

22nd Annual Global CEO Survey

CEOs' curbed confidence spells caution





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What do CEOs know about the future?

When it comes to global economic growth, quite a lot, as it turns out. PwC has been surveying the world's chief executives since before the turn of the century – 1997, to be exact – so this year, we decided to take a look back, as well as forward, to analyse the predictive power of CEOs. We found that CEO survey responses over the past decade reveal a strong correlation between chief executives' expectations for their own organisations' revenue growth and actual global GDP growth the following year. In other words, CEOs' revenue confidence can be considered a leading indicator of the direction of the global economy.

So what are CEOs saying about the year ahead? PwC's 22nd Annual Global CEO Survey of 1,378 chief executives in more than 90 territories explores that question and many others regarding the global business climate in 2019. Conducted in September and October of 2018, this year's survey drills down on CEO insights in top-of-mind areas such as: Growth, Data and Analytics, and Artificial Intelligence.

Three clear themes emerged:

1. Reality check

Last year saw a record jump in optimism regarding global growth prospects in 2018, and this exuberance translated across regions. This year, by contrast, saw a record jump in pessimism, with nearly 30% of CEOs projecting a decline in global economic growth, up from a mere 5% last year. CEOs also reported a noteworthy dip in confidence in their own organisations' revenue prospects over the short (12-month) and medium (three-year) term. If CEOs' confidence continues to be a leading indicator, global economic growth will slow down in 2019.

2. Look inside-out for growth

Across the survey rang a general theme of hunkering down as CEOs adapt to the strong nationalist and populist sentiment sweeping the globe. The threats they consider most pressing are less existential (e.g. terrorism, climate change) and more related to the ease of doing business in the markets where they operate (e.g. over-regulation, policy uncertainty, availability of key skills, trade conflicts). When asked to identify the most attractive foreign markets for investment, CEOs are narrowing their choices and expressing more uncertainty.

3. Mind the information and skills gaps

In addition to the fault lines developing geopolitically, CEOs are working to bridge the gaps in their own capabilities. Organisations are struggling to translate a deluge of data into better decision making. There is a shortage of skilled talent to clean, integrate, and extract value from big data and move beyond baby steps toward artificial intelligence (AI). One of the more striking findings in this year's survey was the fact that — despite billions of dollars of investment¹ and priority positioning on the C-suite agenda — the gap between the information CEOs need and what they get has not closed in the past ten years.

1

GROWTH: Reality check

After hailing the prospects for global economic growth last year, CEOs curbed their enthusiasm this year with a sharp rise in those indicating that global growth would ‘decline’. As noted, we went from a record jump in the percentage of chief executives projecting that global economic growth would ‘improve’ in 2018 (from 29% to 57%) to a record jump in the percentage projecting growth would ‘decline’ in 2019 (from 5% to 29%, see Exhibit 1).



436%

increase in share of CEOs
who expect global economic
growth to ‘decline’

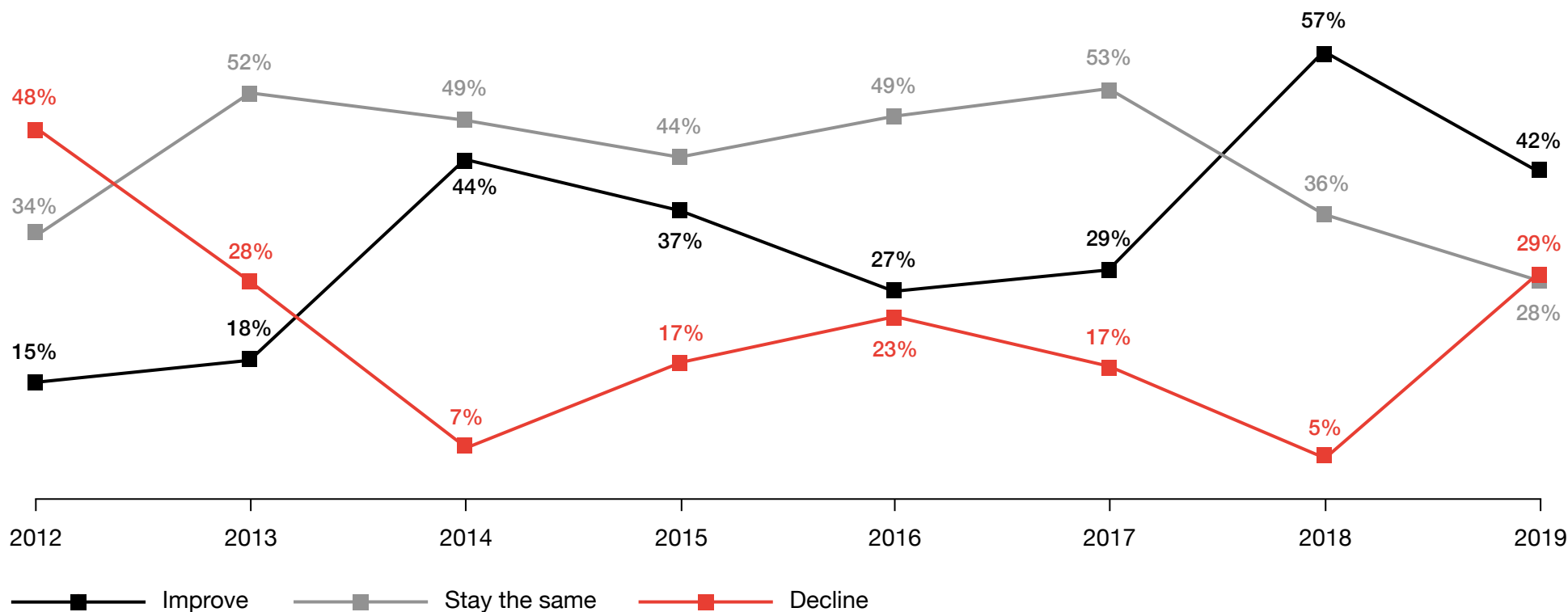


EXHIBIT 1

While many CEOs expect global economic growth to ‘improve’, there is a sharp rise in those saying growth will ‘decline’

QUESTION

Do you believe global economic growth will improve, stay the same, or decline over the next 12 months?



To be clear, ‘improve’ responses still outnumber ‘decline’ responses, meaning more CEOs see growth continuing to climb and those projecting a ‘decline’ are referring to the rate of growth, not the economy itself. Still, the two trend lines approach one another this year as dramatically as they parted last year, with the drop-off in optimism approaching the rise in pessimism. Overall, CEOs are more polarised this year in their views on global economic growth; fewer CEOs take the neutral stance that it will ‘stay the same’.

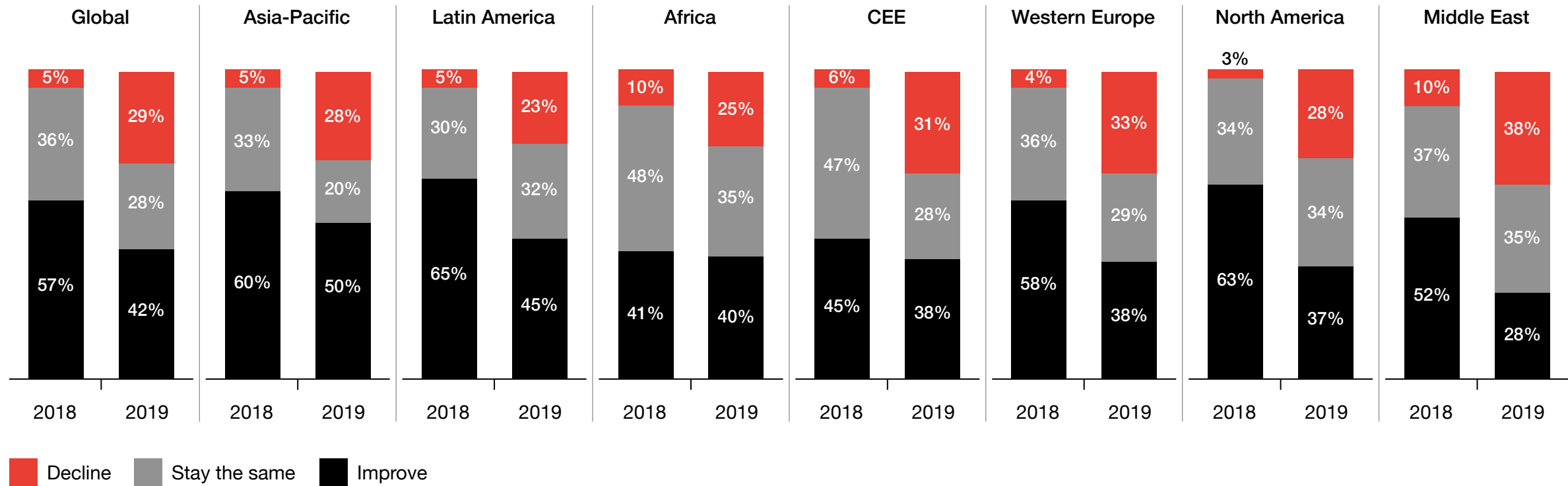
Source: PwC, 22nd Annual Global CEO Survey
 Note: from 2012-2014 respondents were asked ‘Do you believe the global economy will improve, stay the same, or decline over the next 12 months’
 Base: All respondents (2019=1,378 2018=1,293; 2017=1,379; 2016=1,409; 2015=1,322; 2014=1,344; 2013=1,330; 2012=1,258)

EXHIBIT 2

In every region, the share of CEOs who believe global growth will ‘decline’ grew significantly

QUESTION

Do you believe global economic growth will improve, stay the same, or decline over the next 12 months?



Source: PwC, 22nd Annual Global CEO Survey
 Base: All respondents (2019=1,378; 2018=1,293)

Across every region, the share of CEOs who believe the global growth rate will ‘decline’ has grown significantly (see Exhibit 2).

Optimism among North America’s CEOs dropped the most sharply, from 63% to 37%, while the percentage signalling a slowdown in global growth moved from a negligible 3% to 28%. The result is a fairly even distribution of sentiment between ‘improve’, ‘decline’, and ‘stay the same’ with regard to global economic growth in 2019.

That balanced response holds basically true for all the regions except Asia-Pacific, which has switched places this year with North America as the most buoyant when it comes to global economic growth expectations. Even in Asia-Pacific, CEOs are less sanguine than they were, with those expecting improved economic growth falling from 60% to 50%.

The rise in relative pessimism evidenced in the survey is not that surprising. Most major economic models have adjusted their 2019 forecasts downward. In fact, many economists see a slowdown as overdue. International trade tensions, political upset and uncertainty, and stricter monetary and fiscal policy all play out differently but with the same general result across regions: a more cautious outlook on global economic growth.

All over the world, we have seen populist politicians exercise increasing influence over economic policy. There is a perceptible shift away from reliance on global governance structures designed to facilitate cooperation on pressing issues such as trade, climate change, and nuclear proliferation. The result has been one recognised by the World Economic Forum: a trend toward nation-state unilateralism and, consequently, greater global fragmentation and uncertainty.²

“Global growth will be somewhat slower, but I don’t see a massive recession coming any time in the next 18 months. What could throw that off, obviously, is ‘event risk’, particularly around China, not so much trade as leverage and idiosyncratic counterparty events given the amount of bonds issued out of China. I do think the psychology around trade is a risk. There’s a general environment of skittishness, and there could be feedback loops from that into the general economy.”

PIYUSH GUPTA
CEO, DBS SINGAPORE, THE LARGEST BANK IN SOUTHEAST ASIA BY ASSETS

”

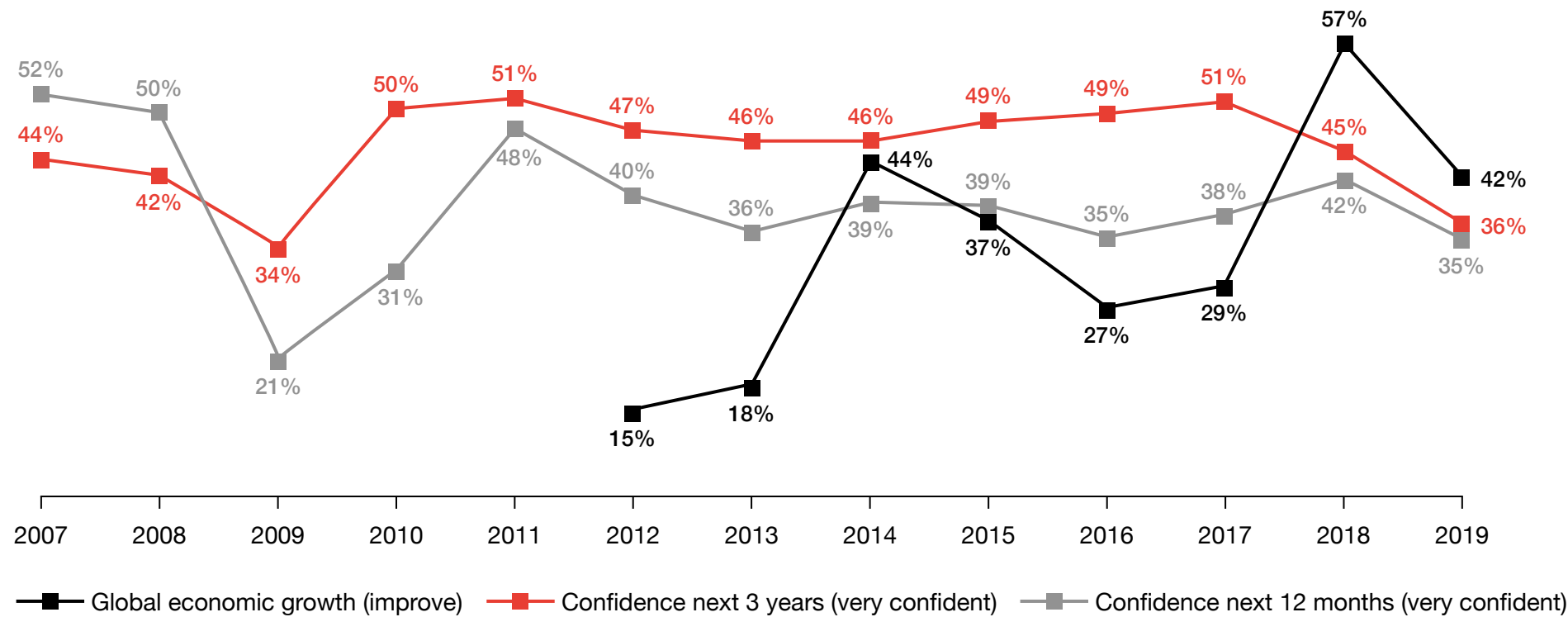
EXHIBIT 3

Confidence in organisations' revenue growth prospects has fallen sharply as well

QUESTION

Do you believe global economic growth will improve, stay the same, or decline over the next 12 months? (showing only 'improve')

How confident are you about your organisation's prospects for revenue growth over the next 12 months/next 3 years? (showing only 'very confident')



In Exhibit 3, you see CEOs' confidence in their own organisations' short (12-month) and medium-term (three-year) revenue growth prospects charted against their assessment of global economic growth. Unlike last year, when economic optimism surged but organisational confidence did not, this year the message is broadly consistent: CEOs anticipate subdued growth, full stop.

Source: PwC, 22nd Annual Global CEO Survey
 Note: from 2012-2014 respondents were asked 'Do you believe the global economy will improve, stay the same, or decline over the next 12 months'
 Base: All respondents (2019=1,378; 2018=1,293; 2017=1,379; 2016=1,409; 2015=1,322; 2014=1,344; 2013=1,330; 2012=1,258; 2011=1,201; 2010=1,198; 2009=1,124; 2008=1,150; 2007=1,084)

Generally, three-year confidence is the highest number on the chart, meaning the further out CEOs look regarding their own performance, the more sanguine their outlook. The only previous survey when three-year confidence dipped below 12-month confidence globally was in the precursor stages of the recession of 2007-08. In this year's survey, the lines have essentially converged at the lowest levels of 'very confident' reported since 2009. The specific regions where three-year confidence levels fell below 12-month levels were North America, Western Europe, and Central and Eastern Europe.

-16%

decrease in share of CEOs who are 'very confident'
in their 12-month revenue prospects

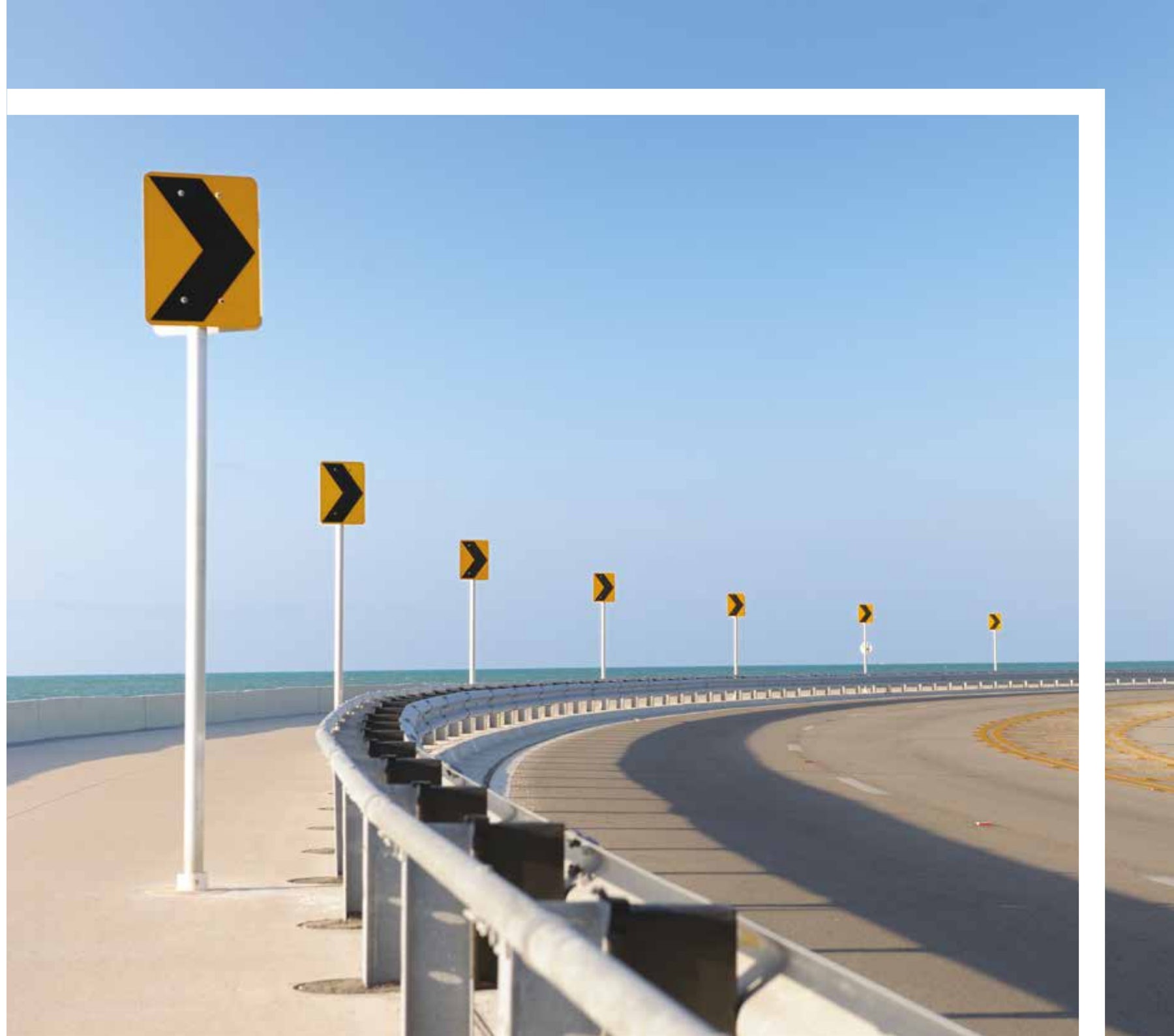




EXHIBIT 4

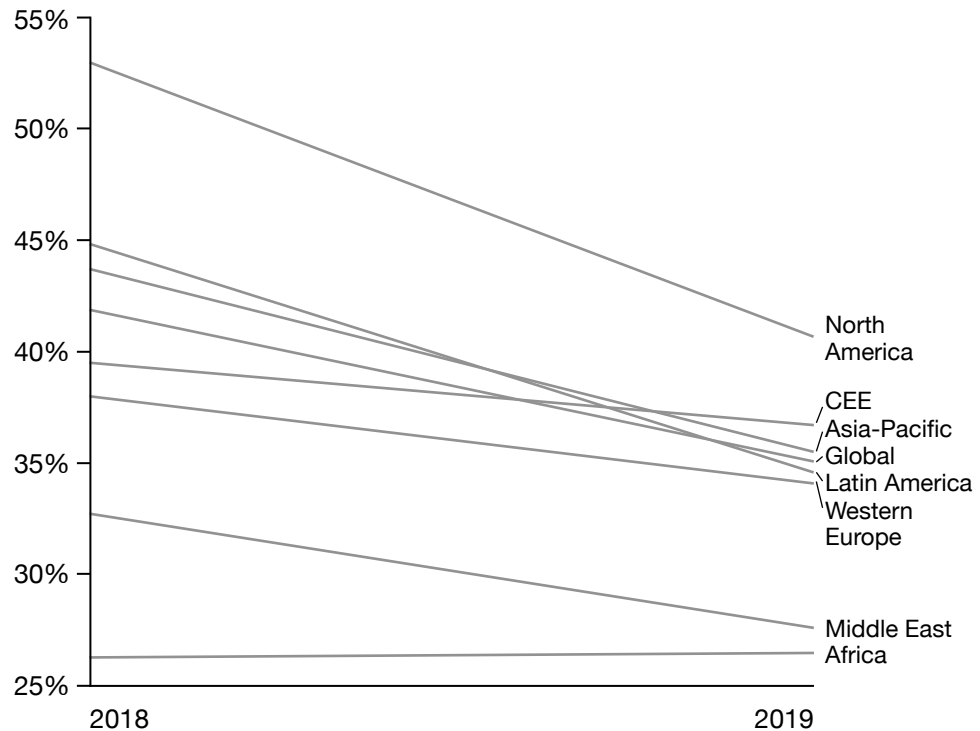
In every region, CEO confidence in both short- and medium-term revenue growth prospects has plateaued or fallen

QUESTION

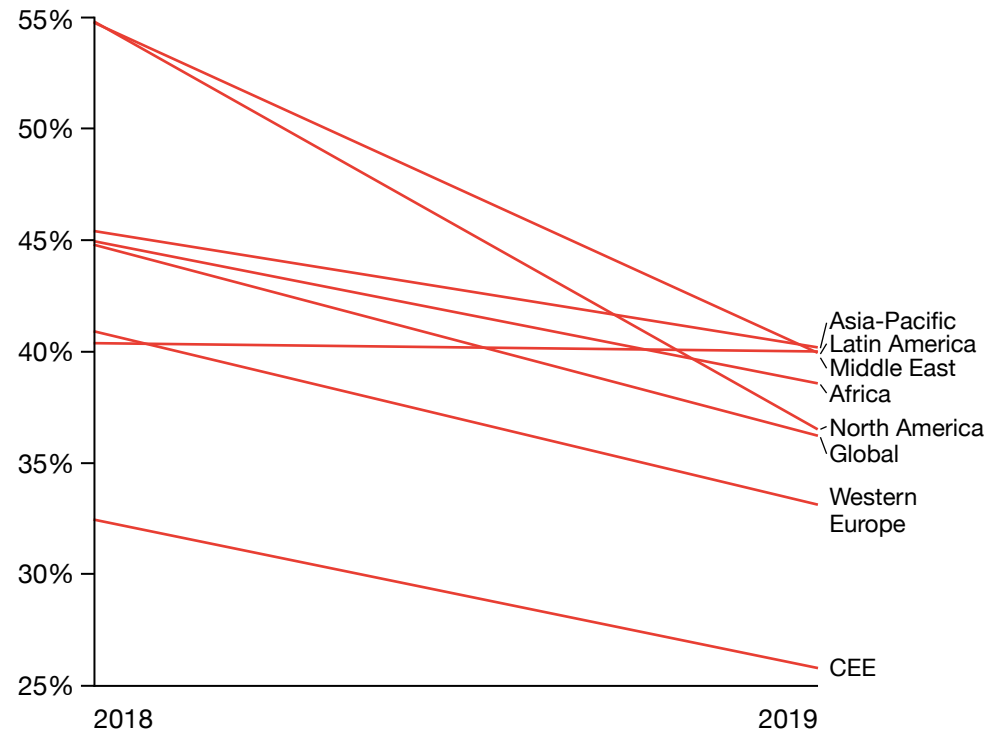
How confident are you about your organisation's prospects for revenue growth over the next 12 months/next 3 years? (showing only 'very confident')

CEOs' short-term (12-month) 'very confident' levels are down in every region save Africa, where they are only up 1% from rock bottom last year (see Exhibit 4). North America's CEOs remain the most confident in looking at their own revenue growth in 2019, but that confidence has seen the biggest drop.

Twelve-month revenue confidence



Three-year revenue confidence



The same holds true for the medium-term (three-year) outlook: globally, we see a 9% drop in the percentage of CEOs who are 'very confident' about their revenue growth prospects over the next three years. North America, Central and Eastern Europe, Asia-Pacific, Africa, and the Middle East have hit record lows. Western Europe and Latin America are downcast as well. North America's CEOs, again, report the most precipitous loss of high confidence. The overall lowest level reported is, as in 2018, in Central and Eastern Europe.

Taken as a whole, the CEO confidence story is a sobering one.

CEOs look in the mirror... and see the world

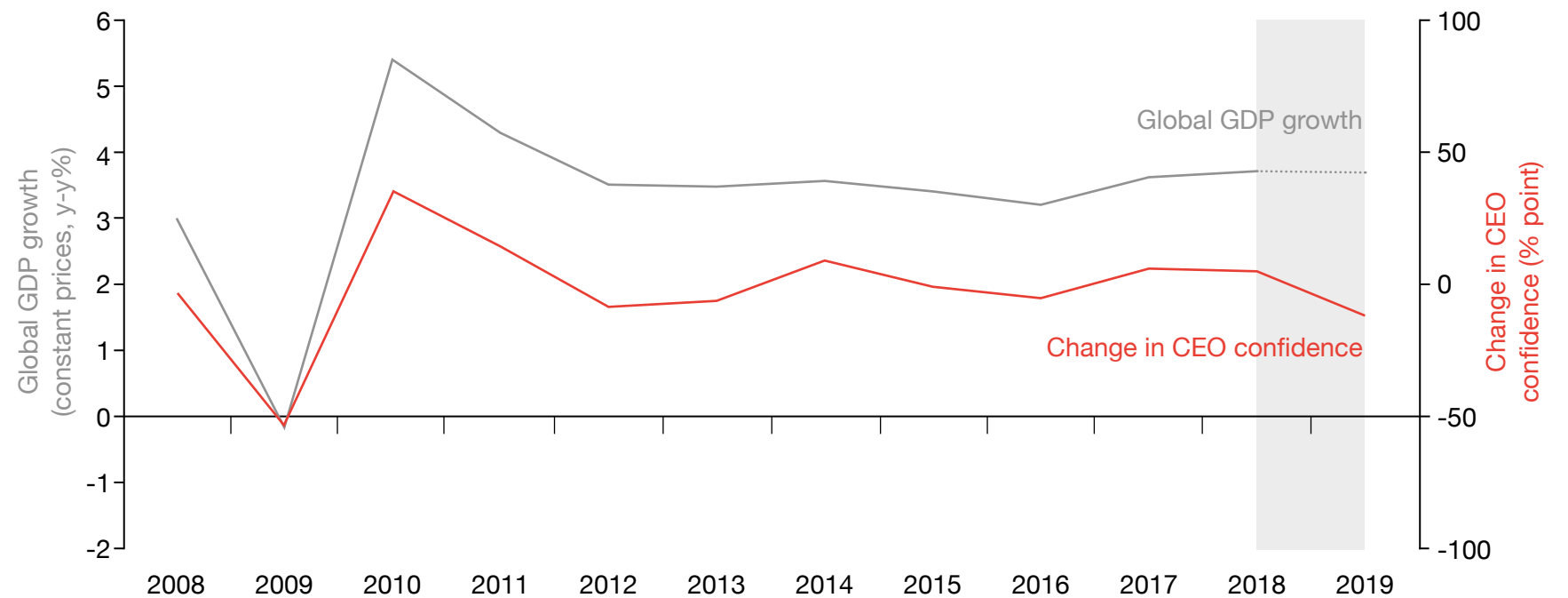
Should we ascribe any special predictive power to CEOs' outlook on growth over the next year? Based on the past ten years of CEO Survey data, the answer is a qualified 'yes'. That data reveals that CEO attitudes are quite accurate in anticipating the strength of the global economy over the next 12 months. Specifically, the change in their confidence regarding their own organisation's revenue growth prospects in the year ahead correlates strongly with actual global economic growth (see Exhibit 5).

EXHIBIT 5

CEOs' lower confidence could indicate a more subdued global economic growth than leading forecasts

QUESTION

How confident are you about your organisation's prospects for revenue growth over the next 12 months? (showing change in CEO confidence¹)



Source: PwC, 22nd Annual Global CEO Survey

1. We calculate change in CEO confidence by taking the change in the net balance percentage of CEOs answering 'very confident' or 'somewhat confident' minus the percentage of respondents answering 'not confident' or 'not confident at all' to the question: 'How confident are you about your organisation's prospects for revenue growth over the next 12 months?'

Note: 2018 and 2019 global GDP forecast is from the IMF

Base: All respondents (2019=1,378; 2018=1,293; 2017=1,379; 2016=1,409; 2015=1,322; 2014=1,344; 2013=1,330; 2012=1,258; 2011=1,201; 2010=1,198; 2009=1,124; 2008=1,150; 2007=1,084)



Dating back to John Maynard Keynes and his theory of ‘animal spirits’ driving business and financial investment decisions, there has been plenty of empirical evidence that business investment helps drive economic cycles. And business investment is, in turn, based on expectations of revenue growth.

CEO Survey data confirms this theory and reveals that chief executives can play a useful role in predicting the direction of the global economy: a boost or dip in their confidence levels regarding their own revenue prospects is a leading indicator of actual global economic growth in the year ahead.

With that said, we can infer from 2019 survey results that CEOs are directionally consistent but more subdued in their assessment of global GDP growth this coming year than leading economic forecasts suggest.

2

THREATS AND OPPORTUNITIES: Look inside-out for growth

Amid the wave of populist and protectionist sentiment sweeping across continents, CEOs have turned their focus inward, as they adapt to newly erected barriers between markets — both trade and labour. They are less bothered by the broad, existential threats that rose in the rankings last year — for example, terrorism and climate change — and are more ‘extremely concerned’ about the ease of doing business in the markets where they operate (see Exhibit 6). The revenue and expansion opportunities CEOs identify are also more internally oriented and closer to home.

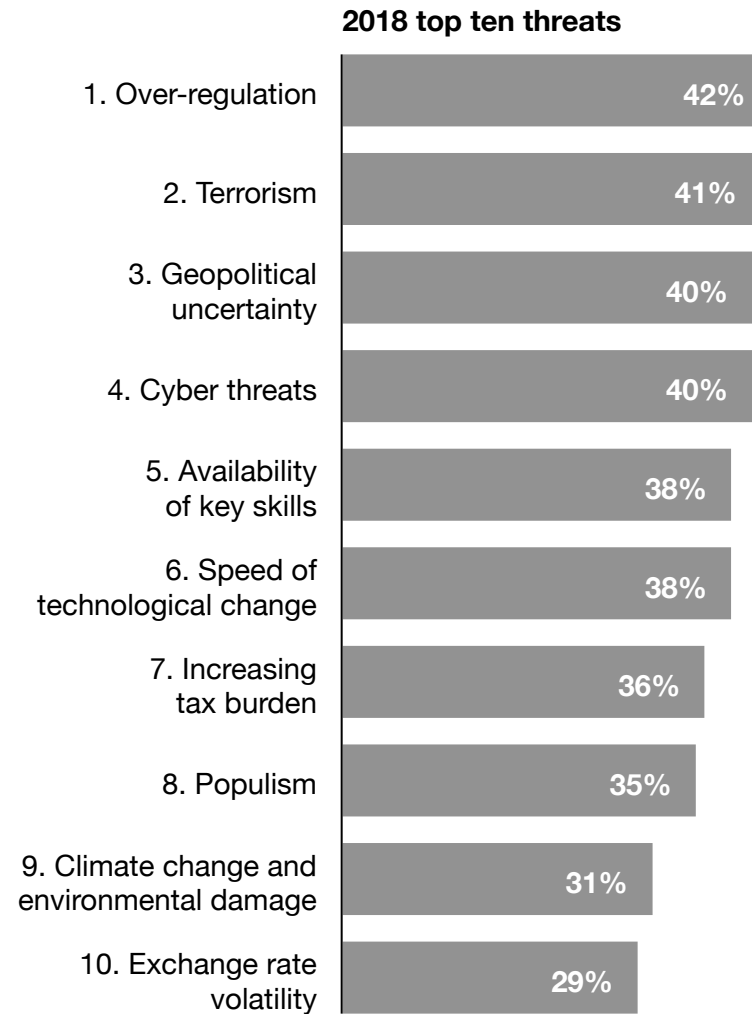


EXHIBIT 6

Threats that are top-of-mind are less existential and more related to the ease of doing business

QUESTION

How concerned are you, if at all, about each of these potential economic, policy, social, environmental, and business threats to your organisation's growth prospects? (showing only 'extremely concerned')



Source: PwC, 22nd Annual Global CEO Survey
 *Note: 2019 was the first year CEOs were asked about 'policy uncertainty' and 'trade conflicts'
 Base: All respondents (2019=1,378; 2018=1,293)



What is perhaps most noteworthy about Exhibit 6 is the narrowing of the bars since last year. In general, fewer CEOs are ‘extremely concerned’ about any and all threats to their business, even as they demonstrate lower confidence in their own revenue prospects. CEOs are more mindful of what’s going on in their immediate purview as they await greater clarity on government actions and market conditions.

Over-regulation, the perennial top threat since we began asking this question in

2008, maintains first place globally. It is joined in the top five threats by policy uncertainty, availability of key skills and trade conflicts. All of these are more immediate concerns tied to the ease of doing business within the economic infrastructure of one’s own markets.

Top of mind among CEOs’ concerns is what dominates the headlines. Terrorism events dropped off in 2018,³ while trade conflicts and policy uncertainty rose to the fore. Government actions under new

populist regimes have taken centre stage and are of more immediate concern than shifts in global temperature. As noted, individual heads of state are more activist in pulling the economic and business levers at their disposal, which leaves CEOs more cautious and focused on what is in their control.

“We’re entering a new stage where, in effect, growth is slowing down — but only slightly. The global tensions caused by the trade war between the United States and China affect growth in both mature and emerging markets. This will lead to a certain amount of slowdown. There are also regional and national political situations that are hindering growth, as is the case in Italy, Mexico, and Brazil.”

ANTONIO HUERTAS MEJÍAS
CEO OF SPANISH INSURANCE
COMPANY MAPFRE

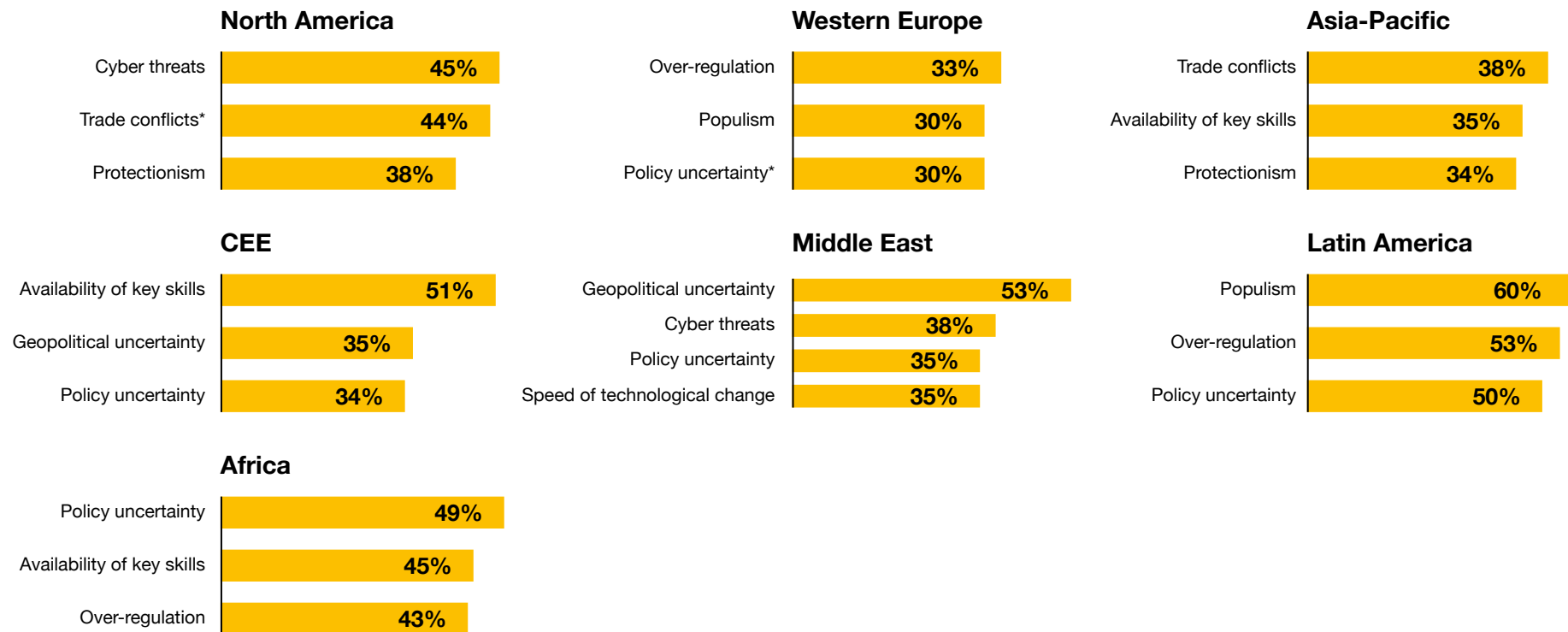


EXHIBIT 7

Each region cites a different number one threat, but there is a broad consistency in what is top-of-mind across the world

QUESTION

How concerned are you, if at all, about each of these potential economic, policy, social, environmental, and business threats to your organisation's growth prospects? (showing only 'extremely concerned')



While each region cites a different number one threat, there is broad consistency in what keeps CEOs up at night around the world (see Exhibit 7). Policy uncertainty is among the ten most 'extreme concerns' in every region and ranks in the top three everywhere except North America (where it is number seven) and Asia-Pacific (number six). Availability of key skills makes the top ten list in every region, and the top three in Asia-Pacific, Central and Eastern Europe, and Africa. Over-regulation, the number one threat cited globally, only tops the list in Western Europe, while elsewhere it ranks solidly among the top ten.

Source: PwC, 22nd Annual Global CEO Survey
 *Note: 2019 was the first year CEOs were asked about 'policy uncertainty' and 'trade conflicts'
 Base: All respondents (2019=1,378)

The top concerns in four of the seven regions remain the same as last year: North America (cyber threats), Latin America (populism), Central and Eastern Europe (availability of key skills), and the Middle East (geopolitical uncertainty). Policy uncertainty, a new threat in this year's survey, rose to the top in Africa, replacing social instability. Over-regulation replaced populism in Western Europe, and trade conflicts — also a new threat this year — usurped availability of key skills in Asia-Pacific.

Trade conflicts and protectionism are major concerns in North America and Asia-Pacific and also weigh on CEOs' minds in Western Europe, Central and Eastern Europe, and the Middle East. Trade conflicts and protectionism do not make the top ten list in Latin America or Africa (where there are countries that stand to benefit from trade tensions elsewhere).

60%

increase in share of CEOs in North America who are 'extremely concerned' about protectionism



INSIGHT:

Trading Places

Of those CEOs who expressed 'extreme concern' about the trade conflicts of 2018, the one between the US and China overshadowed other protectionist moves as particularly worrisome, with 88% expressing concern. It outweighed other trade tensions not only in the minds of Asia-Pacific and North America CEOs but also those in Western Europe.

Asked how they were adjusting their operating model and growth strategy to accommodate these trade conflicts, most of these 'extremely concerned' CEOs responded they are not doing much beyond 'adjusting their supply chains and sourcing strategies' (see Exhibit 8). On a global basis, less than a third of these CEOs are 'shifting their growth strategy or production to alternative territories', or 'delaying capital expenditures' or 'foreign direct investment'.

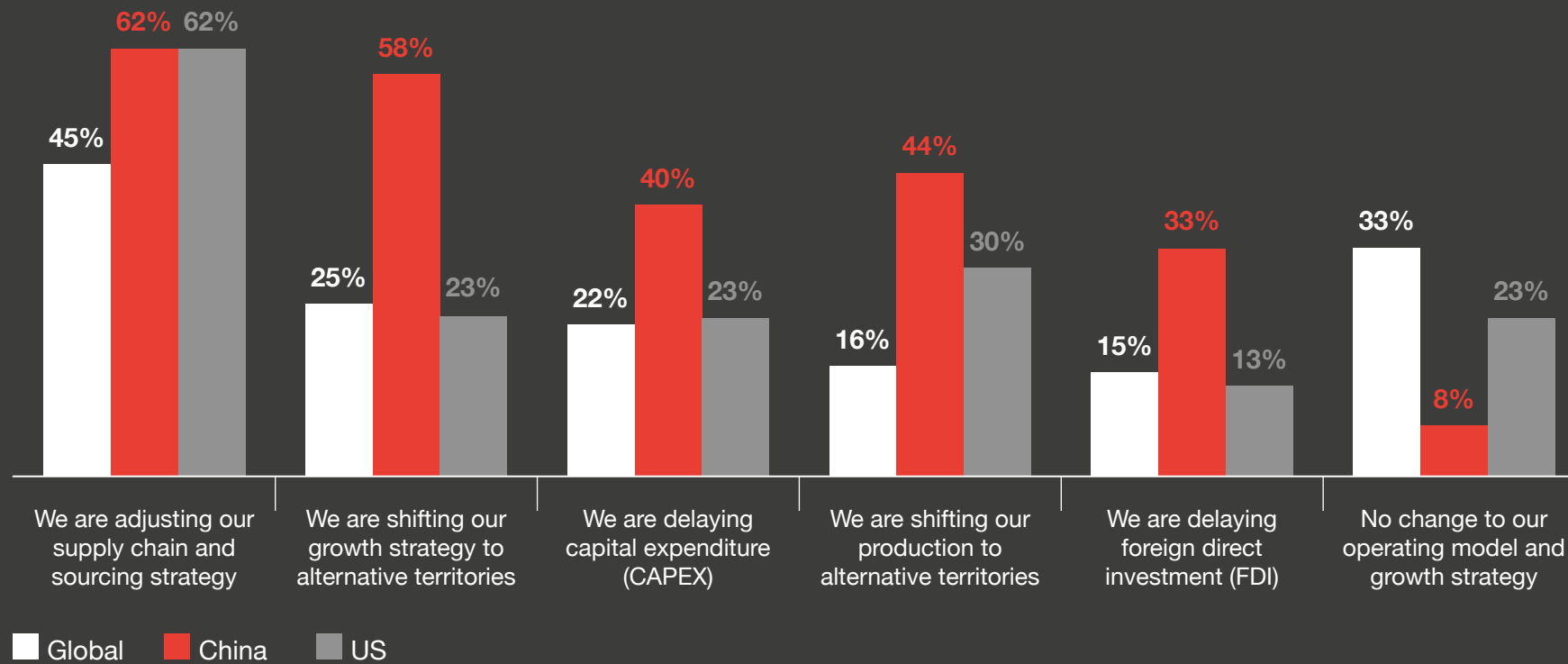
China's CEOs stand out as the most proactive and vigorous in pulling every lever. Sixty-two percent of those 'extremely concerned' are 'adjusting their supply chain and sourcing strategy'. A majority are 'shifting their growth strategy to alternative territories'. Roughly four in ten are 'shifting production' and 'delaying capital expenditures'.

EXHIBIT 8

Of CEOs who are ‘extremely concerned’ about trade conflicts, two-thirds are changing their strategy

QUESTION

How are trade conflicts affecting your operating model and growth strategy? (asked of those ‘extremely concerned’ about trade conflicts)



Source: PwC, 22nd Annual Global CEO Survey
 Base: (2019=426; China=52; US=53)

“I feel like what’s been going on over the last year with the renegotiation of NAFTA and the tariffs is short-term noise. I would never change my supply chain or the location of my operations because of something as uncertain as tariffs. I’ve heard of American companies that are shutting down because they can’t survive. How is this a positive economic outcome? It doesn’t make sense. Therefore, it’s not sustainable.”

LINDA HASENFRATZ
 CEO, LINAMAR, A CANADIAN
 AUTO PARTS MANUFACTURER





“Interestingly, I do believe that the escalation taking place between China and the United States is actually leading to renewed opportunities within ASEAN. I think supply chains are getting disrupted, and I do believe ASEAN will be a net beneficiary of this disruption as companies look to a ‘China-plus-one’ model, or perhaps even consider moving out of China to be able to continue selling to the United States.”

JAIME AUGUSTO ZÓBEL DE AYALA
CHAIRMAN AND CEO, AYALA CORPORATION IN THE PHILIPPINES

”

Reining in growth ambitions

When asked to identify the top three most attractive markets for investment outside their home territory, CEOs are strikingly non-committal — ‘don’t know’ at number three ranks higher than Germany and India (see Exhibit 9). And 8% of CEOs could not name three separate territories, outside their own, as important to their growth prospects in 2019, effectively choosing nowhere over markets like the UK, Brazil, and France. Given the level of uncertainty surrounding trade and policy issues, it is not surprising that CEOs are hunkering down at home. Governments could view this as an opportunity to remind companies their countries are open for business.

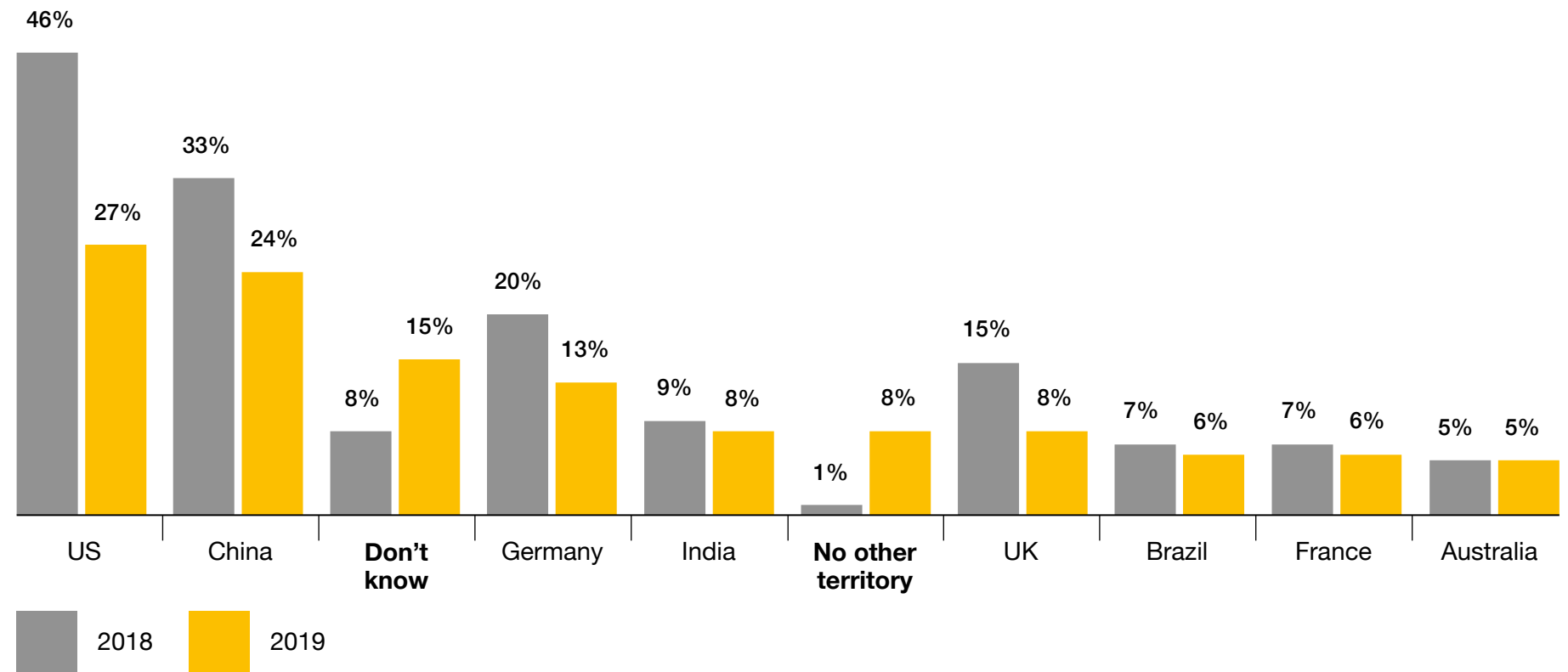
The US retains its lead as the top market for growth, and, indeed, it enjoyed a strong economic year in 2018. Specific steps taken by the presidential administration to cut taxes and reduce regulation boosted the domestic economy and reduced unemployment to a record low, but it’s doubtful how long this expansion can last. In the interim, CEOs have dramatically

EXHIBIT 9

CEOs appear to be less certain about their expansion plans outside their home markets

QUESTION

Which three territories, excluding the territory in which you are based, do you consider most important for your organisation’s overall growth prospects over the next 12 months?



Source: PwC, 22nd Annual Global CEO Survey
 Base: All respondents (2019=1,378; 2018=1,293)

diverted their growth plans from the US. Its lead has narrowed dramatically, collapsing the gap between it and the second most attractive market, China, which also saw its popularity fall.

India is the rising star on the list of most attractive investment markets, despite a slightly lower share of the votes. It surpassed Japan last year, and this year it overtakes the UK, which suffers from the continuing uncertainty regarding Brexit. Always the most buoyant territory in terms of CEO revenue confidence, India has recently surpassed China as the fastest-growing large economy,⁴ and the government has enacted a series of measures designed to improve the ease of doing business there, which remains an issue.

There is a clear substitution of ‘don’t know’ and ‘no other territory’ for the top markets, but the decrease in share of CEOs selecting the US as the top market for growth can also be explained by shifts in Chinese investment. CEOs there are diversifying their bets away from the United States (59% to 17%) and toward a broader array of markets. Australia seems to be the principal beneficiary; not even in China’s top ten last year, it has risen to the number one destination for Chinese investment (see Exhibit 10).

-41%

decrease in share of CEOs selecting the US as a top market for growth

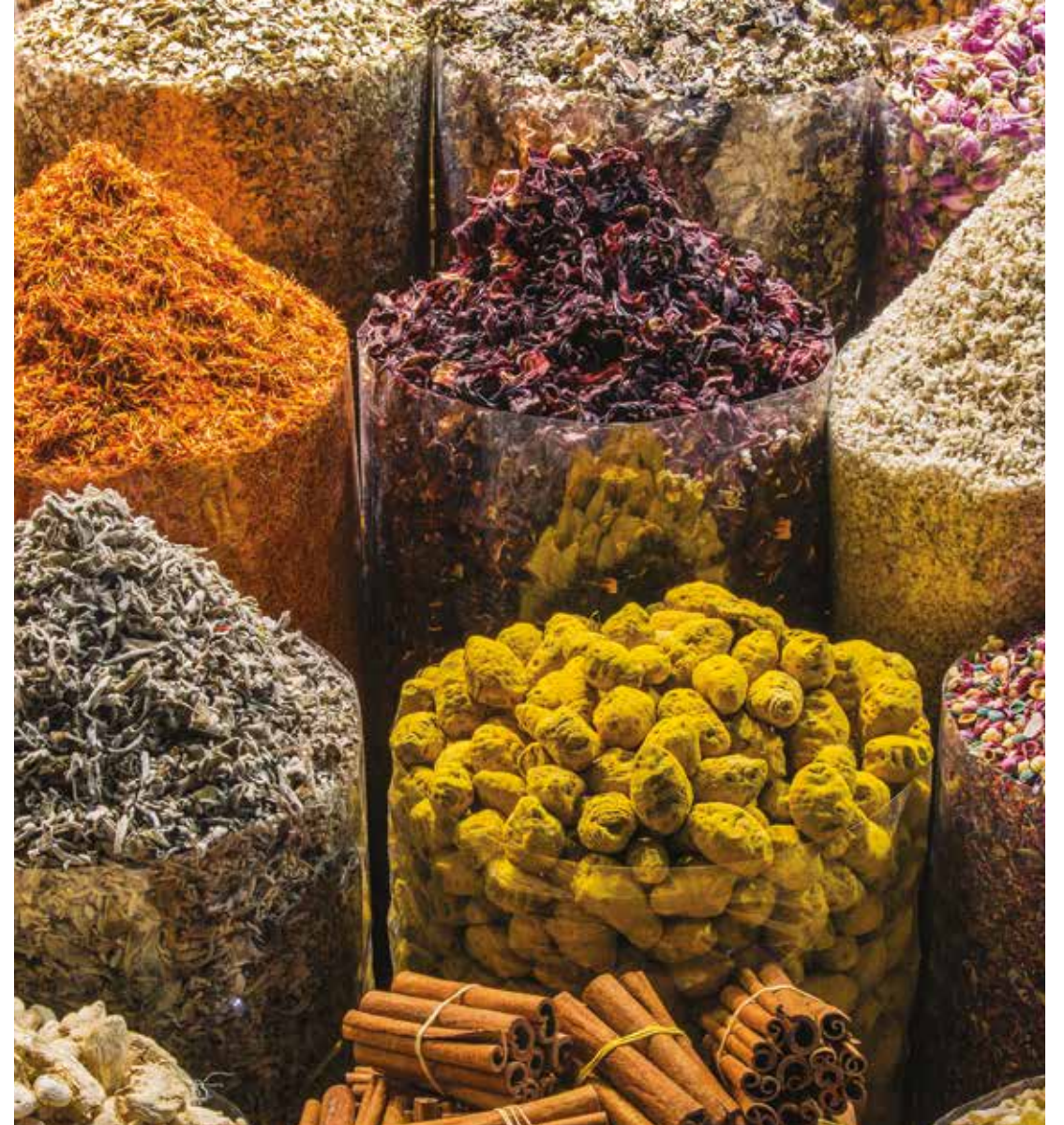
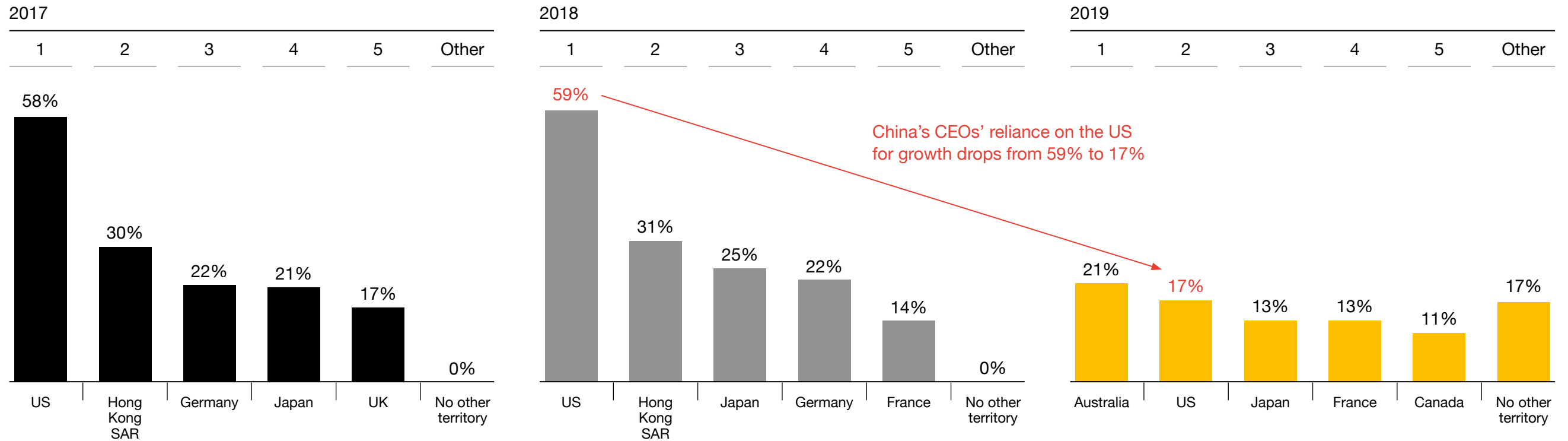


EXHIBIT 10

China's CEOs are radically revising their growth ambitions and are behind the drop in votes for the US as top market

QUESTION

Which three territories, excluding the territory in which you are based, do you consider most important for your organisation's overall growth prospects over the next 12 months? (showing only China's CEO responses)



Source: PwC, 22nd Annual Global CEO Survey
 Base: All respondents (2019=144; 2018=162; 2017=130)



Finally, the inside-out approach to growth is confirmed in CEOs' responses to this question: "Which of the following activities, if any, are you planning in the next 12 months to drive revenue growth?" CEOs overwhelmingly respond with internally focused initiatives: 'operational efficiencies' (77%) and 'organic growth' (71%) (see Exhibit 11).

80%

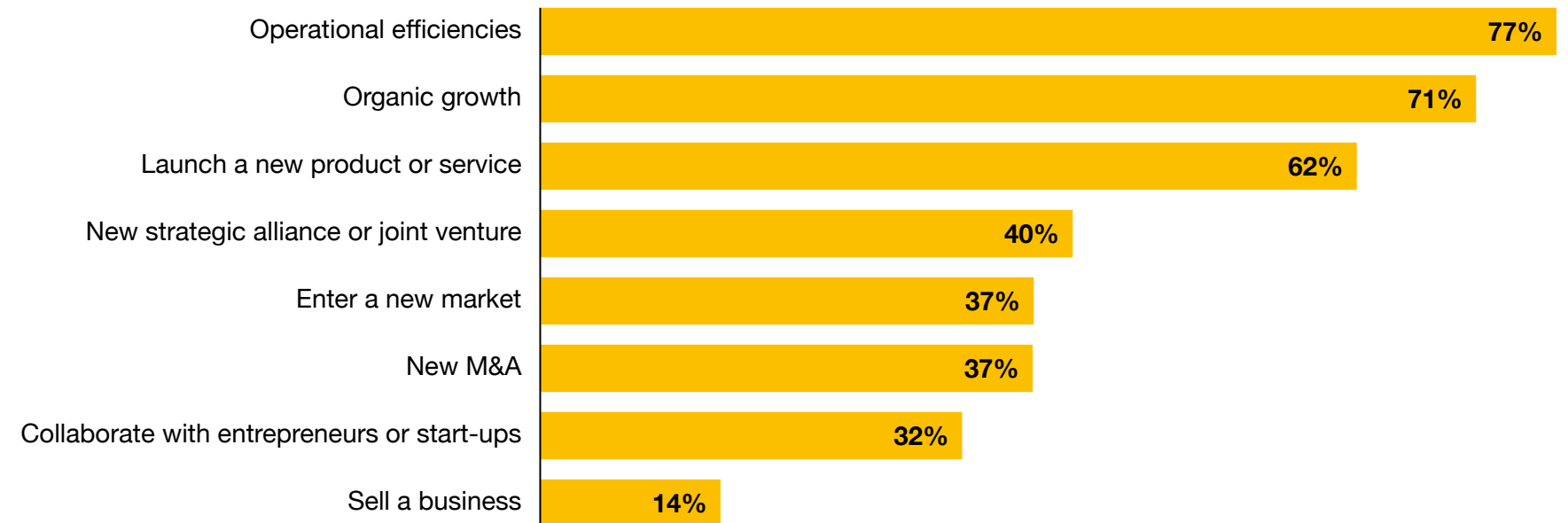
the share of CEOs in Africa and Western Europe planning 'operational efficiencies' to drive revenue growth

EXHIBIT 11

Faced with the new realities, organisations are turning inward to drive revenue growth

QUESTION

Which of the following activities, if any, are you planning in the next 12 months in order to drive revenue growth?



Source: PwC, 22nd Annual Global CEO Survey
 Base: All respondents (2019=1,378)

3

DATA AND ANALYTICS AND ARTIFICIAL INTELLIGENCE:

Mind the information and skills gap

As CEOs turn to what they can actively control inside their organisations, they confront the cracks in their own capabilities, especially the information and skills gaps illuminated in our survey sections on Data and Analytics and Artificial Intelligence (AI). Organisations struggle to corral data into useable and actionable intelligence, and the main reason for their frustration is ‘lack of analytical talent’, followed closely by ‘data siloing’ and ‘poor data reliability’. Without clean, relevant, and labeled data, organisations are stymied in their efforts to move aggressively on AI, which CEOs overwhelmingly ‘agree’ will have a significant impact on their business within the next five years.

One of the more striking findings in this year’s survey is the fact that the ‘information gap’ — the gap between the data CEOs need and what they get — has not closed in the ten years since we last asked them these questions.

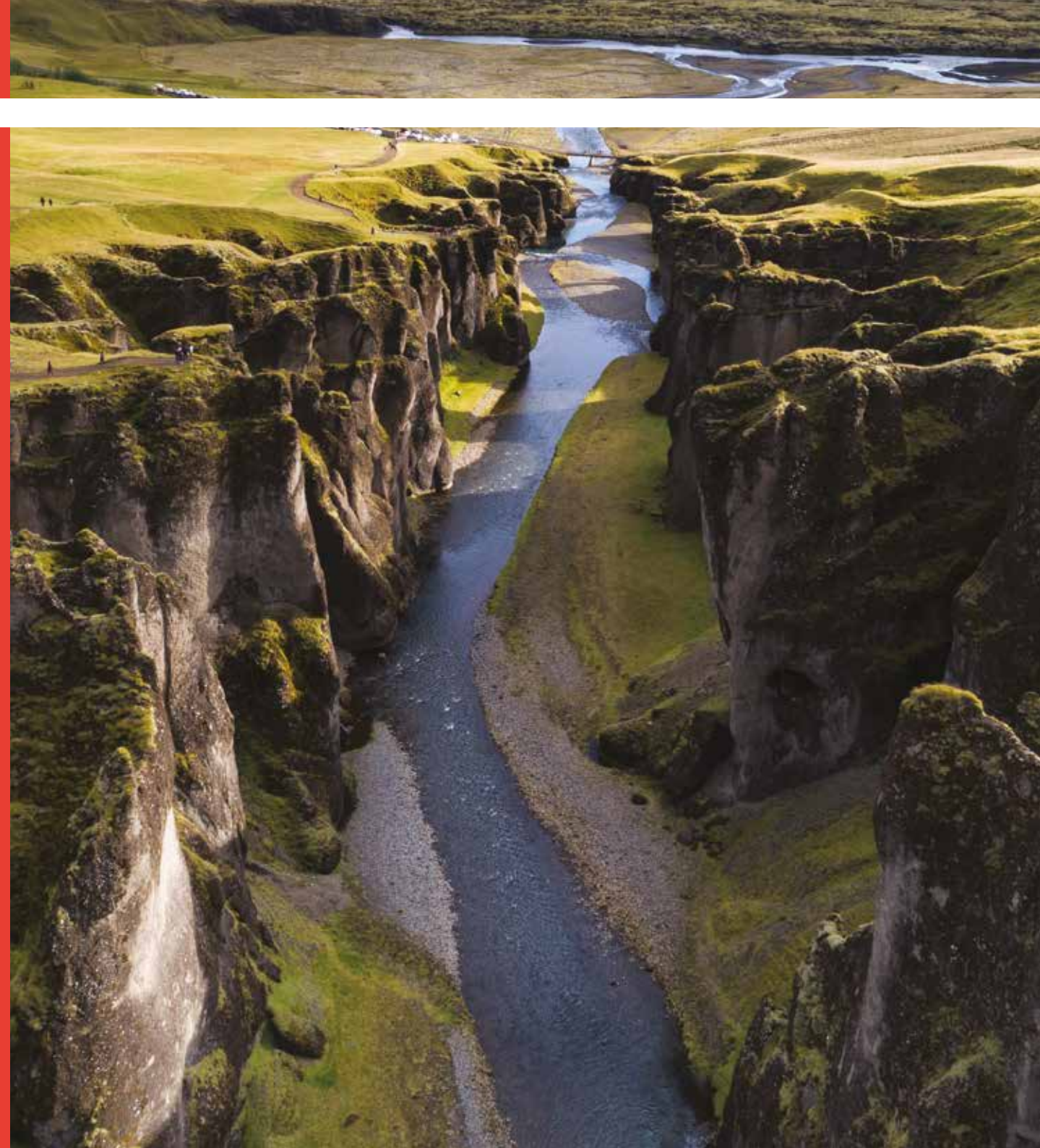


EXHIBIT 12

CEOs face issues with their own capabilities, mostly in terms of data adequacy, with a huge gap that remains ten years on

QUESTION

Thinking about the data that you personally use to make decisions about the long-term success and durability of your business, how important are the following? (showing only 'critical/important')

How adequate is the data that you receive? (showing only 'comprehensive')

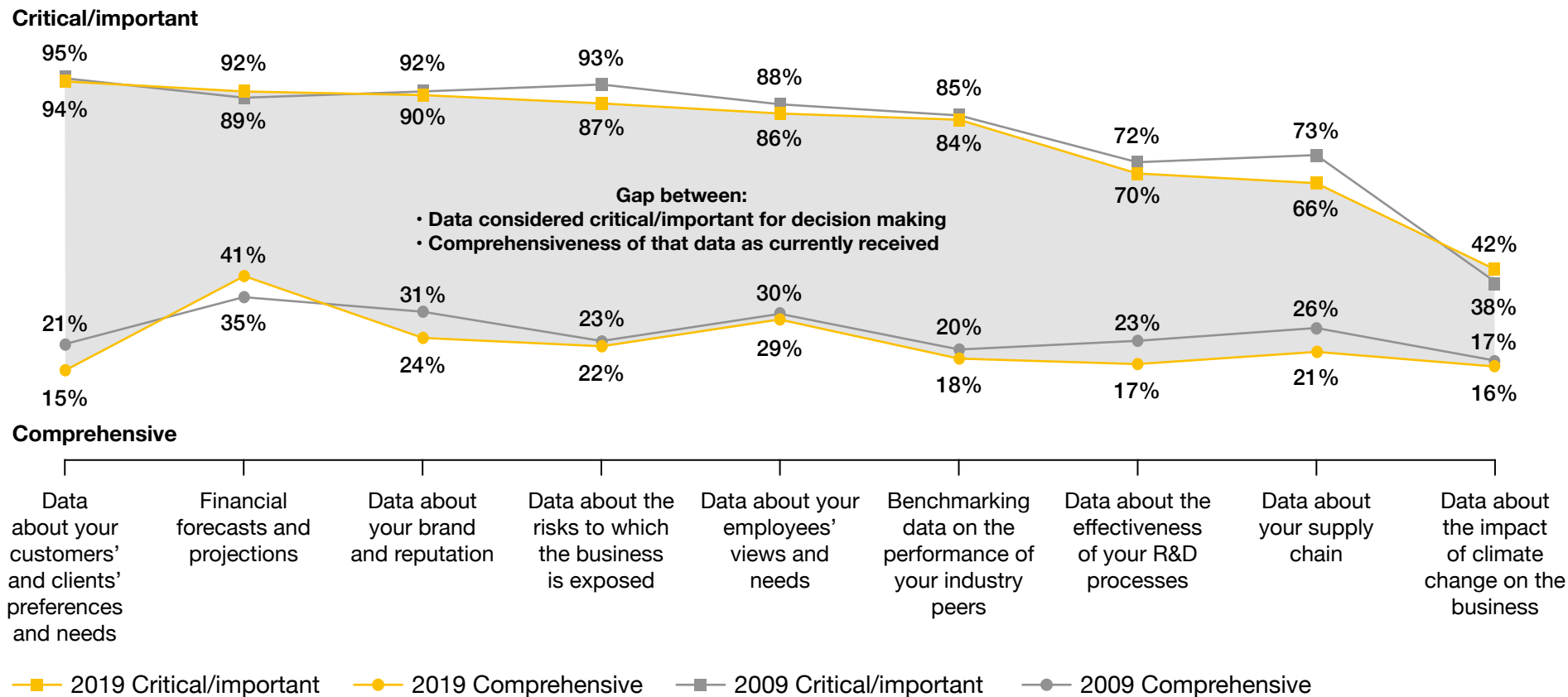


Exhibit 12 divides the data CEOs use to make long-term business decisions into categories and shows how 'critical' or 'important' that data is versus how 'comprehensive' it is in each category in 2009, and now again in 2019. Data about customer preferences and needs remains the most valuable, followed by financial forecasts, then data about brand and reputation, business risks, and employee views and needs — the same top five with virtually the same percentages as ten years ago; the only slight differences are in rank order.

Has the 'comprehensiveness' of the data CEOs receive on these measures improved over the last ten years? Not really.

Source: PwC, 22nd Annual Global CEO Survey
Base: All respondents (2019=1,378; 2009=1,124)

Again, the responses track from one decade to the next to a remarkable degree. With the exception of financial forecasting, where CEOs report slightly elevated data ‘comprehensiveness’ (41%), less than a third of CEOs regard the data they receive on ‘critical’ or ‘important’ matters as sufficiently ‘comprehensive’. The information gap is largest on the most critical data: customer needs.

One could argue that expectations have risen as technology has advanced, which is why the information gap is not closing, but CEOs do not take that easy out. They recognise that they simply don’t have the capability to use the data they have to make optimised decisions. It’s not a lack of data — indeed the volume of data has expanded exponentially — or the inability to secure and protect it, and it’s not the constraints of privacy regulation. CEOs point to the ‘lack of analytical talent’ (54%), followed by ‘data siloing’ (51%), and ‘poor data reliability’ (50%) as the primary reasons the data they receive is inadequate.



“My predecessors would have made a lot of decisions based on their experience and intuition. They are still very important, but you have got to triangulate them with data. As I always say: “In God we trust; everybody else, bring data.”

SIM TSHABALALA
CEO, STANDARD BANK, AFRICA’S BIGGEST
LENDER BY ASSETS

”

EXHIBIT 13

The skills gap is a particular pain point, impeding innovation and prompting higher people costs

QUESTION

What impact is ‘availability of key skills’ having on your organisation’s growth prospects? (asked of those ‘extremely concerned’ about availability of key skills)



CEOs also affirmed that the ‘availability of key skills’ does affect their growth prospects. Moreover, the number one impact noted by 55% of respondents is the ‘inability to innovate effectively’, followed closely by ‘higher than expected people costs’ (see Exhibit 13).

“We just hired some very impressive data analysts to form a center of excellence, so I asked my recruitment team, “What was the pitch that you gave them to join us?” The single most important reason they joined us — some from much bigger companies — is that we bring them close to the customer on Day One. They’re not one of many, just working on algorithms. They’re with the customers, understanding their problems, and then designing solutions. They get a lot of satisfaction from that.”

NANCY MCKINSTRY
 CEO AND CHAIR, WOLTERS
 KLUWER, A SPECIALIST
 INFORMATION AND EXPERT
 SOLUTIONS PROVIDER



**INSIGHT:**

Closing the Skills Gap

There are no quick fixes when it comes to closing the skills gap that many chief executives are concerned about this year. Globally, CEOs see ‘significant retraining and upskilling’ as the best answer, and that will take time and money (see Exhibit 14).

North America’s CEOs balance this response with ‘establishing a strong pipeline direct from education’, with 31% selecting both responses. More than a quarter of Middle East chief executives see ‘hiring from outside their industry’ as a potential solution, as do one in five CEOs in Western Europe.

What is clear is that governments and businesses need to work together⁵ to help their people adjust to the disruptive impact of new technologies through both channels. A culture of adaptability and lifelong learning will be crucial to spreading the benefits of AI and related technologies⁶ widely through society.

This is particularly true in those markets in which the population is aging and people have to work longer to sustain themselves in retirement.

Improved STEM (science, technology, engineering, math) skills will be important in allowing people to perform the new roles and tasks that will arise out of AI and robotics, but soft skills like creativity and empathy will also be important in making people adaptable and employable throughout their working lives. Creative solutions will address the bottom of the educational pyramid — repurposing trade and technical schools to equip young people for success. As organisations build a better workforce strategy for the future, they will need to rebalance their workforce composition, convert traditional jobs into more flexible roles, and appropriately price the tasks that people perform.

PwC’s Workforce of the future study⁷ charts a path to a working environment that not only upskills workers for technological change but provides a sense of purpose and a great people experience.

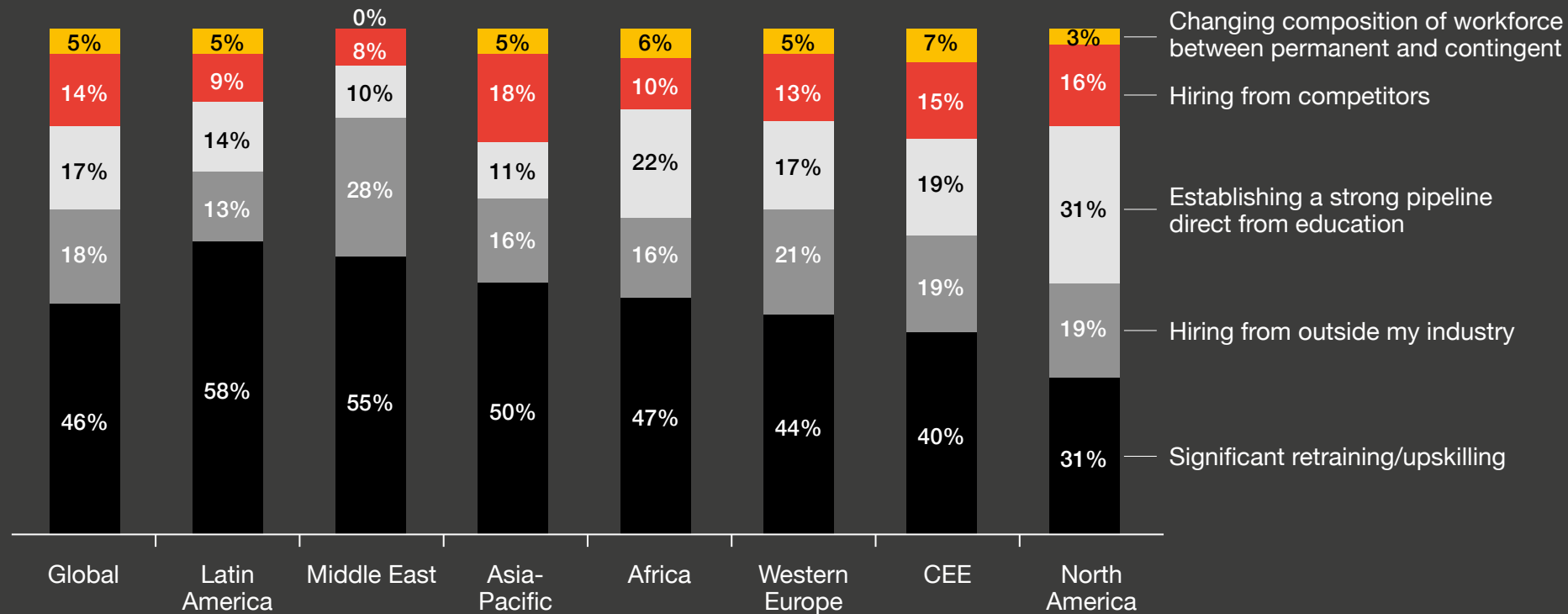


EXHIBIT 14

Retraining is favoured to bridge skills gaps, with North America’s CEOs also relying on establishing a direct pipeline from education

QUESTION

Which of these is the most important to close a potential skills gap in your organisation?



“We are clear about the borders of our brand, because the brand is sacred to us. But we recognise that we need to complement the inspiration and creativity of our people with external innovation to understand fully what’s going on in the marketplace and come up with the best products. If creating the best product for the consumer is your endgame, then you have to open yourself up to ideas that you might not have been open to in the past.”

KASPER RØRSTED
CEO OF EUROPEAN SPORTSWEAR MANUFACTURER, ADIDAS

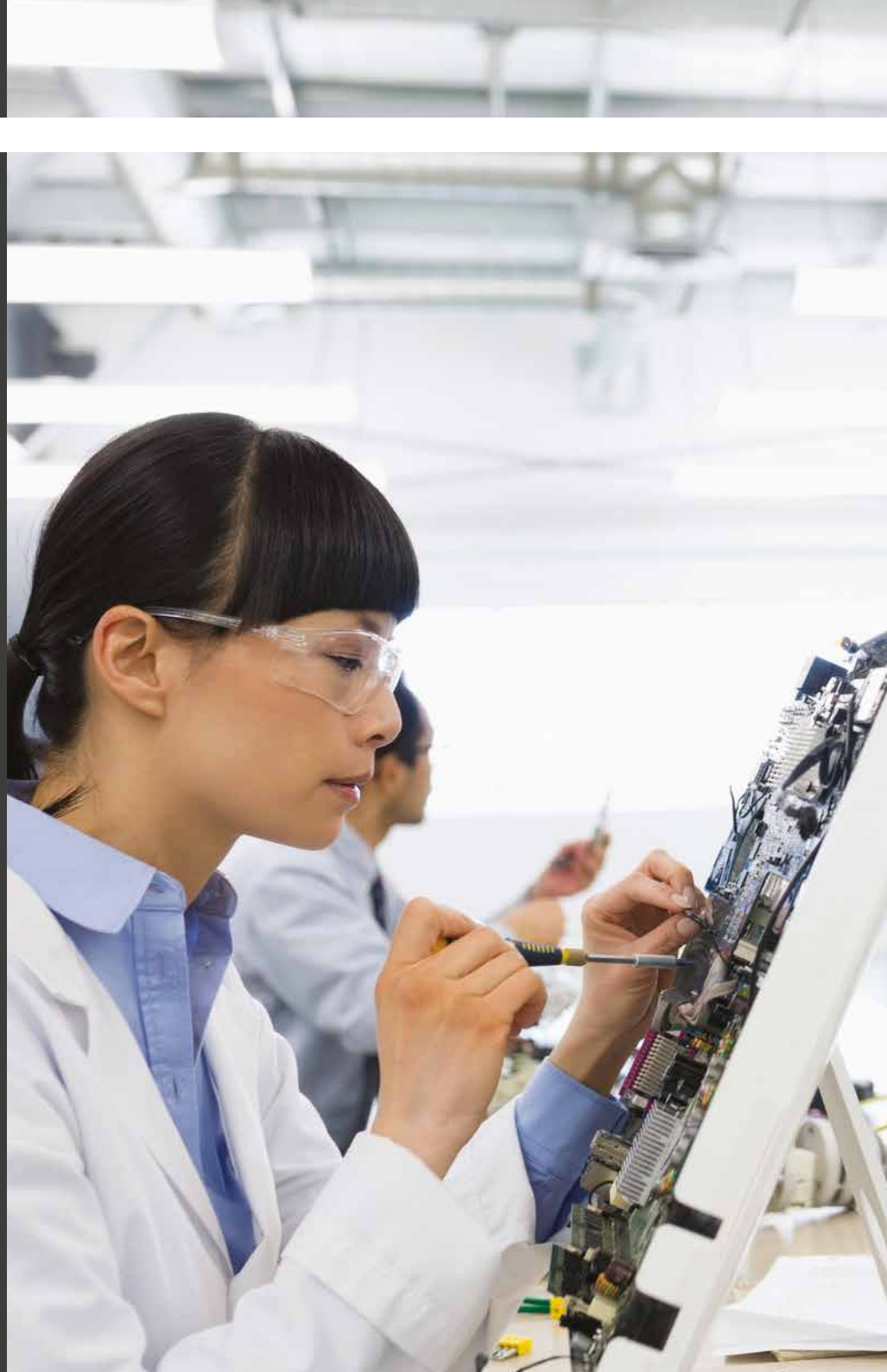


“Many CEOs feel they need to bring AI into their organisation. There’s this fear factor that if you’re not on the AI bandwagon, then you’re going to lose out to competitors that are going to be eating your market, because they’re using technologies to make decisions faster and better than you.

They may ask the chief information officer, “What are we doing in AI?” And the CIO will then hire or try to hire data scientists, whose work represents a kind of proxy for AI. But data scientists only have a certain type of skill. They understand how to use statistics and machine learning to find patterns in data. They’re not necessarily good at building production-grade systems that can make decisions or that can adapt themselves.”

DANIEL HULME
CEO, SATALIA, AI SOLUTIONS PROVIDER

”



Feeding the AI Engine

Eighty-five percent of CEOs agree that AI⁸ will significantly change the way they do business in the next five years. That’s a striking number. In fact, close to two-thirds of global CEOs see it as bigger than the internet (see Exhibit 15).

However, resolving the information and talent gaps that CEOs face is a critical barrier to successfully exploiting the promise of AI.

There are exceptions to this exuberance. North America, in general, is more sceptical with 35% of CEOs ‘disagreeing’ or ‘strongly disagreeing’ that AI will have a larger impact than the internet revolution. Still, the overall sentiment is that AI will be a catalyst for transformation across regions.

EXHIBIT 15

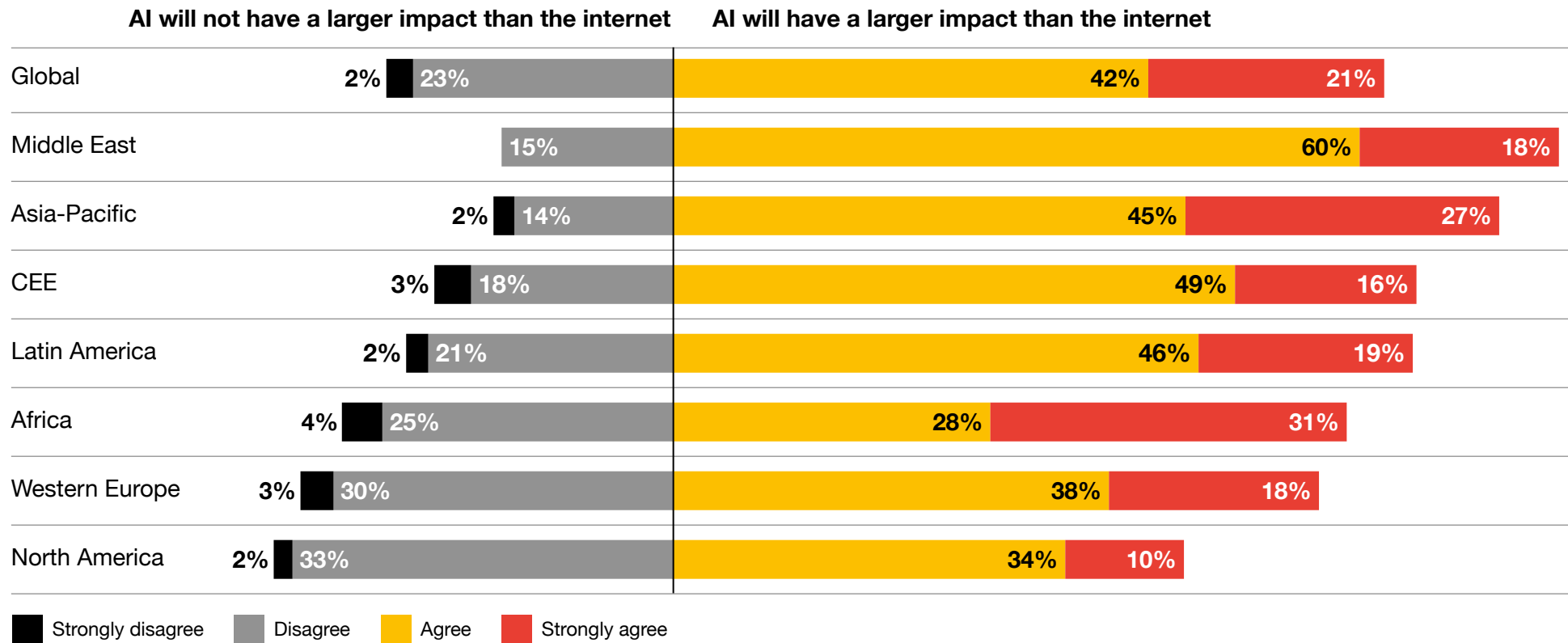
Addressing these gaps is critical as the majority of CEOs believe AI will have a larger impact than the internet revolution

QUESTION

How strongly do you agree/disagree that AI will have a larger impact on the world than the internet revolution?

Yet, nearly a quarter of CEOs have no plans to pursue AI ‘at the moment’. A further 35% ‘have plans in the next three years’. And another 33% have only dipped a toe into AI for ‘limited uses’. On a global basis, fewer than one in ten CEOs have implemented AI ‘on a wide scale’ (see Exhibit 16). Not surprisingly, we see the highest adoption rates in regions that are further along the digitisation curve — Asia-Pacific, North America, and Western Europe.

The skills gap is one factor stalling progress with AI, yet it’s not only a matter of hiring or developing AI specialists and data scientists. It is equally important to cultivate a workforce ready to use AI-based systems, and to foster customers and citizens who can recognise and practice good data management and self-protection. Additionally, organisations will need to focus on building a smaller cadre of AI-savvy citizen developers, a line of business specialists who can apply AI to their domains and develop solutions in partnership with AI experts. To build these and other AI capabilities, PwC has identified six AI priorities for 2019.⁹



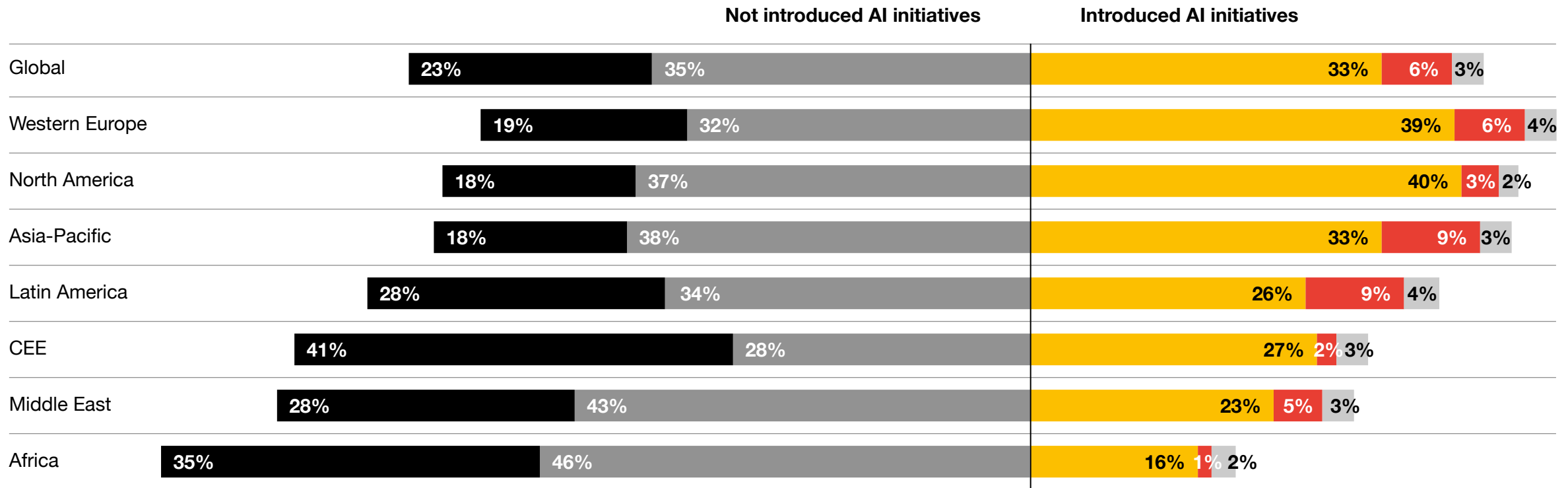
Source: PwC, 22nd Annual Global CEO Survey
 Base: All respondents (2019=1,378)

EXHIBIT 16

Despite this bullish view, most organisations have not introduced AI initiatives

QUESTION

Please select the statement that best applies to your organisation



We have no plans to pursue any AI initiatives at the moment
 We have plans to start introducing AI initiatives in our organisation in the next three years

We have introduced AI initiatives in our business, but only for limited uses
 AI initiatives are present on a wide scale in our organisation
 AI initiatives are fundamental to our organisation's operations

Source: PwC, 22nd Annual Global CEO Survey
 Base: All respondents (2019=1,378)

“We have been talking about artificial intelligence since the 1980s. Nothing happened; it didn’t affect business. Suddenly, cloud computing has made possible the real-time collection of infinite amounts of data. This opens up the possibilities for AI.

Robots were also made in the ‘80s. But why are we talking about them now in new ways? Because today, the robot is also connected to the cloud. Suddenly, the memory, analytic capability, and data set available to the robot is infinite.

The Internet of Things interacts with both of these. Let me put a chip or a sensor anywhere in a system, and I can collect even more data, in huge volumes, on a real-time basis. As that comes in, my ability to do analytics expands. We are now moving into the world of anticipative computing. We’re not only gathering data in real time, but also anticipating the data to come. You can tell what’s likely to happen in the next 30 seconds. And if you can predict it in that time, that’s all the time you need to prevent it or make use of it.”

NATARAJAN CHANDRASEKARAN
CHAIRMAN, TATA SONS, ONE OF THE LARGEST ENTERPRISES
IN SOUTH ASIA

”





INSIGHT:

The US\$15 trillion question: Can you trust your AI?

Over three quarters of global CEOs ‘agree’ that AI is good for society, but that does not mean they are prepared to sit in the back seat of an autonomous vehicle just yet. AI is a collection of technologies that Sundar Pichai, CEO of Google, calls more profound than electricity or fire¹⁰, and Tesla’s Elon Musk warns could casually destroy humanity. It’s hard to fathom, but its potential is too great to ignore. PwC sizes the prize at US\$15.7 trillion¹¹ in global GDP gains by 2030.

In this year’s survey we asked CEOs, “How strongly do you agree or disagree with the following statements about artificial intelligence (AI)?”:

- AI-based decisions need to be explainable in order to be trusted.
- AI is good for society.

- Governments should play a critical and integral role in AI development.
- AI will displace more jobs than it creates in the long run.
- AI will eliminate human bias such as gender bias.
- AI will become as smart as humans.

What CEOs overwhelmingly ‘agree’ is that AI-based decisions need to be explainable in order to be trusted. More CEOs (84%) ‘agree’ with that statement than that AI is good for society (79%). Opening the algorithmic ‘black box’ is critical to AI’s going mainstream as the complexity and impact of its decisions grow (e.g. medical diagnoses, self-driving cars).

Views are more mixed on other questions about AI’s reach and consequences. CEOs are fairly evenly divided on whether AI will eliminate human bias or become as smart as humans. Whether AI will displace more jobs than it creates is a matter of continuing debate as well (see Exhibit 17). Asia-Pacific, and China specifically,

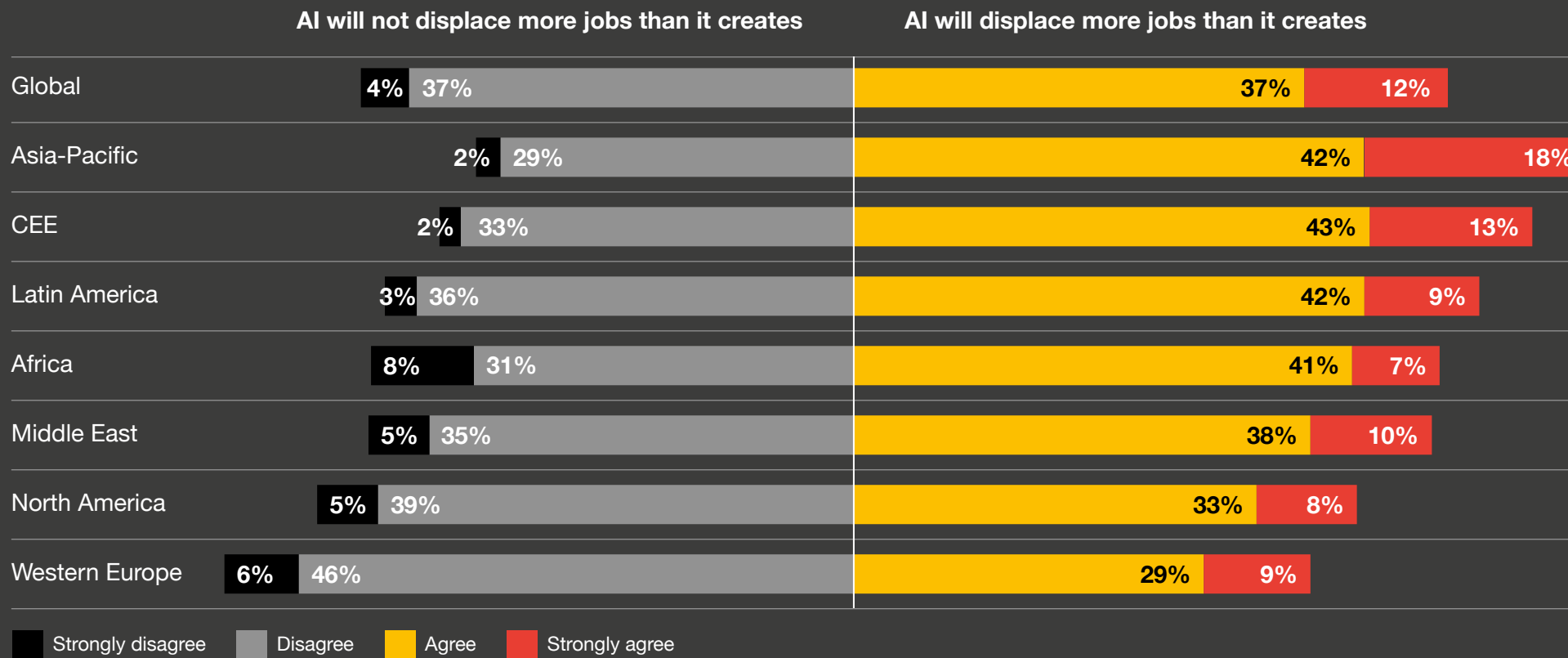
are particularly bearish with regard to job displacement: 88% of China’s CEOs believe AI will displace more jobs than it creates in the long run. CEOs in Western Europe and North America are more inclined to believe the workforce will weather the storm. This difference may be based on their organisations’ experience embedding AI into their operations; Chinese organisations report in the survey being far more advanced on this front. (PwC foresees the displacement of 26% of jobs in China in the next 20 years, which will be more than offset, however, by new AI-created jobs¹².) PwC’s recent analysis of OECD data covering 200,000 jobs in 29 countries¹³ breaks AI’s job displacement effect into three waves: algorithmic (until early 2020s), augmentation (to late 2020s), and autonomy (to mid-2030s). The first wave will impact relatively few jobs — perhaps 3%. By the mid-2030s, however, up to 30% of jobs could be automated — mostly those involving clerical and manual tasks.

EXHIBIT 17

CEOs are divided whether AI will displace more jobs than it creates

QUESTION

How strongly do you agree/disagree that AI will displace more jobs than it creates in the long run?



With these societal implications in mind, it's not surprising that over two-thirds of CEOs 'agree' that governments should play a critical and integral role in AI development. Asia-Pacific most heartily endorses this involvement; North America is the least enthusiastic — fully half of CEO respondents there 'strongly disagree' or 'disagree' with the statement. A companion report discusses in detail how governments can help prepare the ground for full-scale AI deployment.¹⁴

4

NAVIGATING UNCERTAINTY:

The opportunity for leadership in the digital future



**A message from
Bob Moritz, PwC
Global Chairman**



Thank you for exploring PwC's 22nd Annual Global CEO Survey. We hope it has provided you with useful insights into how CEOs around the world view the current economic and political environment and how they plan to respond.

The prevailing sentiment this year is one of caution in the face of increasing uncertainty. CEOs all around the world are less optimistic than they were a year ago about the strength of the global economy and their own organisations' ability to grow revenues in both the short and medium term.

What's at the root of this drop in CEO confidence? CEOs are less bothered by the broad, existential threats that figured prominently in the rankings last year, like terrorism and climate change, and are more 'extremely concerned' about factors that affect the ease of doing business in the markets where they operate and those that impact their overall confidence and willingness to invest and/or take risk.

They are increasingly worried about trade disputes and the unpredictable geopolitical landscape. The steady march that we have seen over the last 40 years toward increasing globalisation is hitting some political roadblocks. Only time will tell whether these are permanent or temporary. But as they plan the future of their

organisations this year, chief executives clearly feel the impact. It is colouring their decisions about global expansion. While most still believe in globalisation, they appear to be less interested in expansion plans outside their home markets. Instead, organisations are narrowing their focus or staying local in the search for revenue growth.

As they look inside their own enterprises for growth opportunities, CEOs are contending with gaps in their organisations' capabilities. For example, as we see in the report, many are struggling to extract value out of their data and to find the right talent.

To help unlock internal growth potential in their organisations, chief executives are paying close attention to emerging digital technologies such as AI. As noted, the prize for getting this right is immense. PwC estimates US\$15.7 trillion in global GDP gains from AI by 2030.

We have heard much in recent years about the potential downstream benefits to business and society alike of successfully

applying these emerging technologies. This year, there is more nuance in the discussion. Concerns are rising about technology and leaders are learning how to leverage advanced technologies in responsible and sustainable ways, with an ever more critical eye on matters such as cybersecurity and privacy, data ownership and integrity.

This gets to the theme of this year's World Economic Forum in Davos, "Globalisation 4.0: Shaping a Global Architecture in the Age of the Fourth Industrial Revolution". As CEOs focus more on execution, search for revenue growth, work to address data and talent issues, implement emerging technologies, and seek to capture related benefits and value, we urge them not to retreat from the broader conversation on establishing new societal frameworks needed to meet evolving human needs and foster sustainable prosperity. Every leader is affected by the challenges facing us this year, but no individual organisation, whether in the public or private sector, can tackle them alone.



Business has a key role to play in bringing about the realignment of economies and society, alongside other stakeholders. We urge business leaders to engage in this important conversation, guided by the principles for better capitalism that we have laid out previously.¹⁵

We must look beyond financial performance for more effective indicators of progress. GDP alone can't answer this key question: Is life actually getting better or worse for most people? And shareholder returns provide no guidance as to whether a business is delivering on its purpose to contribute to society. We need to define societal indicators that demonstrate sustainable quality of life in a more holistic and integrated way. To help accomplish this, PwC is supporting the UN Global Compact and the Global Reporting Initiative (GRI), the world's leading organisation for sustainability reporting, to create a mechanism¹⁶ to help businesses prioritise and report on the UN's Sustainable Development Goals.

We must harness technology to meet the needs of people and their communities. This year's survey shows that CEOs feel concern — along with their optimism — about emerging technologies. Technology itself is neither inherently good nor inherently bad. But the advances of the digital age are powerful in unprecedented ways and, if properly harnessed, may hold the keys to addressing systemic challenges for the benefit of the broader community. It's easy to advocate the design of technology for positive and sustainable outcomes. Developing the specifics, across the boundaries of our various institutions, will be much more difficult — but necessary.

We must educate for the future so people have the best chances of success. People are the main success factor in digital transformation projects, and many organisations are providing digital skills training today to prepare their people for the future. But to move beyond successful implementation to true innovation, business leaders should continue to upskill their current and

future workforce as well as cultivate soft skills such as creativity, problem solving and empathy in their corporate cultures. Educational institutions also will need to adjust, fostering lifelong development of technical skills and creative problem solving. Since people and goods will continue to move across national boundaries, there is an ever-growing need for cooperation among governments and businesses on a global scale.

The results of this year's CEO survey may seem sobering to some, but they also provide reason for hope. The world's senior decision makers are realistic this year about the challenges facing them, and this may incent them — and their organisations — to act.

Survey Methodology

PwC conducted 1,378 interviews in September and October 2018 with CEOs in 91 territories. Our sample is weighted by national GDP to ensure that CEOs' views are fairly represented across all major regions. The interviews were also spread across a range of industries. Further details by region and industry are available by request. Ten percent of the interviews were conducted by telephone, 73% online, and 17% by post or face-to-face. All quantitative interviews were conducted on a confidential basis.

The lower threshold for all organisations included in the top ten territories (by GDP) was 500 employees or revenues of more than US\$50 million. The threshold for organisations included in the next 20 territories was more than 100 employees or revenues of more than US\$10 million.

- 48% of organisations had revenues of US\$1 billion or more.
- 36% of organisations had revenues between US\$100 million and US\$1 billion.
- 15% of organisations had revenues of up to US\$100 million.
- 59% of organisations were privately owned.

Notes:

- Not all figures add up to 100%, as a result of rounding percentages and exclusion of 'neither/nor' and 'don't know' responses.
- The base for figures is 1,378 (all respondents) unless otherwise stated.

We also conducted face-to-face, in-depth interviews with CEOs from five continents. Some of these interviews are quoted in this report, and more extensive extracts can be found on our website at www.ceosurvey.pwc. The research was undertaken by PwC Research, our global centre of excellence for primary research and evidence-based consulting services.

www.pwc.co.uk/pwcresearch

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