

# Limitless

The positive power of AI

CLouDERA

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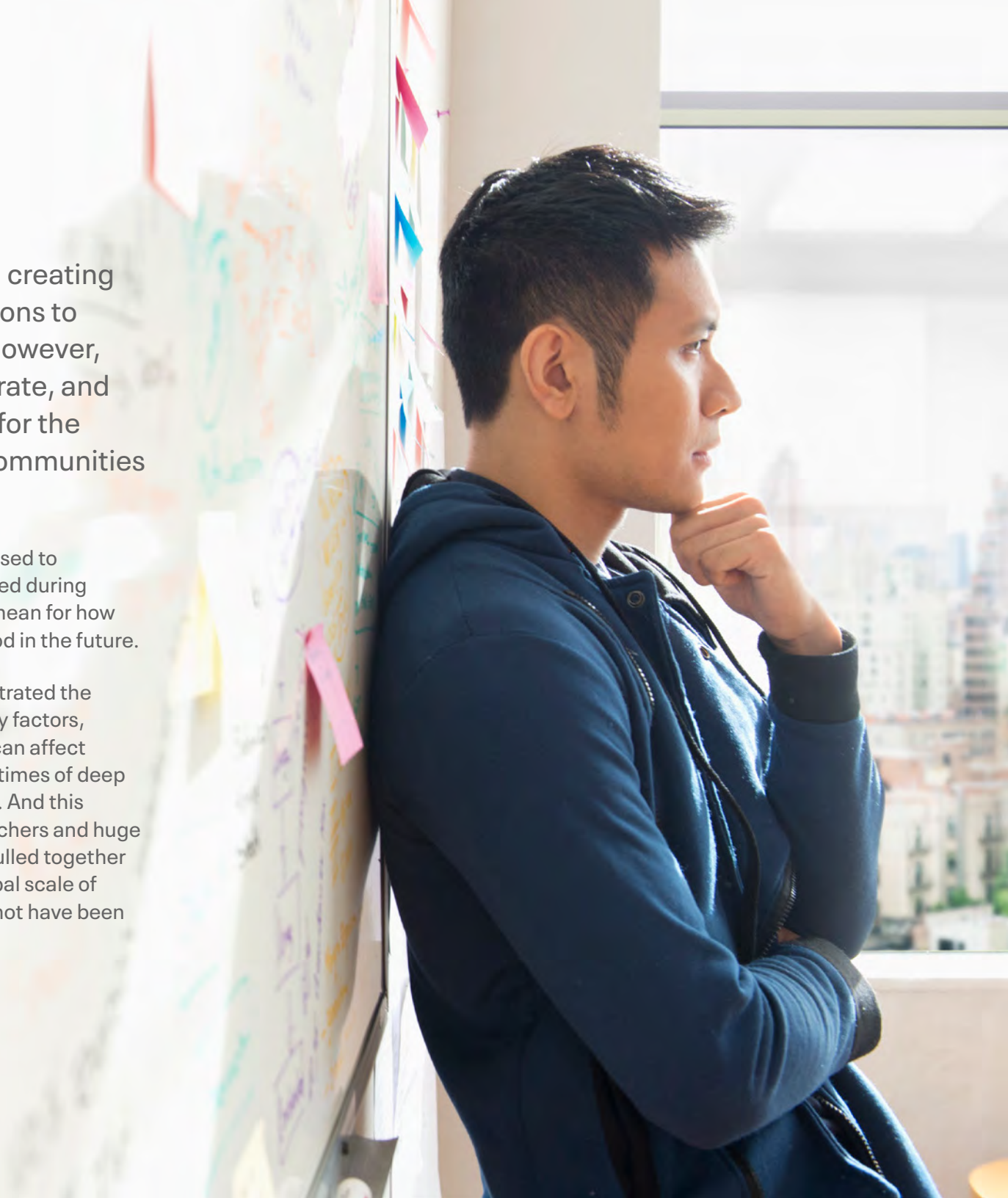
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# Introduction

Technology can be a great leveler, creating opportunities and providing solutions to the world's greatest challenges. However, technology is changing at a rapid rate, and unless there is the desire to use it for the collective good, individuals and communities can quickly become excluded.

This study looks at how technology has been used to overcome inequalities that have been reinforced during the coronavirus pandemic, and what it could mean for how businesses choose to use it for the greater good in the future.

The global coronavirus pandemic has demonstrated the impact of inequality in the gravest terms. Many factors, including race, age, and type of employment can affect how vulnerable a person is. Historically, it is in times of deep crisis that humanity has been able to innovate. And this pandemic is no different. Thousands of researchers and huge international pharmaceutical companies all pulled together to design vaccines in record time. But this global scale of collaboration for the good of humanity would not have been possible without technology.



Technology is now being deployed on the frontline by governments, NGOs, and businesses to ensure that communities are safe and connected. For example, in April 2020, the International Telecommunication Union (ITU) and World Health Organization (WHO) announced that they were committed to “leveraging frontier technologies such as artificial intelligence and big data to diagnose, contain, and predict outbreaks better and faster.”<sup>1</sup>

At the same time, businesses have used data and technology to find new ways to operate and serve their customers. This has ultimately helped them to survive, adapt, and in some cases emerge from the pandemic stronger.

Now, as businesses attempt to move on from recovery to permanent transformation, they’re presented with a huge opportunity to learn from the pandemic and use Artificial Intelligence (AI), Machine Learning (ML), and Data Analytics technologies to improve outcomes for all. The question is, will they take it?

At Cloudera, we wanted to better understand whether the pandemic has changed the attitudes of knowledge workers and business decision makers towards these technologies, and where they now feel they are heading.

<sup>1</sup> ITU-WHO Joint Statement: Unleashing information technology to defeat COVID-19 (April 2020) [www.who.int/news/item/20-04-2020-itu-who-joint-statement-unleashing-information-technology-to-defeat-covid-19](http://www.who.int/news/item/20-04-2020-itu-who-joint-statement-unleashing-information-technology-to-defeat-covid-19)

We surveyed

**10,880** knowledge workers and

**2,213** business decision makers who work in organizations that employ over

**1,000** people across the US, UK, Germany, France, Italy, Spain, Korea, Japan, China, Singapore, Indonesia, Australia, New Zealand, India, South Africa, and the UAE.

We asked them to share their thoughts on:

- How the growth of AI and data could change our lives for the better
- What the human, environmental, and technological impact of AI could be
- Whether data and AI could go beyond making businesses money
- Whether technology and data could enable workers to realize their potential and improve their lives

Our research shows a huge shift in attitudes towards AI, ML, and Data Analytics, and great cause for optimism in how it can be used to shape the future through creating wider opportunities and supporting communities.

We hope the results help to shape your own understanding and future decision-making. Before we delve into the detail, a word from Mick Hollison, President, Cloudera.

Over the last two years, a new wave of economics has emerged across the globe, driven by the rapid convergence of changing circumstances, data, automation, and AI. Set against ongoing turbulence and change, these elements are transforming the way organizations operate and how employees live and work. They are connecting global businesses and talented people, providing them with opportunities to create and innovate with unprecedented speed.

At the same time, businesses must contend with growing customer demands, a workforce no longer focusing on just generating profit but altruism and purpose, and an increasing skills gap. The study shows that 26% of business decision makers are putting increasing investment in Environmental, Social, and Corporate Governance (ESG) ahead of developing new products and services (24%) or accelerating financial growth (21%). Business decision makers and knowledge workers believe that at least 50% of the data their company uses on a day-to-day basis should be used for doing good for the communities they serve.

The good news is that advances in technology can provide many of the answers to these challenges, while also helping to achieve traditional business objectives. For business leaders this means it's time to refocus on technology investment — identifying not only the data that will support growth, but also the technology that will help employees gain meaningful access to it."

# **It's time to mobilize technology for social good**

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**AI, ML, and Data Analytics could  
change business and society for good**

Over a hundred years ago, the first industrial revolution kick-started the creation of cities, improved sanitation, and raised living standards. The digital revolution has opened up the power of communication and freedom of expression. Now the next revolution, with increased use of AI, ML, and Data Analytics, has the power to improve digital literacy and create equal opportunities.

But before the pandemic AI and ML technologies were often met with both excitement and fear. Although businesses recognized the value of using them to create efficiencies, individuals were often concerned about the impact on their jobs and way of life.

Our research shows that there is now a greater desire to ensure that these technologies lead to wider social good. There has been a major shift in sentiment towards AI and ML technologies, which can be attributed to a greater awareness and understanding of how they can be used. Technology has underpinned many innovations since the start of the pandemic, and both employees and employers now believe it will help them thrive in the future.

Cloudera customer commentary:

**According to the research, 77% of knowledge workers believe that it is likely that AI/ML/Data Analytics technologies could benefit their company in the next 36 months. This is something we see in our own business. The more we've engaged the workforce in the use of technology, the more they have come to appreciate its positive impact on their jobs.**

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# Transformation, Productivity, and ESG are the priorities

Technology now needs to be used for more than traditional business success metrics.

Businesses have already demonstrated that they can adapt and transform at a much greater speed than they previously imagined. In fact, according to McKinsey, companies accelerated the digitization of their customer and supply-chain interactions and their internal operations by three to four years during the pandemic.<sup>2</sup>

As a result, our research shows that digital transformation continues to be a top priority for business decision makers (32%), followed by increasing productivity (28%). These are understandable objectives as businesses transition out of survival and recovery mode and begin looking ahead to the next three years.

Crucially, 26% also put increasing investment in Environmental, Social, and Corporate Governance (ESG) ahead of developing new products and services (24%) or accelerating financial growth (21%). This highlights how social responsibility and using technology for good is now a core part of business strategy.

Knowledge workers have a similar but slightly different view on the matter. They believe their company's top objectives are to increase productivity (31%) and maintain or increase profits (28%), followed by accelerating digital transformation and improving customer service (both 27%). ESG is further down the list, which seems to show that businesses have more to do to communicate what they are planning to achieve in the ESG space.

<sup>2</sup> McKinsey & Company: How COVID-19 has pushed companies over the technology tipping point (October 2020) [www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever](https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever)

Business decision makers' top priorities

32%  
digital transformation

28%  
increasing productivity

26%  
ESG

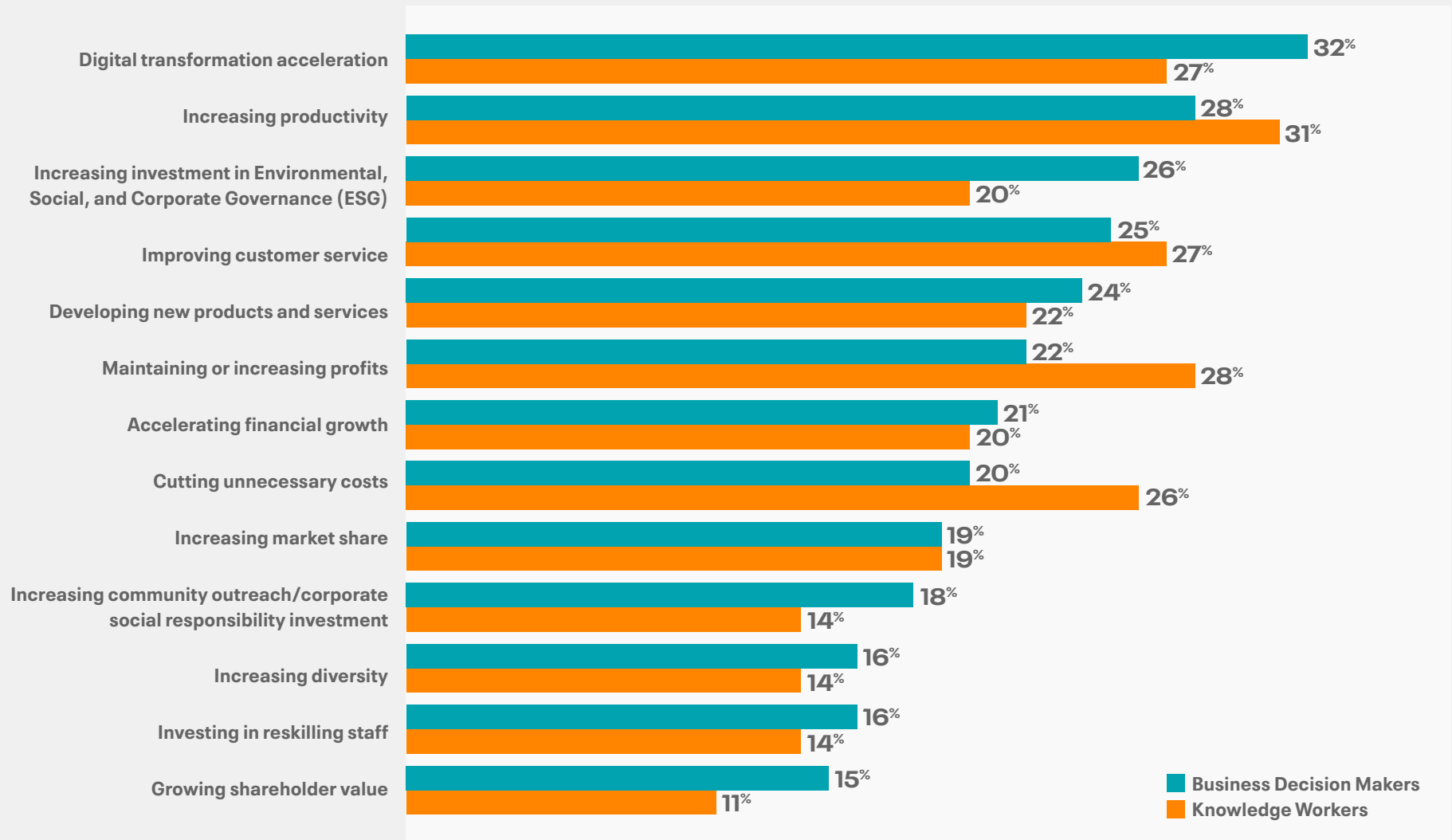
24%  
products and services

21%  
financial growth



## QUESTION:

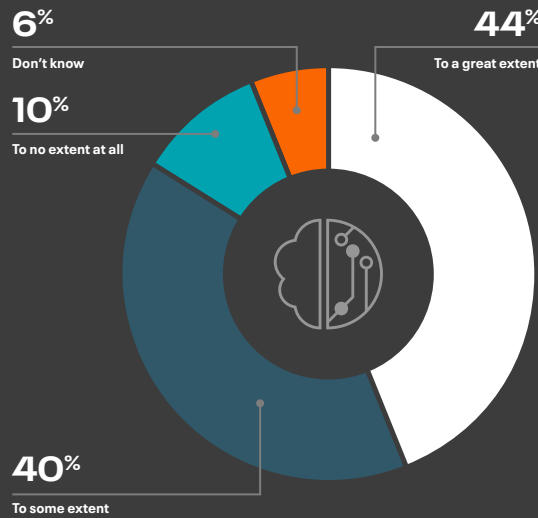
In your opinion, what are your company's top three objectives over the next 36 months? Select the top three.



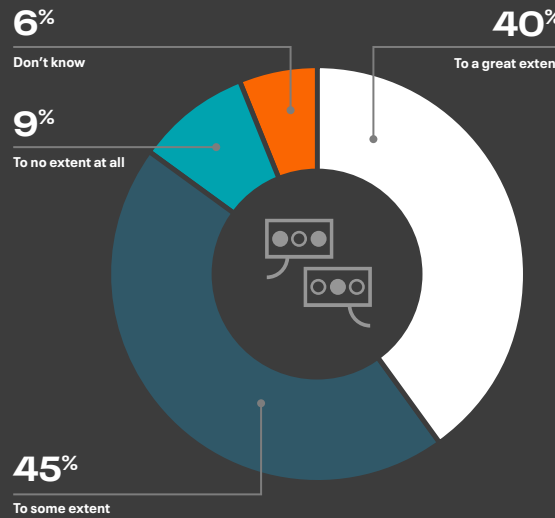
While business decision makers and knowledge workers may differ in opinion on key objectives, one thing is sure — they see technology as a means to achieve them. The majority of business decision makers (58%) and over two fifths of knowledge workers (44%) believe to a great extent that AI will help them reach their business objectives in the next 36 months. This also holds true for ML, 40% and 54%, and Data Analytics, 55% and 66%, respectively.

**QUESTION:**

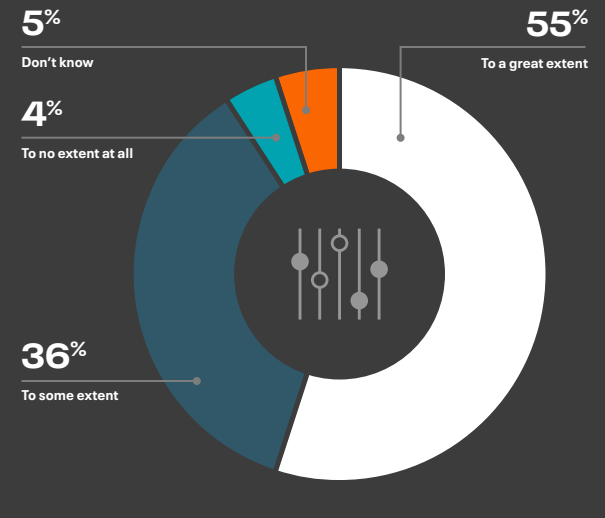
To what extent do you believe that AI/ML/Data Analytics can help your business to reach these objectives in the next 36 months?



Artificial Intelligence (AI)



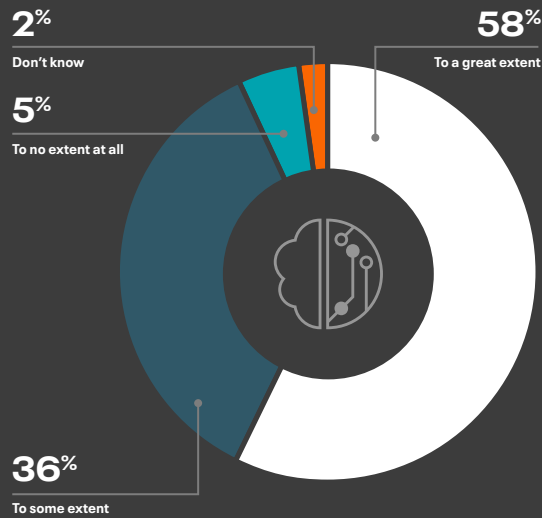
Machine Learning (ML)



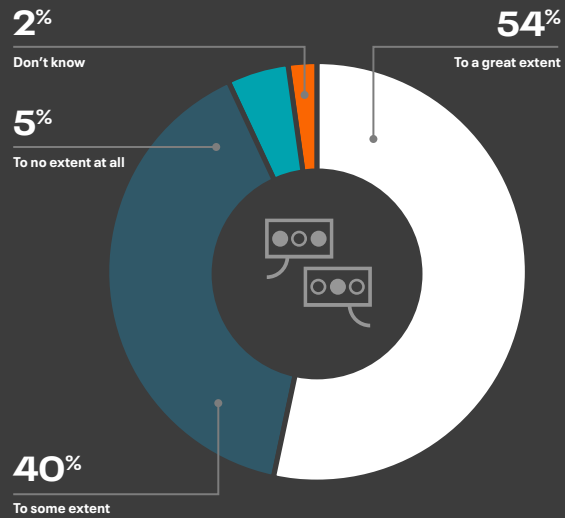
Data Analytics

## QUESTION:

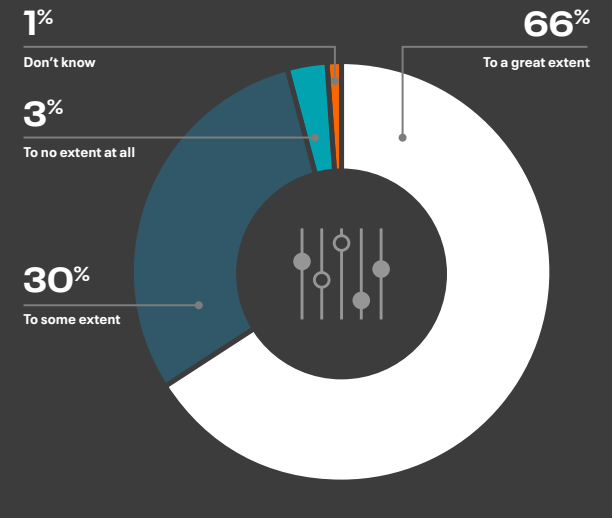
To what extent do you believe that AI/ML/Data Analytics can help your business to reach these objectives in the next 36 months?



Artificial Intelligence (AI)



Machine Learning (ML)

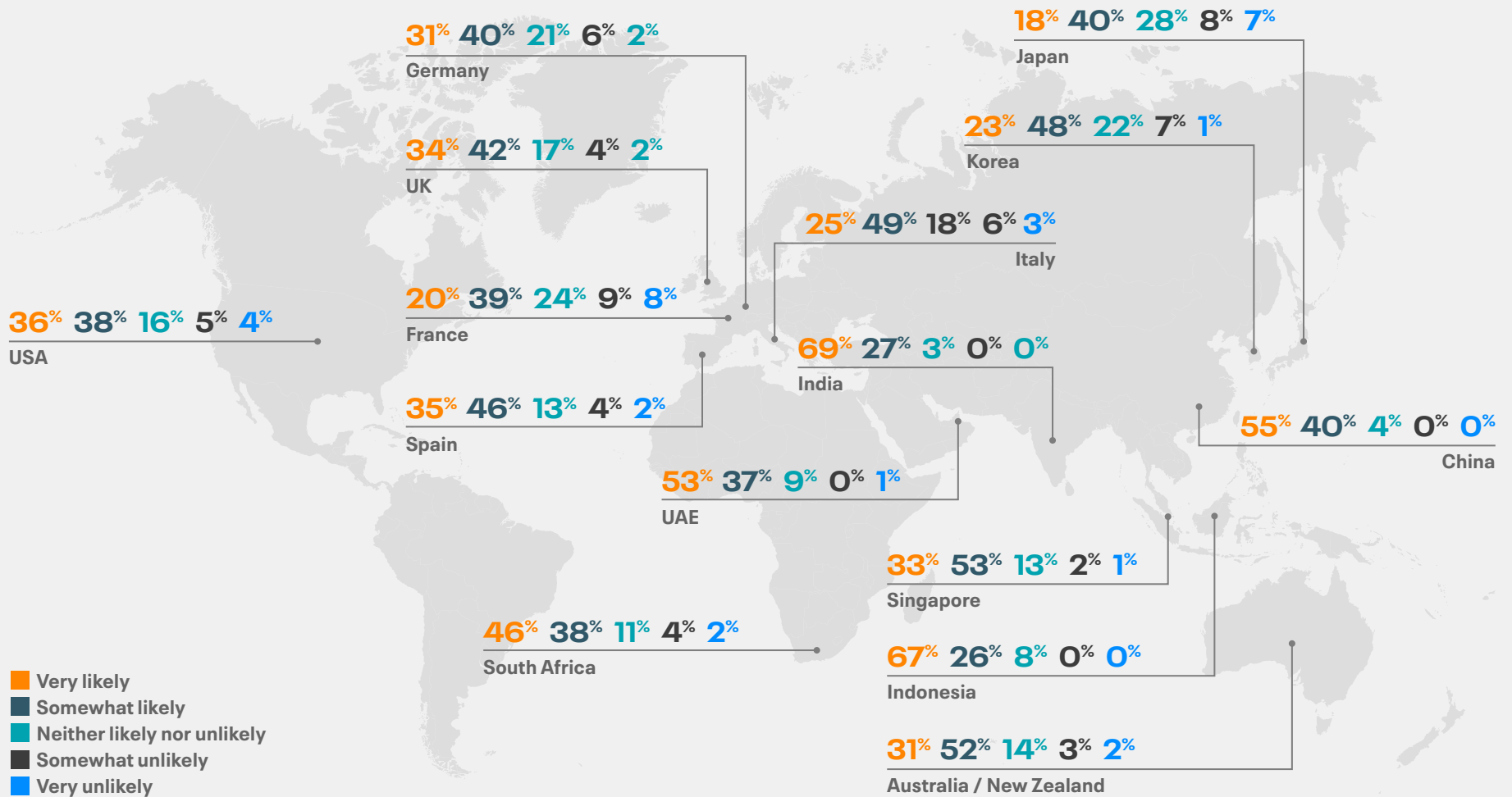


Data Analytics

The likelihood of AI/ML/Data Analytics technologies benefitting the companies they work for, according to knowledge workers in each region:

**QUESTION:**

How likely is it that AI/ML/Data Analytics technologies could benefit your company in the next 36 months?



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# Employees see the potential of using technology for good

People are more aware of how technology can support communities.

Encouragingly, just as we've seen a renewed focus on ESG activity, our research found the vast majority of business decision makers (91%) believe, to at least some extent, that there is a need to use AI to deliver more sustainable business practices that benefit both their organizations and the communities they serve. 81% of knowledge workers agree, showing that they can also see the potential of AI to do good, with ML and Data Analytics returning similar results.

If all of these businesses achieved this, it could have a transformational impact and set the standard for others to follow. And it appears that this isn't just talk, as 52% of business decision makers say their company are already taking action and using data to support the communities they serve. This is great news, as knowledge workers believe, on average, that at least 49% of the data their businesses use on a day-to-day basis should be focused on doing good for the communities they serve.

Charles Boicey, Co-founder and Chief Innovation Officer, ClearSense:

**Technological changes in the last two years have supported new ways of working, driven innovation, and have even allowed healthcare companies to create vaccines in record time. The power of technology is now tangible within communities. The question will become, can companies do more with their data, technology, and resources than just generate profit?**

### QUESTION TO BUSINESS DECISION MAKERS:

In your opinion, how much of your company's data is focused on generating profit for your business, as opposed to doing good for the communities it serves?



### QUESTION TO KNOWLEDGE WORKERS:

In your opinion, how much of the data your business uses on a day-to-day basis should be focused on generating profit for your business, as opposed to doing good for the communities it serves?



Amount of data currently used to do good for the communities the business serves, according to business decision makers.

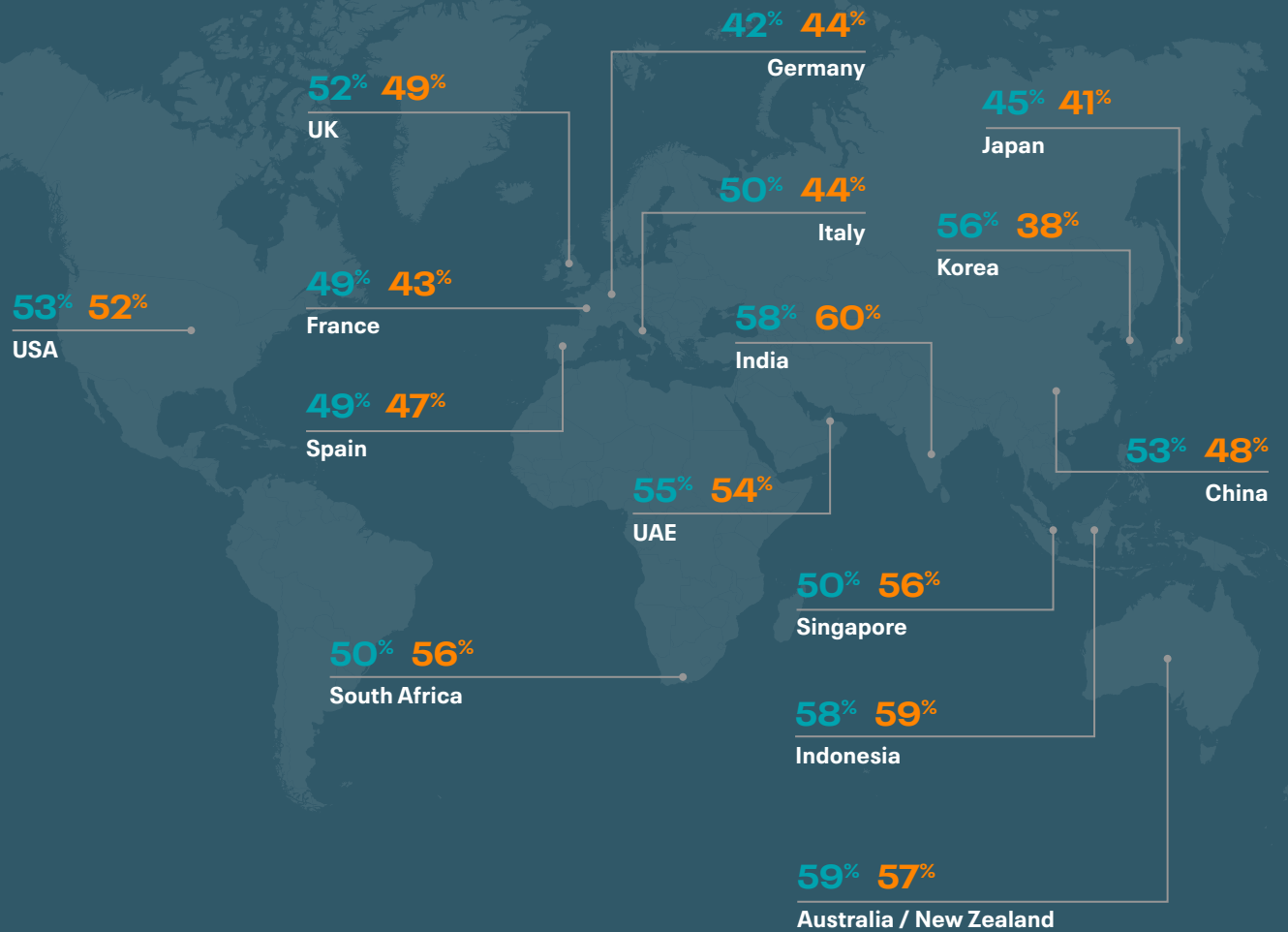
**QUESTION:**

In your opinion, how much of your company's data is focused on generating profit for your business, as opposed to doing good for the communities it serves?

Amount of data knowledge workers would like to see used by their company to do good for the communities the business serves

**QUESTION:**

In your opinion, how much of the data your business uses on a day-to-day basis should be focused on generating profit for your business, as opposed to doing good for the communities it serves?



- Business Decision Makers
- Knowledge Workers

# Employees want action, not words

There's a desire from management and workers for businesses to do more with technology than just simply make money and drive growth. Organizations have to give back (and quickly).

Of course, making a profit is important for businesses; after all, it is what enables them to have the means to support their customers, employees, and communities. And although our research has found that there's a desire to do more to give back, it also highlights that there is far more work to be done to achieve this.

Almost two thirds of business decision makers (64%) and more than half of knowledge workers (56%) state that currently their business does not do enough to give back to the communities (both internal and external) it serves.

## QUESTION TO KNOWLEDGE WORKERS:

To what extent do you agree or disagree with the following statement: Our business does not do enough to give back to the communities (both internal and external) it serves?

## QUESTION TO BUSINESS DECISION MAKERS:

To what extent do you agree or disagree with the following statement: Our employees would say our business does not do enough to give back to the communities (both internal and external) it serves?



Knowledge workers



Business decision makers

Strongly agree

23%

33%

Somewhat agree

33%

31%

Neither agree nor disagree

23%

17%

Somewhat disagree

14%

12%

Strongly disagree

7%

7%

% Agree

56%

64%

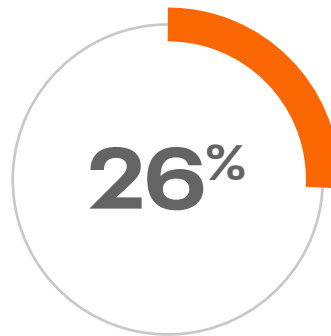


However, the majority of business decision makers (87%) and knowledge workers (74%) also understand that continuing on this track will affect their employer's ability to remain competitive in the future. In addition, more than a quarter of business decision makers (26%) believe this will negatively affect their company's ability to attract and retain talent at present. Similarly, more than half of knowledge workers (52%) say they would consider leaving the business if this does not improve.

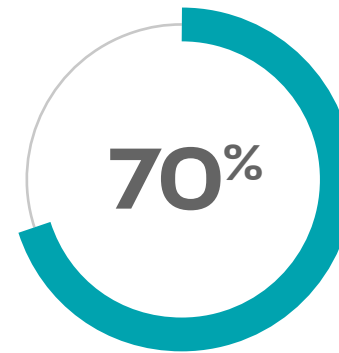
These findings reinforce the importance of doing more than focusing on profit. Employees working in the fourth industrial revolution do not expect to remain in the same job for life. They are much more willing to change jobs than the generations before them if there is poor value alignments on the issues that are important to them.

### QUESTION TO BUSINESS DECISION MAKERS:

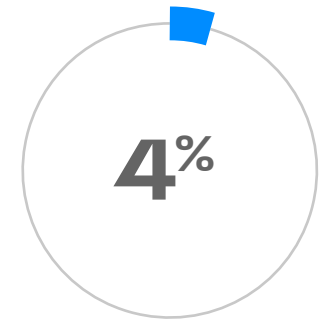
Do you believe that this negatively affects your ability to attract and retain talent at present?



Yes



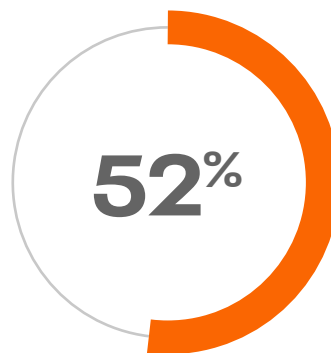
No



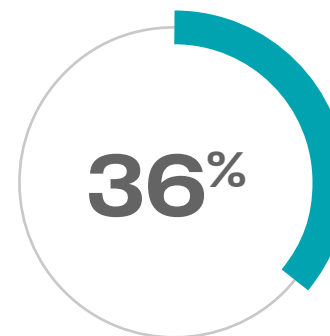
Don't know

### QUESTION TO KNOWLEDGE WORKERS:

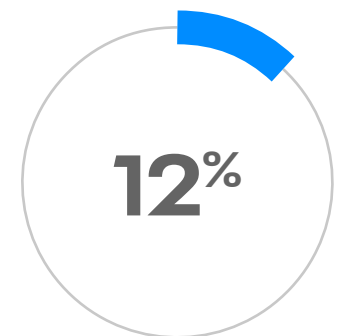
Would you consider leaving the business if this does not improve?



Yes



No

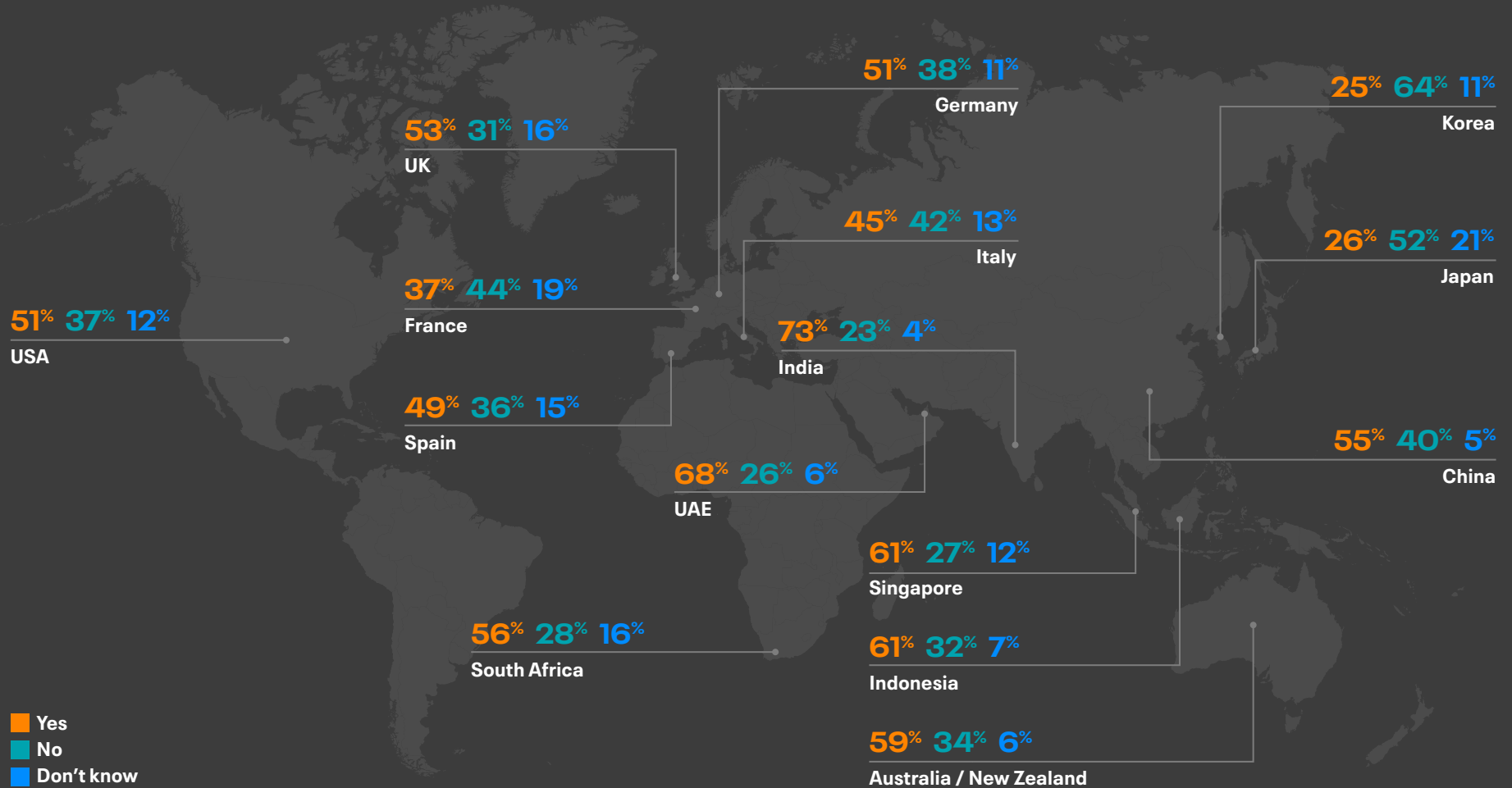


Don't know

Knowledge workers who would consider leaving their organizations should their commitment to giving back to the communities they serve not improve by geographical location:

### QUESTION:

Would you consider leaving the business if this does not improve?



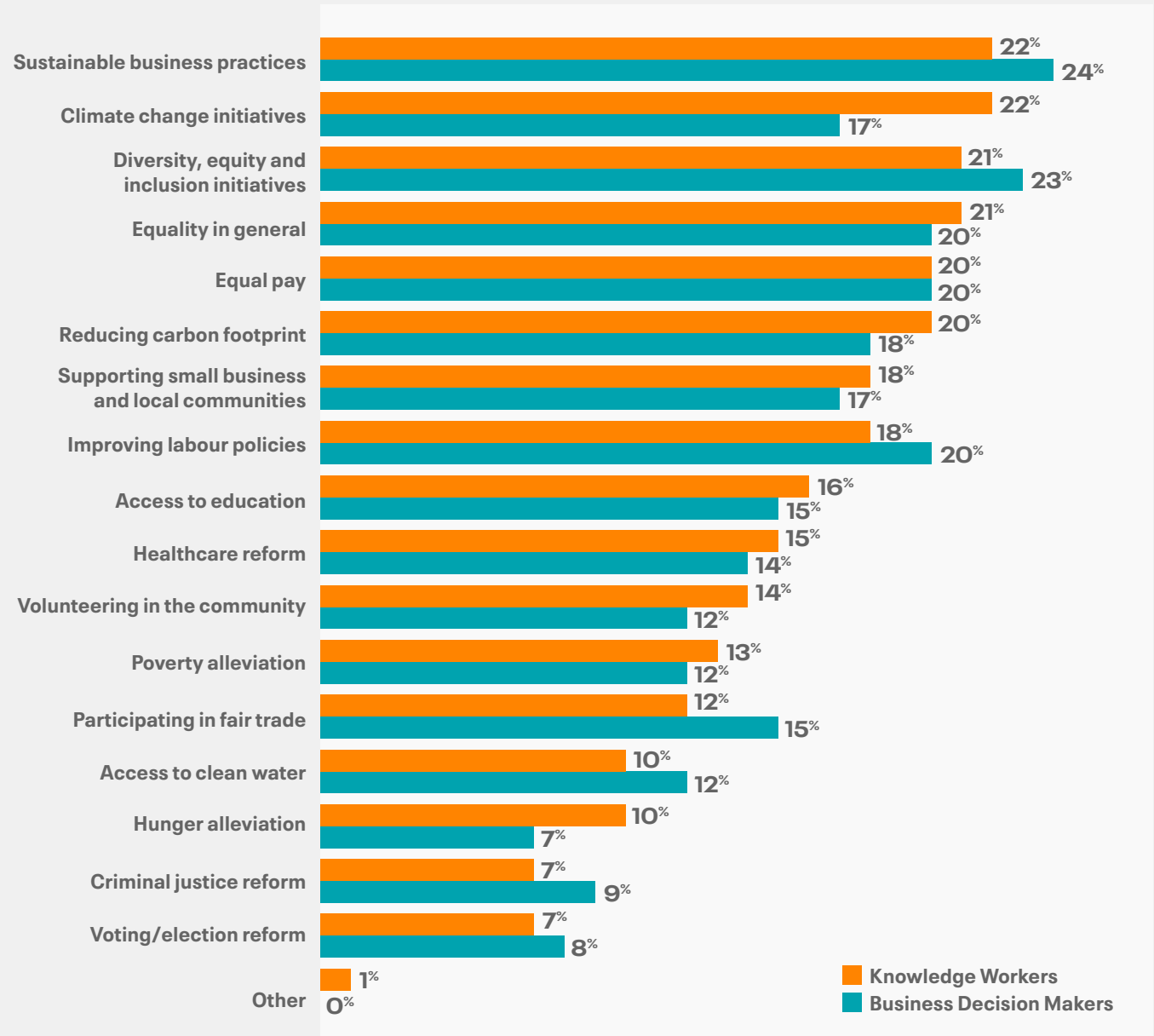
Knowledge workers are also clear about what those important issues are. They want their company to publicly support sustainable business practices and climate change initiatives (22%); diversity, equity and inclusion initiatives (21%); and equality in general (21%); and equal pay and reducing carbon footprint as part of their CSR efforts. In general, business decision makers agree with these priorities.

### QUESTION TO KNOWLEDGE WORKERS:

In your opinion, what CSR activities/public movements should your company be supporting publicly? Select the top three.

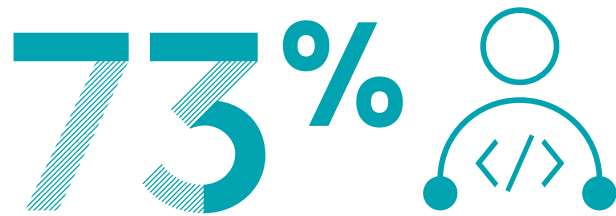
### QUESTION TO BUSINESS DECISION MAKERS:

In your opinion, what CSR activities/public movements are most important to your employees? Select up to three.





Almost **one in five knowledge workers** does not believe their company is doing enough ESG or CSR work. Knowledge workers reveal that they do **not believe their companies are doing enough ESG (19%) or CSR work (17%)**, and **41% say it could be the reason they consider leaving the business** if this doesn't change, as well as a **reason why clients might turn away from the company (46%)**.



**73% of business decision makers** agree that businesses have to do more with their data to ensure the wellbeing of their employees and the communities they serve.



# There is no Planet B

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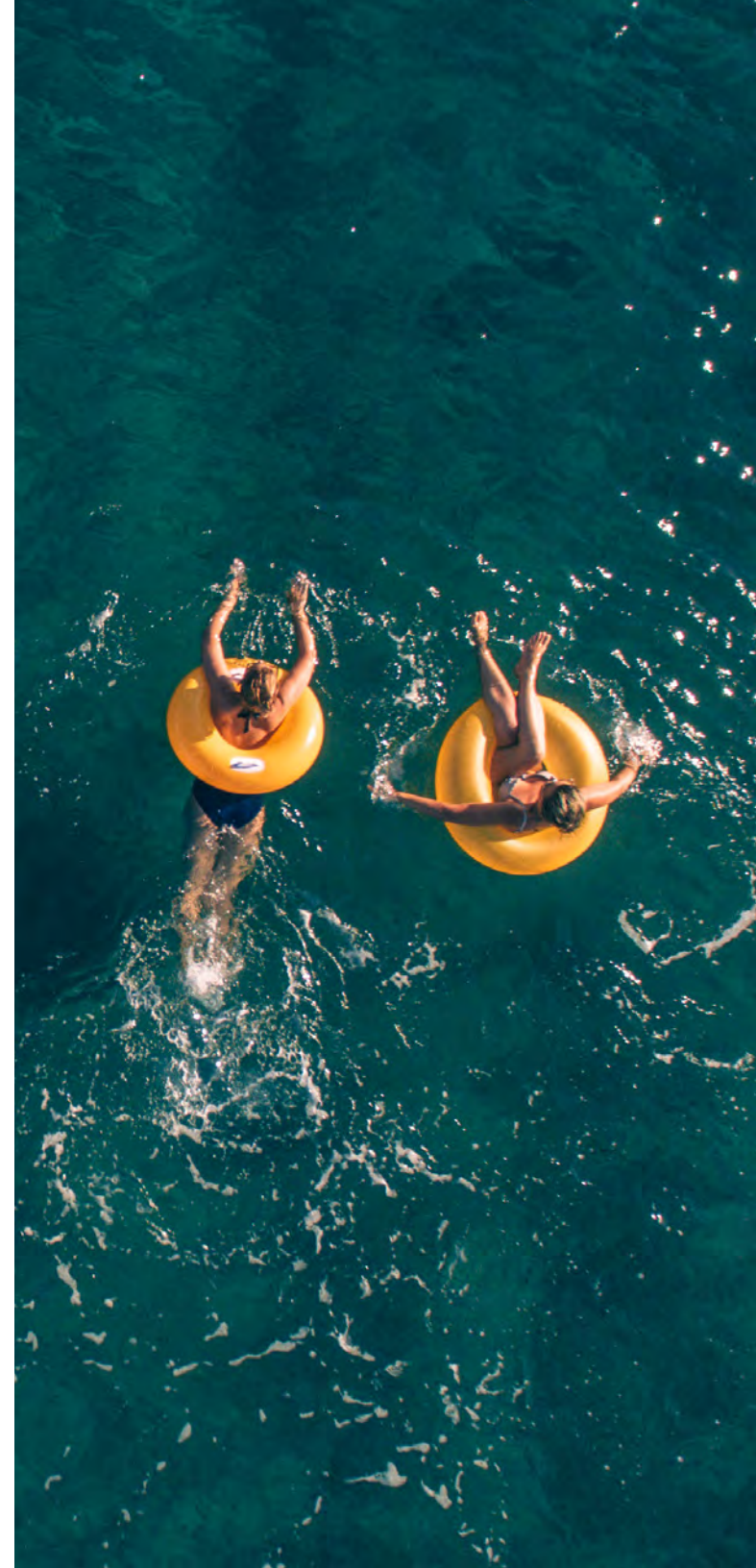
**There is a global shift towards sustainability,  
and a strong belief that companies have to  
do their part or face the consequences**

Change for good can no longer happen in the silos of CSR and ESG. Companies have to do more to ensure sustainability not only for their business — but the physical environment too. The majority of businesses have access to vast swathes of data, and yet they are only just beginning to explore novel ways to use it beyond conventional monitoring, reporting, and evaluation activities. A focus on using data for the good of the planet has to be accelerated.

Sudhir Menon, CPO, Cloudera:

**In a recent speech, UN Secretary-General, Antonio Guterres, said that we have reached a “moment of truth for people and planet alike. A moment in which the global community must take a collective step towards a safer, more sustainable and equitable path, with the Sustainable Development Goals and the Paris Agreement on climate change as a blueprint. And we believe that business has a critical role to play too.”**

Companies are stepping up to help make sustainable change, but employees feel more can be done. Almost half of business decision makers (48%) and over two fifths of knowledge workers (42%) believe their companies are doing a lot to implement sustainable business practices, but that there is still room to do more.



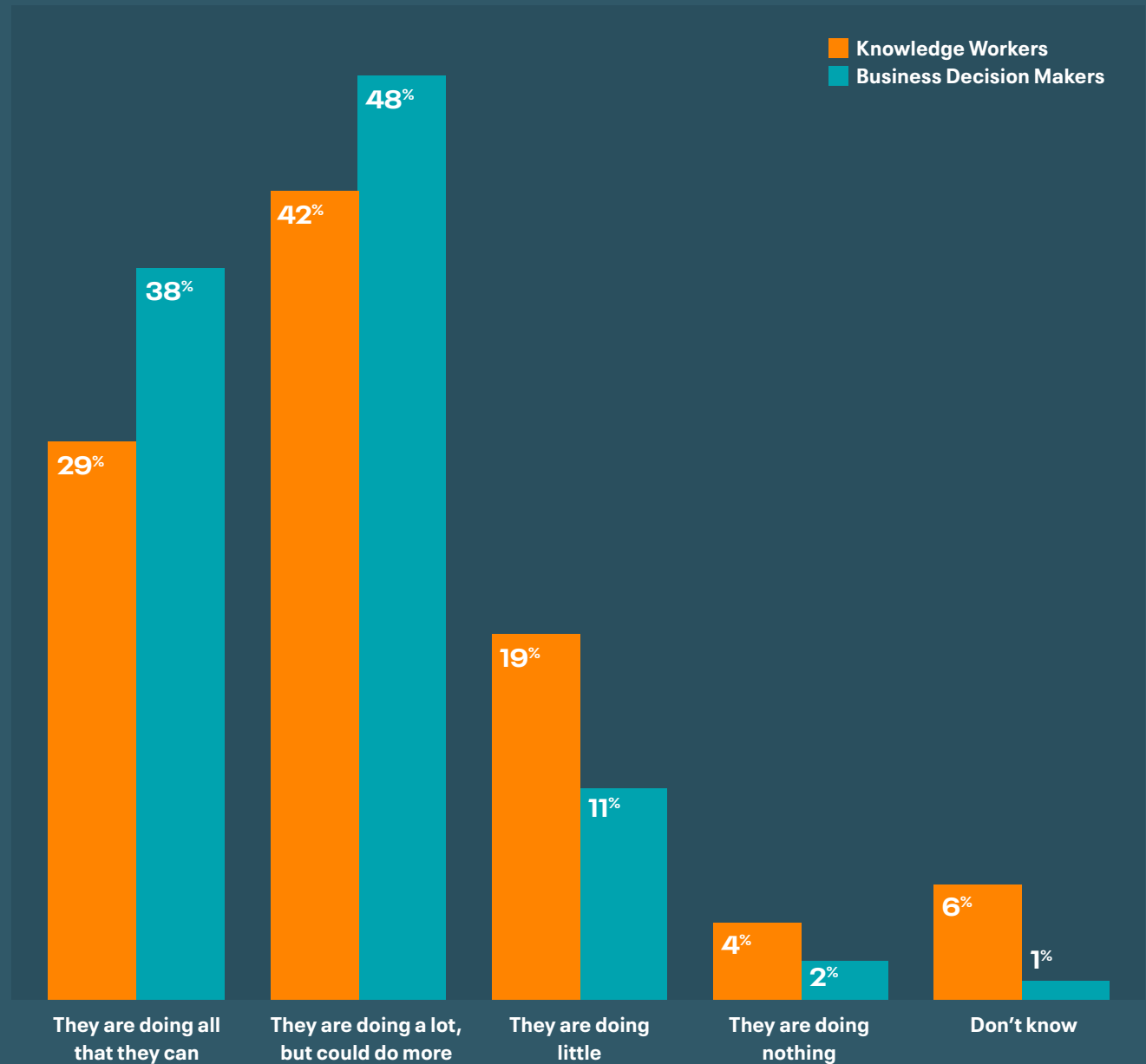
While 38% of business decision makers believe their companies are doing all they can to implement sustainable business practices, only 29% of knowledge workers agree.

### QUESTION TO KNOWLEDGE WORKERS:

To what extent do you believe that your employer is doing enough to implement sustainable business practices? Select one.

### QUESTION TO BUSINESS DECISION MAKERS:

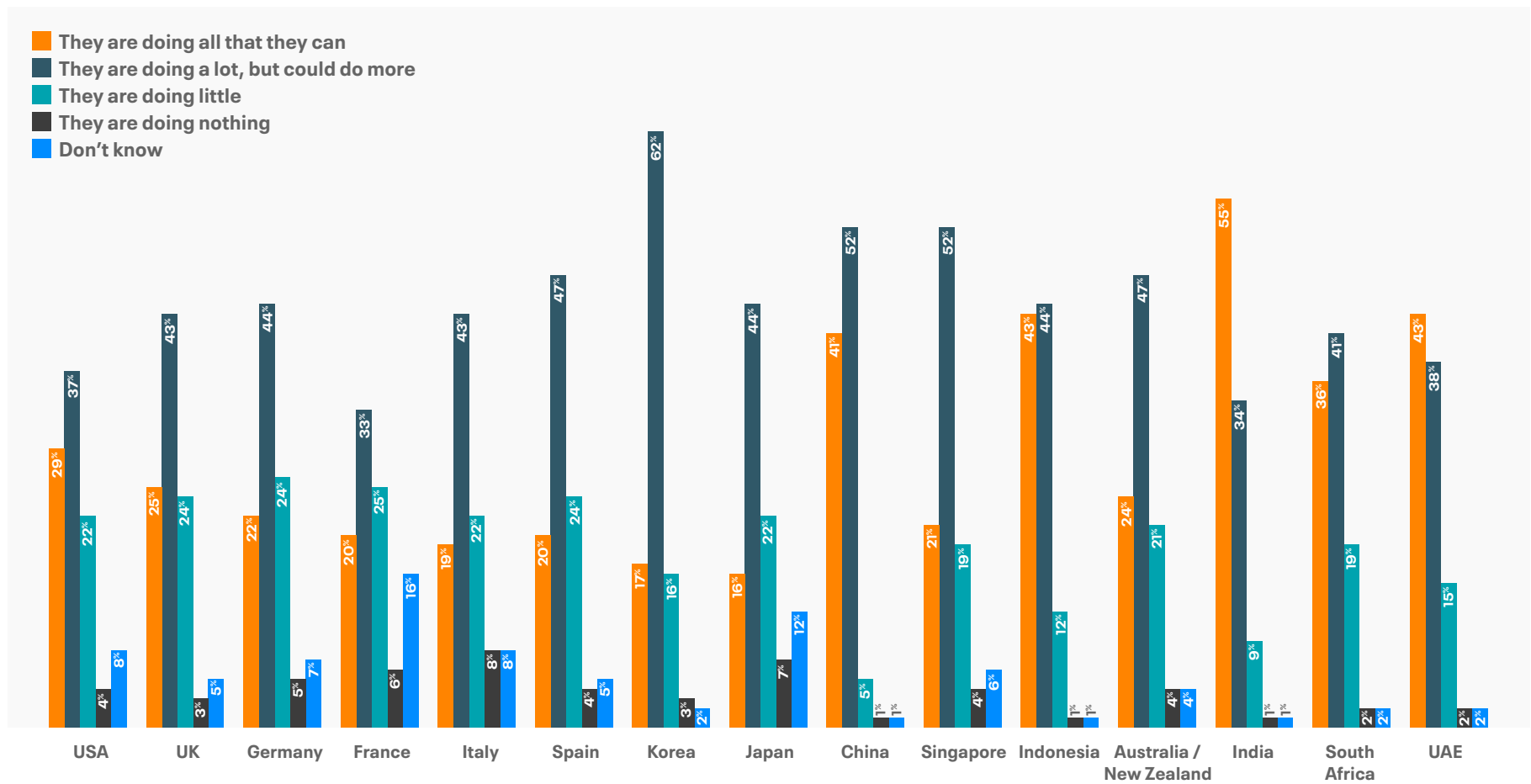
As a business decision maker, to what extent do you believe that your employer is doing enough to implement sustainable business practices? Select one.



The extent to which knowledge workers believe AI is being employed to create more sustainable business practices per geographical location:

**QUESTION:**

To what extent do you believe that your employer is doing enough to implement sustainable business practices? Select one.

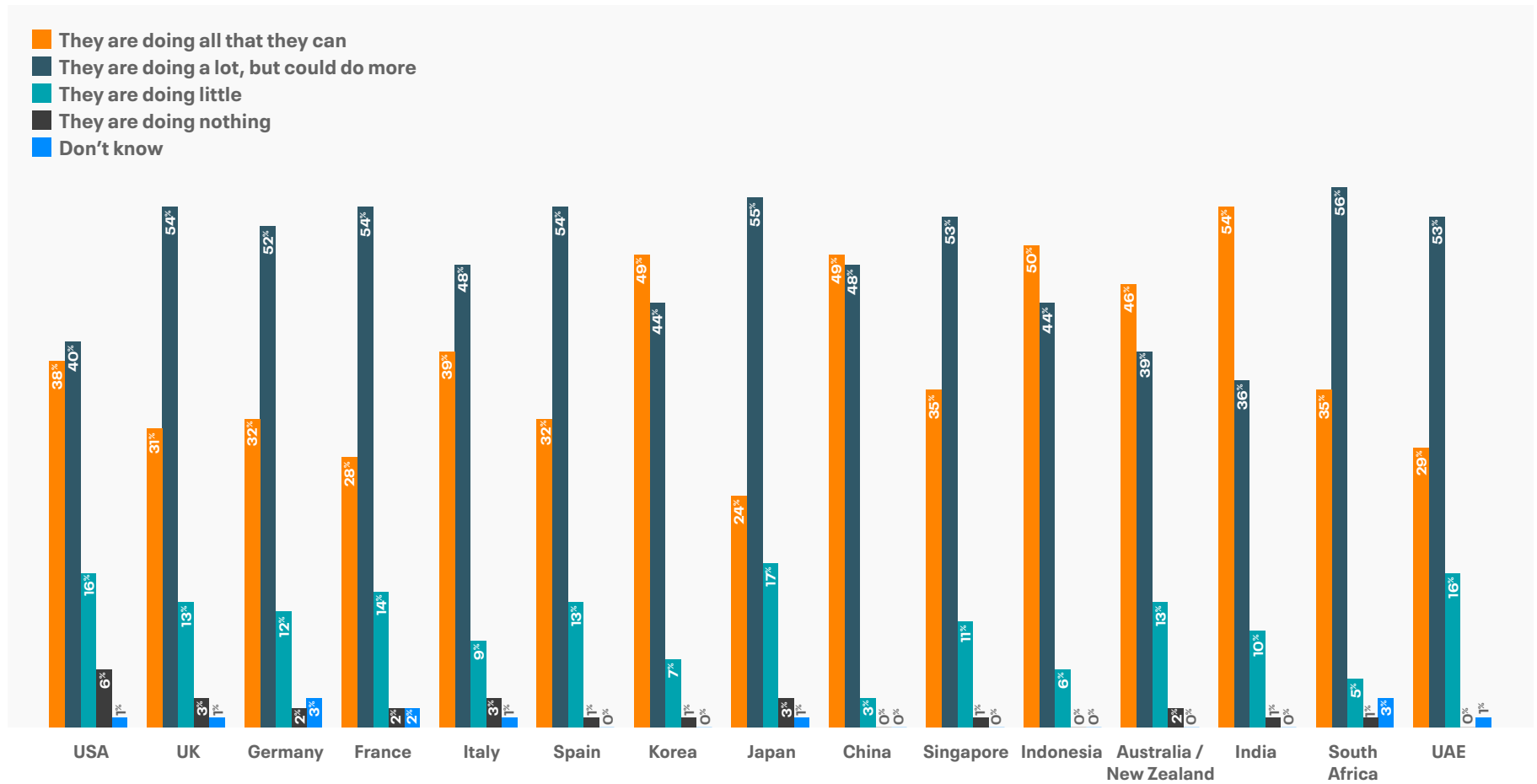




The extent to which business decision makers believe AI is being employed to create more sustainable business practices per geographical location:

**QUESTION:**

As a business decision maker, to what extent do you believe that your employer is doing enough to implement sustainable business practices? Select one.



And it seems that employees are aware of how technology can be used to improve their sustainability. Business decision makers believe that AI (63%), ML (50%), and Data Analytics (58%) can be used to a great extent to create more sustainable business practices, which is mirrored, although to a lesser degree, by knowledge workers.

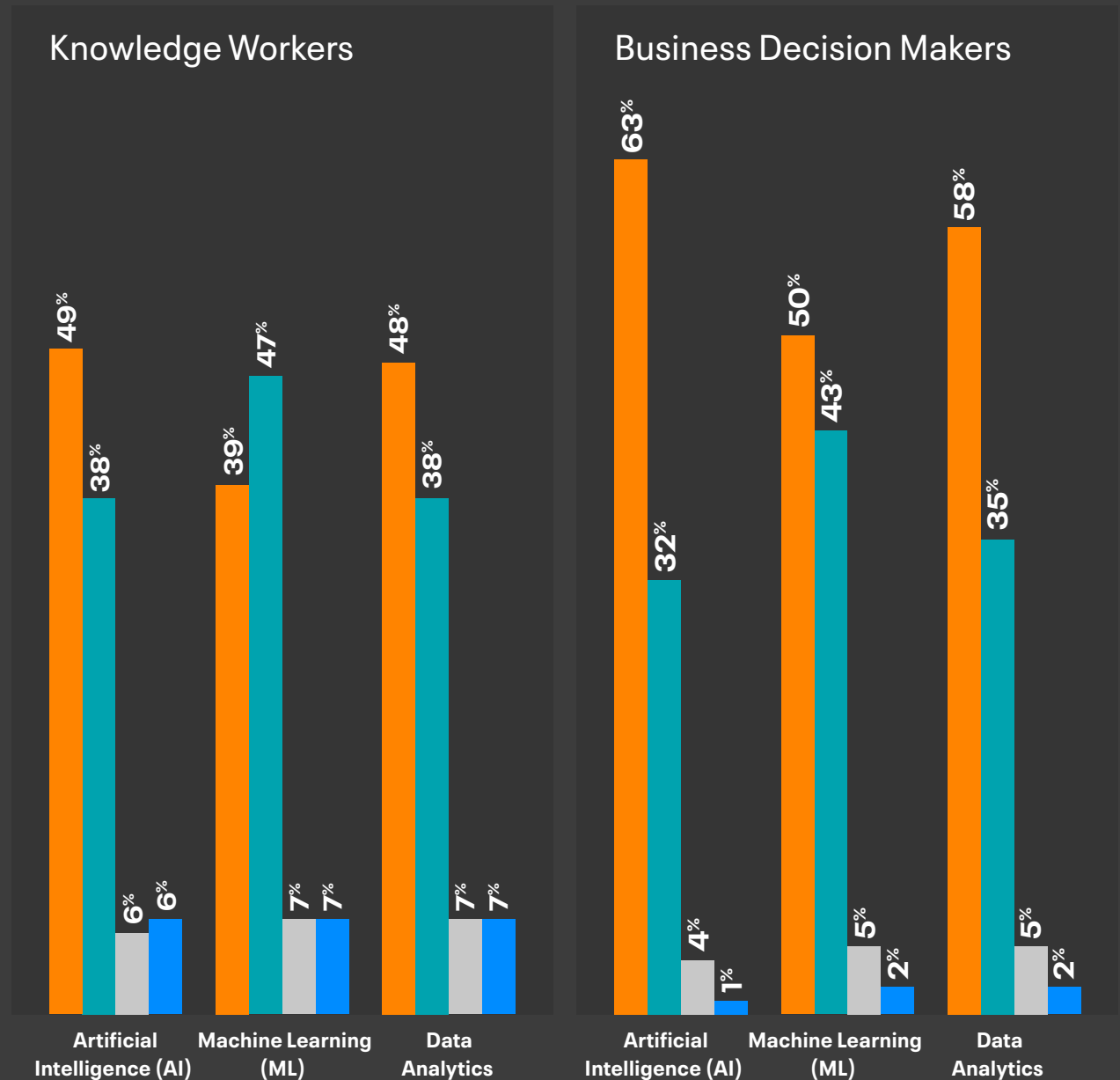
### QUESTION TO KNOWLEDGE WORKERS:

Without regard to your company, to what extent do you believe AI, ML, and Data Analytics can be employed to create more sustainable business practices?

### QUESTION TO BUSINESS DECISION MAKERS:

To what extent do you believe AI, ML, and Data Analytics can be employed to create more sustainable business practices?

- To a great extent
- To some extent
- To no extent at all
- Don't know



In practice, according to the best of their knowledge, business decision makers say that AI (61%), ML (49%), and Data Analytics (57%) are being used to help them make sustainable business decisions. However, not all knowledge workers agree with this. 26% say AI and ML are not being used to any extent, or they do not know that it is being used to make sustainable business decisions, and 20% say the same about Data Analytics. This could be down to a communication void, highlighting that decision makers need to take their employees along on the journey with them and communicate more clearly about what they are doing to improve sustainability. And the importance of this is clear, as 55% of knowledge workers and 72% of business decision makers who don't believe their company is doing enough also say this needs to change in the next 36 months.

### QUESTION TO KNOWLEDGE WORKERS:

You said that your company is not using one or more of AI, ML, or Data Analytics to any extent to inform its decisions, do you believe this needs to change in the next 36 months? Select one.

### QUESTION TO BUSINESS DECISION MAKERS:

You said you don't believe your company uses one or more of AI, ML, or Data Analytics to inform its sustainable business decisions. Do you believe this needs to change in the next 36 months? Select one.

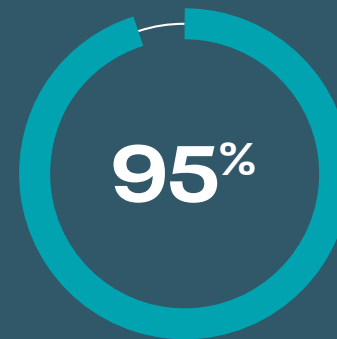


Knowledge workers

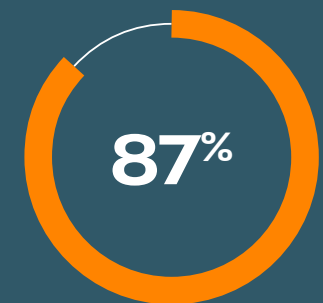


Business decision makers

	Knowledge workers	Business decision makers
Yes	55%	72%
No	28%	19%
Don't know	17%	10%



95% of business decision makers believe that AI can be employed to some or a great extent to create more sustainable business practices,



as do 87% of knowledge workers.

# Sustainability is core to survival

Industry no longer has the option to stand by. Companies that don't take action risk losing their competitive edge or even total failure.

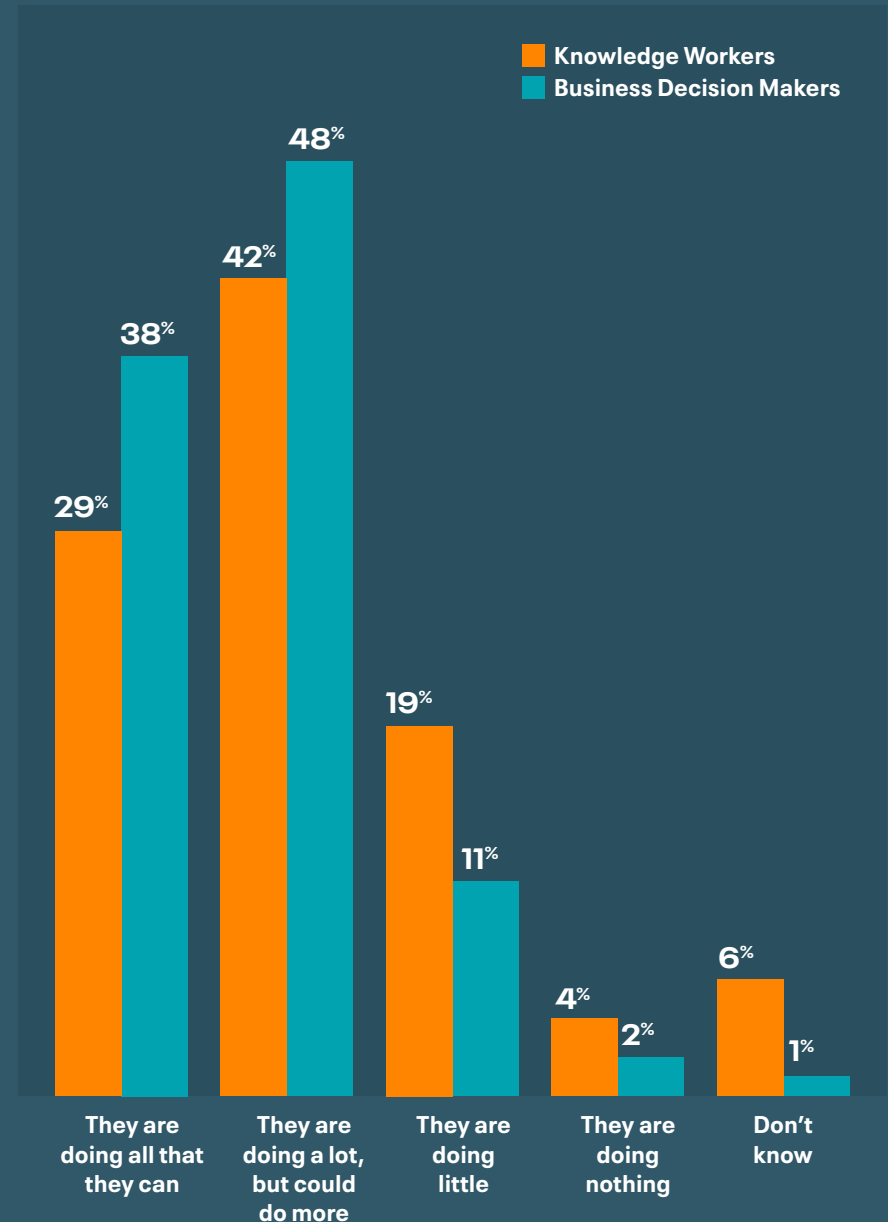
When asked what the impact would be if their company didn't start to using data to make more sustainable business decisions in the next 36 months, almost half of business decision makers (47%) and two fifths of knowledge workers (40%) revealed that they would see growth decline. Other consequences included the board coming under increasing pressure and the loss of business. But what's perhaps most interesting is that 23% of knowledge workers and 27% of business decision makers believe that employees would leave the business if nothing changed.

## QUESTION TO KNOWLEDGE WORKERS:

What do you think the impact would be if your company does not start to using the data it has to make more sustainable business decisions in the next 36 months? Select all that apply.

## QUESTION TO BUSINESS DECISION MAKERS:

What do you think the impact would be if your company does not start to using the data it has to make more sustainable business decisions in the next 36 months? Select all that apply.



Unfortunately, the potential consequences for business don't end with employees leaving. Almost half of business decision makers (48%) believe that it would be seriously disruptive, with a further 24% saying it could be business destroying, if it came to light that they had the data. Comparatively, 15% of knowledge workers believe it would be business destroying, while two fifths (40%) said it would be seriously disruptive.

### QUESTION TO KNOWLEDGE WORKERS:

In your opinion, what would the impact be on your business if it came to light that you had the data to make more sustainable business decisions but did not action it? Select one.

### QUESTION TO BUSINESS DECISION MAKERS:

In your opinion, what would the impact be on your business if it came to light that you had the data to make more sustainable business decisions but did not action it? Select one.

## Knowledge workers



15%

Business destroying



40%

Seriously disruptive



29%

Minor



9%

No effect



7%

Don't know

## Business decision makers



24%

Business destroying



48%

Seriously disruptive



23%

Minor



5%

No effect



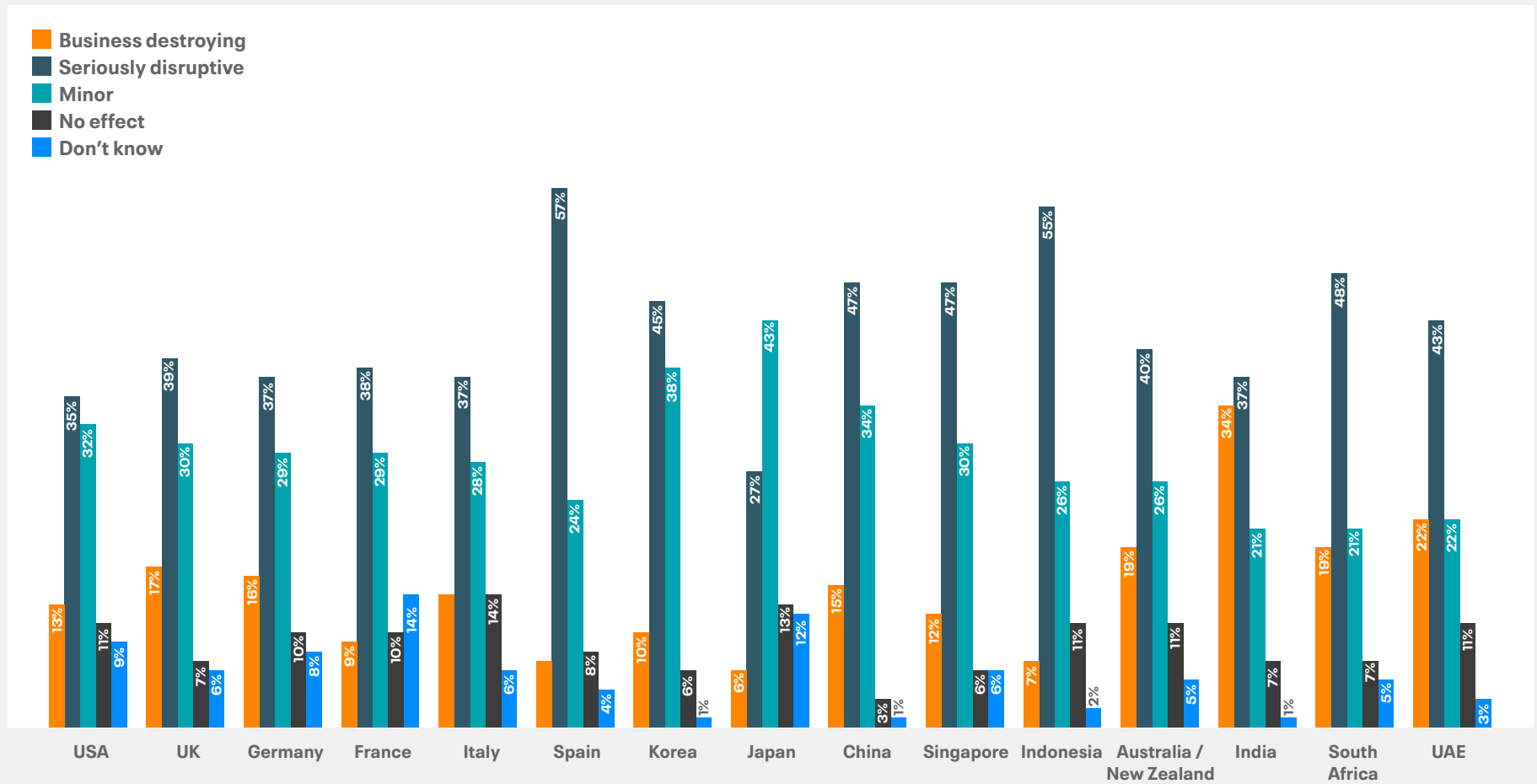
0%

Don't know

The impact knowledge workers believe it would have on business should it come to light that their company had the data to make sustainable business decisions but did not action it by geographical location:

### QUESTION:

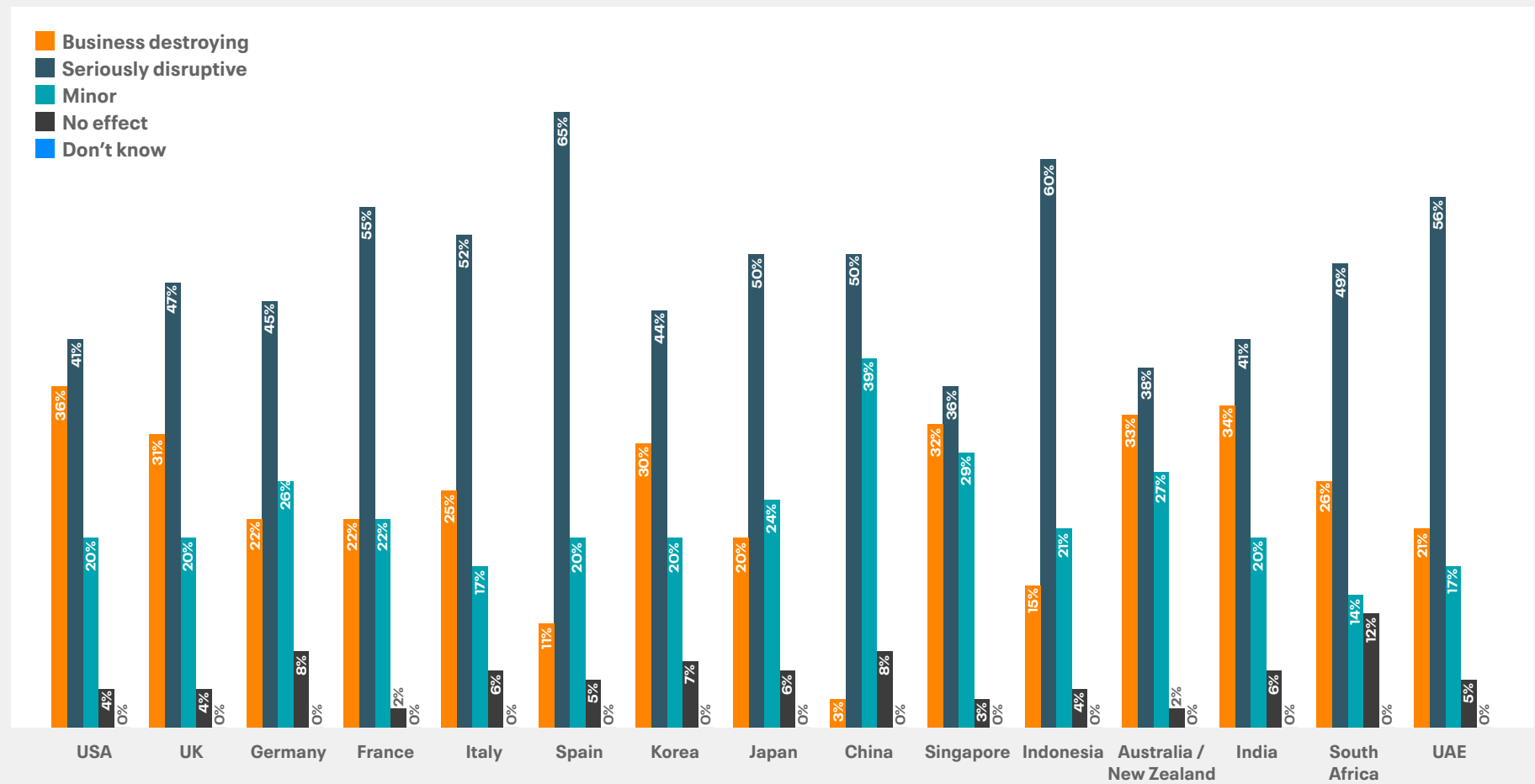
In your opinion, what would the impact be on your business if it came to light that you had the data to make more sustainable business decisions but did not action it? Select one.



The impact business decision makers believe it would have on business should it come to light that their company had the data to make sustainable business decisions but did not action it by geographical location:

### QUESTION:

In your opinion, what would the impact be on your business if it came to light that you had the data to make more sustainable business decisions but did not action it? Select one.



Romain Picard, Vice President EMEA, Cloudera:

**It's no longer just non-profits and governments that have to take action on sustainability. Across the world, private sector companies hold incredibly powerful sets of data, and even more powerful technology through which to extract intelligence from this data, that can enable them to make better decisions for their people, the communities they serve, and for the planet as a whole. The time has come to act on this information or face the consequences of inaction."**





# Turning good intentions into reality

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It is encouraging to see the resolve and determination of employees with regard to persuading their companies to do more to support their communities. This commitment and ambition could have a transformative impact.

However, implementing transformation programs to turn these good intentions into reality are often complex and extremely challenging. Our research has also explored these challenges in more detail to help us all understand how to avoid the common pitfalls and overcome the hurdles.

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# AI, ML, and Data Analytics are changing the way businesses operate, and they're already seeing the benefits

Both employers and employees say that technology improves accuracy and is saving time and money.

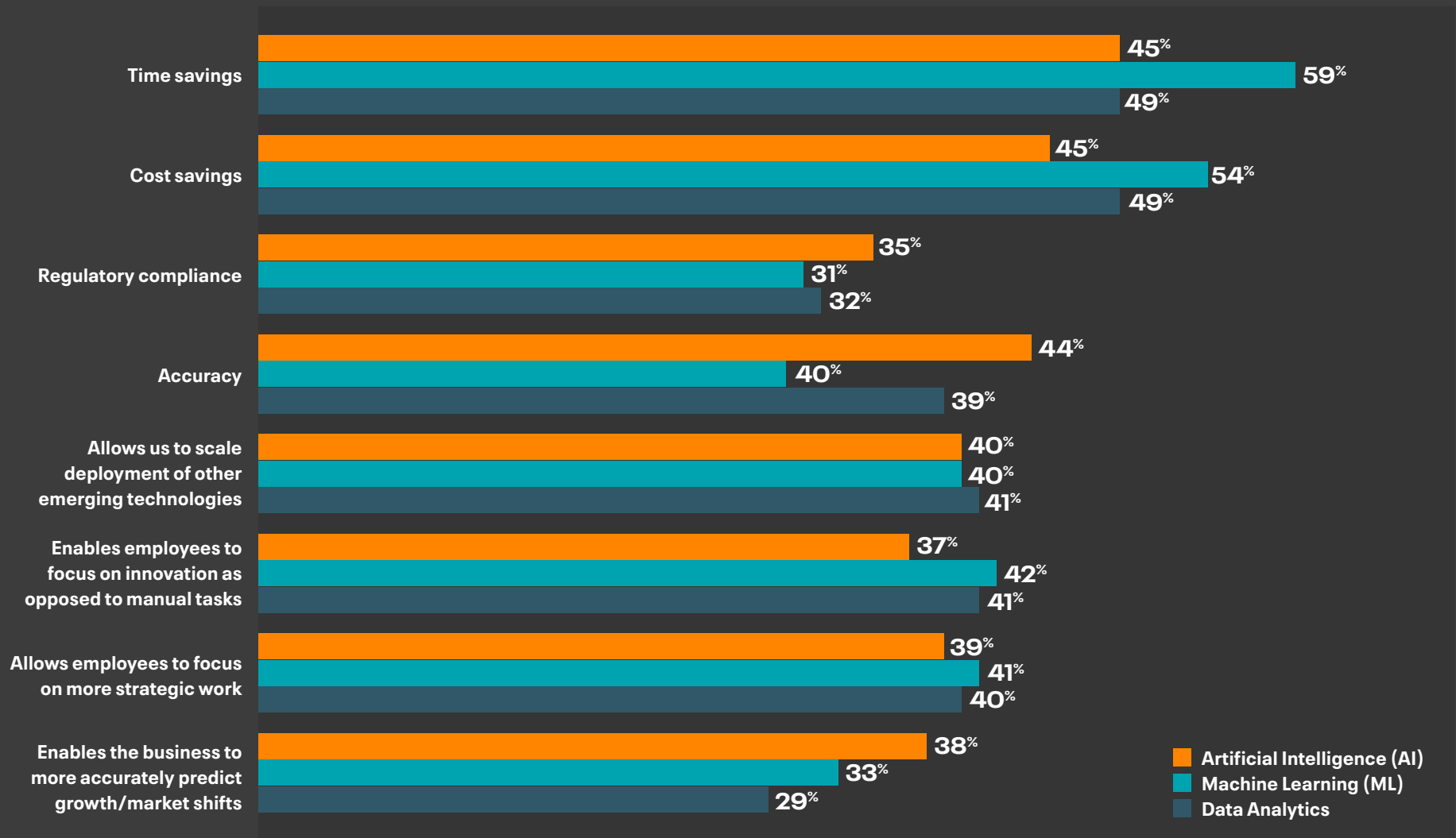
A huge positive from our research is that we have found an overwhelming majority of business decision makers are seeing the benefit of implementing transformation programs that include new technologies. 91% told us they're achieving success through existing AI programs, with 89% and 87% of business decision makers expressing the same opinion about Data Analytics and ML, respectively. These are huge results for technologies that are deemed to be relatively new for some.

Business decision makers say the top three benefits of AI are cost saving (45%), accuracy (44%), and allowing the company to scale deployment of other emerging technologies (40%). Knowledge workers also call out time saving (58%), cost saving (56%), and accuracy (40%) as the top three benefits of AI. And both groups identify time and cost savings as the main benefits of ML and Data Analytics.



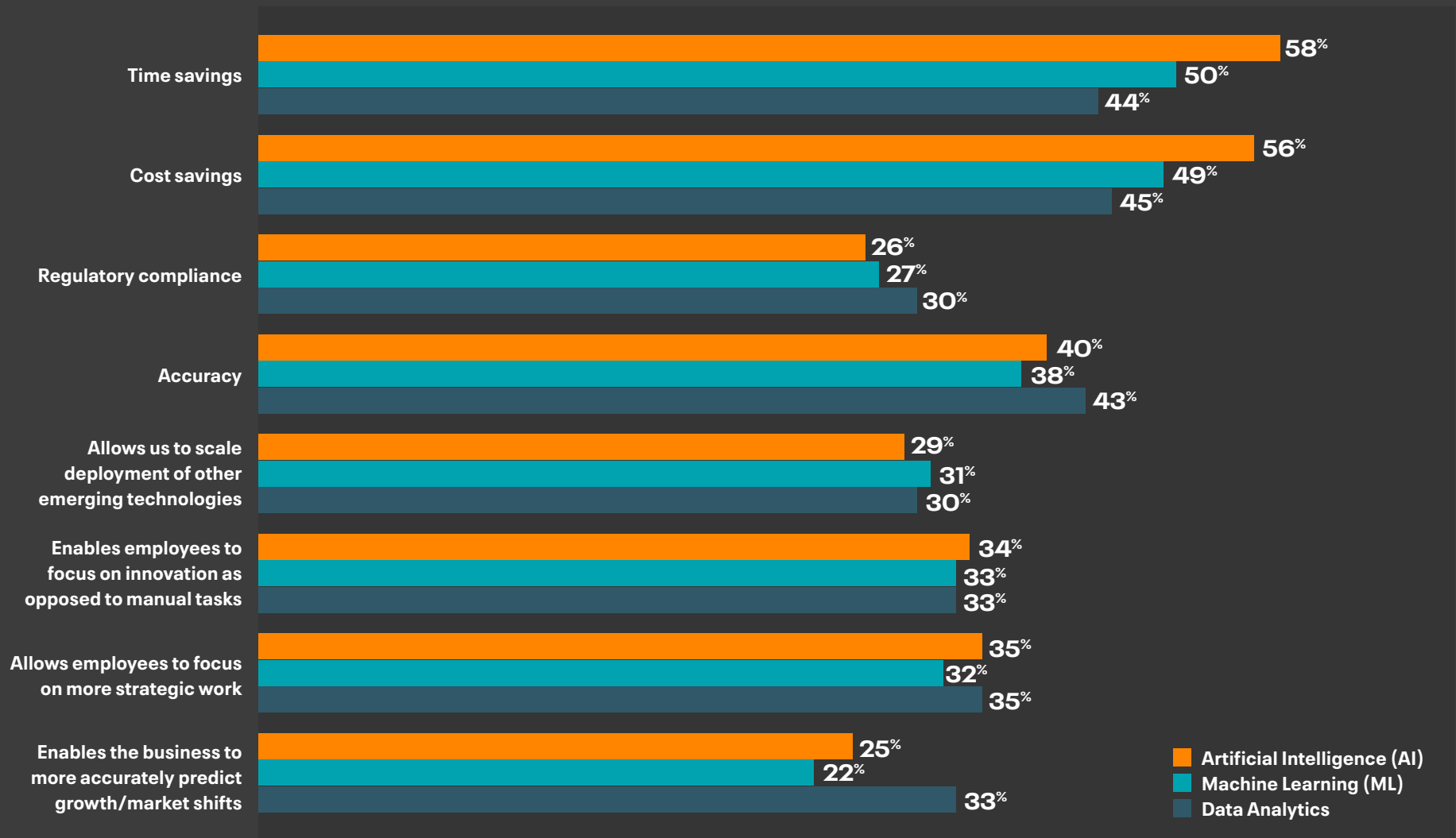
## QUESTION TO BUSINESS DECISION MAKERS:

In your opinion, what are the top benefits that these deliver for your organization?



## QUESTION TO KNOWLEDGE WORKERS:

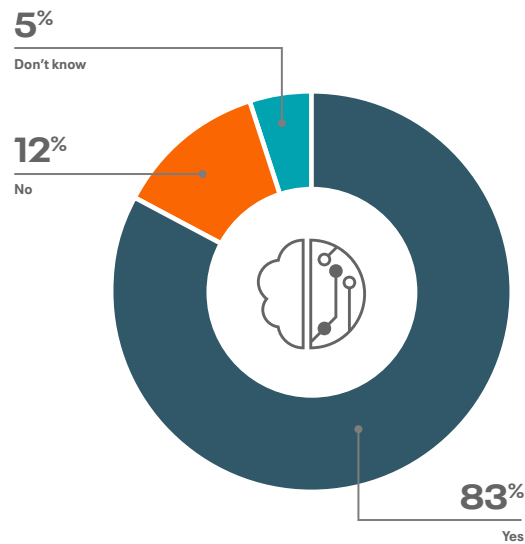
What do you believe the biggest benefits will be to your company from?



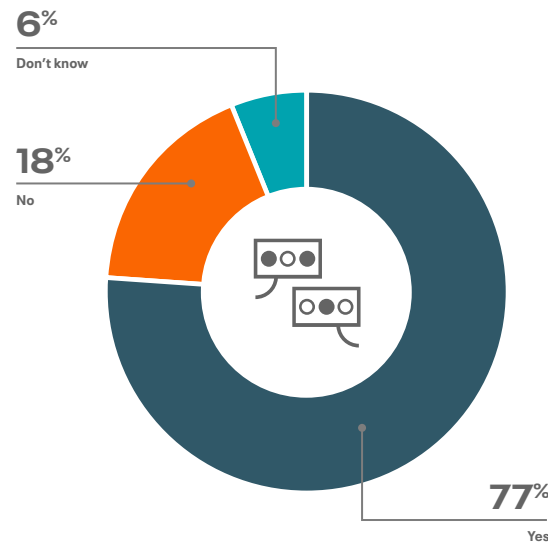
It is therefore no surprise that business decision makers say they have a clear plan to implement new AI (83%), ML (77%), and Data Analytics (82%) programs/solutions into their organization in the next 18 months.

### QUESTION:

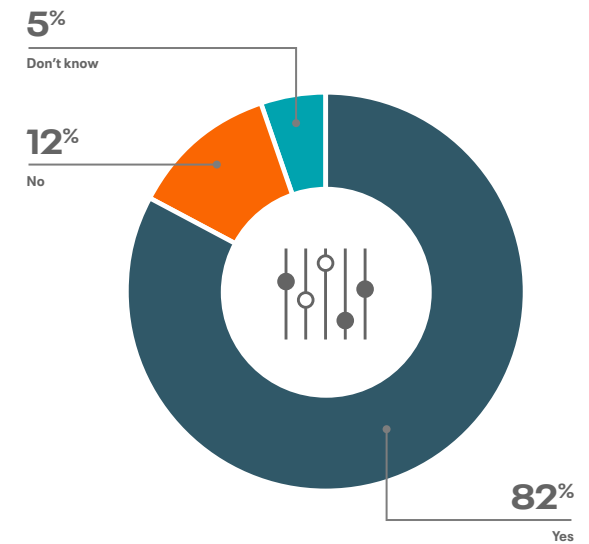
Is there a clear plan to implement new AI, ML, or Data Analytics programs/solutions into your organization in the next 18 months?



Artificial Intelligence (AI)



Machine Learning (ML)



Data Analytics

While benefits are being realized, new implementations are not without challenges. According to business leaders, budgetary constraints (45%), negativity from existing staff members to the changes being made (40%), and the ability to scale the solutions (40%) are the three biggest obstacles when implementing AI. In contrast, while a similar number of knowledge workers still view budgetary constraints (42%) and negativity from staff members to the changes being made (41%) as leading challenges, over two fifths (42%) also cite management's lack of understanding in the tasks they have to perform.

**Notwithstanding the recognition of the benefits of technology, around a third of knowledge workers believe that the top three potential negative impacts of their company's further adoption of AI technology are: disruption due to change affecting productivity (34%), redundancies (34%), and having to retrain (33%).**

### QUESTION:


What are the biggest challenges when implementing Artificial Intelligence (AI) within your organization? Select the three most applicable.

40% 

Negativity from existing staff members to the changes being made

39% 


Budgetary constraints

39% 


Scaling the solutions

38% 

Internal communications about the solutions being implemented

34% 

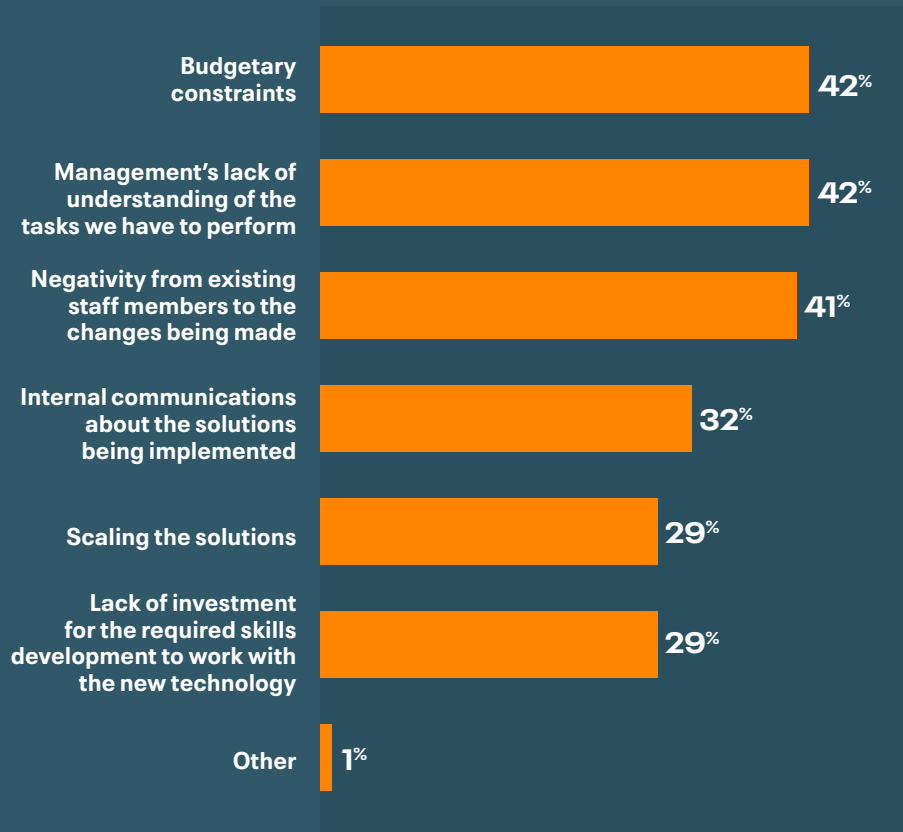
Lack of understanding at board level

31% 

Retraining staff for new roles relating to changing technologies

## QUESTION TO KNOWLEDGE WORKERS:

What, in your opinion, are the biggest challenges when implementing Artificial Intelligence (AI) within your organization, as it relates to your working experience? Select the three most applicable.



Although these challenges can be difficult to overcome, our research does highlight where problems can arise so these issues can be prioritized in future implementations.

Romain Picard, Vice President EMEA, Cloudera:

**“From experience, working with our customers, we know for an organization to adopt AI with any degree of success it must have a coherent and active strategy. A strategy that is communicated to all parties and controlled centrally rather than executed piecemeal. We believe businesses need to consider the use of AI holistically, so that entire processes are reimagined, along with the redesign of tasks to blend machine and employee skills. This means engaging each employee, department, and line of business managers in the process.”**

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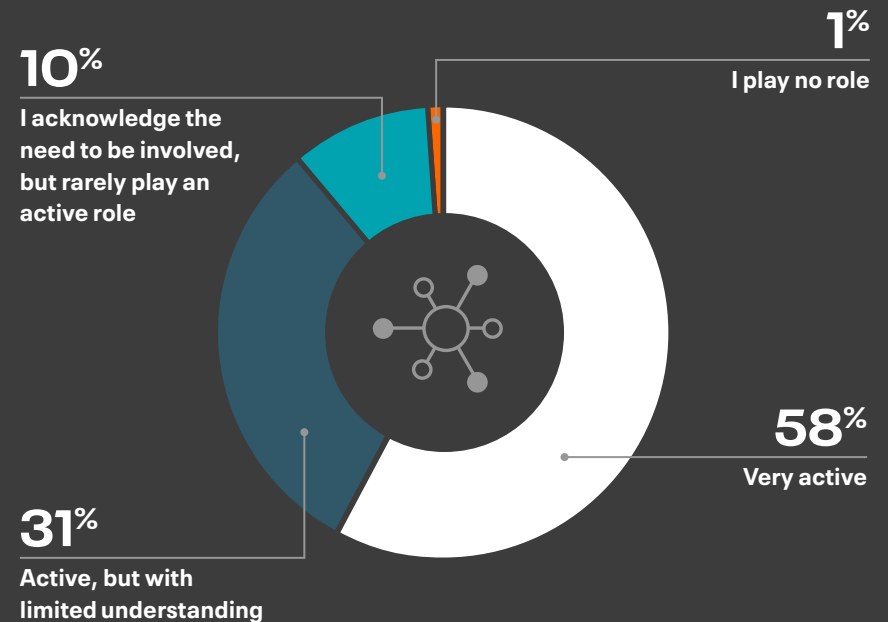
# Improve understanding to reduce risk

Those in power are making active decisions regarding AI, ML, and Data Analytics, but admit they often do so with limited understanding.

Almost a third of business decision makers (31%) say that they play an active role in decision making about the implementation of AI, ML, and Data Analytics in their organization but are doing so with limited understanding. Failure to realise the full benefits or appreciate the knock-on consequences of implementation could put their companies at risk.

## QUESTION TO BUSINESS DECISION MAKERS:

What role do you play in regard to the decisions made about the implementation of AI, ML, and Data/Data Analytics in your organization? Select one.

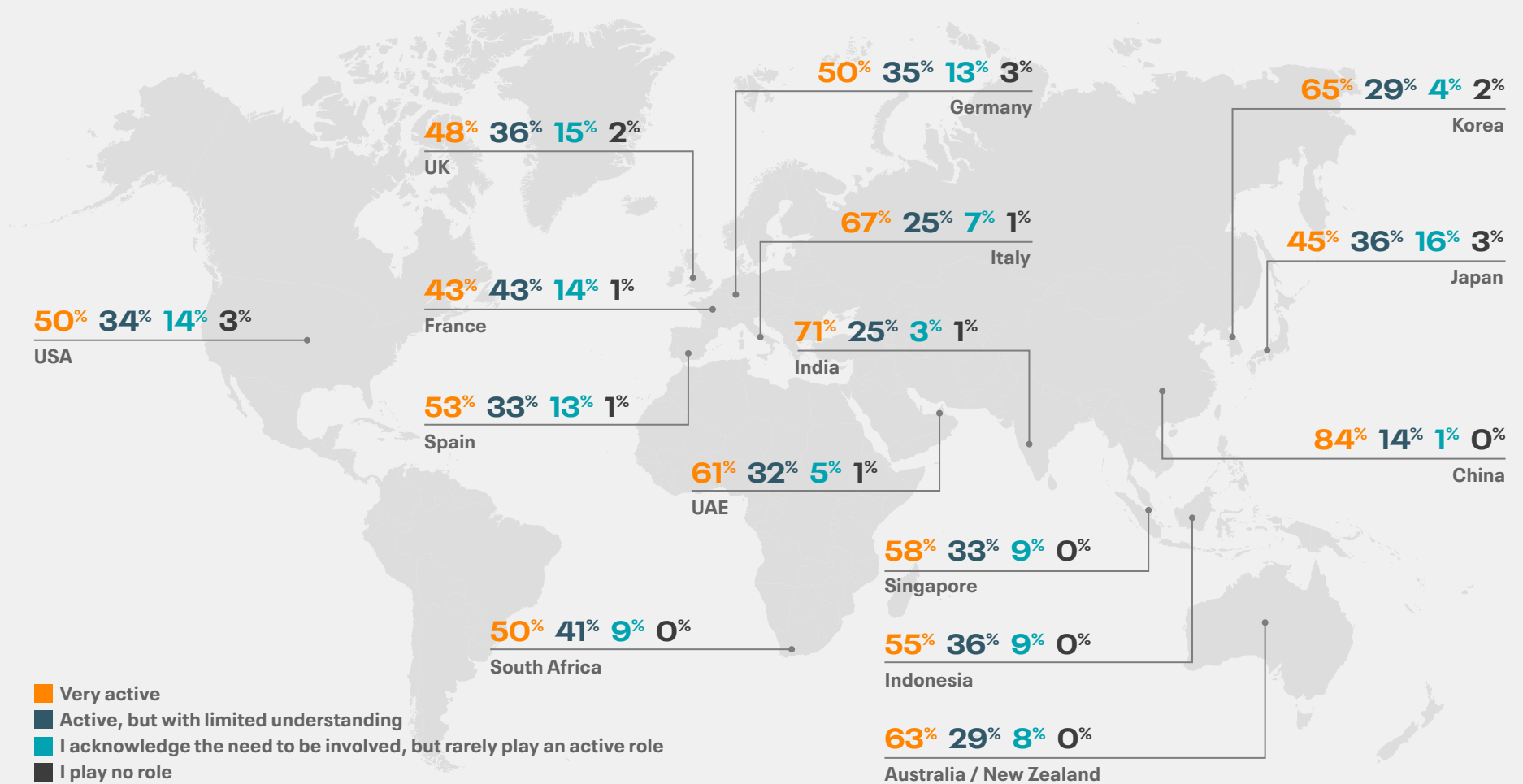




Globally, business decision makers have varying views of how active they are in regard to the decisions made about the implementation of AI, ML, and Data/Data Analytics in their businesses.

### QUESTION:

What role do you play in regard to the decisions made about the implementation of AI, ML, and Data/Data Analytics in your organization? Select one.



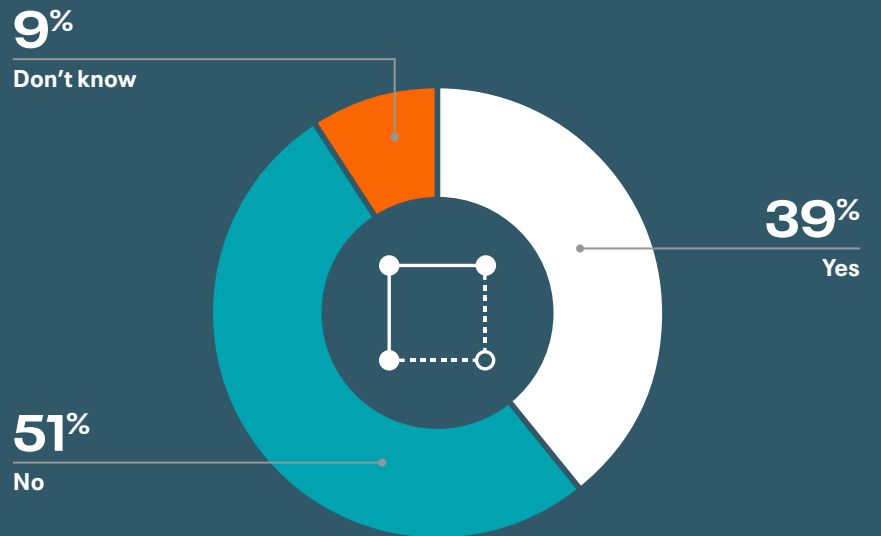
UOB comment:

**As AI adoption became more prevalent throughout our organization, we quickly came to the realization that we would need to invest in skilling up our employees from the board to the ground floor in order to maximize our return on investment, while cutting risk. We created the “Better U” training program, which has helped us to upskill 26,000 staff. As a result, we’ve been able to innovate at an unprecedented pace — delivering value to the business and the communities we serve.”**

Of those that say they act with limited understanding, 39% say this is because they believe the use of AI, ML, and Data Analytics is of no consequence to them or their department. Again, this highlights the importance of communicating the role of these technologies in achieving business objectives, so people can make better-informed decisions.

**QUESTION TO BUSINESS DECISION MAKERS:**

Is this because you believe the use of AI, ML and, Data Analytics are not of consequence to you/your department? Select one.



# Human behavior is the driving force in the new digital revolution

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Attitudes towards technology, data, and how technology should be used are rapidly and fundamentally changing.

It's long been said that employees fear the impact that technology may have on their jobs. While there's no doubt that for a small percentage of people this may be true, our research reveals a new attitude towards technology, specifically AI, and the willingness of people to retrain to take on new job roles. What's more is that employees, as people, are starting to see the potential wider impact technology can have outside of the business and are starting to question how technology can be used to do more good for the community around them.

“Ultimately, it is humans and their behavior that **drive business forward** — enabled by technology. And it's time for **business to support positive changes** for people and for profit.”



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# Change is afoot, but welcome

Employees believe their job roles are about to change, but instead of fear there's optimism.

Over half of knowledge workers revealed that their daily tasks have been augmented or automated by AI (55%) and ML (51%) in the last 12 months, while almost two thirds (63%) have been augmented or automated by Data Analytics.

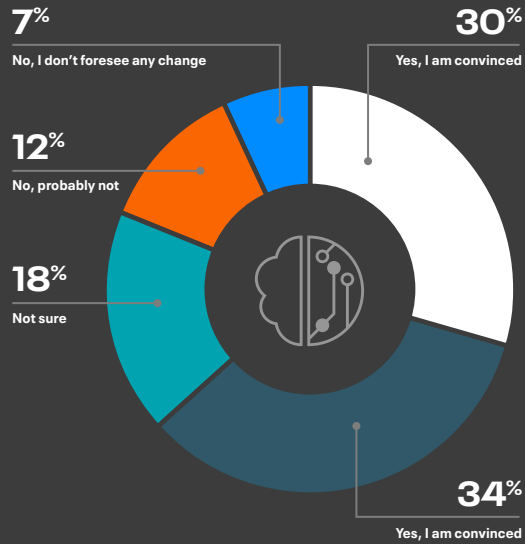
Knowledge workers also say they believe their jobs will change in the next 36 months. This may be down to the fact that most of these employees said their company has communicated that their jobs will be affected by the use of AI (83%), ML (82%), and Data Analytics (78%). However, almost three quarters (74%) believe their jobs will change in the next three years due to AI, 63% ML, and 69% Data Analytics.

Around half of business decision makers believe their employees, to a great extent, have the right skills to work effectively alongside AI (56%), Data Analytics (55%), and ML (46%) technologies in the next 36 months. The positive news is that these leaders are not wrong. Four in five (80%) knowledge workers said they would feel comfortable with taking on a new job role due to AI/ML/Data Analytics.

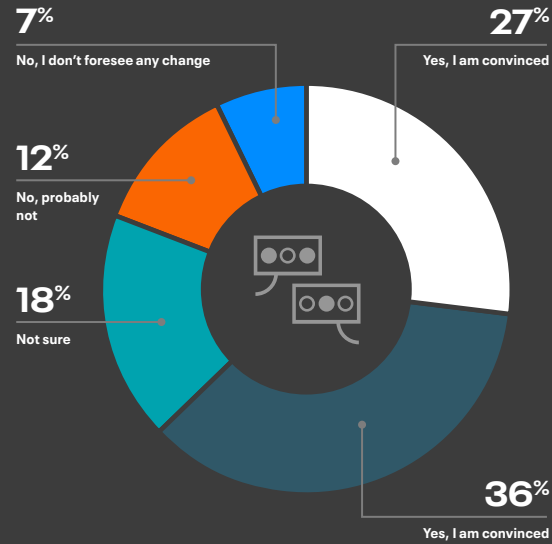


## QUESTION TO KNOWLEDGE WORKERS:

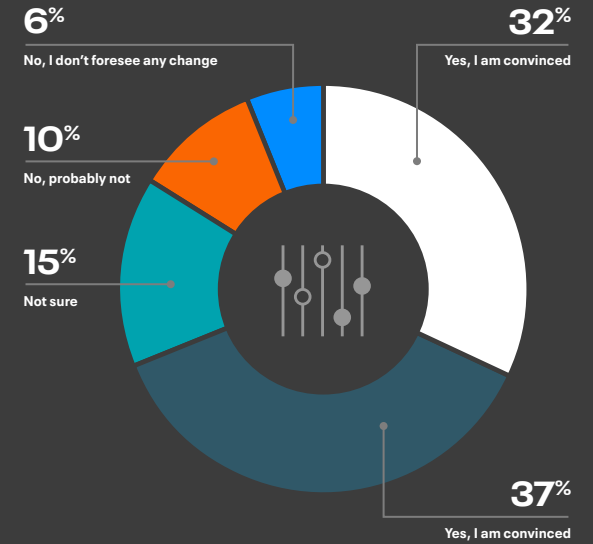
Do you believe your role will change in the next 36 months due to AI/ML/Data Analytics technologies?



Artificial Intelligence (AI)

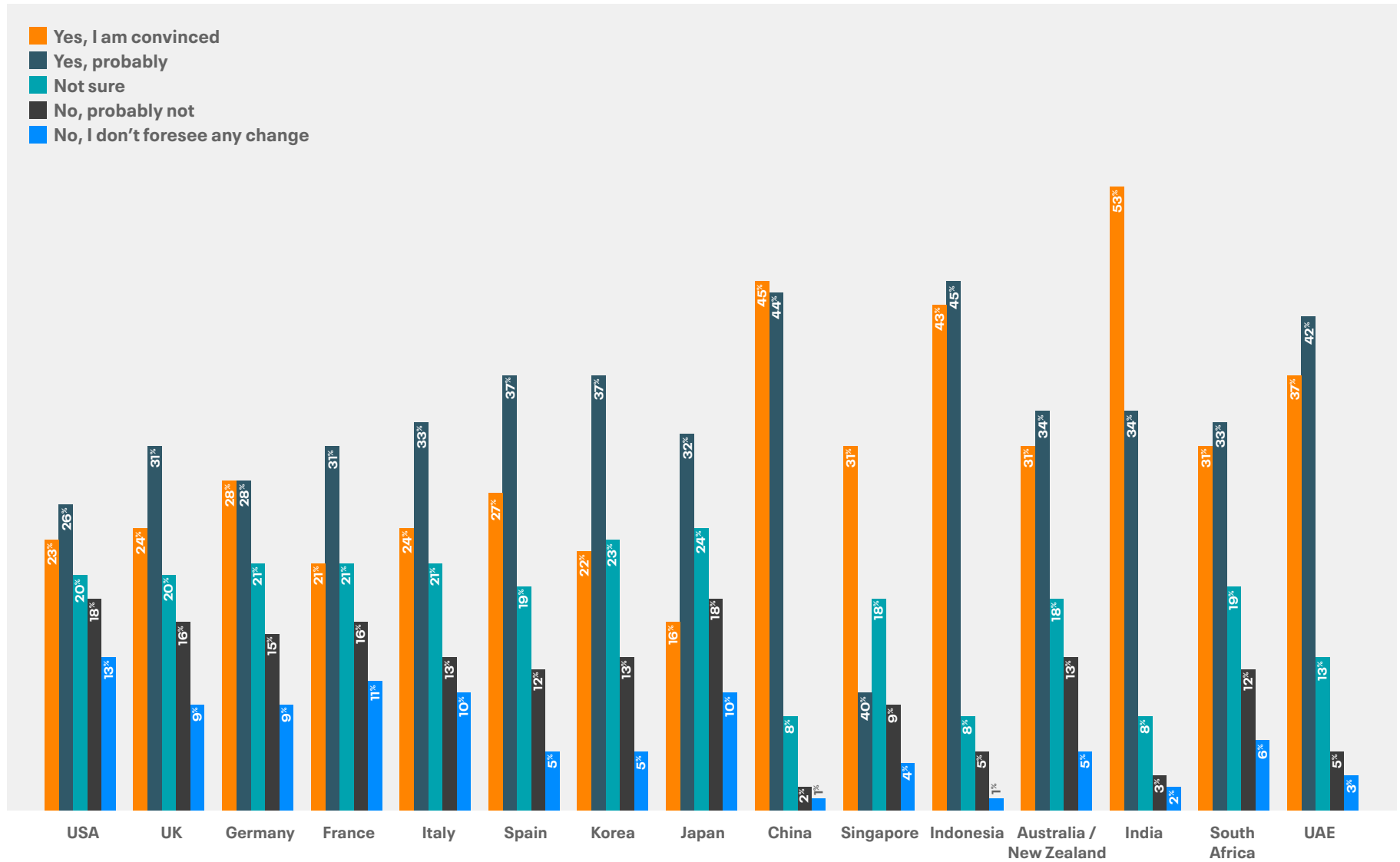


Machine Learning (ML)

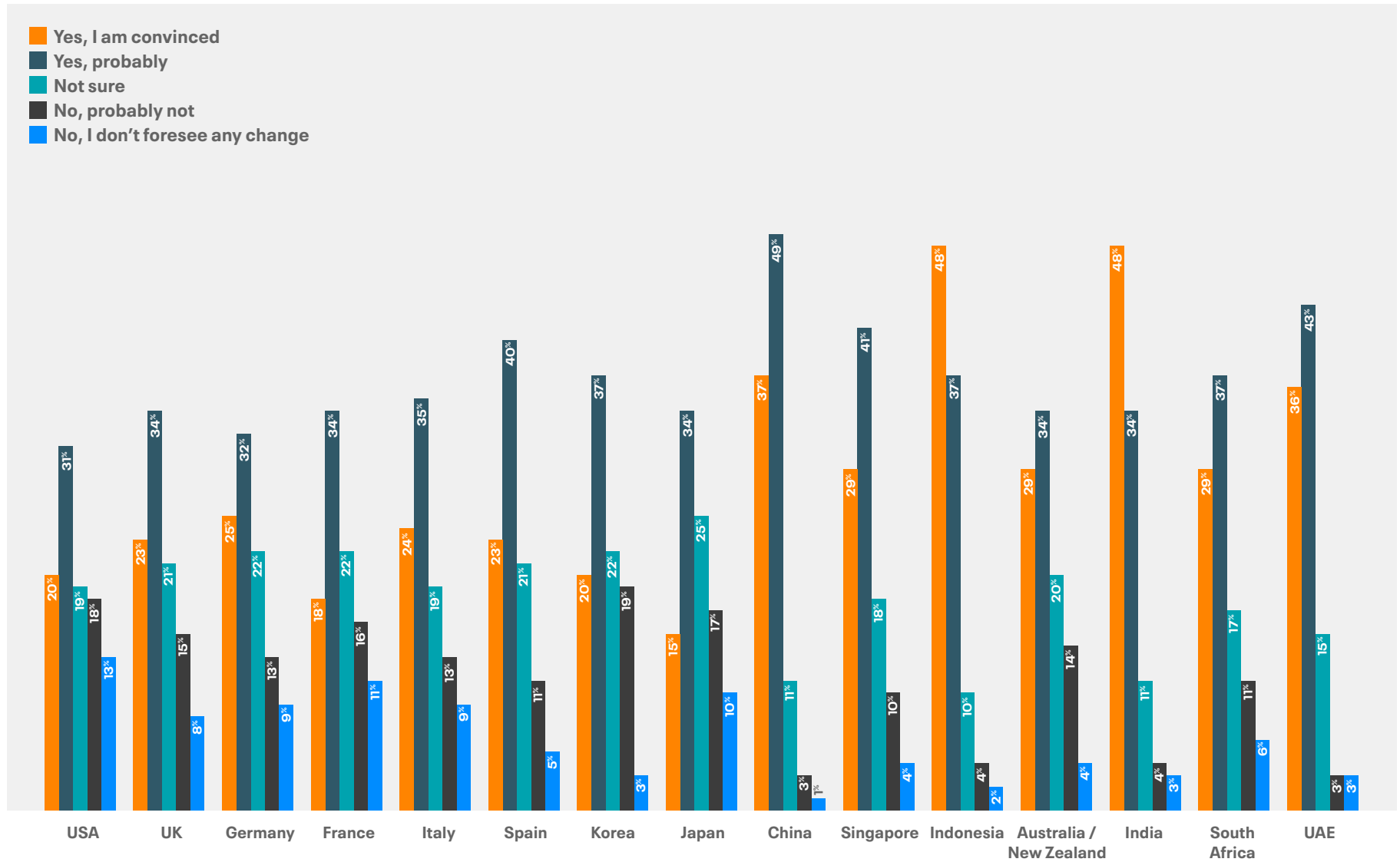


Data Analytics

Knowledge workers who believe their role will change in the next 36 months, due to AI — based on geographical location.

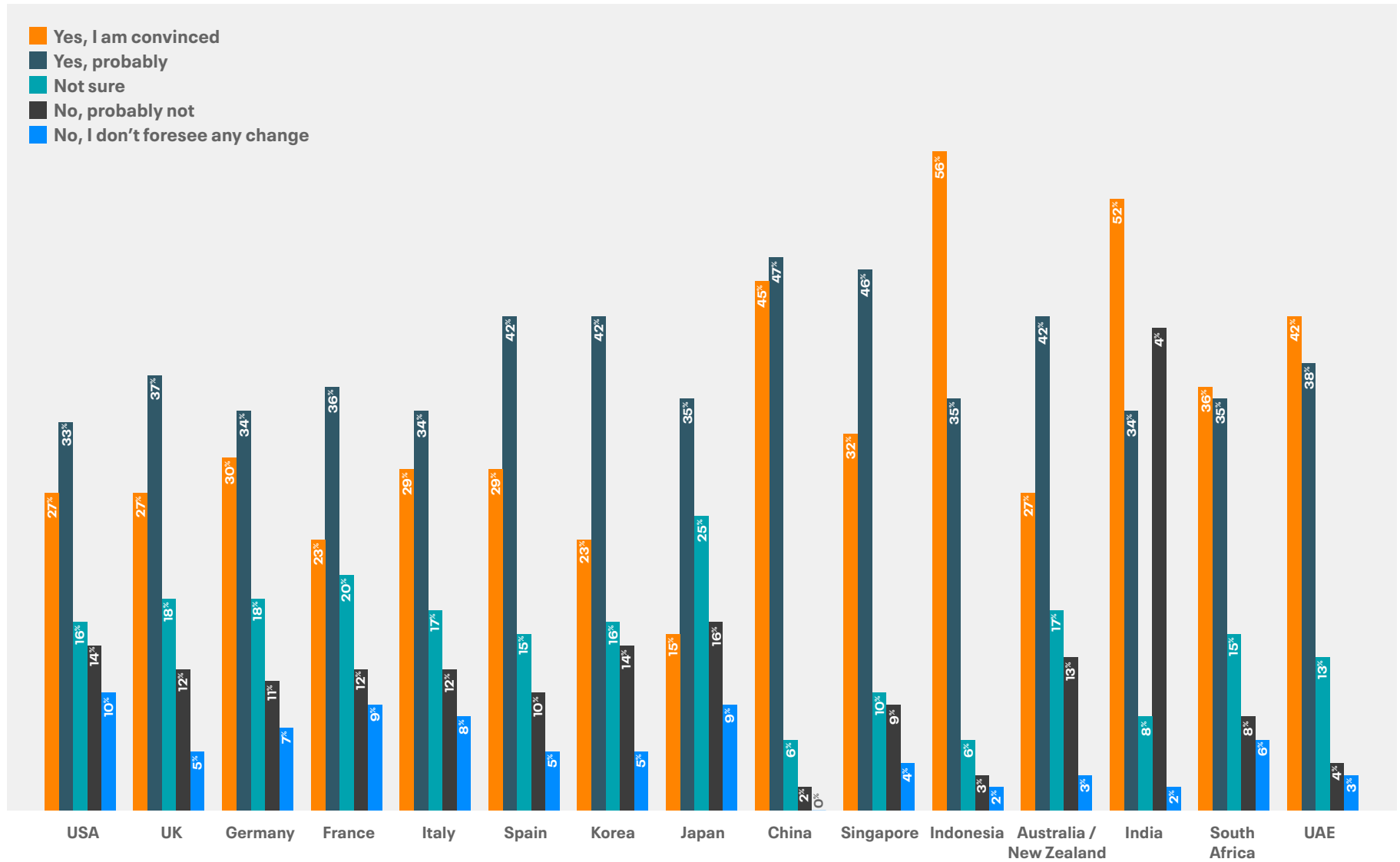


Knowledge workers who believe their role will change in the next 36 months, due to ML — based on geographical location.



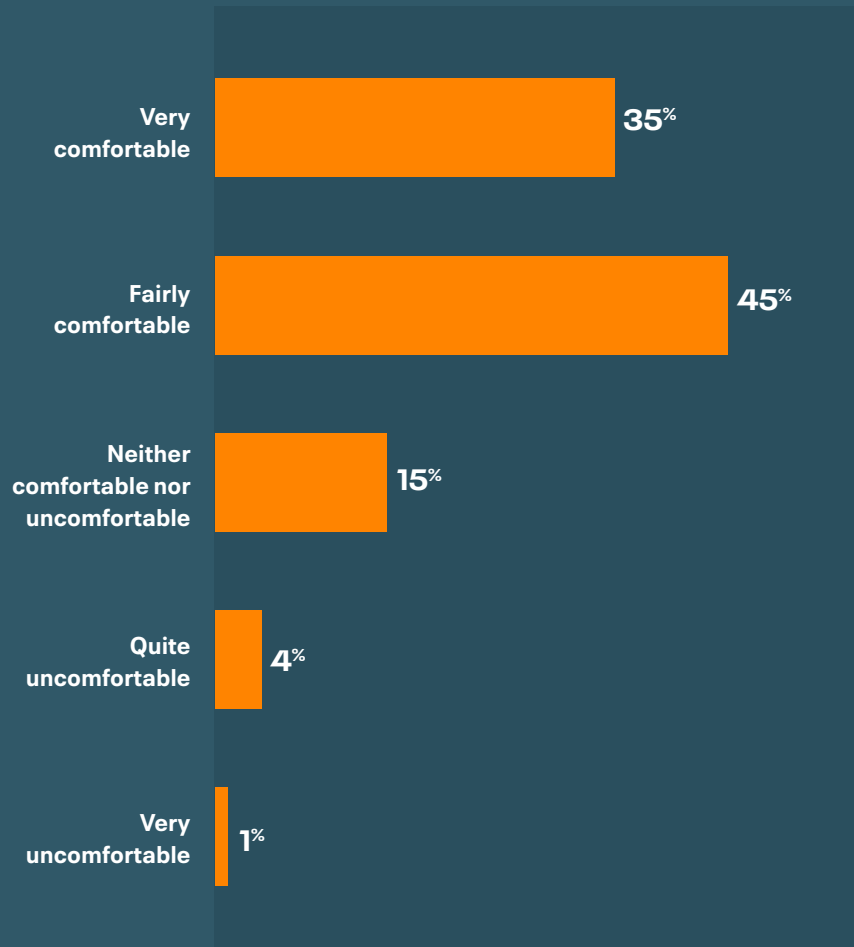


Knowledge workers who believe their role will change in the next 36 months, due to Data Analytics — based on geographical location:



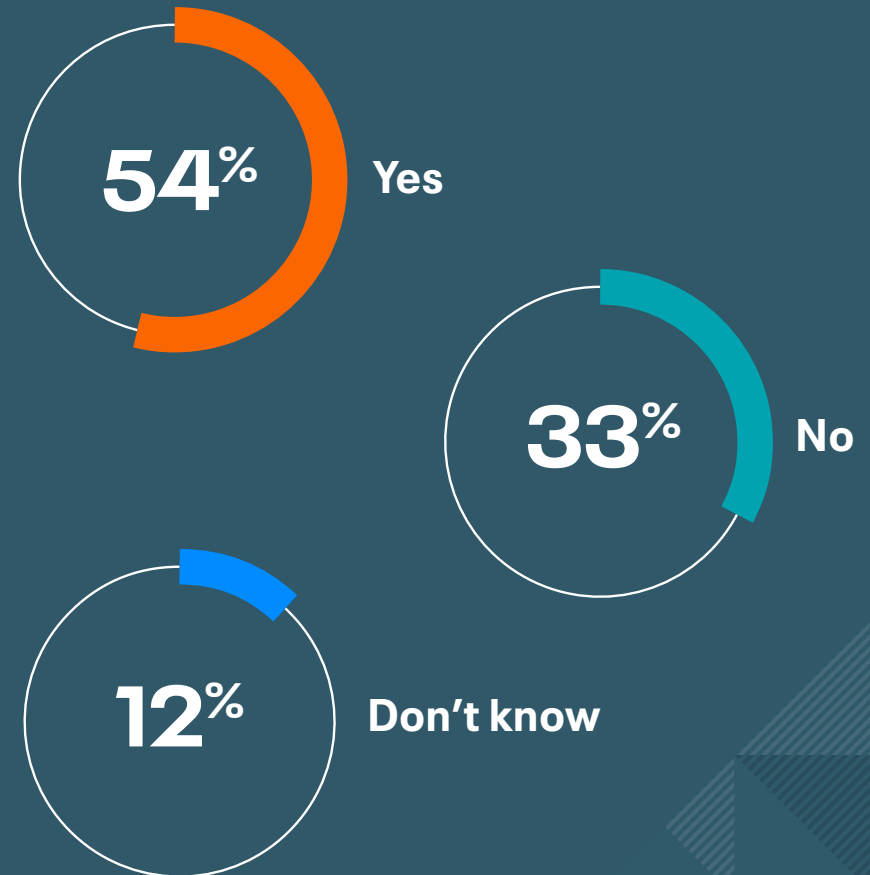
### QUESTION TO KNOWLEDGE WORKERS:

How comfortable would you be with taking on a new job role due to AI/ML/Data Analytics job roles? Select one.

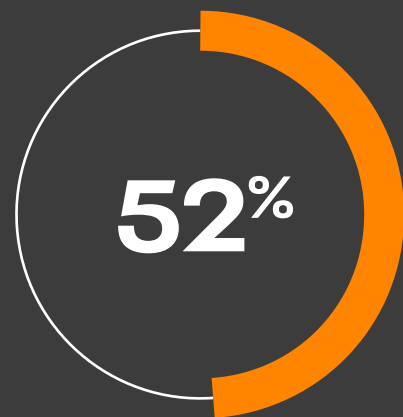


### QUESTION TO KNOWLEDGE WORKERS:

Is this because you feel that your organization hasn't provided you with opportunities to acquire new skills to remain employable? Select one.



Only **5% of knowledge workers** feel uncomfortable about job role changes in the next 36 months.



And of those, **52%** say it's because their organizations haven't provided them with opportunities to acquire new skills to remain employable.

“The undeniable truth is that the world has changed significantly in the last two years. Global issues like **climate change** and the **pandemic** have shown people that nothing stays the same. As humans, and business leaders we have all become more **prepared to change and adapt**, no matter how uncomfortable it may be to do so. It's for this reason I believe so many companies and employees are saying they are **so much more comfortable working alongside AI** than they might have been before.”

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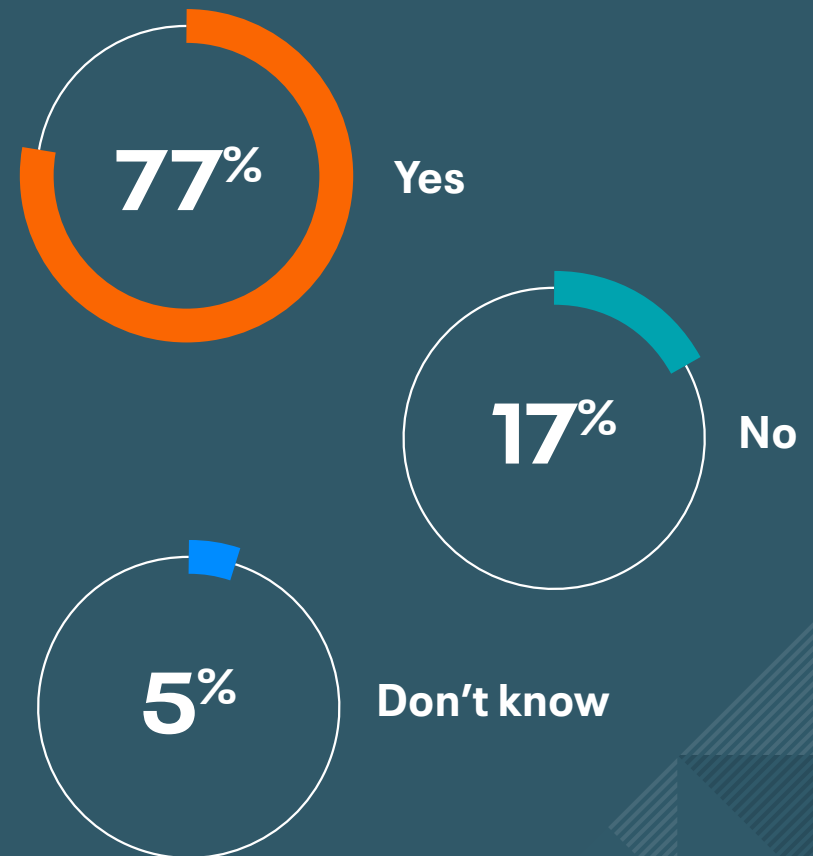
# Investment in reskilling is critical

Businesses are stepping up to reskill employees and communicate change.

There has been an explosion in the volume of data that is now available to businesses, and working with and alongside it has become a common part of many job roles. It appears that as technology advances, businesses are taking the time to reskill their employees to get the most from it. Our research found that more than three quarters of knowledge workers (77%) say their companies are investing enough in reskilling them and their colleagues to work alongside AI/ML/Data Analytics technologies. This is encouraging and also seems to give business decision makers more confidence that their employees have the skills they need.

## QUESTION TO KNOWLEDGE WORKERS:

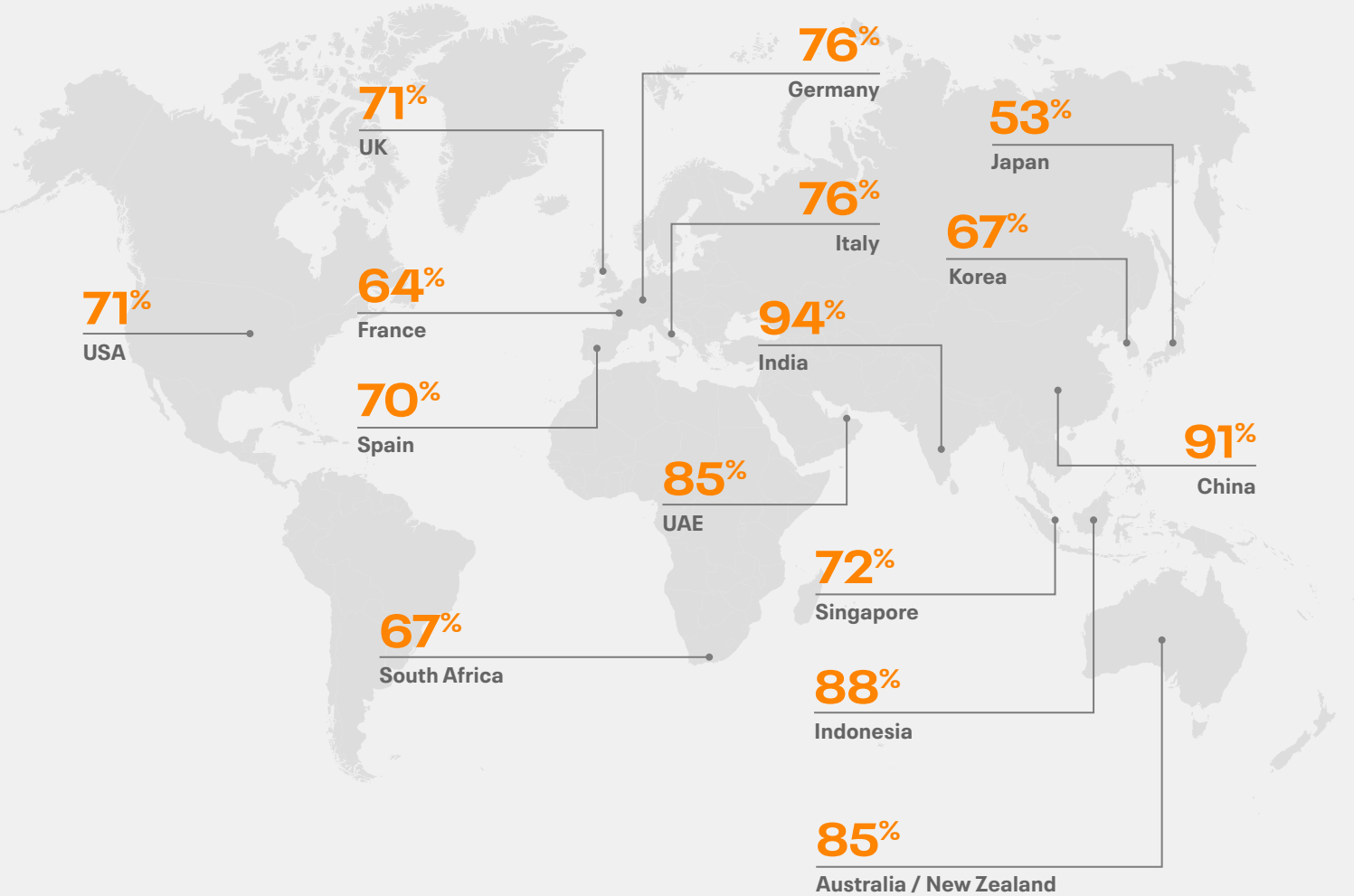
Do you believe your company is investing enough in reskilling you and your colleagues to work alongside AI/ML/Data Analytics technologies? Select one.



Knowledge workers who believe their company is investing enough in reskilling them and their colleagues to work alongside AI/ML/Data Analytics technologies by geographical location.

**QUESTION:**

Do you believe your company is investing enough in reskilling you and your colleagues to work alongside AI/ML/Data Analytics technologies? Select one .

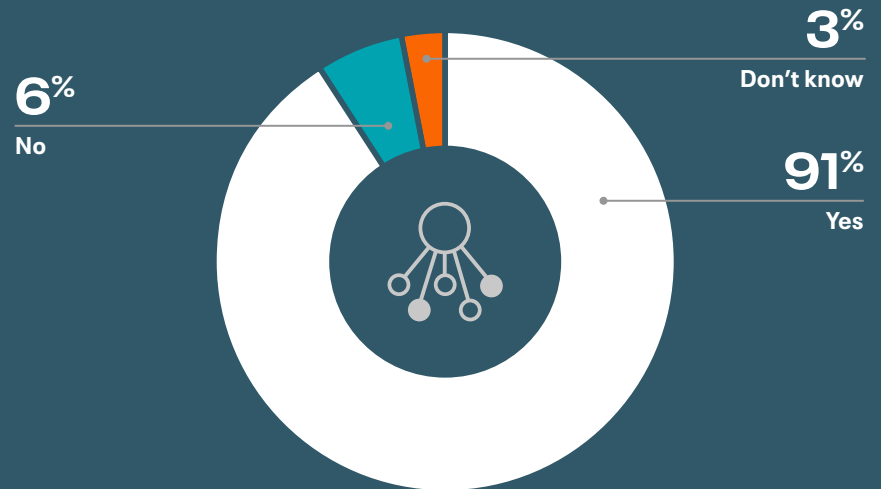


The majority of business decision makers say their employees have the right skills, to at least some extent, to work effectively alongside AI (92%), ML (93%), or Data Analytics (93%) technologies. These are high percentages, but it seems that business decision makers recognize that technology doesn't stand still and that continual training, upskilling, and reskilling will be needed. Over the next 36 months, 33% plan to support training for their employees in Data Analytics, 21% in ML, and 20% in AI. That's up to a third of employees receiving extra training and support. However, 72% of business decision makers and knowledge workers agree that businesses will need to invest more in reskilling staff to ensure a fair playing field for all employees.

To this end, 91% of business decision makers revealed that their organization will commit to continuous investment in reskilling employees as more tasks are automated. To achieve this, business decision makers tell us they are working with partners (51%) and in-house training (49%) to help attract and retain talent that can work alongside AI/ML/Data Analytics technologies in the future, while knowledge workers said their organization is working with partners (42%) and in-house training (42%). However, as much as 71% of business decision makers believe that government and business have an equal responsibility to help close the digital skills gap, as do 66% of knowledge workers.

### QUESTION TO BUSINESS DECISION MAKERS:

Will your organization commit to continuous investment in reskilling employees as more tasks are automated? Select one.



 **71%**  
of business  
decision makers

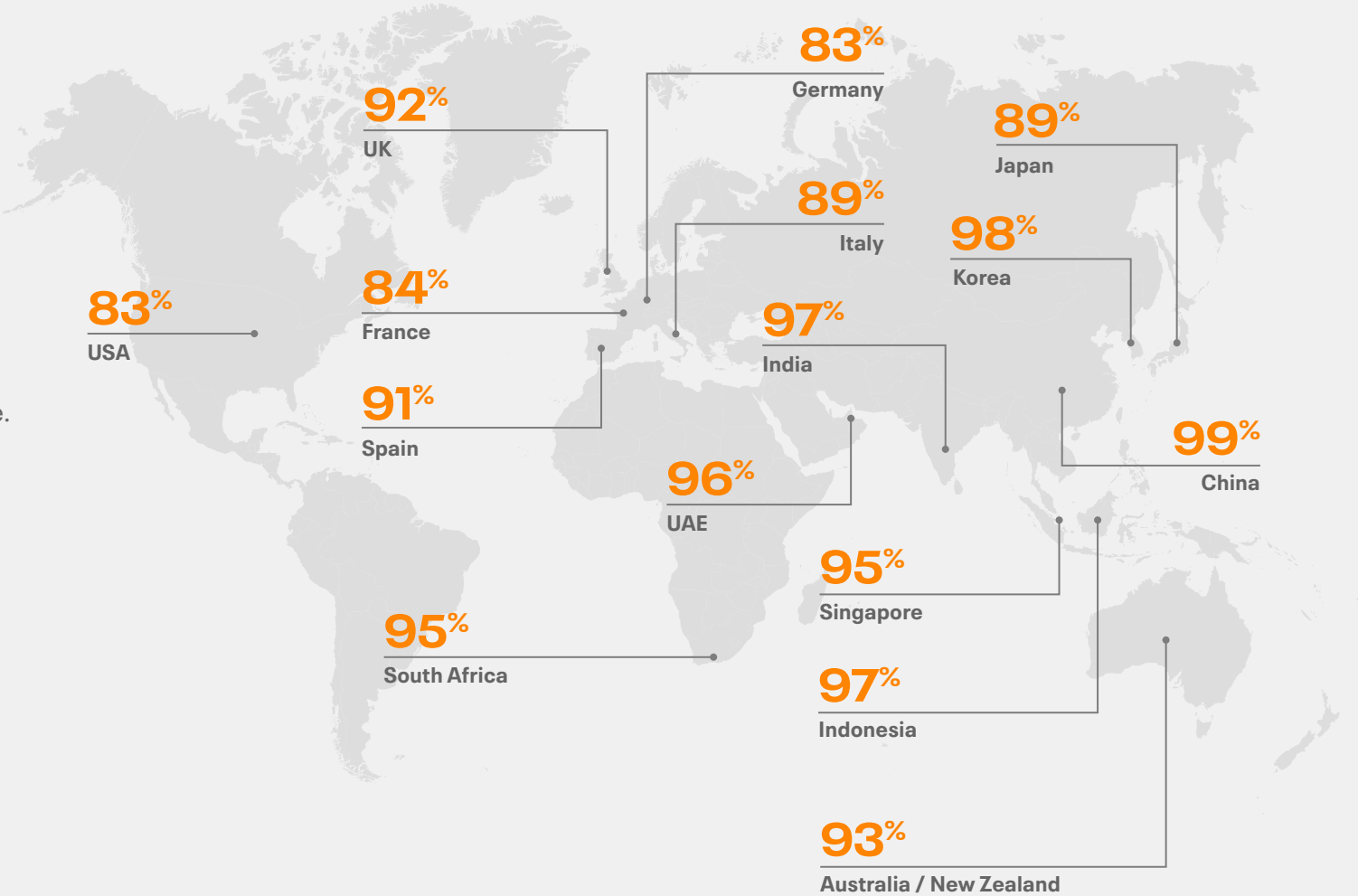
 **66%**  
of knowledge  
workers

believe government and business have an equal responsibility to help close the digital skills gap

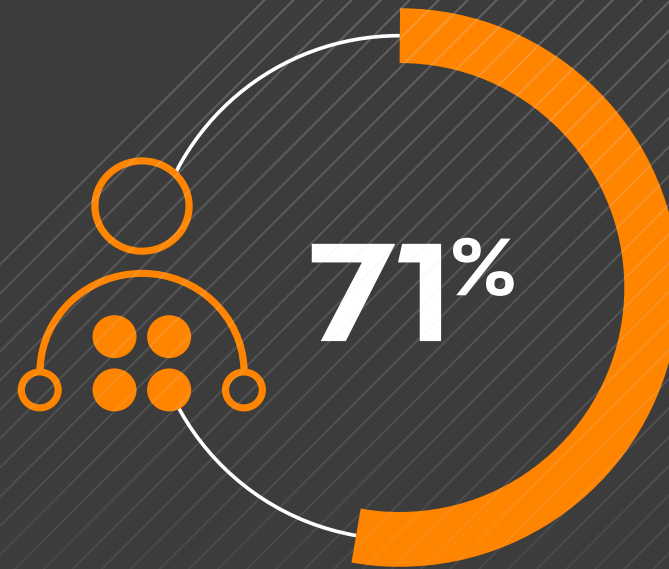
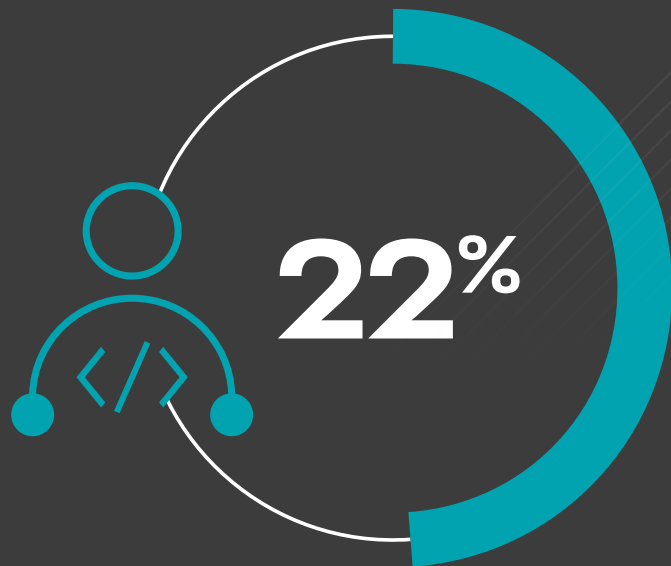
Organizations who will commit to continuous investment in reskilling employees as more tasks are automated by geographical location:

**QUESTION TO BUSINESS DECISION MAKERS:**

Will your organization commit to continuous investment in reskilling employees as more tasks are automated? Select one.



'Concerningly, **22% of business decision makers** have no plans to support training for employees to acquire new skills in the next 36 months. This is despite also saying they don't believe their employees have the right skills to any extent at all to work effectively alongside AI, ML, and Data Analytics.



**71% of knowledge workers** agree that businesses need to invest more in reskilling their staff to ensure a fair playing field.



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## Can profit and altruism co-exist?

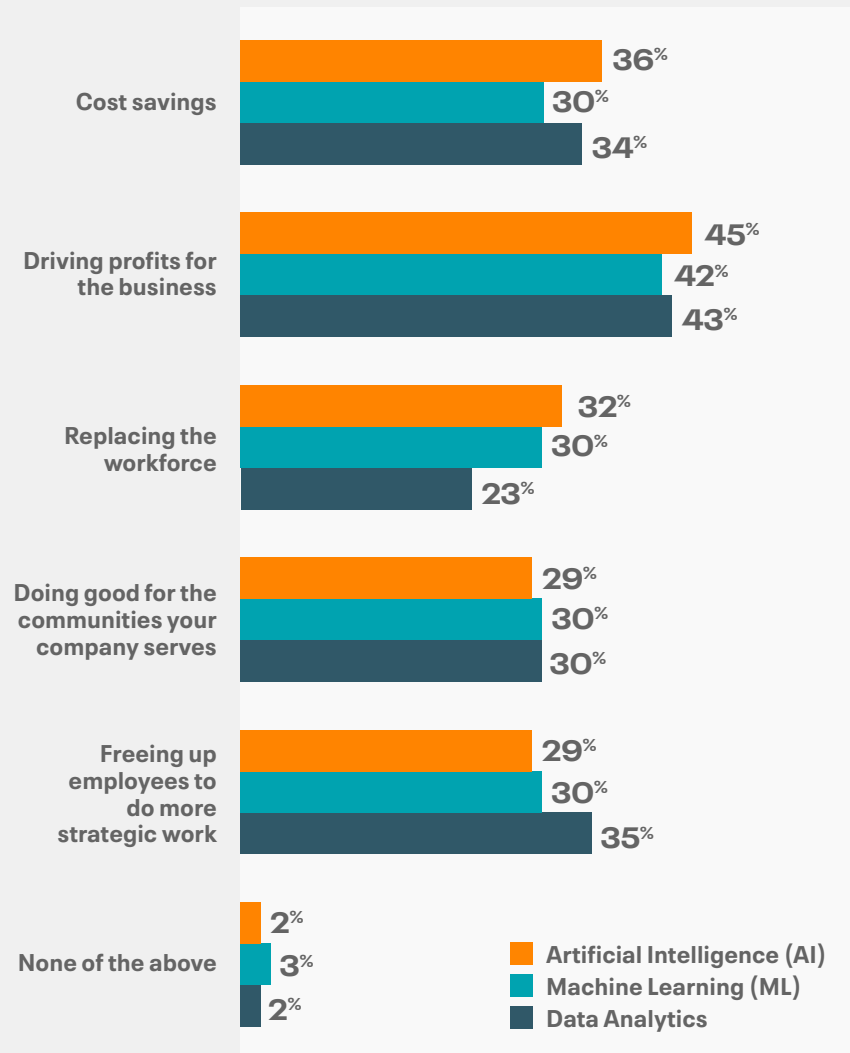
Profit is still a key driver, yet sentiments on technology adoption are more positive.

Knowledge workers believe their business uses AI for driving profits (45%), cost savings (36%), and replacing the workforce (32%). Business leaders believe their employees would say their company uses AI for driving profits for the business (51%), cost savings (49%), and replacing the workforce (35%).



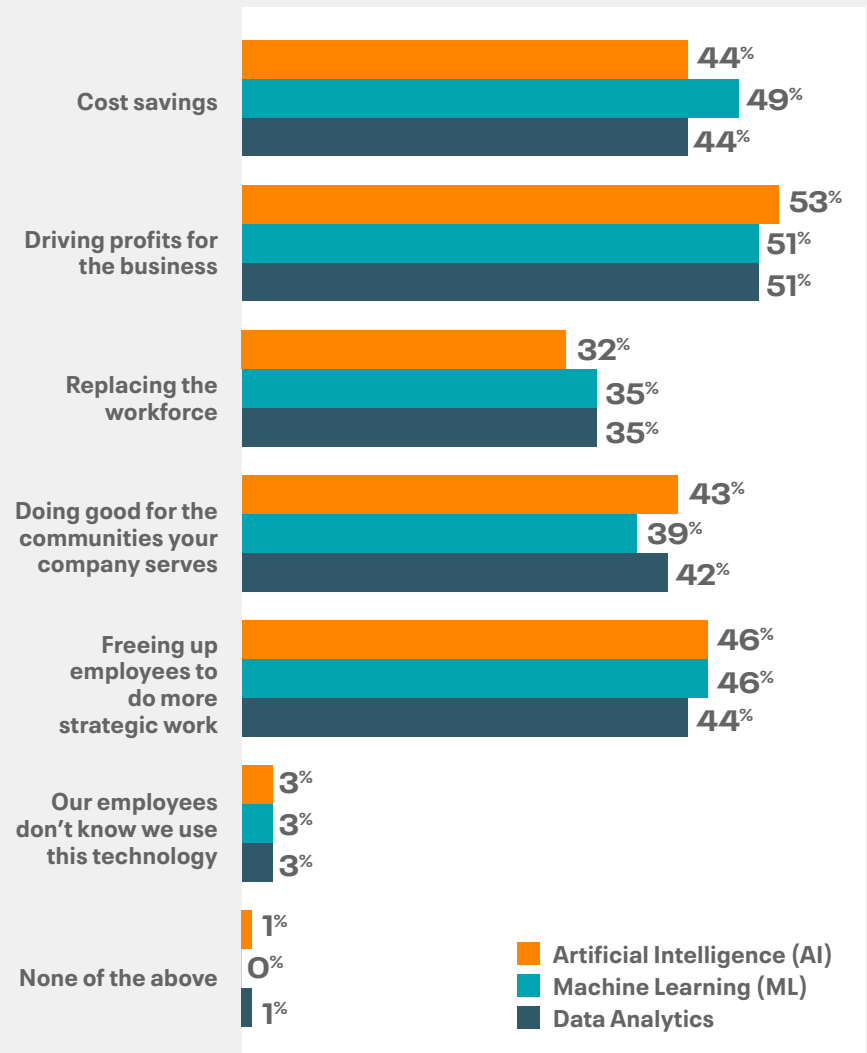
## QUESTION TO KNOWLEDGE WORKERS:

What do you believe your company uses AI/ML/Data Analytics to achieve?



## QUESTION TO BUSINESS DECISION MAKERS:

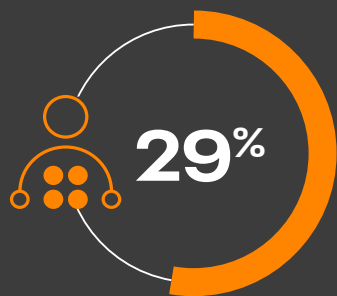
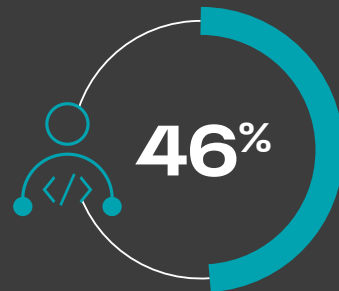
In your opinion, what do you believe your employees would say your company uses the following to achieve?



This begs the question: What is the perception of what technology is used for?

Business decision makers believe their company is using AI, ML, and Data Analytics to capitalize on growth opportunities (47%), enable better customer service (47%), to establish more fair and sustainable business practices (45%), and level the playing field so that all employees have equal opportunities (41%). Knowledge workers generally agree, believing these technologies are being used to enable better customer service (46%), capitalize on growth opportunities (44%), establish more fair and sustainable business practices, and to spot shifts in the market (35%).

Fewer than half of business leaders (46%) say AI is used for freeing up employees to do more strategic work.



And only 29% of knowledge workers say AI is used to free up their time to do more strategic work.

Sarah Shin, Chief Diversity Officer, Cloudera:

**Profit is still undeniably a key driver for business, as it should be. However, the research does reveal that profit can no longer be the only goal. Data, Data Analytics, and AI must be used for the good of people both inside and outside the business. Companies must stand together to give back or risk losing valuable market share. We see technology as the platform through which to deliver good – good business outcomes, good people outcomes, and good for the planet.”**

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# In Conclusion

Erica Orange, the Executive Vice President & Chief Operating Officer of The Future Hunters, one of the world's leading futurist consulting firms, shares her thoughts on the study.

Technological change is being driven by the monumental shifts in automation, robotics, big data, Machine Learning, and AI. To harness the potential of these technologies, there are five significant themes for businesses to focus on.



**Time + the Speed of Change** - The future workplace will be less about humans versus AI, instead symbiotic, human/AI collaboration will be used to increasingly drive innovation and growth.



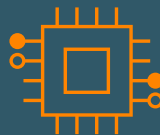
**Technological Preparedness** - A key obstacle to business adoption of AI is technological preparedness. To get this right, business must focus on Enterprise Risk Management (ERM) and develop a clear company-wide implementation plan.



**Emotional Preparedness** - A new kind of workforce will also require a new form of leadership, one that blends human traits like empathy with a tech-savvy and data-driven mindset.



**Environmental Preparedness** - Climate change will affect the lives of every company's clients, suppliers, members, and employees. This means that they must develop more sustainable business practices, which include long-term commitments to ESG and CSR principles.



**Human-Centricity in an Age of AI** - Greater use of AI will mean employees can focus on work that requires creativity, problem-solving, and imagination. The corporate culture will also have to evolve to recognize the importance of everything from employee mental health to inclusion to the maximization of human potential.



## TRANSFORMATION OF THE FUTURE: TIME + THE SPEED OF CHANGE

The acceleration of technology will lead to fundamental changes both in our ways of working and the very composition of the workforce itself. There is much to be said about the disintermediating effects of advanced robotics — a potential future that has left many observers concerned about an approaching era of technological unemployment. But the impact of advanced robotics is far more nuanced. New human-based roles are being created, and AI is freeing up workers' time in various ways, leading to greater efficiency. The narrative emerging today is less about humans versus AI than humans *and* AI. What will increasingly drive innovation and growth is the collaborative and symbiotic relationship between humans and smart systems. This relationship will be defined not just by automation and replacement, but by augmentation and enhancement.

## TECHNOLOGICAL PREPAREDNESS

As the world speeds up at a breathtaking pace, adapting to the tide of automation will continue to be an uphill battle. Therefore, when it comes to the business adoption of AI, one overarching obstacle is technological preparedness. A key part of preparedness must include a cross-function commitment to ERM — enterprise risk management — as well as a clearly articulated plan on company-wide implementation. ERM becomes critical because any company operating today is susceptible to the vulnerabilities inherent in a world of *cyberinsecurity*. A related concern is a growing talent shortage. A lack of sufficiently trained AI jobseekers means that we may not have enough human minds to adequately manage these tech-based vulnerabilities. With the rise of remote and distributed work, data security is going to take on new importance, as will retraining the workforce on the new technology. Hybrid workers will have to not only become more digitally savvy, but also more aware of how their actions could adversely impact company-wide systems.





## EMOTIONAL PREPAREDNESS

A second obstacle is emotional preparedness. Optimizing a hybrid workforce composed of people and AI systems will require a different type of leadership, one that blends human traits like empathy with a tech-savvy and data-driven mindset. As companies begin to hire smart, AI-based systems to work alongside human workers, the lines between Human Resources (HR) and InfoTech (IT) may begin to blur. HR will need to move away from being solely in the management of 'human' resources and begin to oversee aspects of data security related to talent management. Human centricity will also take on more relevance. This will include making investments in human capital as well as an emphasis on upskilling, reskilling, and lifelong learning. Of equal importance must be a commitment to *forgetting*. We — as individuals and companies — must become more comfortable abandoning the knowledge and the skill sets we hold onto that are no longer relevant for where the future is moving. These will be core tenets of futureproofing and remaining competitive.

## ENVIRONMENTAL PREPAREDNESS

A third obstacle is environmental preparedness. Leveraging technology to generate profit is no longer enough. Climate change will affect almost every aspect of doing business. It will affect the lives of every company's clients, suppliers, members, and employees. Every business today must engage in the development of more sustainable business practices, which include a long-term commitment to ESG and CSR principles. The leveraging of big data and AI to make more sustainable business decisions will be a key aspect of future competitiveness. A core part of this comes down to the reconceptualization of business reward structures. Business leaders have long been rewarded based on immediate stakeholder gratification and short-term results. But now, entirely new business models — that go beyond solely profit-driven metrics — are rewarding consumers for choosing sustainable offerings. Those who understand this will be best positioned for future success, particularly because improving business environmental policies is, at its core, about fairness. The rise of 'conscious capitalism' is also being driven by younger generations who are committed to integrity over price and convenience. Growing demand for transparent business has the potential to shape the world for decades to come.







## HUMAN-CENTRICITY IN AN AGE OF AI

The leveraging of big data and AI can undoubtedly help an organization's bottom line. But beyond the cost-saving aspects, what AI will continue to do is free up time so that human labor can focus on more meaningful work. Work that requires creativity, analytical and critical thinking, sensemaking, problem-solving, and imagination will become more valued. AI is also, however, representative of something far greater. It is forcing us to confront our own humanity. Ultimately, AI is a tool (and agnostic in its design), and one that can be wielded to help empower workers to realize their value and worth. Corporate culture will also have to evolve to recognize the importance of everything from employee mental health to inclusion to the maximization of human potential. Self-awareness, social intelligence, adaptability, cognitive flexibility, and the desire for human connection will all become increasingly important. And for companies, intangible assets such as trustworthiness, transparency, reputation, authenticity, credibility, and perhaps the most critical, *honesty*, will define what it means to do business in a rapidly changing world.

On an individual level, AI algorithms will become smarter and more pervasive. AI will be able to predict with greater accuracy what we want, think, need, and buy. It will gain greater insight into our biology, our sensory systems, and even our own neural wiring. It will also help make our lives more efficient. Time, in today's world, is one of our greatest assets. Time is a luxury. And AI will be most transformative in its ability to save us time in innovative and imaginative ways.

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# Research methodology

Two surveys were conducted:



Knowledge workers in  
organizations employing

1000+ people across

16 countries



Business decision makers  
in organizations employing

1000+ people across

16 countries

The following number of respondents were consulted in each mentioned market:

### Knowledge workers:

USA	Italy	China	New Zealand
<b>1007</b>	<b>1001</b>	<b>1005</b>	<b>37</b>
UK	Spain	Singapore	India
<b>1003</b>	<b>1006</b>	<b>200</b>	<b>1008</b>
Germany	Korea	Indonesia	South Africa
<b>1000</b>	<b>204</b>	<b>200</b>	<b>513</b>
France	Japan	Australia	UAE
<b>1000</b>	<b>1005</b>	<b>163</b>	<b>528</b>

### Business decision makers:

USA	Italy	China	New Zealand
<b>200</b>	<b>150</b>	<b>202</b>	<b>37</b>
UK	Spain	Singapore	India
<b>200</b>	<b>150</b>	<b>100</b>	<b>200</b>
Germany	Korea	Indonesia	South Africa
<b>200</b>	<b>107</b>	<b>101</b>	<b>78</b>
France	Japan	Australia	UAE
<b>150</b>	<b>100</b>	<b>113</b>	<b>75</b>

# CLUDERA

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The interviews were conducted online by Sapio Research in August 2021 using an email invitation and an online survey.

## About Cloudera

At Cloudera, we believe that data can make what is impossible today, possible tomorrow. We empower people to transform complex data into clear and actionable insights. Cloudera delivers an enterprise data cloud for any data, anywhere, from the Edge to AI. Powered by the relentless innovation of the open source community, Cloudera advances digital transformation for the world's largest enterprises.

Learn more at [cloudera.com](https://cloudera.com)

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