Leaders Approach Big Data Differently
How Leading Firms Are Succeeding With Big Data
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.
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 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 29% 48%
> Improved in-store experiences 23% 44%
> Improved customer support 27% 42%
> Improved sales support 27% 41%
> Improved products 34% 32%
> Improved web or mobile experiences 34% 22%

> “To what extent has big data and analytics investment created top-line revenue growth?”
> Significant improvement to our revenue targets 83%
> Some new revenue opportunities, but measurable benefit has been fairly small so far 63%
> Insignificant revenue benefits seen 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%
> Some efficiency improvements, but measurable benefit has been fairly small so far 67%
> Insignificant bottom-line benefits seen 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%
> Some improvement to our products and services 55%
> Insignificant improvements to products and services 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

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% 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
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)

- Developing or improving business innovation: Very mature leaders placed this at the highest priority, at 42%, compared to 25% for immature/without strategy firms.
- Improving business change program management and planning: Similar to above, 42% for very mature and 18% for immature/without strategy.
- Changing our culture: 38% for very mature and 19% for immature/without strategy.
- Implementing governance, risk, and compliance policies that enable innovation and appropriate risk-taking: 37% for very mature and 19% for immature/without strategy.
- Creating the right organizational structure: 35% for very mature and 19% for immature/without strategy.
- Developing or acquiring the right business data skills: 35% for very mature and 26% for immature/without strategy.
- Changing management incentives: 35% for very mature and 16% for immature/without strategy.
- Improving the business side of advanced analytics and data science: 27% for very mature and 22% for immature/without strategy.
- Improving the business side of data stewardship and management: 25% for very mature and 21% for immature/without 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
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.*

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 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)*

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

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
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. 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).

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**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)

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

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
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

<table>
<thead>
<tr>
<th>“Where are your firm’s visions for big data and advanced analytics likely to come from?”</th>
<th>“How do the following roles generally help set your organization’s vision and strategy for big data analytics?”* (Developing strategy and roadmap)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very mature (N = 71)</td>
<td>15% or more YoY revenue growth</td>
</tr>
<tr>
<td>CIO/seniormost IT leader</td>
<td>Less than 5% YoY revenue growth</td>
</tr>
<tr>
<td>CEO/board of directors</td>
<td>IT managers</td>
</tr>
<tr>
<td>Line-of-business executive leadership</td>
<td>65%</td>
</tr>
<tr>
<td>Marketing leadership</td>
<td>IT architects</td>
</tr>
<tr>
<td>Business analytics executives</td>
<td>54%</td>
</tr>
<tr>
<td>IT leadership (except CIO)</td>
<td>IT executives (VP and above)</td>
</tr>
<tr>
<td>Non-IT C-level</td>
<td>51%</td>
</tr>
<tr>
<td>Data science teams</td>
<td>CIO/head of IT</td>
</tr>
<tr>
<td>Business innovation leadership</td>
<td>31%</td>
</tr>
<tr>
<td>Finance leadership</td>
<td>Business analytics managers</td>
</tr>
<tr>
<td>Product/engineering leadership</td>
<td>40%</td>
</tr>
<tr>
<td>Digital leaders</td>
<td>Line-of-business dept. executives</td>
</tr>
<tr>
<td>Operations leadership</td>
<td>47%</td>
</tr>
<tr>
<td>HR leadership</td>
<td>Line-of-business dept. managers</td>
</tr>
<tr>
<td></td>
<td>Business analytics executives</td>
</tr>
<tr>
<td></td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>C-level executives (except CIO)</td>
</tr>
<tr>
<td></td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>32%</td>
</tr>
</tbody>
</table>

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
“Please rank the five implementation steps that you have done, or are likely to do, in order of priority.”

(Ranked in top five)

- Build and deploy analytic applications: 56%
- Measure outcomes of insight-driven action and iterate: 51%
- Acquire the right data and prepare it: 49%
- Understand business vision and strategy: 67%
- Ensure foundational technology investments are in place: 41%
- Test and refine analytics model: 45%
- Identify ideas and hypotheses for testing: 42%
- Experiment/iterate on possible solutions: 37%
- Select and implement enterprise analytics tools: 38%
- Complete end user requirements analysis: 41%
- Obtain business funding approval: 47%
- Identify a champion: 27%

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
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.
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

Appendix C: Demographics/Data

FIGURE 9
Survey Firmographics

“In which country are you located?”

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

“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%

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

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

“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
FIGURE 10
Survey Demographics

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

IT (N = 200)
- Seniormost IT decision-maker in the firm: 51%
- Director in IT: 35%
- VP in IT: 14%

Business (N = 208)
- Manager in line of business or function: 21%
- Executive in line of business or function: 42%
- Seniormost business leader: 37%

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

- Approving acquisition of data and analytics technology or services:
  - I am often the final decision-maker: 65%
  - I provide significant input to the final decision-maker: 32%
  - I have some input in the decision-making: 3%

- Setting business analytics or business data stewardship and governance strategy or budgets:
  - I am often the final decision-maker: 63%
  - I provide significant input to the final decision-maker: 30%
  - I have some input in the decision-making: 6%

- Evaluating and recommending data and analytics technology vendors:
  - I am often the final decision-maker: 61%
  - I provide significant input to the final decision-maker: 35%
  - I have some input in the decision-making: 4%

- Setting technology strategy or budget:
  - I am often the final decision-maker: 59%
  - I provide significant input to the final decision-maker: 37%
  - I have some input in the decision-making: 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
Appendix D: Endnotes

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


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