

Analytics: The real-world use of big data

How innovative enterprises in the midmarket extract value from uncertain data



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Saïd Business School at the University of Oxford

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By Susan Miele and Rebecca Shockley

“Big data” – which admittedly means many things to many people – is no longer confined to the realm of technology. Today it is a business imperative. In addition to providing solutions to long-standing business challenges, big data inspires new ways to transform processes, organizations, entire industries and even society itself. Yet extensive media coverage and diverse opinions make it easy to perceive that big data is only for “big” organizations – what is really happening? Our newest research finds that midsize organizations are just as likely to be using big data technologies to tap into existing data sources and get closer to their customers as any other company.

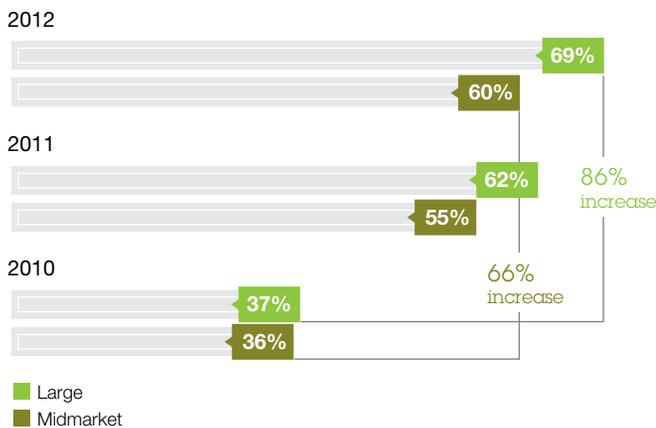
In industries throughout the world, executives are recognizing the opportunities associated with big data. But despite what seems like unrelenting media attention on uses of big data, it can be hard to find in-depth information on what midsize organizations are really doing. So, we sought to better understand how such organizations view big data – and to what extent they are currently using it to benefit their businesses. The IBM Institute for Business Value partnered with the Saïd Business School at the University of Oxford to conduct the 2012 Big Data @ Work Study, surveying 1144 business and IT professionals in 95 countries, including 555 “midmarket” businesses – those with annual revenues less than US\$1 billion, 82 percent of which reported revenue of less than US\$500 million. These survey results were combined with interviews of more than two dozen academics, subject matter experts and business/IT executives, and an examination of dozens of IBM client studies, to develop this report. More than half of these midmarket respondents were from business functions, such as

Marketing and Finance, in companies that spanned 12 macro industry groups, and hailed from around the globe with 37 percent from North America and 38 percent from Europe.

A deeper examination of their responses found that midmarket companies were just as likely as large enterprises to be exploring big data efforts – creating business-driven strategies and blueprints to move forward – and a quarter of them already have big data pilots or an implementation underway. The volume of data may be smaller, but the technologies, analysis techniques and business value they are deriving are on par with their large enterprise counterparts. Big data, we found, is not just for “big” organizations; smaller organizations can apply the same principles to extract untapped value from data sources both within and outside their organizations.

Sixty percent of these midsize companies report that the use of information (including big data) and analytics is creating a competitive advantage for their organizations, compared with 69 percent of large enterprises (see Figure 1). This is up from 36 percent of midsize companies in IBM's 2010 New Intelligent Enterprise Global Executive Study and Research Collaboration – a 66 percent increase in just two years.¹ It is important to note that midsize companies are starting to lag after being on par with larger enterprises in terms of this competitive advantage in 2010, even though they share many of the same objectives and challenges.

Realizing a competitive advantage



Source: Big Data @ Work survey, a collaborative research survey conducted by the IBM Institute for Business Value and the Saïd Business School at the University of Oxford. © IBM 2012

Figure 1: The ability to create a competitive advantage from information and analytics varies little by organizational size.

Two important trends make this era of information management, known as big data, quite different: The digitization of virtually “everything” now creates new types of large and real-time data available across a broad range of industries. In addition, today’s advanced analytics technologies and techniques enable organizations to extract insights from data with previously unachievable levels of sophistication, speed and accuracy.

Across industries, geographies and market sizes, our study found that organizations are taking a business-driven and pragmatic approach to big data. The most effective big data strategies identify business requirements first, and then tailor the infrastructure, data sources and analytics to support the business opportunity. These organizations extract new insights from existing and newly available internal sources of information, define a big data technology strategy and then incrementally extend the sources of data and infrastructures over time.

Defining big data

Much of the confusion about big data begins with the definition itself. A useful way of characterizing big data is to understand “the three Vs” of big data: volume, variety and velocity. These characteristics encapsulate the qualities often associated with big data – for example, large amounts of data, different types of data, and streaming or real-time data – and we provide more detail on each of these characteristics below.

But while these characteristics cover the key attributes of big data itself, we believe organizations need to consider an important fourth dimension: veracity. Inclusion of veracity as the fourth big data attribute emphasizes the importance of addressing and managing for the uncertainty inherent within some types of data.

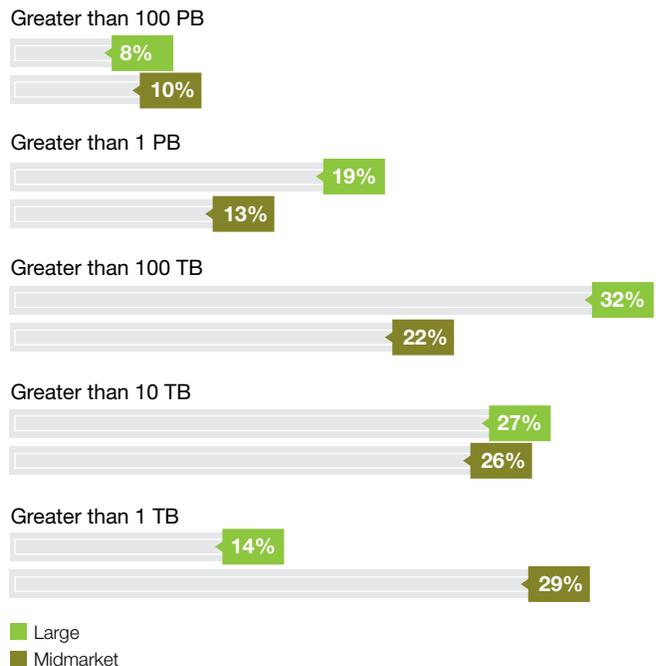
The convergence of these four dimensions helps both to define and distinguish big data:

Volume: The amount of data. Perhaps the characteristic most associated with big data, volume refers to the mass quantities of data that organizations are trying to harness to improve decision making across the enterprise (see Figure 2). Data volumes continue to increase at an unprecedented rate. However, what constitutes truly “high” volume varies by industry, market size and even geography, and is smaller than the petabytes and zetabytes often referenced.

Just over half of all respondents consider datasets between one terabyte and one petabyte to be “big data,” including more than three-quarters of midsize companies. This means that size alone doesn’t matter; the physical size of the dataset is irrelevant. Big data is defined by IBM as “any dataset that cannot be managed by traditional processes and tools.” Any line that delineates “big” and “small” data is arbitrary because the key characteristic is that the data has a greater volume than the current data ecosystem can manage. Still, all can agree that whatever is considered “high volume” today will be even higher tomorrow.

Variety: Different types of data and data sources. Variety is about managing the complexity of multiple data types, including structured, semi-structured and unstructured data. Organizations need to integrate and analyze data from a complex array of both traditional and non-traditional information sources, from within and outside the enterprise (see Figure 3). With the explosion of sensors, smart devices and social collaboration technologies, data is being generated in countless forms, including: text, web data, tweets, sensor data, audio, video, click streams, log files and more.

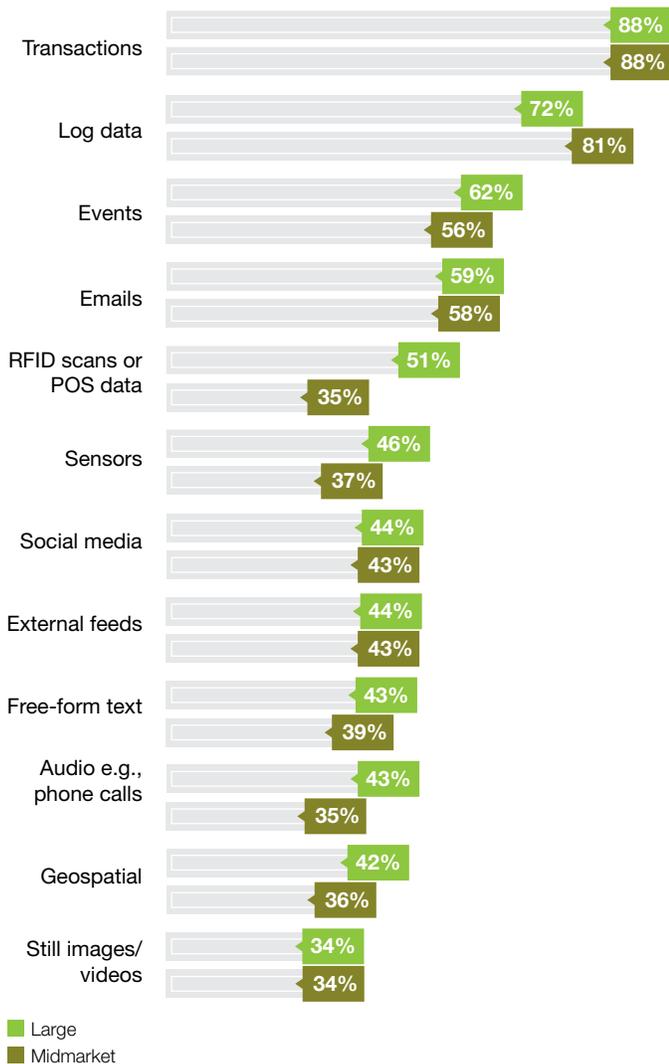
Volume



Source: Big Data @ Work survey, a collaborative research survey conducted by the IBM Institute for Business Value and the Saïd Business School at the University of Oxford. © IBM 2012

Figure 2: Volume is the characteristic most associated with big data, but there is no set definition so drawing a line is arbitrary.

Variety



Source: Big Data @ Work survey, a collaborative research survey conducted by the IBM Institute for Business Value and the Saïd Business School at the University of Oxford. © IBM 2012

Figure 3: Internal sources of data enable organizations to quickly ramp up big data efforts.

Velocity: Data in motion. The speed at which data is created, processed and analyzed continues to accelerate. Contributing to higher velocity is the real-time nature of data creation, as well as the need to incorporate streaming data into business processes and decision making. Velocity impacts latency – the lag time between when data is created or captured, and when it is accessible. The expectations of business users within both midmarket and large enterprises are very similar. While slightly more midmarket business leaders expect data to be available within business processes within a week (17 percent compared with 13 percent in large enterprises), most expect data will be available within 24 hours of being captured and processed (63 percent of midmarket leaders compared with 65 percent of large enterprise leaders). Thus, the need for quick, accessible information does not vary substantially by organizational size.

Veracity: Data uncertainty. Veracity refers to the level of reliability associated with certain types of data. Striving for high data quality is an important big data requirement and challenge, but even the best data cleansing methods cannot remove the inherent unpredictability of some data, like the weather, the economy, or a customer’s actual future buying decisions. The need to acknowledge and plan for uncertainty is a dimension of big data that has been introduced as executives seek to better understand the uncertain world around them.

While volume, variety and velocity cover the key attributes of big data, an important fourth dimension is veracity. Veracity emphasizes the importance of addressing and managing for the uncertainty inherent within some types of data.

Velocity

As streamed in real-time



Within the same business day



By next business day



Within one business week



■ Large
■ Midmarket

Source: Big Data @ Work survey, a collaborative research survey conducted by the IBM Institute for Business Value and the Saïd Business School at the University of Oxford. © IBM 2012

Figure 4: The expectation in most organizations, regardless of size, is that data will be available within a 24-hour period.

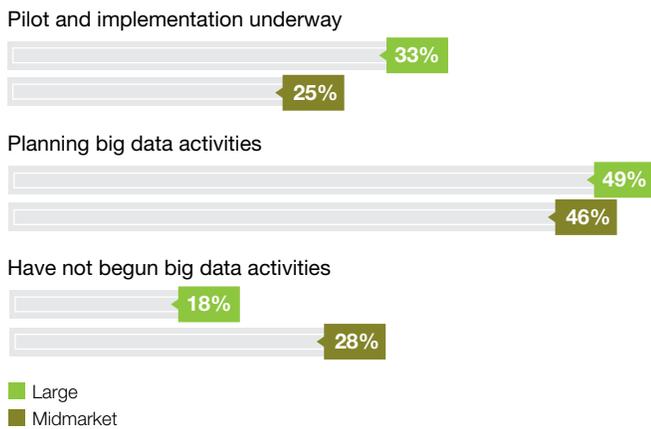
Ultimately, big data is a combination of these characteristics that creates an opportunity for organizations to gain competitive advantage in today's digitized marketplace. It enables companies to transform the ways they interact with and serve their customers, and allows organizations – even entire industries – to transform themselves. Not every organization will take the same approach toward engaging and building its big data capabilities. But opportunities to utilize new big data technology and analytics to improve decision-making and performance exist in every industry and in businesses of every size.

Organizations are being practical about big data

Notwithstanding some of the hype, it is commonly agreed that we are in the early stages of big data adoption. In this study, we use the term “big data adoption” to represent a natural progression of the data, sources, technologies and skills that are necessary to create a competitive advantage in the globally integrated marketplace.

Our Big Data @ Work survey confirms that most organizations are currently in the early stages of big data planning and development efforts, regardless of size, with midsize companies on par with their larger corporate counterparts (see Figure 5). While a greater percentage of midsize companies are focused on understanding the concepts (28 percent of midmarket compared with 18 percent of large organizations), the majority are either defining a roadmap related to big data (46 percent of midmarket and 49 percent of large organizations), or have big data pilots and implementations already underway (25 percent of midsize companies compared to 33 percent of large organizations). With midmarket companies pacing a similar adoption level to large enterprises, we find big data is not just for “big” organizations; regardless of size, organizations can apply the same principles to extract untapped value from data sources both within and outside their organizations.

Big data activities



Source: Big Data @ Work survey, a collaborative research survey conducted by the IBM Institute for Business Value and the Saïd Business School at the University of Oxford. © IBM 2012

Figure 5: Three out of four organizations have big data activities underway; and one in four are either in pilot or production.

By analyzing survey responses, we identified five key study findings that depict some common and interesting trends and insights:

- Across the market, the business case for big data is strongly focused on addressing customer-centric objectives
- A scalable and extensible information management foundation is a prerequisite for big data advancement
- Organizations are beginning their pilots and implementations by using existing, internal sources of data
- Advanced analytic capabilities are required, yet often lacking, for organizations to get the most value from big data
- As organizations' awareness and involvement in big data grows, we see a consistent pattern of big data adoption emerging.

Customer analytics are driving big data initiatives

When asked to rank their top three objectives for big data, nearly half of the respondents identified customer-centric objectives as their organization's top priority (46 percent of midsize companies compared to 48 percent of large enterprises). Organizations are committed to improving the customer experience and better understanding customer preferences and behavior. Understanding today's "empowered consumer" was also identified as a high priority in both the 2011 IBM Global Chief Marketing Officer Study and 2012 IBM Global Chief Executive Officer Study.²

Through this deeper understanding, organizations of all types and sizes are finding new ways to engage with existing and potential customers. This principle clearly applies in retail, but equally as well in telecommunications, healthcare, government, banking and finance, and consumer products where end-consumers and citizens are involved, and in business-to-business interactions among partners and suppliers.

In addition to customer-centric objectives, other functional objectives are also being addressed through early applications of big data. Efforts to optimize operational processes, for example, was cited by 18 percent of midmarket respondents, but consists largely of pilot projects. Other big data applications that were frequently mentioned include: risk/financial management, employee collaboration and enabling new business models.

Big data is dependent upon a scalable and extensible information foundation

The promise of achieving significant, measurable business value from big data can only be realized if organizations put into place an information foundation that supports the rapidly growing volume, variety and velocity of data. We asked respondents with current big data efforts to identify the current state of their big data infrastructures. Slightly more than half of midsize companies have integrated information that can be scaled, but midsize companies lag – sometimes significantly – behind their large enterprise counterparts in implementing those components most associated with big data efforts.

Integrated information is a core component of any analytics effort, and it is even more important with big data. As noted in the 2011 IBM Institute for Business Value study on advanced analytics, an organization's data has to be readily available and accessible to the people and systems that need it.³ The inability to connect data across organizational and department silos has been a business intelligence challenge for years. This integration is even more important, yet much more complex, with big data.

Integrating a variety of data types and analyzing streaming data often require new infrastructure components, like Hadoop, NoSQL or various analytic appliances, but these components also offer the opportunity to bypass some of the more traditional data structures altogether.

Midsized companies lag significantly in implementing the more algorithm-driven infrastructure components like workload optimization, complex event process and analytic accelerators. The use of analytic accelerators – pre-built solutions that can be customized to individual tasks – is a missed opportunity in most midsize companies; only a quarter of midsize companies are using these vendor-built tools (compared to 56 percent of larger organizations), which can help midsize companies mitigate the skills gaps that frequently occur within their organizations.

The costs associated with upgrading infrastructures were raised as a concern by several interviewed executives. Senior leadership, they reported, require a solid, quantifiable business case, one that defines incremental investments along with opportunities to rationalize and optimize the costs of their information management environments. Lower-cost architectures – including cloud computing, strategic outsourcing and value-based pricing – were cited as tactics being deployed. Yet others invested in their information platforms based on the conviction that the business opportunity was worth the associated incremental costs.

One concern regarding the big data infrastructure of midsize companies is that strong security and governance processes are in place at only 45 percent of those surveyed companies with active big data efforts underway. While security and governance have long been an inherent part of business intelligence, the added legal, ethical and regulatory considerations of big data introduce new risks and expand the potential for very public missteps, as we have already seen in some companies that have lost control of data or use it in questionable ways.

As a result, data security – and especially data privacy – is a critical part of information management, according to several interviewed subject matter experts and business executives. Compounding this challenge, privacy regulations are still evolving and can vary greatly by country. Midsize companies should focus on establishing strong business-driven data governance – for example, identifying which data should be private and implementing role-based security to limit access to it – as a proactive step to mitigate these risks.

Initial big data efforts are focused on gaining insights from existing and new sources of internal data

Most early big data efforts are targeted at sourcing and analyzing internal data. According to our survey, more than half of the midmarket respondents reported internal data as the primary source of big data within their organizations. This suggests that companies are taking a pragmatic approach to adopting big data and also that there is tremendous untapped value still locked away in these internal systems.

As expected, internal data is the most mature, well-understood data available to organizations. It has been collected, integrated, structured and standardized through years of enterprise resource planning, master data management, business intelligence and other related work. By applying analytics, internal data extracted from customer transactions, interactions, events and emails can provide valuable insights (see sidebar, “Cincinnati Zoo: Business partner collaboration yields valuable insights from data”). However, in many organizations, the size and scope of this internal data, such as detailed transactions and operational log data, have become too large or varied to manage within traditional systems.

Cincinnati Zoo: Business partner collaboration yields valuable insights from data

People come to the zoo to see the animals. But after the first visit, an elephant is an elephant. What makes visitors stay longer and keep coming back? Increasingly, predictive analytics are providing the answer.

The Cincinnati Zoo & Botanical Garden needed more insight on customer behavior. One of the oldest and most established zoos in the United States, it has the lowest public subsidy of any zoo in both the state of Ohio and the nation. Zoo executives realized that the more it knew about its customers, the more the zoo could enhance services and tailor them to its clientele.

The zoo needed to modernize and standardize sales systems, but that was just the beginning. It also needed a central business analytics solution to provide insight to sales in the context of customer visits, weather, time of day and other factors.

The zoo used this information to more strategically target customer marketing segments. As a result, the zoo achieved more than 400 percent return on its investment in the first year after implementation, including more than US\$2,000 per day in ice cream sales by keeping stands open for a few additional hours at the end of the day.

The insights quickly went a long way. With the insights that it has gained from a new business intelligence solution, the Cincinnati Zoo & Botanical Garden has been able to radically alter its financial and marketing picture, from more effective use of resources and double-digit percentage growth in combined food and retail sales, achieving more than a 100 percent return on investment within the first three months and a 400 percent return on investment during the first year of implementation.

By spending less and generating a higher hit rate, it also saved more than US\$40,000 in the first year. The organization also saves more than US\$100,000 per year by identifying existing promotions and discounts that were not achieving desired outcomes, then redeploying resources to better researched, more productive initiatives. With enhanced marketing, the zoo expects to see overall attendance increase by 50,000 visits in a one-year period.

John Lucas, former Zoo Director of Operations, said, “Almost anything can be achieved if you have access to the right information, and as a result, we know that analytics is going to play a significant role in Cincinnati Zoo’s future.”

More than four out of five midmarket respondents with active big data efforts are analyzing log data, outpacing their large enterprise counterparts. This is “machine/sensor generated” data produced to record the details of automated functions performed within business or information systems – data that has outgrown the ability to be stored and analyzed by many traditional systems. This intense analysis of log data indicates that once midsized organizations can scale, they are quickly putting these technologies to use by tapping into stored – but often unanalyzed – data for customer and operational insights.

Big data requires strong analytics capabilities

Big data itself does not create value, however, until it is put to use to solve important business challenges. This requires access to more and different kinds of data, as well as strong analytics capabilities that include both software tools and the requisite skills to use them.

Examining those midsize companies engaged in big data activities reveals that they start with a strong core of analytics capabilities designed to address structured data. Next, they add skills and tools to take advantage of the wealth of data coming into the organization that is both semi-structured (data that can be converted to standard data forms) and unstructured (data in non-standard forms), such as data mining, data visualization, optimization and simulation, and text analytics, often reporting capabilities at higher levels than their large enterprise counterparts.

One capability that midsize companies often lack, however, is predictive skills. Such capabilities enable an organization to use historic and current data to anticipate changes in the market in advance (see sidebar, “Automercados Plaza’s: Greater revenue through greater insight”). Almost three-quarters of midmarket respondents with active big data efforts reported using core analytics capabilities, such as query and reporting, and data mining to analyze big data, while only 58 percent report using predictive modeling.

Automercados Plaza’s: Greater revenue through greater insight

Automercados Plaza’s, a family-owned chain of grocery stores in Venezuela, found itself with more than six terabytes of product and customer data spread across different systems and databases. As a result, it could not easily assess operations at each store and executives knew there were valuable insights to be found.

“We had a big mess related to pricing, inventory, sales, distribution and merchandising,” says Jesus Romero, CIO, Automercados Plaza’s. “We have nearly US\$20 million in inventory and we tracked related information in different systems and compiled it manually. We needed an integrated view to understand exactly what we have.”

By integrating information across the enterprise, the grocery chain has realized a nearly 30 percent increase in revenue and a US\$7 million increase in annual profitability. Mr. Romero attributes these increases to better inventory management and the ability to more quickly adjust to changing market conditions. For example, the company has prevented losses for about 35 percent of its products now that it can schedule price reductions to sell perishable products before they spoil.

As we noted earlier, today most companies are directing their initial big data focus toward analyzing structured data. But big data also creates the need to analyze multiple data types, including a variety of types that may be entirely new for many organizations. In more than half of the active big data efforts, midmarket respondents reported using advanced capabilities designed to analyze text in its natural state, such as the transcripts of call center conversations. These analytics include the ability to interpret and understand the nuances of language, such as sentiment, slang and intentions.

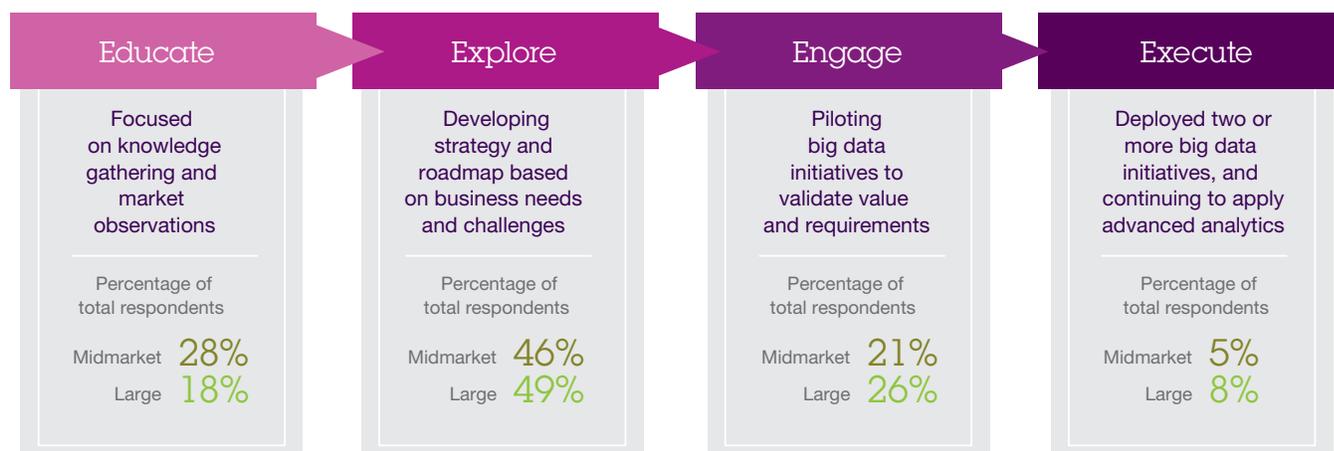
Having the capabilities to analyze unstructured (for example, geospatial location data, voice and video) or streaming data continues to be a challenge for most organizations, regardless of size. While the hardware and software in these areas are maturing, the skills are in short supply. Only 25 percent of midmarket respondents with active big data efforts reported having the required capabilities to analyze extremely unstructured data like voice and video.

Acquiring or developing these more advanced technical and analytic capabilities required for big data advancement is becoming a top challenge among many organizations with active big data efforts. Among these organizations, the lack of advanced analytical skills is a major inhibitor to getting the most value from big data. However, strategies and alternatives exist to mitigate this shortage, which we will explore in the Recommendations section.

The pattern of big data adoption

To better understand the big data landscape, we asked respondents to describe the level of big data activities in their organizations today. The results suggest four main stages of big data adoption and progression along a continuum that we have labeled Educate, Explore, Engage and Execute (see Figure 6).

Big data adoption



Source: Big Data @ Work survey, a collaborative research survey conducted by the IBM Institute for Business Value and the Saïd Business School at the University of Oxford. © IBM 2012

Figure 6: Closer examination four stages of big data adoption highlights midmarket's hesitation, but confirms interest.

Educate: Building a base of knowledge (28 percent of midmarket respondents)

In the Educate stage, the primary focus is on awareness and knowledge development. Slightly more than one quarter of midmarket respondents indicated they are not yet using big data within their organizations. While some remain relatively unaware of the topic of big data, our interviews suggest that most organizations in this stage are studying the potential benefits of big data technologies and analytics, and trying to better understand how big data can help address important business opportunities in their own industries or markets. Within these organizations, it is mainly individuals doing the knowledge gathering as opposed to formal work groups, and their learnings are not yet being used by the organization. As a result, the potential for big data has not yet been fully understood and embraced by business executives.

Explore: Defining the business case and roadmap (46 percent of midmarket respondents)

The focus of the Explore stage is to develop an organization's roadmap for big data development. Almost half of respondents reported formal, ongoing discussions within their organizations about how to use big data to solve important business challenges. Key objectives of these organizations include developing a quantifiable business case and creating a big data blueprint. This strategy and roadmap takes into consideration existing data, technology and skills, and then outlines where to start and how to develop a plan aligned with the organization's business strategy.

Engage: Embracing big data (21 percent of midmarket respondents)

In the Engage stage, organizations begin to prove the business value of big data, as well as perform an assessment of their technologies and skills. More than one in five midmarket respondent organizations is currently developing proofs-of-concept (POCs) to validate the requirements associated with implementing big data initiatives, as well as to articulate the expected returns. Organizations in this group are working – within a defined, limited scope – to understand and test the technologies and skills required to capitalize on new sources of data.

Execute: Implementing big data at scale (5 percent of midmarket respondents)

In the Execute stage, big data and analytics capabilities are more widely operationalized and implemented within the organization. However, only 5 percent of respondents – compared with only 6 percent of large enterprise respondents – reported that their organizations have implemented two or more big data solutions at scale – the threshold for advancing to this stage. The small number of organizations in the Execute stage is consistent with the implementations we see in the marketplace. Importantly, these leading organizations are leveraging big data to transform their businesses and thus are deriving the greatest value from their information assets. With the rate of big data adoption accelerating rapidly – as evidenced by 21 percent of respondents in the Engage stage, with either POCs or active pilots underway – we expect the percentage of organizations at this stage to more than double over the next year.

At each adoption stage, the most significant obstacle to big efforts among midmarket and large enterprise respondents is the need and ability to articulate measurable business value. Executives in organizations, regardless of size, must understand the potential or realized business value from big data strategies, pilots and implementations. Organizations must be vigilant in articulating the potential value of big data – forecasting it based on detailed analysis when needed and tying it to pilot results where possible – for executives to invest the necessary time, money and human resources.

Recommendations: Cultivating big data adoption

IBM analysis of our Big Data @ Work Study findings provided new insights into how midsize companies at each stage are advancing their big data efforts. Driven by the need to solve business challenges, in light of both advancing technologies and the changing nature of data, midsize companies are starting to look closer at big data's potential benefits. To extract more value from big data, we offer a broad set of recommendations to organizations large and small as they proceed down the path of big data.

Commit initial efforts to customer-centric outcomes

It is imperative that organizations focus big data initiatives on areas that can provide the most value to the business. For most midmarket companies, this will mean beginning with customer analytics that enable better service to customers as a result of being able to truly understand customer needs and anticipate future behaviors. The upside is that customer analytics often can concurrently reduce costs and increase revenues, a duality that can bolster the business case and offset necessary investments.

If organizations are to understand and provide value to empowered customers, they have to concentrate on getting to know their customers as individuals. But today's customers – end consumers or business-to-business customers – want more than just understanding. To effectively cultivate meaningful relationships with their customers, midsize companies must connect with them in ways their customers perceive as valuable.

The value may come through more timely, informed or relevant interactions; it may also come as organizations improve the underlying operations in ways that enhance the overall experience of those interactions. Midsize companies should identify the processes that most directly interact with customers, pick one and start; even small improvements matter as they often provide the proof points that demonstrate the value of big data, and the incentive to do more. Analytics fuels the insights from big data that are increasingly becoming essential to creating the level of depth in relationships that customers are quickly coming to expect.

Define big data strategy with a business-centric blueprint

A blueprint encompasses the vision, strategy and requirements for big data within an organization, and is critical to establishing alignment between the needs of business users and the implementation roadmap of IT. A blueprint defines what organizations want to achieve with big data to help ensure pragmatic acquisition and use of resources.

An effective blueprint defines the scope of big data within the organization by identifying the key business challenges to which it will be applied, the sequence in which those challenges will be addressed, the business process requirements that define how big data will be used, and the architecture which includes the data, tools and hardware needed to achieve it.

It is not meant to “boil the ocean” of all the organization’s woes, but rather to serve as the basis for developing a roadmap – with a keen eye on dependencies – to guide the organization through developing and implementing its big data solutions in ways that create sustainable business value.

Start with existing data and skills to achieve near-term results

To achieve near-term results while building the momentum and expertise to sustain a big data program, it is critical that midsize companies take a practical approach. As our respondents confirmed, the most logical and cost-effective place to start looking for new insights is within the organization’s existing data store, by leveraging the skills and tools that are most often already available.

Looking internally first allows organizations to leverage their existing data, software and skills, and to deliver near-term business value and gain important experience as they then consider extending existing capabilities to address more complex sources and types of data. While most organizations will need to make investments that allow them to handle either larger volumes of data or a greater variety of sources, this pragmatic approach can reduce investments and shorten the timeframes needed to extract the value trapped inside these untapped sources. It accelerates the speed to value and enables organizations to take advantage of the information stored in existing repositories while infrastructure implementations are underway. Then, as new technologies become available, big data initiatives can be expanded to include greater volumes and variety of data.

Build analytics capabilities based on business priorities

Throughout the world, organizations of all sizes face a growing variety of analytics tools while also facing a critical shortage of analytical skills. Big data effectiveness hinges on addressing this significant gap. Midsize companies should focus on acquiring the specific skills needed within their organizations, especially those needing increased predictive analysis and visualization capabilities. Companies seeking to acquire these skills have three options: buy them, build them from within their ranks, or partner with others in their information ecosystems.

Most midmarket organizations have limited information management and business analyst skills available internally. But increasing the skill level of current resources has the added benefit of creating an employee who both understands how the business operates and knows how to apply big data to the most critical business challenges.

Midsize companies can also tap into pre-built tools and external resources to shore up the gap. Analytic accelerators are pre-built algorithms and analysis tools designed to be used by novices that mitigate the need for those skills internally. Robust skills are available in the market through such sources as solution providers, vendors and freelancers; analytic accelerators circumvent the need for deep in-house analytics skills, and, oftentimes, colleges and universities can provide low-cost skills through internships and partnerships. Innovative communities are emerging around the globe where community-based analytic consortiums enable midsize companies – and even larger enterprises – to pool scarce resources.

One cautionary note, however, is that organizations must be vigilant about data privacy, especially when engaging with external parties. Customers have a keen sense of “right versus wrong” when it comes to the use of big data, and breaches can damage the often intimate relationship midsize companies have with their customers.

Create a business case based on measurable outcomes

To develop a comprehensive and viable big data strategy and the subsequent roadmap requires a solid, quantifiable business case. Therefore, it is important to have the active involvement and sponsorship from one or more business executives throughout this process. Equally important to achieving long-term success is strong, ongoing business and IT collaboration.

There is no requirement to be “big” to extract business value and competitive advantage from big data. Like their larger enterprise counterparts, midsize companies can realize value by effectively managing and analyzing new and existing data, and putting the right skills and tools in place.

Take your next steps in the big data evolution

An important principle underlies each of these five key recommendations: business and IT professionals must work together throughout the big data journey. The most effective big data solutions identify the business requirements first, and then tailor the infrastructure, data sources, processes and skills to support that business opportunity.

To compete in a globally-integrated and increasingly consumer-empowered economy, it is clear that organizations must leverage their information assets to gain a comprehensive understanding of markets, customers, products, regulations, competitors, suppliers, employees and more. Organizations will realize value by effectively managing and analyzing the rapidly increasing volume, velocity and variety of new and existing data, and putting the right skills and tools in place to better understand their operations, customers and the marketplace as a whole.

Midsized companies are not less capable of doing this than their larger enterprise counterparts, and many have already begun to do so. There is no requirement to be “big” to extract business value and competitive advantage from big data.

To learn more about this IBM Institute for Business Value study, please contact us at iibv@us.ibm.com. For a full catalog of our research, visit: ibm.com/iibv

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