

THE STATE OF DARK DATA

Industry Leaders Reveal the Gap Between
AI's Potential and Today's Data Reality

A Global Research Survey of 1,300+ Business and IT
Decision Makers Across Seven Leading Economies

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EXECUTIVE SUMMARY

Data is our greatest asset — yet we're lucky if we can find half of it.

Data shapes every facet of the organization. It inspires ideas, solves problems and makes money. In 2017, The Economist declared data to be the world's most valuable resource, "the new oil." Gartner says to treat data as an asset. Forrester calls it "the new currency of business." For such a valuable asset, it's surprising how much of it we lose track of.

Fifty-five percent of an organization's data is "dark" — unquantified and untapped — according to new global research by TRUE Global Intelligence, sponsored by Splunk. The 1,300 business leaders surveyed recognize that data is key to success, now and into the future, yet very few say their organizations can successfully tap the value of all of their data. Or find it.

The power of "big data" and increasingly sophisticated analytics tools — the revolutionary promises of machine learning and artificial intelligence — rely on our ability to combine disparate data to uncover new insights. New customer segments. New efficiencies. Tougher security. Whole new lines of business.

We live in a data-saturated world. Billions of interconnected devices communicate with countless cloud services. We accumulate data from server log files, GPS networks, security tools, call records, web traffic and more. Every digital transaction, from back-end handoffs to the customer's fingertips, is catalogued. Everything from the contents of a warehouse's shelves to the temperature of our server rooms to the time and location of every login to our secure networks is recorded and stored ... somewhere. Most of it, today, is unstructured, untagged, untapped. In a word, useless.

“If you want to be ahead or not eliminated in a fierce market, you need the support of intelligence, and the vast majority of this information comes out of this chaotic data.”

— Survey Respondent
(CIO, Financial Services, China)

Out of the Darkness

Dark data may be the biggest untapped resource in business today. Dark data, which includes the “data exhaust” generated as a byproduct of our online lives, is all the unknown and untapped data across your organization, generated by systems, devices and interactions. Maybe it’s siloed off somewhere; maybe the format or metadata is inconsistent. Maybe no one’s figured out what to do with it. Maybe you literally don’t know it exists.

Most organizations struggle to capitalize on the full potential of their data. A full third of respondents report that more than 75 percent of their organization’s data is dark. Just 11 percent — one in nine — report that less than a quarter of their organization’s data is dark.

Inadequate processes, resources and technology hamper the intelligent use of dark data. Neglected by business and IT managers, dark data is an underused asset that demands a more sophisticated approach to how organizations collect, manage and analyze information. Yet respondents also voiced hesitation about diving in.

It’s a challenge, and an opportunity, of surprising scale. Machine data, a major source of dark data, is growing much faster than traditional organizational data, with an accelerating importance to decision making and

organizational success. And because dark data can be a powerful fuel for artificial intelligence, organizations that fail to tap its power will also fail to keep up with, much less surpass, their competitors.

And competition is global. Our survey found considerable differences of opinion about data and artificial intelligence. Some European countries seem to lag behind a global average, while other nations, notably China, voice a much more forward-thinking approach.

Organizations must grasp the opportunities and confront the challenges of dark data — through greater strategic thinking, targeted technology investment, and more energetic and comprehensive skills training — to take full advantage of the next data revolution. Organizations need to think now about how to bring dark data into the light.

What Is Dark Data?

All the unknown and untapped data across your company, generated by systems, devices and interactions.

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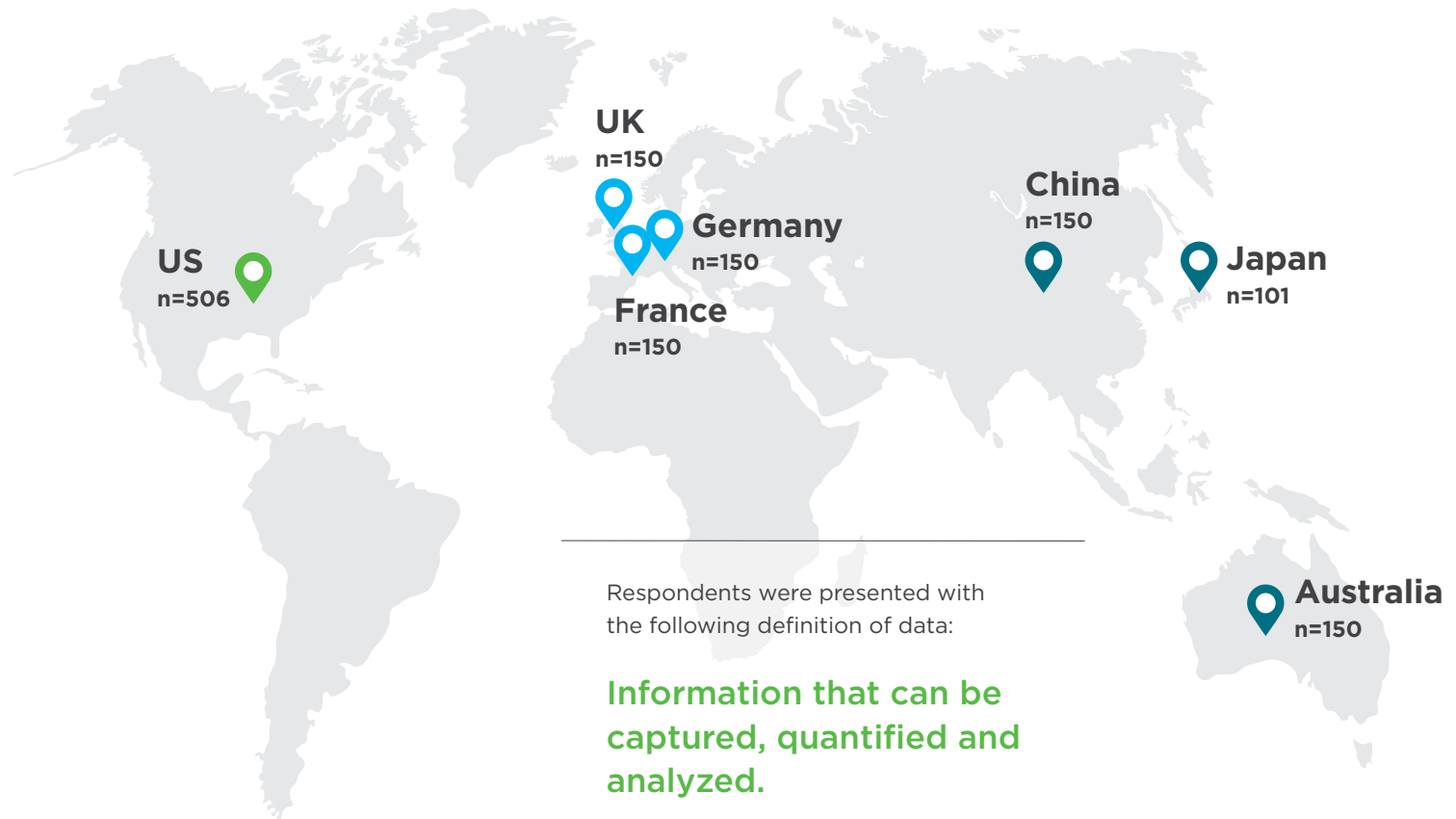
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ABOUT THE SURVEY

Background and Methodology

This report is based on a survey conducted in seven countries by TRUE Global Intelligence. The respondents are global business and IT executives and managers engaged with how their organizations collect, manage and use data. Evenly split between IT and business roles,

the respondents were 30 percent C-suite/owners and senior leadership (VP/SVP), 30 percent director-level, and 40 percent managers. The survey was conducted between October 2018 and January 2019 in the following markets, in local languages:



Respondents were presented with the following definition of data:

Information that can be captured, quantified and analyzed.

AUDIENCE PROFILES

All Respondents Sector	% of total
Employed full time	96%
Financial services	23%
Healthcare (private or public)	32%
Manufacturing	12%
Public sector	8%
Retail	24%

IT Managers <i>50% of all respondents</i>	% of total
Regularly involved in/has oversight of:	
IT operations	72%
Cybersecurity	56%
Business analytics	54%
Data sciences/Data analytics	52%
Internet of Things/IoT	46%

Business Managers <i>50% of all respondents</i>	% of total
I use data to solve problems and/or inform business decisions	77%
I work closely with our data teams to solve problems and/or inform business decisions	46%

All Respondents Roles	% of total
C-suite/President/Owner	17%
SVP/VP/Managing Director	13%
Director/Senior Manager	30%
Manager	40%

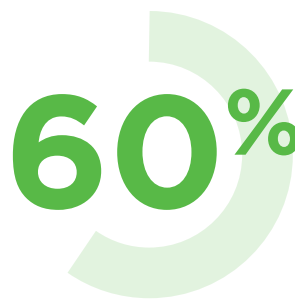
KEY FINDINGS

In the Dark About Our Own Data

Survey respondents — global managers and leaders in both business and IT engaged with how their organizations collect, manage and use data — report that most of their data remains dark. In an era when every organization says it's trying to collect, manage and leverage more data than ever before, and every analyst, author and consultant evangelizes the necessity of analytics, it is surprising how much data is missing in action.

Even the respondents who have some understanding of their organization's dark data agree that it remains unanalyzed, unorganized and unused. Sixty percent of

respondents across our surveyed markets report that half or more of their organization's data is dark. Only in China does a narrow majority of respondents report that less than half of their organization's data is dark.



60% of respondents report that half or more of their organization's data is dark.

% of respondents reporting that ...	GLOBAL	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	CHINA	JAPAN	AUSTRALIA
75% or more of their organization's data is dark	33%	36%	33%	42%	26%	15%	35%	36%
Half or more of their organization's data is dark	60%	63%	63%	65%	58%	44%	65%	62%
Less than half of their organization's data is dark	40%	37%	37%	35%	42%	56%	35%	38%
Less than 25% of their organization's data is dark	11%	11%	9%	11%	14%	9%	15%	10%

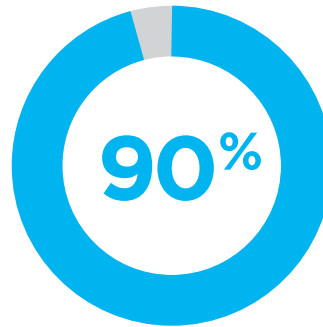
Data Counts ... But We Can't Count It

The leaders we surveyed understand the power and potential of data. Nonetheless, they confessed their organizations lacked the resources, processes or skills to make it usable.

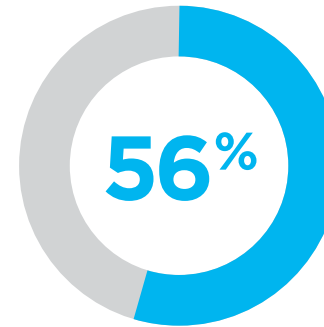
21%

of global respondents say it's hard to find and recover dark data because of the lack of interest from organization leaders.

- 81 percent of respondents believe data is extremely or very valuable to their organization's overall success.
- 90 percent agree that every organization will need to extract value from data to be successful in the future.
- 90 percent agree that the smartest business leaders recognize data as a financial asset.
- 88 percent agree that "the world is currently transitioning from the big data age to the age of data-driven outcomes."



of respondents agree that every organization will need to extract value from data to be successful in the future.



of respondents agree that "data driven" is just a slogan in their organization.

And yet ...

- 56 percent agree that "data driven" is just a slogan in their organization; 79 percent believe they must turn that slogan into reality.
- Only 56 percent rate their organization as extremely or very good at asking the right questions of data, even though 75 percent rate that skill as extremely or very important.
- 60 percent say more than half of their organization's data is not captured, and much of it is not even understood to exist.

60%

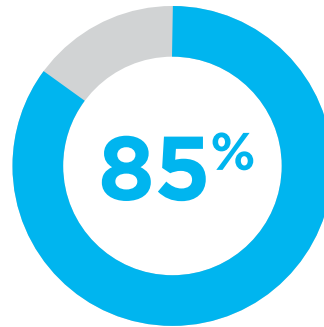
say more than half of their organization's data is not captured, and much of it is not even understood to exist.

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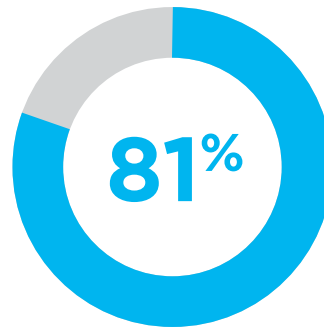
Data Skills Matter ... to Someone Else

Even though the vast majority of respondents agree on the value of data to their companies and careers, many say they'd be content to let others take the lead, even at the expense of their own career progress.

- There is nearly universal belief (98 percent) that data skills are important to the jobs of tomorrow.
- 72 percent agree that data jobs are future-proof.
- 84 percent believe that being a decision maker in their organization will require strong data skills.
- 85 percent believe that data skills will continue to become more important for workers in all roles within their organization, not just IT.
- 81 percent agree that becoming a senior leader in their organization requires being data literate.
- 83 percent agree that workers who continue to rely on others to explain what data means will fall behind in their careers in the future.



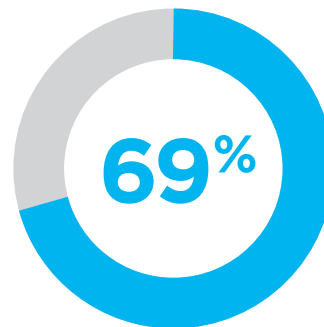
85% of respondents believe that data skills will continue to become more important for workers in all roles within their organization, not just IT.



81% of respondents agree that becoming a senior leader in their organization requires being data literate.

And Yet ...

- More than half say they feel too old to learn new data skills.
- 69 percent are content to keep doing what they're doing even if it means they don't get promoted again.
- There is a gap between the perceived need for using dark data and the skills and resources to mine that data.



69% of respondents are content to keep doing what they're doing even if it means they don't get promoted again.

Regional Variations

It's worth noting the regional variations in survey responses to see what insight we might derive. For instance, Chinese respondents consistently placed the highest value on data and data skills, and reported the highest level of understanding of AI and the lowest percentage of dark data.

Ninety-one percent of Chinese respondents said they needed data skills to get promoted and 92 percent said data skills were required to advance to senior leadership. Their French and German counterparts seemed less concerned about the value of data to their careers, with affirmative answers in the 60th or 70th percentiles. Survey participants in the UK were a bit more enthusiastic — 83 percent of respondents agreed with both statements.

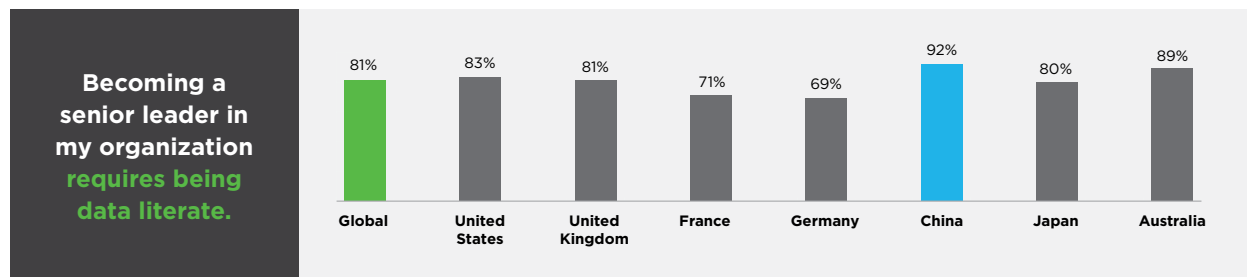
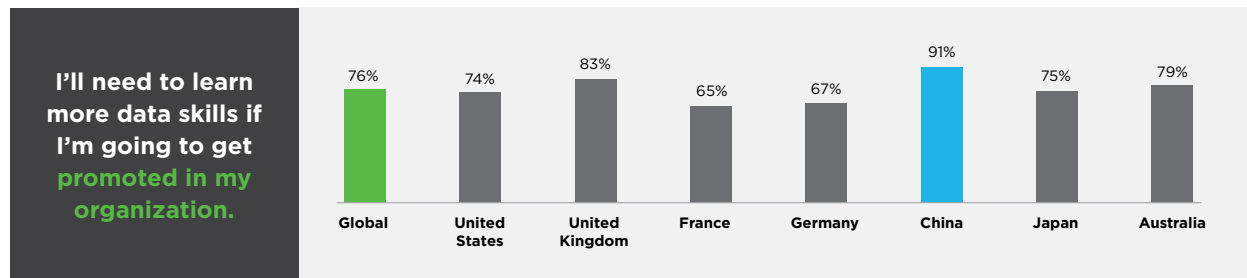
Survey respondents in China reported their organizations had the least amount of dark data (“just” 50 percent combined, they estimate) and were more likely to report understanding artificial intelligence extremely or very well than any other market. By comparison, fewer

than half of respondents in all other markets surveyed — except the United Kingdom — report such a strong understanding of AI.

The survey also suggests Chinese respondents have more fully embraced the value of data and AI than their counterparts in other countries. This attitude will no doubt give China a competitive advantage in driving business applications of artificial intelligence.

One important factor to keep in mind when evaluating these responses with a global view: China, the U.S. and the UK had the highest percentages of executive respondents (at 34, 40 and 27 percent, respectively) in this survey. Australia, France and Germany had the lowest percentage of senior leaders (19, 22 and 21 percent, respectively) in this survey. If we accept that senior leaders are more likely to know the strategic direction their organizations plan to take and new technologies they are considering, the difference in respondents’ career level could have a bearing on their responses to forward-looking questions.

How valuable is data to your organization's overall success? <i>Showing % of extremely + very valuable</i>	GLOBAL
Your organization's overall success	81%
Your organization's efficiency	81%
Your organization's profitability	78%
Your organization's growth	77%
Your organization's internal management	77%
Cybersecurity	73%
Innovation	73%
Research and development	72%
Your organization's market share	69%



Note: Showing percentages for “agree”

PART I: THE FUTURE OF DATA

The organization that uses the most data **will win.**

What good is all this data if nobody's using more than a fraction of it? While our respondents strongly agreed that we're transitioning into an era of data-driven business outcomes, most are not taking steps to surface the dark data that could give them better, more accurate insights and increased competitive advantage.

Respondents also recognize a wide gap between the skills they have now and the ones they'll need in the future, particularly technical skills.

And virtually all the respondents, across the globe, believe that the value of data will grow and become increasingly central to organizational success in the future. This suggests organizations will continue to invest in technologies, processes and talent around data and analytics.

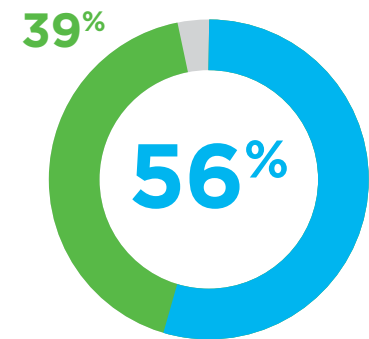
- 71 percent expect data to become more valuable over the next 10 years, and nearly all expect data to become more influential to their decision making.
- 76 percent agree "the organization that has the most data is going to win."

- 88 percent agree "the world is currently transitioning from the big data age to the age of data-driven outcomes."
- 85 percent agree successful implementation of AI requires successful data management.

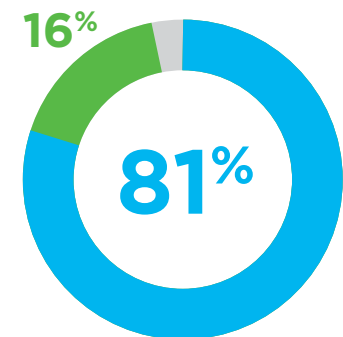
Respondents recognize that data shapes all facets of their organizations, fueling the insights that make organizations more innovative and profitable. A better, more complete understanding of an organization's data will continue improvements in analytics-based decision making, a key reason to surface dark data. This untapped data represents a world of potential to understand customer behavior and other metrics, propelling business forward.

But while respondents realize how important data is to success, many say "data driven" is still just a slogan at their organizations.

"Data driven" is just a slogan at my organization.



The future success of my organization means turning "data driven" from a slogan into a reality.



■ % Agree ■ % Disagree ■ % Not Sure

Why Data Stays Dark

Dark data contains records of all the activity and behavior of customers, users, transactions, applications, servers, networks and mobile devices. It includes configurations, message queues, the output of diagnostic commands, call detail records, sensor data from industrial systems, and more.

Dark data, in short, is any data that isn't being used. That includes the many types of data generated by an organization's systems and applications, from machine data to server log files to customer and user data to sentiment analysis derived from social media. It's the byproduct of day-to-day business activity, both within an organization and across the ecosystem of customers, partners and suppliers.

It can be data that is considered too old or outdated to provide value, data in a format that can't be accessed with the tools available to the organization, incomplete data or duplicate data — any data that needs to be "cleaned" before it can be used.

Often, organizations ignore potentially valuable data because they don't have the time or resources to prepare it for use. Or they may not understand its full potential. Or they may be bogged down in the status quo, meeting day-to-day requirements rather than looking ahead for opportunities.

By definition, an organization's dark data is the most difficult to access. The survey shows that globally, 55 percent of organizations' data is dark — either they have the data and don't know it, or they know they have it, but not how to use it.

More than 80 percent of respondents say that while more than half their data is dark, it is potentially valuable.

They know that data is useful to mine, in other words, but they don't all have the tools to go digging. And in some cases, they don't even know where to dig. The reasons for the difficulties identifying and recovering dark data are both technical and organizational: Respondents say they're overwhelmed with data and short on the right talent and tools, while facing organizational silos, unresponsive leadership and more.



of global respondents agreed that finding and capturing dark data should be a top priority.

Obstacles to Recovering Dark Data	GLOBAL
Volume of dark data	39%
Lack of necessary skill sets	34%
Lack of resources	32%
Difficulty in coordinating across departments	28%
No one is dedicated to finding data the org possesses	26%
Difficulty in coordinating with data-generating third parties	23%
Lack of control over data-generating devices and apps	22%
Lack of interest from organization leaders	21%
Lack of creativity	19%

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Turn on the Lights

How do organizations improve their access to dark data and the insights it holds?

Traditionally, the quick and easy (if expensive) solution was to hire a consultant. That reflex may be weakening: Only 29 percent of respondents said bringing in outside consultants has a lot of potential to solve the challenges of managing dark data. Twenty-five percent believe consultants offer little or no potential.

That means organizations will have to find the power within. And furthering the “no easy answers” theme, respondents said that to make better use of data, they’ll need a holistic approach to overcoming technical and organizational obstacles. Data strategy, and the pursuit of dark data, cannot be a “project” — it has to be a key organizational priority, an essential competency driven by in-house leaders and in-house talent with an eye to the end-to-end management of all data.

The leading solutions that respondents viewed as having potential included training more employees in data science and analytics; using new software that enables less-technical employees to analyze data; and incorporating data collection into app and device development.

A majority of respondents also saw potential in employing artificial intelligence to collect and analyze data, educating business leaders about the value of data, increasing funding for data management, and hiring more data experts.

“Organizations should always use data for strategic, competitive and operational perspectives.”

— Survey Respondent
(CTO, Financial Services,
United States)

ONLY
29%

of respondents think consultants can solve their dark data problems. And 25 percent said consultants would be of little or no help.

Many Answers to Data Challenges <i>Showing % selecting “a lot” + “some” potential</i>	GLOBAL
Training more current employees in data science and analytics	76%
Employing new software to enable less technical employees to carry out data analysis without a data expert	75%
Incorporating data collection into device and app development	73%
Employing artificial intelligence to analyze data	71%
Holding internal informational sessions to teach business leaders about the value of data	70%
Increasing funding for data wrangling	70%
Hiring more data experts	70%
Employing artificial intelligence to collect data	68%

PART II: AI: THE NEXT FRONTIER

Data is the rocket fuel for **artificial intelligence**.

Artificial Intelligence is the simulation by computers of human intelligence processes such as learning, reasoning, analyzing and self-correction. So far, AI can't replace human reasoning and creativity, but it can process data and derive insights at a scale and velocity that human computation cannot hope to achieve. It is then up to humans to determine what to do with those insights.

AI takes over when data is too varied and voluminous for humans to efficiently process. And a central value of AI is its ability to work with vast quantities of data at very high speed. Give AI more information to analyze and it can produce deeper, more accurate insights. Today's dark data could one day be an accelerant for even greater AI performance. Thus, the advent of AI and the value of dark data go hand-in-hand.

Dark data provides an enormous, untapped resource of information that AI can analyze. And AI-powered analytics tools can help make dark data ready for analysis on a scale that would be impossible with current methods.

AI is in its early stages and it can be very difficult to find a definition on which everyone agrees. It's not surprising then that, globally, most respondents say they don't

understand it very well (51 percent), and they judged others to understand it even less. Just 41 percent believe their organization has a superior grip on AI, while only 39 percent believe their colleagues and their industry in general understand AI very/extremely well.

Globally, these data-focused IT and business respondents believe AI will generally augment, rather than replace, humans. Eighty-two percent say humans are and will always be at the heart of AI, and 72 percent say that AI is just a tool to solve business problems. More than half agree that the threat of AI has been exaggerated (65 percent). But they agree that the promise, too, has been overstated (60 percent).

While our respondents say that few of their organizations are using AI right now, a majority see potential. For a series of use cases including operational efficiency, strategic decision making, HR and customer experience, 61 percent to 67 percent saw value in AI for their organizations — but only 10 percent to 15 percent say their organizations are deploying AI for these use cases today.

“There's almost more data than currently can be properly handled. The key is to use the human component plus data plus AI to truly get a foot up on your competition.”

— Survey Respondent
(CIO, Retail, United States)

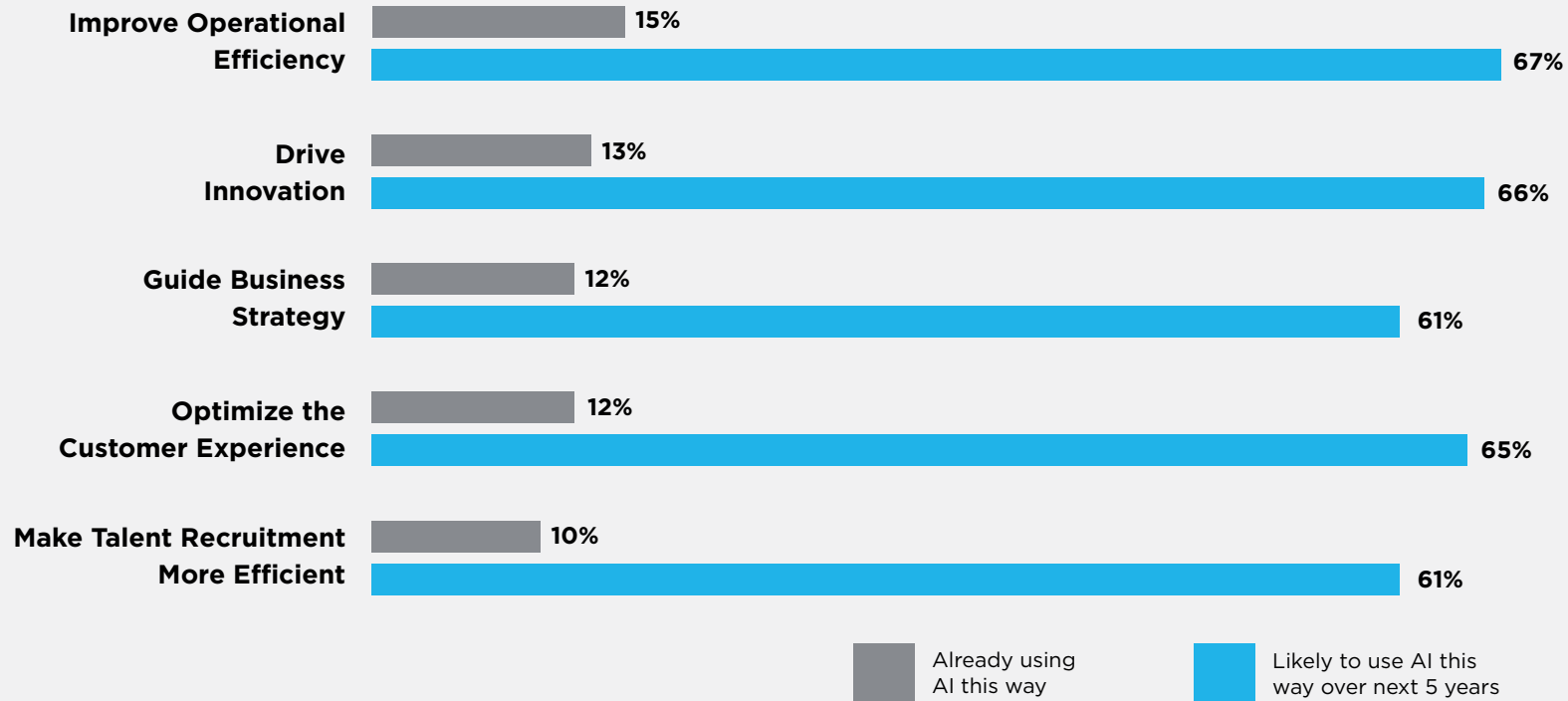
73%

think AI can make up for the skills gaps in IT fields.

Currently, only 10 percent to 15 percent of organizations use AI across IT, operations and talent management. In the future, however, 60 percent to 70 percent of respondents believe that they will be using AI for

these purposes. China consistently voices the most enthusiasm about the future, though their current adoption is only slightly higher than the global average.

Likelihood of Your Organization to Use AI for Essential Use Cases



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PART III: THE FUTURE OF JOBS

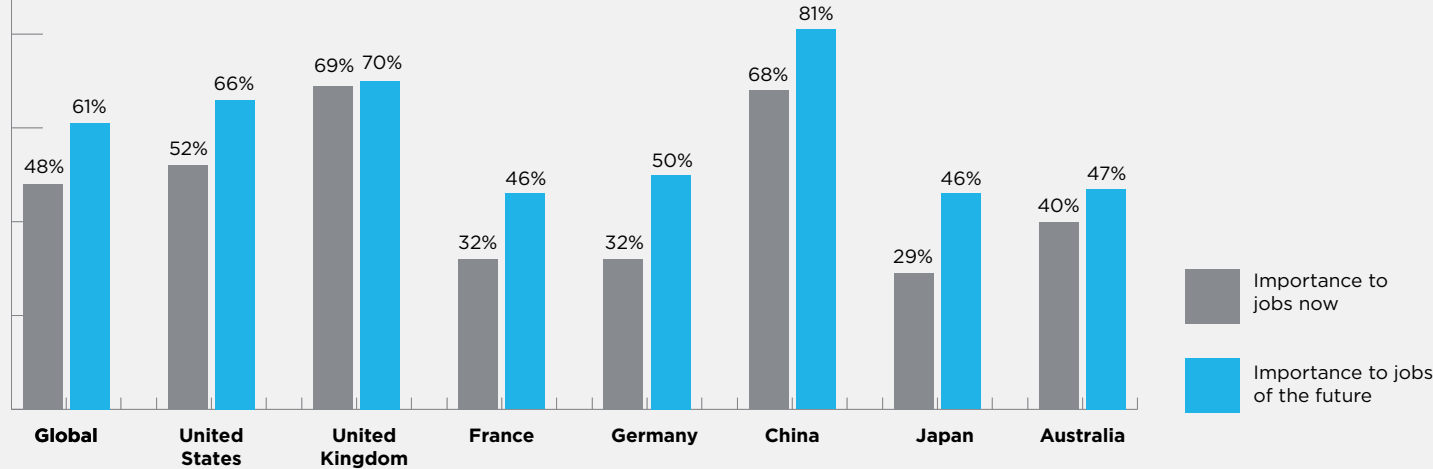
Everyone makes decisions. And everyone will need strong data skills to make the **right call**.

There is near-universal agreement among our respondents (99 percent) that data skills are integral to the jobs of tomorrow. This matches years of buzz in the media and the analyst community about the importance

of data skills and the ongoing difficulty in finding workers with cutting-edge skills, particularly in data science. Everyone knows that data skills matter today, and will matter a lot more tomorrow.

The Importance of Data Skills

While data skills are seen to have varying importance regionally, all respondents agree they'll become more valuable in the future.



As with other questions throughout the survey, attitudes about the importance of data skills vary regionally, with China in the lead. While 61 percent is the global average of those saying data skills will be important, 84 percent of respondents in China agreed, as did 70 percent in the U.S. and 66 percent in the United Kingdom. There was significantly less agreement in France and Japan (46 percent each), Germany (47 percent) and Australia (50 percent).

Respondents said that employees combining technical data skills with business acumen will be the most in demand in the next 10 years — more than employees with either technical data skills or business expertise alone. Globally, 41 percent of respondents said this mix of skills will be required. Breaking down that average, China and the U.S. were the most bullish, at 53 percent and 49 percent respectively, while agreement ranged between 35 percent and 38 percent in the UK, Japan, France, Germany and Australia.

The future of jobs is clear: Data literacy will be a requirement to stay current. Eighty-three percent of respondents agree that workers who continue to rely on others to explain what data mean will fall behind in their careers. But respondents predict the same employees who will be most in demand — those with technical and business skills — will also be the most difficult to hire.

Complacency and Skills Gaps

Most IT and business respondents recognize the need for data skills, and 92 percent say they are willing to learn new data skills themselves. But “willing” is a key word, because

while they recognize the necessity, respondents weren't always as enthusiastic about it. For instance, globally, 67 percent agreed with the statement “I am [extremely or very] willing to work more with data,” only 57 percent agreed that they were “[extremely or very] enthusiastic to work more with data.” (Worth noting: 58 percent agreed that they were very or extremely comfortable working more with data.)

Despite that slight deflation, respondents strongly agreed that data skills will matter more for leadership roles. Most (87 percent) feel capable of keeping up with developments in data skills, and 84 percent say they're prepared for the future of data jobs.

If there's a gap between the recognition of data skills as essential and personal enthusiasm for acquiring them, it may be that many respondents see it as an issue for the next generation to resolve — an attitude that only makes it more urgent that organizations begin to grapple with the data-centric future.

Globally, 73 percent of survey respondents say that data skills are harder for them than business skills. Most, 69 percent, say that they're content to keep doing what they're doing, even if it means they don't get promoted again.

More than half of U.S. and Chinese respondents said employees with both technical data skills and business acumen will be most in demand over the next decade — and the hardest to find.

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And just over half — 53 percent — say they're too old to learn new data skills.

Clearly, the jobs of the future will require more sophisticated data skills of every worker. Globally, 81 percent of respondents agree that “every office worker will need to have a basic level of data analysis skills in the near future.” Presumably, those workers and leaders who are complacent about those skills will fall behind. In the new age of data-driven decision making, with exploding amounts of dark data to manage and analyze, bridging the data skills gap may be the most crucial challenge facing organizations today.

“More people aren't excited to work with data because more data might mean more work for them.”

— Survey Respondent
(CEO, Retail, Australia)

Leadership Requires Data Literacy

Do you agree or disagree with the following? <i>Showing % of total agree</i>	GLOBAL	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	CHINA	JAPAN	AUSTRALIA
To be a decision maker in my organization in the future, a person will need to have strong data skills	84%	84%	87%	79%	79%	91%	80%	85%
Becoming a senior leader in my organization requires being data literate	81%	83%	81%	71%	69%	92%	80%	89%
Data experts in my organization are becoming the new business strategists	76%	73%	83%	65%	67%	90%	80%	80%

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CONCLUSION

The New Data Reality

Everyone agrees that data is important today and will be more important in the future. But are the leaders of today fully committed to the coming revolution? Our survey data suggests they are not. Some senior leaders, in fact, may have made the decision to ride it out, hoping to make it to retirement on their current levels of knowledge and experience around data and AI. This presents a challenge for organizations — and an opportunity for aspiring leaders.

First, the technical challenges of data must be addressed. Respondents were asked about 10 data-management challenges, including dealing with multiple data sources, lack of resources, internal silos, indifferent senior leadership, and the sheer volume of information. Encouragingly, “lack of support from senior leaders” scored the lowest agreement (66 percent globally), but every other identified challenge averaged from 73 percent to 81 percent.

Interestingly, the countries whose respondents were most bullish on the value of data and the need for data skills also tended to rate each problem higher. This suggests not that “data leaders” are doing a better job of mastering the challenges, but that the most data-savvy respondents are more likely to identify just how big a challenge their data presents.

The classic advice about adopting new technologies goes like this: identify the problem, brainstorm solutions,

zero in on a specific solution, and pilot it on a discrete but meaningful project. This is good advice for solving the challenges, and tapping the opportunities, of data and AI — and clearly even the most data-forward companies are still in the early stages of figuring things out.

At the same time, the lack of skills must be addressed. There’s near-universal understanding that we need a more data-literate workforce, and many of our respondents flagged the fact that universities are not churning out data scientists at a high enough rate. Part of the solution is surely automation and tools that “democratize” data analysis. Make it easier for non-technical people to draw insights from data, and they will. But even where high-end technical skills aren’t needed, a data-oriented mindset is.

Companies today should be looking not only for key technical skills; they should be hiring for, and instilling, a data-centric mindset. They should use the data, tools and skills they have now to build the best data-driven company and workforce, and use that as a foundation for growth. But the respondents to this survey, both in business and IT units, tell us that they’re already overwhelmed. Only as we become more comfortable with the amount of data at our fingertips, and the things we can do with it, will we begin to uncover the greater potential of our dark data.

Companies today should be looking not only for key technical skills; they should be hiring for, and instilling, a data-centric mindset.

KEY RECOMMENDATIONS

Our respondents told us two conflicting stories: On the one hand, dark data and artificial intelligence hold almost unlimited potential to transform business and society, and working with data will be essential to virtually every job in their organizations. On the other hand, these business and IT leaders have low confidence in their own knowledge about AI and the data their company possesses. They're even more skeptical of their colleagues' and their organization's readiness to take advantage of the potential both in their troves of untapped data and in the power of AI.

With that in mind, we've distilled four essential recommendations for moving forward from an uncertain present into a high-potential, data-driven future.

1 Know that AI is coming.

AI and machine learning will be transformative. Stay on top of this fast-developing group of technologies and find the use cases that make sense for your industry and organization. Specifically, business and IT leaders should:

- Follow general developments in the field of AI. Understand how these technologies are maturing in various sectors to help your organization see the potential to disrupt, rather than be disrupted.

- Consider the potential for automation in your sector and in your organization, in terms of efficiencies, greater accuracy, and ability to work effectively with greater volumes of data.

2 Build an infrastructure and culture of data.

Make "data driven" a reality, and make sure your approach to data helps organize and surface it in ways that will let you tap all of its potential.

- Understand your data. Commit to bringing more of it out of the dark, out of the gray areas, to be a vital part of your decision making. Data, like money, is an asset. Like money, a business has a fundamental responsibility to keep track of it, and use it to best advantage.
- Put automation and AI on your IT roadmap. You will be adopting and integrating these technologies, so get your infrastructure ready.
- Infuse data and analytics into decision making. While you may not have all your analytics tools in place yet, work with the data you have, rather than exclusively hunches and "gut feel." Incorporate data-gathering into your strategic processes.

3 Recruit for the skill sets you'll need.

Not just technology skills around today's data, but the curiosity, self-motivation and collaborative skills needed in a data culture and a transformative enterprise.

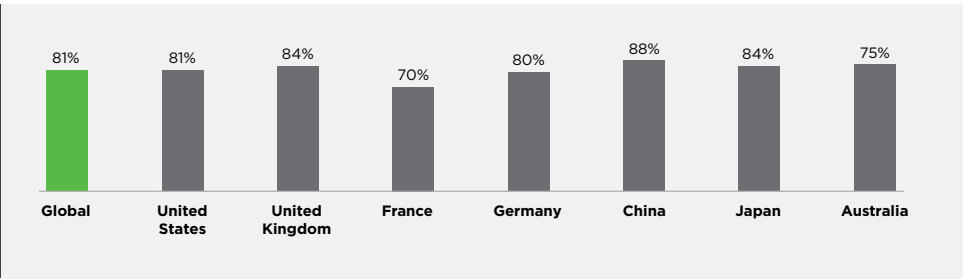
- Look forward. What tasks are likely to be phased out as AI moves in? What roles are likely to be created as you work more with data and AI?
- Create a talent pipeline. Collaborate with local colleges and attend job fairs, tech meetups and other events that let you meet internship and job candidates with the latest skills.
- Raise the profile of your organization as a forward-thinking enterprise. The most talented workers are drawn to creative cultures with ambitious goals.

4 Provide opportunities for training.

There's not enough talent out there. Encourage your existing workers to grow, to transform as your business transforms and as new technologies arrive.

- Communicate to your workforce that in a transformational time, everyone must take charge of his or her own career development.
- Then provide opportunities to grow. Partner with online learning sites, send staff to conferences and events, provide tuition rebates, encourage employees to set specific career development goals, and carve out meaningful time for them to pursue them.

"Every office worker will need to have a basic level of data analysis skills in the near future."



We have already lived through a period of considerable digital transformation, and data is driving product development, supply chain, customer experience and overall business strategy to unprecedented degrees. The pace of business is much faster, and already “real-time data” and forward-looking “predictive analytics” are becoming common. There is no question that further, and faster, transformation lies ahead.

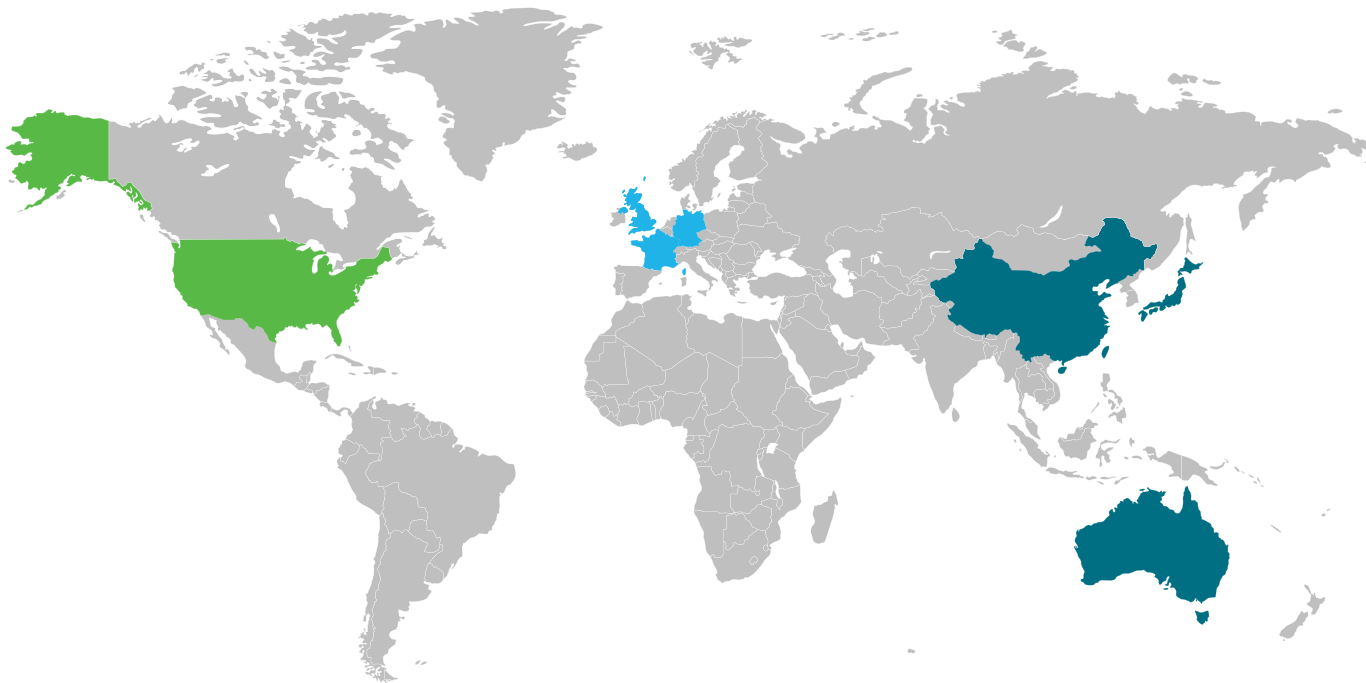
As visionary science fiction author William Gibson said, “The future is here — it’s just not evenly distributed.” The variance in regional responses suggest exactly this circumstance. Respondents in some markets seemed notably behind the global average in awareness and enthusiasm for AI and data technologies. Others, most notably China, seem ready to go all-in. Similarly, players within industries will vary in their approach to data-driven technologies. We believe this will be a significant driver of success between businesses, regions and nations.

The participants in this survey have highlighted both the expectations of this evolving era and the considerable challenges that lie ahead. With foresight and focus, great things are possible.

APPENDIX

Data Anxiety Is Global

Across the survey, researchers noted regional patterns in the data. China, in particular, took the most aggressive stance toward the increasing value of data, the potential of AI and the growing importance of data skills. Both the United States and the United Kingdom also tended to score above the average in agreement with these sentiments. France, Germany, Japan and Australia tended to hang back.



United States

More likely than its counterparts to rate data skills as extremely or very important to jobs of the future.

United Kingdom

Often comes second (to China) in its enthusiasm for data and AI, and its belief in the importance of data skills.

France

Less likely than the global average to consider data extremely or very valuable to overall success; shows less enthusiasm for workplace changes.

Germany

Strongly agrees on the value of data to an organization's success, despite estimating that more than half of their data has not been captured or put to use.

China

Takes the most aggressive stance toward the increasing value of data, the potential of AI and the growing importance of data skills.

Japan

Below the global average on how valuable data is to an organization's success, but similar to the global average on how much of their data they estimate is not captured.

Australia

Fewer understand AI extremely or very well. Australian respondents lag slightly behind the global average in saying that AI will be important to their organizations.

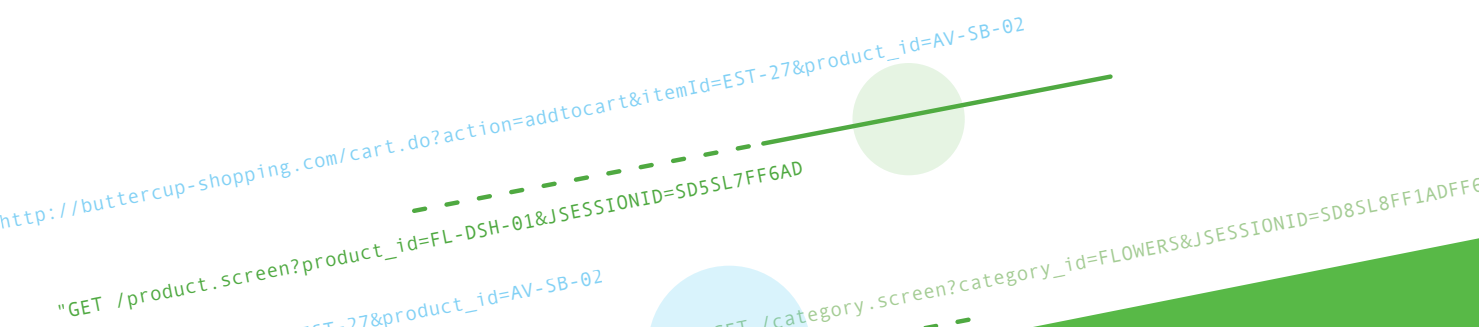
United States

U.S. business and IT respondents are broadly similar to the global average in the survey results. They strongly agree that data is valuable to their organization's success (86 percent). However, they estimate 56 percent of their data has not been captured or put to use. Solving data management challenges will require a holistic approach incorporating both technical and organizational solutions.

technical data skills and the skills to use data to achieve business objectives will be the most needed employees over the next 10 years, though many do not rate themselves highly on the associated skills. Ninety-three percent say they are willing to learn new data skills, though, and 60 percent say they are very or extremely excited to work more with data.

U.S. respondents are more likely than their counterparts in some other countries to rate data skills as extremely or very important to jobs of the future. Almost half (49 percent) of U.S. respondents report that those with both

Measuring enthusiasm about data skills	GLOBAL	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	CHINA	JAPAN	AUSTRALIA
I am extremely/very willing to work more with data.	67%	75%	78%	45%	60%	77%	48%	63%
I am extremely/very comfortable to work more with data.	61%	62%	71%	45%	61%	72%	50%	61%
I am extremely/very prepared to work more with data.	58%	59%	73%	39%	62%	62%	44%	61%
I am extremely/very excited about working more with data.	57%	60%	63%	46%	51%	76%	38%	53%



United Kingdom

UK responses are similar to global results overall. The UK often comes second only to China in its enthusiasm for data and AI, and its belief in the importance of data skills. Nevertheless, 67 percent agree “data driven” is just a slogan at their organization, compared with only 56 percent globally.

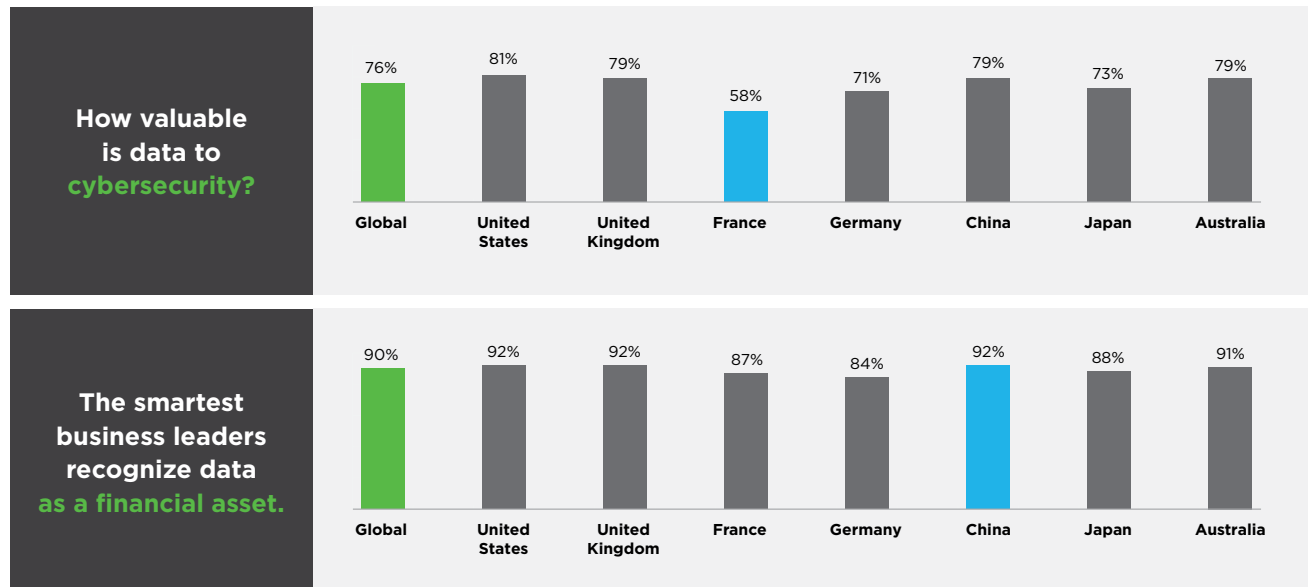
The majority of respondents in the UK market (61 percent) report understanding AI extremely or very well — one of only two markets in which a majority make that claim (the other is China, at 77 percent.) The global average is 48 percent. The most notable difference in the UK is that these respondents are the most likely to rate themselves as highly capable in terms of specific data skills.

France

While the majority of respondents in France recognize the value of data, they are less likely (64 percent) than the global average (81 percent) to consider data extremely or very valuable to their organization’s overall success. That may be why they show less enthusiasm for workplace changes, and why they assign lower ratings to the importance of data management and deployment skills than other markets.

Only one-third of French respondents reported that people with technical data skills and the ability to use data to achieve business objectives will be the most needed employees of the next 10 years, compared with the global average of 41 percent. Many do not rate themselves highly on specific data skills. Only 46 percent say they are very or extremely excited to work more with data (versus 57 percent globally).

While French respondents lagged notably in believing data is valuable for cybersecurity, they were more on par with the global understanding of data as a financial asset.



Note: Showing percentages for “agree”

Germany

The IT and business managers we surveyed in Germany responded similarly to, though often a bit below, global averages. They strongly agree on the value of their data to their organization's success (76 percent) but estimate 53 percent of their data has not been captured or put to use.

Sixty percent say they are very or extremely willing to work more with data, and 51 percent say they are very or extremely excited about doing so. Germans are more likely to agree "data driven" is just a slogan at their organization (71 percent, versus 56 percent global), and they are more likely than those in some markets to give their organization lower skill ratings on the phases of data management.

How valuable is data to each of the following? <i>Showing % of extremely + very valuable</i>	GLOBAL	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	CHINA	JAPAN	AUSTRALIA
Your organization's overall success	81%	86%	85%	64%	76%	82%	73%	81%
Your organization's efficiency	81%	85%	89%	68%	77%	78%	72%	81%
Your organization's profitability	78%	82%	79%	63%	75%	77%	75%	84%

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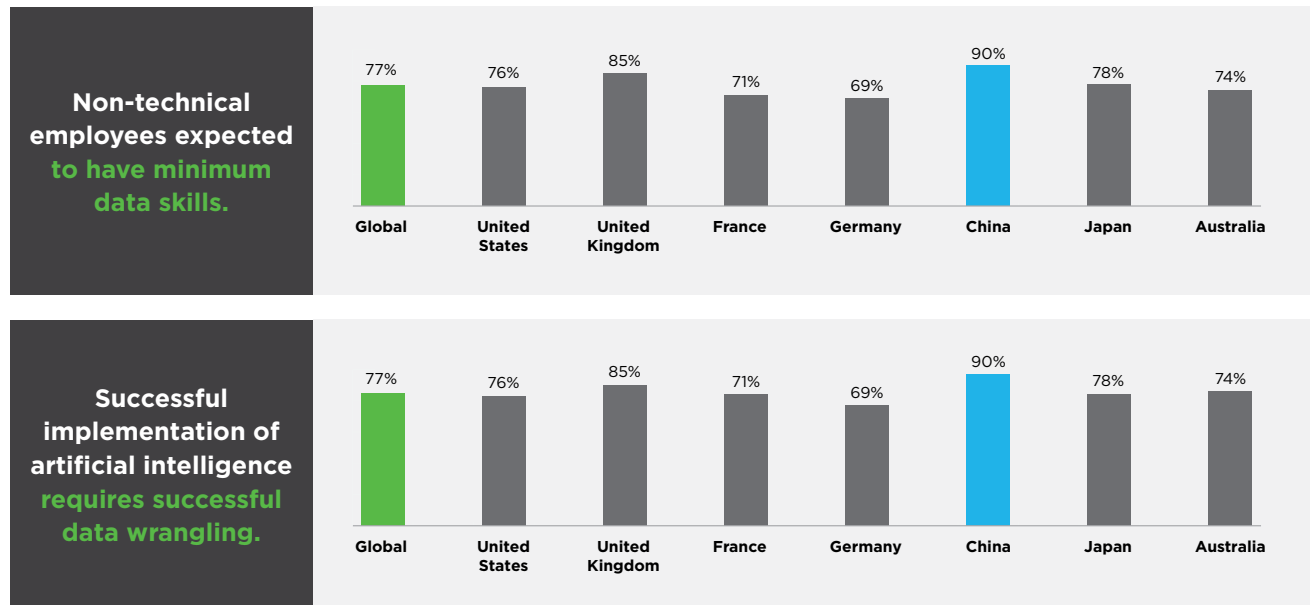
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China

China lines up with global averages on agreeing on the value of data to their organization's success (82 percent), and they estimate a somewhat smaller percentage of dark data that has not been captured or put to use (50 percent, compared with a global 55 percent). More individuals say they are extremely or very excited about working more with data (76 percent, versus 57 percent globally).

Eighty-seven percent of respondents in China believe data will become more valuable over the next 10 years.

This belief is probably why 91 percent agree that the organization with the most data is going to win; why they are more likely to agree that capturing dark data should be a priority; and why 81 percent believe data skills will be extremely or very important to the jobs of the future, the highest of any market. Additionally, this is one of only two markets in which a majority (77 percent) claim to understand AI extremely or very well. Overall, the survey found, China is the most forward-thinking of countries in acquiring and deploying data skills.



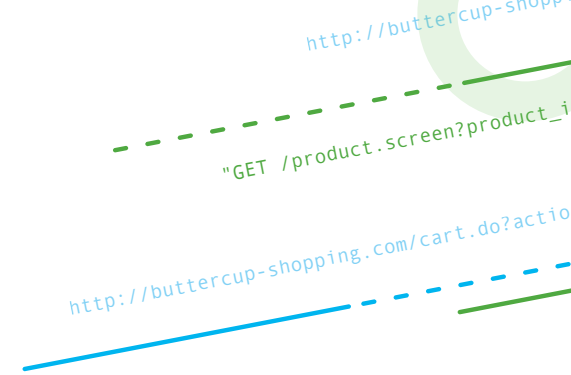
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Japan

Japan is below the global average on how valuable data is to an organization's success (73 percent), but similar to the global average on how much of their data they estimate is not captured (56 percent). They also line up with global beliefs that those with both technical data skills and the skills to deploy data will be the most needed employees over the next 10 years (38 percent). But only 48 percent say they are very or extremely willing to work more with data, and just 38 percent say they are very or extremely excited about doing so.

And while 91 percent of respondents in Japan agree that the organization with the most data is going to win, they report some of the widest gaps between the importance of data management and deployment and their organization's collective skill at those phases. There is evidence for weak enthusiasm for workplace changes, with only 38 percent extremely or very excited to work more with data — the lowest of any market.



How well do you and your organization understand AI? <i>Showing % of very well + extremely well</i>	GLOBAL	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	CHINA	JAPAN	AUSTRALIA
Myself	48%	42%	61%	45%	43%	77%	38%	39%
My organization	41%	40	56%	35%	36%	61%	23%	32%

Australia

IT and business respondents in Australia are broadly similar to the global averages. However, fewer report understanding AI extremely or very well (39 percent, compared with the global average of 48 percent). Australian respondents lag slightly behind the global average in saying that AI will be important to their organization:

- Eleven percent said it's already important, compared to 16 percent globally, and a high of 26 percent in the UK.
- Thirty-two percent said it will be important in the near future (globally, 36 percent, with a high of 53 percent in China).

For organizational use cases around AI (automating data collection, cyber threat detection and remediation, and data analysis), Australian respondents tended to score

below the global average for current implementation, but expressed greater than average confidence about adopting such technologies in the future.

Australia ranked low, beside France and Germany (all at 5 percent) and just behind Japan (at 8 percent) in saying that data skills are important today. But it outpaced all those countries in its estimate that such skills will matter more in the future: 35 percent of Australians agreed with that statement, vs. 27 percent in France and Germany, and 21 percent in Japan.

32%

of respondents said it will be important in the near future (globally, 36 percent, with a high of 53 percent in China).

ABOUT SPLUNK.

Splunk Inc. (NASDAQ: SPLK) turns data into business outcomes. Organizations use market-leading Splunk solutions to investigate, monitor, analyze and act on all forms of data — from the business, IT, security and the Internet of Things. Our powerful platform and unique approach to data have empowered companies to improve service levels, reduce operations costs, mitigate risk, enhance DevOps collaboration and create new product and service offerings.

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