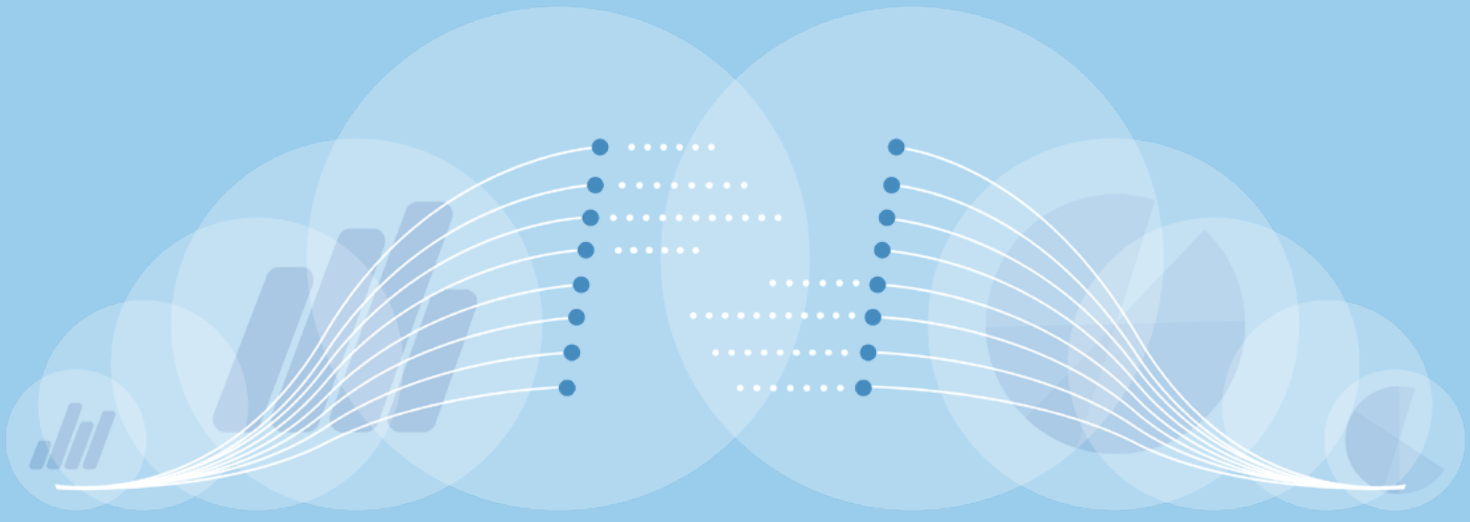
RESEARCH

Closing the Data Decision Gap

How the Right Data Apps Can Empower Organizations to Become Truly Data-Driven



INTRODUCTION

From 2017 to 2021, organizations invested a staggering $4.45 trillion (USD) in pursuit of "digital transformation." Things only accelerated with the sudden arrival of COVID-19, as organizations spent an estimated $1.8 trillion in 2022 alone. That trend will likely continue, with global investment in digital transformation estimated to exceed $10 trillion over the next five years.

These investments continue to be driven by a need for better, data-driven decision making across all types of critical business decisions—process optimization, business modeling, organizational culture, etc.—and that data is growing exponentially. In 2019, estimates put the amount of existing data at 41 zettabytes globally, and three years later, in 2022, that number has more than doubled to 97 zettabytes. ***That number will likely double again by 2025.*** It is no wonder that surveys continue to show that executives and directors believe that digital transformation represents the top risk factor for their organizations' futures.

Given the pace and cost of digital transformation, the key question of the moment is ***what are organizations getting in return for this investment?*** Despite the tremendous resources being dedicated to digital transformation, studies show that up to 70% of these initiatives will not achieve their stated goal. Additionally, the research behind this report shows that key strategic and operational decisions are still made too often "from the gut" rather than from the data.

In our view, there is a growing gap between the amount of data available and the crucial decisions that are being made at every level of an organization.

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The Data Decision Gap represents a broader change management problem that will not be fixed overnight. By channeling the right investments into the right tools, organizations have the ability to reduce the gap and harness the power of being a data-driven organization.

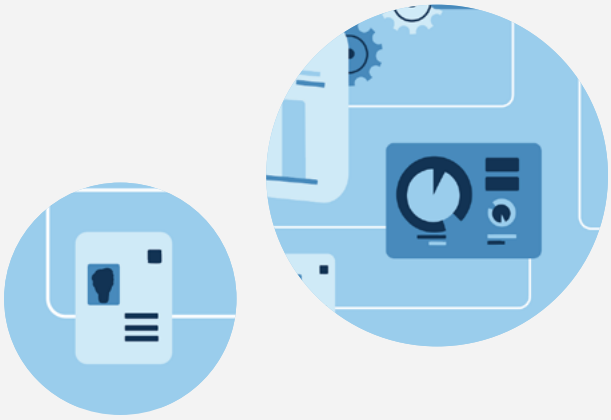
What does it mean to be data-driven in practice, and not just in theory? The question requires an honest assessment of an organization's culture of decision-making at every level from C-suite leaders to frontline and knowledge workers. For some organizations, leaders are invested in using data when it supports their plans. For other organizations, there is still a premium put on leaders making "gut" decisions about everything from high-level strategy to day-to-day marketing campaigns. Most organizations will use the phrase "data-driven" in their documents, but what would it mean to move beyond the slogan and into the practice of being data-driven? This research paper examines the bottlenecks, organizational barriers, and technological impediments that are stymying data-driven decision-making while offering a review of the key characteristics of the tools that have the potential to revolutionize organizational decision-making for all employees.

We surveyed 441 people whose careers depend upon navigating the Data Decision Gap. Although there were a wide range of specific job titles, 29% of respondents identified as managers, 24% identified as directors, and another 15% identified as either chief information officers, chief data officers, or vice presidents. 19% of the respondents worked in organizations with more than 10,000 employees with 33% working in organizations between 1,000 and 10,000 employees. 23% of respondents identified working in financial services while 19% identified working in high tech. Other industries included media, life sciences, retail, and manufacturing.

The goals of the survey were to assess the current state of organizations in their transitions to being data-driven, to envision the future of how organizations will relate to data, and to identify the key features tools should have if they are to help organizations in their transition to making better decisions based on better insights. One of the key themes that emerges is that leaders at the top have to play an essential role in making an organization data-driven in practice, but that everyone in an

organization can benefit from having access to tools that can provide instant insights built on custom applications that can account for the workflow and business processes specific to an organization. To help democratize data-driven decisions, the research supports the need for organizations to embrace technology that allows anyone to build apps, from no-code, interactive dashboards to unique apps created by developers to solve business problems and automate workflows. When an organization provides decision makers at all levels access to data while simultaneously creating accountability to use it in decision-making processes then it is possible to make meaningful reductions in the Data Decision Gap.

It is time for organizations to move beyond thinking of data as charts and graphs and towards adopting customized intelligent apps that deliver actionable business insights. The research suggests that when an organization is truly data-driven it can reduce the amount of time and energy spent on rudimentary decision-making as new tools enable immediate action right from an app that can send data to other systems and trigger automated actions. These data-driven workflows have the potential to unlock tremendous gains in efficiency while freeing up employees at all levels to innovate, collaborate, and spend their time using custom insights to grow their part of the overall organization. The gap between the status quo and a future with data-driven organizations will not disappear overnight, but this research paper suggests that industry experts believe the organizations that invest in the right tools will reap the biggest rewards.



Assessing the Status Quo: The Struggle to Become a Data-Driven Organization

Data-driven organizations utilize insights for decision-making at all levels from the C-suite to the frontline and knowledge workers. To be truly data-driven, an organization must commit to more than just capturing, storing, and having access to data. After all, what good does it do anyone to have access to data and then ignore it when it comes time for decisions (big or small)? Unfortunately, the survey data reveals that underutilization of data is commonplace in organizations today. The barriers to becoming data-driven are less about finding ways to capture and store data and more about developing an organization-wide culture that expects that everyone will be using key insights for decisions in every department from marketing to sales to the C-suite strategy sessions.

For example, according to the survey data, the top three cultural or attitudinal challenges that respondents face in using data more effectively at their organization are:

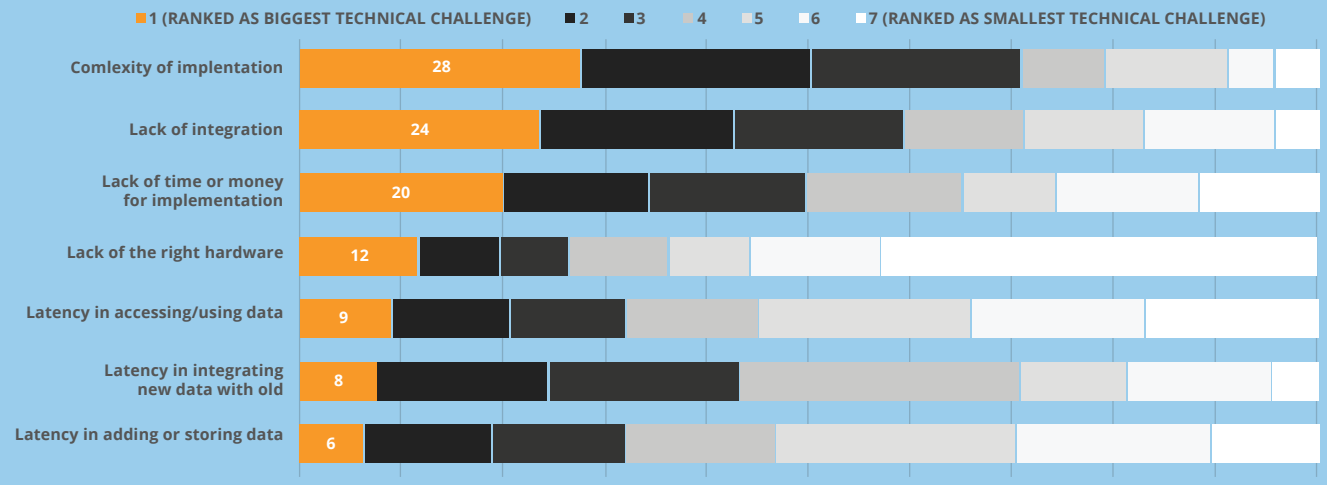
1. **Too few people understand how to access useful data.**
2. **Too few people understand how to use data to inform actions.**
3. **They don't have a strategic plan for using data effectively.**

Notably, respondents ranked "We don't value data as a company" last, highlighting that, in theory, organizations are committed to using data to make decisions. The top three issues, however, substantiate the need for democratization of access to data, customization of insights to help people understand what to do with the data when they have it, and an overall strategic plan.

Beyond identifying the challenges, respondents were asked, "What is the likely reason for the gap between the optimum use of business intelligence insights and data and the actual use of business intelligence and data?" According to the respondents, the top two reasons for this gap were that the tools were too disconnected from the process and the lack of training. This makes sense, because if the tools are disconnected from the business, then it is hard to justify the time and money to conduct training. Instead, organizations continue to rely on analysts which, once again, reduces the total amount of people in an organization that can access the data and generate insights.

The next two reasons for the gap between optimum use of the data and actual use of the data were that the tools are too complicated and too specialized. As the tools become more complicated, they become more disconnected from the flow of business. 75% of all the explanations available for the gap between potential use and actual use of data to make better decisions are related to the fact that the tools don't serve the business needs in the way that the flow of business requires.

Share of respondents who stack ranked the biggest challenges they have in using data more effectively at their organization *(in %)*



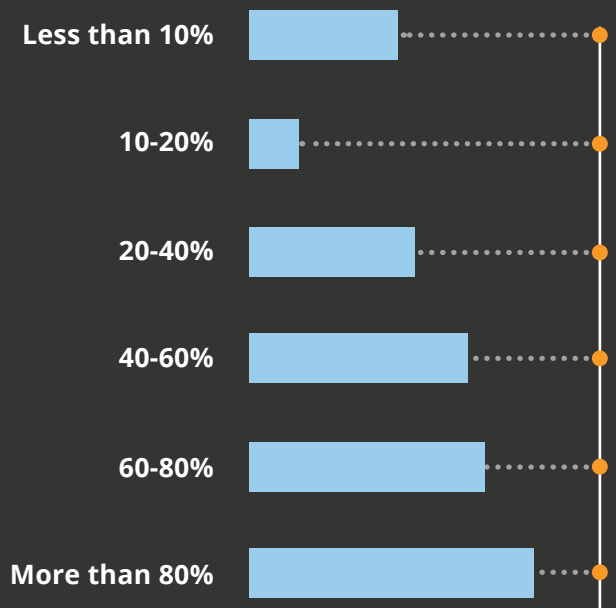
The combination of these initial results reveals that many organizations are struggling with how to find the tools that enable more people to access insights that are connected to the workflow processes for their role in the organization. This gap is compounded by the amount of training that is often required because the tools available to the organization are so specialized and complicated that it is difficult to empower employees, managers, and leadership to actualize the potential to make better decisions based on data. Respondents noted that these issues represent substantial barriers to their organization's progress in realigning their decision-making to be based on the essential insights that the data can provide.

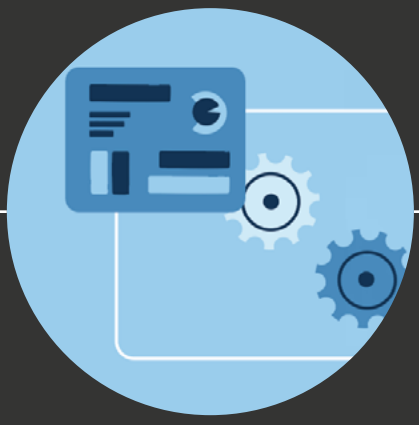
More importantly, despite all the investments that have been made in capturing, storing, and analyzing data, more than half the respondents said that key operational and strategic decisions are made from the "gut" and not from the data. Beyond the question of strategic decisions, ***55% of respondents noted that the way that strategic and operational decision-making has occurred in their organizations has not changed as much as it should have over the past decade.*** In short, respondents articulated that organizations have invested in all this data, but the gap between the data and the decision-making has not been reduced.

There is also a positive correlation between the respondents whose organizations' leaders were still making decisions *"from the gut"* with the assessment that their organizations had not changed enough over the past decade, and the fear that data fragmentation will grow exponentially over time.

Assessing the current state of organizations, however, requires thinking beyond the stakeholders that make the key strategic decisions at the top. Respondents were asked about their view of their organization's wider adoption of data-driven decision-making. When asked "How much of your org takes advantage of insights derived from data analytics or business intelligence?", the top response was between 40-60%. The highest option, more than 80%, was only picked by 13.3% of respondents. Those answers stand in stark contrast to the hypothetical question, "What is the maximum amount of people in your org that could take advantage of your data applications/business intelligence tools, assuming the right investments and training?" The top response, with 28.9% of the respondents, was that 60-80% of their organization could take advantage of the tools and a full 24.4% of respondents agreed that more than 80% of their organizations could do the same. These responses confirm that even if the leaders at the top are making good decisions based on their guts or on

Share of respondents in each group ***(based on number of people in organization that could take advantage of the organization's data apps/BI tools)*** **who identified a lack of training as the likely reason for the gap between the optimum use and the actual use**





their data, there is a serious data gap for the rest of the organization. Mid-level managers, frontline and knowledge workers, and ultimately customers are missing out on the opportunity to harness the power of insights to help direct decision-making.

By way of summary, respondents were asked to do an overall assessment of what their organizations are doing well in the status quo. The top two answers suggest that organizations are succeeding in producing and storing data. The bottom two answers reveal that the data is simply not being used in effective ways. Respondents assessed that their organizations were not excelling at "generating useful insights" nor "actually taking data-driven action." The survey data for this section substantiates the gap between theory and practice in organizations today. Producing and storing data is necessary but not sufficient for transitioning to a data-driven organization. The gaps that exist between theory and practice are not insurmountable, but organizations must be willing to move beyond slogans and to take action and invest in the key tools to facilitate real change.

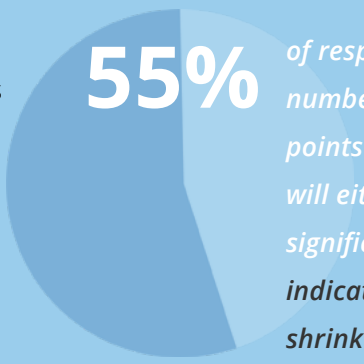
In the next section, we turn to a set of predictions about what the future of data looks like. Specifically, we wanted to know how the respondents envision the future of data and decision-making for their organizations.

Exponential Demands and Exponential Opportunity | The Future of Data-Driven Organizations Requires Empowering People to Act

Moving from assessment of how things are going to a prediction about the future is inevitably complicated. In this section, we asked respondents to envision the future of their organizations with a focus on the role of data. Despite the difficulties associated with prediction, the respondents overwhelmingly articulated a vision for the future based on substantial—and, in many cases, an exponential—potential for the role of data to grow their organizations.

We began with a basic statement, "I believe the amount of data my company produces will..." and let the respondents choose what answer best finished the sentence. Two out of three respondents indicated that their companies will either grow significantly or even grow exponentially over time. Of the remaining responses, only 2% believed that the amount of data will shrink over time, meaning that 98% of respondents indicated that their data will either stay the same or increase at some rate with the vast majority poised for substantial growth. In other survey data, one might be skeptical that the respondents would understand what it means to say that the data will grow "exponentially" over time, but these respondents are trained, qualified, and experienced with data. The fact that 18% of them indicated the potential for exponential growth highlights the importance of resolving the gap between being data-driven in theory versus in practice before decision-makers are overwhelmed with information overload, which can produce decision paralysis.

The follow-up questions were more precise about the nature of data in their organizations. For example,



55% *of respondents indicated that the number of data sources (the origin points for data being produced) will either grow exponentially or significantly over time* ***with only 2% indicating that the data sources will shrink over time.***

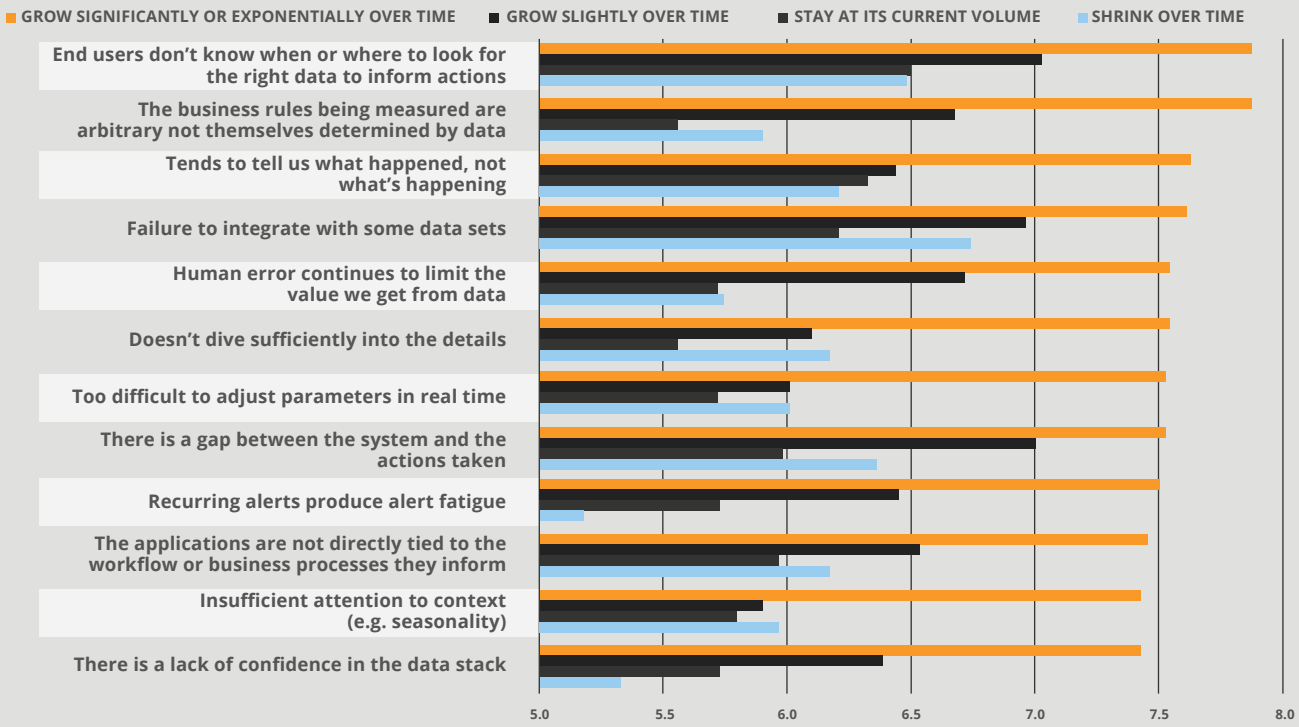
Additionally, 62% of respondents indicated that the number of data relationships (the number of ways data can be paired with other data) within the data will either grow exponentially or significantly over time with only 2% again indicating that the data relationships will shrink over time. These responses signal that leaders cannot simply purchase more storage and hope that the data problem will resolve itself. Organizations must invest in tools that can respond to the increased sources of data and the need for data integration across the organization.

The implication of these trends was not lost on the respondents. They acknowledged that with the increased data, data points, and data relationships, organizations will have to make financial investments to make all this data useful. More than three out of every four people we surveyed predicted increases in the amount of money their organizations will spend

with half of those people indicating that the spending will include moderate or substantial increases. The follow-up question to determine where the respondents predicted that the investments would go reveals the importance of finding the right tools to become a more data-driven organization. They assessed that machine learning, AI and/or data science would play a vital role in their organizations with 57% of respondents indicating that those areas will likely receive exponential or substantial investments over time and, once again, only 2% of respondents predicting those areas would shrink.

Challenges that limit the value of typical data application/business intelligence approaches, by data fragmentation growth expectations

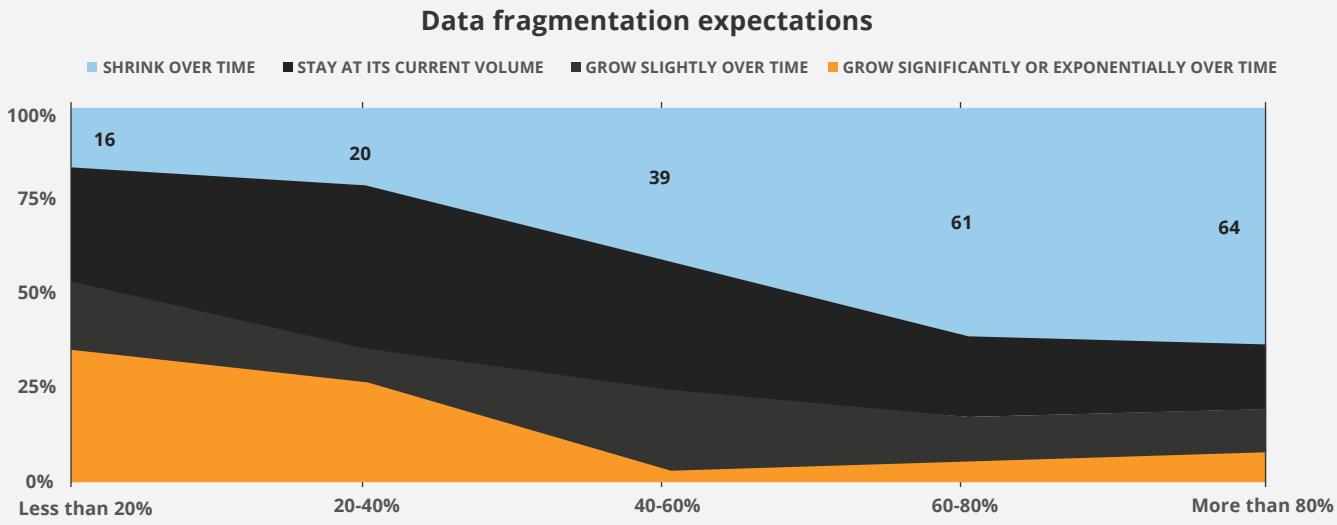
(MEAN VALUES; 10-POINT SCALE; 1 = SMALL LIMITATION, 10 = SIGNIFICANT LIMITATION)



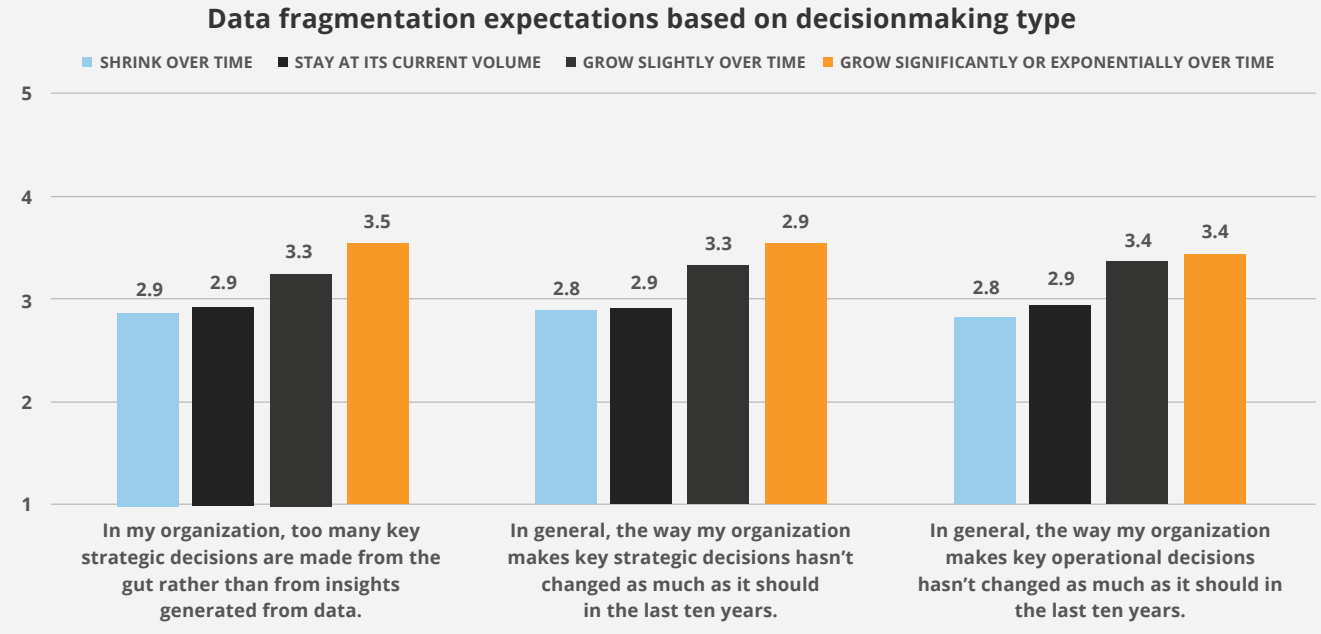
On the one hand, these predictions represent a tremendous opportunity for organizations that have made the commitment to being data-driven. Decision makers at all levels will have access to substantially more data from a diverse set of sources that can interact with other data from across the organization. That will come with a cost, but ***if an organization is willing to invest in the key tools, then the future is optimistic for the potential of better data-driven decisions for everyone.*** That does not mean, however, that there will not be challenges. The respondents were also clear in their predictions about the nature of the potential roadblocks that could derail this vision.

Respondents are worried about the level of commitment from their leaders, the technical challenges associated with harnessing the power of data, and the potential for bottlenecks and data fragmentation to derail the potential for data to help their organizations going forward. The respondents' primary concern is that their leaders will continue to

ignore or undervalue data in decision-making, despite its increased availability and the capacity of tools to generate powerful insights about the organization. To truly change an organization's culture, employees must not only see leaders acting on insights, but they must also be empowered to act on data insights in their own roles. When a critical mass of employees has access to insights and feels empowered to act on them, an organization can move to accountability to make data-driven decisions. As long as leaders view data-driven decisions as optional, people will continue to trust their gut because that is what has worked for them in the past. The key question for any organization, however, is how to prepare for the future.



In your professional life, what percentage of your actions (making key decisions, adapting processes, executing on tasks) are supported by Apps (defined as something you have as an icon on your phone)?



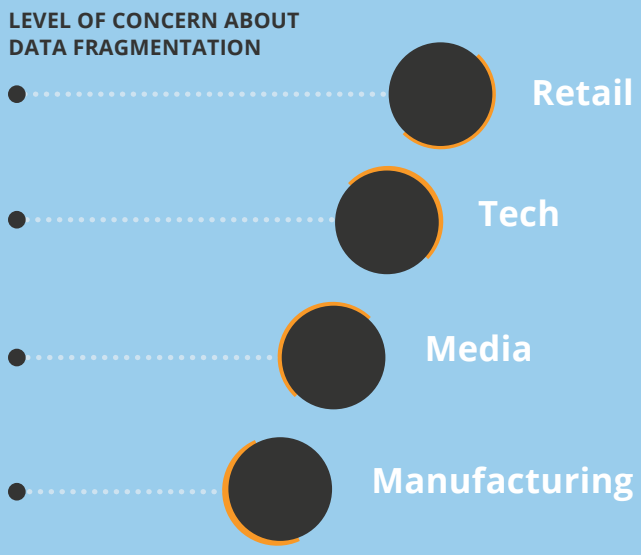
(1 = strongly disagree, 5 = strongly agree)

Another set of concerns relate to the technical challenges to using data more effectively in their organizations. According to the respondents, the top three technical issues to using data more effectively are, in order of importance:

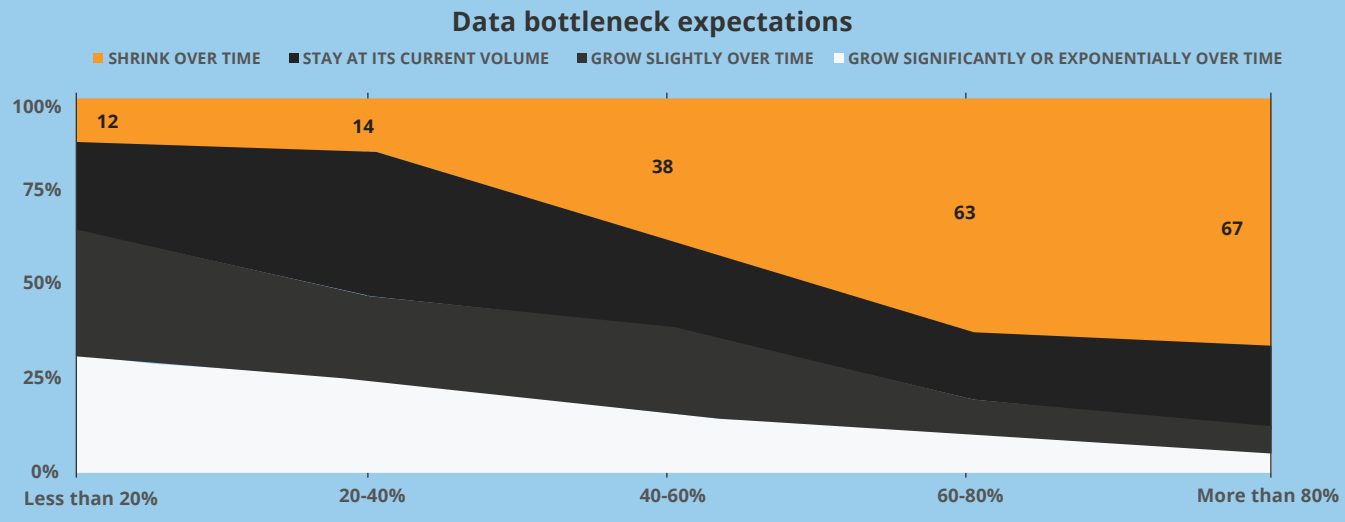
1. **Complexity of Implementation**
2. **Lack of Integration**
3. **Lack of Time or Money for Implementation**

The respondents followed up with a specific set of technical hurdles that they envision their organizations having to jump through as their data continues to grow at a rapid rate. More than two-thirds of all respondents are concerned that despite the inevitable increases in investments, data fragmentation will be an issue. Similarly, 31% of respondents indicated that the number of data bottlenecks at their company will grow significantly or exponentially over time with 22% of respondents remaining optimistic that bottlenecks will shrink over time.

The fear of bottlenecks was particularly emphasized by CDOs, CIOs, and managers.



Bottlenecks and fragmentation are not simply issues of inefficiency. They reduce trust in the data. They diminish the power of any given insight. And, if not corrected, bottlenecks and fragmentation can become an excuse to avoid investments in the key tools that are essential for an organization to be truly data-driven.



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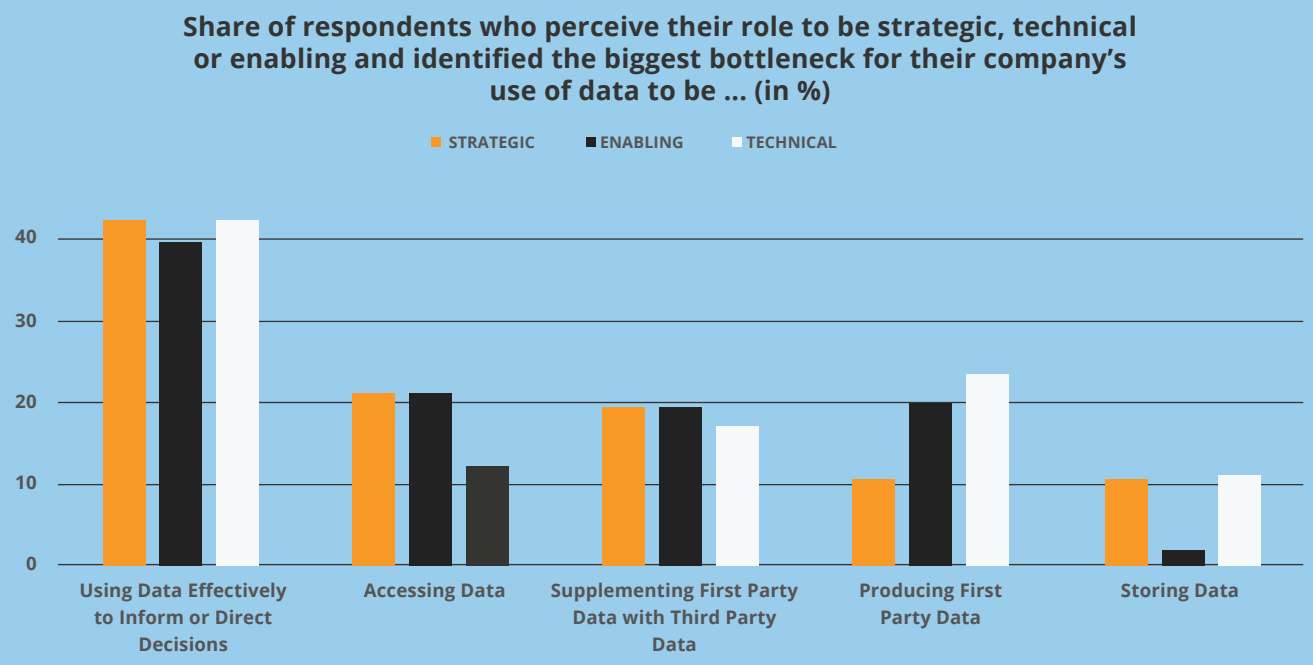


These concerns are in line with the respondents' earlier assessment that finding the right tools is critical right now and will only become more important going forward. Organizations need to invest in tools that are simple to use, easily integrated with the existing workflow processes, and do not require extensive training (e.g., coding) to take full advantage of data in the workplace. In the next section, respondents outlined the technical specifications that they believe are critical characteristics of the tools that can help organizations transition to being data-driven in practice.

Harnessing the Power of Data to Go Beyond the Slogans | Key Characteristics of the Tools that Can Provide Insights

Successful data-driven organizations harness the power of both hardware and software when determining the best path forward for empowering their employees to act on insights. For some frontline workers, dragging a laptop into the field is simply not an efficient way to evaluate data for their decisions.

For other organizations whose workforces are primarily digital natives, there must be a seamless transition between devices with instant access to the key insights at the touch of a button. The respondents suggest that there are some essential characteristics for any tool that claims to support data-driven decision-making.

Top 8 attributes for business intelligence tools as ranked by data specialists:

1. Accuracy of Data
2. Comprehensiveness of Data
3. Speed of Insights
4. Efficiency of Data Retrieval
5. Ease of Using the Tool
6. Efficiency of the Data Lifecycle
7. Final Cost of Using the Data
8. Amount the Tool Gets Used

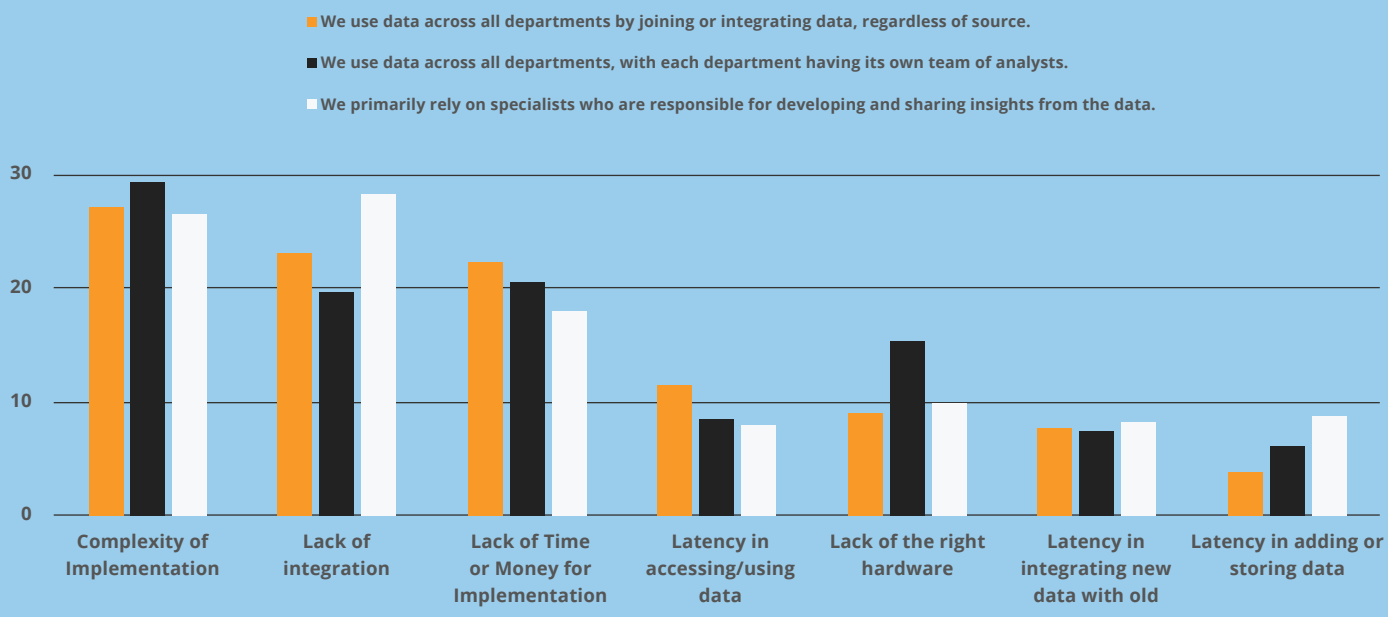
First, data tools must support the integration, automation, and accessibility of data. As was noted earlier, organizations rarely have the time or money to invest in extensive training to enable a high percentage of their employees to learn data science. When asked about using data across the organization, there was very little uniformity to how the actual insights are produced in organizations. For example, more than 76% of respondents indicated that their organization relies on data analysts to make recommendations based on data. Those analysts perform a gatekeeping function that makes it difficult for a true democratization of data that would empower employees across the organization to act on insights. It is no wonder that decision makers struggle to use data for decisions because 76% of organizations are relying on analysts to work with data to determine relevant insights.

Concerns over fragmentation and concerns over the complexity of integration are, for obvious reasons, positively correlated. Organizations need something that can bring it together. Bottlenecks are about analyst reliance, so too few people know what to do with data.

These disparate approaches suggest that successful tools must empower an organization to easily connect all their data with bi-directional architecture so everyone, in all systems, has big-picture insights with actionable data.

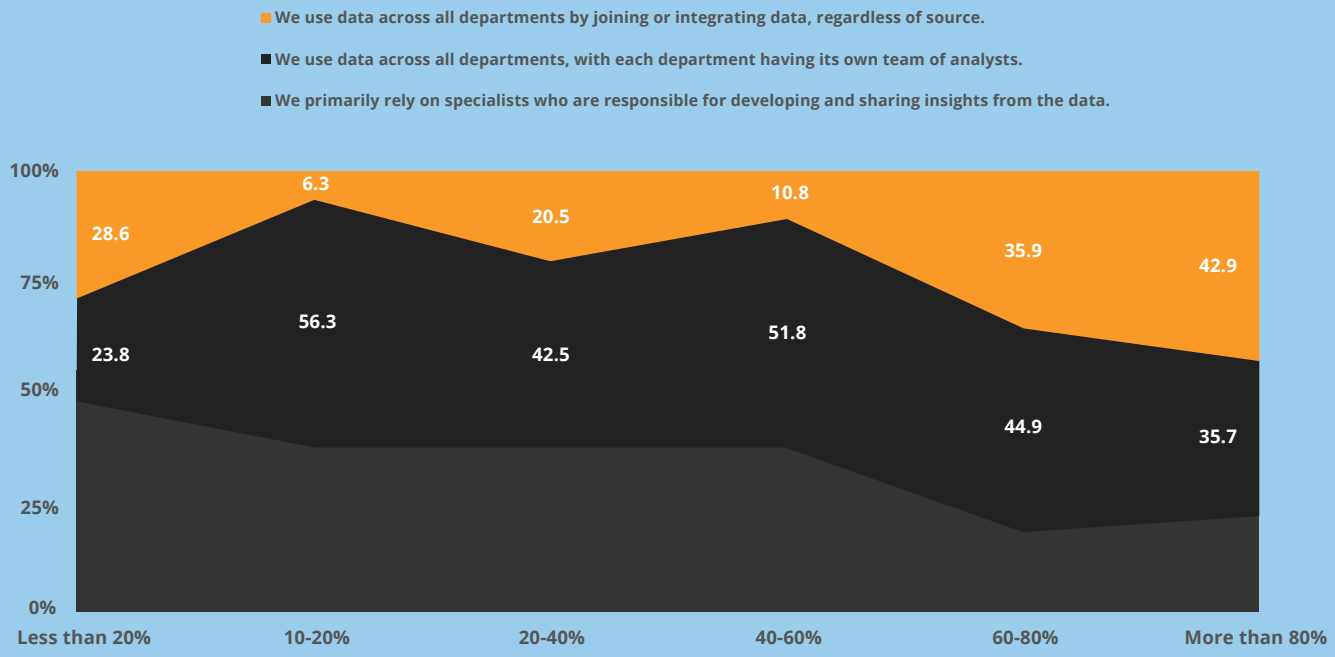
Ideally, that data is communicated through a simple dashboard that can show real-time insights to every employee based on their role, so they do not need training into how to be a data scientist—they need training in how to make decisions based on the insights provided to them by the dashboard. When asked about the top attributes that help people use data effectively, respondents identified “accuracy and comprehensiveness of data” then “efficiency of data retrieval”, and then “ease of using the tool.”

Share of respondents who perceive their role to be strategic, technical or enabling and identified the biggest bottleneck for their company's use of data to be ... (in %)



The biggest challenges that limit the value of typical data application/business intelligence approaches are (1) their failure to integrate with some datasets, (2) that end users don't know when or where to look for the right data to inform actions, and (3) that there is a gap between the system and the actions taken.

Share of respondents in each user group, by use of existing data applications/business intelligence tools in organization (in %)

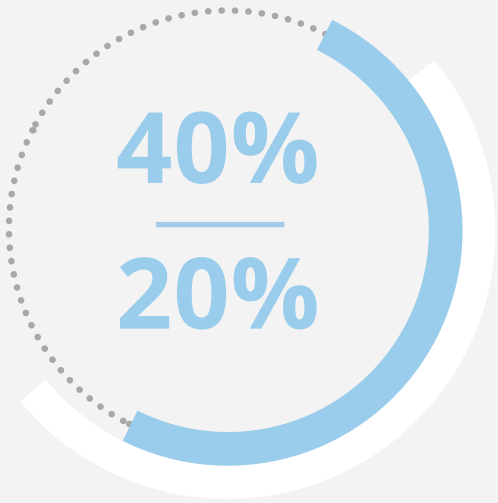


Second, to truly empower employees, the tools should help anyone to build apps, from no-code, interactive dashboards to unique apps created by developers to solve business problems and automate workflows. Employees should then be able to take immediate action right from the app, send data to other systems, and trigger automated actions in other systems. This attribute is fundamentally about customization. If an organization tries to use a cookie cutter approach to data analysis, then the insights will inevitably be too generic to help with the hard decisions. According to the respondents, the major limits on the value of typical data application/ business intelligence approaches include that many tools tend "to tell us what happened, not what's happening," and that it is "too difficult to adjust parameters in real time." Customization enables organizations to set their own parameters, to allow real-time data collection, and to move from charts that show what has happened to insights that drive decision-making based on what is happening in the moment.

Notably, respondents who are more likely to say that applications are not directly tied to the workflow or business processes they inform are also more likely to say that there is a gap between the system and the actions taken (r = 0.83).

Additionally, respondents who are more likely to say that a major limitation is the failure to integrate with some data sets are also more likely to say that applications are not directly tied to the workflow or business processes they inform (r = 0.71).

Third, to ensure usability, tools must prioritize customizable apps that are mobile friendly. ***Respondents noted that 70% handle at least 40% of their personal life in apps, but in the business world, one out of every three respondents reported using apps for less than 20% of all their actions.*** The gap between the use of apps in our personal lives and our work lives represents an opportunity for data tools to help employees make the jump to being more data-driven. Mobile-friendly apps enable employees to work seamlessly across devices, collaborate across departments, and to make quick decisions based on real-time data available at their fingertips. Built-in mobile capabilities also mean that users can collect and submit data anytime, anywhere.



CONCLUSION

Over the course of three sections, this paper has reviewed the survey data from 441 respondents that have a clear view of the Data Decision Gap in their organizations. Many of the respondents work in large organizations across a wide variety of industries. Despite their differences, the respondents were united in their assessment that there is a tremendous gap between what organizations say they do with data and what they are doing day in and day out. The phrase "data-driven" has become so ubiquitous that it is almost meaningless for many organizations today. Respondents noted that for the past decade, leaders have continued to make essential strategic decisions based on their gut despite the increased availability of data insights. And, while data insights are increasingly available for leaders, the overall democratization of data has been stymied by the organizational and technological barriers that make it difficult for frontline and knowledge workers to make data-driven decisions.

The respondents' vision for the future is based on tremendous opportunities and tremendous challenges. They expect that the amount of data, the sources of that data, and the interaction of that data across the organization to grow substantially in the coming years. With the increase in data, organizations will have to invest more in automation, data science, and artificial intelligence to try to make sense of their worlds. Despite those inevitable investments, respondents are worried that leaders will continue to devalue the role of data in their decision-making and that the rest of the organization will continue to suffer from a knowledge gap as they are not given access to the key insights that might help their groups. Finally, respondents are worried about bottlenecks and data fragmentation which risk the credibility of relying on data for decisions (big and small).

The good news is that there are tools that can help organizations reduce the Data Decision Gap. Here at Domo, we have a set of tools that are exactly what the respondents described as their ideal technological solutions. We work hard every day to find ways to transform businesses by helping put data to work for everyone. Customers choose us because we create engaging user experiences in record time. We help optimize business-critical processes in days or weeks, instead of months or more, with engaging experiences that drive adoption across entire organizations. Additionally, our customers see the immediate benefits that come with our cloud's scalability to empower everyone. Everyone thrives when there are unlimited users that have the ability to work with data across the organization without sacrificing performance or user experience.

Most importantly, Domo has the tools to close the gap that the respondents noted between optimal

use of data and actual use of data. With Domo, customers leverage all of their existing and future cloud, on-prem and SaaS systems. The Domo flexible cloud infrastructure allows customers to adapt in a rapidly changing environment. With Domo's Intelligent Apps framework, you can go beyond charts and graphs with customized intelligent apps that deliver actionable business insights. Domo tools enable organizations to create data-driven workflows that enable immediate action right from the app, send data to other systems, and trigger automated actions in other systems.

Domo puts data to work for everyone by empowering employees to build purpose-built apps that deliver data within an experience that is tailored for frontline and knowledge workers.

In fact, the Domo Data Experience allows anyone to build apps, from no-code, interactive dashboards to unique apps created by developers to solve business problems and automate workflows. Domo's pre-built connectors and dev kit enable organizations to build a custom connector to connect all their data with bi-directional architecture. This gives everyone, in all systems, the big picture insights with actionable data. And finally, Domo's built-in mobile capabilities mean that users can collect and submit data anytime, anywhere.

Reducing the Data Decision Gap requires the democratization of data, using the right data apps that encourage customization for every role. The Data Decision Gap represents a tremendous opportunity for organizations that are committed to cultural change.

For those that aren't, additional difficulties may arise over time. Organizations that continue to keep data siloed behind gatekeepers that only report to the c-suite and key directors will continue to see future leaders work their way up the ranks based on gut-checked intuition rather than data-driven insights. One can't be surprised if those individuals continue to rely on the decision-making processes that got them there. Even though their promotions will come with greater access to data, they will be habituated to make decisions without it.

As such, the key intervention is to harness the power of data apps that can get real-time data into the hands of frontline and knowledge workers today, so the organization develops a culture of accountability surrounding data. That simple step might well secure a return on those digital transformation investments more than anything that has come before.