customer demands



Highest
 South Korea: 91%
 Thailand: 71%
 Indonesia: 57%

Lowest
 China: 27%
 Australia/New Zealand: 30%
 Taiwan: 32%

We'll struggle to prove we're a trustworthy organization



Highest
 South Korea: 85%
 Indonesia: 61%
 Thailand: 60%

Lowest
 New Zealand: 13%
 Australia: 19%
 China: 27%

"Looking to the next 5 years, to what extent do you agree with the following statements about your organization?". Base: all respondents (4600) APJC (1300)

Top 5 Barriers to Digital Transformation

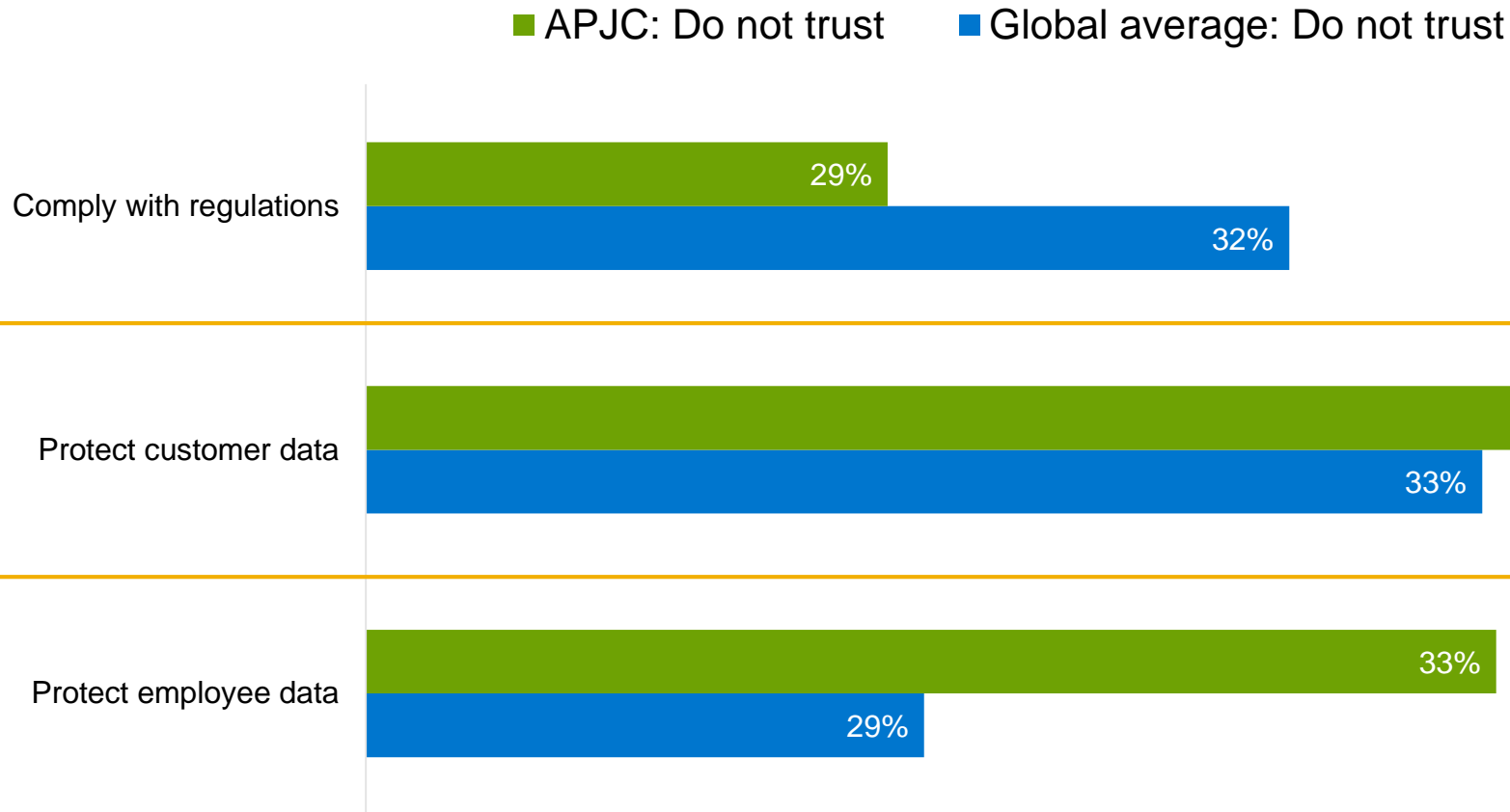
APJC

		Highest	Lowest
1	Data privacy & security concerns (41%)	India/ Thailand (53%)	Japan (23%)
2	Lack of budget & resources (36%)	Malaysia (55%)	China (26%)
3	Lack of the right in-house skills sets and expertise (33%)	Thailand (44%)	Australia (25%)
4	Immature digital culture (30%)	Thailand (49%)	Japan (18%)
5	Regulation & legislative changes (28%)	Thailand (29%)	Japan (17%)

"What are the main barriers to achieving digital transformation within your organization?". Base: all respondents (4600); APJC (1300)

Confidence Crisis

Business leaders do not trust their organization to:



Country spotlight Least trusting

South Korea: 50%
Indonesia: 43%

South Korea: 63%

South Korea: 51%
Singapore: 42%

“Do you trust your organization to do the following?” Base: all respondents (4600) APJC (1300) Respondents who did not select 'trust', were interpreted as not trusting their organization in the relevant regard.

Top Five Tech Investments

APJC

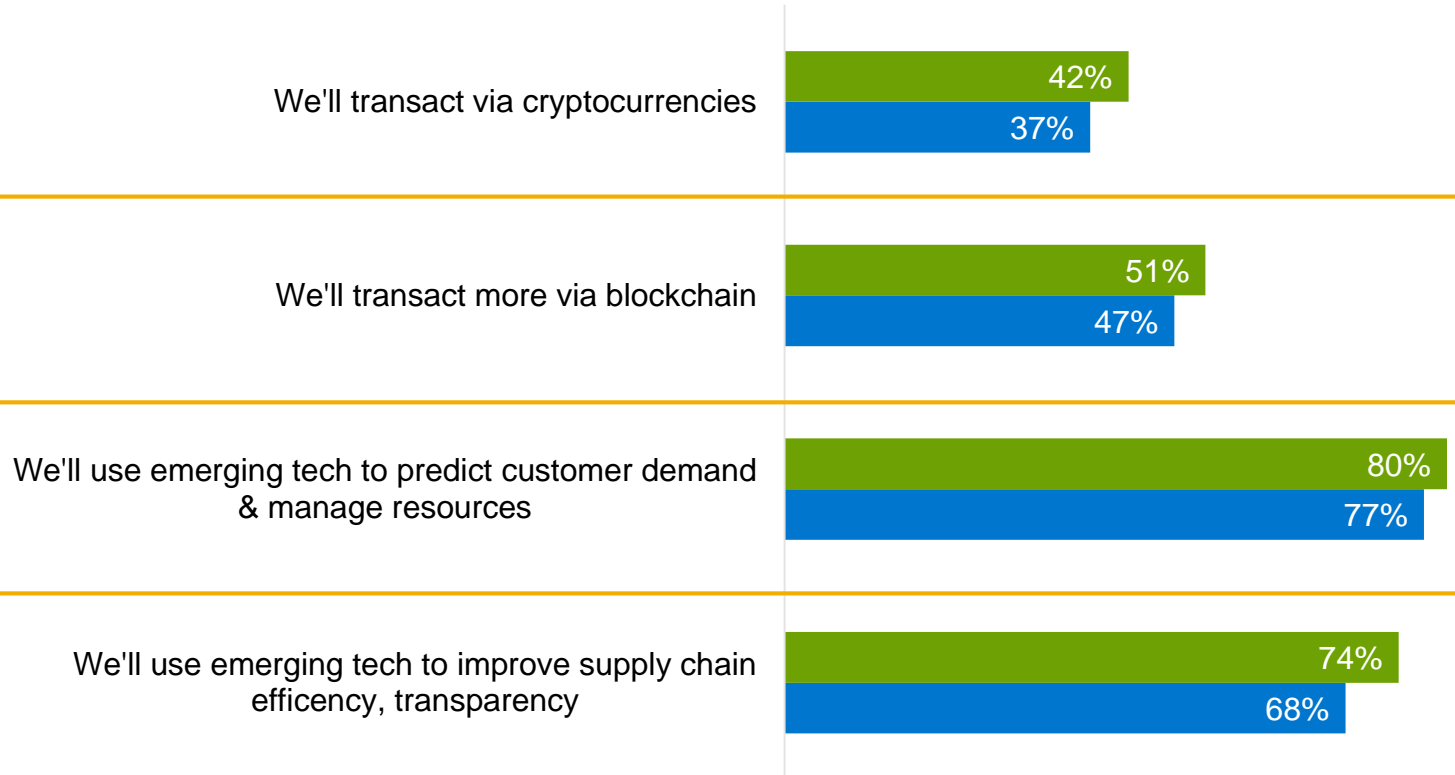
Highest

1	Cybersecurity: 61% (3% more than the global average)	India (74%) Thailand (73%)
2	IoT tech: 53% (7% more than the global average)	India (67%) China (61%)
3	Artificial Intelligence: 50% (10% more than the global average)	India (61%) China (60%)
4	Multi-cloud environment: 47% (3% more than the global average)	Thailand (63%) India (62%)
5	Compute-centric approach: 38% (3% more than the global average)	Thailand (61%) India (51%)

“What new innovations or solutions is your organization investing in over the next 1-3 years to enable digital business?”. Base: all respondents (4600 APJC (1300)

Five Year Investment Plan

■ APJC ■ Global average



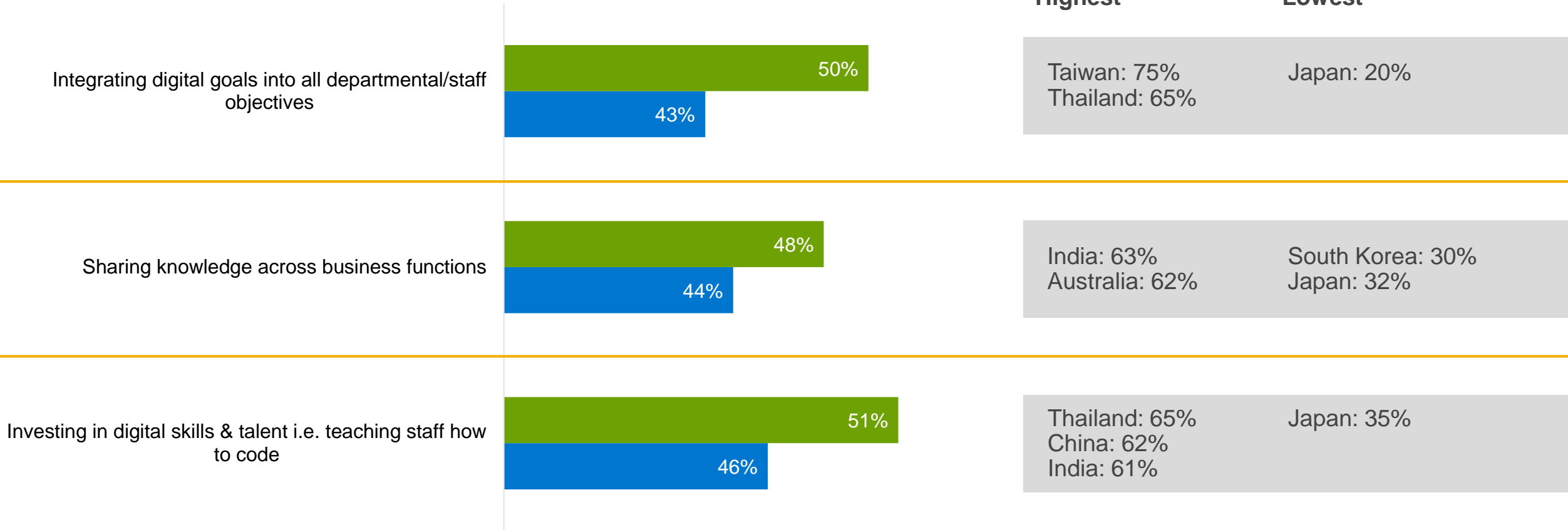
Country/Region spotlight

Highest	Lowest
Thailand: 86% China: 54%	New Zealand: 21% Singapore: 24%
Thailand: 83% China: 66%	Japan: 25% New Zealand: 27%
Thailand: 94% Taiwan: 90%	Japan: 57%
Thailand: 89% India: 84% China: 83%	Japan: 57%

“Looking to the next 5 years, to what extent do you agree with the following statements about your organization?”. Base: all respondents (4600) APJC (1300)

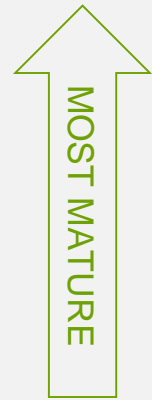
Workforce Transformation

■ APJC ■ Global average



“Thinking about what a digital business looks like, which of the following is your organization doing?”. Base: all respondents (4600) APJC (1300)

Most and Least Mature by Industry



Private healthcare

Financial services

Technology



Automotive

Retail & consumer products

Public healthcare

Highlights

Believe they'll be a digital leader within five years:

- 72% private healthcare
- 69% financial services
- 75% technology

The automotive sector is most likely to believe they'll struggle to:

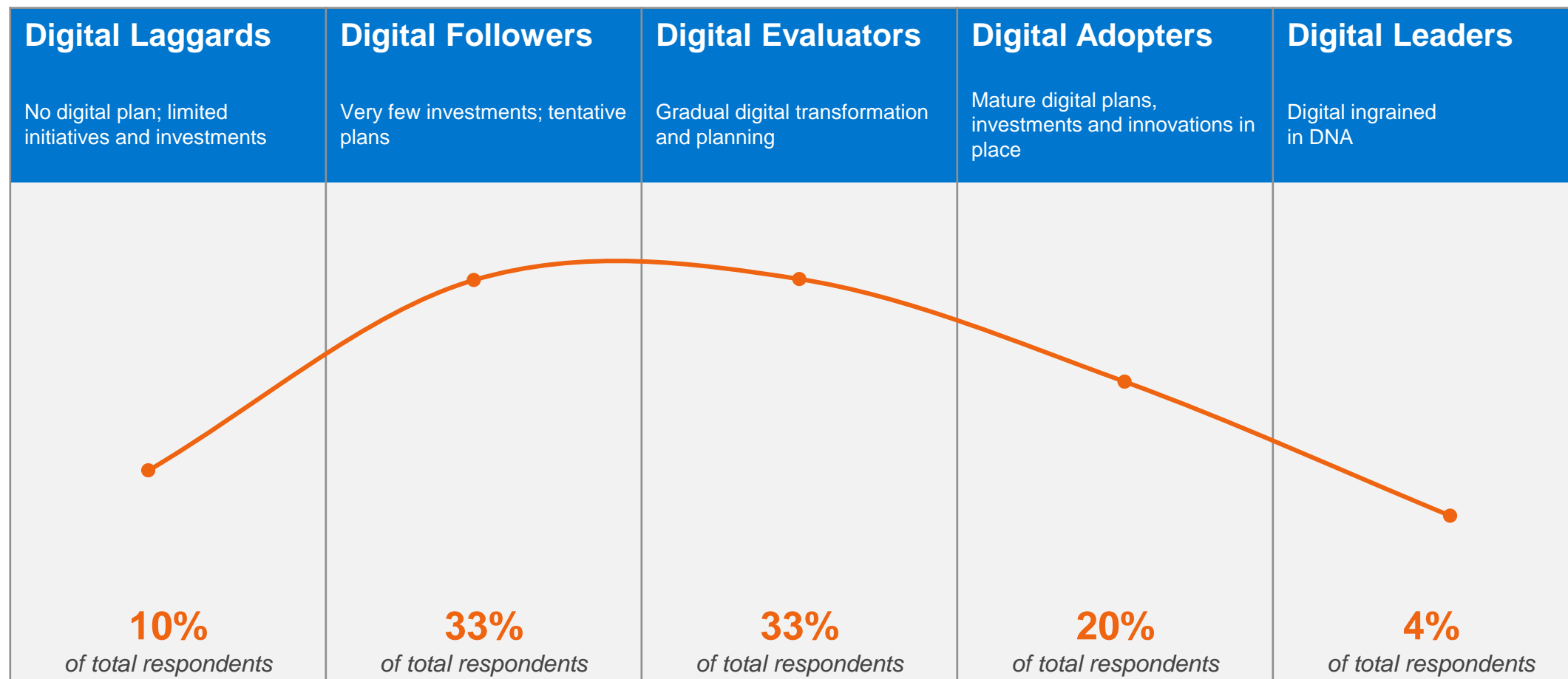
- meet changing customer demands in five years (57%)
- prove trustworthiness in five years (54%)

EMEA



Digital Transformation Index

How are companies performing?



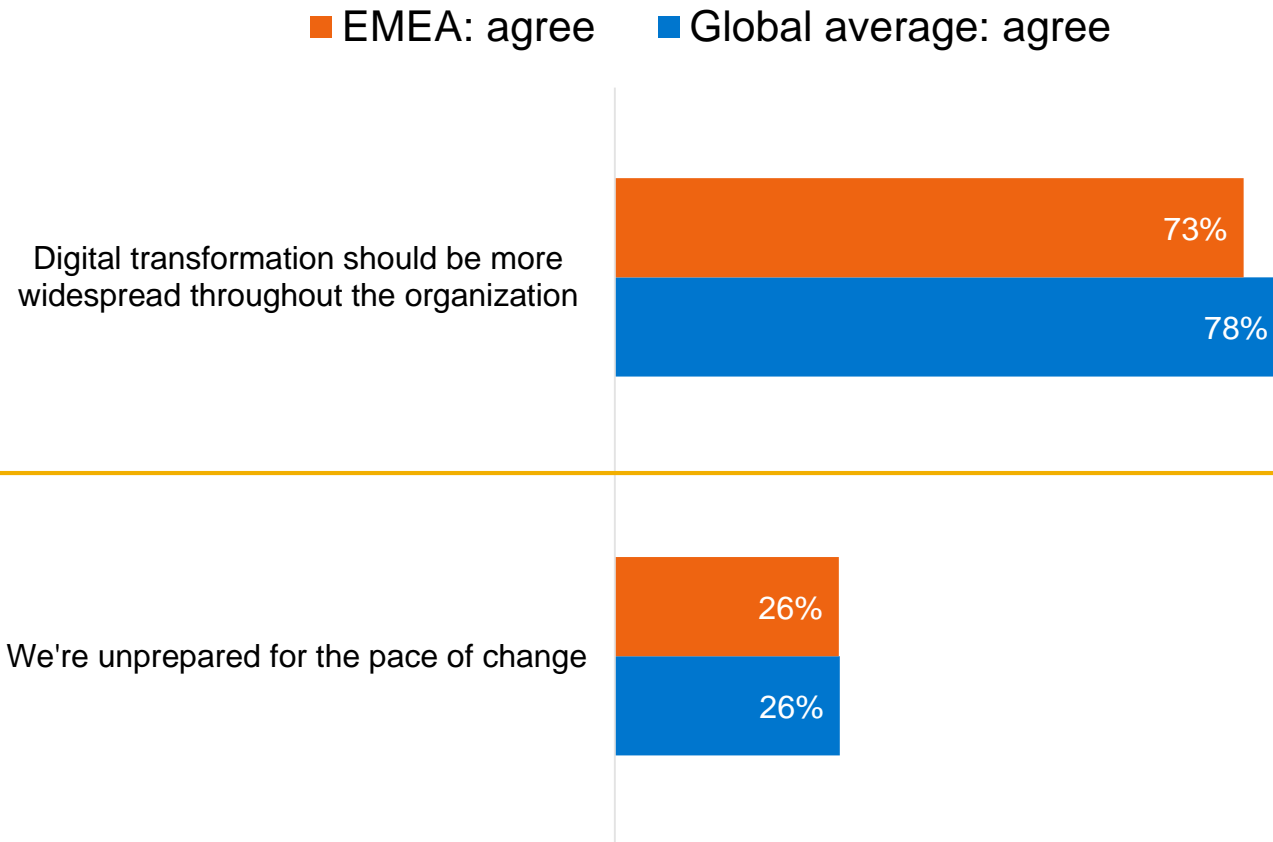
Benchmarking group respondents fell into. Base: all respondents, split by region (4600)

Most and Least Mature: 2016 and 2018



Pace of Digital Disruption and Business Impact

Response to pace of digital disruption TODAY



Country spotlight

Highest	Lowest
Russia: 91%	Germany: 59%
UAE & Saudi Arabia: 87%	Austria: 61%
Spain: 85%	Israel/Sweden: 63%
Finland: 42%	Russia: 14%
Belgium: 37%	Czech Republic: 17%
France: 34%	Israel: 19%

“To what extent do the following statements reflect your organization’s response to the pace of digital disruption?”. Base: all respondents (4600); EMEA (2500)

Five Year Outlook for their Organization

■ EMEA ■ Global average

Country spotlight

Highest

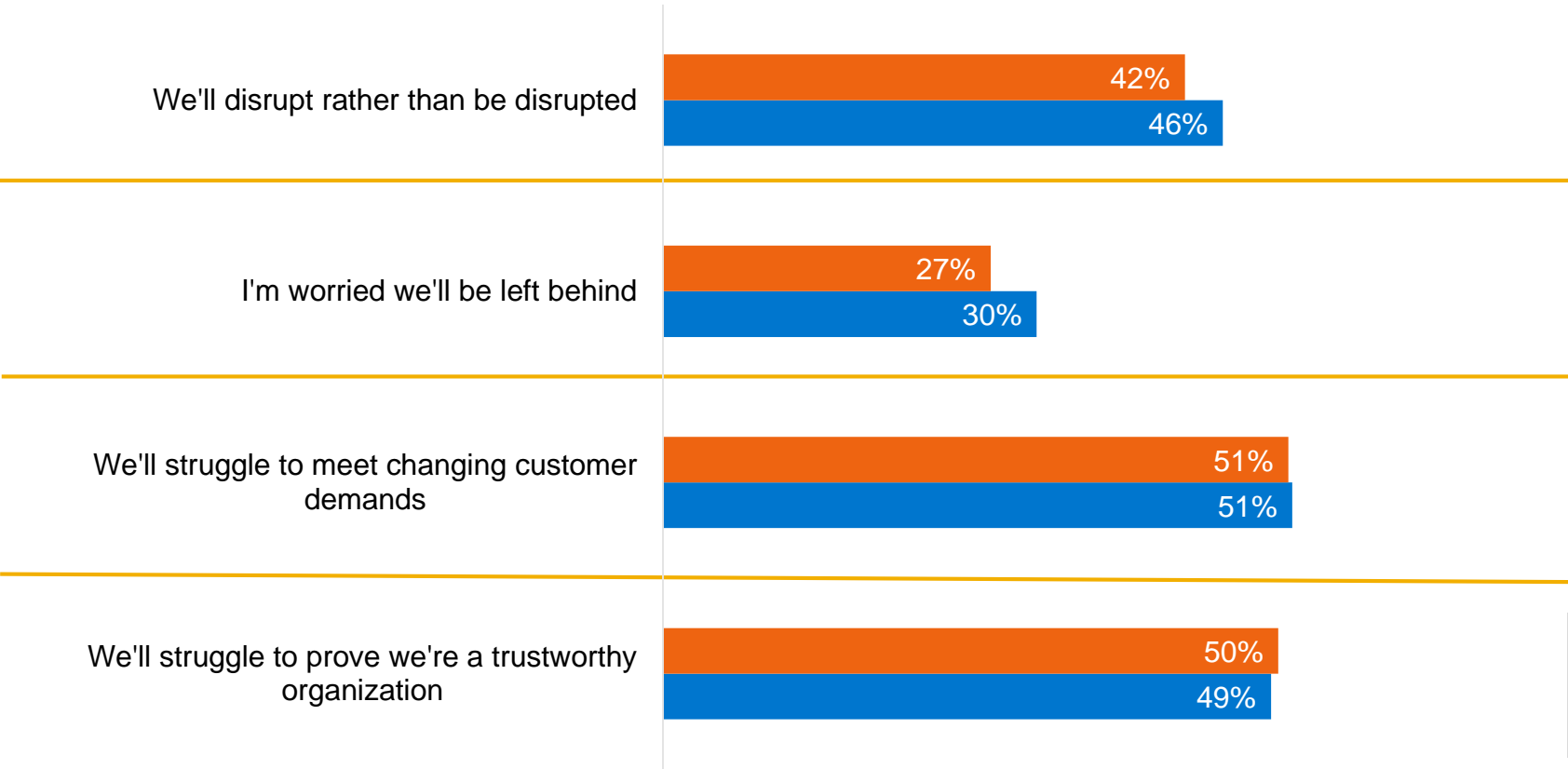
Lowest

Spain: 72%	Greece: 22%
Russia: 69%	Czech Republic: 25%
Sweden: 66%	France: 27%

Spain: 53%	Portugal/Turkey: 13%
Finland: 40%	Poland: 16%
Belgium: 39%	Italy: 18%

Russia: 96%	Poland: 12%
Portugal: 94%	South Africa: 13%
Spain/Turkey: 92%	Italy: 17%

Russia: 98%	South Africa: 10%
Spain: 95%	Italy: 14%
Portugal: 92%	Switzerland: 15%



“Looking to the next 5 years, to what extent do you agree with the following statements about your organization?”. Base: all respondents (4600), EMEA (2500)

Top 5 Barriers to Digital Transformation

EMEA

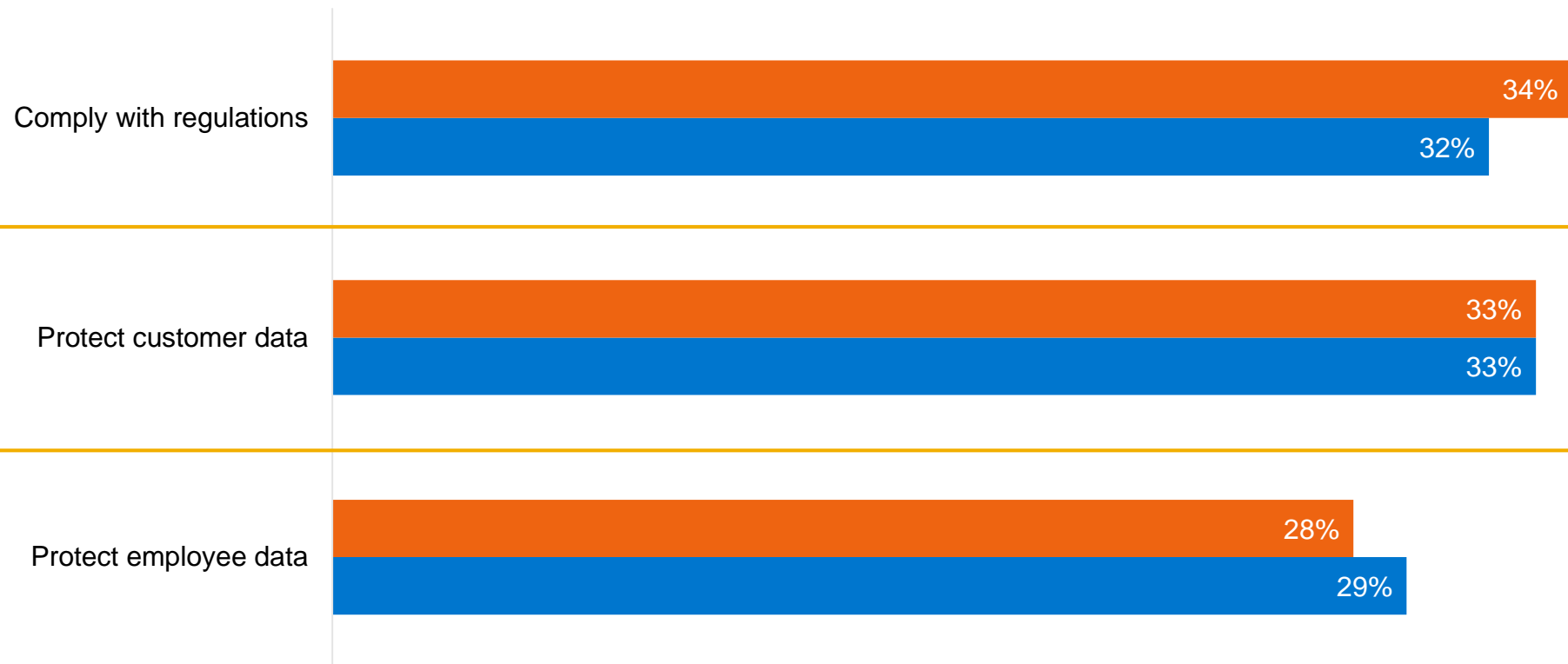
		Highest	Lowest
1	Lack of budget & resources (33%)	Russia (50%)	Israel (18%)
2	Data privacy & security concerns (31%)	Turkey (55%)	Israel (17%)
3	Regulation & legislative changes (26%)	Poland (41%)	Israel (14%)
4	Lack of the right in-house skills sets and expertise (24%)	South Africa (39%)	Poland/ Portugal (14%)
5	Information overload (22%)	Turkey (25%)	Norway (14%)

"What are the main barriers to achieving digital transformation within your organization?". Base: all respondents (4600); EMEA (2500)

Confidence Crisis

Business leaders do not trust their organization to:

■ EMEA: Do not trust ■ Global average: Do not trust



Country spotlight Least trusting

Netherlands: 56%
Belgium: 50%

Poland: 47%

Belgium: 38%
France: 37%

“Do you trust your organization to do the following?” Base: all respondents (4600) EMEA (2500) Respondents who did not select ‘trust’, were interpreted as not trusting their organization in the relevant regard.

Top Five Tech Investments

EMEA

Highest

1	Cybersecurity: 56% (2% less than the global average)	Italy (71%) Turkey (70%)
2	Multi-cloud environment: 41% (3% less than the global average)	Netherlands (56%) Italy (52%)
3	IoT tech: 41% (5% less than the global average)	UAE & Saudi Arabia (53%) Turkey (52%)
4	Artificial Intelligence: 36% (4% less than the global average)	Italy (52%) Turkey (44%)
5	Compute-centric approach: 33% (2% less than the global average)	Turkey (59%) Russia (56%)

“What new innovations or solutions is your organization investing in over the next 1-3 years to enable digital business?”. Base: all respondents (4600) EMEA (2500)

Five Year Investment Plan

■ EMEA ■ Global average

We'll transact via cryptocurrencies



Country spotlight

Highest

Lowest

Israel: 48%	Czech Republic: 16%
UAE & Saudi Arabia: 47%	Germany: 19%

We'll transact more via blockchain



Turkey: 75%	Czech Republic: 15%
Italy: 58%	Greece: 29%

We'll use emerging tech to predict customer demand & manage resources



Turkey: 93%	Czech Republic/Ireland: 57%
Russia: 87%	

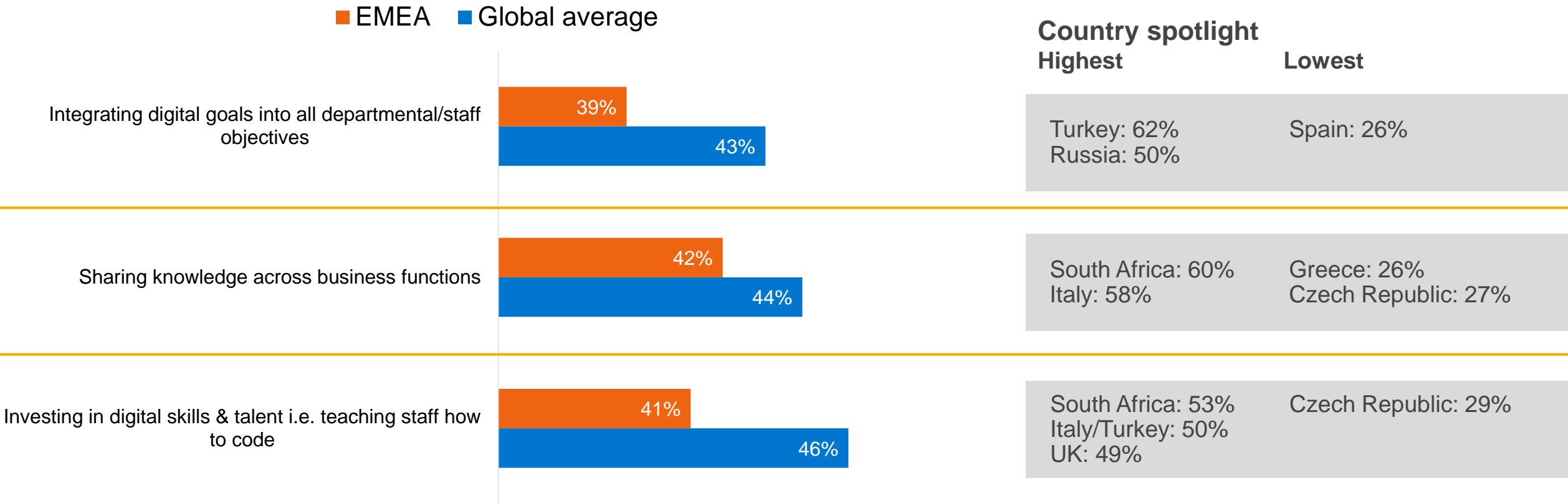
We'll use emerging tech to improve supply chain efficiency, transparency



Turkey: 83%	Czech Republic: 44%
Spain: 81%	
Israel/Russia: 73%	

“Looking to the next 5 years, to what extent do you agree with the following statements about your organization?”. Base: all respondents (4600) EMEA (2500)

Workforce Transformation



“Thinking about what a digital business looks like, which of the following is your organization doing?”. Base: all respondents (4600) EMEA (2500)

Most and Least Mature by Industry



Highlights

Sectors in EMEA that believe they're innovating all the time:

- 85% Telecoms
- 75% Technology
- 75% Automotive

Being a disrupter:

Just 30% of public healthcare organizations and 34% of manufacturing organizations in EMEA believe they'll disrupt rather than be disrupted within 5 years

Being a digital leader:

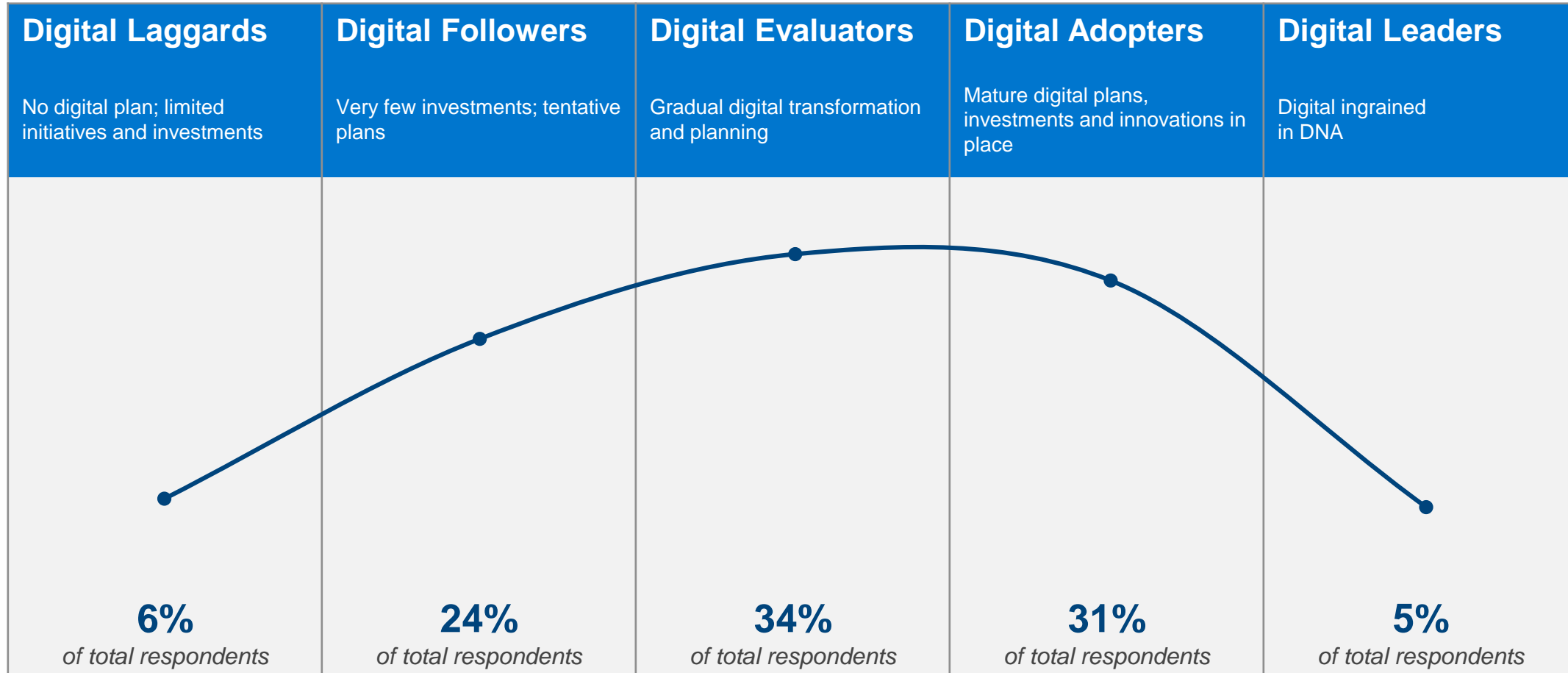
Just 36% of public healthcare organizations and 43% of manufacturing firms in EMEA believe they'll be a digital leader within 5 years

Americas



Digital Transformation Index

How are companies performing?



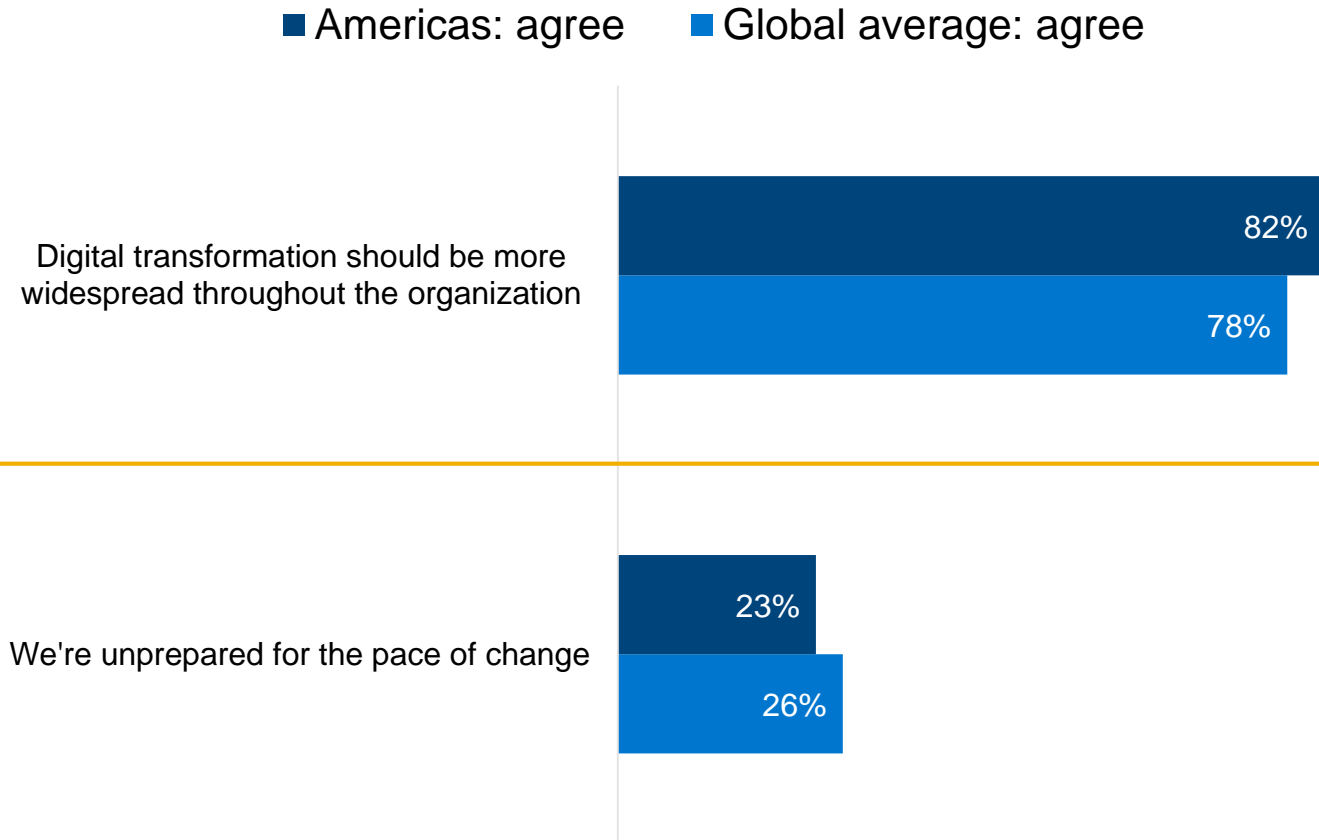
Benchmarking group respondents fell into. Base: all respondents, split by region (4600)

Most and Least Mature: 2016 and 2018



Pace of Digital Disruption and Business Impact

Response to pace of digital disruption TODAY



Country spotlight

Highest

Lowest

Mexico: 86%
Colombia: 84%
Canada: 83%

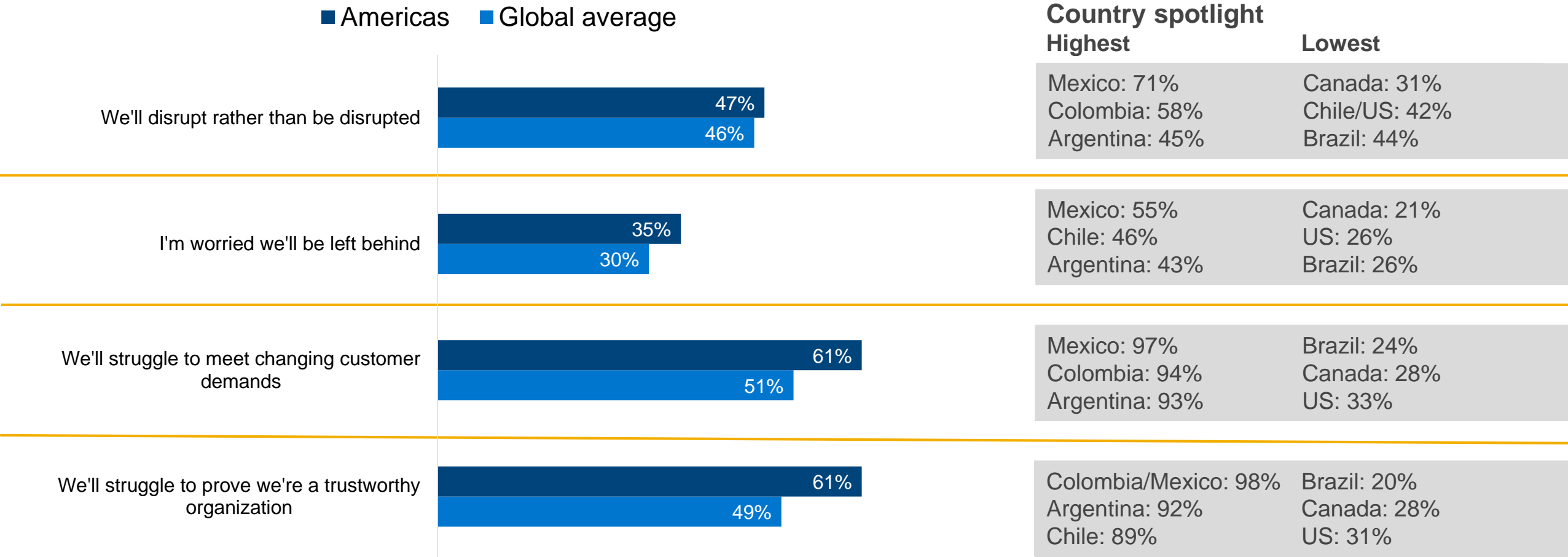
Argentina: 75%
US: 82%
Brazil/Chile: 82%

US: 30%
Canada: 29%
Colombia: 25%

Brazil: 11%
Chile: 13%
Argentina: 20%

"To what extent do the following statements reflect your organization's response to the pace of digital disruption?". Base: all respondents (4600); Americas (800)

Five Year Outlook for their Organization



"Looking to the next 5 years, to what extent do you agree with the following statements about your organization?". Base: all respondents (4600), EMEA (2500)

Top 5 Barriers to Digital Transformation

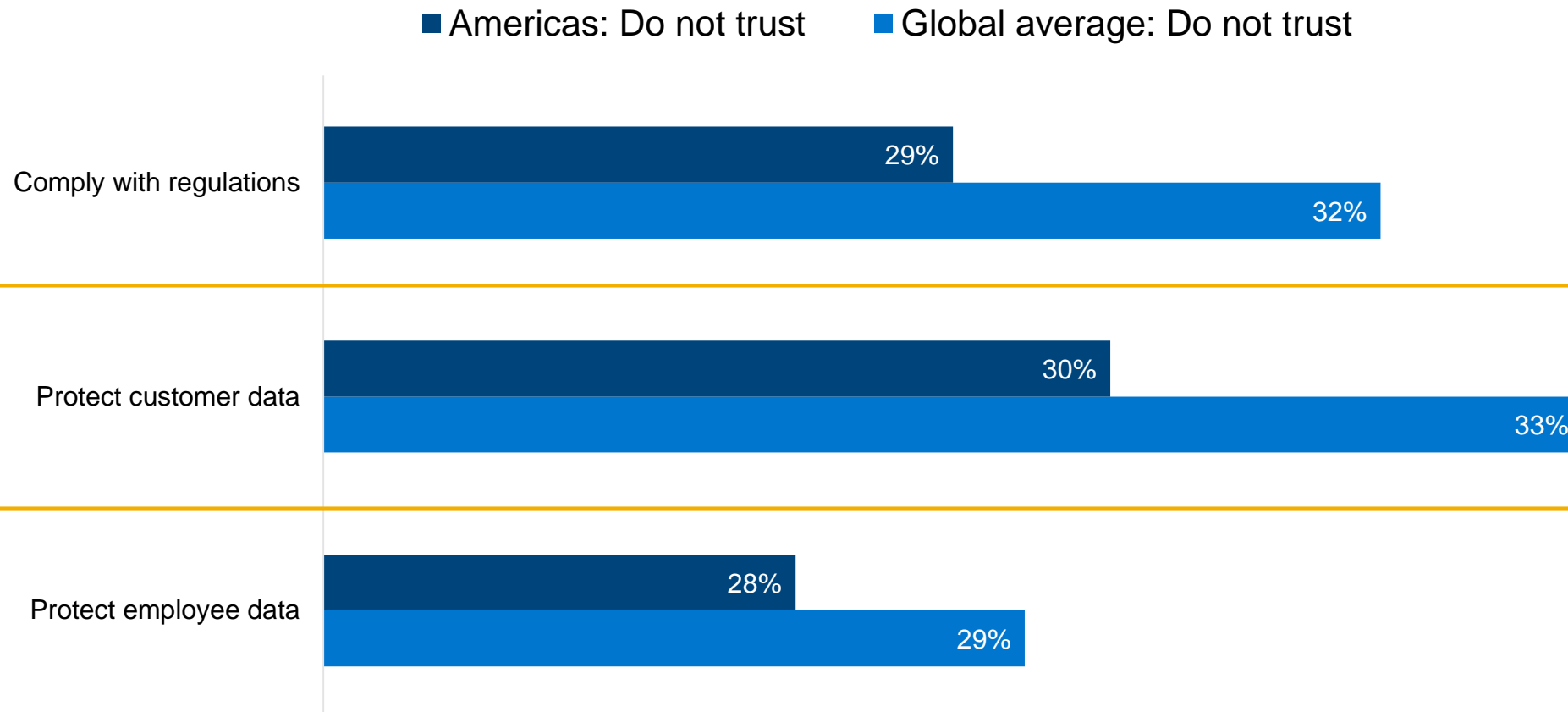
Americas

		Highest	Lowest
1	Lack of budget & resources (30%)	Canada (38%)	Argentina/ Brazil (23%)
2	Data privacy & security concerns (29%)	USA (38%)	Argentina (21%)
3	Regulation & legislative changes (27%)	Mexico (34%)	Canada (13%)
4	Information overload (26%)	Colombia (31%)	USA (18%)
5	Lack of the right in-house skills sets and expertise (26%)	USA (32%)	Argentina (21%)

"What are the main barriers to achieving digital transformation within your organization?". Base: all respondents (4600); Americas (800)

Confidence Crisis

Business leaders do not trust their organization to:



Country Spotlight Least trusting

Canada: 37%
Mexico: 35%

Canada: 35%

Argentina: 34%
US: 33%

“Do you trust your organization to do the following?” Base: all respondents (4600) Americas (800) Respondents who did not select ‘trust’, were interpreted as not trusting their organization in the relevant regard.

Top Five Tech Investments

Americas

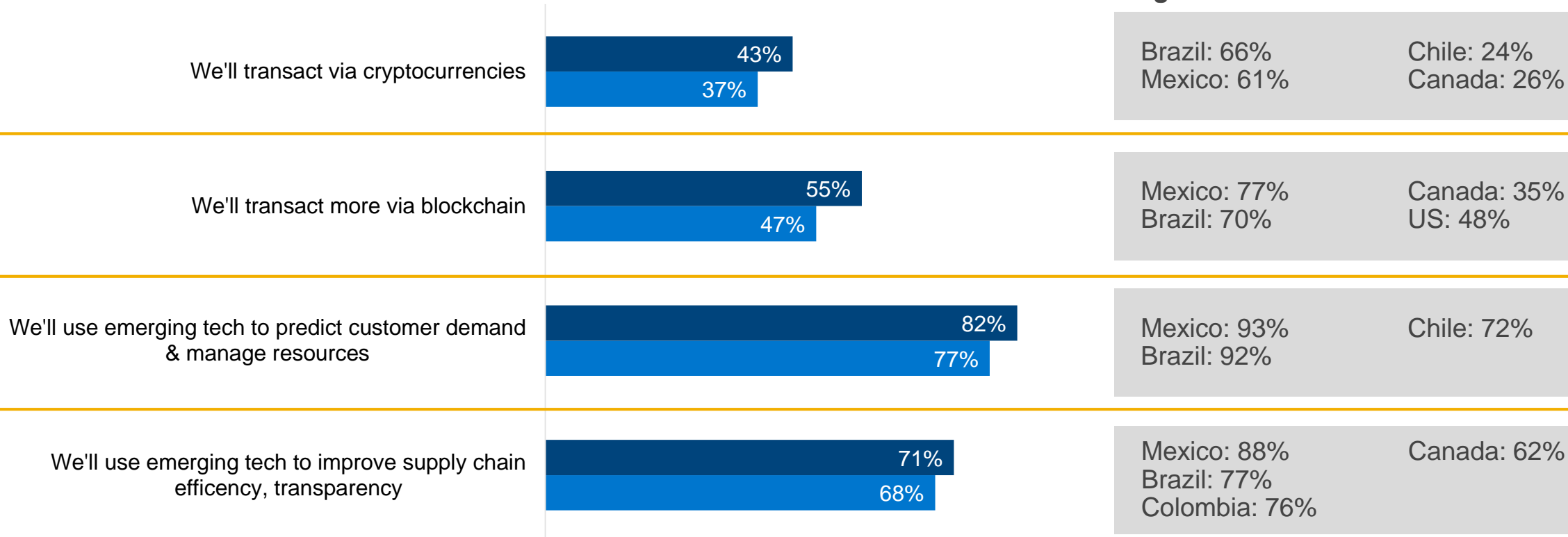
Highest

1	Cybersecurity: 58% (1% more than the global average)	Colombia (64%) Brazil (61%)
2	IoT tech: 51% (5% more than the global average)	Chile (59%) Colombia/ Brazil (57%)
3	Multi-cloud environment: 50% (6% more than the global average)	Brazil (62%) Canada (56%)
4	Artificial Intelligence: 39% (1% less than the global average)	Brazil (55%) USA (44%)
5	Compute-centric approach: 36% (1% more than the global average)	Brazil (48%) Mexico (44%)

“What new innovations or solutions is your organization investing in over the next 1-3 years to enable digital business?”. Base: all respondents (4600) Americas (800)

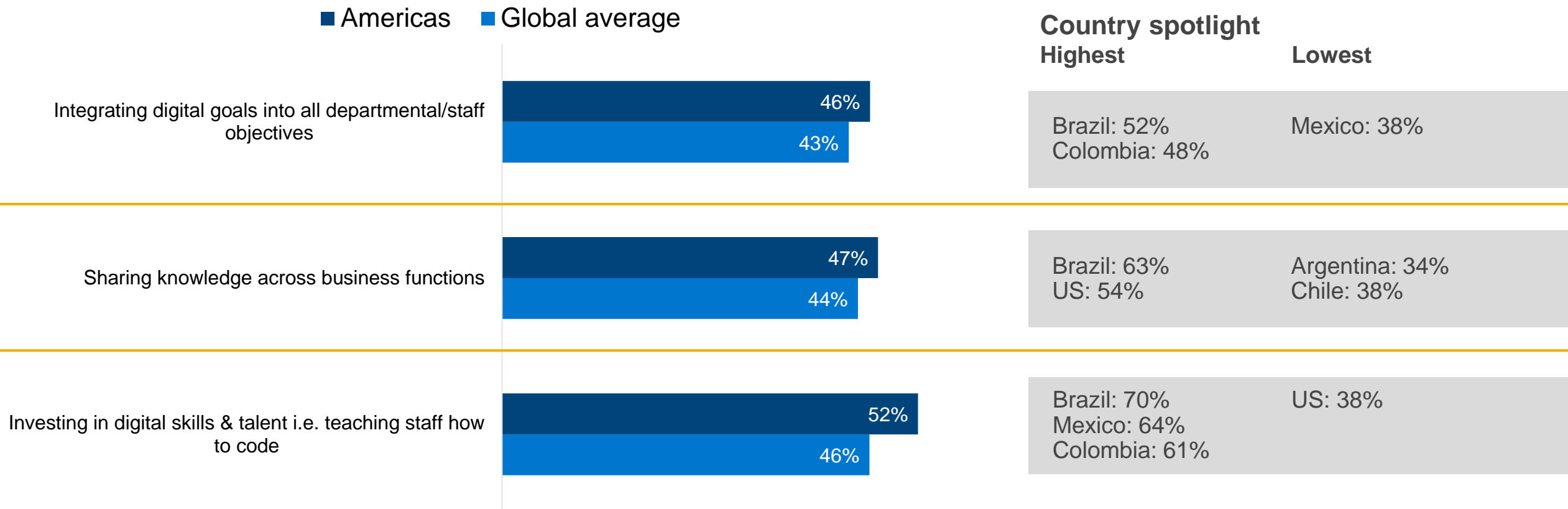
Five Year Investment Plan

■ Americas ■ Global average



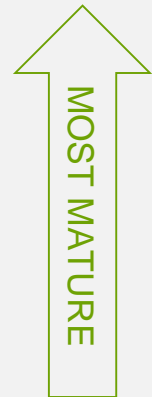
"Looking to the next 5 years, to what extent do you agree with the following statements about your organization?". Base: all respondents (4600) Americas (800)

Workforce Transformation



"Thinking about what a digital business looks like, which of the following is your organization doing?". Base: all respondents (4600) Americas (800)

Most and Least Mature by Industry



Life Sciences

Media & Entertainment

Technology



Private healthcare

Oil & Gas

Public healthcare /
Insurance

Highlights

Believe they'll be a digital leader within 5 years:

82% of tech firms

80% of life sciences organizations

79% of media & entertainment firms

Believe they innovate all the time:

89% of tech firms

85% of media & entertainment firms

83% of life sciences organizations

61% of organizations in the Americas oil & gas industry believe they'll struggle to prove they're trustworthy within 5 years; 63% are worried about meeting changing customer demands within 5 years.

51% of business leaders working in the Americas insurance sector do not trust their organization to comply with regulations.

Industry Spotlights

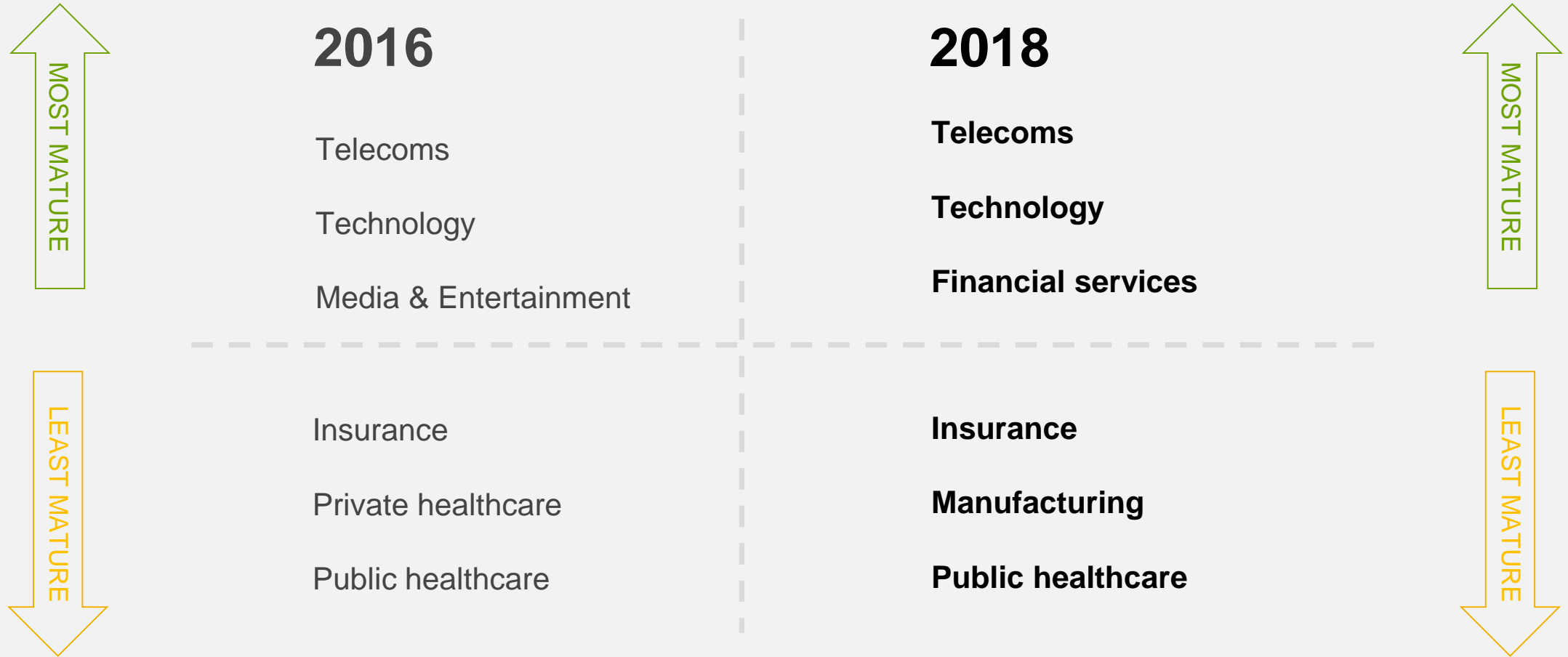
Maturity By Industry: 2016 to 2018 Comparison

Average score out of 100



Benchmarking group respondents fall into. Base: all 2018 respondents (4600) and all 2016 respondents (4000)

Most and Least Mature by Industry



Most and Least Mature by Industry per Region



APJC

Private healthcare

Financial services

Technology

EMEA

Telecoms

Technology

Automotive

Americas

Life Sciences

Media & Entertainment

Technology



Automotive

Retail & consumer products

Public healthcare

Insurance

Manufacturing

Public healthcare

Private healthcare

Oil & Gas

Public healthcare /
Insurance

The Dell Technologies logo is centered in the upper half of the image. It features the word "DELL" in a bold, white, sans-serif font, where the "E" is stylized with three diagonal lines. To the right of "DELL" is the word "Technologies" in a white, lowercase, sans-serif font. The background is a dark blue gradient with a faint, glowing network of lines and nodes at the bottom, suggesting a digital or data environment.

DELL Technologies

Explore the full Digital Transformation Index.

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