2014

Big Data Survey

Exclusive Research from

IDG Enterprise
An IDG Communications Company

EXECUTIVE SUMMARY

Big Data Strides Forward

Companies place a high priority on their ability to harness data in the service of better business decisions. For many, success depends on building cross-functional partnerships that target high-impact business areas for strategic big data investments.

As game-changing technology trends such as mobile device usage, social media and sensor-derived data further feed the explosive growth of data, companies are intensifying their efforts to derive economic value through big data initiatives. According to a survey of more than 750 IT decision-makers (ITDMs) conducted in the third quarter of 2013, interest in big data continues to rise, as nearly half (49 percent) of respondents are implementing or plan to implement big data projects within their organizations - a 5 percentage point increase from 2012. Nearly half (48 percent) of respondents expect that big data usage will be widespread across the company in three years, while another 26 percent expect mainstream use at one or more business unit, department or division.

An increasing number of companies appear to have moved past early adoption stages, as they transition from addressing infrastructure issues to tackling needs such as the ongoing shortage of skilled workers to manage and analyze big data. Such companies likely represent the percentage of respondents who already have accrued a positive impact from big data, as more than 20 percent say that their big data projects have improved both the quality and speed of decision making.

While there are some differences in perception between IT and business leaders, respondents increasingly treat big data as a cross-functional initiative that demands strong IT leadership as well as sponsorship at the executive level. In fact, the business influence permeates to the infrastructure level, as 67 percent say that the ability to improve business decision-making capabilities is a critical or very important topic to building a data center strategy.

Big Data Growth

A majority (53 percent) of the organizations involved with big data deem their projects either critical or high priority, a reflection of the increasingly vital role that data analysis in general plays in the quality and speed with which businesses can make decisions. In fact, more than half (59 percent) of respondents said that improving the quality of decision-making was the top goal for their big data investments, and 53 percent deemed making quicker decisions the primary business driver.

Exponential data growth further underscores the need for companies to deploy big data initiatives. Sixty-five percent of survey respondents say that users report feeling at least occasionally overwhelmed by incoming data, and 53 percent report that the data influx has delayed important business decisions. Forty-two percent report that business has been either occasionally or frequently lost due to an inability to quickly find sought-after information.

Such findings make sense given the rate of data growth at most companies. On average, respondents currently manage about 164 terabytes of data, although the number varies considerably by size - larger companies report an average of 291 terabytes, while smaller companies average about 57 terabytes. However, respondents expect that average to reach nearly 290 terabytes of data within the next year to 18 months, and 31 percent of larger companies – companies with $1 billion or more in annual revenues – expect to manage more than one petabyte of data.

With that much at stake, it's small wonder that many survey respondents report significant big data investments: 20 percent plan to spend between $1 million and $10 million on big data projects in the next year, and another 9 percent will invest $10 million or more. And most aren't worried about proving the ROI of their big data investments, with less than a third of respondents citing ROI as an obstacle (26 percent).

Wanted: Money and Talent

For the second year running, budgetary limitations tops the list of challenges facing respondents, cited by 44 percent of respondents as their primary challenge—in spite of the fact that 65 percent of those surveyed also expected IT budget allocations for big data to increase either significantly or somewhat this year. Unsurprisingly, smaller companies (49 percent) were more likely to run into fiscal constraints than enterprise-size companies (40 percent.)

However, while last year's survey respondents cited legacy issues such as integration of existing tools and security issues as top challenges, those hurdles have been supplanted in 2013 by the much-vaunted scarcity of skilled data scientists. With graduates of top collegiate math programs deluged with job offers, many companies find themselves scrambling to find skilled employees capable of managing and analyzing big data.

Seventy-two percent of respondents cited the importance of having professionals with the right skill sets in house as a critical or very important success factor to their projects, while nearly a quarter of respondents (22 percent) said finding those workers posed a significant challenge to their organization.

In fact, nearly 40 percent of respondents cited the skill shortage as a top challenge to their big data projects, an issue that remained consistent regardless of company size. For example, only 18 percent of respondents currently employ a data scientist, but about a quarter more (27 percent) plan to hire for the position in the next 12-18 months.

Critical Success Factors

When it comes to leading big data initiatives, IT-led projects are the norm for survey respondents with 46 percent overall indicating that Senior or Executive IT leads at their organization and 44 percent indicating IT Management. There is clearly some joint project ownership at work, as 36 percent indicate that executive business leaders are also involved. Further underscoring big data's compelling business case and the need for IT/business partnership, organizations surveyed indicated that their big data efforts are being supported and sponsored at the CEO (47 percent) or LOB level (34 percent).

Both IT and business leaders agree that big data projects succeed best when implemented as a jointly owned project designed to solve specific business challenges. Eighty-one percent of respondents said that identifying the business areas and processes where big data can have the greatest impact was either critical or very important to the success of big data projects, although business professionals were slightly more likely than IT colleagues to give this issue top priority (91 percent and 80 percent, respectively.)

In terms of gaining cross-functional agreement between IT and LOB on the business areas and processes where big data could have the greatest impact, nearly two-thirds (64 percent) of respondents said that it was either critical or very important.

Indeed, the cross-functional theme proved a consistent one, as 62 percent of respondents also said that identifying big data evangelists to act as corporate sponsors was either critical or very important. Larger companies (70 percent) were considerably more likely to seek such change agents than were smaller companies (54 percent), an inevitable consequence of size and an established corporate culture.

Integration also remained an issue—but not, perhaps, where one might expect. As big data projects move from pilot stage to more mainstream installations, many have run afoul of cultural skepticism. More than half of respondents reported that it was extremely or very challenging to integrate big data initiatives into existing processes (52 percent) and corporate culture (55 percent) on the business side of the house.

IT Perspective

Big data projects will, themselves, also increase data growth, as 60 percent of those surveyed predict that these initiatives will drive increased growth in unstructured data, presenting IT with further data management challenges. Managing the flow of unstructured data is a problem for organizations as 31 percent of respondents cited that challenge in response to their organizational approach. Respondents cite emails (52 percent) and customer databases (49 percent) as the current most common big data sources.

Analytics solutions top the list of technologies for managing and extracting value from business data, cited by more than half (52 percent) of those surveyed. Thirty-six percent of those surveyed plan to invest in data visualization technology over the next 12 months, while nearly as many plan to invest in predictive analytic products (33 percent). Meanwhile, a quarter of respondents are investing in big data training services.

Investments in production technologies such as storage (55 percent), servers (53 percent) and networking products (45 percent) remain strong. However, companies investing in Hadoop-based big data repositories face further complications. Fifty-six percent say that they will have to re-architect the datacenter network to some extent, for example.

Companies have also made progress securing big data installations. Nearly half (49 percent) feel that their existing security solutions adequately protect their big data projects.

In particular, at least 90% of companies cite data access and data protection as either extremely or very important security capabilities. Fifty-two percent restrict access to sensitive big data, while 43 percent encrypt it.

The rise in data attacks and threats has also driven increased interest in capabilities such as real-time threat analysis, which 83 percent of respondents considered extremely or very important. In fact, many companies reported a slightly revised view of data security, with 28 percent citing a risk vs. reward perspective as a significant driver of big data security investments. For these companies, the value derived from gleaning intelligence from sensitive data provided a compelling business use case for security investments.

Vendor Outlook

When it comes to the vendor landscape, perception is shifting a bit as companies progress farther in their big data journey. While technology giants such as IBM, Oracle, HP and Microsoft are most often cited by respondents (on an unaided basis) as thought leaders, their numbers are small, with only IBM and Oracle pulling a double-digit response rate (21 percent; 12 percent.) The remaining cited vendors were all under ten percent, including next-generation vendors such as Hadoop (4 percent), Amazon (3 percent) and Google (3 percent).

According to the survey, vendors can also do a better job at defining big data value for organizations. Only 10 percent strongly agree that their vendors provide effective guidance; 33 percent somewhat agree, leaving 44 percent either neutral or in disagreement and 13 percent not sure.

Respondents are similarly fragmented when it comes to evaluating product innovation. While 41 percent say that existing innovative solutions range from good to excellent, 47 percent find the quality of those offerings adequate to poor. Tellingly, many also express frustration with other product areas. Sixty-three percent say that pricing models are adequate at best, while 61 percent find ease of use either adequate or poor, and 60 percent give low marks to products' ease of integration into existing infrastructure.

As companies continue to move further down the big data adoption curve, there is clearly room for improvement—and opportunity. Companies' big data investments stand the best chance of pay off with a well-defined cross-functional strategy and partners that can provide strategic as well as technical value.

Methodology & Respondent Profile

IDG Enterprise's 2014 Big Data survey was conducted online among the audiences of six IDG Enterprise brands – CIO, Computerworld, Network World, CSO, InfoWorld and ITworld, via pop-up, forum posts, and email invitations. The objective of the survey was to gain a better understanding of organizations' big data initiatives, investments and strategies.

Results in this report are based off of 751 respondents who reported their organizations are currently implementing, planning or considering big data projects. IDG Enterprise respondents were offered a chance to win one of two $250 cash prizes as an incentive for completing the survey.

A broad range of industries are represented in this sample including: high tech (20 percent), financial services (banking, insurance, brokerage) (13 percent), government (8 percent), education (8 percent), services (legal, consulting, real estate) (8 percent), healthcare (providers and pharmaceuticals) (8 percent), telecommunications and utilities (8 percent), advertising/marketing/PR/media (publishing, broadcast, online) (6 percent), manufacturing (including automotive, aerospace & defense, construction, engineering, chemical, metals & mining) (6 percent), retail/wholesale/distribution (5 percent), transportation (airlines, trucking, railroads, shipping, logistics) (2 percent), travel and leisure (cruise lines, hotels, theme parks, casinos) (2 percent), other (7 percent). Nearly half of respondents (47 percent) work in organizations with 1,000 or more employees while 50 percent work in companies with fewer than 1,000 employees (three percent indicated they were not sure).

More than half (54 percent) of respondents indicated they are a top IT or security executive (CSO respondents) at their company or business unit/location. A quarter of respondents hold executive IT management titles, 31 percent hold mid-level IT management titles, 17 percent hold IT professional titles, 23 percent hold business management titles and 5 percent hold other titles.

The margin of error for a sample size of 751 is +/- 3.6 percentage points. For the purposes of this report, "enterprise" refers to organizations with 1,000 or more employees and "small & medium" is defined as less than 1,000 employees. For questions requiring respondents to select a single answer, percentages may not sum to 100 percent due to rounding.

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