What Is Your Data Really Worth?

How mature data strategies dramatically improve bottom-line outcomes

A Global Research Survey of 1,350 Business and IT Decision-Makers Across Leading Economies and Industries

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A Global Research Survey of 1,350 Business and IT Decision-Makers Across Seven Leading Economies

The Global Value of Data

The Value of Tapping All Your Data

Data is the lifeblood of any organization. It's what drives customer engagement, boosts employee productivity, streamlines operations and, in some cases, even transforms age-old companies into digital powerhouses.

Take, for example, John Deere. The 180-year-old manufacturer of farming equipment is now a data-savvy technology giant whose deep neural networks and computer vision systems help farmers plant crops and apply pesticides with algorithmic accuracy.

The opportunity to capitalize on the significant business value of data is growing. Artificial intelligence, the Internet of Things, virtual reality — they're all generating vast treasure troves of information packed with business value. However, some organizations struggle to find and use the data they've already amassed. Part of the problem is dark data — unquantified, siloed and untagged

data sets that are a side effect of sprawling systems and missing metadata. More than an IT nuisance, dark data prevents organizations from maximizing the worth of their most valuable financial assets in today's digital economy: their operationalized data. That is, data captured, organized, indexed and made accessible for real-time analysis and business use.

To explore the correlation between an organization's use of data and its business success, Enterprise Strategy Group (ESG), in partnership with Splunk, surveyed 1,350 IT and business decision-makers engaged with how their organizations collect, manage and use data. The findings are striking: ESG calculated that, by making better use of their data, organizations surveyed had materially increased revenue and reduced operational costs, boosting their profitability by an average of $38.2 million, or about 12.5% of their total gross profit.

Organizations with a more sophisticated approach to finding data and putting it to use outperform peers struggling with dark data. The question is, how can we measure an organization's effectiveness in making the most of its data? And how can organizations do a better job?
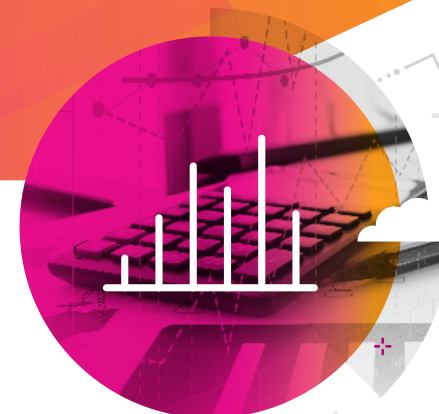
> **"More people aren't excited to work with data because more data might mean more work for them."**
>
> — Survey Respondent
> (CEO, Retail, Australia)

Key Findings

Organizations that place a strong strategic emphasis on data and its business value, and make operationalizing dark data a top IT priority, achieve a number of key business and economic benefits. These include:

- Adding an average of 5.32% to their annual revenue, due directly to better data use.

- Removing an average of 4.85% from their annual operational costs via better use of data.

- Ninety-seven percent meet or exceed their customer retention targets, with the majority (60%) having outstripped their goals.

- Ninety-three percent feel they tend to make better, faster decisions than competitors.

- On average, ESG calculated that surveyed organizations generated approximate economic value of U.S. $38.2 million — or about 12.5% of their total gross profit — by making smarter use of their data. (See methodology on page 19)

- Ultimately, 91% of these organizations believe that, given the right data, their organization is in a strong position to compete and succeed over the next few years.

Defining Data Use Maturity

An organization's "data use maturity" — its sophistication in discovering and operationalizing all of its data — can be measured by looking at three characteristics:

1. Its commitment of resources to finding dark data and putting it to use.

2. The prevalence of modern tools and skill sets optimized for data investigation.

3. The effectiveness of the organization at operationalizing its data.

Together, these attributes indicate an organization's ability to not only glean insights from its data, but to convert these insights into concrete, data-driven decision-making and real-time action.

Three Stages of Data Maturity

For the purposes of this analysis, respondent organizations were evaluated around these key characteristics:

- Commitment of resources to discovery and use of dark data, measured as:

  - Priority to discovering dark data — and preventing dark data from happening in the first place.

  - Percent of IT budget allocated to solutions and staff that investigate, monitor, analyze and act on data.
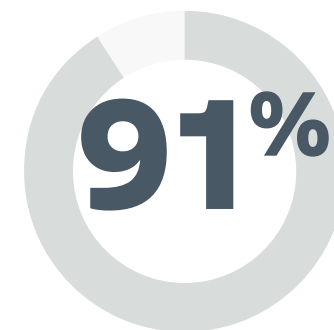
91%

of organizations believe that, given the right data, their organization is in a strong position to compete and succeed in its markets over the next few years

- ○ Employment of a chief data officer or equivalent C-suite peer to drive data strategies.

- Availability of adequate data investigation tools and skills, measured as the proportion of employees with the right tools, skills and access to effectively investigate data.

- Perceived effectiveness of the organization at operationalizing its data, measured in terms of the number of different data sources the organization effectively investigates, monitors, analyzes and acts upon; and as an overall quantitative estimate of all of the organization's data that is operationalized.

Based on these criteria, ESG categorized each organization into one of the following three levels of maturity: data deliberator, data adopter and data innovator.

Data Deliberators

Data deliberators are organizations that have yet to discover the full potential of data, dark or otherwise. The plurality of organizations represented in the research (49%) fall into this least sophisticated segment, showing just how immature the market is today.

Their characteristics? Only 9% say uncovering data is their organization's most important IT priority. That's evident in their investments: Only 8% of deliberators say data analytics solutions and staff represent more than 20% of IT spending. Other sorely lacking resources include people and tools:

- Only 30% employ a chief data officer or equivalent, and even fewer — 27% — say that many employees have the skills to investigate data.

- Only 31% say that many or almost all of their employees have access to the right tools to investigate data.

- Furthermore, from an operational perspective, only 34% of deliberators say that employees have access to the data they need for effective analysis.

These attributes combine to paint a dismal picture; these organizations believe that 68% of their data is dark, meaning that only 32% of their data is operationalized and able to deliver value.

Data Adopters

Two-fifths of organizations in the research — 40% — are actively developing and evolving data strategies. Their mission is clear: 36% say uncovering data is their organization's most important IT priority. Better yet, they're dedicating the resources necessary to make the most of their data. A full 80% of adopters employ a chief data officer or the equivalent. And at nearly half of these organizations, many employees have the skills needed to investigate data (48%), access to the right tools (49%), and access to the right data sets for proper analysis (49%).

But there's still significant room for improvement: A mere 17% say data analytics solutions and staff represent more than 20% of IT spending. Without significant investment, it's no surprise that, on average, data adopters have only captured, indexed, organized and put to use 41% of their data.

49% of organizations surveyed fall into the least sophisticated category of data users: data deliberators

Data Innovators

Only 11% of organizations in the research fall into the most mature category. These data innovators place a strong strategic emphasis on data and its business value. Sixty-five percent say that uncovering data is their organization's most important IT priority. And they put their money where their mouth is: More than half (52%) say that data solutions and staff represent more than 20% of IT spending; and they almost universally (95%) employ executive leaders focused on data.

So how do data innovators support their optimization efforts? They employ highly skilled data investigators (88%); use best-of-breed analytics tools (85%); provide access to the right analytics tools (85%); and consolidate and integrate their data for effective analysis (77%). The result: a relatively higher level of operationalized data: Innovators report that nearly half of their data — 48% — is captured, indexed, organized and available for real-time business use.

11%
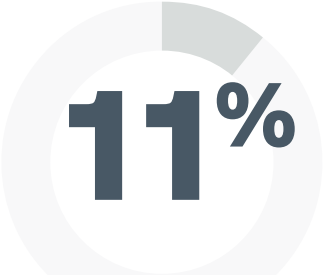
of organizations have achieved the most mature data user status: innovators

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1. Organizations by Maturity of Data Use

Most organizations still fall into the first level of maturity, data deliberator. Only 11% have achieved innovator status.

Pie chart: Data deliberators 49%, Data adopters 40%, Data innovators 11%
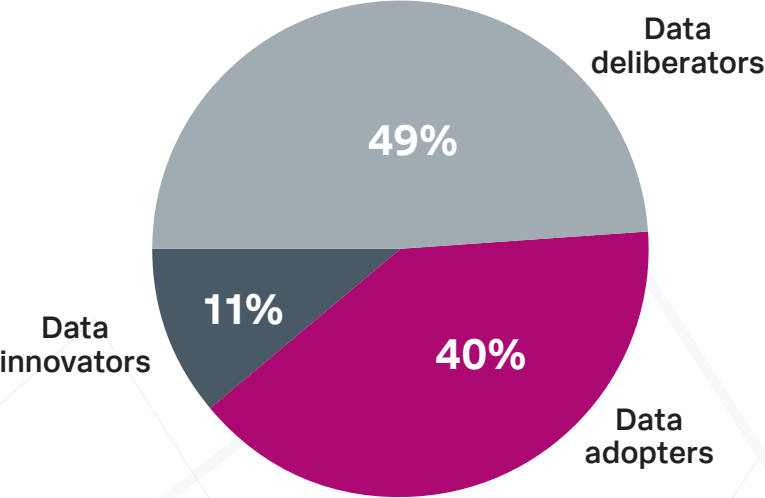
Source: Enterprise Strategy Group
N=1,350

Smarter Data Use Improves Bottom-Line Outcomes

For the most part, respondents agree on the power of data and its positive potential for business outcomes (see Figure 2). Across all areas of the business, the lion's share of respondents (minimum of 72%) believe data has the potential to dramatically or moderately improve organizational results.

For example, 77% see improvements in customer experience as possible, perhaps by creating more predictive customer profiles that accurately anticipate

needs and desires. And 74% say that analytics can improve security efficacy, potentially by monitoring network traffic patterns, data access logs and user behaviors to predict data theft before it occurs. Seventy-two percent believe that there's an opportunity to boost manufacturing productivity with analytics, such as by using telemetry data from production systems to predict the need for preventative maintenance and reduce downtime.

It's clear that organizations have an opportunity to bring data to everything they do, thus maximizing their effectiveness.

2. Data Can Transform Entire Organizations

"To what extent do you believe data and analytics can improve business outcomes for your organization in each of the following functional areas?" (Percent of respondents)

	Dramatically	Moderately	Somewhat	Not very much	Not applicable/Don't know
Customer service/experience	33%	43%	17%	5%	1%
IT operations	33%	42%	19%	4%	2%
Cybersecurity	33%	41%	20%	4%	1%
Finance and reporting	32%	42%	20%	4%	2%
Research and development	32%	41%	22%	4%	1%
Sales/marketing	31%	43%	21%	4%	2%
Compliance	30%	42%	21%	6%	1%
Manufacturing/operations	29%	43%	21%	5%	3%
Executive decision support	27%	45%	22%	4%	1%
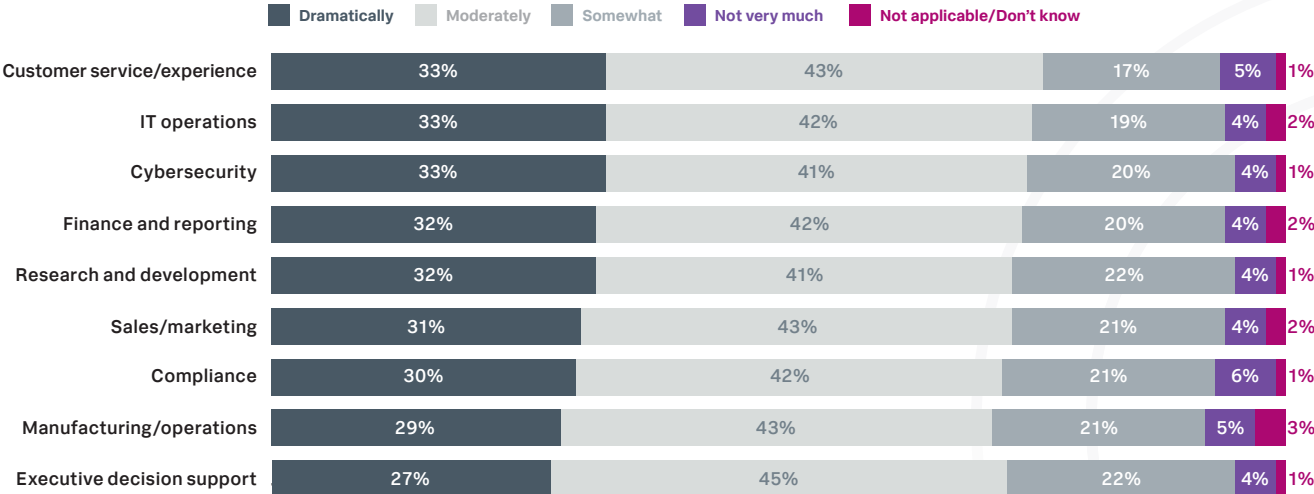
Source: Enterprise Strategy Group N=1,350

But a wealth of data alone does not guarantee business gains. In fact, many data-rich organizations fall short of their ambitions to glean actionable insights from customer profiles and transactional records. Our research found that an organization's ability to improve business outcomes directly correlates to its data use maturity. In other words, the farther a company is along the data maturity curve, the more likely it is to realize a return on their data assets.

In addition to asking about their data's potential, we asked respondents whether their organization has actually achieved any benefits as a result of better using dark data. As shown in Figure 3, while the majority of all organizations are effecting positive change across all outcome areas, data innovators are most often rocketing toward these positive business outcomes. For example, while 59% of deliberators say better data use has helped improve IT availability, many more data innovators report such success: 84%. The research delved into many of these benefit areas in depth; here is what we learned.

3. Better Data Use Drives Positive Outcomes

"Has your organization achieved any of the following benefits as a result of uncovering and better utilizing its dark data?"

(Percent of respondents reporting "Yes")

Data deliberators   **Data adopters**   **Data innovators**

Improved IT/application availability/predictability
- 59%
- 65%
- 84%

Enabled more/faster innovation
- 55%
- 64%
- 76%

Improved customer service/experience
- 57%
- 67%
- 74%

Improved product or service quality
- 63%
- 69%
- 73%

Reduced organizational risk
- 57%
- 63%
- 73%

Improved speed and/or quality of decision making
- 59%
- 64%
- 72%

Increased employee efficiency/productivity
- 57%
- 62%
- 71%

Reduced fraud and waste
- 57%
- 63%
- 67%

Improved time to market or manufacturing time
- 56%
- 60%
- 65%

Improved regulatory compliance
- 56%
- 60%
- 65%

Source: Enterprise Strategy Group

Data Innovators Delight Customers

In today's on-demand economy, customer expectations are at an all-time high. To meet these requirements, many organizations are banking on big data. In fact, 93% of organizations surveyed believe data has the potential to improve customer experience. And for good reason: For years, technology leaders like Amazon, Netflix and Sephora have successfully leveraged predictive analytics tools to mine vast volumes of data, such as purchase history and preference, to deliver highly customized recommendations, targeted rewards and marketing messages to millions of customers.

Indeed, 74% of data innovators have improved customer experience by uncovering dark data and better using all of their data, compared to just 57% of data deliberators. So what are the tangible benefits of satisfying tough-to-please customers with carefully hewn data? When asked to describe their organization's customer satisfaction performance, fully half of data innovators are achieving customer satisfaction (CSAT) or Net Promoter Scores (NPS) that exceed those of competitors. Only 29% of deliberators feel they're outperforming their competition when it comes to customer satisfaction (see Figure 4). Clearly, the ability to use data to identify customer preferences, anticipate dissatisfaction and deliver experiences that buyers demand has a positive impact on satisfaction.

93%
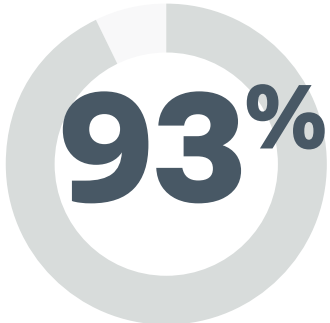
of organizations surveyed believe better data use can improve their company's customer experience

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4. Data Innovators Deliver Higher Customer Satisfaction

"How do you believe your organization compares to its peers and competitors in terms of formal customer/user satisfaction measurement, e.g., Net Promoter Score (NPS), Customer Satisfaction (CSAT) or similar metrics?" (Percent of respondents)

Legend: ■ Data deliberators ■ Data adopters ■ Data innovators

	Data deliberators	Data adopters	Data innovators
Customer/user satisfaction scores are higher than competitors/peers	29%	43%	50%
Customer/user satisfaction scores are in line with our competitors/peers	53%	38%	30%
Customer/user satisfaction scores are below our competitors/peers	13%	16%	17%
We do not formally measure customer/user satisfaction	3%	3%	3%

Source: Enterprise Strategy Group

Satisfaction in turn drives loyalty. Organizations with the greatest data use maturity outperform their peers in terms of customer retention. Three-fifths (60%) of data innovators have surpassed their customer retention targets over the past 12 months (see Figure 5). And

they are twice as likely as data-challenged deliberators to reach this level of performance (60% vs. 28%). Organizations looking to turn customers into fanatics should carefully examine their ability to employ data to improve customer experience.

5. Data Innovators Optimize Customer Retention

"In the past 12 months, has your company exceeded, met or failed to meet customer/user retention targets?"

(Percent of respondents)

Data deliberators   Data adopters   Data innovators

Exceeded customer/user retention targets	Met customer/user retention targets	Failed to meet customer/user retention targets
28% / 50% / 60%	56% / 43% / 37%	13% / 6% / 3%
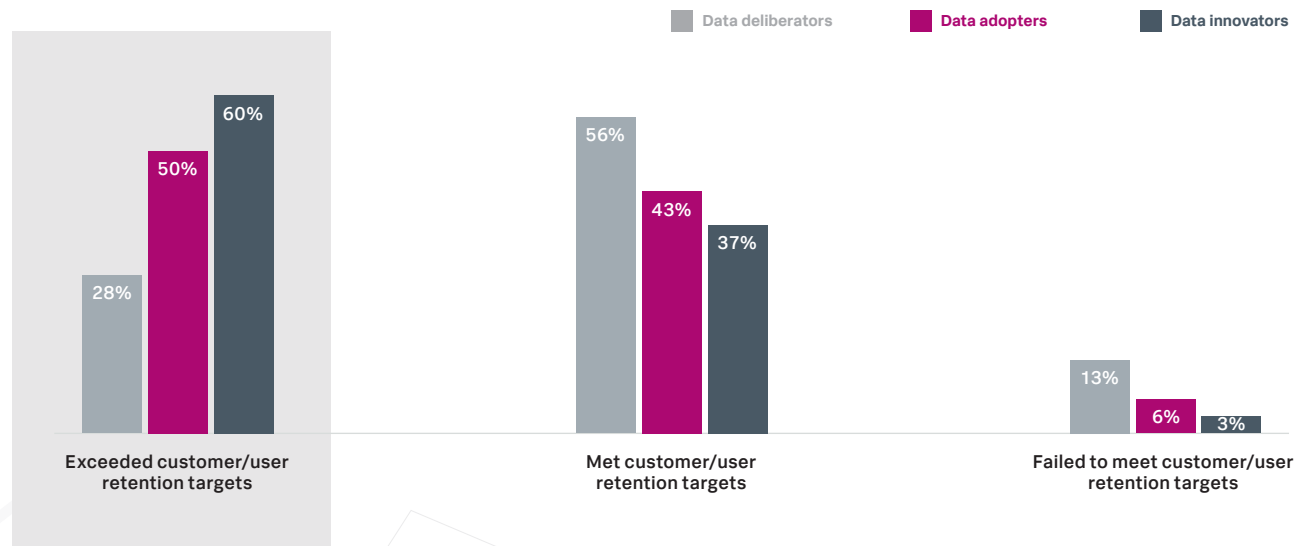
Source: Enterprise Strategy Group

Innovators are 2.1x more likely than deliberators to exceed customer retention goals

Data Lets Innovators Innovate

Customer expectations and the competitive landscape can change in the blink of an eye. As a result, organizations must be able to pivot quickly — or risk obsolescence. Data can help by enabling businesses to identify emerging trends, predict changes in consumer and market behavior, and reinvent themselves with new value-creation models. In fact, 95% of respondents say that data has the potential to improve their organization's research and development efforts. But once again, success hinges on data use maturity: 76% of data innovators innovate more often — and faster — by uncovering and better using data — a significantly higher proportion than data deliberators (55%).

A perfect example is The Weather Company. Once known for its daily weather forecasts, The Weather Company has transformed into a digital behemoth, parlaying its proprietary weather data into specialized products

and much-sought-after services that help commercial airplanes avoid turbulence, marketers steer advertising expenditures, and utility companies predict dangerous outages.

We're calling the lead group "data innovators," which raises the question: Are we able to further quantify the measurable differences in innovation between organizations based on how well they use their data? The answer is an emphatic yes. First, ESG asked respondents to describe their organization's timeliness in developing and launching new products. Nearly two-thirds (64%) of data innovators say they're usually ahead of their competitors in time to market. This is 2.6 times the frequency observed among deliberators (a mere 25% of whom report usually beating competitors to market, see Figure 6).

76%
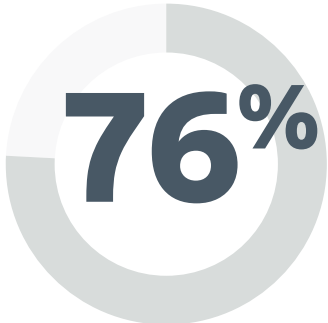
of data innovators innovate more often — and faster — by better using their data

6. Data Innovators Optimize Time to Market

"How would you characterize your company's timeliness developing and launching new products and services, relative to competitors/peer organizations?"

(Percent of respondents)

Data deliberators   **Data adopters**   **Data innovators**

	Data deliberators	Data adopters	Data innovators
We are usually ahead of competitors/peers	25%	49%	64%
We are usually in line with competitors/peers	54%	37%	29%
We are usually behind competitors/peers	22%	14%	7%
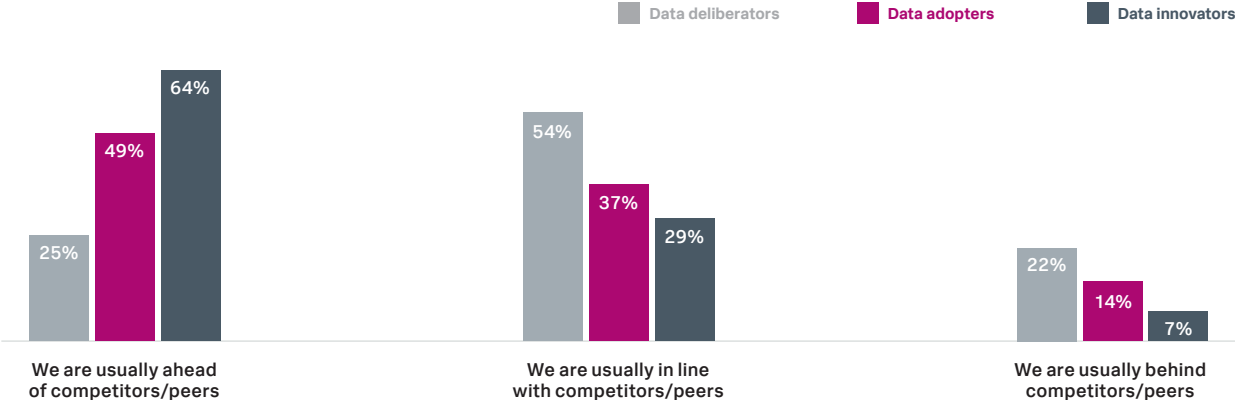
Source: Enterprise Strategy Group

Beyond bragging rights, time-to-market execution drives top-line business performance. ESG asked respondents to quantify the percentage of their organizations' revenue derived from products and services launched in the preceding two years. Nearly one-fifth (19%) of data innovators generate more than 20% of their annual revenue from new products and services developed in that time frame, whereas just 2% of data deliberators report the same degree of business transformation from innovation (see Figure 7).

7. New Products/Services Pay Off for Data Innovators

"To the best of your knowledge, approximately what percentage of your organization's revenue is derived from products/services that your organization launched within the past two years?"
(Percent of respondents)

Data deliberators **Data adopters** Data innovators

	More than 20% of revenue	16% to 20% of revenue	11% to 15% of revenue	6% to 10% of revenue	3% to 5% of revenue	1% to 2% of revenue
Data deliberators	2%	14%	27%	38%	15%	2%
Data adopters	4%	22%	40%	28%	5%	1%
Data innovators	19%	30%	31%	15%	5%	
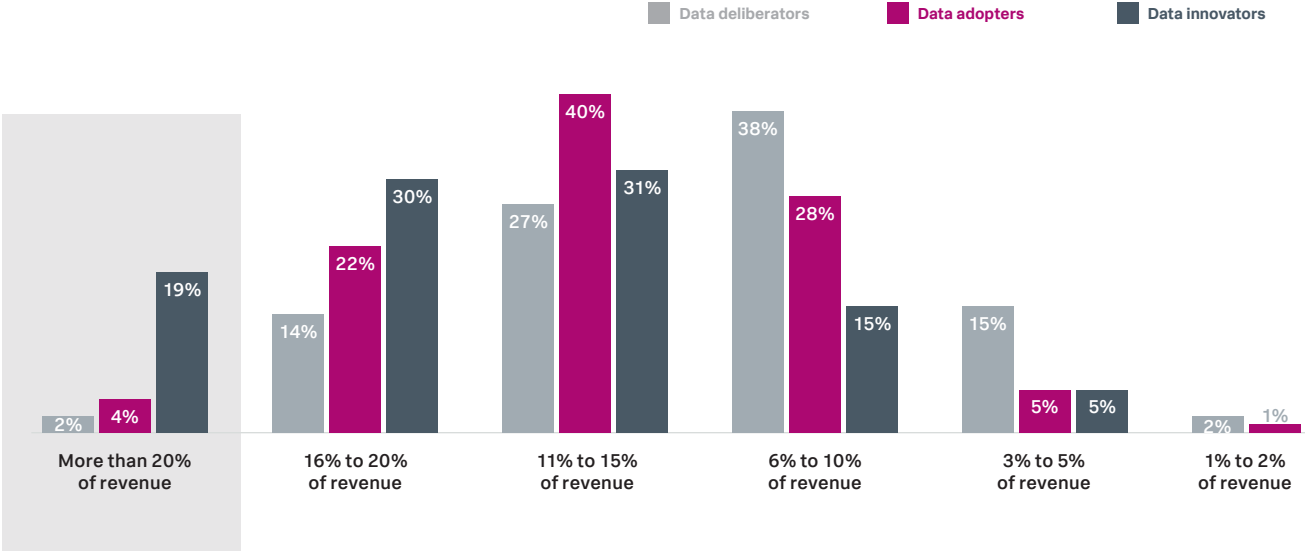
Source: Enterprise Strategy Group

Innovators are 9.5x more likely to drive >20% of revenue from newly developed offerings than deliberators

Data Innovators Master Decision-Making

Effective executive strategy development requires making tough calls. So it should come as no surprise that organizations are increasingly looking to data to determine whom to hire, which markets to enter, what the product roadmap should look like, and which possible acquisition targets make sense for the business. Indeed, 94% of organizations believe data has the potential to bolster executive decision support. The farther along the maturity curve, the greater the likelihood of data-driven decision-making success: 72% of data innovators have improved the speed or quality of decision-making by discovering and capitalizing on dark data, a significantly higher proportion than data deliberators (59%).

In fact, we observed dramatic differences in organizations' decision-making capabilities based on their varying data utilization maturity. When respondents were asked to characterize their organizations' success using data to make strategy decisions, 50% of data innovators reported that their company almost always makes better, faster decisions than competitors. By comparison, just 16% of deliberators feel they almost always outperform competitors when deciding, for instance, which markets to enter or products to develop. Put another way, data innovators were 3.1 times more likely than deliberators to master data-driven decision-making (see Figure 8).

72%
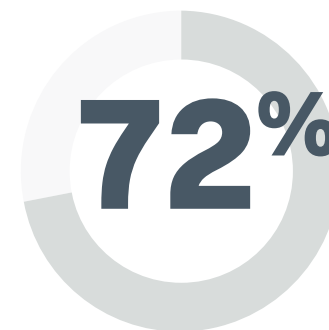
of innovators have improved their speed/quality of decision making through better data use

8. Data Innovators Make Faster, Better Decisions

"Generally speaking, how would you characterize your company's success at utilizing data (e.g., sales trends, product performance, customer behavior, etc.) to make effective strategy decisions (e.g., which markets to enter, products to develop, etc.), relative to competitors/peer organizations?"

(Percent of respondents)

Data deliberators   **Data adopters**   **Data innovators**

	Very successful, we almost always make better, faster decisions than our competitors/peers	Successful, we often make better, faster decisions than our competitors/peers	Neither successful, nor unsuccessful, we are usually in line with our competitors/peers	Unsuccessful, we often make worse, slower decisions than our competitors/peers	Very unsuccessful, we almost always make worse, slower decisions than our competitors/peers
Data deliberators	16%	42%	6%	19%	16%
Data adopters	27%	58%	3%	9%	3%
Data innovators	50%	43%	3%	3%	

Source: Enterprise Strategy Group

Innovators are **3.1x more likely than data deliberators to make better decisions** than their competitors

Moving from perception to concrete outcomes, ESG asked respondents whether they agreed that their organization had made a significant business advancement directly attributable to insights gleaned from data. Sixty-nine percent of data innovators strongly agreed that they had, compared to just 27% of deliberators (see Figure 9). **Innovators** are using their data to make the right business decisions faster.

9. Data Moves Innovators Forward

"Do you agree or disagree with the following statement: In the last 12 months my organization has made at least one significant business advancement directly attributable to insights gleaned from our data (e.g., developed a new product, entered a new market, adjusted pricing, better identified and developed talent, improved business processes, etc.)?"

(Percent of respondents)

Data deliberators   **Data adopters**   **Data innovators**

Strongly agree: 27% / 41% / 69%
Agree: 63% / 55% / 30%
Neither agree nor disagree: 8% / 3% / 1%
Disagree: 1% / 1%
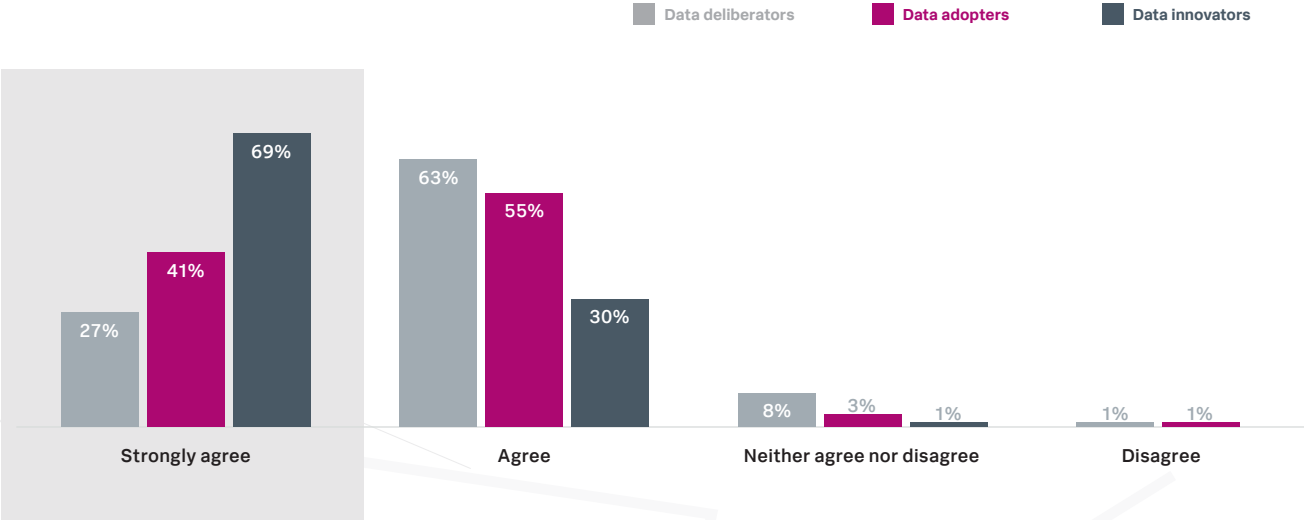
Source: Enterprise Strategy Group

Innovators are 2.6x more likely to strongly agree that business advancements are attributable to data than deliberators

Putting a Value on Intelligent Use of Data

Each of the business outcomes included in the research — IT service availability, product quality, customer experience, risk and fraud reduction, innovation — have logical ties to top-line revenue, operating costs or both. But the question remains: What is the actual economic worth of becoming a data innovator?

To answer this important question, ESG asked respondents whether, and to what degree, organizational revenue has increased in the past year as a direct result of better data usage. The answer: Data innovators as a group reported an average 5.32% increase in revenue over the last 12 months as a consequence of reducing dark data (see Figure 10), a significantly higher figure than either data adopters or deliberators.

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10. Better Data Use Drives Revenue

"By approximately what percentage do you think revenue has been increased in the last 12 months as a result of a reduction in dark data?"

(Mean)

2.84%	3.97%	5.32%
Data deliberators	Data adopters	Data innovators
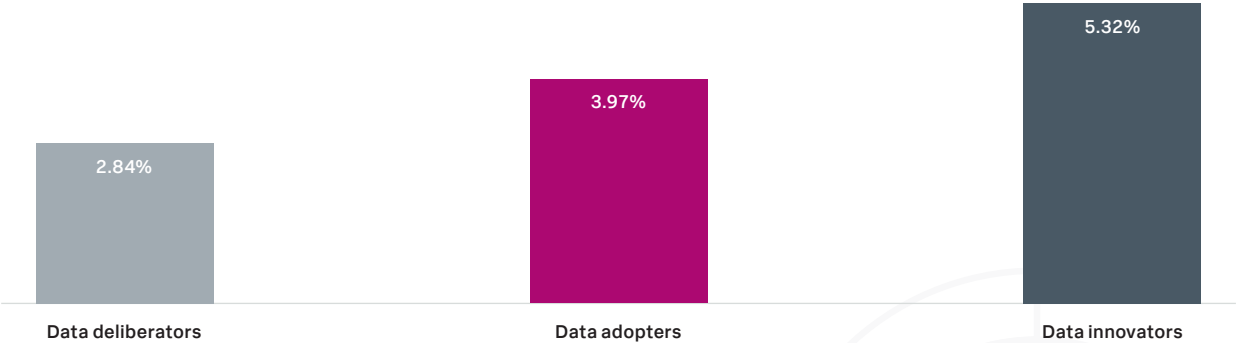
Source: Enterprise Strategy Group

On the flip side of the financial equation, ESG asked respondents whether, and to what degree, costs of operations have been decreased at their organization in the past year from improved data usage. Once again, data innovators outpace both adopters and deliberators, with a mean reduction of 4.85% (see Figure 11).

11. Better Data Use Cuts Costs

"By approximately what percentage have costs been decreased in the last 12 months as a result of the reduction in dark data?"

(Mean)

3.03%	3.94%	4.85%
Data deliberators	Data adopters	Data innovators
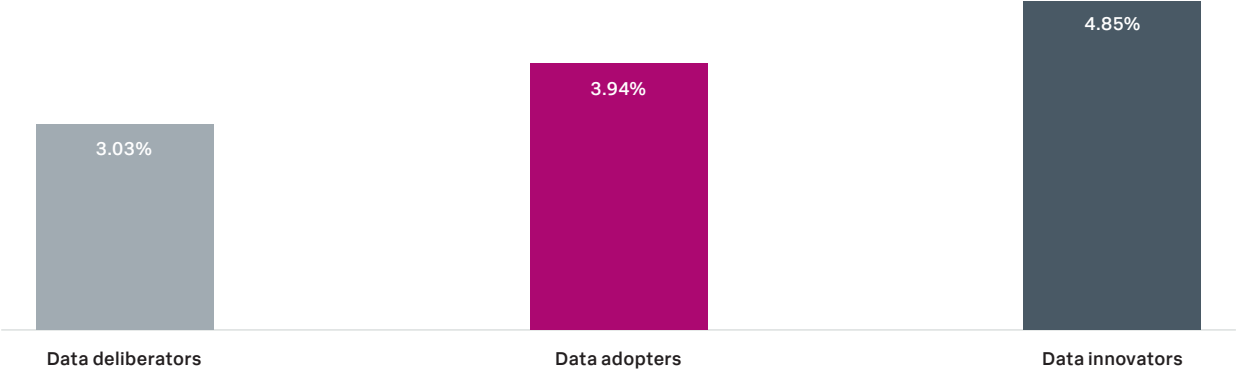
Source: Enterprise Strategy Group

Next, we combined these relative revenue and cost improvements with the average current revenue of all organizations participating in the survey ($800M) and a reasonable gross margin assumption (38%, based on the average trailing-twelve-month gross margin of S&P 500 component companies) to model the total economic value of higher data use maturity (see Figure 12). The tally: By ESG's calculations, innovators have created $38.2M in value over the past year by making smarter use of their dark data — meaning that about 12.5% of their total gross profit for the year is attributable to better use of their data.

12. Calculating the Economic Value of Improving Data Use

Revenue added over 12-month period due to improved data utilization

Annual revenue today ($800M) less annual revenue 12 months prior assuming no revenue improvement from data utilization ($759.6M)

✖

Assumed gross margin percentage

38.17% based on the average TTM gross margin of S&P500 component companies

➕

Costs reduced over 12-month period due to improved data utilization

Annual revenue 12 months prior assuming no revenue improvement from data utilization ($759.6M) multiplied by the COGS percentage (61.83%) multiplied by the cost reduction from data utilization (4.85%)

🟰

Approximate economic value created per 12-month period due to improved data utilization:

$38.2M

Source: Enterprise Strategy Group

While all segments (data deliberators, data adopters and data innovators) report data is helping their organizations drive value, data innovators are driving much more business impact than their less sophisticated counterparts, as shown in Figure 13. The data also shows that economic opportunity presented by maximizing data use maturity scales with company size: The larger the organization, the higher the stakes. While data innovators in the midmarket (500-999 employees) have created $22.3M on average in the past year thanks to better data use, large enterprise data innovators (5,000+ employees) have increased profitability by $207.7M.

13. **Putting a Dollar Value on Better Data Use**

Total economic value created through better data use in the past 12 months.

(Mean)

Bar chart:
- Data deliberators: $23,006,433
- Data adopters: $30,404,547
- Data innovators: $38,202,803
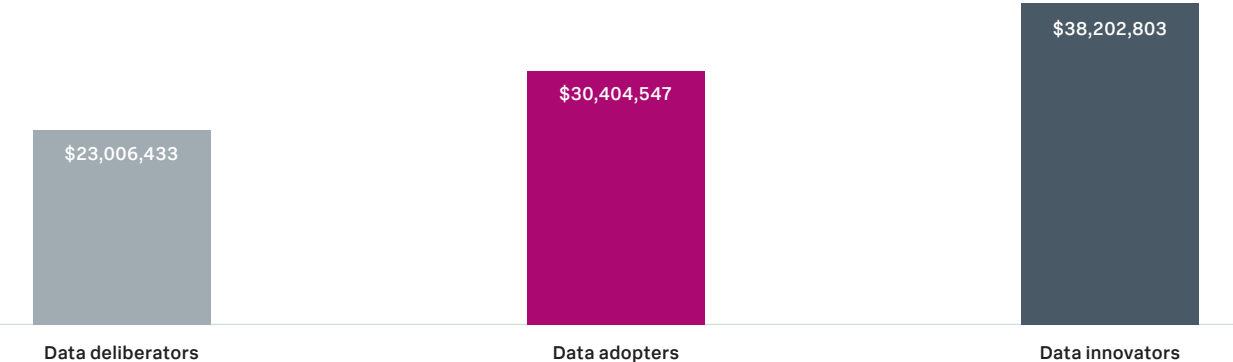
Source: Enterprise Strategy Group

What Data Innovators Teach Us

While no two organizations are the same, there are some common behaviors and tendencies that differentiate data innovators from their lower-performing peers.

Data innovators are more likely to have a "data-obsessed" company culture (69%) than data adopters (53%) and data deliberators (45%) — demonstrating that a deeply rooted passion for data directly affects an organization's ability to unlock the economic value of its data assets.

While the focus of this report has been on the actual impact of using data on different areas of the business, the precursor to that is the ability to use data to support activities. Not surprisingly, innovators are more apt to "bring data to everything," using data and analytics to support all activities and processes. For example, the rate at which data innovators report using data to support all IT operations activities (54%); all R&D processes (51%); and all cybersecurity activities (49%) — is nearly twice that of deliberators in all three cases.

Data innovators are also vastly more likely to employ artificial intelligence (AI) technologies for data analysis. But what does that mean, and why would it be good? AI refers to systems or machines that can simulate human intelligence to make decisions or perform tasks. These systems can be iteratively improved based on the data

they collect and the insights they derive from historical data and ongoing activities. For example, an ecommerce company with an AI engine that ingests traffic patterns and user-interaction data at scale can tailor offers to customers in real time to improve site visitors' experience.

AI offers several advantages over traditional query-based analytics and decision-making workflows, including:

- **Speed.** AI systems can act on data faster than humans can make query-based decisions.

- **Scale.** AI systems can ingest and retain more (and a greater variety of) data than humans to inform decisions.

- **Impartiality.** With proper training, AI systems can minimize bias in their decision-making processes.

- **Precision.** AI systems can create more precise inferences and calculations from data than humans.

- **Uptime.** AI systems can operate 24-7.

Effective use of AI helps unlock value from data at an accelerated pace.

Key Recommendations

1. **Invest for success.** Organizations in all industries have a fantastic opportunity to reap significant economic gains from their data, yet the vast majority fall short of data innovator status and are therefore leaving value on the table. To change this paradigm, organizations must be willing to fund analytics initiatives. This means purchasing best-of-breed tools that can ingest and analyze a variety of data sets to produce actionable output. It also means hiring, training and retaining staff with the skills to investigate important business questions through data analysis and the conviction to use the results to drive action. Winners and losers in today's data-driven economy will be determined, at least in part, by these investments. Our research shows that data innovators lead the way today: 52% allocate more than 20% of their IT budget to data and analytics initiatives, compared to 17% of data adopters and just 8% of data deliberators. Is your organization doing enough to keep up?

2. **Establish a leadership team to translate vision into reality.** Upsetting the status quo is difficult. Strong leadership is needed to effect meaningful change, which is exactly what most organizations need when it comes to using and capitalizing on their data. The presence of a chief data officer (CDO) who can establish a vision and strategy for data use, and has the mandate to make that vision a reality, is a critical success factor for any organization looking to optimize its data use. Companies with this kind of strong leadership excel at designing initiatives, securing budget, building the analytics team and changing the company culture to put data at the fore. Without an established executive to drive these efforts, companies are much more likely to falter. Again, data innovators outpace others in recognizing this need: 95% employ a CDO today, compared to 80% of adopters and just 29% of deliberators. Does your organization have the executive leadership needed to survive and thrive in a data-centric world?

3. **Democratize analytics tools.** Organizations are in a "data arms race" with their competitors. Whether it be identifying high-value prospects on which to focus sales and marketing efforts, deciding which product or service to allocate precious research and development assets toward, or determining which markets to enter and when, companies that can make better decisions, faster, will win the day. Making the right decision is directly reliant on having comprehensive and accurate data that can yield real-time insights, as well as advanced analytics tools that can ingest, index and analyze disparate datasets irrespective of data format and unimpeded by data silos. Equally important, however, is making these tools available to as broad a range of employees as possible. Our research shows more successful organizations do just that: 85% of data innovators say that they are making data investigation tools available to many of their employees, compared to only 31% of data deliberators. Is your organization giving its people the right tools to make the most of its data?

4. **Automate everywhere.** The wave of economic value being unleashed by data is driven by the confluence of many developments, including advances in new analytics tools and remarkable increases in the "four Vs" of data: volume, variety, velocity and veracity. While these will continue to shape the data landscape, the increasing use of automation, driven by new forms of artificial intelligence and machine learning, may prove to have the most profound impact on driving economic value gains from data use over the next decade. Where to start? Common metrics like sales trends, operational output, system and application performance and user behavior can all be benchmarked and monitored by today's tools so that anomalies can be detected. Automating these kinds of key performance indicators eliminates the need for your analysts to ask repetitive questions, reduces human error and allows data analysts to focus on higher-value tasks. Once again, we find that data innovators lead in this area: 65% report excellent progress toward automating data monitoring processes, as opposed to 42% of adopters and 14% of deliberators. Can your organization free its analysts from manual monitoring tasks so they can explore data for hidden insights?

5. **Measure your opportunity.** As the old maxim goes: it's impossible to improve what you can't measure. Organizations need to understand where they stand on the data use maturity spectrum to know what they stand to gain by improving their commitment to data, their analytical tools and skills and — ultimately — their effectiveness in using that data to create business value. Can you track your data maturity and quantify the value of your data assets?

To help organizations understand their own data use maturity, Splunk has made the findings of this research available through a five-minute, web-based self-assessment. Answer a few questions about your organization and get a customized view of how you stack up relative to peers in your industry, as well as an estimate of the total economic value that could be realized as a result of improving your data use maturity.

www.splunk.com/data-value-tool

Conclusion:
The Bigger Truth

Legacy systems, siloed business units, and inconsistent data tagging and taxonomies can all create pockets of dark data that prevent organizations from learning about their customers and anticipating market trends. Fortunately, there's a strong economic rationale for investing in the skills, technologies and human capital required to wrest value from these hidden bits and bytes. There's a demonstrable financial value to bringing more data to every strategic decision, to every action an organization takes. The incentives for an increasingly mature approach to data use will only increase, as will the penalties for falling behind. Data volumes, from an increasing number of sources, will continue to grow rapidly, as will the economic opportunities they present. But only for those who are ready to put all that data to use.

Global Highlights

Data Use Maturity Is a Global Challenge

Across the survey, we observed regional patterns in the data, but one truism stood out: Regardless of location, most organizations have a massive opportunity to improve their data use maturity. Only U.S. and German organizations attained data innovator status at a rate above the global average (16% for both, versus 11% globally; see Figure 14). This means that even in the most data-advanced countries, 84% of organizations surveyed still have significant work to do to increase their data use maturity — and significant benefits to be maximized as a result.

14. Data Use Maturity by Country

Percent of respondents in each country in each maturity stage

	Data deliberators	Data adopters	Data innovators
United States	44%	40%	16%
Germany	46%	38%	16%
France	47%	45%	8%
United Kingdom	47%	46%	7%
China	52%	41%	7%
Australia	54%	38%	7%
Japan	74%	26%	

Source: Enterprise Strategy Group

Data deliberators   Data adopters   Data innovators
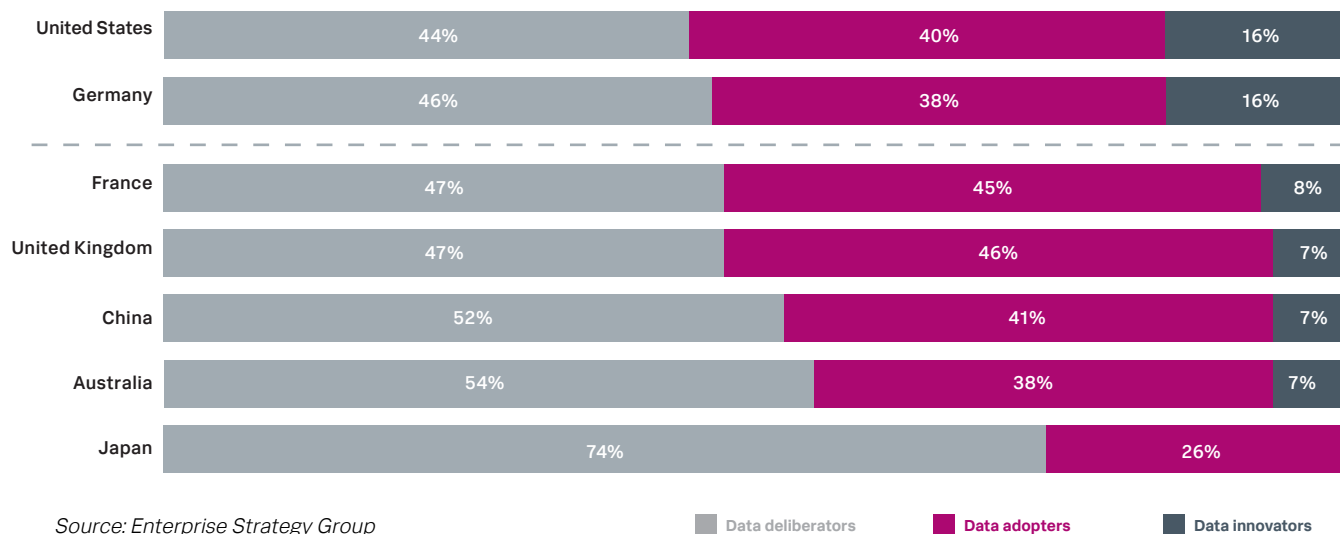
11% of organizations globally achieve innovator status

Country Highlights: United States

Investing for Innovation and Competitive Advantage

U.S.-based organizations in our research led other regions in terms of data use maturity. The majority (56%) have progressed beyond data deliberator status, placing first among the seven countries represented. One key driver of their maturity is that U.S. firms report the highest average annual investment in analytics technologies as a percentage of their overall tech spending (see Figure 15).

15. **Organizational Investment in Analytics, by Location**

Investment in analytics as percent of total IT spend

(Mean)

Global	United States	United Kingdom	Germany	France	China	Japan	Australia
15.3%	17.7%	15.8%	14.9%	15.5%	13.7%	11.6%	16.6%
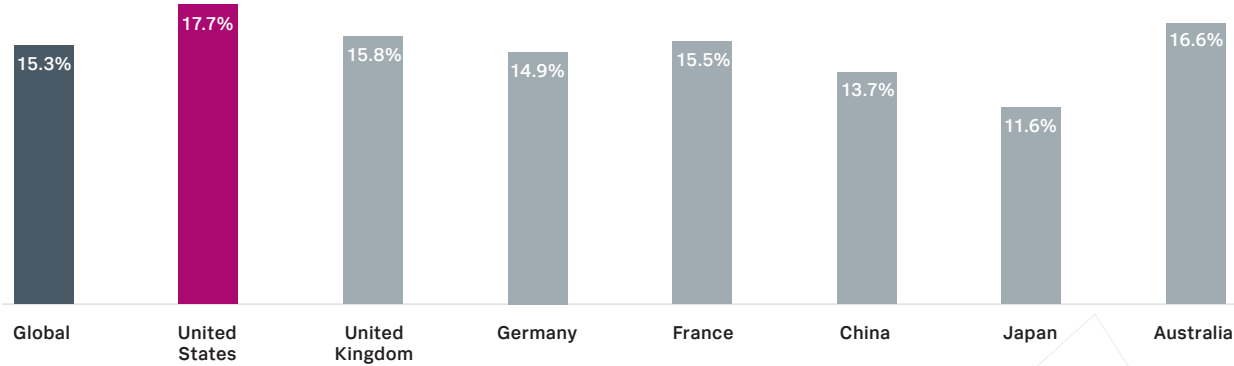
Source: Enterprise Strategy Group

This relatively high level of investment in analytics capabilities is paying off for U.S. organizations. Analytics projects are helping these organizations ingest, organize, analyze and act on their data: They are most likely to say that they have been "very successful" at using data to make better, faster decisions than their competitors (see Figure 16). Given the speed and intelligence with which U.S.-based organizations are moving, it's not surprising to note that 28% feel that they are in a "very strong position" to compete in their market(s) over the next few years, first among all countries included in this survey.

16. **Decision-Making Success, by Location**

Percent of organizations very successful at using data to make **better, faster decisions** than their competitors:	
Global	24%
United States	33%
United Kingdom	14%
Germany	32%
France	22%
China	13%
Japan	7%
Australia	24%

Source: Enterprise Strategy Group

Country Highlights: United Kingdom

Driving Productivity, Quality and Revenue Gains

UK-based organizations are among the leaders in data use maturity. The majority (53%) of UK organizations have progressed beyond data deliberator status; tied for third among the seven countries included in this survey.

One key use case for which UK organizations stand out is the use of data to help refine and optimize product and service offerings. UK organizations were the most likely to say that they have improved product or service quality as a result of better data utilization (see Figure 17). Another area of success relates to their people; 65% of UK organizations report that they have improved employee efficiency and productivity through better data discovery and use, first among all countries surveyed.

17. **Success at Improving Offerings with Data, by Location**

Percent of organizations that have improved product and/or service quality as a result of better data utilization.

Global	United States	United Kingdom	Germany	France	China	Japan	Australia
67%	66%	73%	67%	60%	68%	62%	70%
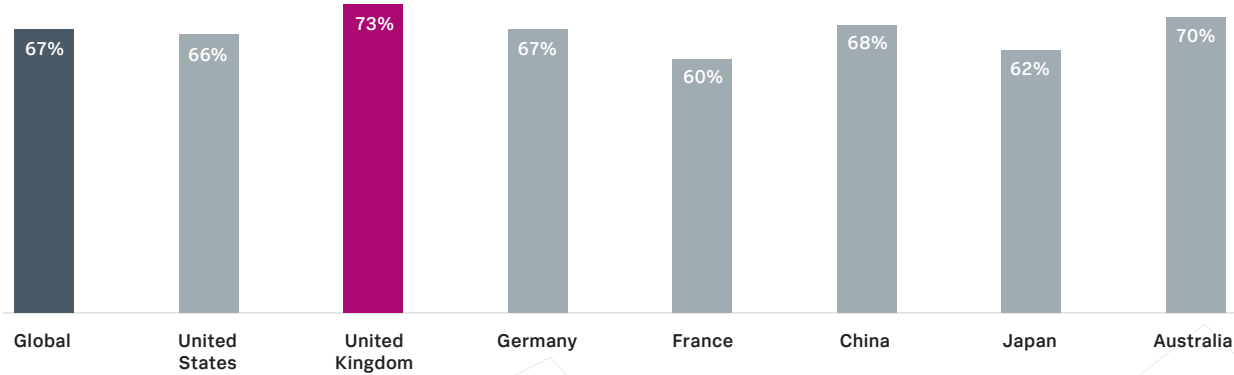
Source: Enterprise Strategy Group

UK organizations' success at using data to optimize offerings and get the most out of their people is having an impact on their top-line results. Among respondents attributing an increase in top-line revenues to improved data utilization, UK organizations report an average 12-month revenue gain of 3.97%; the second-highest increase among all countries surveyed (see Figure 18).

18. Data-Driven Revenue Improvements, by Location

Twelve-month average revenue increase through better data utilization.

Global	United States	United Kingdom	Germany	France	China	Japan	Australia
3.56%	3.93%	3.97%	3.47%	2.72%	4.05%	2.14%	3.49%
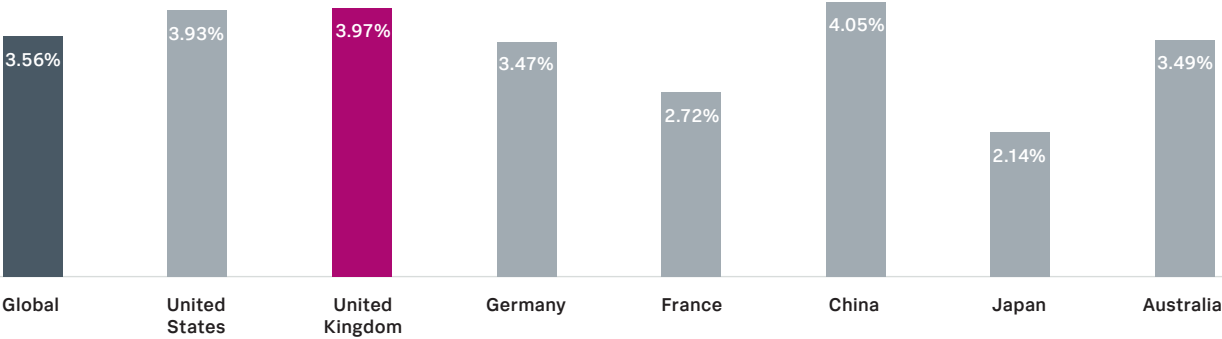
Source: Enterprise Strategy Group

Country Highlights: Germany

Driven by Data

German-based organizations trail only their U.S.-based counterparts in data use maturity. The majority (54%) have progressed beyond data deliberator status. One key driver of their maturity is that German firms are the most likely to report having a "data-obsessed" company culture; 60% report that collecting, integrating and analyzing data is central to everything the organization does. This focus on data shows up in their behaviors: German organizations were the most likely to say that all their business decisions must be supported and validated by quantitative data (see Figure 19).

19. **Use of Analytics for Decision-Making, by Location**

Percent of organizations in which all business decisions are required to be validated by quantitative data.
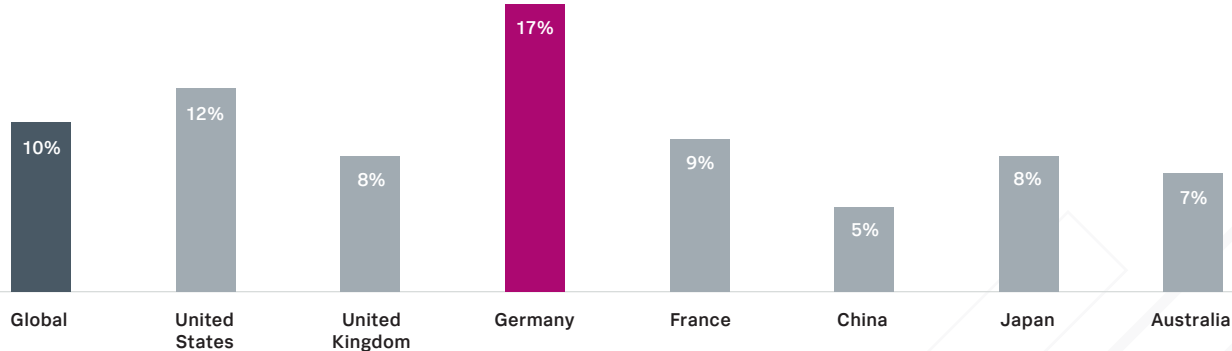
Source: Enterprise Strategy Group

The priority these companies give to understanding and using their data is deeply rooted and unlikely to change in the near future: German firms are most likely to say that uncovering and better utilizing dark data is their top business priority over the next 24 months (see Figure 20).

20. Priority Placed on Data Use, by Location

Percent of organizations stating that uncovering and better utilizing dark data is their most important business and IT priority over the next 24 months:	
Global	25%
United States	24%
United Kingdom	23%
Germany	41%
France	18%
China	31%
Japan	21%
Australia	22%

Source: Enterprise Strategy Group

Country Highlights: France

Addressing Organizational Headwinds

French-based organizations represented in our research have done an admirable job advancing data use maturity. The majority (53%) have progressed beyond data deliberator maturity status, tied for third among the seven countries included in this survey. By most measures analyzed in this survey, French organizations were in the middle of the pack, rarely reaching the top or bottom of any list. However, the data suggests that organizational issues are holding French firms back: 30% report that a lack of support from executives is a challenge for their analytics initiatives, the highest rate among all countries represented. This lack of support shows up in staffing. Relative to organizations in other countries, French firms are second-to-least likely to currently have a chief data officer in place (see Figure 21).

21. Employment of a Chief Data Officer, by Location

"Does your company employ a chief data officer that is a peer to other C-suite executives and formally in charge of all data analytics initiatives?"								
	Global	**United States**	**United Kingdom**	**Germany**	**France**	**China**	**Japan**	**Australia**
Yes	56%	62%	57%	57%	44%	59%	38%	64%
Planning	18%	16%	11%	19%	30%	17%	21%	14%
Interested	21%	16%	23%	21%	21%	23%	31%	18%
No plans or interest	6%	9%	7%	3%	5%	1%	10%	4%

Source: Enterprise Strategy Group

On a more positive note, it appears that hiring practices are set to change, with 30% of French firms planning to hire a CDO in the next 12 months. Additionally, optimism is running high for these firms: French organizations were most likely to believe that data and analytics can "dramatically" improve IT operations outcomes (see Figure 22) and are five percentage points above the global average when it comes to applying analytics to all or most IT operations processes.

22. **Belief that Data Can Drive IT Outcomes, by Location**

Percent of organizations that believe data and analytics can dramatically improve IT operations.

Global	United States	United Kingdom	Germany	France	China	Japan	Australia
33%	37%	33%	23%	41%	33%	30%	29%
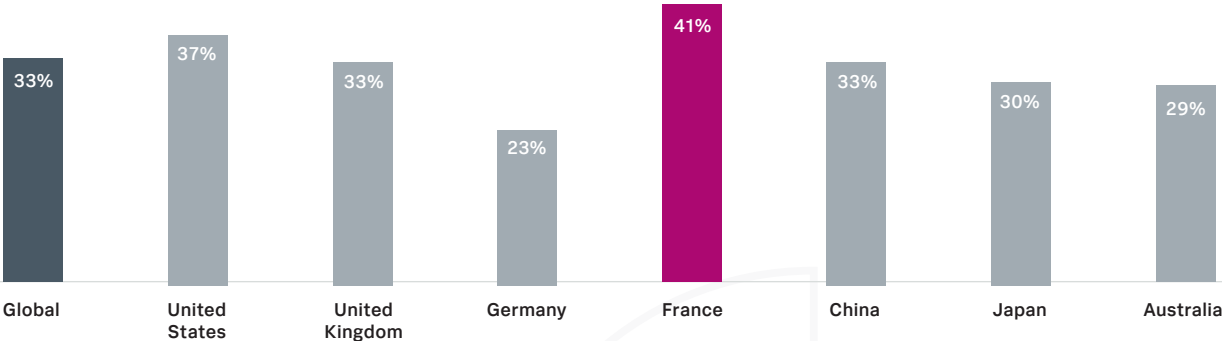
Source: Enterprise Strategy Group

Country Highlights: China

Improving the Customer Experience

Less than half (48%) of Chinese organizations surveyed have progressed beyond data deliberator status, placing this region fifth among the seven countries included in this survey.

A noteworthy trend: Chinese firms surveyed for this research appear to be particularly focused on customer experience (CX). While Chinese respondents were more likely to consider their company culture to be "customer-obsessed" than "data-obsessed," they nevertheless were most likely to believe that data and analytics have the potential to "dramatically" improve CX outcomes (see Figure 23). This belief appears to be the result of early successes: These organizations are also most likely to report having improved CX as a result of more effective data and analytics use (see Figure 24).

23. Priority Placed on Data Use, by Location

Percent of organizations believing that data and analytics can "dramatically" improve customer experience outcomes for their organization:	
Global	**33%**
United States	**34%**
United Kingdom	**27%**
Germany	**29%**
France	**33%**
China	**44%**
Japan	**35%**
Australia	**31%**

Source: Enterprise Strategy Group

24. **Belief that Data Has Improved CX Outcomes, by Location**

Percent of organizations that have improved customer service and experience
through better data utilization.

Global	United States	United Kingdom	Germany	France	China	Japan	Australia
63%	64%	62%	61%	61%	67%	66%	56%
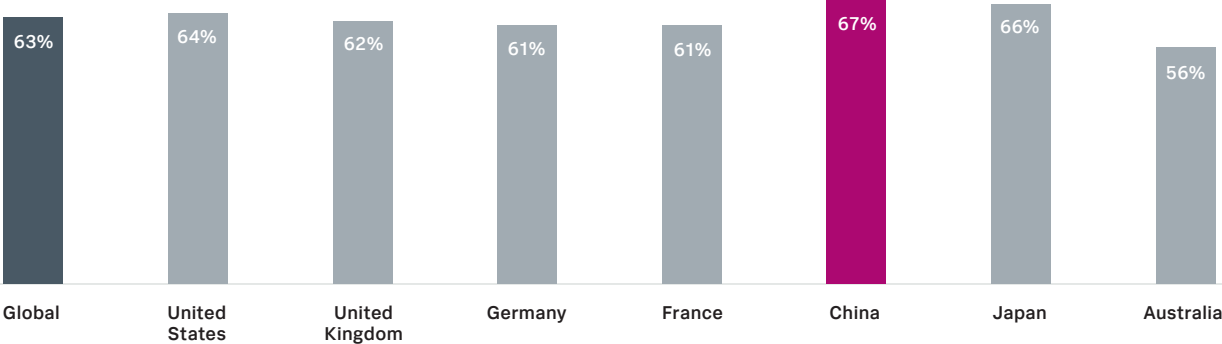
Source: Enterprise Strategy Group

Finally, Chinese organizations appear to be applying data to the pursuit of efficiency: 68% of Chinese companies report
having reduced fraud and waste as a result of better data utilization, the highest rate observed globally.

Country Highlights: Australia

Reducing Dark Data and Reducing Costs

Most Australian organizations surveyed (55%) have not yet evolved beyond data deliberator maturity status, which places Australia sixth among the seven countries included in this survey in terms of overall maturity. While the majority of Australian organizations are still at the deliberator level of maturity, these entities report excellent progress in two key areas: First, relative to other countries in the survey, they have done the best job at reducing dark data over the past 12 months (see Figure 25). Given that these organizations tend to have a lot of dark data, their opportunity to improve over the near term is large, and recent progress is encouraging. Secondly, it appears that the gains from reducing dark data are reaching these organizations' bottom lines at an accelerated clip. Over the last 12 months, Australian firms report the largest average decrease in costs tied to better data discovery and use over the past year (see Figure 26).

Finally, in terms of use cases, Australian organizations stand out when it comes to using data for production: 63% of Australian companies have decreased time to market or manufacturing time through improved data use, the highest percentage among all countries in the research.

25. **Recent Success Reducing Dark Data, by Location**

Percent of organizations that have reduced their volume of dark data over the past 12 months.

Global	United States	United Kingdom	Germany	France	China	Japan	Australia
53%	53%	59%	43%	34%	65%	50%	74%
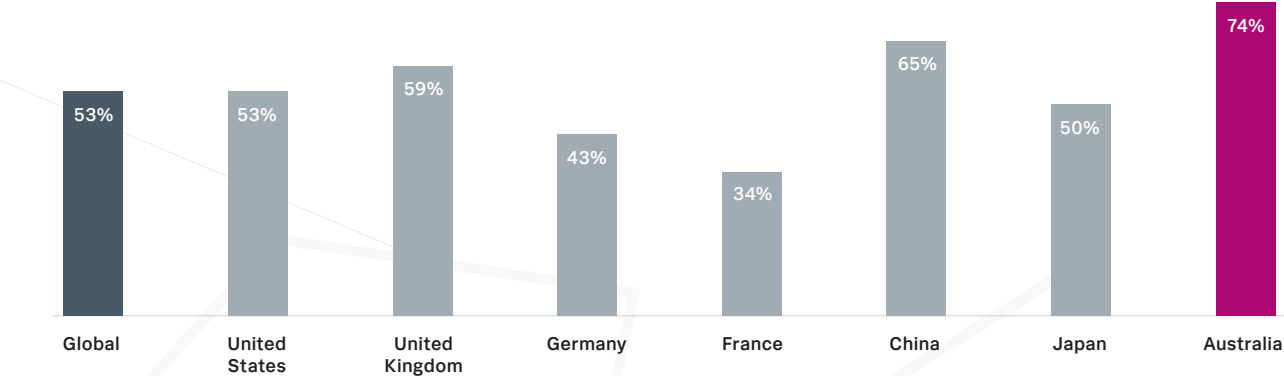
Source: Enterprise Strategy Group

26. **Reduction in Costs by Better Data Use, by Location**

Twelve-month average cost reduction through better data utilization.

Location	Value
Global	3.59%
United States	3.79%
United Kingdom	3.57%
Germany	3.73%
France	3.30%
China	3.34%
Japan	3.04%
Australia	3.81%
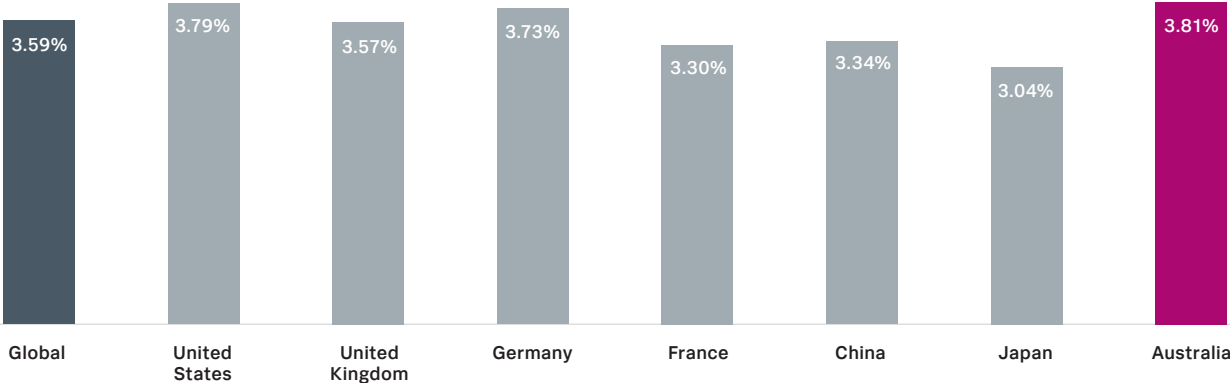
Source: Enterprise Strategy Group

Country Highlights: Japan

Battling Skills Gaps and Funding Shortfalls

Only 26% of Japanese organizations have progressed beyond data deliberator maturity status, ranking last out of the seven countries included in this survey. However, it is important to note that Japanese firms are by no means data-averse: 33% say they bring data and analytics to all executive decision support processes, best among all countries surveyed (see Figure 27).

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27. Use of Data to Inform Executive Decisions, by Location

Percent of organizations using data and analytics for all executive decision support activities/processes.

Global	United States	United Kingdom	Germany	France	China	Japan	Australia
27%	27%	24%	25%	19%	29%	33%	28%
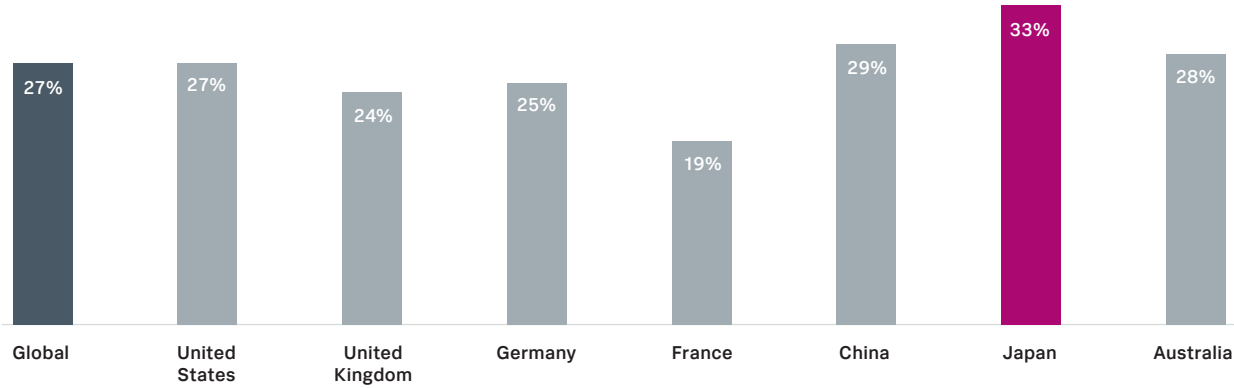
Source: Enterprise Strategy Group

Rather, the data suggests that investments in technologies, skills development and organization structure are not keeping pace with those of their global peers. Japanese organizations are least likely to have a permanent chief data officer in place: Just 38% report employing a CDO today versus the global average of 56%. Additionally, Japanese companies spend the lowest relative share of their IT budget on data analytics initiatives: 34% allocate 10% or less of their IT spending, which compares poorly to the 21% across the entire dataset that do. The result? Japanese firms are the most likely to report challenges with insufficient data analysis tools and skills (see Figure 28).

28. **Select Data Analytics Challenges, by Location**

Percent of organizations reporting data analytics challenges in the following areas:		
	Insufficient **analysis tools**	Insufficient **analysis skills**
Global	28%	31%
United States	28%	32%
United Kingdom	30%	33%
Germany	23%	31%
France	25%	29%
China	27%	29%
Japan	35%	38%
Australia	26%	24%

Source: Enterprise Strategy Group

Industry Highlights

How Industries Stack Up on Data Use Maturity

Looking at data use by industry uncovers a large cross-industry opportunity to improve maturity. Only technology and financial services firms have attained data innovator status at a rate above the aggregate average (21% and 15% respectively, versus 11% in the aggregate, see Figure 30). This means that even in the most data-advanced industry, nearly four of five organizations surveyed still have an opportunity to transform the way they use data to drive meaningful improvements in bottom-line outcomes.

29. Data Use Maturity by Industry

Percent of respondents in each maturity stage, by industry

Industry	Data deliberators	Data adopters	Data innovators
Technology	34%	45%	21%
Financial	37%	48%	15%
Communications & Media	50%	42%	9%
Manufacturing & Resources	64%	28%	8%
Retail	52%	42%	6%
Healthcare & Life Sciences	63%	30%	6%
Public Sector	60%	37%	3%
Higher Education	64%	35%	1%
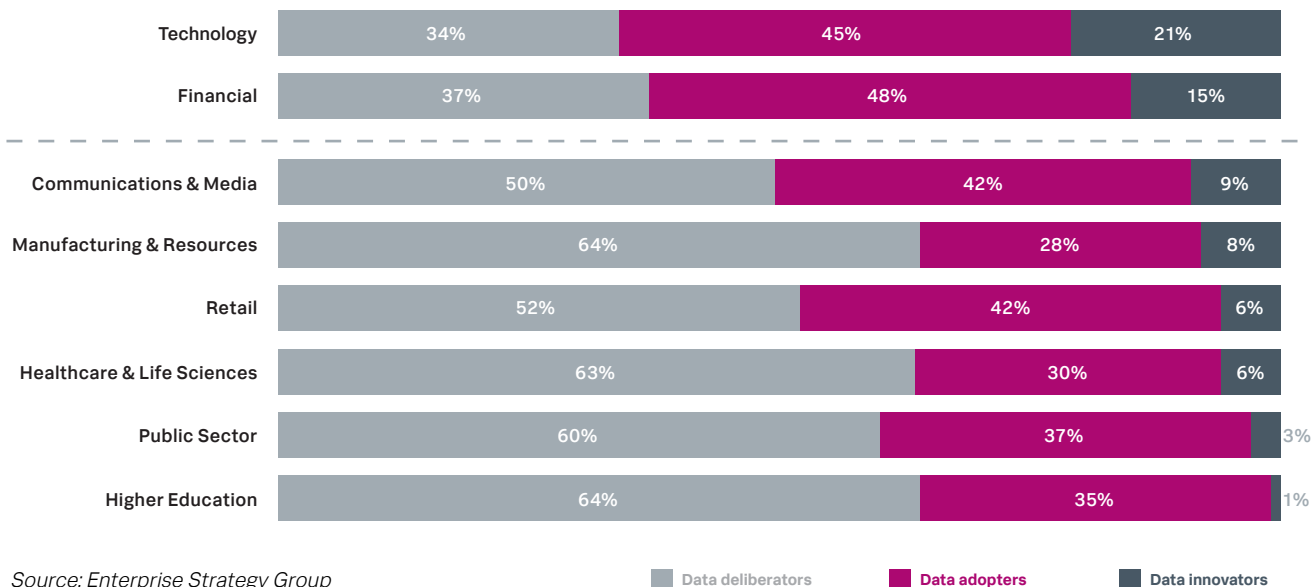
11% of organizations across all industries achieve innovator status

Source: Enterprise Strategy Group

Data deliberators   Data adopters   Data innovators

Industry Highlights: Technology

Dual-Pronged Data Excellence

More than one-fifth (21%) of technology firms have reached data innovator status in terms of data use; this ranks first among eight industry sectors analyzed in this study. Success is driven by a culture that embraces data and is spearheaded by a chief data officer: 65% percent of tech firms surveyed describe their organization as "data obsessed" and 75% employ a CDO today. Both figures are the highest observed across all industries surveyed.

Tech firms are also more likely to report security benefits attributable to their data initiatives: 50% say their protection from cyberthreats is better and more predictive, while 45% say they are better able to secure their intellectual property (see Figure 30). Given this, it is not surprising to note that 69% of tech firms surveyed believe better data use is reducing their organizational risk, ranking first among industries represented.

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30. Benefits of Better Data Use, Technology Sector

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of technology respondents, N=250, multiple responses accepted)

Better and more proactive protection from cyber threats	50%
Ability to better personalize offers, products and customer service	47%
More effective security of intellectual property	45%
Effectively embedded AI into our products and services	44%
Ensuring customers' data security and privacy	43%
Better analysis and action taken on data from "Internet of Things" devices	43%
Reduced software/product development times	34%

Source: Enterprise Strategy Group

Technology firms are also driving business transformation with their data. On average, tech firms report that 13.9% of their revenue is driven by product/service offerings that did not exist just two years ago, the highest percentage observed across industries. Technology firms are driving this innovation thanks to rapid, data-driven decision-making capabilities: 35% say that they almost always make better, faster decisions than competitors. One contributor to their ability to make business decisions in real time is their best-in-class use of artificial intelligence to automate the decision-making process: 45% of technology firms are using AI today to help make business decisions with minimal human intervention, first among all industries surveyed (see Figure 31).

31. Use of AI for Data Analysis, by Industry

Percent of organizations using AI for data analysis today.

Industry	Percent
Global	34%
Technology	45%
Finance	36%
Communications & Media	32%
Manufacturing & Resources	29%
Retail	33%
Healthcare & Life Sciences	31%
Public Sector	20%
Higher Education	29%
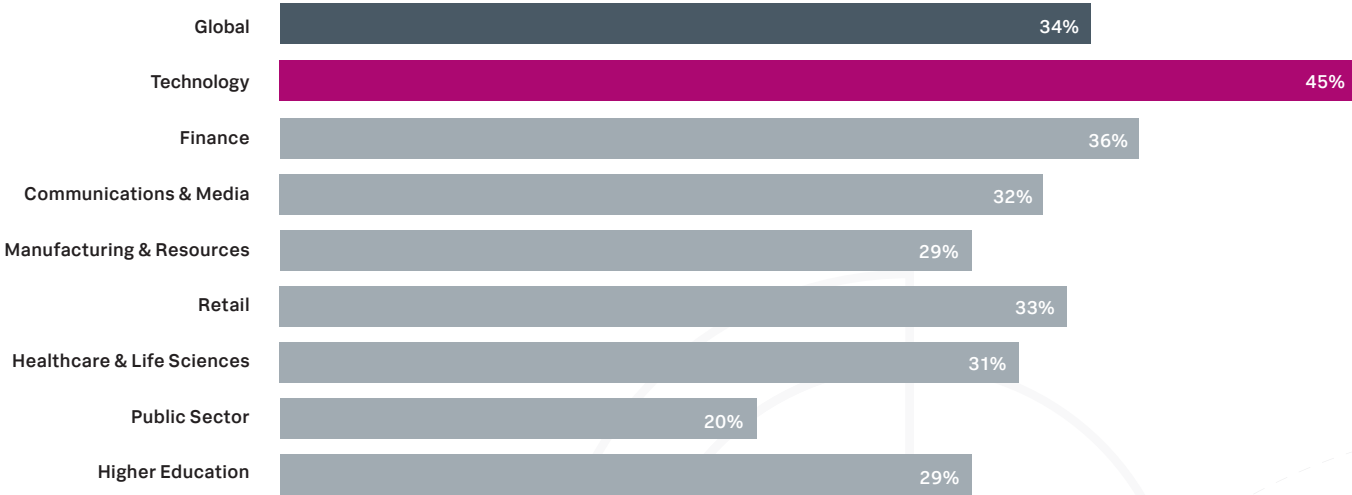
Source: Enterprise Strategy Group

Industry Highlights: Finance

Protecting Customers While Optimizing Experience

Fifteen percent of financial services firms surveyed have reached data innovator status in terms of data use; this ranks second among eight industry sectors analyzed in this study. For finance firms, a mature stance toward data is approaching existential importance: 89% feel intelligent use of data and analytics is becoming the only source of differentiation in the financial services industry. Thus far, these organizations are rising to the challenge: 73% report success at using data to enhance customer experience, while 71% report success at using data to enable innovation — both of which are cross-industry highs (see Figure 32).

32. **Use of Data to Improve CX and Innovation, by Industry**

Percent of organizations reporting success using data to impact business outcomes:		
	Improved **customer experience**	More/faster **innovation**
Global	63%	61%
Technology	58%	66%
Finance	73%	71%
Communications & Media	58%	67%
Manufacturing & Resources	63%	52%
Retail	52%	56%
Healthcare & Life Sciences	61%	56%
Public Sector	63%	43%
Higher Education	61%	54%

Source: Enterprise Strategy Group

Financial organizations also view data as an important tool to reduce risk. Financial firms frequently report that better data use is driving improved data security and privacy for customers and better protection from cyberthreats in general (see Figure 33). Given the sensitive, high-value nature of financial firms' data, it follows that they would bring to bear their highly mature data capabilities to protect themselves and their customers.

33. **Benefits of Better Data Use, Finance Sector**

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of financial respondents, N=311, multiple responses accepted)

Category	Percent
Ensuring customers' data security and privacy	53%
Better and more proactive protection from cyber threats	51%
Offering better, consistent customer experience across channels	50%
Easier to maintain and prove regulatory compliance	50%
Ability to better personalize offers, products and customer service	50%
Teams and tools are better able to detect fraud	49%
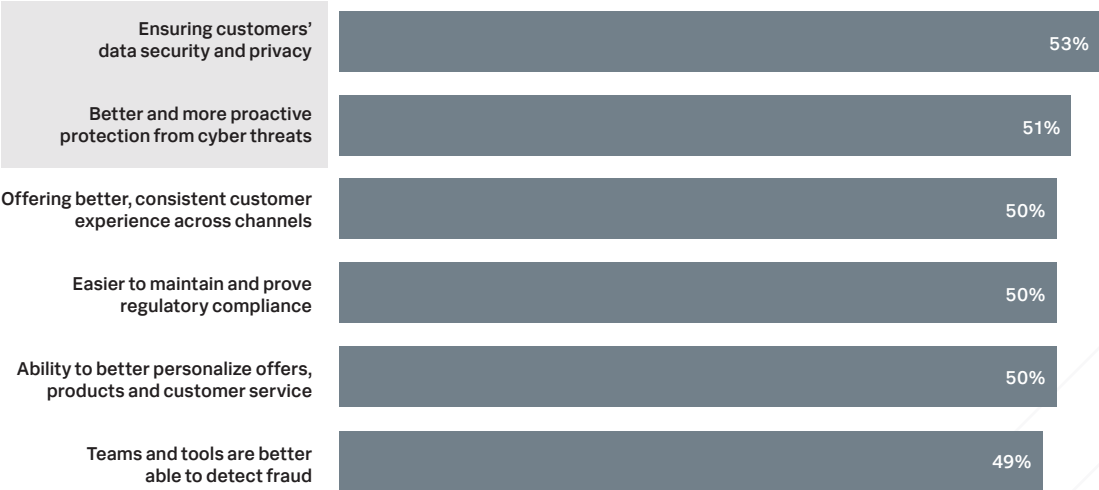
Source: Enterprise Strategy Group

Industry Highlights: Communications and Media

Automating to Reduce Cost, Focus on Transformation

Nine percent of telecom and media companies surveyed have reached data innovator status in terms of data use. While this is below the mean, it ranks third among the eight industry sectors analyzed in this study. Traditional communications and media companies are under pressure to transform: 93% say that they're vulnerable to disruption if they do not use their data to develop and optimize new offerings. To date, these organizations are confident that they are staying ahead of the innovation curve: 47% say that they're usually ahead of competitors when it comes to developing and launching new products and services, the highest rating among all industries surveyed (see Figure 34).

34. Innovation Performance, by Industry

Percent of organizations reporting they are usually ahead
of competitors/peers in time to market.

Industry	Percent
Global	39%
Technology	37%
Finance	44%
Communications & Media	47%
Manufacturing & Resources	29%
Retail	42%
Healthcare & Life Sciences	29%
Public Sector	30%
Higher Education	32%
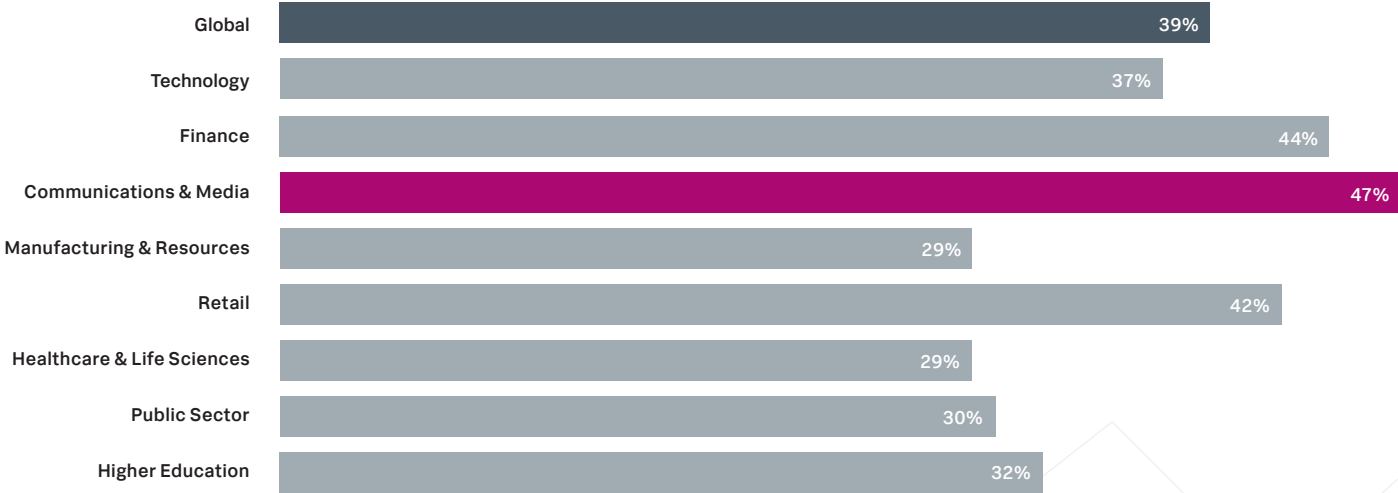
Source: Enterprise Strategy Group

As communications companies use their data to innovate, they are also aggressively automating analyses to reduce cost. Among organizations using AI today, communications companies were the most likely to report that they allow AI systems to take action without any human interaction, completely removing manual, human decisions from workflows. As a result, communications companies report the highest cost savings from better data use over the past year.

Both of these trends are evident in the top benefits reported by communications companies when asked about data utilization successes: 54% have been able to offer better more predictive customer services (probably bolstered by AI-driven efficiency), and 46% report rolling out new communications and content-related services (see Figure 35).

35. Benefits From Better Data Use, Communications and Media Sector

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

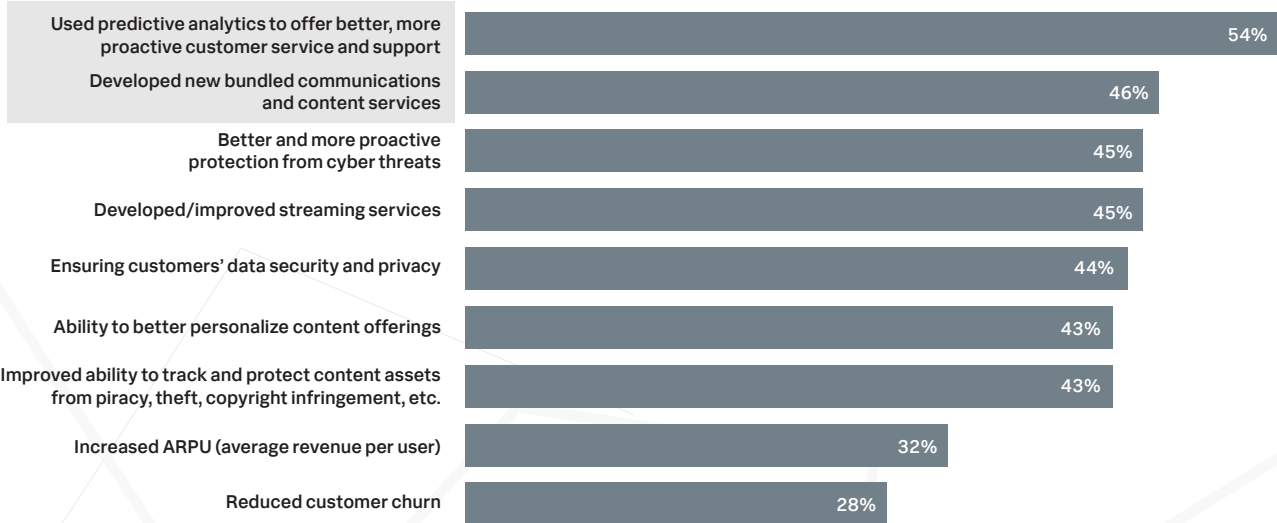(Percent of communications and media respondents, N=137, multiple responses accepted)

Used predictive analytics to offer better, more proactive customer service and support	54%
Developed new bundled communications and content services	46%
Better and more proactive protection from cyber threats	45%
Developed/improved streaming services	45%
Ensuring customers' data security and privacy	44%
Ability to better personalize content offerings	43%
Improved ability to track and protect content assets from piracy, theft, copyright infringement, etc.	43%
Increased ARPU (average revenue per user)	32%
Reduced customer churn	28%

Source: Enterprise Strategy Group

Industry Highlights: Manufacturing

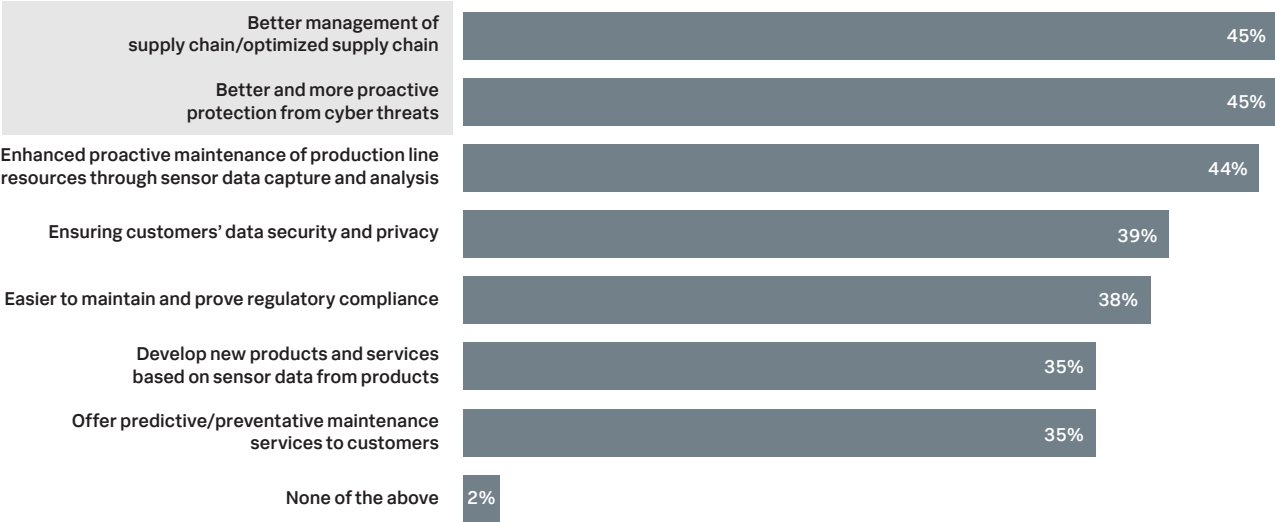## Data Use Is Evolutionary, Not Revolutionary

Eight percent of manufacturing companies surveyed have reached data innovator status, placing them squarely in the middle of the pack for reaching that level of maturity. These firms appear to be successfully using data to optimize established processes, but the general conservative nature of manufacturing organizations manifests itself in a reluctance to use data to make sweeping organizational or cultural changes.

Manufacturers are far from data skeptics, though: 93% acknowledge that improvements in process efficiency are more effectively driven by data. For example, 45% say that data has helped them optimize their supply chain, while 44% report improvements in production line uptime enabled by data-driven, predictive/proactive maintenance (see Figure 36). Perhaps most important in today's on-demand economy, 56% say data is helping to reduce manufacturing time.

36. Benefits From Better Data Use, Manufacturing

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of manufacturing and resources respondents, N=190, multiple responses accepted)

Category	Percent
Better management of supply chain/optimized supply chain	45%
Better and more proactive protection from cyber threats	45%
Enhanced proactive maintenance of production line resources through sensor data capture and analysis	44%
Ensuring customers' data security and privacy	39%
Easier to maintain and prove regulatory compliance	38%
Develop new products and services based on sensor data from products	35%
Offer predictive/preventative maintenance services to customers	35%
None of the above	2%

Source: Enterprise Strategy Group

However, manufacturers are not using data to radically impact strategic decisions today. They were the least likely group of organizations to strongly agree that they have made a significant strategic advancement in the last 12 months because of better data use (see Figure 37) and are the least likely to report having improved the speed of their decision-making with data.

37. **Use of Data to Make Strategic Advancements, by Industry**

Percent of organizations strongly agreeing that they have made a significant business advancement in the last year thanks to data:	
Global	37%
Technology	47%
Finance	48%
Communications & Media	41%
Manufacturing & Resources	23%
Retail	29%
Healthcare & Life Sciences	37%
Public Sector	25%
Higher Education	29%

Source: Enterprise Strategy Group

Industry Highlights: Retail

Making Strides With Security, Lagging Elsewhere

Six percent of retail companies surveyed have reached data innovator status in terms of data use, placing the industry in the bottom half of the eight industry sectors analyzed in this study. In this group, commitment to data as a change agent is low: as a cohort, retailers were the least likely organizations to be "data-obsessed" and generally underspend on analytics relative to other sectors (see Figure 38).

38. Retail Lags in Commitment to Data Use

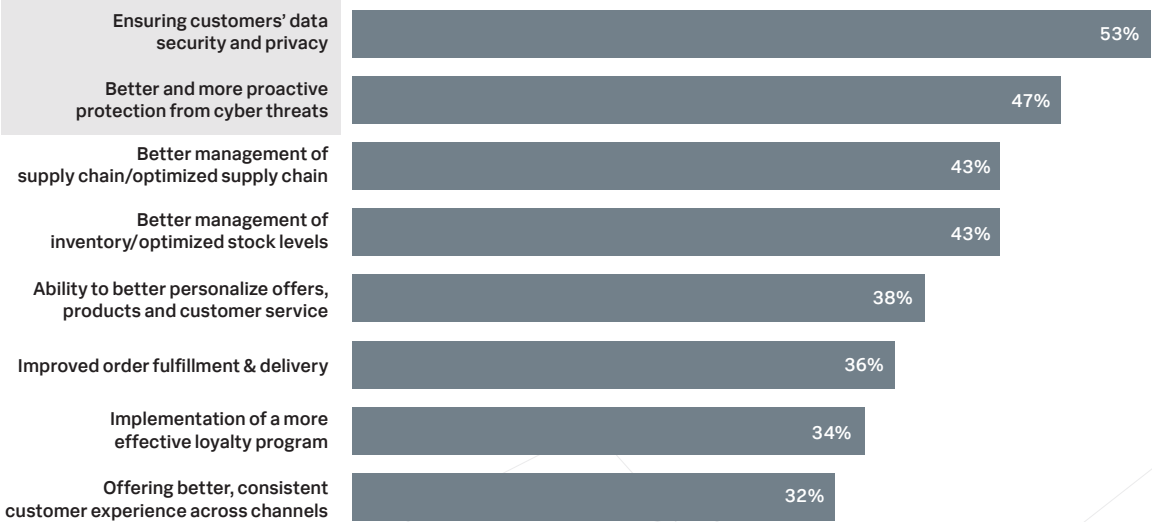|	Percent of organizations that are **data-obsessed**	Percent of organizations that **spend <10% of their IT budget** on data and analytics
Global	51%	20%
Technology	65%	12%
Finance	57%	16%
Communications & Media	53%	16%
Manufacturing & Resources	36%	26%
Retail	35%	38%
Healthcare & Life Sciences	46%	29%
Public Sector	55%	21%
Higher Education	49%	28%

Source: Enterprise Strategy Group

Given the lack of focus on data and analytics, it is not surprising to note that retail companies were the least likely to have reduced their costs with data, increased employee productivity, and improved customer experience. However, most of these firms recognize the link between data use and the potential to improve business outcomes: 79% agree they will be disrupted if they cannot improve their ability to use data to better customize products and offers to customers.

It is worth noting that retail organizations do feel data is helping to improve their security posture: 53% say they have used data to improve customer data security and 47% say they are reducing their cyber threat risk with data (see Figure 39). It remains to be seen which retailers will move past security use cases to thrive with customer-facing initiatives.

39. **Benefits From Better Data Use, Retail Industry**

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of retail/wholesale respondents, N=101, multiple responses accepted)

Ensuring customers' data security and privacy	53%
Better and more proactive protection from cyber threats	47%
Better management of supply chain/optimized supply chain	43%
Better management of inventory/optimized stock levels	43%
Ability to better personalize offers, products and customer service	38%
Improved order fulfillment & delivery	36%
Implementation of a more effective loyalty program	34%
Offering better, consistent customer experience across channels	32%

Source: Enterprise Strategy Group

Industry Highlights: Healthcare and Life Sciences

Protecting Customer Privacy, Struggling With Skills Scarcity

Six percent of healthcare and life sciences organizations surveyed have reached data innovator status in terms of data use, placing these companies in sixth place among the eight industry sectors analyzed in this study. These organizations are most likely to report that it is challenging to find funding for data-fluent staff (see Figure 40), so it makes sense that these organizations may not yet be at their desired maturity level. The result is that these organizations are not currently optimizing their economic gains from better data use: Healthcare and life sciences companies reported the lowest rate of additive revenue attributed to data use among commercial sectors surveyed (i.e., excluding higher education and other public sector agencies).

40. Challenges Funding Data-Centric Employee Hires, by Industry

Percent of organizations reporting they have had challenges securing funding to hire employees to spearhead data and analytics initiatives:	
Global	27%
Technology	24%
Finance	20%
Communications & Media	32%
Manufacturing & Resources	28%
Retail	29%
Healthcare & Life Sciences	36%
Public Sector	36%
Higher Education	33%

Source: Enterprise Strategy Group

Healthcare and life sciences firms appear highly motivated to improve their data capabilities: 88% of these organizations feel that data analysis will have as big an impact on health outcomes as other medical advancements in the future, so the stakes are high for these organizations to catch up.
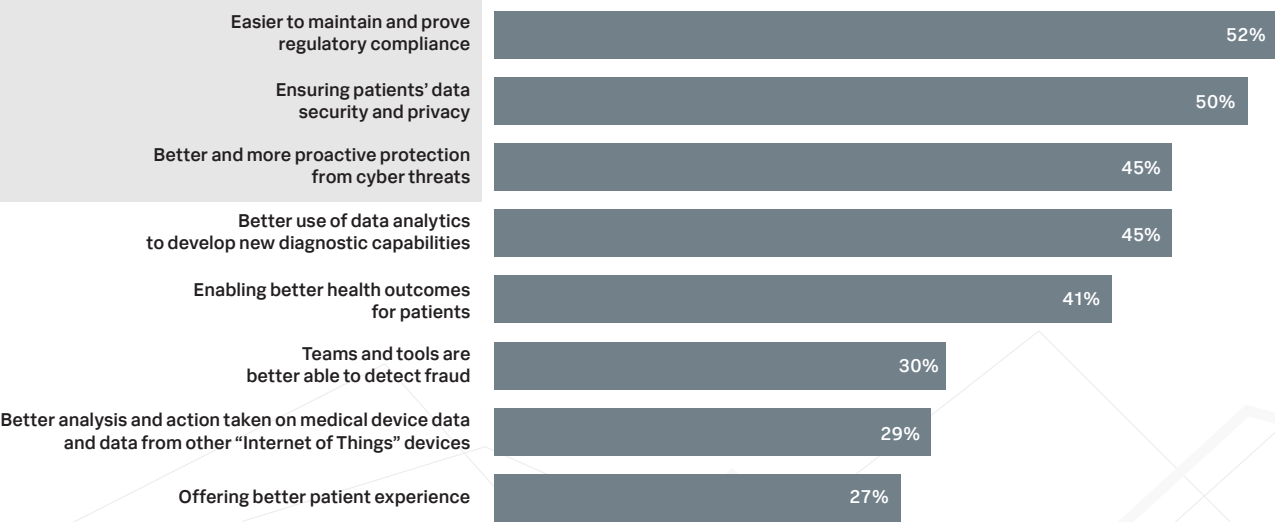
While there is still work to be done, healthcare and life sciences firms do indeed report a number of positive developments in terms of the benefits they are currently realizing from the analysis and use of data. These include improved regulatory compliance, better protection of patient data and reducing their cyber risk profile (see Figure 41).

41. Benefits From Better Data Use, Healthcare and Life Sciences Industries

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of healthcare respondents, N=56, multiple responses accepted)

Category	Percent
Easier to maintain and prove regulatory compliance	52%
Ensuring patients' data security and privacy	50%
Better and more proactive protection from cyber threats	45%
Better use of data analytics to develop new diagnostic capabilities	45%
Enabling better health outcomes for patients	41%
Teams and tools are better able to detect fraud	30%
Better analysis and action taken on medical device data and data from other "Internet of Things" devices	29%
Offering better patient experience	27%

Source: Enterprise Strategy Group

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of life sciences respondents, N=56, multiple responses accepted)

Category	Percent
Better and more proactive protection from cyber threats	50%
Development of data-intensive treatments such as gene-based therapies	50%
Ensuring patients' data security and privacy	45%
Better use of data analytics to develop new diagnostic capabilities	41%
Easier to maintain and prove regulatory compliance	41%
More effective security of intellectual property	39%
Better analysis and action taken on medical device data and data from other "Internet of Things" devices	36%
Accelerate drug discovery or other product innovation	32%
Improved clinical trial outcomes	23%

Source: Enterprise Strategy Group

Industry Highlights: Public Sector

Promoting Public Welfare Despite Headwinds

Three percent of public sector organizations surveyed have reached data innovator status in terms of data use, placing these agencies in seventh place among the eight industry sectors analyzed in this study. These organizations are frequently facing both people and technology issues when it comes to making the most of their data. On the technology front, public sector agencies were the least likely to report that employees have the right tools and data access to generate meaningful analyses. They were also the least likely to report making their first forays into applying AI for analytics applications. From an organizational perspective, public sector organizations are the least likely to currently employ a chief data officer.

The result is not surprising: These organizations are drowning in data. They were the most likely to report challenges with both data growth and managing/integrating data (see Figure 42).

42. Select Data Challenges, by Industry

Percent of organizations reporting scale-related data challenges:		
	Challenges managing **data growth and capacity**	Challenges **managing/ integrating data**
Global	31%	31%
Technology	29%	25%
Finance	24%	30%
Communications & Media	34%	31%
Manufacturing & Resources	33%	29%
Retail	36%	30%
Healthcare & Life Sciences	34%	29%
Public Sector	42%	42%
Higher Education	35%	41%

Source: Enterprise Strategy Group

While public sector institutions certainly have room to optimize their data strategies, there are some "green shoots" when it comes to the benefits they are seeing from their current data use. For instance, many cited an improved ability to identify high-risk social cases and the better delivery of services to constituents (see Figure 43).

43. Benefits From Better Data Use, Public Sector

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of public sector respondents, N=85, multiple responses accepted)

Better prediction of high risk cases	51%
Delivered better services to constituents	49%
Better and more proactive protection from cyber threats	49%
Improved service eligibility and approval processes	44%
Offer better, consistent constituent experience across channels	42%
Ensuring constituents' data security and privacy	42%
Automated application processes, eligibility decisioning, responding to constituent inquiries, etc.	38%

Source: Enterprise Strategy Group

Encouragingly, these agencies know they must improve their capabilities: 97% agree that their ability to ingest, index and cross-correlate disparate data sets must improve to optimize public policy outcomes.

Industry Highlights: Higher Education

Facing Multifaceted Challenges

Just 1% of the higher education institutions surveyed have reached data innovator status, placing educators in last place among all eight industry sectors analyzed in this study. There are many areas where these organizations lag today. They were the least likely to report that all or almost all relevant staff have the right skills to investigate data. Not surprisingly, this leads to challenges in turning data into actionable insight (see Figure 44). Additional data challenges include difficulties securing budget for technology investments and hesitant employees that fear automation.

44. **Select Data Challenges, by Industry**

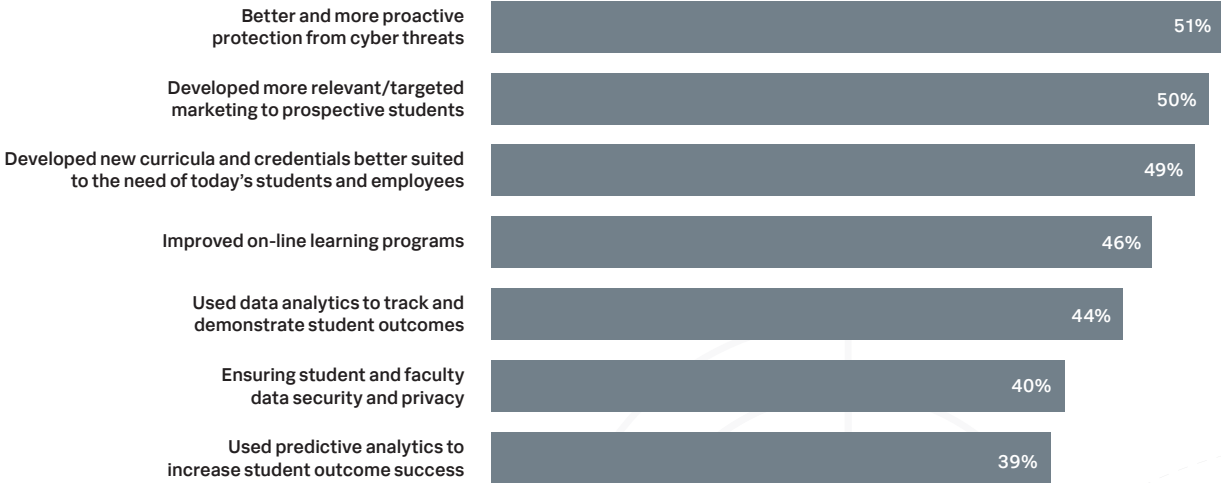|	Percent of organizations reporting data challenges:		
	Insufficient tools to **turn data into insight**	**Lack of funding** for relevant systems	Lack of support among employees/**unwillingness to automate responsibilities**
Global	28%	26%	30%
Technology	24%	25%	26%
Finance	29%	28%	30%
Communications & Media	30%	26%	36%
Manufacturing & Resources	23%	21%	26%
Retail	30%	23%	23%
Healthcare & Life Sciences	24%	22%	30%
Public Sector	33%	28%	40%
Higher Education	38%	42%	45%

Source: Enterprise Strategy Group

Educational institutions seem to most often be focusing their data efforts on eliminating negative outcomes rather than using data to create positive ones. For example, enhanced protection from cyber threats leads the list of achieved benefits, although half of responding institutions report using data to improve targeted marketing to prospective students and to develop new curricula to meet students' needs (see Figure 45). Indeed, student experience is top of mind: 91% agree they must improve the way they analyze network data to give students the online experience they need, while also detecting security threats and preventing abuse.

45. Benefits From Better Data Use, Higher Education

"Has your organization been able to achieve any of the following due to an improved ability to use your data?"

(Percent of higher education respondents, N=114, multiple responses accepted)

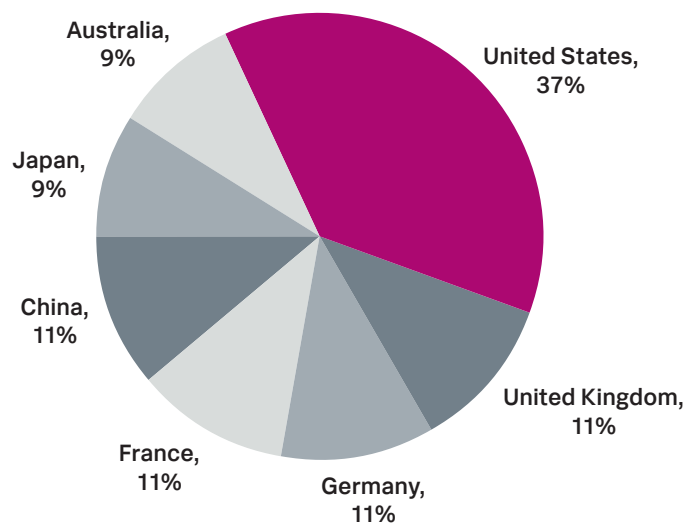|	
Better and more proactive protection from cyber threats	51%
Developed more relevant/targeted marketing to prospective students	50%
Developed new curricula and credentials better suited to the need of today's students and employees	49%
Improved on-line learning programs	46%
Used data analytics to track and demonstrate student outcomes	44%
Ensuring student and faculty data security and privacy	40%
Used predictive analytics to increase student outcome success	39%

Source: Enterprise Strategy Group

Research Methodology and Demographics

To gather data for this report, ESG conducted a comprehensive survey of 1,350 IT and business decision-makers engaged with how their organizations collect, manage and use data at organizations with at least 500 employees in North America, Western Europe and the Asia-Pacific region between July 25, 2019, and Aug. 22, 2019. Key industries represented include: technology, financial, retail, manufacturing and resources, healthcare and life sciences, communications and media, higher education and public sector.

The charts below detail the demographics of the respondent base, including their location and seniority. Firmographics include organizations' total number of employees, primary industry and annual revenue. Totals in charts and tables throughout this report may not add up to 100% due to rounding.

46. Respondents by Location

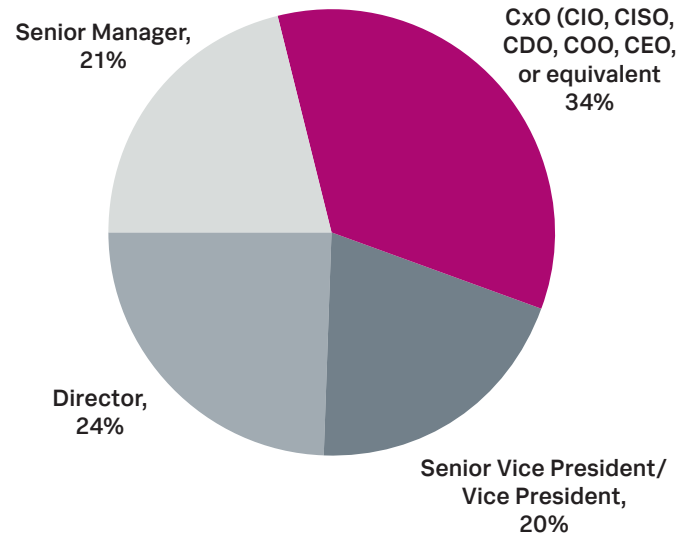Respondents by country

(Percent of respondents, N=1,350)

Australia, 9%

United States, 37%

Japan, 9%

China, 11%

France, 11%

Germany, 11%

United Kingdom, 11%

Source: Enterprise Strategy Group

47. Respondents by Seniority

"Which of the following best describes your current responsibility within your company?"
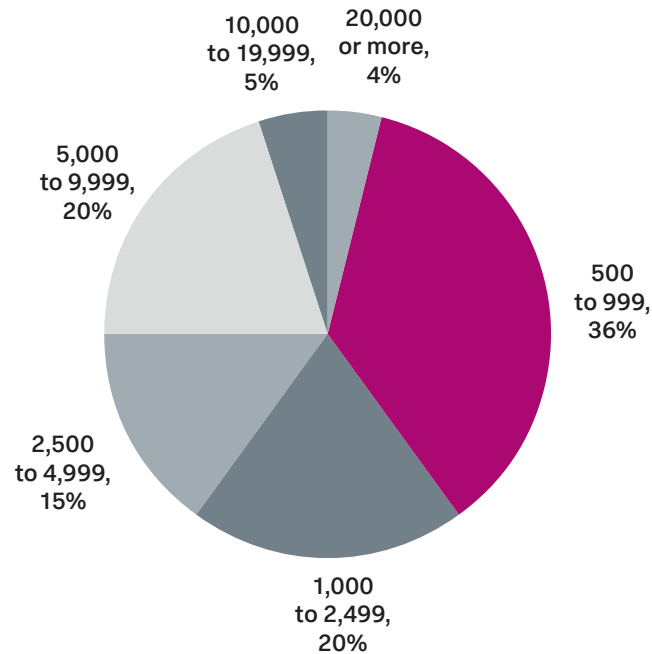
(Percent of respondents, N=1,350)

Source: Enterprise Strategy Group

Senior Manager, 21%

CxO (CIO, CISO, CDO, COO, CEO, or equivalent 34%

Director, 24%

Senior Vice President/ Vice President, 20%

48. Respondents by Organization Size (Employees)

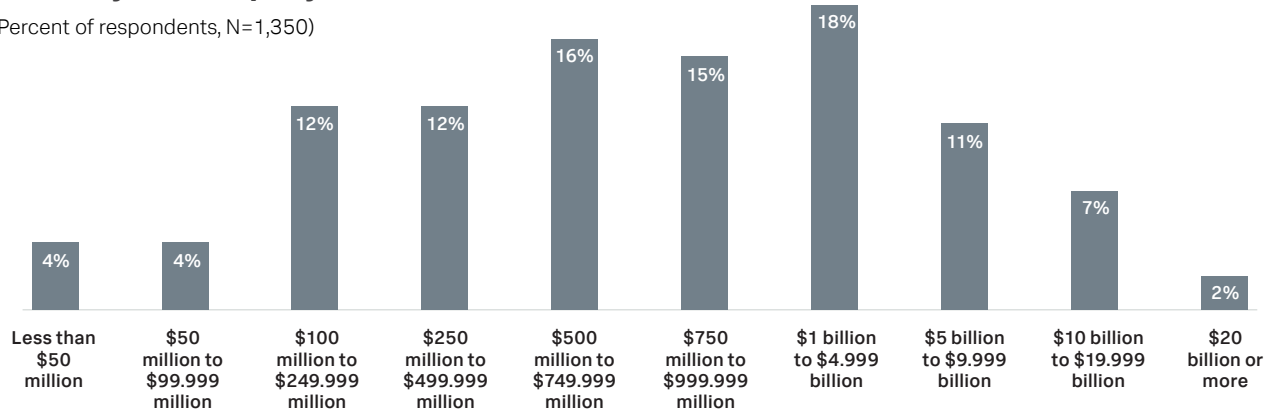**"How many total employees does your company have worldwide?"**

(Percent of respondents, N=1,350)

Source: Enterprise Strategy Group

10,000 to 19,999, 5%

20,000 or more, 4%

5,000 to 9,999, 20%

500 to 999, 36%

2,500 to 4,999, 15%

1,000 to 2,499, 20%

49. Respondents by Organization Size (Revenue)

"What is your company's total annual revenue?"

(Percent of respondents, N=1,350)

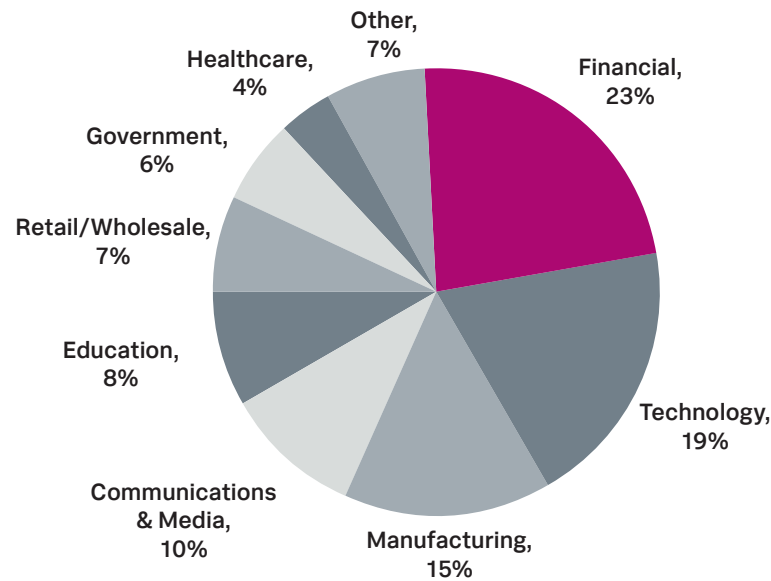| Revenue	%
Less than $50 million	4%
$50 million to $99.999 million	4%
$100 million to $249.999 million	12%
$250 million to $499.999 million	12%
$500 million to $749.999 million	16%
$750 million to $999.999 million	15%
$1 billion to $4.999 billion	18%
$5 billion to $9.999 billion	11%
$10 billion to $19.999 billion	7%
$20 billion or more	2%

Source: Enterprise Strategy Group

50. Respondents by Industry

"What is your company's primary industry?"

(Percent of respondents, N=1,350)

- Financial, 23%
- Technology, 19%
- Manufacturing, 15%
- Communications & Media, 10%
- Education, 8%
- Retail/Wholesale, 7%
- Other, 7%
- Government, 6%
- Healthcare, 4%

Source: Enterprise Strategy Group

Data Use Maturity Detail

To segment organizations by their data use maturity, we asked each respondent seven questions that were used to score the respondents and their organizations. A maximum of eight maturity points could have been earned based on the response to each question, for a total maximum maturity score of 56 points. Respondents earning less than 30 maturity points were placed in the data deliberator cohort; those earning 30-39.5 were placed in the data adopter cohort; and those earning 40 or more points achieved data innovator status. The scoring questions can be placed into three categories:

1. **Commitment of resources to dark data discovery and utilization**

2. **Penetration of adequate data investigation tools and skills**

3. **Perceived effectiveness of the organization at operationalizing its data**
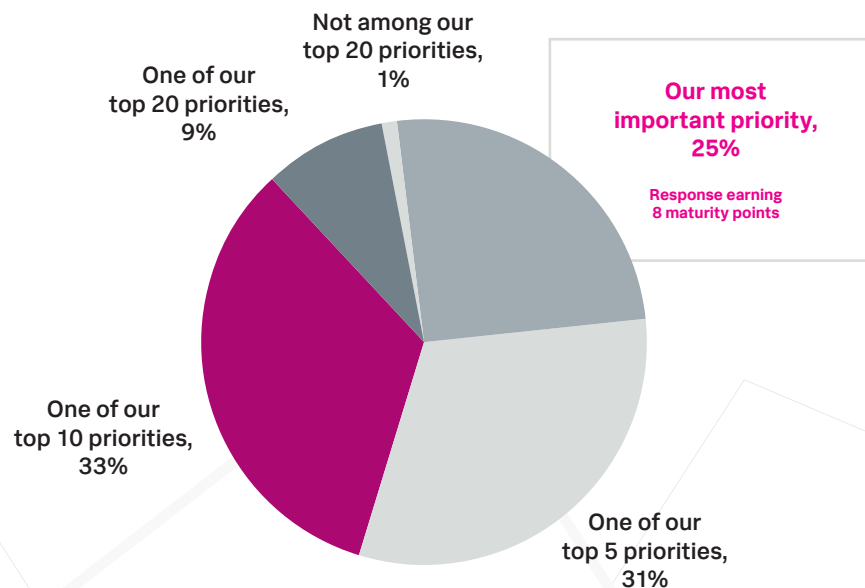
The charts below outline the scoring questions ESG asked respondents and overall distribution of responses, and identify the response(s) to each question that earned the maximum number of maturity points.

Questions Assessing Organizations' Commitment to Dark Data Discovery and Utilization

51. Respondents by Relative Importance Placed on Data Utilization

"Relative to all of your organization's business and IT priorities over the next 24 months, how would you rate the importance of uncovering and better utilizing dark data?"
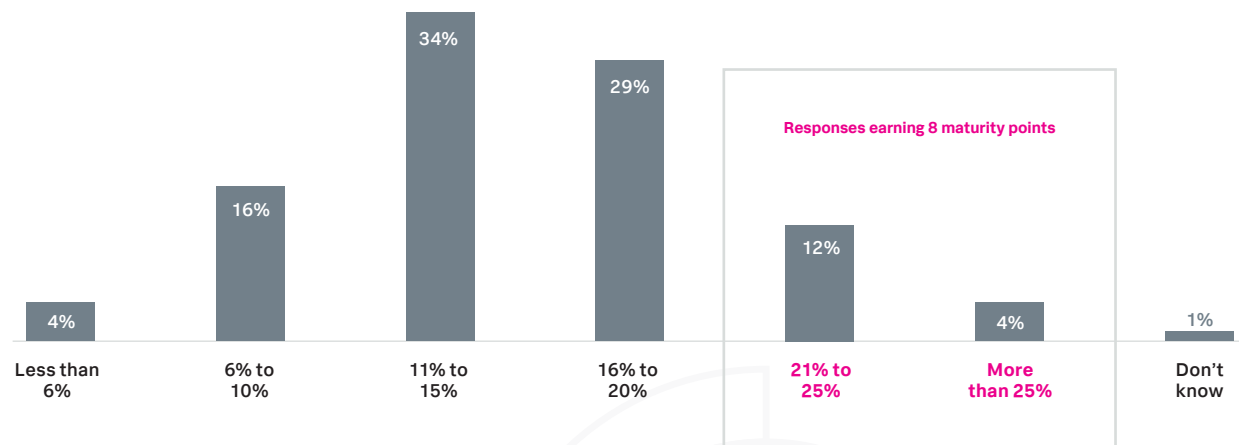
(Percent of respondents, N=1,350)

Not among our top 20 priorities, 1%

One of our top 20 priorities, 9%

Our most important priority, 25%

Response earning 8 maturity points

One of our top 10 priorities, 33%

One of our top 5 priorities, 31%

Source: Enterprise Strategy Group

52. Respondents by Analytics Budget Allocation

"As a percentage of your organization's total IT budget, approximately how much is your organization currently allocating for data analytics technologies (i.e., solutions and staff that investigate, monitor, analyze and act on business data)?"
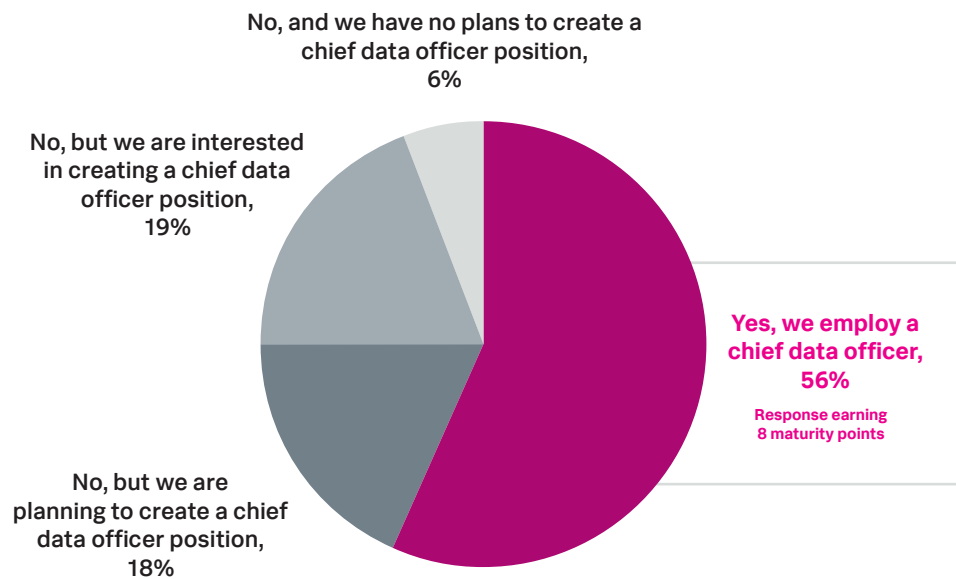
(Percent of respondents, N=1,350)

Responses earning 8 maturity points

Less than 6%	6% to 10%	11% to 15%	16% to 20%	21% to 25%	More than 25%	Don't know
4%	16%	34%	29%	12%	4%	1%

Source: Enterprise Strategy Group

53. Respondents by Employment of a CDO

"Does your company employ a chief data officer that is a peer to other C-suite executives and formally in charge of all data analytics initiatives?"
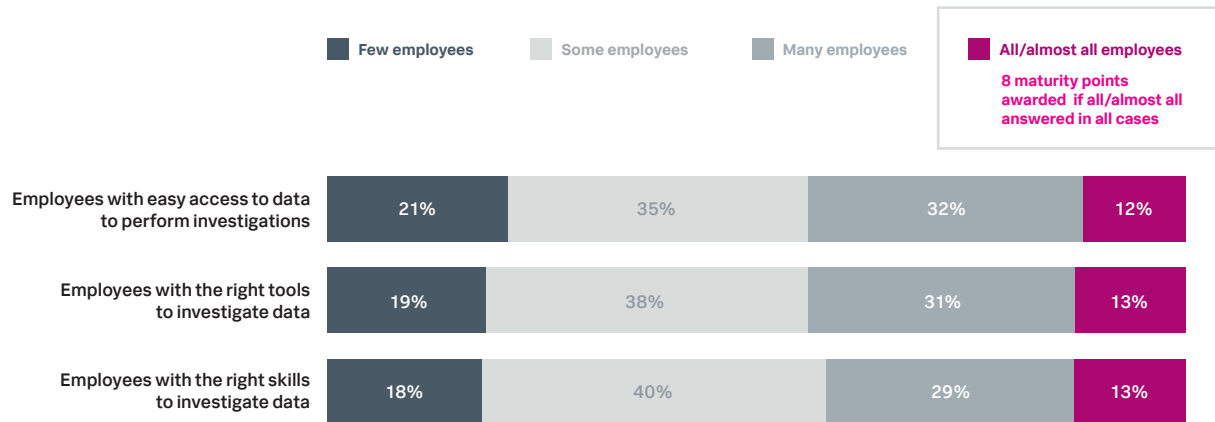
(Percent of respondents, N=1,350)

No, and we have no plans to create a chief data officer position, 6%

No, but we are interested in creating a chief data officer position, 19%

No, but we are planning to create a chief data officer position, 18%

Yes, we employ a chief data officer, 56%

Response earning 8 maturity points

Source: Enterprise Strategy Group

Question Assessing the Penetration of Adequate Data Investigation Tools and Skills

54. Proportion of Employees With the Skills, Tools and Access to Effectively Investigate Data

"What proportion of your organization's employees have the skills, tools and data available to them to effectively investigate data?"
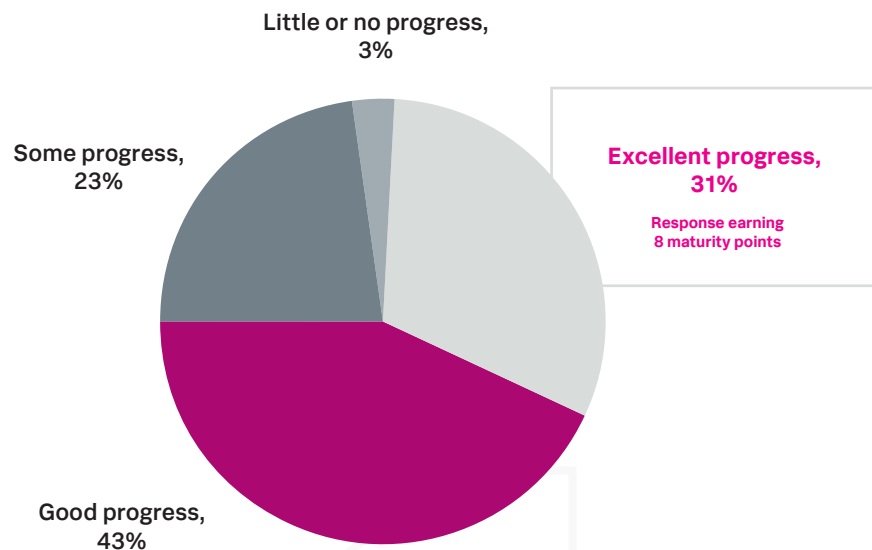
(Percent of respondents, N=1,350)

	Few employees	Some employees	Many employees	All/almost all employees
				8 maturity points awarded if all/almost all answered in all cases
Employees with easy access to data to perform investigations	21%	35%	32%	12%
Employees with the right tools to investigate data	19%	38%	31%	13%
Employees with the right skills to investigate data	18%	40%	29%	13%

Source: Enterprise Strategy Group

55. Respondents by Organizational Progress Monitoring Data

"How much progress has your organization made implementing automated data monitoring?"
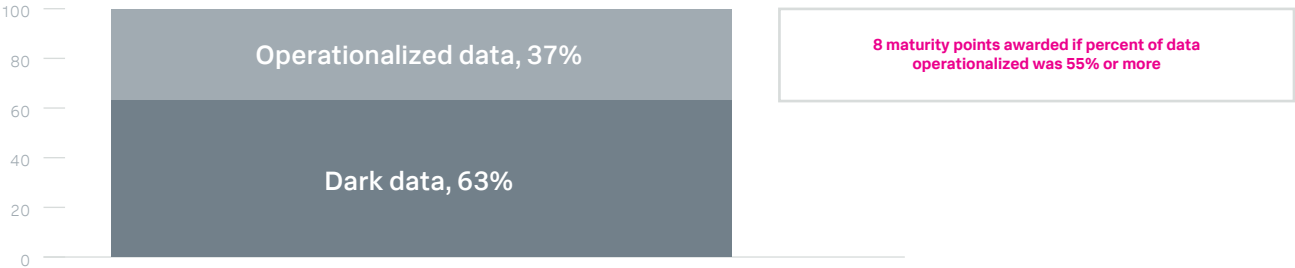
(Percent of respondents, N=1,350)

Little or no progress, 3%

Some progress, 23%

Good progress, 43%

Excellent progress, 31%

Response earning 8 maturity points

Source: Enterprise Strategy Group

Questions Assessing the Perceived Effectiveness of the Organization at Operationalizing Data

56. Average Percentage of Dark vs. Operationalized Data

"Thinking about all the data your organization possesses, what percent of that total would you estimate is dark data versus operationalized data?"

(Mean, N=1,350)

Operationalized data, 37%

Dark data, 63%

8 maturity points awarded if percent of data operationalized was 55% or more

57. Data Sources Used

"Which of the following data sources can your organization effectively investigate, monitor, analyze and act upon?"

(Percent of respondents, N=1,350, multiple responses accepted)

Data Source	Percent
Customer data	44%
Financial data	42%
Software-as-a-Service (SaaS) application data	42%
Employee data	40%
Network data	40%
Operational technology/system data	40%
Infrastructure-as-a-Service (IaaS) application data	38%
Sales data	36%
On-premises application data	36%
Business service transaction/performance data	35%
Social media data	32%
Sensor/Internet-of-Things (IoT) data	32%
Physical/virtual server data	32%
Images, audio, video	26%
Middleware data	25%
Spatial, GPS	19%

**.5 maturity points awarded
for each response reported**

Source: Enterprise Strategy Group

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