



### Contents

ONE:

Introduction to the GE Global Innovation Barometer (GIB) 2018

TWO:

Methodology

THREE:

Narrative summary

**FOUR:** 

Narratives in detail



# An Introduction to the GE GIB 2018

### The evolution of the GE GIB

### **KEY MEDIA HEADLINES**

#### 2010 - pilot

A society that allows innovation to flourish, understands that innovation, research and education are linked to one another

#### 2012

9 in 10 executives are shy about moving ahead with innovation in a sinking economy

#### 2013

"Innovation vertigo:" anxious over global economic instability, executives are unsure how to move forward with disruptive ideas, products and services

#### 2014

Most business leaders want to embrace innovation that disrupts markets
— even if that deals a blow to their established business models

#### 2016

A belief in the transformative power of innovation persists; however there is enormous pressure put on businesses to disrupt themselves and the marketplace in today's increasingly competitive business environment

#### **FURTHER THEMES IN THE RESEARCH**

What is innovation, what industries drive innovation and what drives innovation generally

The impact of the financial crisis, the global innovation environment, future expectations and optimism

2013 Innovation at a company level, country policy, business collaboration and big data

The pace of innovation provides an uncertain future. The state of innovation, partnership, models, policy and people

The innovation optimists. Innovation at a company and country level, human capital and start ups



# Methodology

### This year's method and scope

### Innovation \\Business Executives

Each respondent's line of work involves taking part in their company's innovation process/policies.

They are responsible for making decisions related to innovation, product development or research and development (R&D) activities in their company.



**20 countries:** Brazil (150), Canada (100), China (150), France (100), Germany (100), India (150), Indonesia (80), Japan (100), Malaysia (80), Mexico (100), Nigeria (80), Poland (80), Saudi Arabia (80), South Africa (100), South Korea (100), Sweden (80), Turkey (80), UAE (80), UK (150), USA (150).

## Narrative Summary

### From Chaos to Confidence:

Emerging Players, Emerging Technologies, Emerging Challenges

### From Chaos to Confidence: Emerging Players, Emerging Technologies, Emerging Challenges

### **Emerging Players**

#### **New Actors Driving Innovation**

Globally, business executives see multinationals leading innovation (+4 since 2014) while small and medium enterprises (-11 since 2014) and entrepreneurs (-2 since 2014) have lost some of their innovation drive. In the Middle East and Asia especially, the private sector is becoming a more important driver of innovation while there is a decrease in governments driving innovation.

### **Emerging Confidence**

While the United States (-8) and Germany (-7) see a drop in championship status from 2014, Japan (+8) and China (+4) take more share. Asia (34+ since 2014) and emerging markets are gaining confidence, viewing themselves as more innovative than they did in 2014.

#### **Working in a Protectionist World**

Global executives want the best of both worlds: on one hand they want the benefits of protectionist policies on domestic businesses and jobs, and on the other hand, they want the benefits of globalization and open markets. A small majority of global executives (55%) believe protectionist policies benefit businesses within their country and 73% believe it is good for the workforce. However, 68% globally believe their government cannot keep up with the pace of change and 22% (of those that prefer protectionism) see multinationals as the drivers of innovation.

### **Emerging Technologies**

#### The Potential of Additive

Global executives are excited about the potential of 3D printing, saying it will have a positive impact (63%), increase creativity (91%) and get goods to market faster (89%). At the same time, 53% believe 3D printing has yet to reach its full potential, requiring more education and reassurance.

### **Maximizing the Return on Innovation (ROI)**

Globally, 40% of innovations are having a positive impact on the bottom line. What's the secret to success for these "innovation achievers"? They're taking a more measured approach. Businesses are waiting to perfect and test their innovation before launch rather than getting to market quickly—a 10-point jump since 2016 (now 65%). They also are more willing to wait for long-term ROI for breakthrough innovation (84%) and have a clear structure and process in place to measure that return (50% vs. 43%).

### Hype vs. Reality of Impact

Hype around certain technologies does not always equate to transformative impact. In fact, global executives believe that many under-hyped technologies will have a transformative impact, including energy grids (74% say it will bring transformative change to their country), virtual healthcare (68%) and smart cities (71%).

### **Emerging Challenges**

#### **Future of Work**

The workforce is considered the most crucial element to innovation success in most markets, yet skills gaps continue to be a top concern among businesses. Nearly 3 in 4 (74%) global executives believe a lack of skills is an issue facing their industry—a challenge that has increased over time (64% say a lack of talent/inadequate skills is a key challenge today, up from 56% in 2014).

### **More Challenging Environment**

The challenges confronting innovative businesses are tough – and getting tougher – both externally and internally. There is a 13-point increase (now 67%) since 2014 in lack of sufficient funding, a 6-point increase (now 65%) in the inability to scale innovations to a wider market, an 8-point increase (now 64%) in lack of adequate talent/ skillsets, and a 14-point increase (now 64%) in the inability of businesses to take risks. Emerging markets such as Poland, South Africa, Malaysia and Saudi Arabia are experiencing the greatest increase in challenges.

## Narratives in Detail

### Section One:

# Emerging Players

- New Actors Driving Innovation
- Emerging Confidence
- Working in a Protectionist World

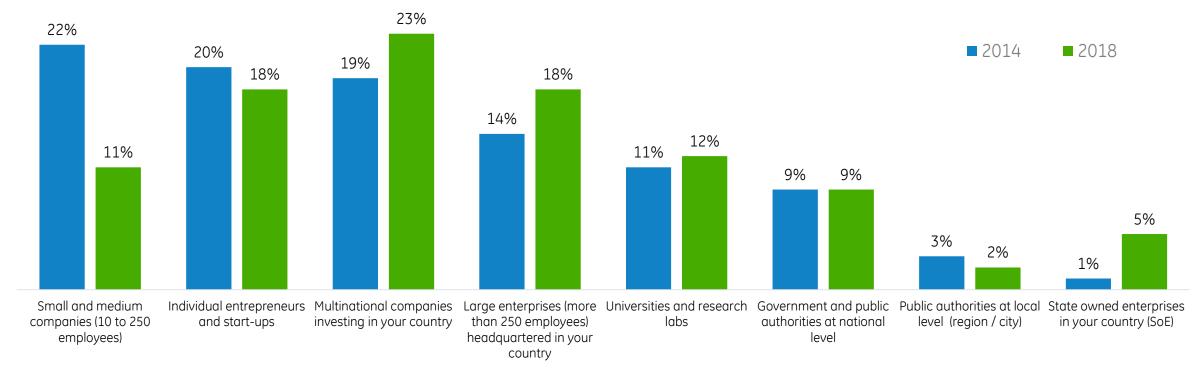
# New Actors Driving Innovation

### **Executive Summary**

 Globally, business executives see multinationals leading innovation (+4 since 2014) while small and medium enterprises (-11 since 2014) and entrepreneurs (-2 since 2014) have lost some of their innovation drive. In the Middle East and Asia especially, the private sector is becoming a more important driver of innovation while there is a decrease in governments driving innovation.

# Since 2014 there has been a shift from small businesses and entrepreneurs driving innovation towards large enterprises and multinationals.

Who is the main driver for innovation in your country? (Historical tracking data at a global level)





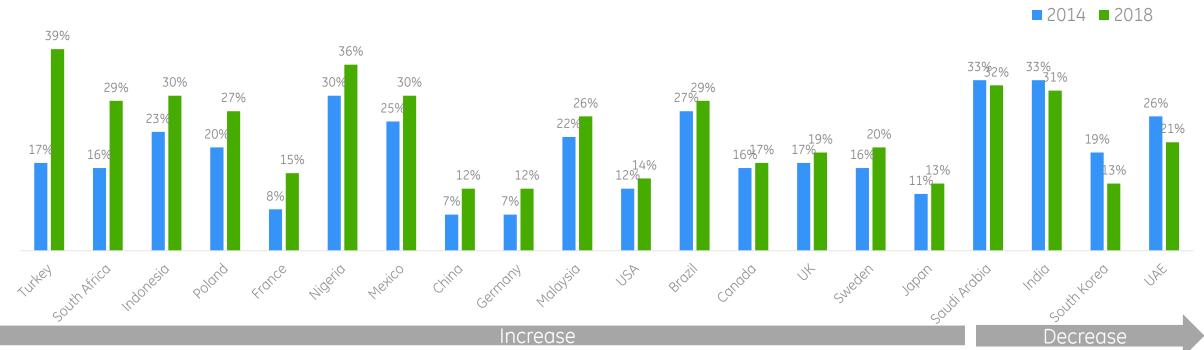


### Multinationals' growing reputation as the driver of innovation is seen across the majority of countries.

Emerging economies, notably Turkey and South Africa, have seen the largest rise in business executives believing multinationals are the main driver of innovation in their country.

### Multinationals are the main driver for innovation in your country

(Historical tracking data at a global level) Ranked by largest increase from 2014 to 2018



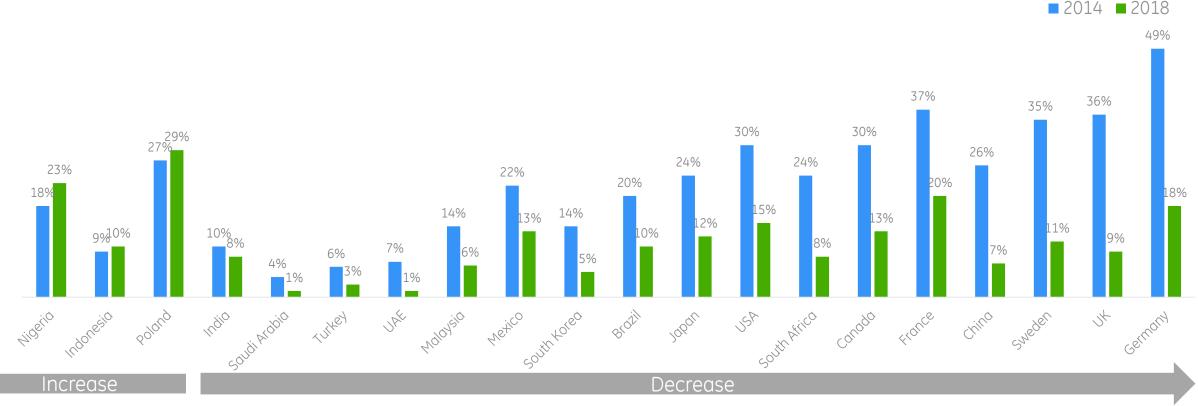




### SMEs are losing their reputation as a driver of innovation in developed economies – particularly in Europe.

SMEs are the main driver for innovation in your country

(Historical tracking data at a global level) Ranked by largest decrease from 2014 to 2018



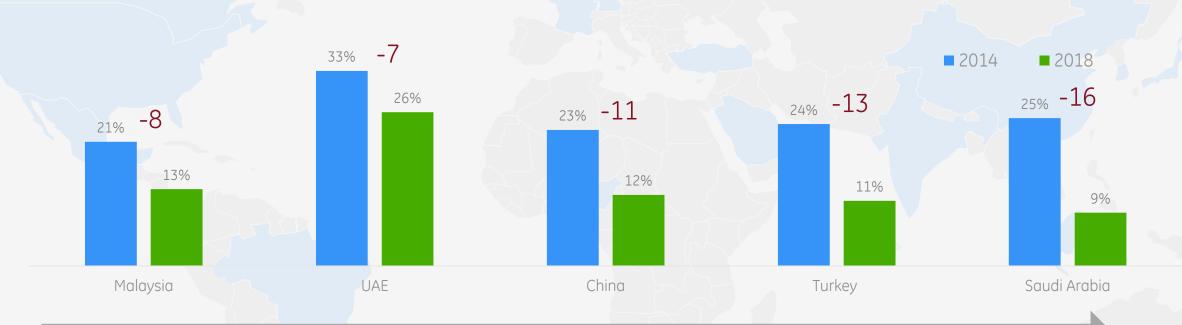




### In emerging economies, governments are now not seen to be driving innovation as much as they were in 2014.

**Governments** are the main driver for innovation in your country

(Historical tracking data at a global level) Ranked by 2014 – 2018 growth



Decrease

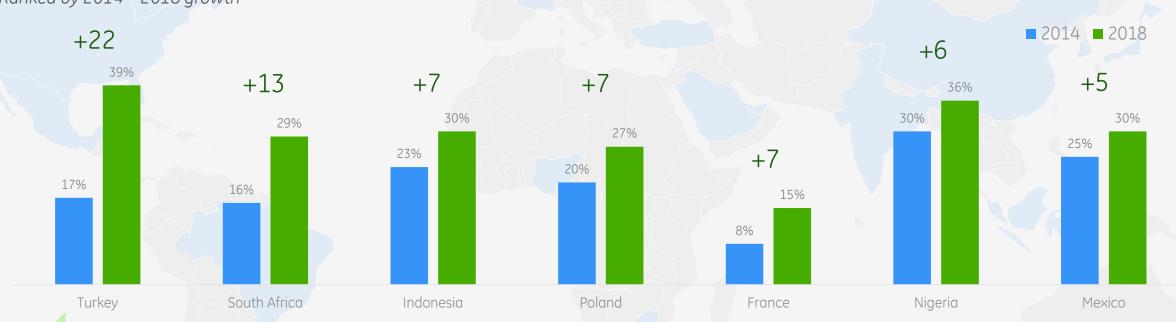




In parallel, in some economies where government traditionally dominated innovation, such as Turkey and South Africa, business executives now see increasing value driven by the private sector.

Multinationals are the main driver for innovation in your country (Historical tracking data at a global level)

Ranked by 2014 – 2018 growth









## Emerging Confidence

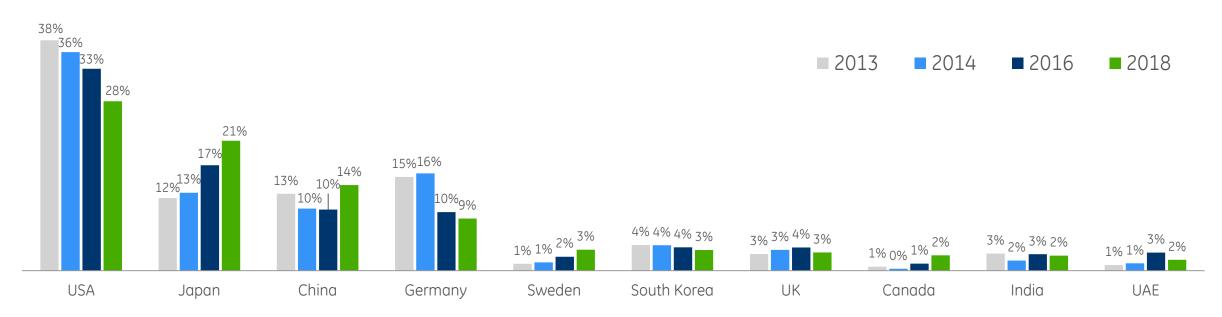
### **Executive Summary**

• While the United States (-8) and Germany (-7) see a drop in championship status from 2014, Japan (+8) and China (+4) take more share. Asia (34+ since 2014) and emerging markets are gaining confidence, viewing themselves as more innovative than they did in 2014.

# Countries that traditionally dominated global innovation leadership, notably the U.S. and Germany, are stalling, ceding ground to emerging and developed Asia.

Emerging markets catch up aggressively, and China and Japan have become alternative hotspots for global innovation—confirming that innovation is disrupting the global competitive landscape at the regional as well as industry level. Previous GE Global Innovation Barometers had highlighted stronger innovation momentum in emerging markets.

What is the country that you consider to be the leading innovation champion? Ranked by 2018 data

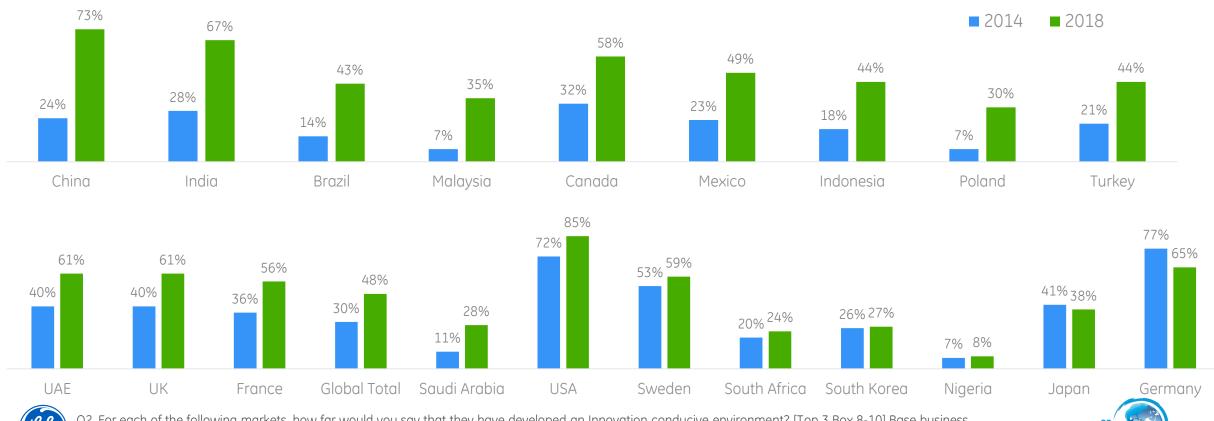


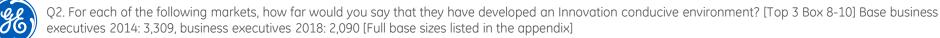




### This shift in innovation is also felt internally, with many countries recognizing their own market as being a more innovation conducive environment than it was in 2014.

For your own market, how far would you say that you have developed an Innovation conducive environment? Percentage that feel they have a strong innovation conducive environment (top 3 box)

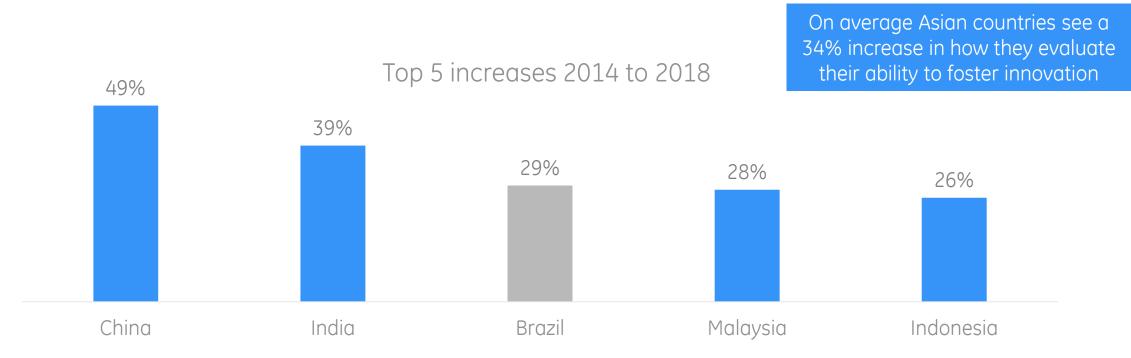




### Asian markets have seen the biggest increase in the way they evaluate how innovation conducive their country is.

For your own market, how far would you say that you have developed as an innovation conducive environment?

Percentage that have a strong innovation conducive environment (top 3 box)







### The innovation influence has become multipolar; China and Japan have become aspirational.

Asia & the U.S. An aspirational relationship Asia looks to the U.S., with **34%** of business executives viewing them as the innovation champion (64% in China).

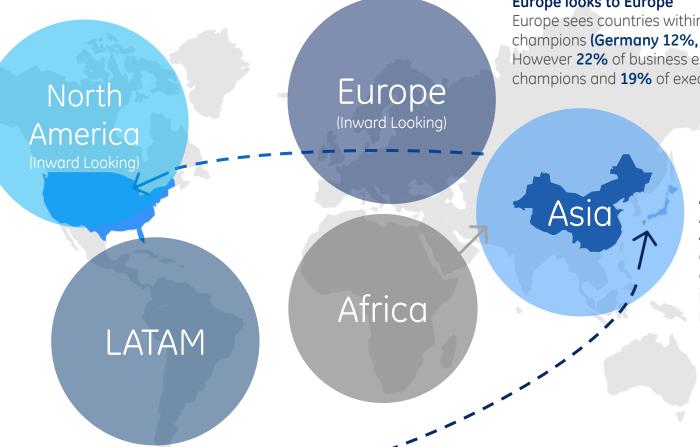
#### The U.S. a confident view

The U.S. believes the U.S. is the innovation champion (61%).

#### **LATAM** to Japan

A relationship of trade and investment **33%** of business executives

believe Japan is the innovation champion as Japan invests heavily in the region.



#### **Europe looks to Europe**

Europe sees countries within the continent as being key innovation champions (Germany 12%, Sweden 10%, U.K. 6%).

However 22% of business executives in Europe look to the U.S. as champions and 19% of executives look to Japan.

#### Africa to China

A relationship of trade and investment 41% of business leaders in Africa see China as the innovation champion. Chinese companies are investing in Africa and China is now the country's biggest economic partner.





# Working in a Protectionist World

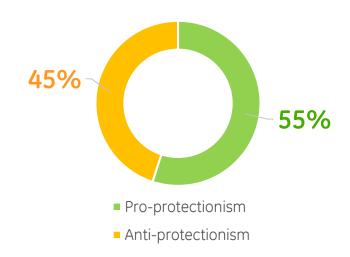
### Executive Summary

- Global executives want the best of both worlds: on one hand they want the benefits of protectionist policies on domestic businesses and jobs, and on the other hand, they want the benefits of globalization and open markets.
- A small majority of global executives (55%) believe protectionist policies benefit businesses within their country and 73% believe it is good for the workforce. However, 68% globally believe their government cannot keep up with the pace of change and 22% (of those that prefer protectionism) see multinationals as the drivers of innovation.

# Globally, a small majority of business executives think that protectionist policies towards innovation would benefit the business sector.

**55%** of business executives think that if their government had protectionist policies towards innovation it would benefit the business sector.

If the government had a political protectionist stance on innovation in my country it would be beneficial to businesses.



felt a protectionist stance to innovation would <u>not</u> be beneficial to business.

65% 63% 63% 63% 61% 60% 58% 57% 56% 56% 55% 53% 53% 51% 51% 51% 49% 47% 43% 39%

Unk sheder india protectionist stance to innovation would <u>not</u> be beneficial to business.

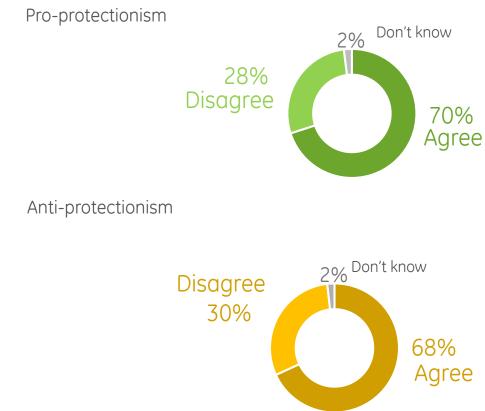




Only 4 countries had a majority that

### But the majority of business executives agree that regulations around privacy and data are stifling innovation.

Regulations around privacy and data protection are preventing businesses from adopting more radical/transformative innovations Don't know 2% 29% Anti-protectionism Disagree 69% Agree







### And business leaders feel regulations around privacy and data protection are stifling innovation more so than two years ago.

Regulations around privacy and data protection are preventing businesses from adopting more radical / transformative innovations **■** 2016 **■** 2018 NET: Agree 2016 data not available Decrease Increase

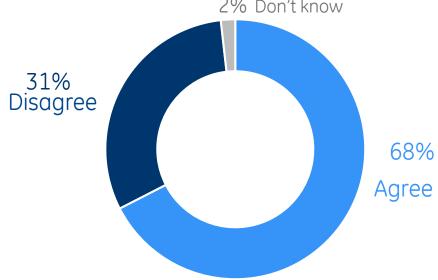


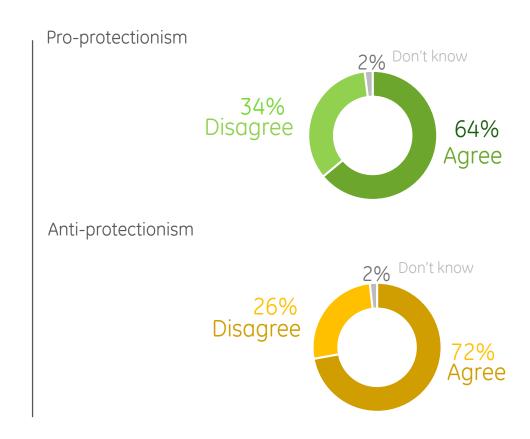


### Private sector is seen as driving innovation as governments can't cope with the pace of innovation.

In my country, the government is not able to regulate innovation as the system <u>cannot</u> <u>keep up with the pace of innovation</u>

2% Don't know





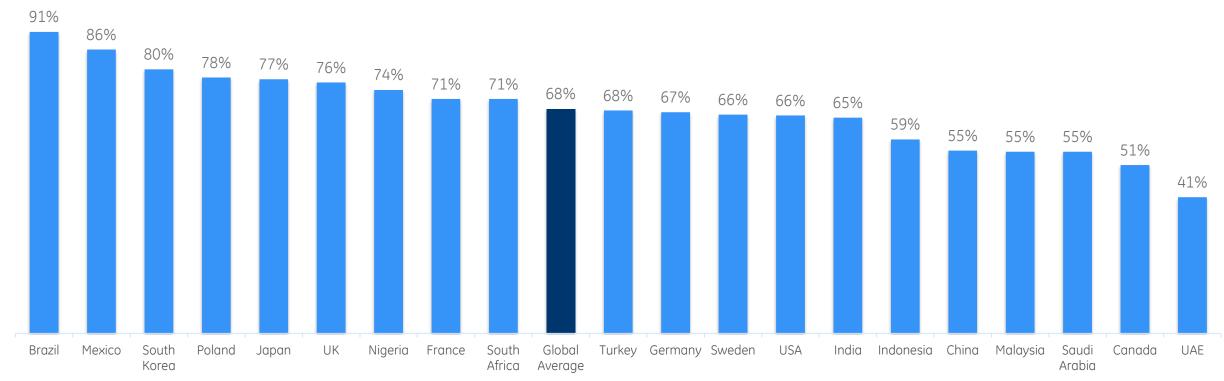




### The majority of business executives across 20 markets feel that the government cannot keep up with the pace of innovation.

In my country, the government is not able to regulate innovation as the system cannot keep up with the pace of innovation,

NET: Agree







### Section Two:

# Emerging Technologies

- The Potential of Additive
- Maximizing the Return on Innovation (ROI)
- Hype vs. Reality of Impact

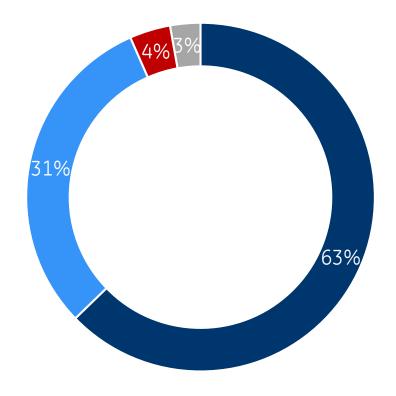
# The Potential of Additive

### Executive Summary

• Global executives are excited about the potential of 3D printing, saying it will have a positive impact (63%), increase creativity (91%) and get goods to market faster (89%). At the same time, 53% believe 3D printing has yet to reach its full potential, requiring more education and reassurance.

### The majority of business executives believe 3D printing's impact will be mostly positive for businesses in their country.

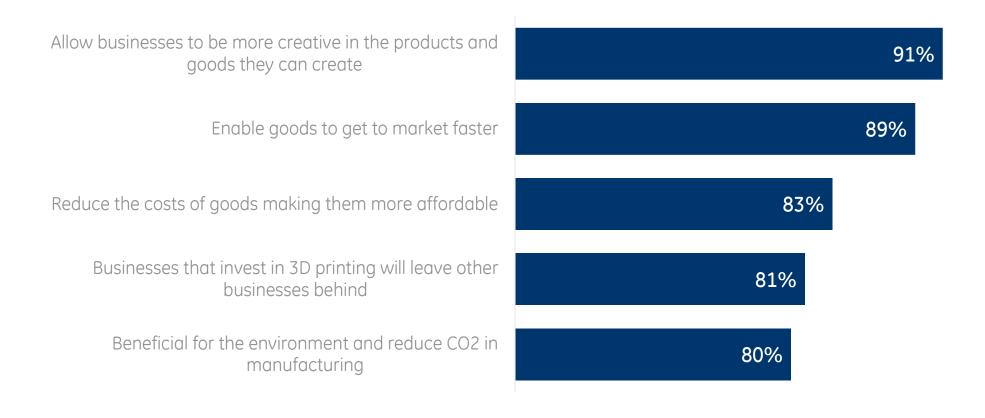
- I think 3D printing will have a positive impact on businesses in my country
- I think 3D printing will have both a positive and negative impact on businesses in my country
- I think 3D printing will have a negative impact on businesses in my country
- Don't know







### Benefits include increased creativity, speed to market, lower costs, competitive advantage and improved CO2 footprint.







### However, the benefits of 3D printing vary at a country level.

Turkey (96%), Brazil (95%), India (90%)



Reduce the costs of goods making them more affordable (83%)



South Africa (73%), Sweden (70%) Saudi Arabia (94%), China (91%), Malaysia (89%), Turkey (89%)



Businesses that invest in 3D printing will leave other businesses behind (81%)



Germany (72%), Sweden (71%), Indonesia (71%), Canada (69%)

Indonesia (95%), China (93%), Malaysia (93%), Brazil (89%), India (89%)



Beneficial for the environment and reduce CO2 in manufacturing (80%)



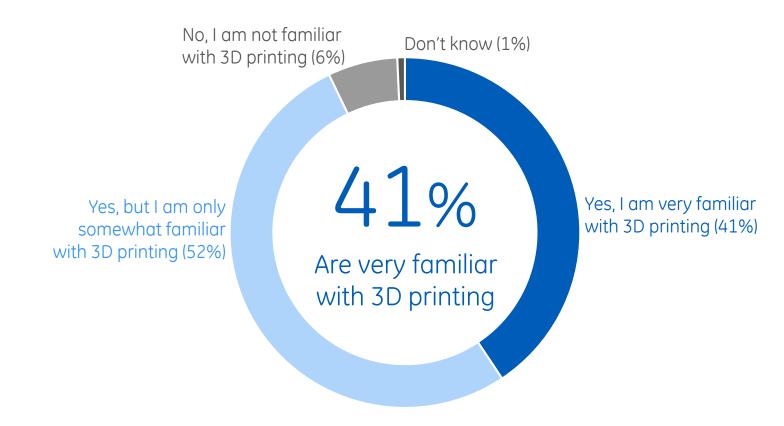
Germany (68%), South Korea (67%), Japan (66%)





### Only 4 in 10 business executives are very familiar with 3D printing.

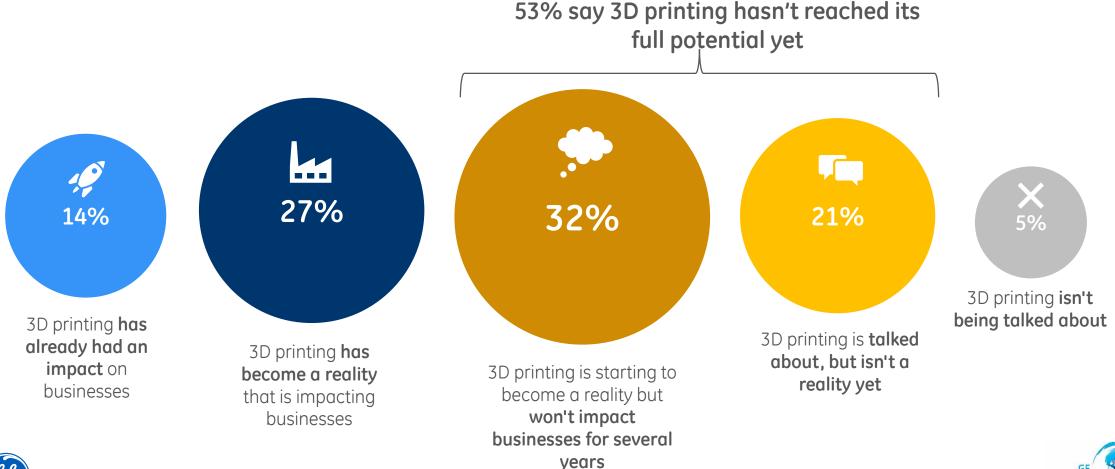
With only 4 in 10 business executives being very familiar with 3D printing, there is work to be done to encourage the majority of business executives to become more familiar and therefore adopt 3D printing.







### However, a majority of business executives believe 3D printing has yet to realize its full potential.

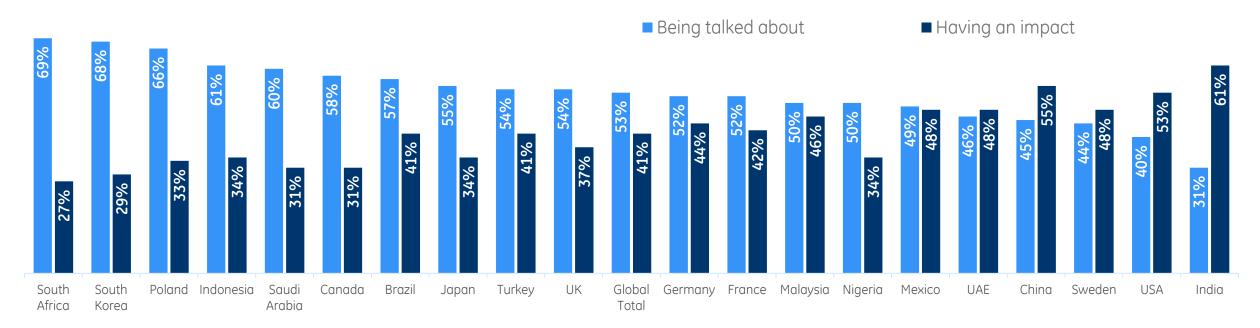


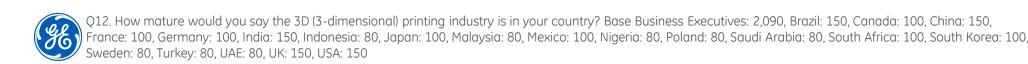




# Outside of larger countries with strong manufacturing industries, most do not believe 3D printing has made an impact yet in their country.

How mature would you say the 3D (3-dimensional) printing industry is in your country?

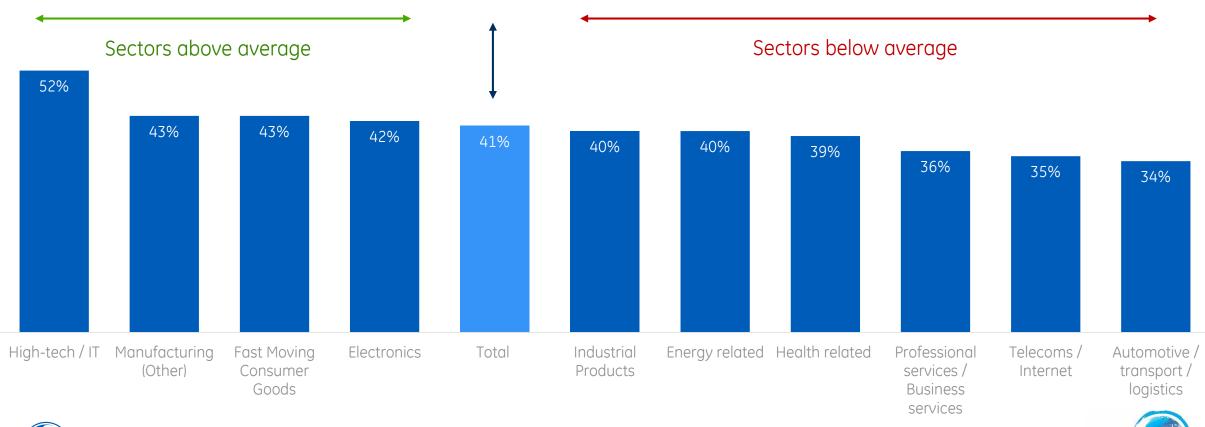






### Globally, the high-tech /IT and manufacturing sectors are most likely to see the impact of 3D printing.

### 3D Printing is having an impact in my country





# Maximizing the Return on Innovation

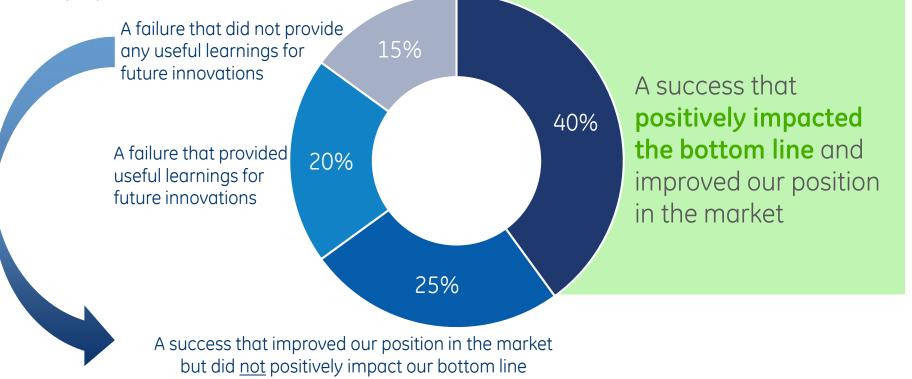
#### **Executive Summary**

• Globally, 40% of innovations are having a positive impact on the bottom line. What's the secret to success for these "innovation achievers"? They're taking a more measured approach. Businesses are waiting to perfect and test their innovation before launch rather than getting to market quickly—a 10-point jump since 2016 (now 65%). Innovation achievers also are more willing to wait for long-term ROI for breakthrough innovation (84%) and have a clear structure and process in place to measure that return (50% vs. 43%).

#### We measured a decrease in the appetite for bullish risk-taking.

Businesses are placing further emphasis on protecting their bottom line and maximizing the "Return on Innovation" (ROI).

60% of innovations over the last five years have not resulted in a positive impact on the bottom line







#### Already challenged in their ability to disrupt themselves and keep up with the innovation race, business executives reemphasize the basic and fundamental recipes for success.

Businesses are choosing their battles, with an emphasis on digital transformation; focusing on a properly measured ROI and being more measured in their go-to-market strategy.



Know how key digitalization is to innovation success

**Business** executives who say **51-100%** of their company's innovations have positively impacted their bottom line over the last 5 years are more likely to...

Focus on measurement





Think about long-term strategies

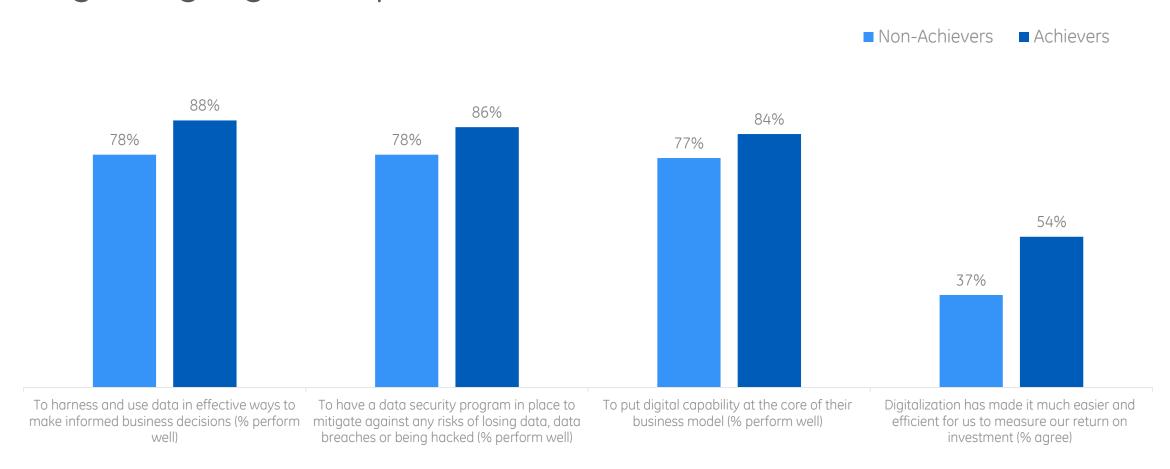
Be more cautious in their approach to innovation







### Innovation achievers are using data effectively and integrating digital capabilities into the business model.

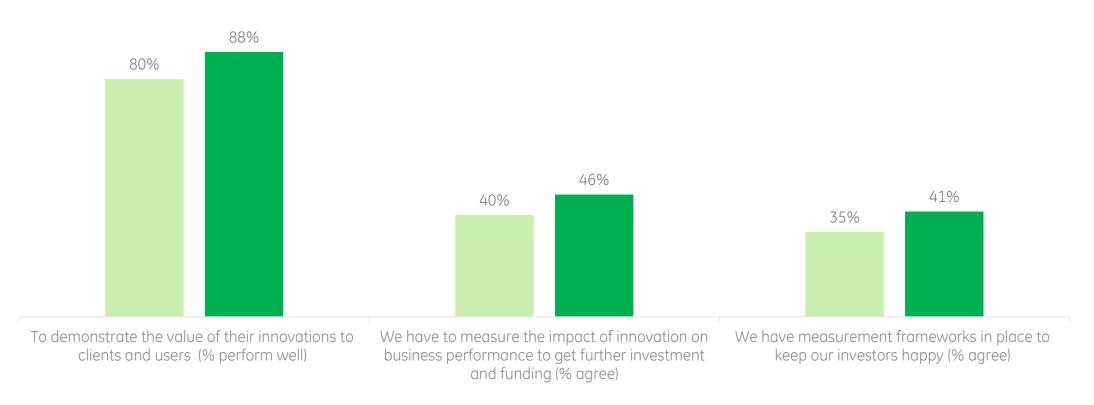






# Achievers are more likely to focus on demonstrating the value to investors, clients and users, and measure the successes of their innovations.

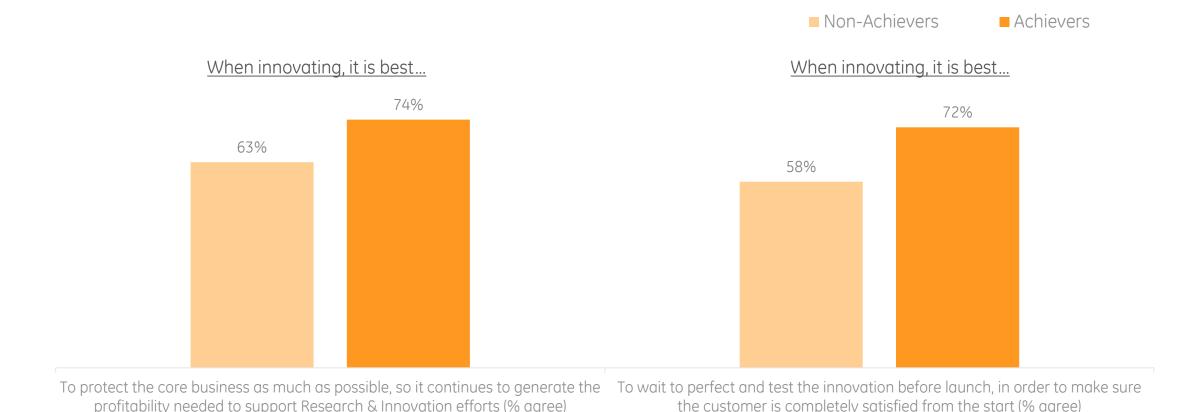
■ Non-Achievers ■ Achievers

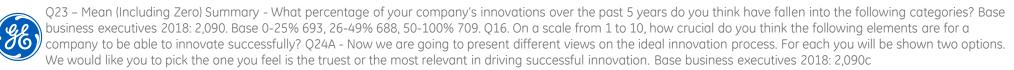






# Achievers are more cautious and measured in their approach to innovation.



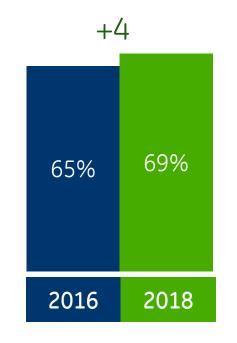


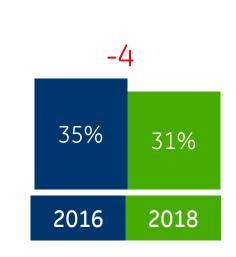


# With decreased emphasis on speed and more emphasis on protecting their core business, executives are undergoing a reality check.

When innovating, it is best... (19 markets no UK)

To protect the core business as much as possible, so it continues to generate the profitability needed to support Research & Innovation efforts





To bring innovative products and/or services to market as fast as possible without worrying about the short-term impact it can have on the core business

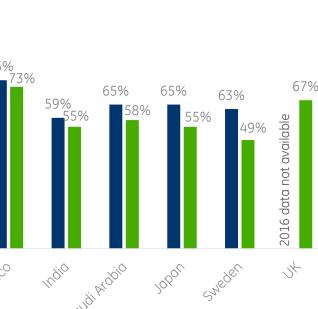




#### And this reality check is being felt in the majority of countries – notably in China and Germany, among others.

#### When innovating, it is best...

To protect the core business as much as possible, so it continues to generate the profitability needed to support Research & Innovation efforts Ranked by 2016 to 2018 difference



**2018** 

85%

Increase

Decrease

2016

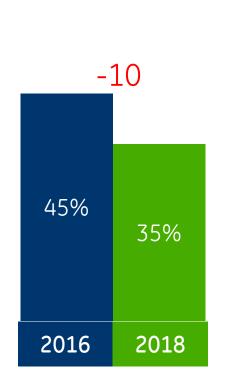


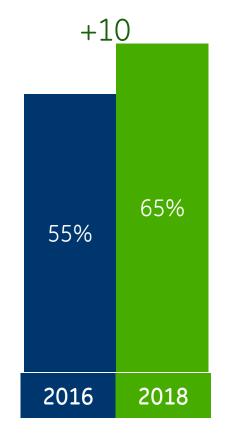


In 2018, fully testing new products and solutions before bringing them to market emerges as a preferred strategy, rather than charging ahead with minimum viable products.

When innovating, it is best... (19 markets no UK)

To get to market as quickly as possible to keep an edge on competition, even if this means having an imperfect product or service and improving it along the way





To wait to perfect and test the innovation before launch, in order to make sure the customer is completely satisfied from the start





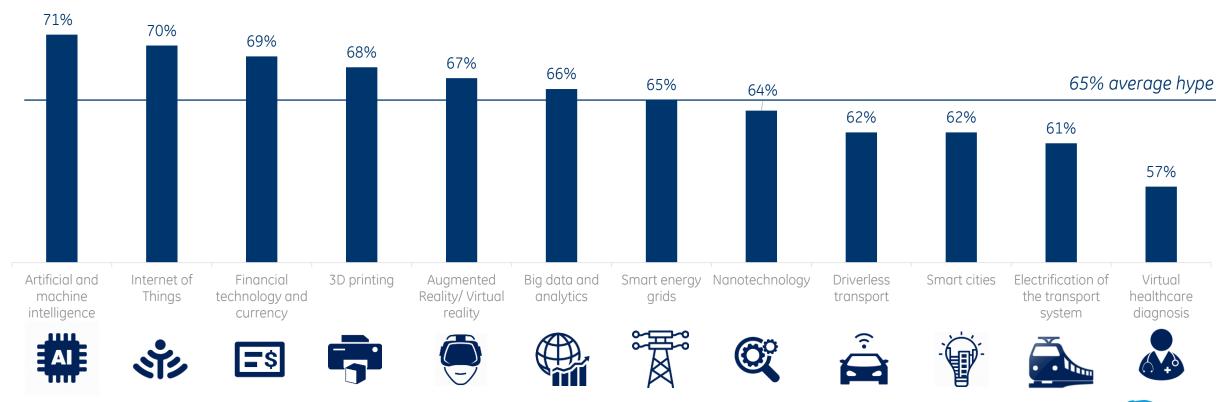
# Hypevs. Reality of Impact

#### Executive Summary

• Hype around certain technologies does not always equate to transformative impact. In fact, global executives believe that many under-hyped technologies will have a transformative impact, including energy grids (74% say it will bring transformative change to their country), virtual healthcare (68%) and smart cities (71%).

# The latest wave of innovation hype is comprehensive, spanning a number of disruptive forces, from Artificial Intelligence (AI) to robotics to advanced manufacturing.

How much "hype" are they are creating in your country today? (NET hype)

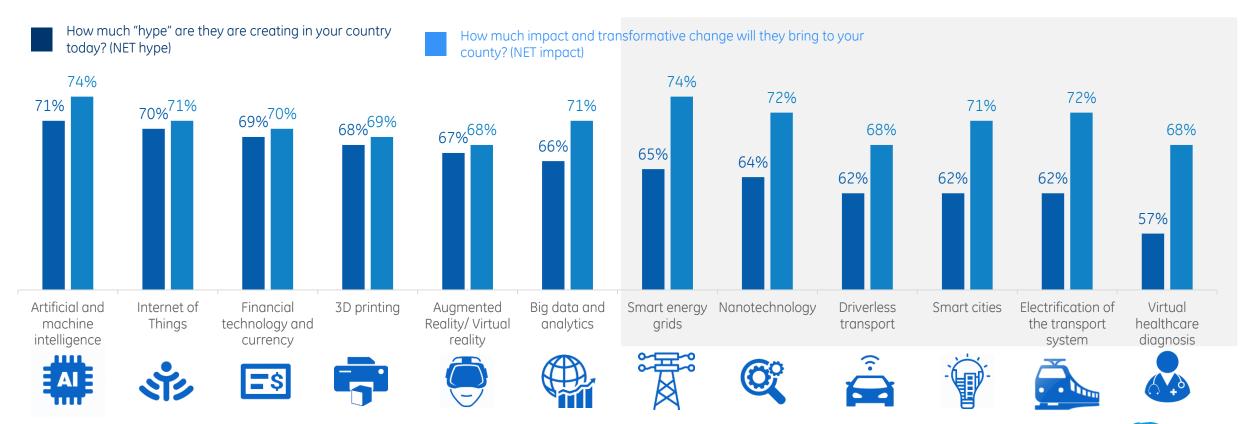






### The transformative impact of macro innovation still generates excitement from business executives around the world.

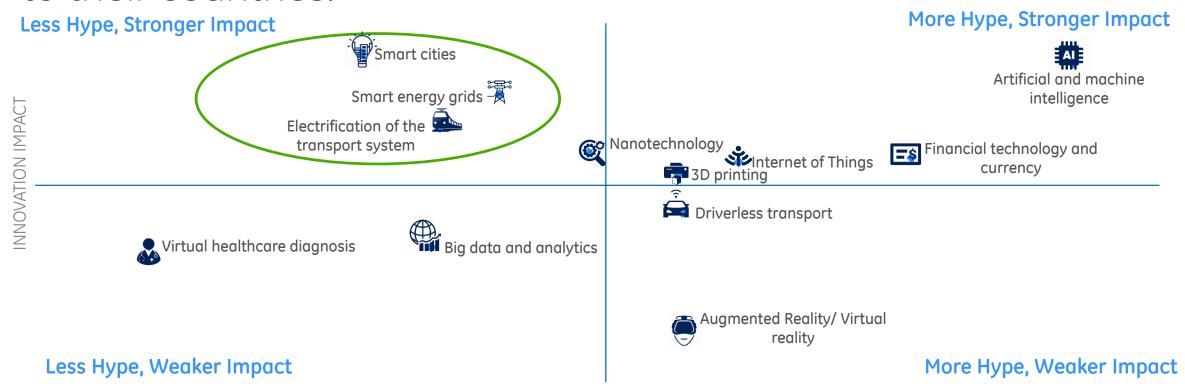
In particular, innovations such as AI, IoT and the development of Fintech, produce interest both in terms of hype (being talked about) and actually having impact on their industries and their economies.







This being said, business executives report that transformation in transport, city-planning and infrastructure are "under-hyped" considering the benefits they could bring to their countries.







Section Three:

# Emerging Challenges

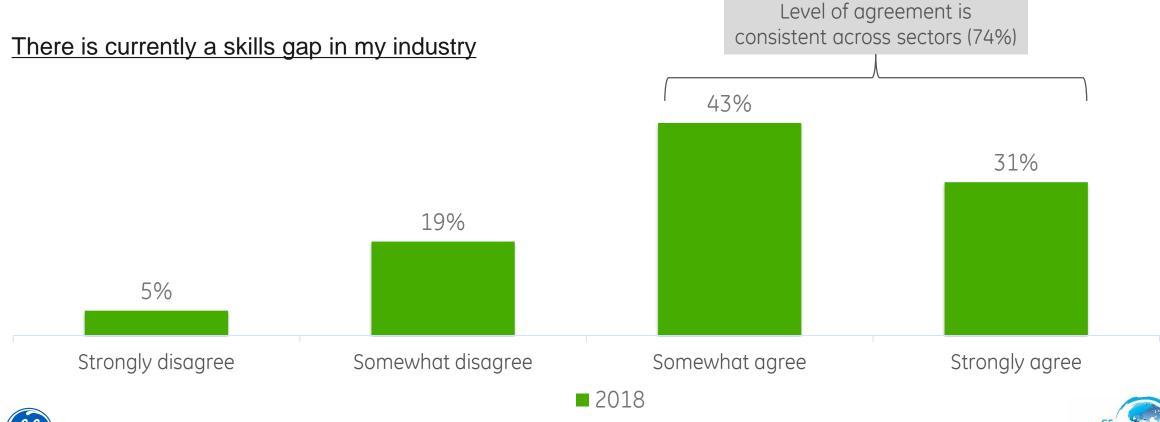
- Future of Work
- More Challenging Environment

# Future of Work

#### Executive Summary

• The workforce is considered the most crucial element to innovation success in most markets, yet skills gaps continue to be a top concern among businesses. Nearly 3 in 4 (74%) global executives believe a lack of skills is an issue facing their industry—a challenge that has increased over time (64% say a lack of talent/inadequate skills is a key challenge today, up from 56% in 2014).

The impact of automation and pace of change have led to a real skills gap – 3 in 4 innovation executives believe a lack of skills is an issue their industry is facing.



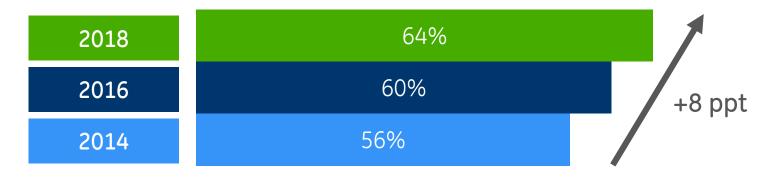


This challenge only seems to be growing for business executives - finding the right talent and skill sets is apparently restricting business's ability to innovate efficiently.

Do you consider the following a key challenge restricting your business's ability to innovate efficiently?

A lack of talent / inadequate skill set

NET: A challenge





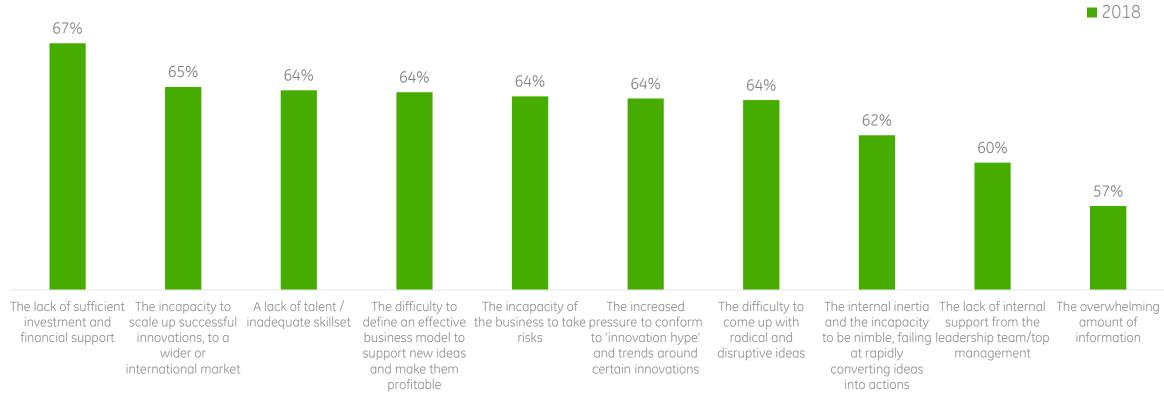
# More Challenging Environment

#### **Executive Summary**

- The challenges confronting innovative businesses are tough and getting tougher both externally and internally. There is a 13-point increase (now 67%) since 2014 in lack of sufficient funding, a 6-point increase (now 65%) in the inability to scale innovations to a wider market, an 8-point increase (now 64%) in lack of adequate talent/ skillsets, and a 14-point increase (now 64%) in the inability of businesses to take risks.
- Emerging markets such as Poland, South Africa, Malaysia and Saudi Arabia are experiencing the greatest increase in challenges.

# Businesses are struggling to scale up, investment is not available, and it is a challenge to convert ideas into action.

Do you consider any of the following as key challenges restricting your business's ability to innovate efficiently? NET: Top 2 / A Challenge

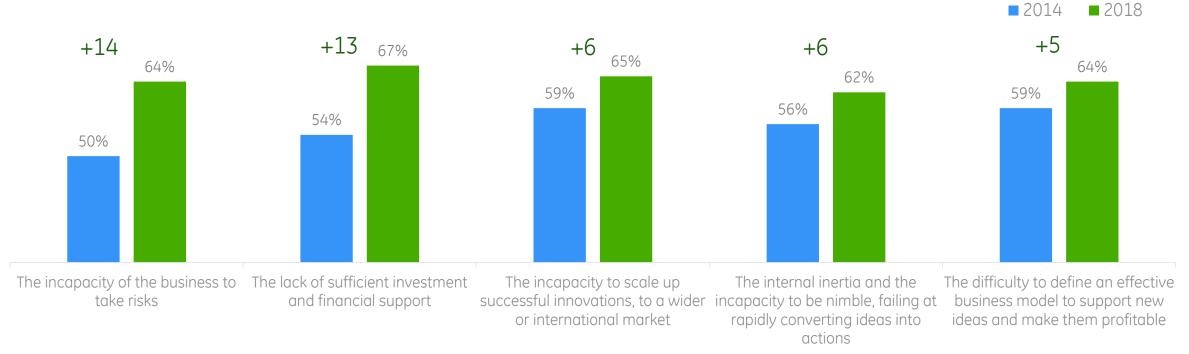






# And these key issues have become even bigger challenges than they were four years ago.

Do you consider any of the following as key challenges restricting your business's ability to innovate efficiently? NET: Top 2 / A Challenge







# Poland, Canada and South Africa are less able to take risks than they were four years ago.

<u>Do you consider any of the following as key challenges restricting your business's ability to innovate efficiently?</u>

NET: Top 2 / A Challenge







# Scaling up innovations is a growing issue across the markets, but Mexico and Sweden are not experiencing this challenge.

Do you consider any of the following as key challenges restricting your business's ability to innovate efficiently? NET: Top 2 / A Challenge

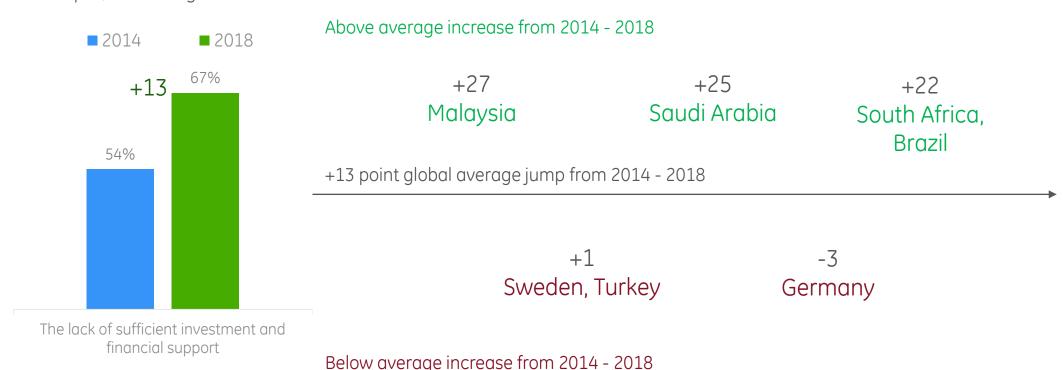






# Emerging economies are more likely to lack sufficient investment and financial support than in 2014.

Do you consider any of the following as key challenges restricting your business's ability to innovate efficiently? NET: Top 2 / A Challenge









#### Historical data tracking

Historical data has been used from 2013, 2014, 2016 and this year's 2018 data.

The only question that is comparable across all four years is Q1 - Innovation Champions.

- To compare scoring from previous years we have reweighted the previous total scores, so that countries that are not included in this year's GE GIB are removed, and therefore we include the 20 countries that were surveyed this year. This ensures all data is directly comparable.
  - The UK was not included in GE GIB 2016, so an average score from 2018 data and from 2014 was created at act as a proxy.
  - In 2013, France was not included, so a proxy from looking at 2014 and 2016 data has been used.
  - In 2016, Nigeria was not included, so an average score from 2018 data and from 2014 was created to act as a proxy.

This method (of reweighting the total scores and creating proxies) has been used consistently across all questions where we have compared historical data.

Where tracking questions have been used for only 2016 and 2018 (because these questions were not tracked in 2013 or 2014), data for these questions is based on a 19 market total only as no proxy could be created for the UK in 2016.

