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# Unveiling Data Challenges Afflicting Businesses Around The World

Businesses Must Better Balance Culture And  
Technology To Improve Data Readiness

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Compared to three years ago, just 41% say they are analyzing more data. That's roughly half the proportion of businesses that say demand for data has increased.



We define “as-a-service” as the use of a third-party infrastructure, application, or platform that can be dynamically provisioned to achieve business objectives.

## Executive Summary

Firms today are generating, demanding, and collecting more data than ever before, but overwhelmed data teams are struggling to analyze and secure that data. Even so, those same data teams are constantly demanding *more* data. This has created a problematic paradox. Companies that don't treat data as a new power source or the lifeblood of the business are destined to fail in their pursuit to becoming a data-anywhere business.

Data strategy decision-makers are hitting roadblocks as they try to navigate the deluge of data and align both their cultural and technological readiness. Our study found that 88% of data strategists across the world are neglecting either their technology and processes or culture and skills — or both. Approximately a third say their businesses are taking an unbalanced approach to improving their data readiness by either focusing too much on their culture and forgetting the technology or vice versa. Just a niche 12% of decision-makers report their firms have struck the right balance; we call these firms “Data Champions.”

Firms need a better way to manage data and address this contradiction. In an as-a-service economy, in which businesses typically charge for services per use and pivot quickly, moving to an on-demand IT model is the best route to becoming an innovative, data-driven enterprise.

Dell commissioned Forrester Consulting to evaluate the state of readiness for the continued influx of data. Forrester conducted an online survey with 4,036 respondents from 45 locations with director or higher titles who are responsible for data strategies and digital transformation (DT) at small firms to large global enterprises.

### KEY FINDINGS

- › **Firms continue to be overwhelmed by data.** Over the past three years, 66% of decision-makers have seen an increase in the amount of data they generate; 75% say demand for data has increased during this time. Some firms are seeing these data vectors double, if not triple, leaving them with a lot of data that they cannot analyze and use fast enough. This has created a myriad of security and compliance risks and overwhelmed data teams.
- › **Firms are struggling to get value from the data that they have, yet they still want more.** Digital transformation efforts are increasing data strategy decision-makers' thirst for data, but they're struggling to make more data available for analysis or ensure that available data is known and used. Seventy percent of data decision-makers are gathering data faster than they can analyze and use it, yet 67% say they constantly need more data than their current capabilities provide.
- › **Adopting a data-as-a-service model will relieve the pain caused by the data paradox.** Fifty-seven percent of decision-makers expect to move to a data-as-a-service model in the next one to three years. Today, only 20% say their firms have transitioned to an as-a-service model for most of their applications and infrastructure. Shifting to an as-a-service model offers key benefits, such as easier data movement, better data management through a single access point, and faster time-to-action.

# Digital Transformation Efforts Drive The Demand For Even More Data

Data is dragging many data strategy decision-makers down instead of providing an opportunity for progress. The recent COVID-19 pandemic has shed undeniable light on businesses' strengths and weaknesses. As firms have taken emergency steps to keep their data safe while their employees work remotely, nearly half of decision-makers report a significant increase in the amount of data they collect, store, and analyze. In surveying 4,036 data decision-makers, we found:

- › **Digital transformation is no longer a goal for most businesses; it's table stakes.** Businesses are digitally transforming, but just 15% of data strategy decision-makers say they have already realized their DT goals. More than 55% are actually struggling to meet their DT goals (see Figure 1). This isn't due to a lack budget: IT spend is on the rise. Data decision-makers have already increased their investment in DT over the past three years by 77% and plan to increase their investment by a further 57% over the next three years. Businesses are expending a lot of time and resources trying to compete in the digital era — but are making limited headway.
- › **Data volumes have increased over the past three years.** Three-quarters of data strategy decision-makers have seen the volume of data their firm demands and generates (66%) increase over the past three years. Fifty-six percent have also seen an increase in the amount of data they collect, translating into a tremendous influx of data that decision-makers must manage and collect insights from.



Most decision-makers who saw a significant increase in demand for their data say that this demand doubled in magnitude.

Figure 1

“For the digital transformation initiatives you have already started/invested in, which statement best reflects where you are on your digital transformation journey?”



**55%**  
We still have some way to go until we realize our DT goals; we are unlikely to meet our DT goals within the timeframe we originally set; or we will not meet our DT goals within the timeframe we originally set.

“Using your best estimate, how much did your organization spend this year on digital transformation? How much did it spend three years ago? How much do you expect to spend three years from now?”



Base: 4,036 director+ decision-makers responsible for data and data strategies in NA, EMEA, APJ, GC, or LATAM  
Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2021

› **Firms are struggling to get the most value from their data.** Firms need to be able to turn data into actionable insights to inform their business decisions. Yet many are struggling to keep pace with, and derive significant value from, the growth of data. In fact, 47% of data strategy decision-makers say the quality of their actionable insights has decreased or plateaued compared to where it was three years ago. Meanwhile, too few business decision-makers (23%) report significant increases in the usefulness and quality (17%) of their data compared to three years ago. Clearly, just collecting and generating data will not solve the data contradiction (see Figure 2).

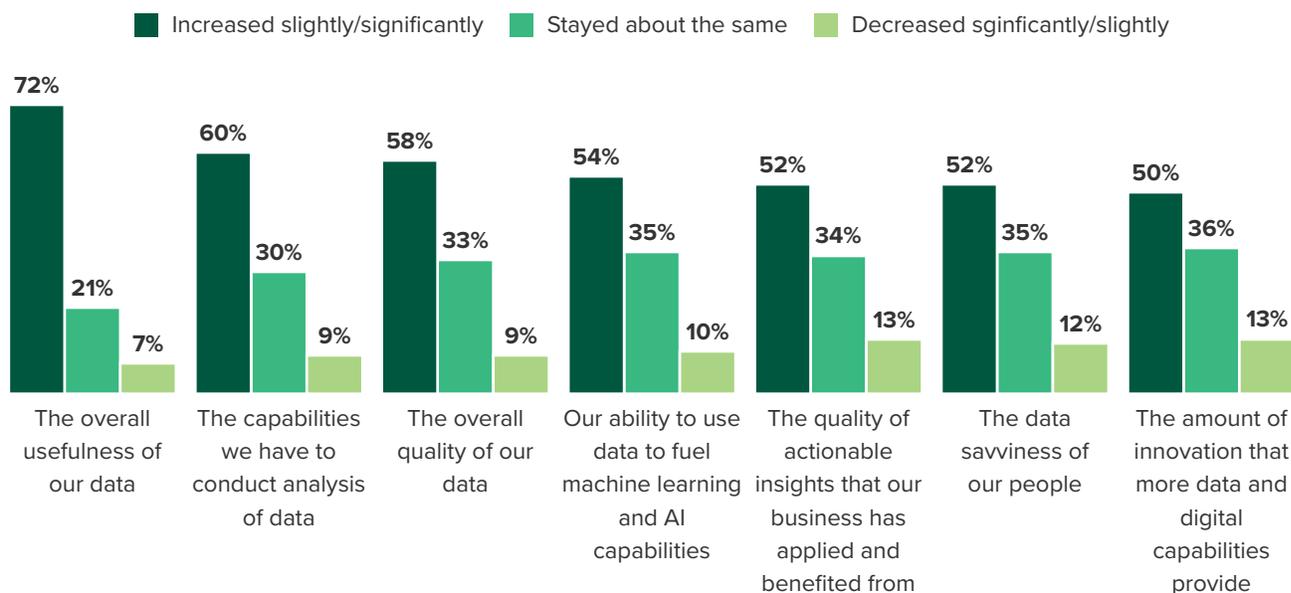


Forty-three percent of those decision-makers who saw a significant increase in the amount of data they generate, say that this data doubled in magnitude; 27% saw it triple.

The types of data where volumes are increasing the most include unstructured data (videos, images, text, voice, and social media); business application data; and data from sensors and physical processes. Data’s center of gravity is shifting away from the data center, data warehouse, and analytics databases and toward a networked ecosystem of data streams and the edge. Data is becoming a developer’s world, and data management is already seeing the effect.<sup>1</sup>

**Figure 2**

“Compared to three years ago, how have the following changed as a result of your digital transformation efforts?”



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Note: Percentages may not total 100 because of rounding.

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2021

## Yet Data Readiness Lags

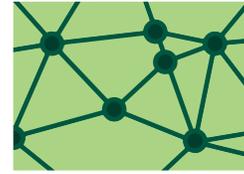
For this study, we analyzed businesses' cultural and skills readiness. This included capturing what they are doing to democratize the use of data, how they are fostering data literacy, and how they are building a community of data enthusiasts.

We also analyzed businesses' technology and processes by examining how integrated their technology is, how they store data, whether they are developing use cases at the edge, and how automated their data processes are.

Most (88%) decision-makers report their firms are neglecting either their technology and processes or culture and skills — or both (see Figure 3). Moreover, only 21% testify to treating data as capital today. Yet, despite these shortfalls and admissions, 66% of decision-makers claim to be data driven and state that data is the lifeblood of their organization.

This perception gap is problematic: By inflating their data readiness, businesses are less likely to address their data shortfalls and put the necessary hard work into becoming a genuine, data-driven business. Our study found:

- › **Most firms still have a lot of ground to gain.** More than half of the decision-makers in the study scored low on both data culture and technology readiness. We refer to their firms as Data Novices. These firms have not yet automated their processes and struggle to scale their technology, nor have they built a culture of data-savvy staff who are incentivized to innovate with data and analytics processes.
- › **More than a third of decision-makers say their firms have focused either on data culture or technology; a balance between the two is needed.** Seventeen percent of decision-makers say their firms are predominantly focused on technology and processes; we've labeled these firms as Data Technicians. They're leveraging multicloud environments, deploying machine learning (ML) to automate anomaly detection, and looking deeper into the performance stack to rearchitect how they process and better utilize the data that they have. Consequently, they are getting better-quality data and more useful insights from their data. However, they are neglecting the culture and skills piece. Without a team of data-savvy enthusiasts to leverage data for insight and treat it as capital, the quality of data becomes moot. Data Enthusiasts (17%) have swung too far to the other side. They are focused on building a data-savvy team of enthusiasts, but they have not invested the same effort and budget into technology and process. Only by striking that balance can firms progress and become Data Champions (just 12% of businesses represented in our study).



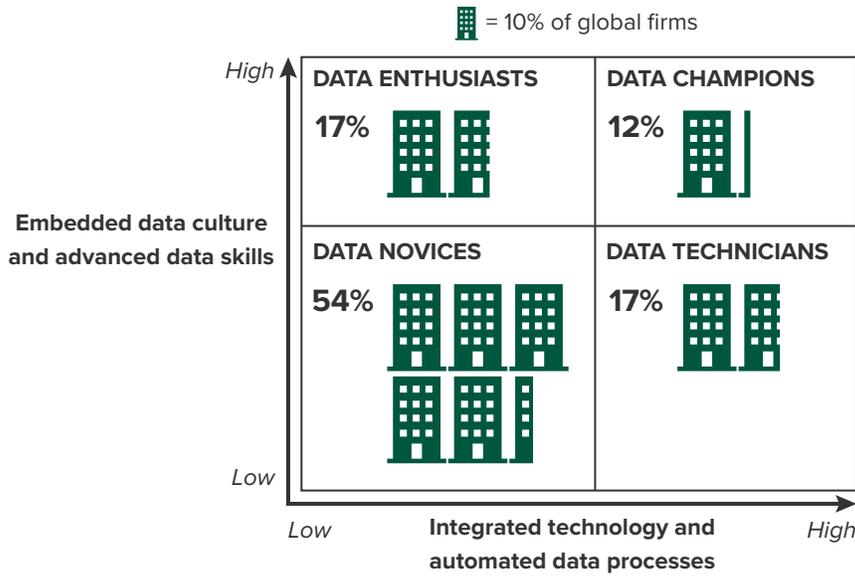
49% of decision-makers say their firms are building more data lakes despite nearly half citing a lack of consolidation due to too many discrete data lakes as a barrier to better data usage.



Discrete data lakes are also creating data silos. Firms are embracing short-term solutions instead of building a future-proof strategy.

Figure 3

Data Readiness Assessment



Steps Firms Have Taken To Innovate With Data



Over the past one to three years, 45% say their firms have used data insights to gain a deeper understanding of their existing customers/target/audience.



30% of data decision-makers are doing more data modeling to predict changing customer demands/behavior/needs to overcome the impacts of the pandemic.



Over the past one to three years, 37% say their firms have used data insights to attract customers with customized offerings.



Over the past one to three years, 28% of data decision-makers have used data insights to inform the development of new products and services.

Base: 4,036 director+ decision-makers responsible for data and data strategies in NA, EMEA, APJ, GC, or LATAM  
 Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2021

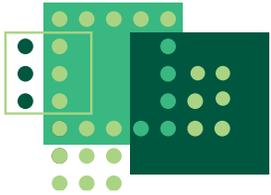
# Firms Are Overwhelmed By Data Barriers

Many barriers prevent companies from realizing their data's full potential. These barriers range from business and data silos to manual processes and insufficient in-house skills. As a result:

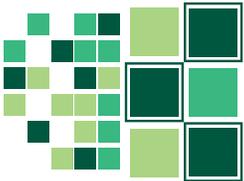
- > **Data teams are overwhelmed but still need more data.** Sixty-four percent of data decision-makers say they have too much data to meet security and compliance requirements. This leaves 61% of data decision-makers with data teams that are overwhelmed by the amount of data they have.
- > **Data silos make it difficult to know what data is available and how to wrangle it from various sources.** Data silos are all too common within modern businesses. Today, enterprises build most big data deployments in silos, largely to address specific business needs: collecting sensor data to support smart metering, web clickstream data to support customer analytics, or geolocation data to support customer personalization. These silos create a major challenge for data teams, especially when it's time to integrate the silos.<sup>2</sup> Of the 60% of decision-makers in our study who identify data silos as a barrier to data readiness, 57% blame internal systems that do not integrate, and 61% say that consumer demands create silos.

Data silos make acquiring and sharing data difficult, slow, and expensive. Therefore, decision-makers must carefully assess business activities that might introduce new data silos, and they must address any new silos as soon as practically possible. These include new silos created by mergers and acquisitions or data marketplaces: 73% of respondents struggling with data silos identify mergers and acquisitions as the top cause of data silos in their organizations.

- > **Firms are not thinking about data like a team sport.** Changing a company's culture is never easy and rarely fast. However, many firms are delaying important initiatives for as long as three years. Today, firms are focusing on providing training and certifications in data literacy. Training staff is a good start but is not enough to change the mindset of an organization. Data is a team sport; everyone needs to work together to embrace data and leverage it effectively. Very few firms are incentivizing employees to innovate with data, voluntarily participating in third-party data audits, or establishing communities of data enthusiasts (see Figure 4). These are critical steps to change company culture and overcome challenges associated with an increase in the volume and variety of data.



56% of data decision-makers have not used data insights to build an IT infrastructure that's geared for rapid data ingestion in the past one to three years.

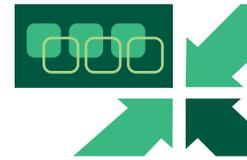


60% of data decision-makers say data silos are a barrier to better capturing, analyzing, and acting on data.

› **A lack of key skill sets impedes the usefulness of data.** Just because companies have more data doesn't mean it's useful or being used advantageously. Our study found that a lack of technical skills makes it challenging for some firms to get the most out of their data. Forty-eight percent of decision-makers say the data savviness of their staff has decreased or plateaued compared to where it was three years ago. Some firms lack the technical capabilities to process raw data into a useful form (51%), lack the ability to serve up functional data to everyone who needs it (50%), and technical capabilities to collect all the raw data they want (41%). Yet firms today are failing to address their capabilities shortages. Only 19% of decision-makers are actively recruiting data engineers, data scientists, and/or software developers today. Firms need passionate data leadership to advocate and build for a data-ready culture across the business. Just 28% of decision-makers say their firms have appointed a chief data officer while 70% say their firms still haven't ensured their boards visibly support their data and analytics strategies.

The COVID-19 pandemic has exacerbated data barriers. Forty-four percent of data decision-makers say the amount of data they collect, store, and analyze has significantly increased since the pandemic, leaving data teams frustrated. Firms are scrambling to standardize their security policies and procedures to adjust to a remote setup, all with smaller staffs due to furloughs, which are causing expertise gaps. The pandemic has exposed how vulnerable firms are to volatility.

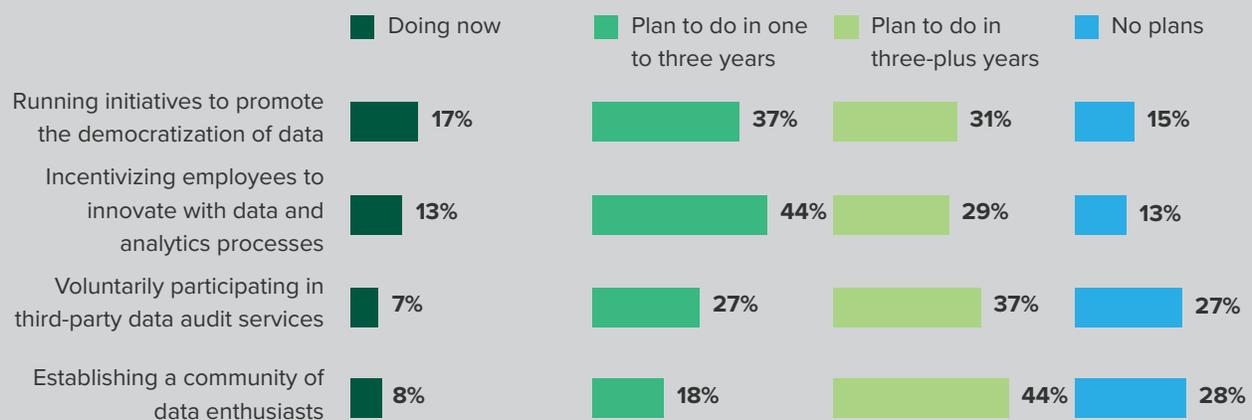
Firms must strike that balance between people/skills and culture and technology and processes. While in the past, firms might have addressed increasing data volumes by building more data lakes, this isn't the right solution today. Even so, 69% of decision-makers plan to build more data lakes over the next one to three years, perpetuating this inefficient cycle. Today, only 16% of decision-makers are looking deeper into the performance stack to rearchitect how they process and better utilize the data that they have. Fifty-two percent of firms plan to do this over the next one to three years, but this is time they cannot afford to waste.



**83% of decision-makers report some or all of the following barriers to capturing, analyzing and acting on data: high storage costs; a data warehouse that is not optimized; outdated IT infrastructure; and processes that are too manual to meet their needs. An as-a-service model can address these barriers.**

**Figure 4**

**“What is your firm doing to develop a data-ready culture and workforce?”**



Base: 4,036 director+ decision-makers responsible for data and data strategies in NA, EMEA, APJ, GC, or LATAM  
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 Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2021

# A Data-As-A-Service Model Will Help Firms Overcome The Data Contradiction

Firms are trending toward an as-a-service-based data application and infrastructure consumption model over the next one to three years. Leveraging an as-a-service approach means businesses have a model that can scale in tandem to their needs. Additionally, as-a-service consumption models allow for more data to be processed in real time to deliver instant value. Only a dynamic environment, in which businesses can provision applications at the touch of a button, can manage that. The shift toward an as-a-service data model is being driven by:

- › **Expectations that a data-as-a-service model will help overcome the data paradox.** A data-as-a-service model allows firms to be more adaptable and, as a result, more agile. It also frees up capacity so firms can scale to changing data volumes and demands. And it fills in technical and data skills gaps businesses are experiencing.

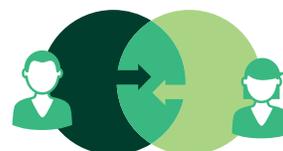
Data decision-makers clearly see the benefits of shifting to an as-a-service data strategy over the next one to three years (see Figure 5). Fifty-seven percent of decision-makers expect to achieve data accessibility through a single access point as a top benefit of a data-as-a-service approach. Half of data strategy decision-makers expect data movement will also become easier from one platform to another, and almost 39% believe an as-a-service model would enable them to trace how and where their data moves with greater ease and accuracy. Ultimately, this could help the 66% of decision-makers who plan to monetize their data to deliver on their goals.

- › **Consolidating public cloud data infrastructure while dealing with hybrid cloud realities.** Over the next one to three years data decision-makers are reducing the number of public clouds they use for data management. As firms move to public cloud enterprises, the gateway to as-a-service technology and an on-demand data consumption model also opens. By moving away from outdated infrastructure to the latest technology delivered via a service, firms can better manage their data. Today, most hosted private cloud vendors offer managed public cloud and even provide migration consulting to help customers get there faster.

Business leaders are also planning to implement integrations between the public cloud services that remain and private clouds. This makes sense: It's not uncommon to hear business leaders admit to having binged on too many disconnected public cloud offerings while ignoring on-premises realities. Firms still need the ability to run the same data management components across multiple public clouds while retaining some data on-premises, for data backups, archiving, or regulatory reasons.<sup>3</sup> Without a solution, this trend will make the data paradox — wanting more data, yet not effectively using the data that they have — even more of a challenge.



47% of data decision-makers rank no longer being held back by outdated infrastructures a top goal for deploying an as-a-service data model.

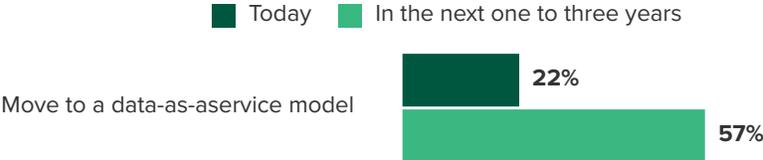


Over the past one to three years, just 28% of decision-makers have used data insights to inform the development of new products and services.

Shifting to a data-as-a-service approach requires organizational buy-in, data leadership (including planting data advocates on the company board), vendor partner support, and results-oriented data architectures. This level of change will require time, resources, and patience — but data decision-makers also need an agenda that iteratively delivers value, starting in the near term, not three years from now.<sup>4</sup> This is an unprecedented opportunity for data decision-makers. Firms can become Data Champions by partnering with vendors that can help them balance technology and cultural changes to be truly data ready today. Vendors can do this by helping firms adopt the right end-to-end technology to break down silos and align data environments and assisting them in fostering the right data culture. With the right combination, there’s no reason firms shouldn’t get real-time insights from data to improve their business outcomes in ways that always exceed their expectations.

**Figure 5**

**“Which of the following are part of your data management strategy today and in the next one to three years?”**



Base: 4,036 director+ decision-makers responsible for data and data strategies in NA, EMEA, APJ, GC, or LATAM  
Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2021

# Key Recommendations

Based on our in-depth survey of 4,036 data decision-makers about their data strategies, we've made several recommendations to help firms turn their data challenge into a business opportunity. However, the overarching recommendation hinges on businesses developing a data strategy that balances data culture and technology. Focus in one area should not preclude focus in the other.



**Expect to buy outcomes, not technologies.** Services package technologies, data, and human effort into a promise of an outcome. For example, data storage, integration, and query technology, optimized by automation scripts and select human intervention, can create analytics-ready inventory and sales data. This data then enables hundreds or thousands of better business decisions, resulting in reduced cost and increased sales. Through a data-as-a-service model, vendors can simplify packaging, pricing, and delivery of the analytics-ready data set instead of offering a bunch of tools that require a lot of labor to tailor them to the organization.



**Measure value by business outcomes achieved.** Data-as-a-service not only changes how you will buy technology; it should also change how you build the business case for investment. Because data-as-a-service guarantees data outcome delivery at a known cost, businesses can more easily build business cases for investment. We caution firms to think beyond hard benefits, however. Data-as-a-service will not always be cheaper. Instead, value the benefits of strategies enabled. This will give you a bigger benefits picture with which to justify investments. The fact that data-as-a-service also provides future flexibility is an additional soft benefit that will yield hard returns over time as things change.

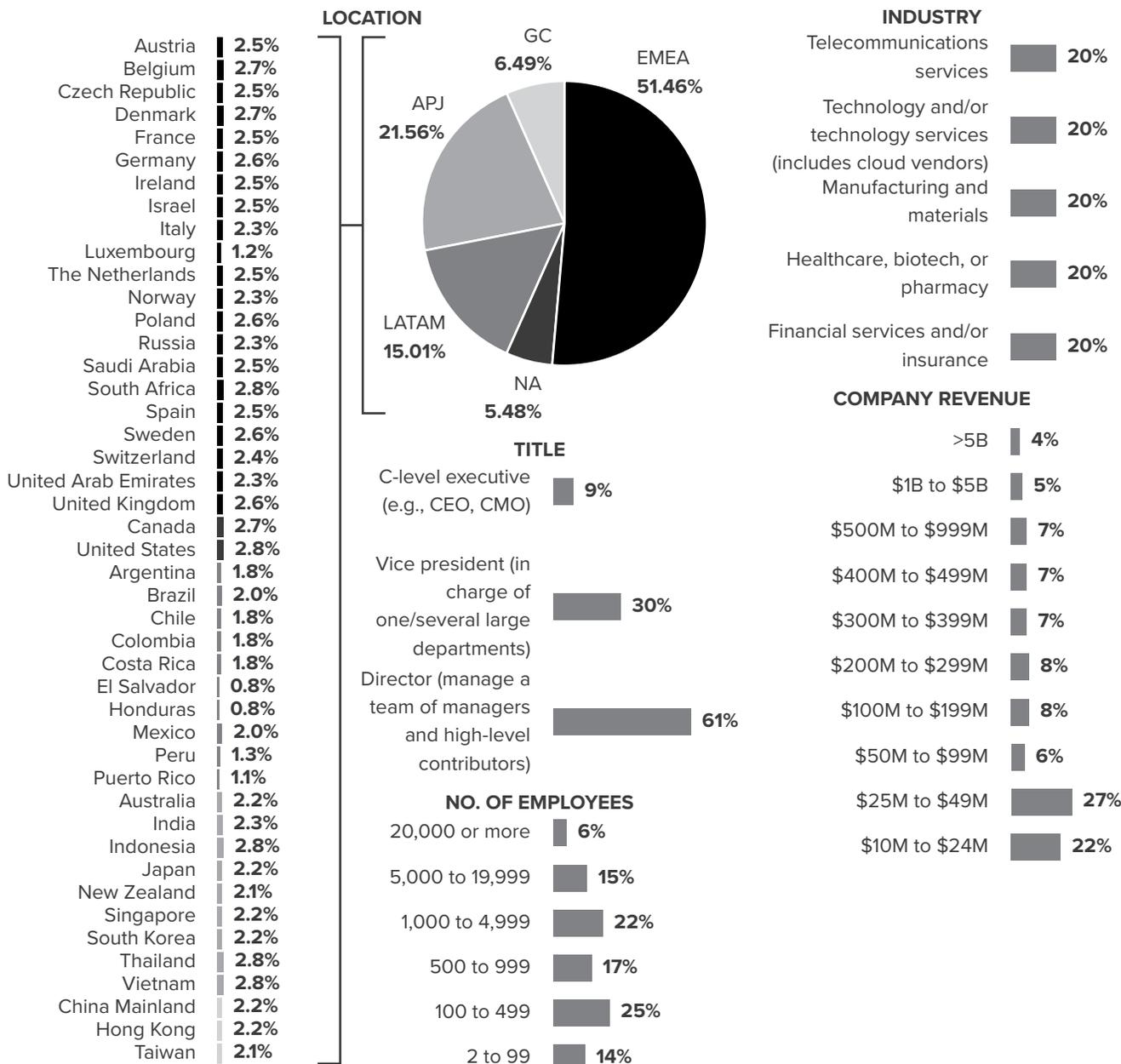


**Identify culture and talent inhibitors to data-as-a-service.** Moving to an as-a-service model for data will run into people and culture problems, just as adoption of software-as-a-service did. Firms must start now by identifying processes and policies that are based on needs that as-a-service models do away with. For example, what is going to happen to the three employees whose job it is to manage 35 instances of your data integration server? Or would your business analysts be able to easily consume data made available through a service? It is time to understand the implications of a data-as-a-service, identify the people issues, and start to work on change management.

# Appendix A: Methodology

In this study, Forrester conducted an online survey of 4,036 data decision-makers across telecommunications services, technology and/or technology services (includes cloud vendors), manufacturing and materials, healthcare, biotech, or pharmacy, and financial services and/or insurance in 45 locations to evaluate how the volume of data has impacted their business and the steps they are taking to turn that data into a valuable tool, including leveraging an as-a-service data model. Survey participants included decision-makers at the director level or higher across IT and non-IT roles with responsibility for data management and digital transformation. Questions provided to the participants asked about how data volumes have changed, barriers they face, business and technology goals, and their use of as-a-service models. The study began in December 2020 and was completed in May 2021.

# Appendix B: Demographics/Data



Base: 4,036 director+ decision-makers responsible for data and data strategies in NA, EMEA, APJ, GC, or LATAM

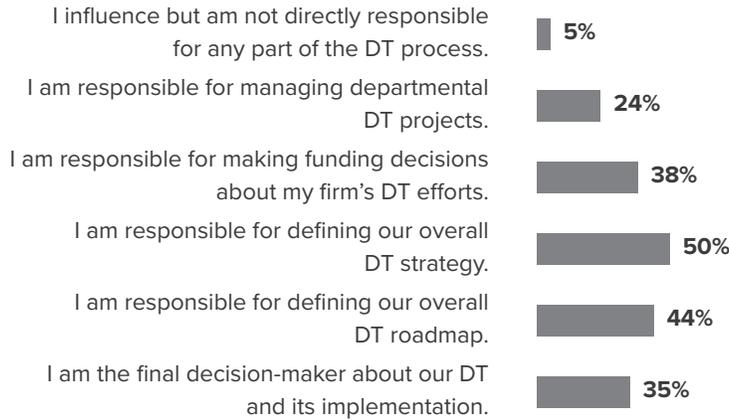
Note: Percentages may not total 100 because of rounding.

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2021

## RESPONSIBILITY

Tech/processes for data management (non-IT; N = 3,648)	Data management strategy (IT; N = 388)
<b>37%</b> Some influence	<b>31%</b> Decision influencer
<b>37%</b> Indirect but impacts job	<b>49%</b> Part of team
<b>26%</b> Directly responsible	<b>21%</b> Final decision-maker

## DIGITAL TRANSFORMATION RESPONSIBILITY



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Note: Percentages may not total 100 because of rounding.

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, May 2021

## Appendix C: Endnotes

<sup>1</sup> Source: "DataOps For The Intelligent Edge Of Business," Forrester Research, Inc., December 3, 2020.

<sup>2</sup> Source: "Your Business Is Only As Fast As Your Data.," Forrester Research, Inc., January 15, 2021

<sup>3</sup> Source: "Now Tech: Master Data Management, Q4 2020," Forrester Research, Inc., October 21, 2020.

<sup>4</sup> Source: "Evaluate Your Data And Information Management Maturity" Forrester Research, Inc., October 30, 2020.