Leaders Approach Big Data Differently

How Leading Firms Are Succeeding With Big Data

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Contributing Research: Forrester's Enterprise Architecture research group

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Executive Summary

Digital leaders today have taught us that the firms that excel at turning data into insights have an advantage. However, what exactly are they doing that makes them more successful?

In February 2016, Dell EMC commissioned Forrester Consulting to examine this phenomenon and evaluate the differences between high-growth firms with mature big data strategies and everybody else. The study specifically examined the role that IT leadership plays at leading firms.

We conducted an in-depth online survey with 408 business and IT professionals responsible for big data and analytics at their organization. By comparing mature and high-growth organizations with lower-growth and less mature firms, we found that leaders indeed do some things very differently, starting with taking a top-down, priority outcome-driven approach that starts with making tough organizational decisions.

KEY FINDINGS

Forrester's study yielded five key findings:

› **Big data immaturity is a competitive disadvantage today.** Our survey shows that big data maturity correlates to revenue growth. And firms that are immature in their big data and analytics strategy execution are not seeing the customer experience, revenue, or product innovation benefits that their more mature competitors are.

› **The analytics vision comes from the business.** Mature firms tend to get their vision from the CEO, the board of directors, digital leaders, and data science teams; less mature firms tend to depend on CIOs to set the vision. The problem is that organizational issues can make it difficult for IT to deliver.

› **The right organizational structure and culture comes before the technology.** Leaders are different in the way they approach change. A culture that rewards innovation and allows for calculated risk is key to unlocking the power of big data insights.

› **Systems of insight and continuous optimization create success.** Leaders are not only better at turning big data into insights, but they are also more likely to test the outcomes of their big data insights and continuously learn through experimentation. Forrester calls this closed loop between data, insight, and action a *system of insight.*

› **IT plays a bigger role at successful organizations.** Our study revealed that successful organizations are more likely to have strong IT involvement in their big data initiatives. But this doesn't mean IT should set the vision and be accountable for its execution. Leaders maximize the value of IT by resolving complex organizational issues so IT leaders across the board can deliver foundational capabilities.

> **Successful firms align their investments in big data analytics to the business outcomes that generate the biggest advantage. Then they make the tough organizational and process calls, with a lot of help from IT, who often understands the data and the limits of the technology.**

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Big Data Immaturity Is A Competitive Disadvantage

There is no longer any doubt — firms that can act on insight from big data are rising to the top. For example, four of the five biggest companies in the world have used big data to dominate their industry. But are other firms in traditional industries really seeing benefits when they embrace some of the skills and technologies pioneered by these disruptors? If so, what are they doing differently?
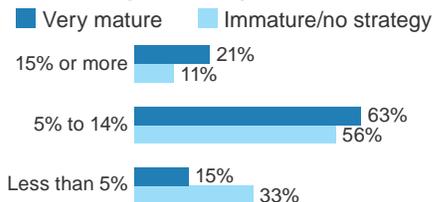
Our analysis compared the responses of leading big data firms with those of lagging firms, and we also compared the responses of business and IT professionals. We found:

› **Big data leaders were outperforming lagging firms.** Our study found a strong correlation between firms that said their big data strategy execution was "very mature" and overall company growth (see Figure 1).

› **Business and IT pros look at big data differently.** For example, 49% of IT respondents said their firm's vision for big data comes from the CIO, while only 34% of business respondents felt that way.[1]

By comparing the survey responses between these groups, we confirmed that *big data immaturity has become a competitive disadvantage.* Our study found that immature, low-growth firms did not feel they were seeing the benefits that their mature, high-growth counterparts were. Specifically, very mature firms felt their investments were

helping them provide better customer experiences, driving top- and bottom-line growth and leading to more innovative products and services (see Figure 2).

FIGURE 1

Firms With Higher Revenue Growth Tend To Have More Mature Big Data And Analytics

"Please estimate your firm's/organization's average year-over-year revenue growth rate over the past three years."

■ Very mature   ■ Immature/no strategy

15% or more — 21% / 11%
5% to 14% — 63% / 56%
Less than 5% — 15% / 33%

Base: 71 very mature and 73 immature/no strategy big data decision-makers at companies with 100 to 4,999 employees

(percentages may not total 100 because of rounding)

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

FIGURE 2

Immature Firms Miss Out On Significant Revenue Growth, Innovation, And Customer Benefits

"Which of the following customer experience benefits has your firm seen due to its investment in big data analytics?" (Major tangible benefits)

■ Very mature   ■ Immature/no strategy

Improved marketing — 48% / 29%
Improved in-store experiences — 44% / 23%
Improved customer support — 42% / 27%
Improved sales support — 41% / 27%
Improved products — 34% / 32%
Improved web or mobile experiences — 34% / 22%

"To what extent has big data and analytics investment created topline revenue growth?"

Significant improvement to our revenue targets — 83% / 21%
Some new revenue opportunities, but measurable benefit has been fairly small so far — 15% / 63%
Insignificant revenue benefits seen — 1% / 16%

"To what extent has big data and analytics investment helped improve your firm's bottom line through efficiency and operational excellence?"

Significant improvement to our revenue bottom line — 70% / 18%
Some efficiency improvements, but measurable benefit has been fair small so far — 28% / 67%
Insignificant bottom-line benefits seen — 1% / 15%
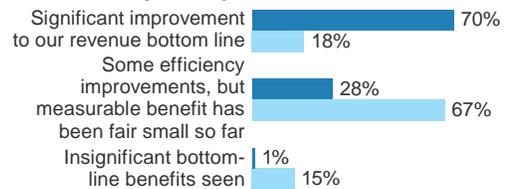
"To what extent has big data and analytics investment led to the development of innovative products and services?"
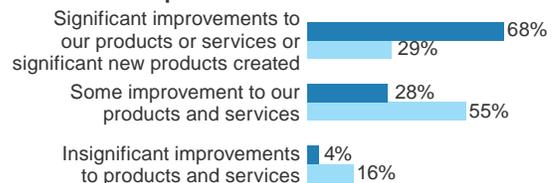
Significant improvements to our products or services or significant new products created — 68% / 29%
Some improvement to our products and services — 28% / 55%
Insignificant improvements to products and services — 4% / 16%

Base: 71 very mature and 73 immature/no strategy big data decision-makers at companies with 100 to 4,999 employees

(percentages may not total 100 because of rounding)

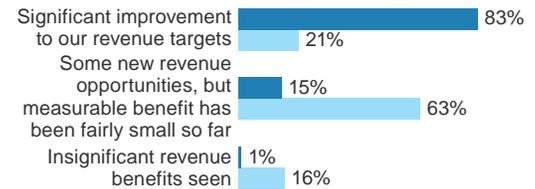Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

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Leaders Go Beyond Technology

Our study confirmed what we expected: Leaders are better at turning big data into insights. For example, 39% of our leaders rated themselves as very good at discovering insights using advanced analytics versus only 11% of our lagging firms. However, the differences we found deeper in the data indicated leaders go beyond the technology.

LEADERS FOCUS ON ORGANIZATIONAL ISSUES

Leaders do not try to solve organizational problems with technology. They also tend to put an emphasis on solving organizational issues first or along with technology implementations. For example:

› **Leaders emphasize cultural change.** Very mature firms were 19 percentage points more likely to place critical priority on cultural change versus their lagging

counterparts (see Figure 3). This difference in emphasis means leaders are more likely to expend business leadership capital and time on culture, whereas at lagging firms, CIOs are driving big data through technology and struggling with a business culture they cannot change.

› **Leaders emphasize change management and organizational structure.** Leaders were 24 percentage points more likely to put critical priority on improving business change management and planning. They were also 16 percentage points more likely to place critical priority on creating the right organizational structure compared with lagging firms. This difference further reinforces our assessment that leaders are willing and able to do what it takes to drive success through culture and organizational structure.

FIGURE 3

Big Data Leaders Place Critical Importance On Culture And Organizational Structure

"How important are the following business changes in order to ensure a successful big data project?"
(Critical requirement)

	Very mature	Immature/no strategy
Developing or improving business innovation	42%	25%
Improving business change program management and planning	42%	18%
Changing our culture	38%	19%
Implementing governance, risk, and compliance policies that enable innovation and appropriate risk-taking	37%	19%
Creating the right organizational structure	35%	19%
Developing or acquiring the right business data skills	35%	26%
Changing management incentives	35%	16%
Improving the business side of advanced analytics and data science	27%	22%
Improving the business side of data stewardship and management	25%	21%

Base: 71 very mature and 73 immature/no strategy big data decision-makers at companies with 100 to 4,999 employees

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

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LEADERS CREATE SYSTEMS OF INSIGHT

Our study also revealed that leaders build solutions differently by attacking the data-to-action problem with systems of insight (see Figure 4).

Forrester defines systems of insight as:

> The business discipline and technology to harness insights and consistently turn data into action.[2]

Key to systems of insight is that they are a closed loop and driven by an insights team that applies Agile and DevOps practices to data and analytics work. The team starts by understanding important business outcomes, measuring everything, and experimenting to find insights that move business needles. Next, they implement insights into core processes that drive decisions, and they continuously optimize using new data as it comes in.

In our study, Forrester tested respondents to see if leaders were more likely to use a *systems of insight* approach. We found that the difference between leading and lagging firms was stunning (see Figure 5). Specifically, leaders:

› **Are more likely to test insights against business outcomes in software.** Firms with very mature big data strategies were 39 percentage points more likely to say they test insights against business outcomes. This is the heart of a system of insight. If an insight doesn't change a business outcome that matters, it is a waste of time. Our study indicated that leaders get this.

› **Continuously learn through experimentation.** Firms with very mature big data strategies were also 25 percentage points more likely to say they were very good at continuously learning through techniques like random experimentation and closed-loop systems. Business intelligence is typically a one way path — from data to insight to action. Systems of insight close the loop so you can continuously learn and optimize.

FIGURE 4

Systems Of Insights Drive Business Actions With People, Processes, And Technology
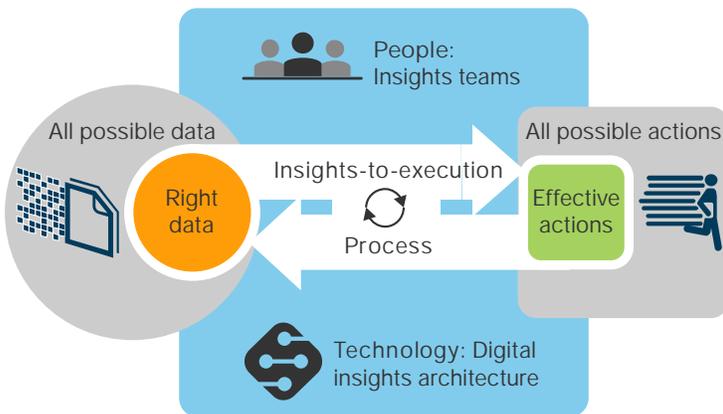
Source: Forrester Research, Inc.

FIGURE 5

Big Data Leaders Are Better At Key Systems Of Insight Capabilities

"Please rate your firm's capabilities in performing the following operations related to data and analytics."
(Very good)

■ Very mature ■ Immature/no strategy

Capability	Very mature	Immature/no strategy
Testing analytics insights against business outcomes to select the most effective actions	44%	5%
Capturing or accessing all the data my business needs for analytics	44%	7%
Discovering insights in data using advanced analytics techniques and technologies	39%	11%
Managing and governing large and diverse new data sets my business needs for analytics	37%	5%
Implementing analytics insights in software systems to aid customers	32%	8%
Implementing analytics insights in software systems to support employee decisions	31%	8%
Continuously learning through techniques like random experimentation and closed-loop analytics processes	30%	5%
Instrumenting applications and products to measure the results of insight-driven action	30%	7%

Base: 71 very mature and 73 immature/no strategy big data decision-makers at companies with 100 to 4,999 employees

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

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Leadership Starts With Rethinking Big Data

Our study indicates that big data done right through *systems of insight* is a competitive advantage. Unfortunately, less than one in five respondents said they were very mature in their big data strategy execution. This is both a problem and an opportunity because big data technology has evolved significantly in recent years. The question is, what should IT leaders do to help their organization get started?

To start, IT leaders should look to what the most mature, high-growth firms do:

› **Prioritize agility and customer experience**. Our survey's business respondents ranked improving innovation as their top business priority, even higher than growing revenue.[3] The business also prioritizes improving customer experience and addressing customer expectations more than IT does. To succeed, IT must
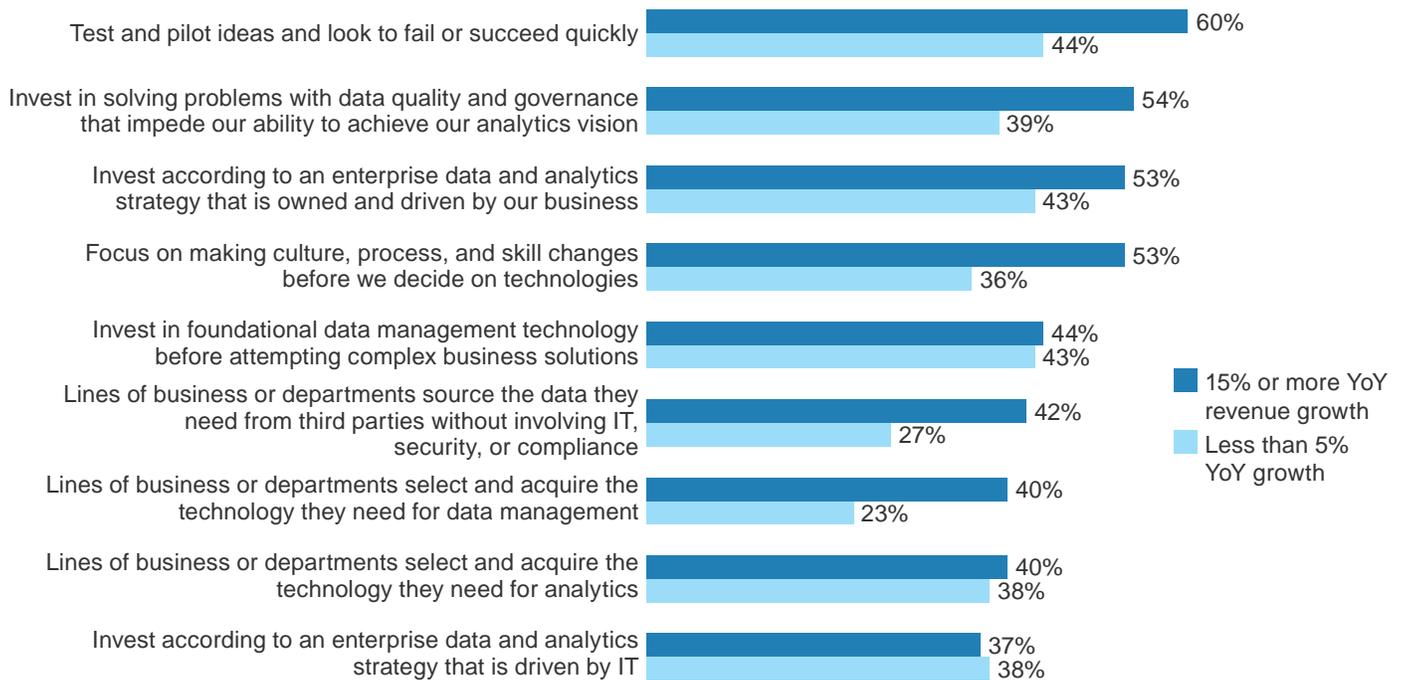
focus on delivering technology agility and focus that agility on helping deliver digital or digitally enhanced, contextual customer engagements.

› **Foster business innovation and risk-taking.** Your business needs to try out a lot of things before it finds what works, and data plays a key role. Leaders seem to understand this. Our study found that 42% of high-growth firms allow their business to source data without involving IT, and 40% give their business the ability to select data management and analytics technologies (see Figure 6). Revenue growth leaders were also 16 percentage points more likely than laggards to create policies that help their business fail or succeed quickly. CIOs who embrace business autonomy on these issues will be rewarded.

› **Stop trying to be accountable for "big data."** Our study showed that lagging firms depend on IT organizations to set the vision for big data, whereas leaders tend to get their big data vision from CEOs, the board of directors, digital executives, and data science teams (see Figure 7).

FIGURE 6

To Become A Leader, Enable A Culture Of Innovation And Experimentation

"To what extent do you employ the following approaches to big data and analytic investment?"
(We usually do this)

Approach	15% or more YoY revenue growth	Less than 5% YoY growth
Test and pilot ideas and look to fail or succeed quickly	60%	44%
Invest in solving problems with data quality and governance that impede our ability to achieve our analytics vision	54%	39%
Invest according to an enterprise data and analytics strategy that is owned and driven by our business	53%	43%
Focus on making culture, process, and skill changes before we decide on technologies	53%	36%
Invest in foundational data management technology before attempting complex business solutions	44%	43%
Lines of business or departments source the data they need from third parties without involving IT, security, or compliance	42%	27%
Lines of business or departments select and acquire the technology they need for data management	40%	23%
Lines of business or departments select and acquire the technology they need for analytics	40%	38%
Invest according to an enterprise data and analytics strategy that is driven by IT	37%	38%

Base: 77 growth laggards and 57 growth leaders at companies with 100 to 4,999 employees

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016
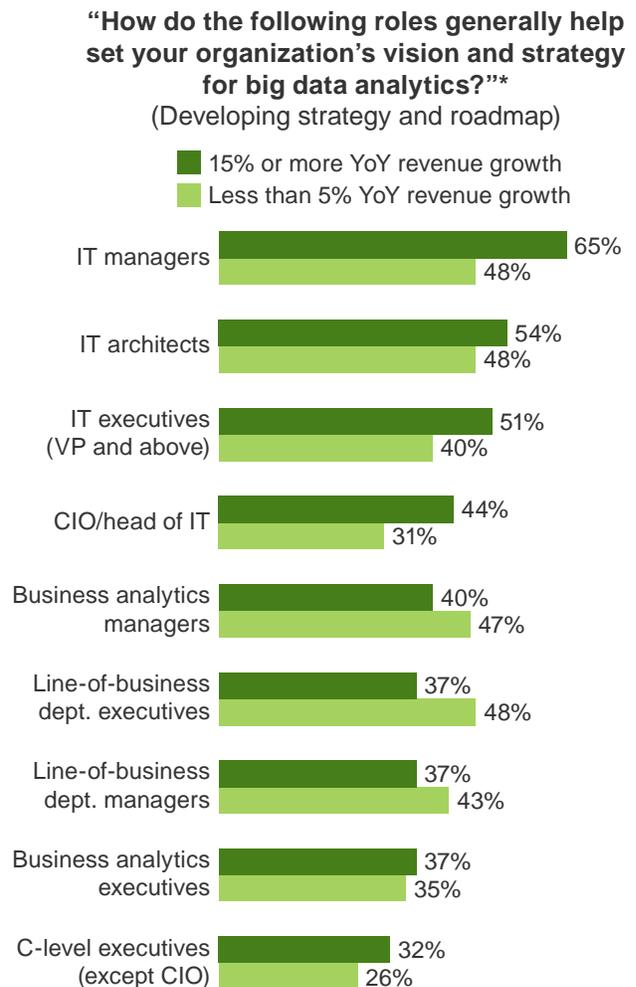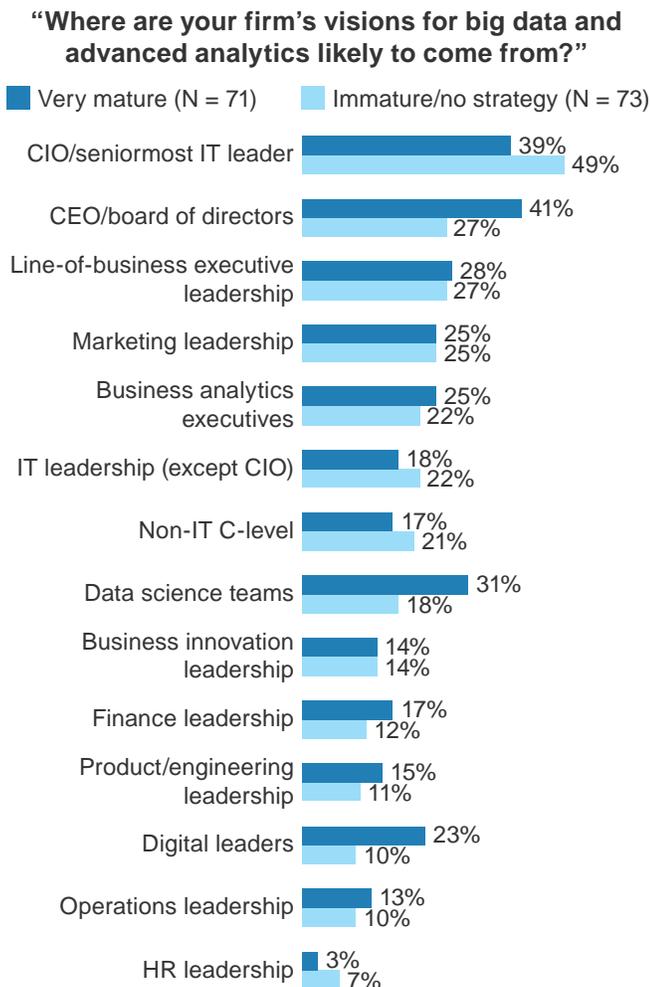
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Our data also showed that IT is more involved in developing the big data road map at leading firms. What does this mean? Taken together, we think that technology management executives who surrender big data leadership to able and willing CEOs and boards — and focus on delivering customer-obsessed business outcomes using big data technology — will be the ones who succeed. But they cannot do this until the business is willing to become more accountable.

› **Reorder what you do.** Leaders work in a different order, according to our study. If you are one of the 20% of firms that fell into our leader group, life is good. But if you are

not, you can still study the steps that leaders take and make an effort to change how you implement big data solutions (see Figure 8). For example, immature firms tend to spend a lot of time trying to understand the business vision and strategy because they believe business strategy and big data capability must be "aligned." Leaders do not have to do this because their business strategy *is* a big data strategy. Instead, they focus on building analytic applications that automate insight discovery and implementation. They also build capabilities that let them measure outcomes and iterate — which are key components of *systems of insight*.

FIGURE 7

IT Plays A Critical Role In Developing Big Data Strategy From The Business' Vision

"Where are your firm's visions for big data and advanced analytics likely to come from?"

■ Very mature (N = 71)   ■ Immature/no strategy (N = 73)

	Very mature	Immature/no strategy
CIO/seniormost IT leader	39%	49%
CEO/board of directors	41%	27%
Line-of-business executive leadership	28%	27%
Marketing leadership	25%	25%
Business analytics executives	25%	22%
IT leadership (except CIO)	18%	22%
Non-IT C-level	17%	21%
Data science teams	31%	18%
Business innovation leadership	14%	14%
Finance leadership	17%	12%
Product/engineering leadership	15%	11%
Digital leaders	23%	10%
Operations leadership	13%	10%
HR leadership	3%	7%

"How do the following roles generally help set your organization's vision and strategy for big data analytics?"*
(Developing strategy and roadmap)

■ 15% or more YoY revenue growth   ■ Less than 5% YoY revenue growth

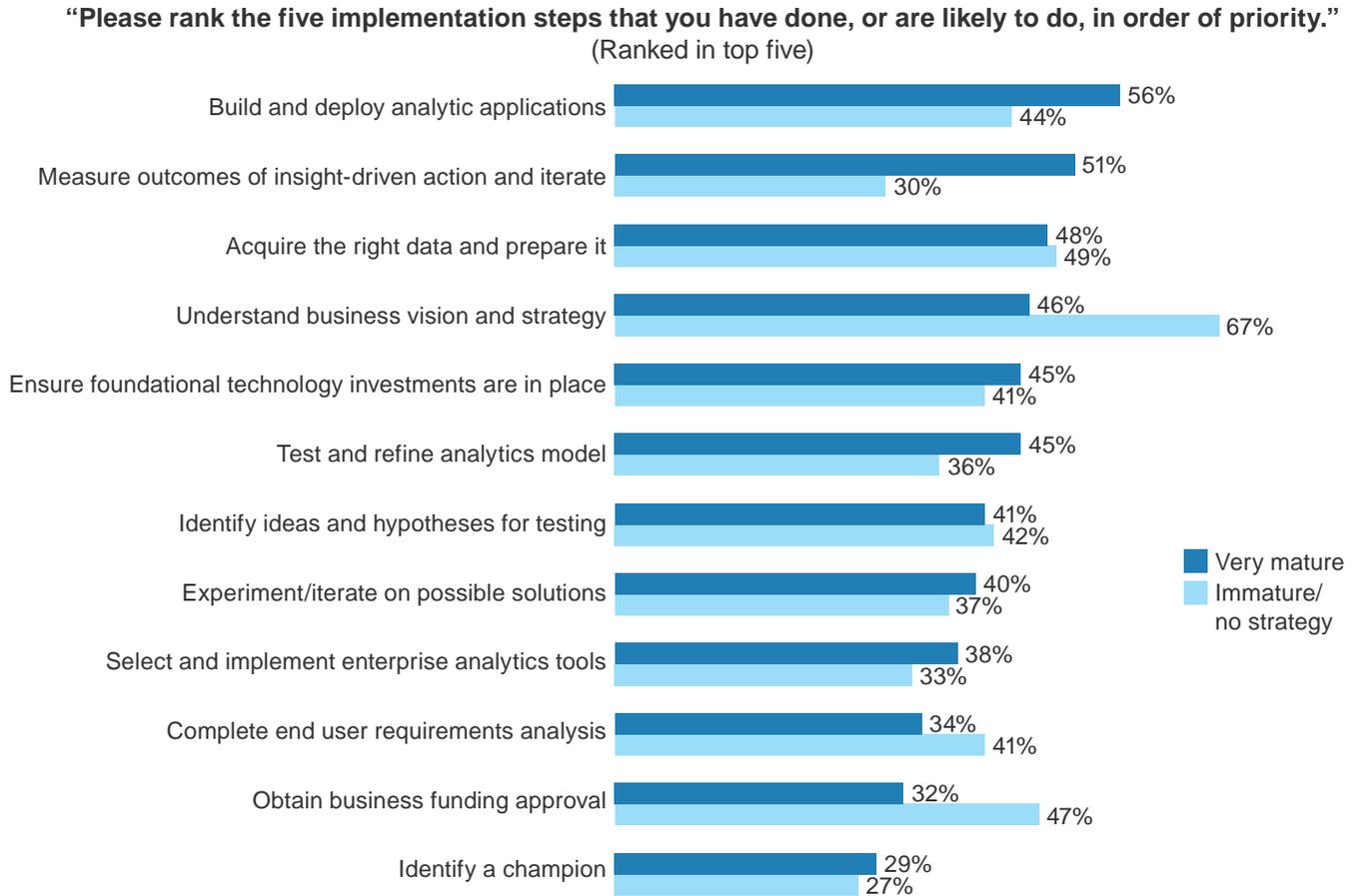|	15% or more YoY revenue growth	Less than 5% YoY revenue growth
IT managers	65%	48%
IT architects	54%	48%
IT executives (VP and above)	51%	40%
CIO/head of IT	44%	31%
Business analytics managers	40%	47%
Line-of-business dept. executives	37%	48%
Line-of-business dept. managers	37%	43%
Business analytics executives	37%	35%
C-level executives (except CIO)	32%	26%

Base: 71 very mature and 73 immature/no strategy big data decision-makers at companies with 100 to 4,999 employees

*Base: 77 growth laggards and 57 growth leaders at companies with 100 to 4,999 employees

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

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FIGURE 8

Success Depends On Measuring The Outcomes Of Big Data Insights And Continuously Optimizing

"Please rank the five implementation steps that you have done, or are likely to do, in order of priority."
(Ranked in top five)

Implementation step	Very mature	Immature/no strategy
Build and deploy analytic applications	56%	44%
Measure outcomes of insight-driven action and iterate	51%	30%
Acquire the right data and prepare it	48%	49%
Understand business vision and strategy	46%	67%
Ensure foundational technology investments are in place	45%	41%
Test and refine analytics model	45%	36%
Identify ideas and hypotheses for testing	41%	42%
Experiment/iterate on possible solutions	40%	37%
Select and implement enterprise analytics tools	38%	33%
Complete end user requirements analysis	34%	41%
Obtain business funding approval	32%	47%
Identify a champion	29%	27%

■ Very mature
■ Immature/no strategy

Base: 71 very mature and 73 immature/no strategy big data decision-makers at companies with 100 to 4,999 employees

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

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Key Recommendations

Forrester's in-depth analysis of the difference between firms experiencing big data analytics success and those that are struggling with analytics yielded many actionable insights. Technology management executives who take the following steps will help their business move into the leader group:

› **Accept a supporting role.** Our study clearly shows that when IT takes the mantle of big data visionary, firms suffer. If you find your business is happy to let you lead, then you must lead from behind until your business is ready to take the reins. This means you need to let failures happen, be ready to suggest alternatives, and refuse to accept accountability for tough organizational issues that the business must address in order to succeed.

› **Foster innovation by favoring agility.** Every major technology decision — such as upfront cost versus TCO or agility versus reliability — is a tradeoff. To make the most out of data and analytics, your business needs to innovate and take risks. This means it will change its mind frequently. In this age of the customer, you must favor speed, which means investing in solutions that favor agility, such as cloud platforms.

› **Invest in insight platforms.** Your business needs help where it is planning the most changes. For many firms, this means digital and customer experience transformation. Review your firm's transformation road map, identify outcomes that define success, and work to define systems of insight to measure and change priority outcomes. Invest in building insight platforms so your business can quickly build and run analytic applications that turn big data into action. Then help them learn and optimize through continuous software and insight delivery.

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Appendix A: Methodology

In this study, Forrester conducted an online survey of 408 organizations with between 100 and 4,999 employees in the US, the UK, France, Germany, China, Japan, and Australia to evaluate how IT and the business each approach big data initiatives and what mature companies do to succeed. Survey participants included decision-makers in both IT and business roles who are responsible for big data and analytics at their organizations. The study began in February 2016 and was completed in March 2016.
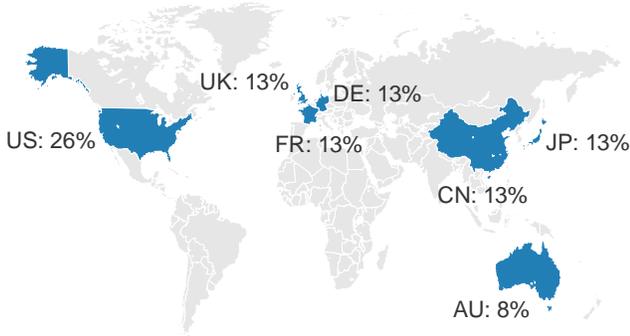
Appendix B: Supplemental Material

RELATED FORRESTER RESEARCH

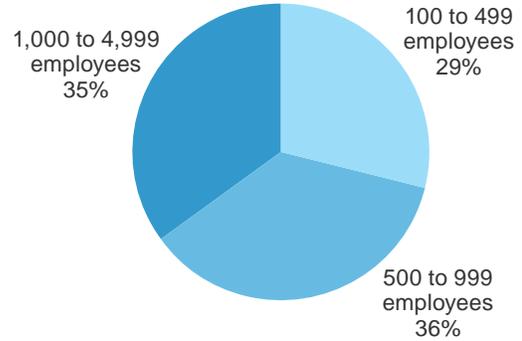"Digital Insights Are The New Currency Of Business," Forrester Research, Inc., April 27, 2015

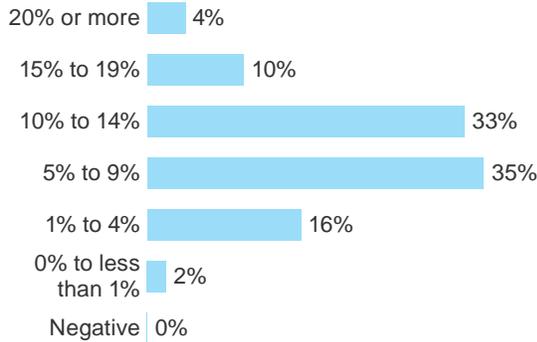**FORRESTER**®

Appendix C: Demographics/Data

FIGURE 9
Survey Firmographics

"In which country are you located?"

US: 26%
UK: 13%
DE: 13%
FR: 13%
JP: 13%
CN: 13%
AU: 8%

"Using your best estimate, how many employees work for your firm/organization worldwide?"

1,000 to 4,999 employees 35%
100 to 499 employees 29%
500 to 999 employees 36%

"Please estimate your firm's/organization's average year-over-year revenue growth rate over the past three years."

20% or more	4%
15% to 19%	10%
10% to 14%	33%
5% to 9%	35%
1% to 4%	16%
0% to less than 1%	2%
Negative	0%

"Which of the following best describes the industry to which your company belongs?"
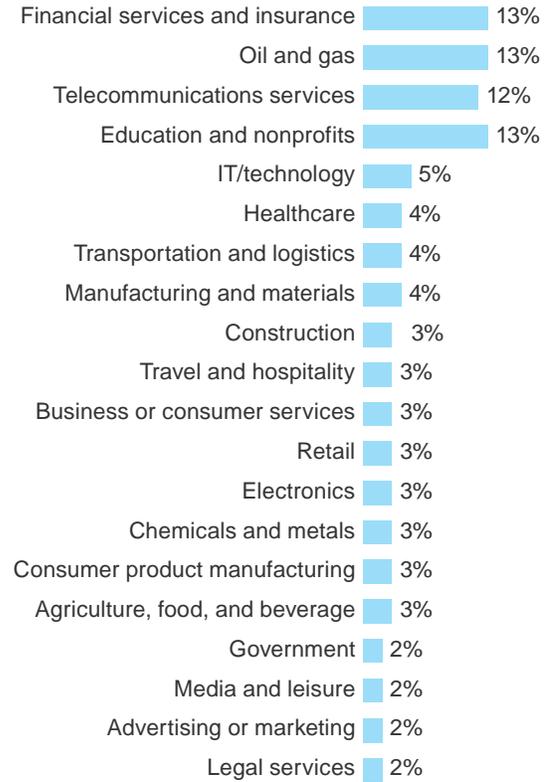
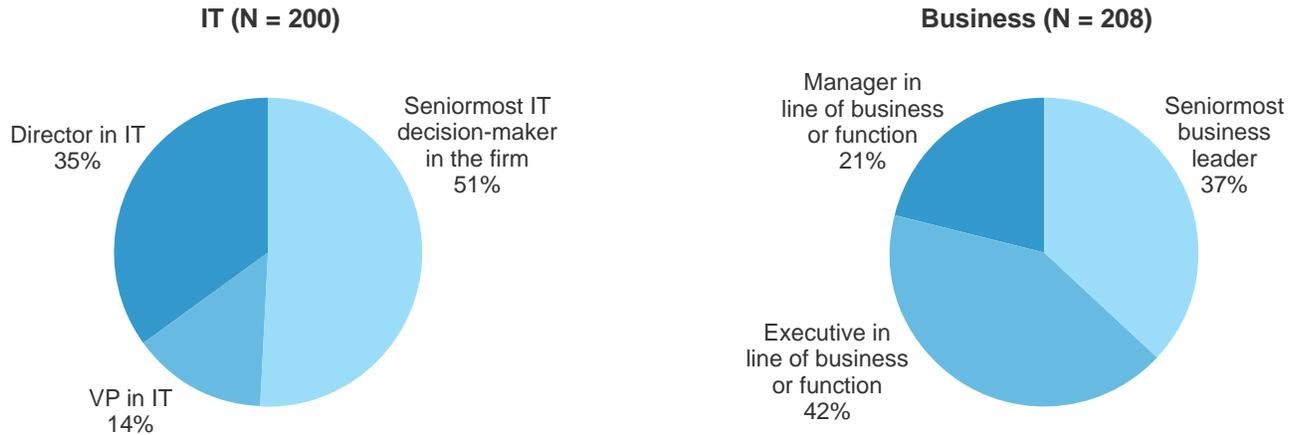|	
Financial services and insurance	13%
Oil and gas	13%
Telecommunications services	12%
Education and nonprofits	13%
IT/technology	5%
Healthcare	4%
Transportation and logistics	4%
Manufacturing and materials	4%
Construction	3%
Travel and hospitality	3%
Business or consumer services	3%
Retail	3%
Electronics	3%
Chemicals and metals	3%
Consumer product manufacturing	3%
Agriculture, food, and beverage	3%
Government	2%
Media and leisure	2%
Advertising or marketing	2%
Legal services	2%

Base: 408 big data decision-makers at companies with 100 to 4,999 employees

(percentages may not total 100 because of rounding)

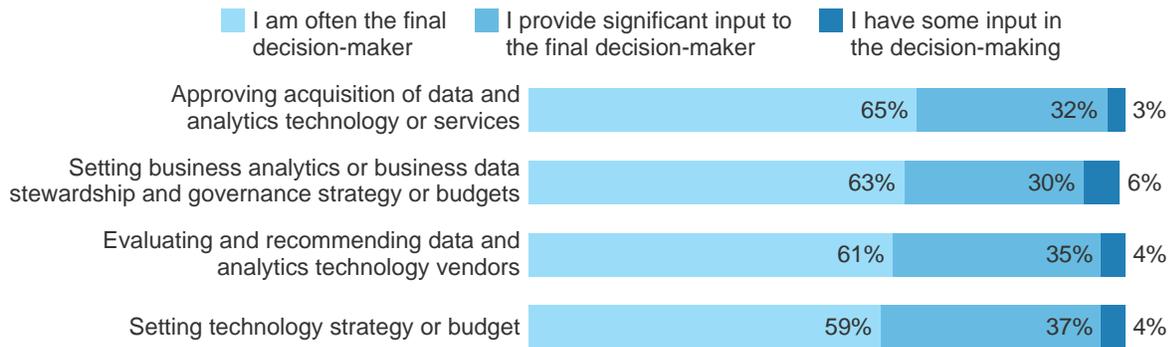Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

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FIGURE 10

Survey Demographics

"Which title best describes your position at your organization?"

IT (N = 200)

Director in IT
35%

Seniormost IT
decision-maker
in the firm
51%

VP in IT
14%

Business (N = 208)

Manager in
line of business
or function
21%

Seniormost
business
leader
37%

Executive in
line of business
or function
42%

"What is your level of responsibility for the following aspects of big data at your organization?"

■ I am often the final
decision-maker
■ I provide significant input to
the final decision-maker
■ I have some input in
the decision-making

Approving acquisition of data and analytics technology or services	65%	32%	3%
Setting business analytics or business data stewardship and governance strategy or budgets	63%	30%	6%
Evaluating and recommending data and analytics technology vendors	61%	35%	4%
Setting technology strategy or budget	59%	37%	4%

Base: 408 big data decision-makers at companies with 100 to 4,999 employees

(percentages may not total 100 because of rounding)

Source: A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016

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Appendix D: Endnotes

[1] A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016.

[2] Source: "Digital Insights Are The New Currency Of Business," Forrester Research, Inc., April 27, 2015.

[3] A commissioned study conducted by Forrester Consulting on behalf of Dell EMC, March 2016.

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