

A Forrester Consulting
Thought Leadership Paper
Commissioned By IBM

November 2018

Unlock The Power Of Data To Transform Your Business

Realize The Full Value Of Your Data With
Initiatives And Integrated Tools That Span Data,
Analytics, And Machine Learning To Outpace
The Competition

Table Of Contents

- 1 Executive Summary
- 2 Data And Analytics Is Becoming The Most Important Factor For Business Competitiveness
- 5 Investments In Data And Analytics Initiatives Have Already Produced Large Returns, With Even More To Come
- 6 Challenges Abound And The Risks Are Dire If Companies Fail In Their Data And Analytics Initiatives
- 9 Unlock The Full Value Of Data By Investing In People, Processes, And Integrated Data And Analytics Platforms
- 11 Key Recommendations
- 12 Appendix

Project Director:

Rachel Linthwaite,
Market Impact Consultant

Contributing Research:

Forrester's application
development and delivery
research group

ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit forrester.com/consulting.

© 2018, Forrester Research, Inc. All rights reserved. Unauthorized reproduction is strictly prohibited. Information is based on best available resources. Opinions reflect judgment at the time and are subject to change. Forrester®, Technographics®, Forrester Wave, RoleView, TechRadar, and Total Economic Impact are trademarks of Forrester Research, Inc. All other trademarks are the property of their respective companies. For additional information, go to forrester.com. [E-40396]

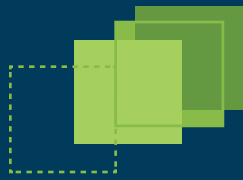
Executive Summary

Enterprises today are sitting on an untapped goldmine — their data — and they are looking to use it to transform their businesses by improving decision making across the organization, accelerating innovation, improving the customer experience, and driving operational efficiency. Extracting this value has been fraught with challenges ranging from siloed data, outdated tools, a lack of skills, misaligned teams, and shadow IT. However, firms are tackling these challenges head-on, with a broad range of initiatives and new, integrated tools that democratize data and analytics, streamline collaboration, accelerate time-to-insight, and drive impact.

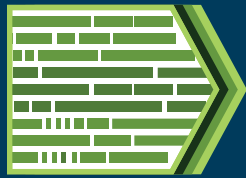
In September 2018, IBM commissioned Forrester Consulting to evaluate the ways in which organizations are leveraging analytics, data science, and artificial intelligence to unlock the power of data. Forrester conducted an online survey of 302 data and analytics decision makers at enterprises in North America and Europe to explore this topic. We found that firms are on the precipice of unlocking the business value of data like never before — they just need to ensure that they are prioritizing the right initiatives and arming data teams with the proper tools.

KEY FINDINGS

- › **Companies expect that data and analytics will soon be the most critical factor in determining competitive differentiation.** Respondents in this study grasp the potential inherent in data-driven decision making and the tools that enable it across the business. They've prioritized a host of initiatives with the goals of increased revenue growth, operational efficiency, and other core business outcomes.
- › **The returns on current data and analytics initiatives, so far, are large, and they are expected to grow dramatically.** Early results are positive for both core business outcomes like customer experience and revenue growth and operational efficiency like better strategic planning. Furthermore, firms have already seen a positive impact on their bottom line, while anticipating a substantial return on their investment within the next several years.
- › **The enormity of the task at hand is mirrored in the myriad obstacles that challenge firms.** Because organizations are looking to impact all areas of the business, barriers naturally arise in relation to people, processes, and tools. Teams also struggle with data management capabilities and the data science life cycle itself, all of which put enterprises at risk. Failure in these initiatives could very well mean loss of customers, increased security risks, and loss of market share.
- › **With the help of proper organizational approaches and integrated tools, firms have the ability to harness the power of data like never before.** Businesses need to buoy their teams with adequate support, the right skillsets, and a collaborative spirit in order to foster an environment conducive to data and analytics success. Additionally, they need integrated platforms that span the full analytics and data science stack while supporting on-premises, hybrid, and private cloud environments. With these elements in place, enterprises can expect to see a broad range of both technical and business benefits from their efforts.



Data and analytics will be the most important factor for maintaining business competitiveness within just three years.



Firms have the potential to see millions in additional business value if they can successfully harness their data.

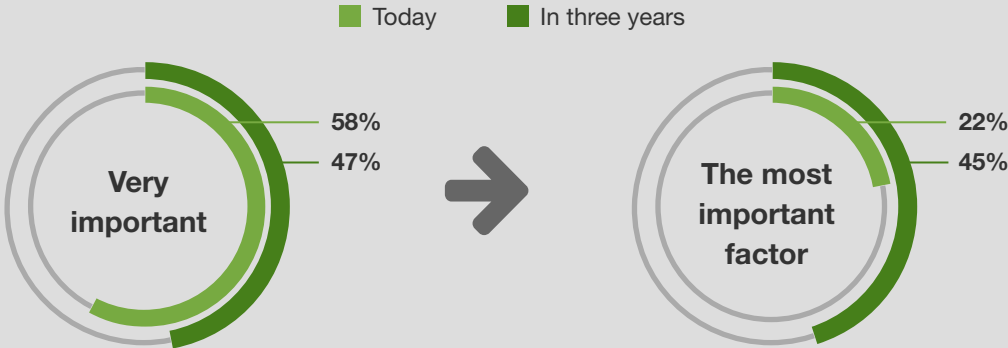
Data And Analytics Is Becoming The Most Important Factor For Business Competitiveness

CIOs and CDOs are leveraging data science, machine learning, and artificial intelligence to drive data-driven decision making, to improve the customer experience, and to develop new products and services across their enterprises. Our survey found that:

- › **Data and analytics, while important today, are becoming the most important driver of competitiveness.** Fifty-eight percent of firms acknowledge that data and analytics are very important to the business competitiveness of their organization. And the importance of these initiatives is only going to increase within the next few years: 45% of these same firms say it will be *the most important factor* within three years (see Figure 1).
- › **Firms see an opportunity to dramatically unlock additional value across established and emerging data and analytics technologies.** Data and analytic-related tools across the tech stack can greatly drive additional business value — from data preparation and integration tools to business intelligence tools and customer analytics platforms. They also see the value in AI — between 74% and 82% of respondents see great value in machine learning and artificial intelligence tools like chatbots, deep learning frameworks, and speech analytics (see Figure 2).

Figure 1

“How important are data and analytics (including machine learning and artificial intelligence) to the business competitiveness of your organization?”

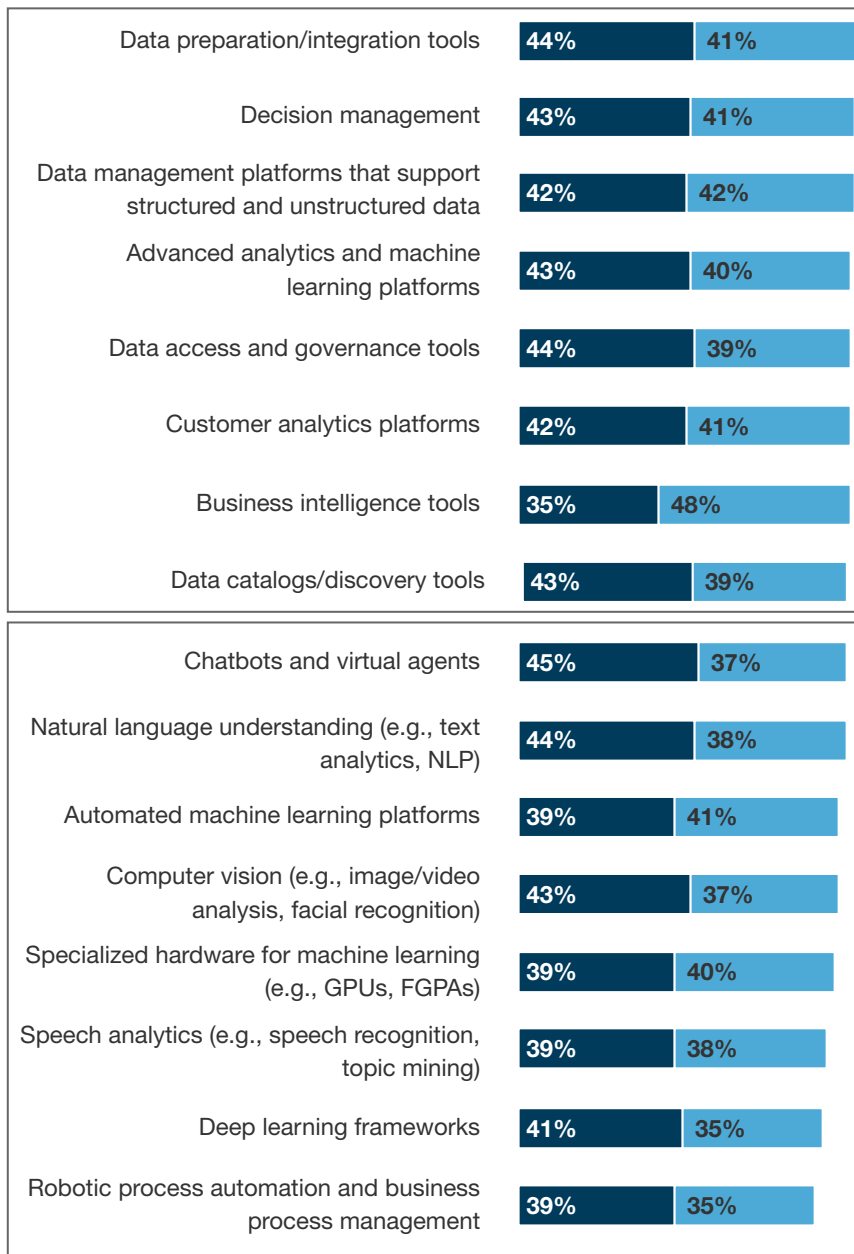


Base: 302 data and analytics decision makers
Note: Not all responses shown
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

Figure 2

“For the following data and analytics-related technologies, how large do you believe the opportunity is to drive additional business value today or in two to three years?”

■ Significant opportunity today ■ Very large opportunity today



Companies see substantial opportunity to unlock additional value across the data and analytics tech stack . . .

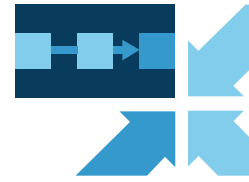
. . . as well as for artificial intelligence technologies.

Base: 302 data and analytics decision makers

Note: Not all responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

- › **Firms are undertaking a host of initiatives to increase data-driven decision making across the entire business.** Over half of organizations are expanding a broad range of data and analytics initiatives such as setting up or expanding data science centers of excellence and improving existing products or services using data and analytics (61% expanding, planning, or implementing each). Overall, firms are most focused on their ability to make decisions based on data: 96% of respondents are either planning, implementing, or expanding data-driven decisioning across all levels and parts of their business.
- › **These initiatives are targeting growth, operational efficiency, and other core business outcomes.** Increased revenue growth and improved analytic efficiency are the top outcomes that organizations are hoping to drive through their initiatives (see Figure 3). Firms are also focused on things like improving customer experience, business efficiency, and employee efficiency.
- › **Firms see great potential in these initiatives to drive value.** Why do companies focus their efforts on these initiatives? Because they see a huge opportunity to drive value. Eighty-nine percent of firms see a significant opportunity to drive business value through improving existing products and/or services through data and analytics for example. They also see opportunity in the ways in which they accomplish these goals. For example, 90% see an outsized opportunity in improving skill levels while 89% see that same level of opportunity in moving to hybrid, private, or public cloud.



Enterprises see great untapped value in traditional data, emerging data, and analytics technologies.

Figure 3

“What are the key outcomes that you plan to achieve with your data and analytics initiatives?” (Rank #1 and #2)



Base: 302 data and analytics decision makers

Note: Not all responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

Firms aim to increase revenue, drive efficiency, and improve the customer experience through their data and analytic initiatives.

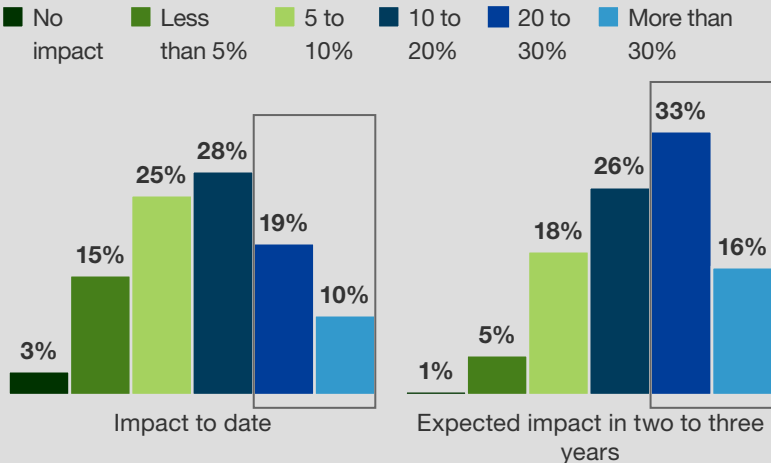
Investments In Data And Analytics Initiatives Have Already Produced Large Returns, With Even More To Come

Given the time, people, and money that organizations are devoting to these initiatives, what do firms have to show for it? A lot. Companies are already reaping the rewards of their investment, and they are expecting an even greater return in the near future. Our study found that:

- Enterprises are already seeing improvements to core business outcomes and operational efficiency.** All of this effort is starting to pay off. Firms are already seeing an improvement to their top goals of revenue growth (72%) and analytic efficiency (73%), as well as other key outcomes like customer experience (74%), better strategic planning (77%), and business efficiency (77%).
- They also see improvement to their bottom line.** To date, over one quarter of respondents have seen more than 20% improvement to their bottom line as a direct result of these data and analytic initiatives. And these benefits are only expected to increase going forward. Within two to three years, almost half of all respondents expect an impact of 20% or more to their bottom line (see Figure 4).

Figure 4

“Roughly, what has been the impact of these data and analytics initiatives on your organization’s bottom line to date? What do you expect it to be over the next two to three years?”



Base: 302 data and analytics decision makers
 Note: Not all responses shown
 Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

29% of organizations have experienced over 20% growth to date.

49% of firms expect to see over 20% growth within the next two to three years.

- › **ROI projections are high over the next three years, garnering businesses tens of millions of dollars.** The majority of respondents — more than two-thirds — expect to see between two times and ten times a return on their investment in their analytics initiatives. And an additional 7% of businesses expect ROI greater than ten times. Given that firms intend to invest an average of \$6.6 million into their initiatives over the next year — with some firms investing up to hundreds of millions of dollars — there is the potential for companies to see many millions in additional delivered business value from today's investments.

While early returns are encouraging, organizations would be wise to remember that the path to realizing their data's full value will not be easy. Companies must be wary of potential barriers to success that can result in catastrophic business consequences if allowed to go unchecked.

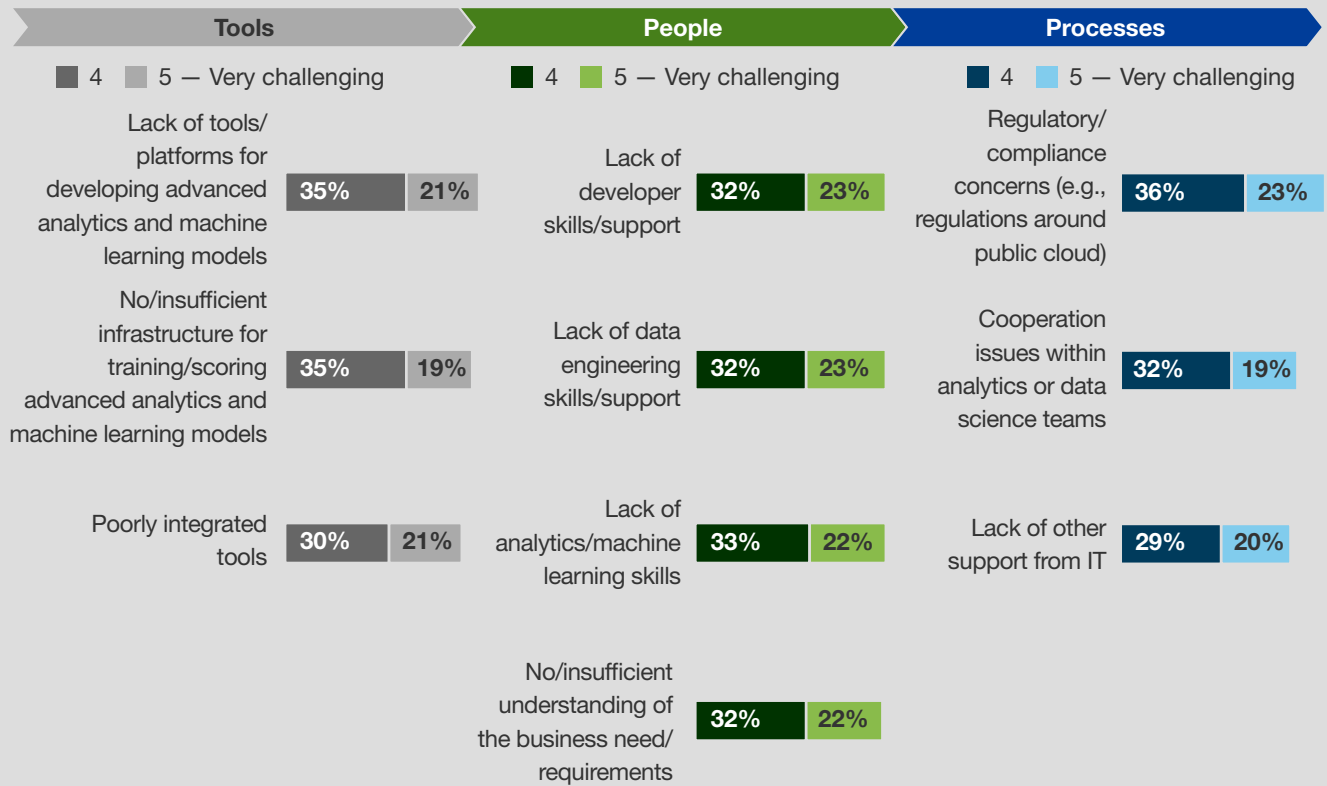
Challenges Abound And The Risks Are Dire If Companies Fail In Their Data And Analytics Initiatives

There are large rewards at stake, but the path to extracting these is littered with obstacles. Our study found that respondents struggle with challenges across the analytics life cycle, but especially their data management capabilities. Further, they report that these challenges have led to a range of poor business outcomes, and if their initiatives do not succeed there will be major risks to the health of the business. We found that:

- › **Firms struggle with a host of tools, people, and process challenges related to data and analytics.** Organizations suffer from a lack of proper tools and infrastructure, teams which lack the proper skills or support, compliance concerns, and insufficient IT support (see Figure 5). The extensiveness of these barriers — essentially spanning every aspect of the organization — is an indicator of just how large these initiatives are. Without the proper support, these initiatives run the risk of failure.
- › **A lack of core, integrated, data management capabilities is particularly challenging.** Firms generally struggle with their data management capabilities, for data access, discovery, and governance. However, they reported that the biggest barrier to unlocking the value of data and analytics was the lack of integration of their data management platforms with analytics, business intelligence, and data science platforms (see Figure 6).

Figure 5

“How challenging are each of the following analytics, data science, and machine learning items when it comes to unlocking the business value of data at your company?”



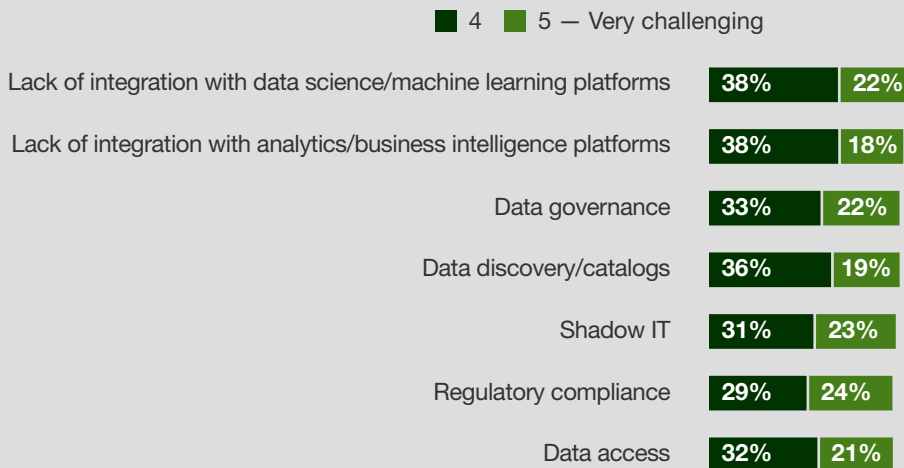
Base: 302 data and analytics decision makers

Note: Not all responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

Figure 6

“How challenging are each of the following data management items when it comes to unlocking the business value of data and analytics at your organization?”



Base: 302 data and analytics decision makers

Note: Not all responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

- › **The obstacles at the beginning and the end of the analytics life cycle often exceed the data science challenges.** Beyond the tools, people, and processes that support these initiatives, there are also challenges within the data science life cycle itself. Forty-three percent of respondents say that the largest obstacles in the analytics/data science/machine learning life cycle are data preparation/pipeline development at the beginning of the process and embedding insights into business applications at the end. Challenges that align to data science — like model development, training, deployment, and management — though still an issue, do not rate as difficult.
- › **These challenges can increase costs, security and regulatory risk, and time-to-value.** Ultimately, these challenges are concerning because they have consequences for the business. To date, 44% of firms have seen increased costs, 42% have experienced increased security risk, 40% have increased their regulatory risk, and 36% have seen increased time-to-value as a direct result of the challenges they face. Also, cause for concern, are the following: the potential for shadow IT, the inability to keep up with competitors, and reduced innovation.
- › **Maintaining customers, security, and a competitive edge all hinge on the success of data and analytics initiatives.** Firms understand that there is a large risk to the health of their business if these data and analytics initiatives fail. Enterprises must overcome their challenges if they want to avoid losing customers, increasing their security risk, and losing market share to competitors who successfully harness the power of data-driven decision making (see Figure 7).

Figure 7

“What would be the outcome if these data and analytics initiatives do not succeed?” (Large risk %)



37% Loss of customers



34% Increased security risks



32% Loss of market share to data-driven competitors

Base: 302 data and analytics decision makers

Note: Not all responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

Unlock The Full Value Of Data By Investing In People, Processes, And Integrated Data And Analytics Platforms

To ensure their data and analytics initiatives succeed, organizations are undertaking efforts to improve skills and processes. They are also investing in unified platforms that span the analytics life cycle, and run everywhere — on-premises and in the cloud. Our study found:

- › **To drive these initiatives, many companies are hiring talent, upskilling people, and driving collaboration.** In order to properly support the initiatives that have the potential to provide so much business value, firms are improving their teams: 48% of organizations are hiring additional data scientists, creating/expanding data science centers of excellence, and encouraging collaboration among analytics and data science teams. Additionally, training business users in analytics and encouraging cooperation between data/analytics teams, IT, and the business are being undertaken by 47% of companies.
- › **Firms want integrated platforms that span the full data, analytics, and data science stack.** Of course, data platforms must come with the core management and governance capabilities to be useful. But more interestingly, teams also want their tools to do more. Fifty-four percent of respondents noted the usefulness of a multilayered and integrated platform. They also want this platform to come equipped with model development (46%) and deployment (40%), as well as visualization capabilities (49%). A tool that can meet these needs will be particularly useful to businesses looking to do more with their data.
- › **Integrated platforms produce a broad range of benefits for businesses.** Data platforms are useful because they result in benefits that help firms accomplish their data and analytic goals. Organizations expect to see technical benefits — like improved data management, faster model deployment, and decreased IT complexity — and business benefits such as process efficiency, better customer experiences, and improved employee productivity (see Figure 8). Indeed, these benefits mirror the key outcomes that companies hope to achieve with their data and analytics initiatives.
- › **Enterprises need platforms that can support their increasing investments in on-premises, private, and hybrid cloud.** Firms are increasing their investment in a myriad of data tools on-premises, in the private cloud, and in hybrid cloud environments. Relatively few (about 15% of companies) are primarily looking to public cloud. The vast majority are primarily increasing investments in on-premises, hybrid, or private cloud deployments (see Figure 9).
- › **Performance, integration, accessibility, and ease of use remain as important as ever.** Unsurprisingly, when deciding to adopt new data management and/or analytics tools to assist them in their efforts, firms value the criteria that are core to technological success: performance (80%), ease of integration (79%), accessibility (78%), and ease of use (77%).

Figure 8

Top Technical Benefits Of Integrated Platforms



57% Better data management



49% Faster model deployment



49% Decreased IT complexity

Top Business Benefits Of Integrated Platforms



45% Process efficiency



44% Better customer experience



43% Improved employee productivity

Base: 302 data and analytics decision makers

Note: Not all responses shown

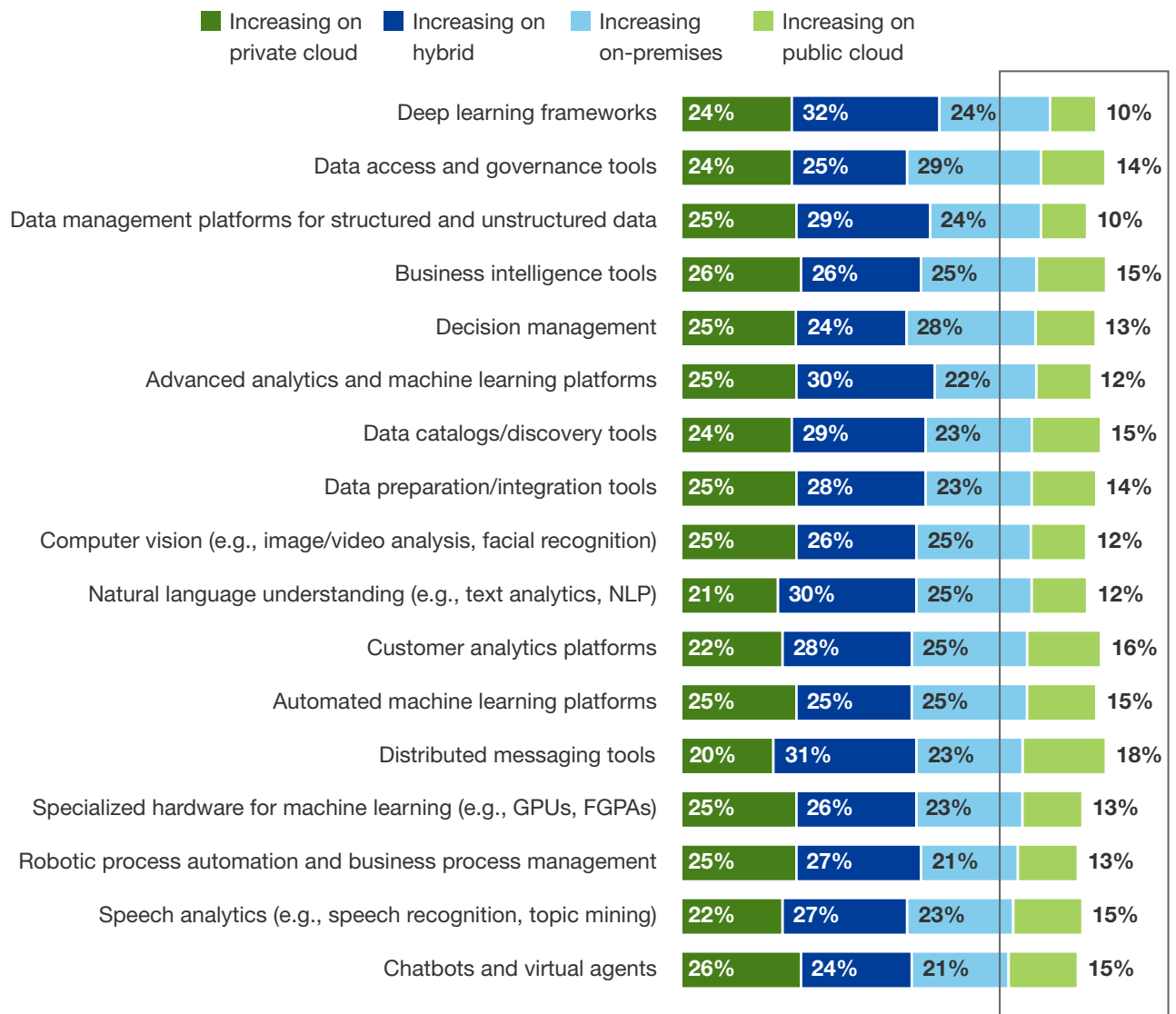
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018



Only a small fraction of businesses are primarily investing in public cloud, while more than 75% are increasing in private/hybrid/on-premises.

Figure 9

“What best describes your investment for each of the following tools that are used to manage/analyze data?”



Base: 302 data and analytics decision makers

Note: Not all responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

Key Recommendations

Firms are looking to unlock the power of their data like never before and many believe that data and analytics will soon be the most important driver of business competition. The companies in this survey are investing in a host of data and analytics initiatives and, though challenges abound, these businesses are already seeing significant results. Forrester's in-depth analysis of how data and analytics decision makers are looking to unlock the power of their data yielded several important recommendations:



Develop a coordinated, multipronged data and analytics strategy.

No single initiative will enable you to unlock the power of your data. Successful companies undertake a wide range of initiatives to upgrade the organization's tools, people, and processes. Outstanding firms coordinate these initiatives to ensure they build on each other and deliver on their potential.



Develop your organization's analytics skills with a centralized and decentralized approach.

Create a centralized center of excellence to drive advanced analytics, data science, and AI projects that require scarce skills and experience. Simultaneously, create a broad, ongoing initiative to develop analytics capabilities throughout the organization by providing training, resources, incentives, and a mutually supportive analytics community.



Democratize data with data management platforms that enable access and facilitate discovery with governance.

Flawed data governance strategies limit access, entrench silos, and proliferate shadow IT. Instead, proactively encourage data access with a modern data platform that streamlines access across data assets while enforcing targeted data governance policies.



Deploy an integrated data and analytics platform to accelerate value with analytics.

Unlocking the value of data and analytics requires accelerating the analytics life cycle from data acquisition to delivering insight to an end user who can take action. Choose integrated platforms that excel in each step of the process, streamline the handoff between each step, and facilitate collaboration between the many different roles involved — data engineers, analysts, data scientists, as well as developers and DevOps professionals.

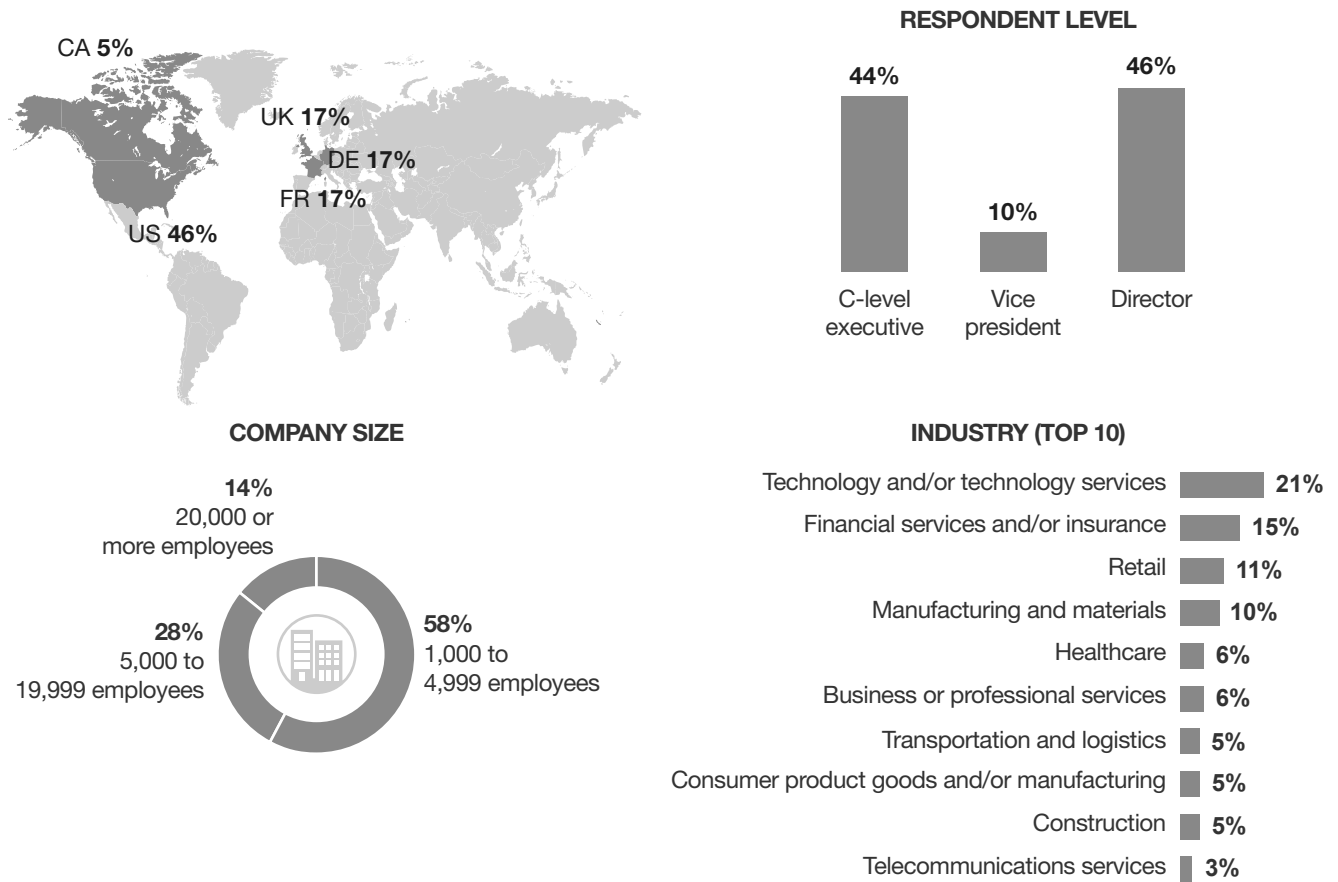


Choose tools that support a hybrid future. The death of on-premises may be a hot topic of discussion, but don't believe the hype. Most large organizations will, and should, operate across on-premises, private cloud, and multiple public clouds for better efficiency and performance as well as to avoid lock-in.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 302 organizations in the US, Canada, the UK, France, and Germany to evaluate the ways in which data and analytics have the potential to drive business value. Survey participants included decision makers in data and analytics roles across the organization at the director, VP, and C-level. Respondents were offered an incentive as a thank you for time spent on the survey. The study began in August 2018 and was completed in September 2018.

Appendix B: Demographics/Data



Base: 302 data and analytics decision makers
 Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, September 2018

Appendix C: Supplemental Material

- “Best Practices: Scaling Data Science Across The Enterprise,” Forrester Research, Inc., May 29, 2018.
- “Insights-Driven Businesses Set The Pace For Global Growth,” Forrester Research, Inc., October 19, 2018.
- “AI Unlocks The Business Intelligence In BI,” Forrester Research, Inc., March 1, 2018.