



# Big Data and AI Executive Survey 2019

## Executive Summary of Findings



# *Data and Innovation*

## ***How Big Data and AI are Accelerating Business Transformation***

**With a Foreword by Thomas H. Davenport and Randy Bean**

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## Foreword

Is the glass for data, analytics, and AI in large organizations half empty or half full? While there are still signs of emptiness, over all we see a glass that is half full and filling up slowly. Compared to, say, a decade ago, an impressive number of enterprises are data-driven today.

The 2019 edition of the New Vantage Partners Big Data and AI Executive Survey includes many results that are reasons for celebration. They include:

- There was a higher participation rate in the survey than ever before, suggesting that more executives believe the topic is important.
- 90% of those who completed the survey are “C-level” executives—chief data, analytics, or information officers. A decade ago, only one of these jobs even existed.
- 92% of the respondents are increasing their pace of investment in big data and AI.
- 62% have already seen measurable results from their investments in big data and AI (a bit less than in 2018, but still pretty good).
- 48% say their organization competes on data and analytics. When Tom introduced this concept in 2006, perhaps 5% of large organizations would have said they did so.
- 31% have a “data-driven organization,” and 28% a “data culture.” Granted that these are minorities, but perhaps it’s impressive that nearly a third of organizations have brought about these transformations.

The motivation for further change is also quite high, suggesting more movement in the future. 75% fear disruption from new entrants, and 88% feel greater urgency to invest in big data and AI. 92% are driven by positive objectives—transformation, agility, or competition—and only 5% are driven by cost reduction.

Spending levels are also up in accordance with the respondents’ attitudes. The 55% of companies spending over \$50M on these resources is up by 15% over 2018, and 21% are spending over half a billion dollars on them!

The “defense” side of data management is also well represented in the survey. Virtually all respondents agree that data privacy and cybersecurity are important priorities, and 56% said the same for “data ethics”—probably not even a concept that anyone would have mentioned a decade ago.

Yet, in the afterglow of so many positive accomplishments which are worthy of celebration, we should not fail to recognize that we live in a highly dynamic time when digital companies have with speed and force disrupted longstanding business models and traditional competitors.

Even the strongest of companies with the greatest longevity should not fall prey to complacency.

For this reason, these survey findings may be considered a call to action. In critical respects, one could argue that the glass remains half full -- that progress has been slow, and that many companies still lack commitment to data-driven organizational processes and cultures.

It is particularly striking that 77% of respondents say that “business adoption” of big data and AI initiatives continues to represent a challenge for their organizations. This issue, and the low percentage of companies that have achieved data-driven organizations and cultures, suggests the need for a new focus. Respondents clearly say that technology isn’t the problem—people and (to a lesser extent) processes are.

Yet we would guess with high confidence that the great majority of spending on big data and AI goes for technology and its development. We hear little about initiatives devoted to changing human attitudes and behaviors around data. Unless the focus shifts to these types of activities, we are likely to see the same problem areas in the future that we’ve observed year after year in this survey. Let’s make the glass fuller.

Thomas H. Davenport and Randy Bean

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## Introduction

How are Big Data and Artificial Intelligence (AI) accelerating business transformation? This is the theme of the 2019 NewVantage Partners Big Data and AI Executive Survey.

This survey was first conducted in 2012 -- in response to Fortune 1000 business and technology C-Executives who sought to understand the potential impact of Big Data, and its implications for their businesses.

Much has happened in the years since the inaugural survey.

Fortune 1000 companies have come to increasingly recognize that they must become more adept at leveraging their data assets if they are to compete successfully against highly-agile data-driven competitors.

Last year, the 2018 version of NewVantage Partners Executive Survey revealed some compelling findings:

- 54.4% of executives reported that an inability to be nimble and compete on data presented the most significant competitive threat that they faced
- 79.4% of executives told us that they feared disruption from data-driven competitors
- 97.2% of executives said their firms were investing in Big Data and AI initiatives as they sought to become nimble, data-driven businesses.

As data volumes and data sources proliferate at greater and greater rates, Fortune 1000 companies have accelerated their investment in Big Data and AI initiatives. For many, fear of disruption has been a motivating factor in fueling investment in Big Data and AI initiatives.

The theme of the 2019 survey, our 7<sup>th</sup>, is ***Data and Innovation: Leveraging Big Data and AI to Accelerate Business Transformation:***

- What is the current state of Big Data and AI investment?
- How is the pace of Big Data and AI investment changing?
- How are firms organizing to leverage Big Data and AI investments?
- What are the obstacles to building a data culture?
- Are firms becoming more data-driven?
- How are firms leveraging Big Data and AI to transform their businesses?

Big Data and Artificial Intelligence (AI) are enabling capabilities which hold the potential for companies to reach new customers and better serve the customers they have – if deployed creatively, wisely, and effectively.

Nearly 65 Fortune 1000 or industry leading firms are represented in our 2019 survey.

C-executive participation has never been higher. The results and findings are compelling.

As always, a special thank you to all the executives who participated. It is much appreciated.

## 2019 Survey Participating Firms

Nearly 65 leading firms participated in this year's executive survey – a new high. As in past years, survey participants represent a blue-chip roster of leading names.

Financial services firms comprise the majority. These are data-mature firms that maintain high-value customer relationships and invest significant sums to manage their data.

Healthcare firms are well represented this year – a sharp uptick from previous years. These are businesses that are undergoing rapid transformation -- data rich, but often less data-mature.

Each of the participating firms listed has one thing in common – they must learn to compete with a rising generation of digital, data-driven competitors. Here are the 2019 participants:

<b>Financial Services   Insurance</b>		
<b>AIG</b>	<b>Fidelity Investments</b>	<b>PNC Bank</b>
<b>Allstate</b>	<b>Freddie Mac</b>	<b>Putnam Investments</b>
<b>Ally Financial</b>	<b>The Hartford</b>	<b>S&amp;P Global</b>
<b>American Express</b>	<b>Huntington Bank</b>	<b>Scotia Bank</b>
<b>Bank of America</b>	<b>JP Morgan</b>	<b>State Street</b>
<b>Bank of China</b>	<b>London Stock Exchange</b>	<b>Sumitomo Bank</b>
<b>Capital One</b>	<b>M&amp;T Bank</b>	<b>Sun Life Financial</b>
<b>Charles Schwab</b>	<b>Mastercard</b>	<b>Swiss Reinsurance</b>
<b>Citigroup</b>	<b>Met Life</b>	<b>TD Ameritrade</b>
<b>Citizens Bank</b>	<b>MFS Investments</b>	<b>TIAA</b>
<b>Crawford</b>	<b>Moody's</b>	<b>Travelers</b>
<b>Credit Suisse</b>	<b>Morgan Stanley</b>	<b>UBS</b>
<b>Deutsche Bank</b>	<b>Munich Reinsurance</b>	<b>Voya Financial</b>
<b>Farmers Insurance</b>	<b>Nationwide Insurance</b>	<b>Wells Fargo</b>

<b>Healthcare   Life Sciences</b>		<b>Additional Leaders</b>
<b>Aetna</b>	<b>Johnson &amp; Johnson</b>	<b>Bloomberg</b>
<b>Alexion</b>	<b>PAREXEL</b>	<b>Catalina Marketing</b>
<b>Astellas</b>	<b>Partners Healthcare</b>	<b>City of New York</b>
<b>Astra Zeneca</b>	<b>Sanofi</b>	<b>Ford Motors</b>
<b>Cigna</b>	<b>United Health</b>	<b>General Electric</b>
<b>CVS Health</b>		<b>General Motors</b>
<b>Eli Lilly</b>		<b>Global Energy</b>
<b>GlaxoSmithKline</b>		<b>Schneider Electric</b>

## 2019 Participant Summary

As mentioned in the introduction, the 2019 survey is noteworthy for the sharp uptick in participant representation by the healthcare industry. This highlights the rising priority of Big Data and AI within healthcare, and the increasing data maturity of healthcare firms.

Here is a summary of 2019 survey participants by industry segment.

<b><u>Industry Participation</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Financial Services</b>	<b>77.2%</b>	<b>73.8%</b>
<b>Healthcare</b>	<b>8.8%</b>	<b>16.6%</b>
<b>Additional Leaders</b>	<b>14.0%</b>	<b>9.6%</b>

NewVantage Partners Executive Survey is intended to be a survey of senior executives with corporate oversight and responsibility for Big Data and AI initiatives within their firm. Upon publication of the 2012 survey, Thomas H. Davenport called the survey “one of the few I have seen that focuses on large organizations and offers responses from C-level executives”.

And, so it has remained. This is our 7<sup>th</sup> survey of senior corporate officers.

This year, C-executive decision-makers comprise 97.5% of survey participants, up modestly from 2018. This group is led by Chief Data Officers, who have emerged over the course of the past 7 years as the principal advocates for data within the corporate enterprise.

Over the course of the past few years, a new trend has emerged among many Fortune 1000 corporations. This is the creation of a yet newer role -- *The Chief Data and Analytics Officer* -- integrating the data and analytics responsibilities within a single executive.

It is noteworthy that 72.8% of survey participants reflect senior-most executive responsibility for data and analytics activities within their organizations.

The following represents a summary of the 2019 executive survey participants by responsibility.

<b><u>Respondent Role</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Chief Data Officer   Data Leader</b>	<b>55.6%</b>	<b>56.8%</b>
<b>Chief Analytics Officer   Analytics Leader</b>	<b>15.3%</b>	<b>16.0%</b>
<b>Chief Information Officer   Technology Leader</b>	<b>13.9%</b>	<b>17.3%</b>
<b>Chief Executive Officer   Business Leader</b>	<b>5.6%</b>	<b>2.5%</b>
<b>Chief Marketing/Digital Officer   Strategy Leader</b>	<b>2.8%</b>	<b>4.9%</b>
<b>Other</b>	<b>6.9%</b>	<b>2.5%</b>

Overall participation by role and responsibilities remains largely consistent from 2018 to 2019.

## 2019 Executive Summary

How are Big Data and AI accelerating business transformation -- or aren't they?

This is the central question that we sought to answer in this year's survey of nearly 65 Fortune 1000 or industry leading firms. The answers may surprise you.

Here is a summary of the major findings from the 2019 edition of NewVantage Partners Big Data and AI Executive Survey:

### **Firms are ramping up investment in Big Data and AI to accelerate business agility**

Leading companies (91.6%) are increasing the pace of their Big Data and AI investments -- 75.0% citing fear of disruption from data-driven digital competitors; 91.7% saying investment is required to transform into agile and competitive businesses; 87.8% expressing urgency to invest. Investment in Big Data and AI is increasing, with 55% of firms investing greater than \$50MM.

### **Leading companies are struggling with data-driven business transformation**

Companies are investing in Big Data and AI, but they are not seeing commensurate results. Though 62.2% report measurable results from their Big Data and AI investments, less than half say they are competing on data and analytics (47.6%), have created a data-driven organization (31.0%), or have forged a data culture (28.3%). The implications are significant.

### **Cultural challenges remain the biggest obstacle to business adoption**

Companies report (77.1%) that business adoption of Big Data and AI initiatives remains a major challenge. Executives cite multiple factors (organizational alignment, agility, resistance), with 95.0% stemming from cultural challenges (people and process), and only 5.0% relating to technology. If companies hope to transform, they must begin to address the cultural obstacles.

### **The Chief Data Officer role is evolving but ill-defined; CDO's may be ill-equipped**

Chief Data Officers are in place at 67.9% of the companies surveyed, but the role remains ill-defined with the consequence that CDO's may be ill-equipped to address the challenges – 38.2% of firms want an external change agent while 32.4% want a company insider; 48.1% see the CDO as having primary responsibility for data while 28.4% see no single point of accountability; 17.5% of executives view the CDO role as interim or unnecessary.

### **Most companies are still not data-driven, and won't be anytime soon**

Business adoption of Big Data and AI initiatives must be viewed through a long-term lens – as a process and a journey. Only 31.0% of companies say they are data-driven. This number has declined from 37.1% in 2017 and 32.4% in 2018. We are headed the wrong direction. Firms need to adopt a long-term approach, focusing on the complex cultural challenges as a starting point.

The full set of findings and results follow. The answers are both revealing and insightful.

## Investment

In recent years, it became evident that investment in Big Data and AI initiatives had become nearly universal. Last year's executive survey reported that 97.2% of participating firms were investing in Big Data and AI. This year we sought to dig deeper into the motivating factors.

We wanted to understand whether there was a direct linkage in the rise of Big Data and AI investments to the uptick in fear of disruption from data-driven competitors.

Our 2018 survey had reported a sharp rise in executives citing fear of disruption as a powerful motivator – from 46.6% in 2017 up to 79.4% in 2018.

This year, we decided to focus on 4 key questions driving Big Data and AI investment:

1. Is the pace of Big Data and AI investment increasing?
2. Is there a greater urgency to invest in Big Data and AI initiatives?
3. Is there a concern that firms may be at risk of disruption?
4. What is driving investment on Big Data and AI initiatives?

Executives report that the pace of investment in Big Data and AI is increasing – 91.6% confirm the increase in pace. However, responses vary by industry sector. Financial services firms report a greater increase in pace – with 95.2% accelerating investment, in contrast to healthcare firms which report a smaller acceleration of investment – 76.9%.

<b>Pace of Investment in Big Data/AI</b>	<b>2019</b>
<b>Pace is Accelerating</b>	<b>91.6%</b>
<b>Pace Not Accelerating</b>	<b>8.4%</b>

Executives also report a greater urgency to invest in Big Data and AI initiatives – 87.8% confirming this urgency. Again, financial services firms show greater urgency – 91.7% -- versus healthcare counterparts who were proceeding at a less urgent pace -- 78.6%.

<b>Urgency to Invest in Big Data/AI</b>	<b>2019</b>
<b>Greater Urgency</b>	<b>87.8%</b>
<b>Not Greater Urgency</b>	<b>12.2%</b>

Executives again reinforced the notion that they are motivated by a fear of disruptive forces and competitors, with 75% of executives acknowledging this concern.

<b>Fear of Disruption</b>	<b>2019</b>
<b>Yes</b>	<b>75.0%</b>
<b>No</b>	<b>25.0%</b>

This time, fear of disruption was higher among healthcare executives – 78.6% -- relative to their financial services colleagues who registered a slightly lower degree of fear – 72.6%.

<b><u>Driver of Big Data/AI Investment</u></b>	<b><u>2019</u></b>
<b>Transformation/agility/competition</b>	<b>91.7%</b>
<b>Cost savings</b>	<b>4.8%</b>
<b>Other</b>	<b>3.5%</b>

When asked to identify the principal driver of Big Data and AI investment, there was uniform consensus.

Companies are united in their view that business transformation and greater agility will enable them to operate more competitively – 91.7% acknowledged these as the driving factors.

Although firms have recognized measurable cost-savings from Big Data and AI investments, only 4.8% viewed cost-savings as the driving factor or endgame.

The findings reinforce the view that companies are accelerating their investments in Big Data and AI to stave off competition and bring greater agility to their own firms.

Motivated by a fear of disruption, firms are accelerating the pace and urgency with which they undertake Big Data and AI initiatives.

<b><u>Investment in Big Data/AI</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Greater than \$500M</b>	<b>12.7%</b>	<b>21.1%</b>
<b>\$50M -- \$500M</b>	<b>27.0%</b>	<b>33.9%</b>
<b>Under \$50M</b>	<b>60.3%</b>	<b>45.0%</b>

Absolute dollar investment in Big Data and AI initiatives is also increasing.

The number of firms investing greater than \$500MM in Big Data and AI initiatives has increased significantly -- from 12.7% in 2018 to 21.1% of firms in 2019.

Likewise, the number of firms investing greater than \$50MM has increased from 39.7% in 2018 to 55.0% in 2019.

The findings highlight the significant increase in Big Data and AI investments in just the past twelve months.

The survey also sought to understand the nature of investment in disruptive technology capabilities and where firms envisioned the greatest business impact over the coming decade.

<b><u>Investment in Disruptive Technologies</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>AI/Machine Learning</b>	<b>68.9%</b>	<b>90.4%</b>	<b>96.4%</b>
<b>Cloud Computing</b>	<b>85.2%</b>	<b>80.8%</b>	<b>90.5%</b>
<b>Digital Technologies</b>	<b>78.7%</b>	<b>64.4%</b>	<b>77.4%</b>
<b>FinTech Solutions</b>	<b>45.9%</b>	<b>54.8%</b>	<b>47.6%</b>
<b>Blockchain</b>	<b>37.7%</b>	<b>53.4%</b>	<b>41.7%</b>

The findings show that there has been a steady increase in investments in AI/Machine Learning from 2017 through 2019 from 68.9% to 96.4%, reinforcing the view that investment in AI has become nearly universal.

Cloud Computing has also become firmly established, with 90.5% of executives reporting investment in this domain.

Surprisingly, investment in Blockchain has yet to demonstrate momentum, even as Blockchain remains highly touted as a transformative technology.

Though there has been considerable discussion regarding the applicability of Blockchain within healthcare, the number of firms reporting investment in Blockchain was sharply lower among healthcare firms (28.6%) in comparison to financial services firms (45.2%).

<b><u>Most Impactful Disruptive Technology</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>AI/Machine Learning</b>	<b>46.6%</b>	<b>71.8%</b>	<b>80.0%</b>

Not surprisingly, executives identified AI/Machine Learning as the most disruptive of emerging technologies when looking out across the coming decade – 80.0% of executives named it the most important disrupter, having emerged as the clear consensus choice since 2018.

<b><u>2019 Data Priorities</u></b>	<b><u>2019</u></b>
<b>Data Privacy</b>	<b>98.6%</b>
<b>Cyber Security</b>	<b>94.3%</b>
<b>Data Ethics</b>	<b>55.7%</b>

Lastly, executives were asked to identify their 2019 data priorities.

With rising attention being paid to issues regarding data protection in the wake of GDPR legislation and well publicized data breeches, it should not come as a surprise that privacy and security were named as universal priorities. Notable is the emergence of data ethics as a corporate priority, with a majority – 55.7% -- seeing it as a top priority for 2019.

## Results

With the pace of investment and absolute dollar amount of Big Data/AI investment increasing, it would be hoped that organizations would report greater results from their investments.

This is not entirely the case. Following a sharp uptick in firms reporting measurable results from Big Data/AI investments between 2017 and 2018, there has been a notable falloff this year.

<b><u>Measurable Results from Big Data/AI</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Yes</b>	<b>48.4%</b>	<b>73.2%</b>	<b>62.2%</b>
<b>No   Too Early To Tell</b>	<b>51.6%</b>	<b>26.8%</b>	<b>37.8%</b>

Nobody ever said this was going to be easy.

Business adoption of Big Data/AI initiatives, and the deriving of measurable business value from these investments, represents a multi-year journey.

This is borne out by the data.

An eye-opening 77.1% of executives report that business adoption of Big Data/AI initiatives remains a challenge for their organizations – an increase over 2018.

<b><u>Business Adoption of Big Data/AI a Challenge</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Yes</b>	<b>64.7%</b>	<b>77.1%</b>
<b>No</b>	<b>35.3%</b>	<b>22.9%</b>

Why does business adoption of Big Data/AI continue to be such a challenge for firms?

Executives cite multiple factors -- 95% of which appear attributable to cultural and organizational issues – not technology challenges.

<b><u>Biggest Challenge to Business Adoption</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Lack of organizational alignment/agility</b>	<b>25.0%</b>	<b>40.3%</b>
<b>Cultural resistance</b>	<b>32.5%</b>	<b>23.6%</b>
<b>Understanding data as an asset</b>	<b>30.0%</b>	<b>13.9%</b>
<b>Executive leadership</b>	<b>7.5%</b>	<b>7.0%</b>
<b>Technology solutions</b>	<b>5.0%</b>	<b>5.0%</b>

This warrants serious executive attention.

Companies must ask some hard questions about Big Data/AI business adoption.

Why are firms realizing middling results from their Big Data/AI investments?

What actions can companies initiate to address the challenges to business adoption?

While 91.7% of firms highlight the “need for agility” as the primary driver of Big Data/AI investment, 40.3% of these same firms identify “lack of agility” as the principle challenge to business adoption.

<u>The State of Big Data/AI in 2019</u>	<u>Yes</u>	<u>No</u>
<b>Managing Data as a Business Asset</b>	<b>46.9%</b>	<b>53.1%</b>
<b>Forged a Data Culture</b>	<b>28.3%</b>	<b>71.7%</b>
<b>Driving Innovation with Data</b>	<b>59.5%</b>	<b>40.5%</b>
<b>Competing on Data and Analytics</b>	<b>47.6%</b>	<b>52.4%</b>
<b>Created a Data-Driven Organization</b>	<b>31.0%</b>	<b>69.0%</b>

When probing into the state of Big Data/AI entering 2019, it is noteworthy how firms assess themselves in their progression toward becoming data-driven organizations.

On every metric except driving innovation with data, firms ranked themselves as failing to transform their businesses:

- 71.7% of firms report that they have yet to forge a data culture
- 69.0% of firms report that they have not created a data-driven culture
- 53.1% of firms state they are not yet treating data as a business asset
- 52.4% of firms claim that they are not competing on data and analytics.

<u>Created a Data Driven Organization</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
<b>Yes</b>	<b>37.1%</b>	<b>32.4%</b>	<b>31.0%</b>
<b>No</b>	<b>62.9%</b>	<b>67.6%</b>	<b>69.0%</b>

The trend has not improved much in recent years. Even as investment has increased, the number of firms claiming to have created a data-driven organization is down – to 31.0% this year.

It should be noted that healthcare firms reported greater success in competing on analytics than their financial services counterparts – 57.1% of healthcare firms indicated that they were successful at competing on data and analytics, while only 45.1% of financial services firms reported success.

This is an observation that warrants further analysis.

There is much work yet to be done to accelerate business transformation, and the biggest needs would seem to correspond to people and process issues – not technology.

<b>Principle Challenge to Becoming Data-Driven</b>	<b>2018</b>	<b>2019</b>
<b>People</b>	48.5%	62.5%
<b>Process</b>	32.4%	30.0%
<b>Technology</b>	19.1%	7.5%

It is notable that organizations identifying cultural challenges – people and process – continues to accelerate, representing 92.5% of the gap this year.

On the bright side, a majority of firms -- 62.2% as noted -- report having achieved measurable results from their Big Data/AI investments.

It is worth understanding where the greatest benefits and improvements are coming from.

<b>Areas Yielding Measurable Results</b>	<b>2018</b>	<b>2019</b>	<b>Increase</b>
<b>Advanced Analytics</b>	<b>58.0%</b>	<b>79.8%</b>	<b>21.8%</b>
<b>Expense Reduction</b>	<b>40.6%</b>	<b>59.5%</b>	<b>18.9%</b>
<b>Customer Service</b>	<b>34.8%</b>	<b>57.1%</b>	<b>22.3%</b>
<b>Speed to Market</b>	<b>29.0%</b>	<b>32.1%</b>	<b>3.1%</b>
<b>New Services</b>	<b>20.3%</b>	<b>26.2%</b>	<b>5.9%</b>
<b>Monetization</b>	<b>8.7%</b>	<b>19.0%</b>	<b>10.3%</b>

The application of advanced analytics has risen sharply – by 21.8% -- and stands out as a bright spot with 79.8% success.

Firms report notable success in deriving benefits in customer service – up 22.3% to 57.1% success.

Expense reduction – the low-hanging fruit of Big Data/AI investments -- continues to account for success with an 18.9% increase and 59.5% rate of success.

Lagging at the bottom are initiatives to accelerate speed-to-market and introduce new products and services, while “monetization” pulls up the rear despite showing some increase during the past year.

Monetization continues to be the holy grail of Big Data/AI investments – everyone aspires to it, few achieve it.

## Leadership

There is an aspect of schizophrenia facing most large companies when it comes to the importance and centrality of data.

Thinking about data as an asset is a new phenomenon for most companies. Traditional businesses were not data-driven in the sense that emerging digital competitors are.

The Economist notes, “Seven of the world’s ten most valuable companies by market capitalization are built on a foundation of tying data to human beings”.

Although 97.2% of firms are investing in Big Data/AI initiatives according to last year’s survey, we see that firms are struggling to treat data as a business asset, become data-driven, and compete on data and analytics.

As companies have sought to organize around data, they have sought to forge new leadership roles to champion Big Data/AI within the organization.

<b><u>Appointment of a Chief Data Officer</u></b>	<b><u>2012</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Yes</b>	<b>12.0%</b>	<b>55.9%</b>	<b>62.5%</b>	<b>67.9%</b>
<b>No</b>	<b>88.0%</b>	<b>44.1%</b>	<b>37.5%</b>	<b>32.1%</b>

Since 2012, the role of the Chief Data Officer (CDO) has emerged as the principal executive with primary corporate responsibility for data initiatives. Executives report that 67.9% of firms surveyed have appointed a Chief Data Officer, up from just 12.0% in 2012.

Some firms are now evolving to the next stage in the evolution of this role, with the establishment of the integrated Chief Data and Analytics Officer function.

<b><u>Primary Responsibility for Data</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
<b>Chief Data/Analytics Officer</b>	<b>47.9%</b>	<b>48.1%</b>
<b>Chief Information Officer</b>	<b>15.5%</b>	<b>4.9%</b>
<b>No Single Point of Accountability</b>	<b>23.9%</b>	<b>28.4%</b>
<b>Other Executive</b>	<b>12.7%</b>	<b>18.6%</b>

Although nearly half of executives – 48.1% -- report that the Chief Data/Analytics Officer has primary responsibility for data within their organization, it is significant that 28.4% say there is no single point of accountability. Among healthcare executives, 42.9% reported there was no single point of accountability.

Companies where the Chief Data Officer has primary responsibility for data remains below 50%.

Consensus is elusive.

Companies are also struggling when it comes to formulating the roles and responsibilities of the Chief Data Officer. Few organizations have assigned CDO's revenue responsibility.

<b>CDO with Revenue Responsibility</b>	<b>2018</b>	<b>2019</b>
<b>Yes</b>	<b>13.5%</b>	<b>11.3%</b>
<b>No</b>	<b>86.5%</b>	<b>88.7%</b>

These firms are also struggling when it comes to defining the characteristics and attributes which make for a successful Chief Data Officer.

<b>Profile of a Successful Chief Data Officer</b>	<b>2018</b>	<b>2019</b>
<b>External change agent   outsider</b>	<b>34.0%</b>	<b>38.2%</b>
<b>Company veteran  insider</b>	<b>32.1%</b>	<b>32.4%</b>
<b>LOB executive   owns business results</b>	<b>11.3%</b>	<b>13.2%</b>
<b>Data scientist   analytics leader</b>	<b>15.1%</b>	<b>5.9%</b>
<b>Technology executive</b>	<b>7.5%</b>	<b>10.3%</b>

It is compelling to note the dichotomy between organizations that believe an effective CDO must be an external “change agent” – 38.2% -- versus those organizations that believe the CDO must be a company veteran – 32.4% -- who understands the culture and knows how to “work the organization”.

A third of firms – 29.4% -- believe that a CDO must embody different characteristics – they must be a LOB executive, data scientist, or technology executive. As one Chief Data Officer expressed it, “we are expected to be all of the above”.

<b>Long Term Role of the CDO</b>	<b>2018</b>	<b>2019</b>
<b>Sits on executive committee   Tier 1</b>	<b>50.0%</b>	<b>45.0%</b>
<b>Reports to executive committee   Tier 2</b>	<b>37.1%</b>	<b>37.5%</b>
<b>CDO is interim or unnecessary  to be phased out</b>	<b>12.9%</b>	<b>17.5%</b>

Companies are struggling to make the Chief Data Officer role work in the context of a changing time where data is becoming an asset and firms must be agile and data-driven to compete.

It should not be surprising that there is uncertainty as to what level in the organization that the CDO position should sit, or even whether the role should exist – a significant 17.5% say that it is transitional or unnecessary and should not exist long term.

As firms strive to become data-driven and as their investments in Big Data/AI increase, the Chief Data Officer role remains in flux – nascent, too often ill-defined, and consequently ill-equipped to drive their organizations forward. This deserves greater attention and support.

## About NewVantage Partners LLC

NewVantage Partners are strategic advisors to Fortune 1000 firms and market leaders. We help organizations:

- 1) Leverage data as an asset
- 2) become data-driven,
- 3) forge a data culture
- 4) innovate with data.

### **Leading Data-Driven Business Transformation**

Since 2001, NewVantage Partners has helped a blue-chip roster of Fortune 1000 companies and industry leaders leverage data and analytics to drive innovation and business transformation.

Our clients include leading financial services, healthcare, and media companies.

NewVantage Partners thought-leadership perspectives appear in leading publications, including Forbes, The Wall Street Journal, Harvard Business Review, and MIT Sloan Management Review, through our Executive Thought-Leadership Roundtable Breakfasts, annual Big Data/AI Executive Survey, and through our industry keynote panels and speaking engagements.

NewVantage is headquartered in Boston with offices in New York, San Francisco, Austin, and Charlotte.

## Thought Leadership

### **MIT Sloan Management Review**

How Big Data and AI Are Driving Business Innovation. February 6, 2018.

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A Rising Crescendo Demands Data Ethics and Data Responsibility. November 4, 2018.

Every Company is a Data Company. September 30, 2018.

The State of Machine Learning in Business Today. September 19, 2018.

The Chief Data Officer Dilemma. January 30, 2018.

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