Capgemini Consulting

Cracking the Data Conundrum:
How Successful Companies Make Big Data Operational

Successful Big Data Implementations Elude Most Organizations

> *"Global organizational spending on Big Data exceeded $31 billion in 2013, and is predicted to reach $114 billion in 2018."*

of Big Data is quite different from fully embracing it. We found that while a large number of organizations are currently experimenting with their initiatives, many have not fully embedded Big Data in their operations. In fact, our research shows that only 13% have achieved full-scale production for their Big Data implementations (see Figure 2).

> *"Only 13% of organizations have achieved full-scale production for their Big Data implementations."*

When the economic history of 2014 is written, there will be one omnipotent technology trend: Big Data. As Figure 1 shows, the growth in interest in Big Data far outranks any other major technology trend for the year.

This is not just intellectual curiosity. Investments by large corporations are following this trend. Global organizational spending on Big Data exceeded $31 billion in 2013, and is predicted to reach $114 billion in 2018[1]. Given this level of interest and action, we conducted a global survey of leading Big Data practitioners to understand their priorities and the challenges they face in implementing Big Data initiatives (our research methodology is outlined at the end of this paper).

Our survey confirmed Big Data's importance for large organizations. Nearly 60% of executives in our survey believe that Big Data will disrupt their industry within the next three years.
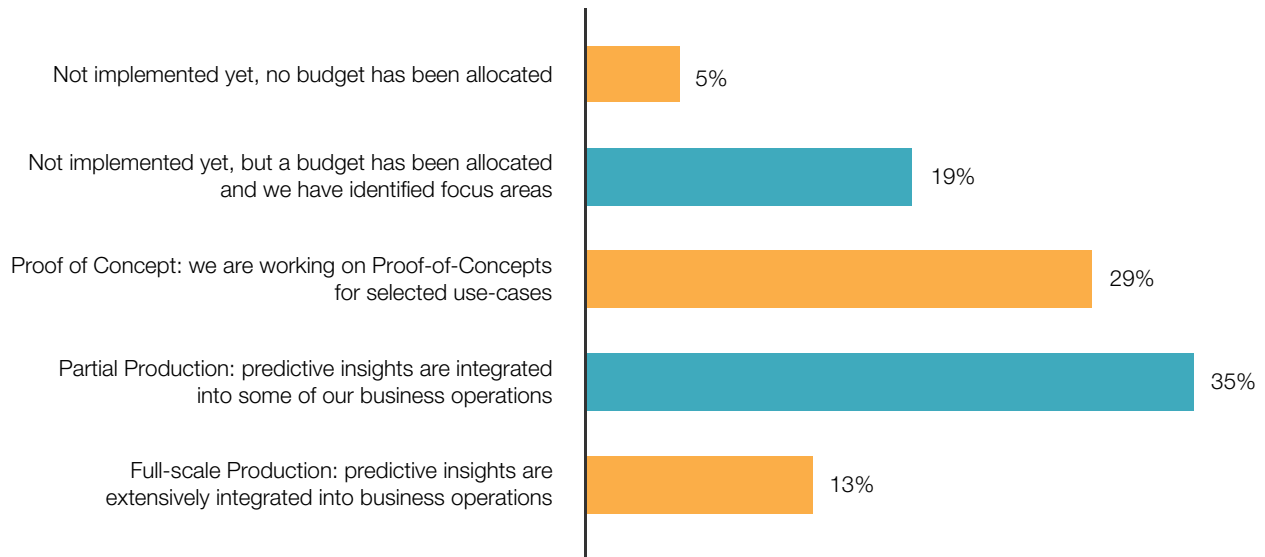
However, recognizing the importance

Figure 1: Interest over Time for Specific Tech Trends, 2004-2014, Google Trends
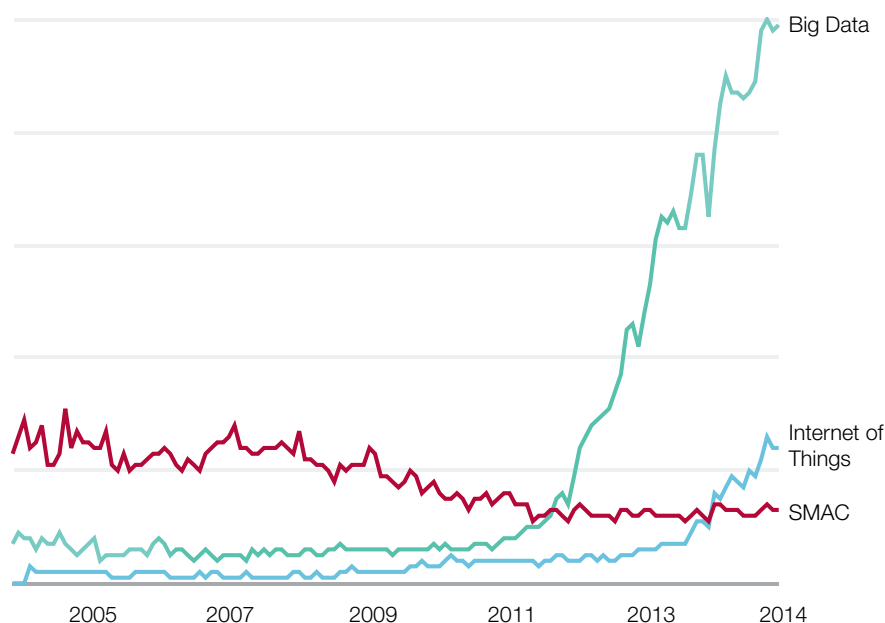
Source: Google Search Trends accessed in December 2014

Figure 2: Status of Big Data Implementations

Not implemented yet, no budget has been allocated	5%
Not implemented yet, but a budget has been allocated and we have identified focus areas	19%
Proof of Concept: we are working on Proof-of-Concepts for selected use-cases	29%
Partial Production: predictive insights are integrated into some of our business operations	35%
Full-scale Production: predictive insights are extensively integrated into business operations	13%

Source: Capgemini Consulting, "Big Data Survey", November 2014

The most troubling development is that most organizations are failing to benefit from their investments. Only 27% of respondents described their Big Data initiatives as "successful" and only 8% described them as "very successful"*. In fact, organizations were found to be struggling even with their Proof-of-Concepts (PoCs), with an average success rate of only 38%.

> **Nearly 60% of senior executives believe that Big Data will disrupt their industry within the next three years.**

> **Only 27% of the executives we surveyed described their Big Data initiatives as "successful".**
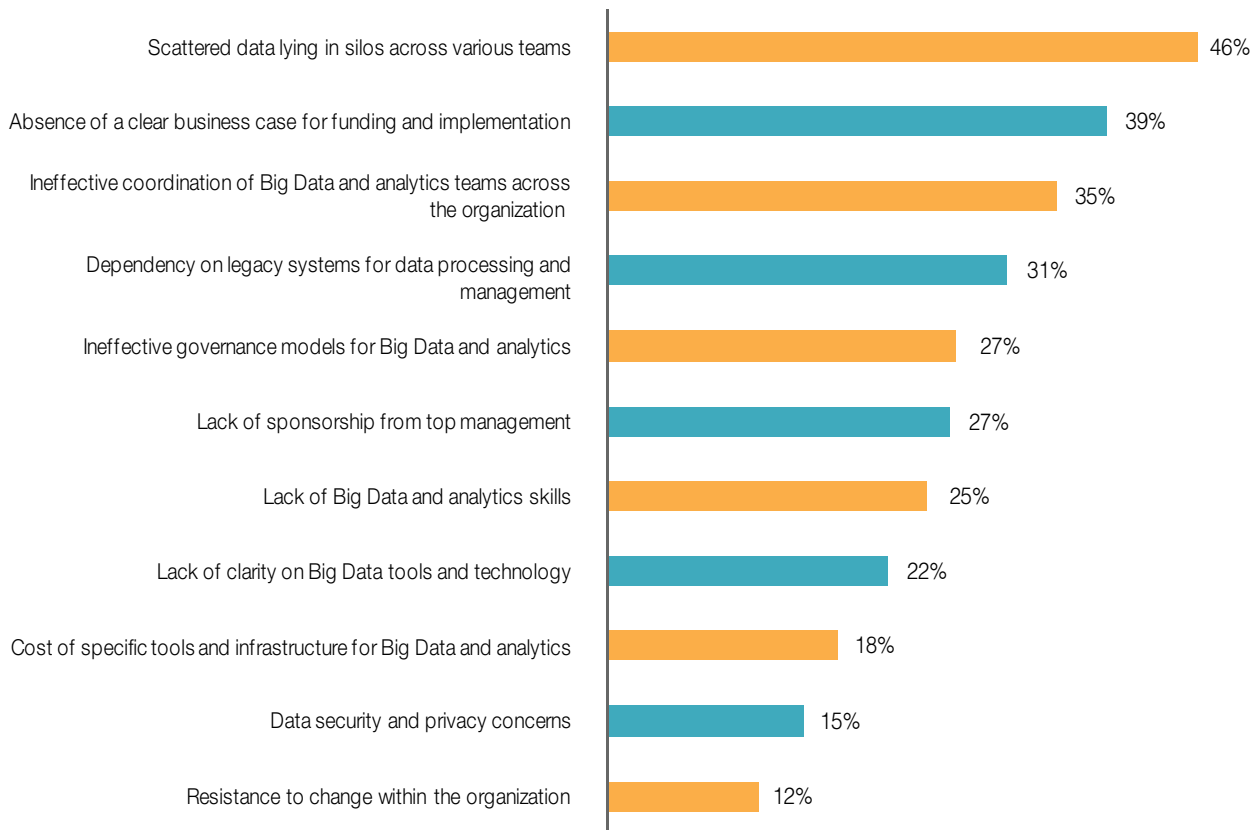
This raises a fundamental question. If organizations recognize the importance of Big Data, and are investing in it, then what is standing in the way of success? Our research revealed that the top challenges that organizations face include: dealing with scattered silos of data, ineffective coordination of analytics initiatives, the lack of a clear business case for Big Data

funding, and the dependence on legacy systems to process and analyze Big Data (see Figure 3).

> **Lack of strong data management and governance mechanisms, and the dependence on legacy systems, are among the top challenges that organizations face.**

*An initiative was considered to be "successful" only if it met most or all of its objectives, and "very successful" if it exceeded its objectives

Figure 3: Key Challenges for Big Data Implementation

Challenge	Percentage
Scattered data lying in silos across various teams	46%
Absence of a clear business case for funding and implementation	39%
Ineffective coordination of Big Data and analytics teams across the organization	35%
Dependency on legacy systems for data processing and management	31%
Ineffective governance models for Big Data and analytics	27%
Lack of sponsorship from top management	27%
Lack of Big Data and analytics skills	25%
Lack of clarity on Big Data tools and technology	22%
Cost of specific tools and infrastructure for Big Data and analytics	18%
Data security and privacy concerns	15%
Resistance to change within the organization	12%

Figure 4 highlights these four challenges and some of the underlying causes, and below we take a closer look at two of the most significant:
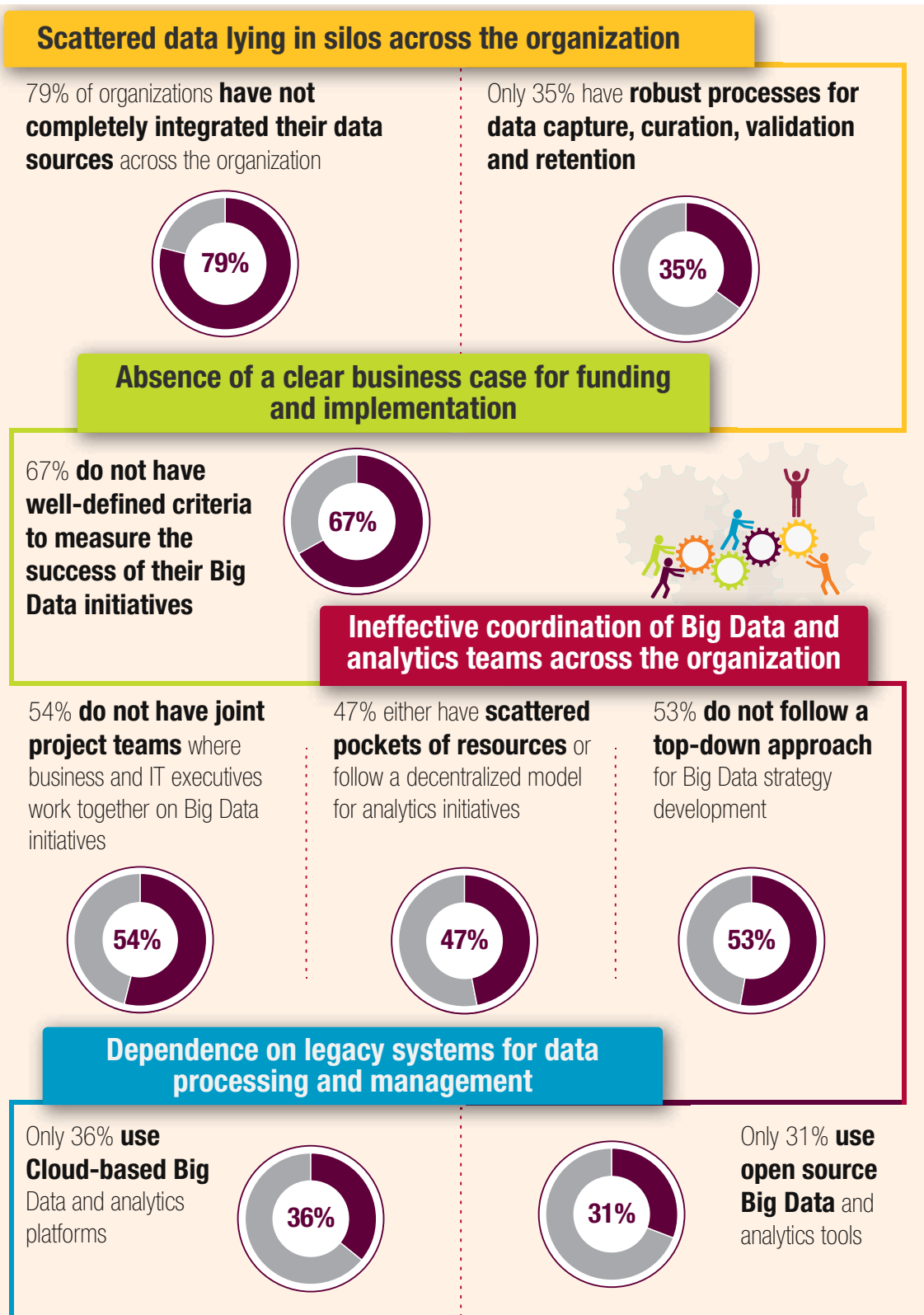
- **Scattered data:** Seventy-nine percent of organizations have not fully integrated their data sources across the organization. This means decision-makers lack a unified view of data, which prevents them from taking accurate and timely decisions. Filippo Passerini, CIO of US-based consumer products leader P&G, highlights the importance of data veracity: "To move the business to a forward-looking view, we realized we needed one version of the truth. In the past, decision-makers spent time determining sources of the data or who had the most accurate data. This led to a lot of debate before real decisions could be made[2]." Unlike P&G, which has transformed its data-driven decision-making (see Exhibit 1, "P&G: Lessons in Creating a Data-Driven Culture"), most organizations are far from being able to use data effectively.

- **Ineffective coordination:** A major stumbling block is a lack of adequate coordination among analytics teams. A significant number of organizations operate with scattered pockets of analytics resources or with decentralized teams that function without any central planning and oversight. As a result, best practices from successful implementations are not shared across the organization, initiatives are not prioritized, and resources are not deployed in the most effective ways. Eric Spiegel, CEO of Siemens USA, highlights the organizational challenges of Big Data implementations: "Leveraging Big Data often means working across functions like IT, engineering, finance and procurement, and the ownership of data is fragmented across the organization. To address these organizational challenges means finding new ways of collaborating across functions and businesses[3]."

Scattered data lying in silos across the organization

79% of organizations **have not completely integrated their data sources** across the organization

79%

Only 35% have **robust processes for data capture, curation, validation and retention**

35%

Absence of a clear business case for funding and implementation

67% **do not have well-defined criteria to measure the success of their Big Data initiatives**

67%

Ineffective coordination of Big Data and analytics teams across the organization

54% **do not have joint project teams** where business and IT executives work together on Big Data initiatives

54%

47% either have **scattered pockets of resources** or follow a decentralized model for analytics initiatives

47%

53% **do not follow a top-down approach** for Big Data strategy development

53%

Dependence on legacy systems for data processing and management

Only 36% **use Cloud-based Big** Data and analytics platforms

36%

Only 31% **use open source Big Data** and analytics tools

31%

Source: Capgemini Consulting, "Big Data Survey", November 2014

What Separates Successful Big Data Implementations?

There are many factors that go into the making of a successful Big Data implementation. However, the single biggest factor that we observed was that organizations that have a strong operating model stood apart. This operating model has multiple distinct elements, which include, among others, a well-defined organizational structure, systematic implementation plan, and strong leadership support.
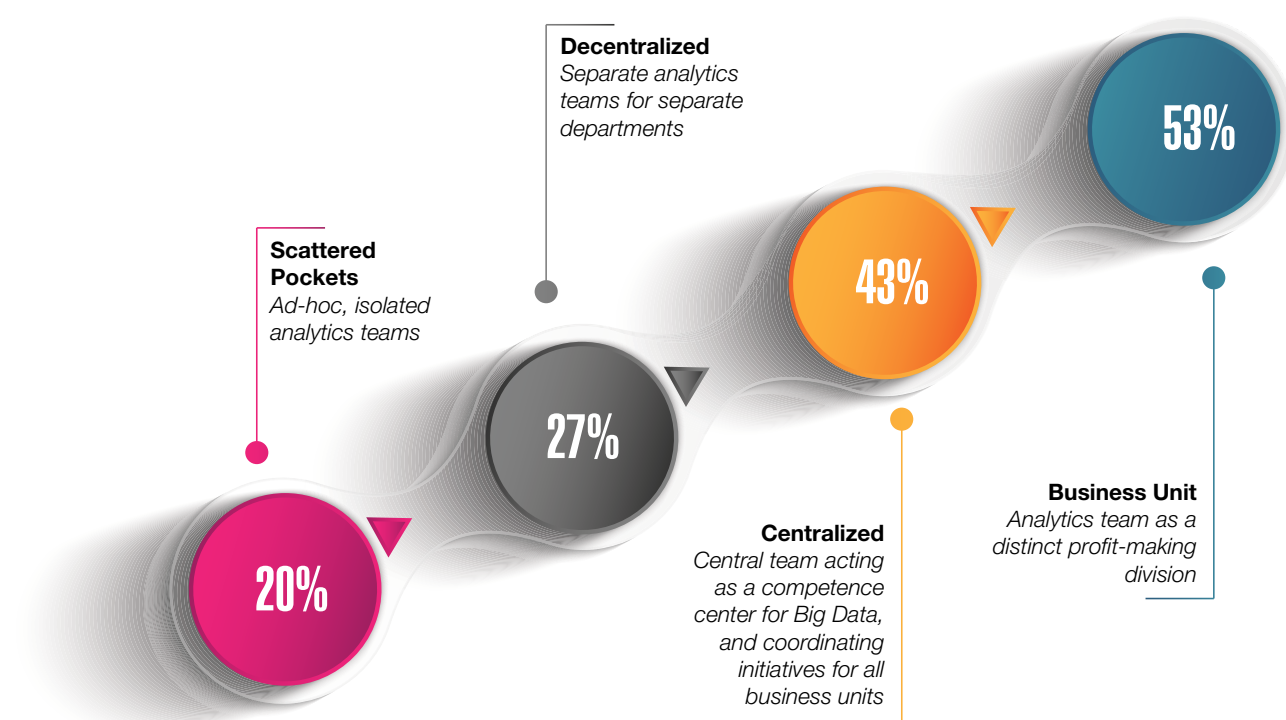
> *US-based retail chain Nordstrom has set up the Nordstrom Data Lab to develop new offerings backed by data-driven insights.*

Successful Organizations Establish a Well-Defined Organizational Structure for their Big Data and Analytics Initiatives

Big Data initiatives are rarely, if ever, division-centric. They often cut across various departments in an organization and consequently, coordination and governance are usually significant implementation challenges. Organizations that have clear organizational structures for managing rollout can minimize the problems of having to engage multiple stakeholders. Our research showed that the success rates of Big Data initiatives are a direct function of the structural cohesion of the lead unit (see Figure 5).

> *Organizations that have adopted a centralized structure for their Big Data and analytics units report higher levels of success than their peers who have ad-hoc or decentralized teams.*

Figure 5: Comparison of Success Rates for Planned and Ad-hoc Approaches

Scattered Pockets
Ad-hoc, isolated analytics teams

Decentralized
Separate analytics teams for separate departments

Centralized
Central team acting as a competence center for Big Data, and coordinating initiatives for all business units

Business Unit
Analytics team as a distinct profit-making division

20% 27% 43% 53%

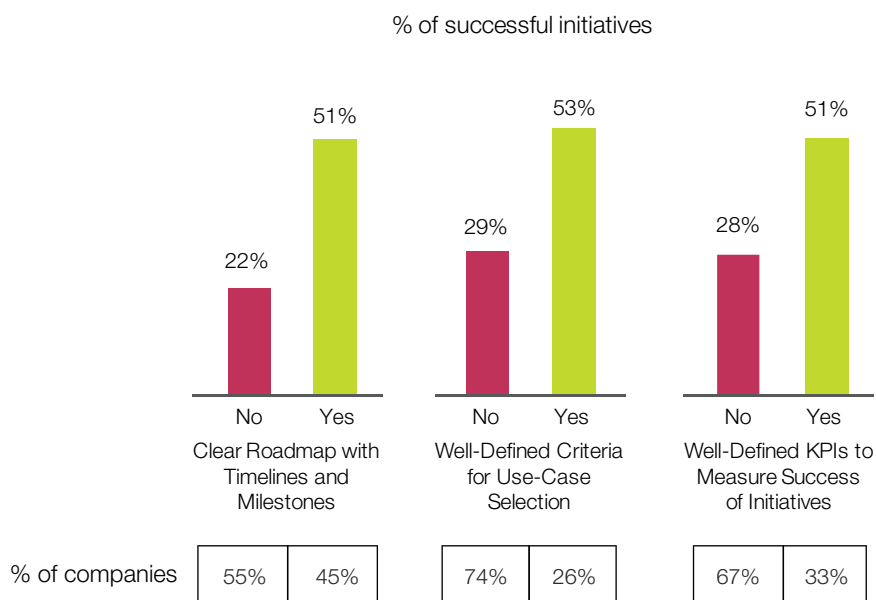*Source: Capgemini Consulting, "Big Data Survey", November 2014*

As Figure 5 shows, success rates for organizations with an analytics business unit are nearly 2.5 times those that have ad-hoc, isolated teams. There are significant merits to a centralized set-up. The centralized approach can bring together technology and business executives to conceptualize new use-cases and define best practices that other teams can leverage. US-based retail chain Nordstrom, for instance, has set up the Nordstrom Data Lab to develop new offerings backed by data-driven insights. The lab is a multi-disciplinary team of data scientists, mathematicians, statisticians, programmers, and business professionals. It follows a continuous deployment model to build and test prototypes, and take new products to market rapidly[4].

A leading global automotive major has followed a similar approach and set up a central data analytics unit that acts as a service provider to all teams worldwide for Big Data activities. The head of the unit describes the role of the team in these words: "We act as a core team that provides expertise on data and analytics to our global business teams. We define the methodology for Big Data analytics programs and establish global standards for data quality that business teams are required to follow. We also evaluate hardware and software tools for Big Data analytics to determine the most appropriate solutions for our organization, and we make these available to business teams to help them manage and use data[5]."

Successful Organizations Adopt a Systematic Implementation Approach to Focus Investments Wisely

One key factor that separates the winners from the also-rans is how they approach implementation. Intuitively, it would seem that a systematic and structured approach should be the way to go in large-scale implementations. However, our survey shows that this philosophy and approach are rare. Seventy-four percent of organizations did not have well-defined criteria to identify, qualify and select Big Data use-cases. Sixty-seven percent of companies did not have clearly defined KPIs to assess initiatives. The lack of a systematic approach affects success rates (see Figure 6).

Figure 6: Comparison of Success Rates for Planned and Ad-hoc Approaches

% of successful initiatives

	Clear Roadmap with Timelines and Milestones		Well-Defined Criteria for Use-Case Selection		Well-Defined KPIs to Measure Success of Initiatives	
	No	Yes	No	Yes	No	Yes
Success	22%	51%	29%	53%	28%	51%
% of companies	55%	45%	74%	26%	67%	33%

Successful Organizations Have a Strong Leader at the Top Driving the Big Data Initiatives

Previous Capgemini Consulting research into digital transformation, with the MIT Center for Digital Business, established the importance of top-down leadership in driving implementation[6]. Big Data, a central pillar of digital transformation, requires the same approach. Our research showed that organizations that have successfully implemented Big Data initiatives usually have clearly defined leadership roles for Big Data and analytics. For instance, US-based Bank of America, a pioneer in the use of data in the banking industry, appointed a Chief Data Officer (CDO) to champion data management policies and standards, set up the bank's data platform, and simplify tools and infrastructure[7]. On the other hand, Norway-based publishing major Schibsted Group, a leader in the media industry in the use of data analytics, has followed a different approach. Schibsted's analytics initiatives are being led by its VP of Strategy and Data Analytics[8]. Organizations can choose from multiple approaches, but the key lies in ensuring that Big Data initiatives receive the necessary stewardship. A senior leadership position serves to achieve that. Further, organizations must also ensure that the Big Data leader that they appoint is evaluated based on front line KPIs.

Leadership is also crucial to foster a culture of data-driven decision-making within the organization (see Exhibit 1 on P&G). The head of analytics at a leading logistics company describes his efforts at driving a data-driven culture: "Change management is one of the biggest challenges of Big Data implementation. Analytics needs to be integrated with processes. We had to educate and train our field force over and over again in order to make analytics a part of their daily routine[9]."

> ## US-based Bank of America appointed a Chief Data Officer (CDO) to champion data management policies and standards, set up the bank's data platform, and simplify tools and infrastructure.

However, while the results of such leadership-driven initiatives are quite visible, not many organizations have taken steps to put it in action. Our research showed that only 34% of companies have a Chief Data Officer, or an equivalent role.

Successful Organizations Leverage Multiple Channels to Build their Big Data Capabilities

The Big Data talent gap is something that organizations are increasingly coming face-to-face with. In the UK, for example, 4 out of 5 data-intensive businesses say they are struggling to find the skills they need to address growing demand[10]. Closing this gap is a larger societal challenge. However, smart organizations realize that they need to adopt a multi-pronged strategy. They not only invest more on hiring and training, but also explore unconventional channels to source talent. Consider, for instance, how P&G has partnered with Google to enhance its employees' analytics skills. The two companies have engaged in employee exchange programs for the past five years. While employees from Google gain from P&G's expertise in advertising, those from P&G get to learn from Google's expertise in data analytics[11].

Other mechanisms to acquire Big Data talent include partnering or acquiring Big Data startups, and setting up innovation labs in high-tech hubs such as Silicon Valley. For instance, UK-based retailer Tesco's success with Big Data analytics can be attributed to its acquisition of consumer data science firm Dunnhumby in 2006[12]. Walmart, on the other hand, has set up "@WalmartLabs", an innovation center based in Silicon Valley, which is helping the retailer enhance customer experience through innovative uses of Big Data. @WalmartLabs in turn acquired Inkiru – a startup specializing in predictive analytics – to strengthen its analytics capabilities. Through the acquisition, @WalmartLabs not only gained access to Inkiru's suite of technologies but also to its team of data scientists[13].

Startups are increasingly at the forefront of data analytics and large organizations are realizing that they need to engage with startups extensively. The head of analytics at a leading gaming company that uses Big Data extensively, and who has a team of more than 70 data scientists, highlights the need to leverage startups: "We believe that small firms are more innovative than large ones, especially when you look at very advanced types of analytics. We are ready to acquire skills and tools that can help us strengthen our capabilities further and we are keeping a close watch on innovative startups[14]."

> ## @WalmartLabs acquired Inkiru – a startup specializing in predictive analytics – to strengthen its analytics capabilities.

Exhibit 1 - P&G: Lessons in Creating a Data-Driven Culture

P&G is among the foremost companies in the world in the use of data and analytics. It is also a striking example of the impact of strong leadership on establishing a data-driven culture in an organization. When Filippo Passerini took over as CIO of P&G in 2004, he renamed the IT department to "Information and Decision Solutions (IDS)". The renaming was based on Passerini's belief that data and analytics needed to play a more central role in decision-making at P&G. Since then, the IDS unit has spearheaded several initiatives that have transformed the way in which decisions are taken at P&G.

Some of the key innovations launched by Passerini's team include:

Supporting Real-Time Decision-Making through "Decision Cockpits": Passerini's team developed "Decision Cockpits" – an initiative to provide a single source of truth for data to all decision-makers across geographies and business units. Decision Cockpits are dashboards that provide executives with visual displays of data on business performance and market trends. The dashboards can be customized according to individual needs. They allow executives to drill-down to granular views of data at a country, brand or product-level and also provide real-time automated information alerts. Decision Cockpits have been widely adopted at P&G with more than 58,000 executives using them every week. This in turn has helped P&G speed up decision making and reduce time to market.

Creating Immersive Environments for Decision-Making with "Business Spheres": In addition to providing decision-makers with real-time, consistent and relevant information, Passerini's team also enables them to collaboratively review data and take actionable decisions. Passerini's team has set up visually immersive data environments called "Business Spheres". Within a Business Sphere facility, executives are physically surrounded by screens that display complex data from a variety of sources. The visualization techniques employed in Business Sphere facilities help executives uncover opportunities and exceptions from the data and ask focused business questions. P&G has more than 50 such facilities across the world.

Source: P&G website

Source: WSJ Blogs, P&G Finds a 'Goldmine' in Analytics", February 2013; Harvard Business Review, "How P&G Presents Data to Decision-Makers", April 2013; InformationWeek, "P&G's CIO Details Business-Savvy Predictive Decision Cockpit", September 2012; CIOInsight.com, "Data Wrangling: How Procter and Gamble Maximizes Business Analytics", January 2012; CIO.com, "P&G's Filippo Passerini Stands Out as Stellar Example of a Strategic CIO", December 2014; PG.com, "Business Sphere GBS"

Putting the Pieces Together – Undertaking the Implementation Journey

> **"**
> *Organizations should consider setting up a "data lab" – an incubation structure offering a complete technical and human environment for developing PoCs.* **"**
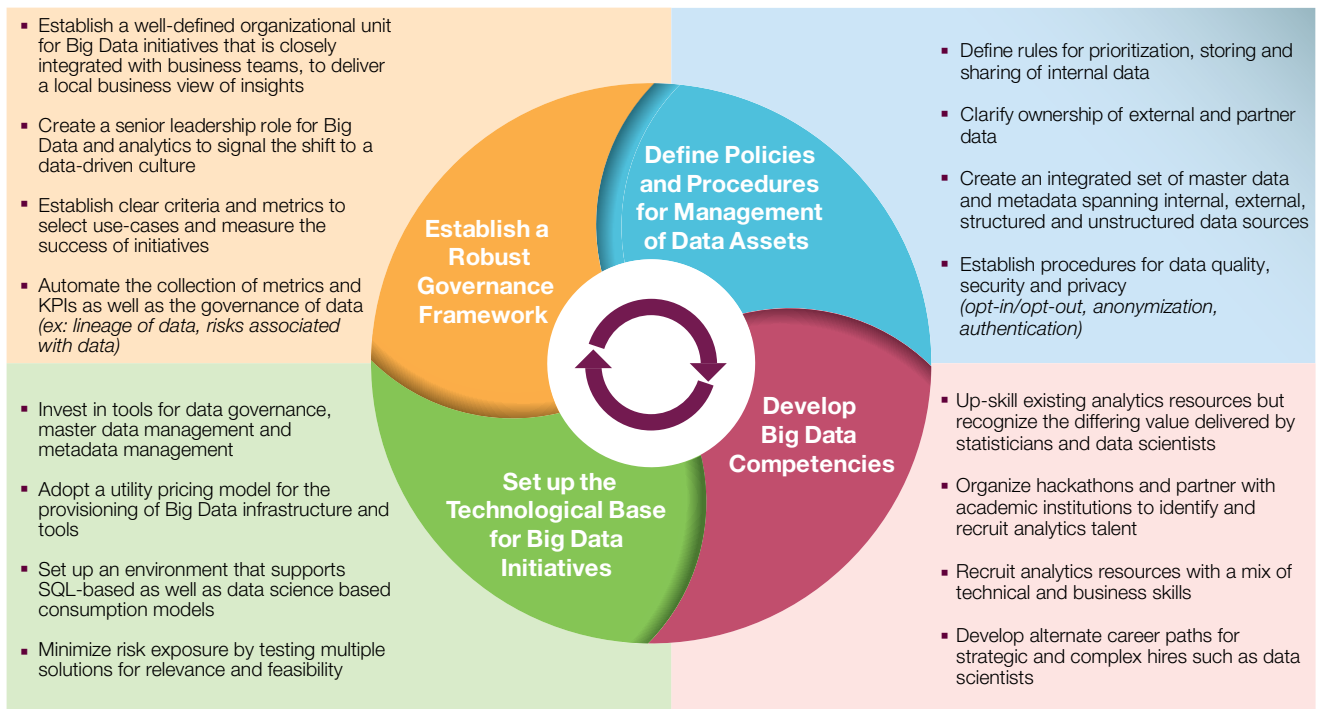
Get Your Operating Model Right

Getting Big Data operational hinges on a number of factors. These include setting up a strong governance framework, building the right data management capabilities, developing a clear strategy to build analytics skill-sets, and creating the right technological foundation. Organizations need to take concrete measures in each of these areas in order to maximize the benefits that they can derive from Big Data (see Figure 7).

Take an Iterative Approach Towards Implementation

Organizations face the challenging task of prioritizing amongst a variety of use-cases of Big Data. This means working with a "fail-fast" approach to filter out the unfeasible use-cases and narrow down the optimal ones. An agile methodology will also help In the face of increasing competition. The key idea is to implement basic versions quickly, and then iterate to plug defects and incorporate changes. Proof-of-Concepts (PoCs) give companies this flexibility, and help shorten overall development times.

Figure 7: Building Blocks of a Big Data Operating Model

- Establish a well-defined organizational unit for Big Data initiatives that is closely integrated with business teams, to deliver a local business view of insights
- Create a senior leadership role for Big Data and analytics to signal the shift to a data-driven culture
- Establish clear criteria and metrics to select use-cases and measure the success of initiatives
- Automate the collection of metrics and KPIs as well as the governance of data *(ex: lineage of data, risks associated with data)*

- Invest in tools for data governance, master data management and metadata management
- Adopt a utility pricing model for the provisioning of Big Data infrastructure and tools
- Set up an environment that supports SQL-based as well as data science based consumption models
- Minimize risk exposure by testing multiple solutions for relevance and feasibility

Establish a Robust Governance Framework

Define Policies and Procedures for Management of Data Assets

Set up the Technological Base for Big Data Initiatives

Develop Big Data Competencies

- Define rules for prioritization, storing and sharing of internal data
- Clarify ownership of external and partner data
- Create an integrated set of master data and metadata spanning internal, external, structured and unstructured data sources
- Establish procedures for data quality, security and privacy *(opt-in/opt-out, anonymization, authentication)*

- Up-skill existing analytics resources but recognize the differing value delivered by statisticians and data scientists
- Organize hackathons and partner with academic institutions to identify and recruit analytics talent
- Recruit analytics resources with a mix of technical and business skills
- Develop alternate career paths for strategic and complex hires such as data scientists

Source: Capgemini Consulting Analysis

Organizations should also consider setting up a "data lab" – an incubation structure offering a complete technical and human environment for developing PoCs. It is particularly helpful in attracting and uniting internal and external talent, and promoting cross-fertilization and collaboration.

AT&T's "Foundry", an innovation center that offers a fast paced and collaborative environment, is a great example of the application of these concepts. Ideas are generated by leveraging the entire eco-system of the company, including partners. The best ideas are selected through an executive review and put through a fail-fast development cycle. The company claims its total time to launch has become three times faster than before, in weeks as opposed to years (see Figure 8).

> *Organizations need to work with a "fail-fast" approach to filter out the unfeasible use-cases and narrow down the optimal ones.*

Figure 8: Best-practice – AT&T's Rapid Implementation Approach

AT&T claims total time to launch is **3x** faster, in weeks as opposed to years
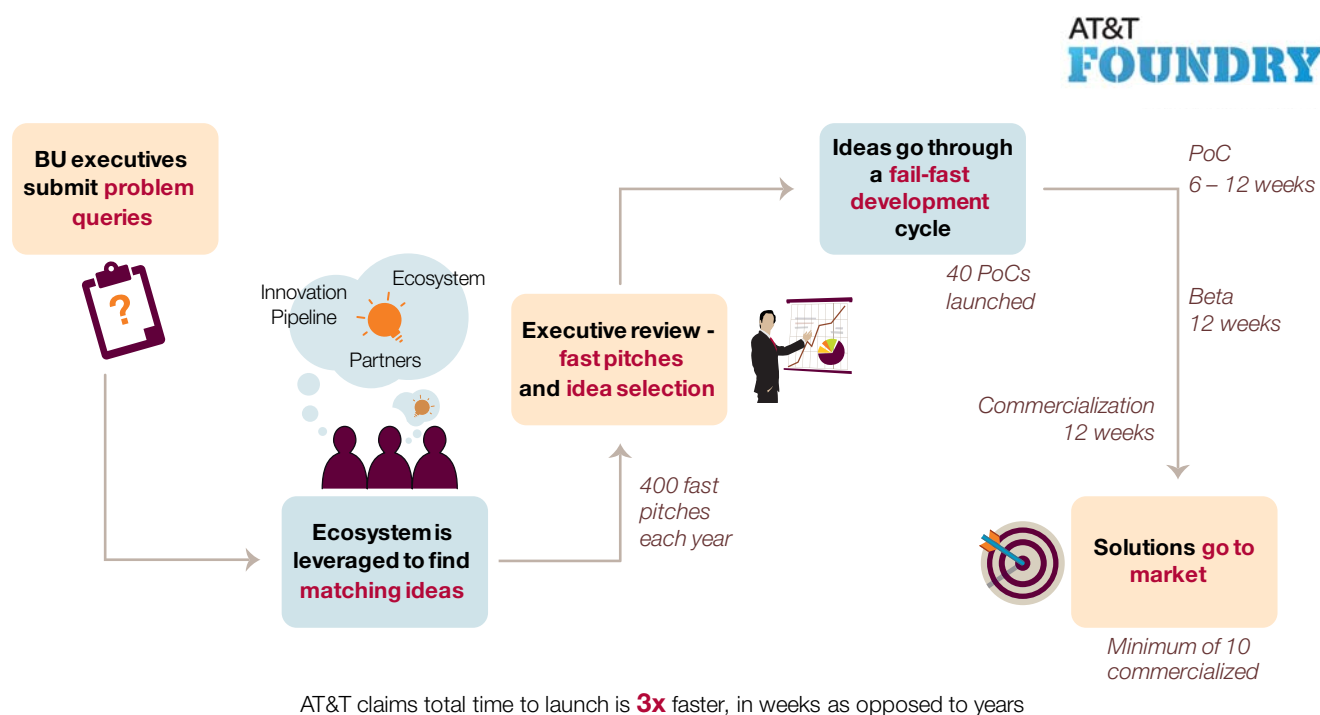
Source: Cnet.com, "Meet the group trying to make AT&T very un-AT&T like", June 2012; Globes.co.il, "Why Cisco paid $475 for Intucell", January 2013

Ensure Stakeholder Buy-in to Secure Funding and Approval for Your Initiatives

The returns from investments in emerging digital technologies such as Big Data are often highly speculative, given the lack of historical benchmarks. Consequently, in many organizations, Big Data initiatives get stuck due to the lack of a clear and attributable business case. To address this challenge, Big Data leaders should manage investments by using a similar approach to venture capitalists. This involves making multiple small investments in a variety of PoCs, allowing rapid iteration, and then identifying PoCs that have potential and discarding those that do not. Pilots should be conducted for successful PoCs and the results from the pilots should be used to build the business case.

Additionally, in order to secure funding for Big Data initiatives, Big Data leaders will need to convince multiple stakeholders, across diverse functions, about the value of the initiatives. Big Data needs to be pitched as a value creation lever for both Business and IT (see Exhibit 2, "Maximizing the Chances of Funding for your Big Data Initiative").

Manage your Risk by Setting up Strong Safeguards for Security and Privacy

The growing risk of data loss, either due to hacking, or security loopholes, is something that is top-of-mind for organizations and their customers. For organizations implementing Big Data initiatives, having explicit opt-in/opt-out mechanisms are one way to allay customer concerns. "Anonymizing" data before use is another – the risk involved is significantly reduced if Personally Identifiable Information (PII) is removed from data. Kim Walker, a partner at law firm Thomas Eggar LLP, confirms the risk factor of identifiable information – "Use of big data which has not been anonymized is clearly an area of risk[15]".

> **"** *Removing Personally Identifiable Information (PII) from data reduces the risk of potential security issues.* **"**

The temptation for gaining first-mover advantage can drive companies to launch their initiatives at the cost of ignoring security issues. But the risks involved can make this a costly mistake. Therefore, companies need to establish strict risk management and clearance procedures to ensure that initiatives are launched only after all security loopholes have been plugged.

* * *

Big Data is business intelligence – enterprise brainpower that offers significant rewards. Leaders like GE and Amazon are rewriting the rules of business through their concerted use of Big Data. While these organizations serve as powerful reminders of the disruptive potential of Big Data, the majority of their peers fall far short of securing its value. Familiar organizational challenges are getting in the way, from the dead weight of legacy systems to teams' inability – or unwillingness – to coordinate effectively. Solving these problems means tackling the basics of the operating model. You need the right structure, a disciplined approach to implementation, and truly determined leadership. Big Data will only realize its potential when the operational building blocks have been carved out, put in place, and accepted by the organization. Can organizations do all this, and harness Big Data as a source of true competitive advantage? The answer to this question will unfold over the next few years.

Exhibit 2 - Maximizing the Chances of Funding for your Big Data Initiative

To maximize your chances of funding, you need to ensure that you have taken a holistic, organization-wide view and paid attention to softer points for converting a naysayer to an advocate.

Highlight the disruptive impact of Big Data

As a first step, ensure that senior stakeholders across Business and IT are aware of the disruptive potential of Big Data. Highlight real-world instances of data-driven decision making that are altering traditional business models and customer relationships. For instance, the use of Big Data has allowed GE to generate $1 billion annually in service revenues. GE offers predictive maintenance, remote monitoring and asset tracking services based on the data that it collects from sensor-equipped machines. It expects revenues from such services to grow to $5 billion by 2017. Traditional manufacturing firms risk losing out on these new sources of growth and competitive advantage if they do not strengthen their Big Data capabilities.

Traditional retailers, on the other hand, have been left behind by competitors like Amazon that are using Big Data to dramatically improve customer service. Amazon's recommendations engine, which has been credited with generating as much as 35% of its sales, allows it to offer a highly personalized browsing experience based on analysis of customers' past purchase behavior.

These real-world examples of the impact of Big Data serve to create a sense of urgency among senior stakeholders on the need to adopt Big Data rapidly.

Look at cross-organizational areas of impact

A Big Data initiative is bound to impact on various parts of the organization. For instance, it can reduce the importance of certain business functions and cause political friction. On the other hand, it can benefit multiple business units. Also, it can augment the role and importance of the Analytics unit within the larger organization. Such softer factors should also be considered when building the business case in terms of risks, costs and benefits.

Identify champions within the organization

Any Big Data initiative requires co-ordination between multiple teams – Business, IT and others – in order to be successful. You need to recruit champions to support and further your cause, without which the business case will collapse. Identify stakeholders that would be affected by your initiative and determine and address their concerns. For instance, in order to launch a Big Data initiative focused on increasing customer acquisition and retention, the Marketing team could identify champions from the Sales, IT and Finance teams.

Tailor the business case for the audience

The decision maker for the funding may be the CEO, CIO, CFO, CMO, etc. Ensure that the business case addresses concerns and provides data for the audience at hand. For instance, the CFO may be more interested in detailed RoI calculations whereas the CMO may be more concerned about the impact of the initiative on other marketing programs.

Do you have the right operating model for your Big Data initiatives?

For each question, select the degree of applicability that is most appropriate for your organization. Mark your answer on a scale of 1 to 5, where 1 indicates the lowest degree and 5 indicates the highest.

How effective is your governance model?

Do you have a Big Data governing body that takes decisions on funding, policy formulation, selection of tools and other issues?

1	2	3	4	5

We do not have any such governing body

We have a dedicated Big Data governing body for all decision making around Big Data and Analytics

What is the extent of interaction between your business and IT teams?

1	2	3	4	5

Both teams operate separately, with business determining the use-cases and requirements, and IT implementing them

We have joint project teams for Big Data and Analytics initiatives, where members from business and IT work together as one team

Do you have well-defined criteria to evaluate use-cases for selection?

1	2	3	4	5

No, we have not established any evaluation criteria

We have clearly defined, quantitative evaluation criteria to identify, qualify and select use-cases

Do you have well-defined and quantitative criteria to measure the success of your Big Data initiatives?

1	2	3	4	5

No, we have not established any success criteria

We have clearly defined, quantitative criteria in the form of Key Performance Indicators (KPIs) for measuring success

How well do you manage your data?

Have you defined policies and procedures to ensure high data quality?

1	2	3	4	5

There are no defined policies/processes in place for managing data quality

There are robust policies/ processes across various stages (capture, curation, storage, transfer and use) that ensure only quality data is used

How well-integrated are your datasets?				
1	2	3	4	5
Isolated (data is scattered across departmental silos, nobody has a consistent view on our portfolio of data assets)				Completely integrated (data across the entire organization is integrated, we are able to get a 360-degree view of our data assets)

How robust is your security and privacy?

Do you follow any standard guidelines for data privacy and security?				
1	2	3	4	5
We do not follow any such guidelines				We follow clear, comprehensive and well-defined guidelines, that address all data privacy and security aspects

How important is security as a factor in the design and implementation of your Big Data initiatives?				
1	2	3	4	5
It is not an important factor, we just focus on launching our initiatives with the required functionality				It is a critical aspect. We have a strict risk clearance process, and do not launch our initiatives until all security loopholes have been plugged

Which tools and technology do you use?

Have you invested in specific tools for Big Data and Analytics?				
1	2	3	4	5
We have not invested in Big Data and Analytics tools, we continue to work with basic tools				We have invested in a full portfolio of advanced and integrated Big Data and Analytics tools

How do you sharpen your analytics competencies? (please select all that apply, the score for this question is equal to the number of choices selected)

What is your strategy for developing analytics skill sets in your organization?				
●	●	●	●	●
We conduct training to develop the required skills in-house	We hire skilled resources from the market	We partner with other organizations to leverage their skill sets	We acquire other organizations to absorb their skill sets	We partner with academic institutions for skill development, internships, campus recruitment etc

Overall Score =

9 - 22 – Undeveloped: Your organization is lagging behind on Big Data and Analytics, with improvement required across all areas.

23 - 36 – Developing: Your organization is developing its Big Data and Analytics competencies, but can improve in certain areas.

37 - 50 – Developed: Your organization has a well-developed Big Data and Analytics competency, with a high maturity across all areas.

Survey Methodology

About the Big Data Survey

Capgemini Consulting conducted a global survey of senior Big Data executives in November 2014. The survey covered 226 respondents across Europe, North America and APAC, and spanned multiple industries including retail, manufacturing, financial services, energy and utilities, and pharmaceuticals. The survey targeted senior executives across the Analytics, Business and IT functions, who are responsible for overseeing Big Data initiatives in their organization. Respondents were asked questions around their organization's approach to Big Data governance, data management, skill development, and technology infrastructure.
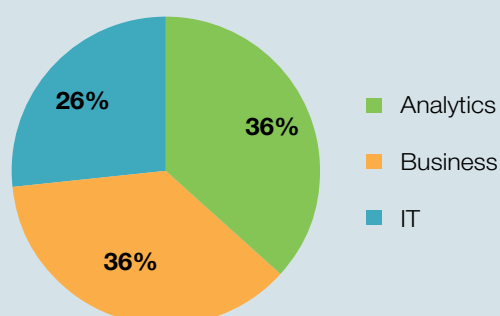
The results from this exercise, supplemented by in-depth interviews with industry executives, serve as the basis for the findings and recommendations in this report.

Survey Demographics

Worldwide Distribution of Respondents

- 50% Europe
- 39% North America
- 11% APAC
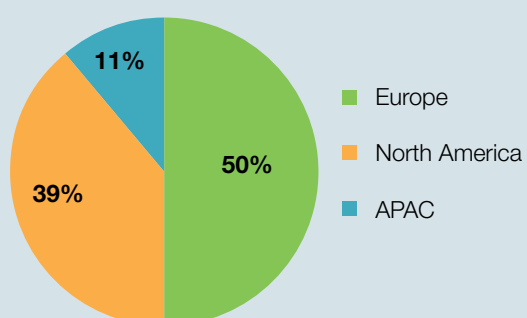
Function-wise Distribution of Respondents

- 36% Analytics
- 36% Business
- 26% IT

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