Evolve Your Business Intelligence To Systems Of Insight

Earlier-Generation BI Is No Longer Enough

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Executive Summary

In today's age of the customer, digitally empowered customers have the clout to determine how business is won. To keep up with this phenomenon, business intelligence (BI) and analytics must evolve into systems of insight, where traditional BI, Agile BI, and big data converge to deliver actionable insights necessary to win, serve, and retain customers.

In June 2015, SAP commissioned Forrester Consulting to evaluate the current state of BI environments in global enterprises across industries. Then to further explore this trend, Forrester developed a hypothesis that tested the assertion that earlier-generation enterprise BI must continuously evolve, improve, and adapt to key business agility and the explosion of data trends in the age of the customer. This next evolution of BI is systems of insight, which connects previously separate disciplines of Agile BI and big data and suggests additional improvements such as contextual BI, actionable BI, and continuous improvement via a feedback-loop mechanism.

> **BI must continuously evolve, improve, and adapt to key business agility and the explosion of data trends in the age of the customer. This evolution is systems of insight.**

In conducting in-depth surveys with 275 global IT and business decision-makers responsible for BI, Forrester found that industry-leading fast-growing companies with higher levels of BI success are more agile, leverage more big data, and are moving toward the next-generation systems of insight faster than the rest.

KEY FINDINGS

Forrester's study yielded three key findings:

› **Earlier-generation BI can't keep up in the age of the customer.** IT and business decision-makers responsible for BI report having multiple challenges with traditional BI, including inability to quantify the ROI on their BI investments and lack of alignment between IT and business. Managing operational risk, handling scalability, and resolving latency challenges remain at the top of BI agendas.

› **Agile BI and big data are the building blocks of systems of insight.** Agile BI empowers business users

by addressing the fast pace of change required to quickly meet customer demands, while big data allows businesses to have a full view of the customer by tapping into more data sources. Together, these previously separate efforts can become a strong foundation for systems of insight.

› **Systems of insight take enterprise BI to the next level.** This new strategy harnesses insights and consistently turns data into action. The ability to deploy BI and big data solutions using the same people, processes, and technology allows companies to improve collaboration, increase top-line benefits, and manage growth and complexity.

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Earlier-Generation BI Deployments Don't Keep Up In The Age Of The Customer

Many businesses have accepted the idea that they must become customer obsessed in order to succeed or even just survive in the age of the customer. BI must continuously evolve, improve, and adapt to key business agility and the explosion of data trends in this new age.

Unfortunately, almost 40% of respondents from this study show low levels of maturity and success even with their current BI deployments. And they report that they have multiple challenges with traditional, earlier-generation BI deployments, including:

›   **Processes.** Almost half of respondents surveyed for this study cite difficulty or risk of platform migration or integration, poor governance, poor data quality, and information silos.

›   **Cost.** Forty-eight percent of these global IT and business decision-makers claim total cost concerns and are unable to quantify the ROI of their BI investments. Taking a closer look at the data, Forrester found that 94% of fast-growing companies with successful BI have a well-established methodology for measuring the ROI of their BI and creating BI business cases with tangible business benefits. In comparison, only 43% of slow-growing companies with unsuccessful BI have adopted these metrics.

›   **Technology.** Seventy-two percent of respondents indicate that scalability, data quality (87%), latency (60%), and managing operational risk (74%) are still at the top of their agendas.

›   **People.** Forty-four percent attribute their challenges to the human factor. They identify lack of knowledge, lack of training, cultural change, lack of ownership, lack of top-down sponsorship, and lack of alignment between IT and business as the main causes for their concerns.

Additionally, almost half of survey respondents say more than 50% of their BI content is generated by shadow IT. While these shadow IT BI desktop applications, mostly based on spreadsheets, can provide instant gratification to ever-changing business requirements, they do not scale, are not secure, proliferate information silos, and pose significant operational risk.

These challenges, including the dual personality of enterprise BI (vs. shadow IT BI), are leading companies to consider new BI strategies and technologies.

Agile BI And Big Data Are The Building Blocks Of Systems Of Insight

The industry has been cognizant of these challenges for years and offered various approaches to address them. One strategy has become optimal: Companies must merge the previously separate efforts of BI, Agile BI, and big data to form a more cohesive strategy on systems of insight, which Forrester defines as the business discipline and technology to harness insights and consistently turn data into action (see Figure 1). Only in this way can businesses harness data, find valuable insights, and turn insights to action.

FIGURE 1

BI, Agile BI, And Big Data Form Systems Of Insight
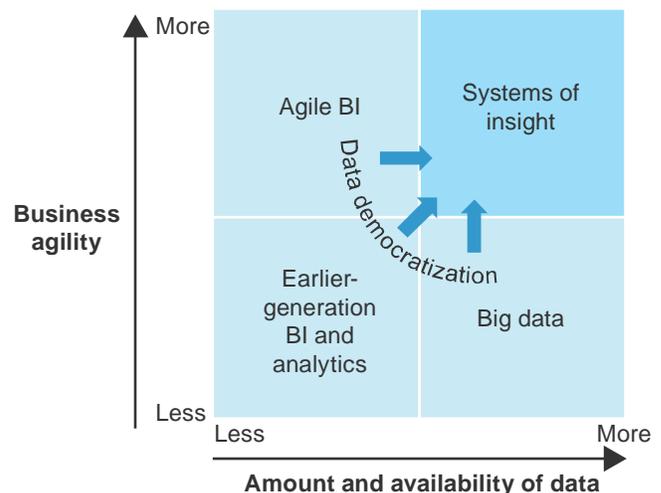
Source: Forrester Research, Inc.

Survey results indicate that 76% of fast-growing companies with successful Agile BI adopted BI for top-line growth. This means empowering business users to move quickly in the age of the customer as well as to use data and analytics (big data) to discover new revenue streams to build new business models and new business processes. Specifically, embracing and successfully deploying Agile BI and big data are two of the top factors for successful BI deployments.

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Agile BI empowers business users with tools that allow them to be more self-sufficient and less dependent on busy and expensive IT resources. Survey results suggest a direct correlation between faster-growing businesses and successful BI and agility. Indeed, 60% of industry leaders (companies that grow by 15% or more YoY) stated that they have fully implemented Agile BI. In comparison, only 26% of laggards (companies that grow by less than 15% YoY) have fully implemented Agile BI.

To top it off, survey results point out that fast-growing companies with more-mature BI environments are more likely to benefit from:

› **More-effective analytics.** While reporting, including historical and operational reporting (proving the answers to the "what" questions), remain important, industry leaders leverage more analytical applications (providing the answers to the "why" questions) such as OLAP, dashboards, data visualizations, and analytical reporting more than industry laggards (see Figure 2).

FIGURE 2

Leaders Leverage More Analytical Tools In Their BI Environments

"In which of the following ways does your organization use BI?"

■ Successful Agile BI and fast-growing   ■ Unsuccessful Agile BI and slow-growing

OLAP (slicing/dicing)
- Expanding implementation: 26% / 8%
- Implemented: 40% / 31%
- Plan to implement: 28% / 23%
- No plans to implement: 3% / 24%

Dashboards
- Expanding implementation: 29% / 26%
- Implemented: 47% / 42%
- Plan to implement: 17% / 17%
- No plans to implement: 3% / 13%

Data visualization
- Expanding implementation: 31% / 19%
- Implemented: 53% / 44%
- Plan to implement: 10% / 26%
- No plans to implement: 2% / 10%

Analytical reporting
- Expanding implementation: 29% / 25%
- Implemented: 53% / 48%
- Plan to implement: 14% / 25%
- No plans to implement: 2%

Base: 151 global IT and business decision-makers whose companies grow at more or less than 15% YoY and have established Agile BI

Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, August 2015

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› **Faster project turnaround times.** Fifty-six percent of fast-growing companies with successful Agile BI report that it takes them hours or days to turn around a new, complex BI request (data from new data sources that needs to be integrated and loaded into a data warehouse, data mart, complex join, a few metrics, etc.). By contrast, only 29% of slow-growing companies with unsuccessful Agile BI can perform these tasks in hours or days.

› **Best engineered tools leveraged.** When asked about the importance of selecting the right tool for the right job, 57% of global IT and business decision-makers from fast-growing companies with successful BI report that it's a very important BI characteristic. Only 32% of respondents from slow-growing companies with unsuccessful BI agree.

› **Empowered business users.** Allowing self-service BI gives users direct access to raw data from transactional and other operational applications. In the faster moving age of the customer, business users cannot wait for IT to build and continuously update BI components such as data integration, data warehouse, and reports. In fast-growing companies with successful BI, business users generate most of their own BI content in all areas,

including reports, metrics, queries, scorecards, dashboards, and data visualization (see Figure 3).
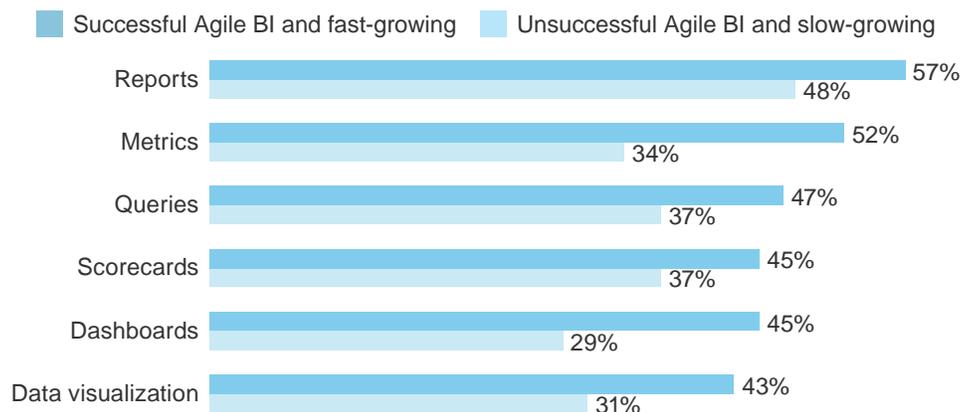
The other success component, big data, allows organizations to access and process more data faster and better than traditional data integration, data warehousing, and BI platforms based on SQL technologies. Forrester found a direct correlation between fast-growing businesses with successful BI and higher adoption of big data. These companies leverage more big data technologies such as machine learning and predictive analytics (78% vs. 37%), data exploration and NoSQL (76% vs. 54%), streaming analytics (74% vs. 34%), and deriving insights from unstructured internal data (83% vs. 47%) (see Figure 4).

Unfortunately, companies today are still using BI and big data in silos, as they still see big data mostly as the realm of data scientists. Only 38% are closely coordinating BI and big data today, but 62% of survey respondents plan on closely coordinating these best practices in the future.

FIGURE 3

Business Users Generate Most Of Their Own BI Content In Fast-Growing Companies With Successful BI

"Out of all BI content, what percentage is being produced by the business users with no assistance from IT professionals?"
(only showing >50%)

■ Successful Agile BI and fast-growing   ■ Unsuccessful Agile BI and slow-growing

Category	Successful Agile BI and fast-growing	Unsuccessful Agile BI and slow-growing
Reports	57%	48%
Metrics	52%	34%
Queries	47%	37%
Scorecards	45%	37%
Dashboards	45%	29%
Data visualization	43%	31%

Base: 151 global IT and business decision-makers whose companies grow at more or less than 15% YoY and have established Agile BI

Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, August 2015

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FIGURE 4

Fast-Growing Companies With Successful BI Leverage Big Data Tools More Than The Rest

"In which of the following ways does your organization use BI?"

▮ Successful Agile BI and fast-growing   ▮ Unsuccessful Agile BI and slow-growing

Machine learning/ generated decisions/ predictive analytics
- Expanding implementation: 21% / 11%
- Implemented: 57% / 26%
- Plan to implement: 17% / 28%
- No plans to implement: 30%

Data exploration and discovery (searching, NoSQL)
- Expanding implementation: 29% / 12%
- Implemented: 47% / 42%
- Plan to implement: 17% / 25%
- No plans to implement: 5% / 16%

Streaming (low latency)
- Expanding implementation: 22% / 9%
- Implemented: 52% / 25%
- Plan to implement: 17% / 29%
- No plans to implement: 7% / 27%

Analyzing unstructured external data
- Expanding implementation: 33% / 9%
- Implemented: 38% / 34%
- Plan to implement: 22% / 28%
- No plans to implement: 5% / 28%

Analyzing unstructured internal data
- Expanding implementation: 24% / 15%
- Implemented: 59% / 32%
- Plan to implement: 16% / 31%
- No plans to implement: 16% / 31%

Analyzing structured external data
- Expanding implementation: 18%
- Implemented: 34% / 17%
- Plan to implement: 47% / 39%
- No plans to implement: 12% / 22%

Operational reporting (today's data)
- Expanding implementation: 3% / 19%
- Implemented: 41% / 29%
- Plan to implement: 43% / 49%
- No plans to implement: 12% / 18%

Base: 151 global IT and business decision-makers whose companies grow at more or less than 15% YoY and have established Agile BI

Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, August 2015

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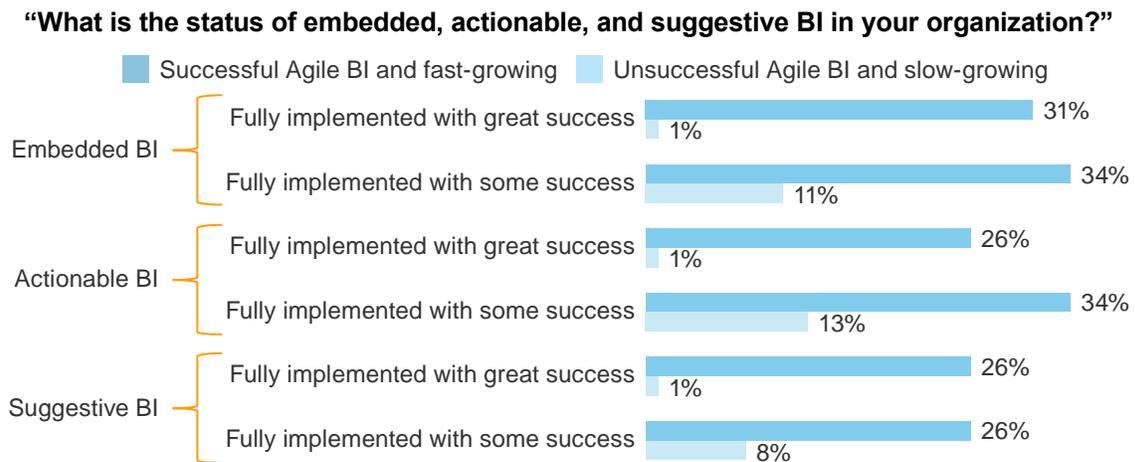**CONSULTING**

Turn Data Into Actions With Systems Of Insight

Agile BI addresses the fast pace of change by empowering business users. Yet, most Agile BI deployments still rely on earlier-generation technologies, leaving most of the data locked in a variety of data sources. Big data can open up and democratize more data types and sources, but most big data architectures and platforms still fall in the realm of technology and data science professionals, leaving business users highly dependent on expensive technical resources.

Both disciplines must converge in order to turn data into insights and insights into action by evolving into systems of insight. This shift requires "moving from IT to business technology (BT), embracing the priorities of the age of the customer, and emphasizing business agility."[1] IT and business decision-makers responsible for BI can help their companies evolve their earlier-generation BI to systems of insight by:

› **Improving enterprise BI deployments.** Enterprise BI needs to step into the 21st century's age of the customer and big data by handling scalability and low latency with the right amount of management controls. When we asked about the importance of BI characteristics, Forrester found vast differences between fast-growing

› companies with successful Agile BI and slow-growing companies with unsuccessful Agile BI:

- Ninety percent of leaders rate operational risk management as important in comparison to 71% of laggards.

- Scalability is important for 84% of leaders vs. 66% of laggards.

- Seventy-nine percent of leaders rate data latency as important as opposed to only 49% of laggards.

› **Combining Agile BI and big data.** By doing so, companies can improve efficiencies (collaboration and faster problem resolution), increase top-line benefits (new revenue streams, more cross-sell, more up-sell, better profitability, higher margins), and manage growth and complexity (more data and more data complexity). Forrester found that 77% of companies that are fast-growing and have successful BI already combine BI and big data. In contrast, only 46% of slow-growing companies with unsuccessful BI embrace this best practice.

› **Making BI embedded, actionable, and suggestive.** Survey results indicate a direct correlation between fast-growing businesses with successful BI environments and those that use embedded, actionable, and suggestive BI (see Figure 5).

FIGURE 5

Leaders Leverage Embedded, Actionable, And Suggestive BI More

"What is the status of embedded, actionable, and suggestive BI in your organization?"

■ Successful Agile BI and fast-growing   ■ Unsuccessful Agile BI and slow-growing

		Successful Agile BI and fast-growing	Unsuccessful Agile BI and slow-growing
Embedded BI	Fully implemented with great success	31%	1%
	Fully implemented with some success	34%	11%
Actionable BI	Fully implemented with great success	26%	1%
	Fully implemented with some success	34%	13%
Suggestive BI	Fully implemented with great success	26%	1%
	Fully implemented with some success	26%	8%

Base: 151 global IT and business decision-makers whose companies grow at more or less than 15% YoY and have established Agile BI

Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, August 2015

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These companies are progressing faster than others in analytics maturity and ability to derive top-line benefits from successful implementations.

- Embedding BI into operational applications and processes, such as ERP and CRM, makes BI more pervasive and contextual. Sixty-five percent of fast-growing companies with successful BI use embedded BI in comparison to just 12% of slow-growing companies with unsuccessful BI.

- Insights to action or actionable BI take the last step in the BI process and actually help a decision-maker take an action based on data, not intuition. Actionable BI requires a combination of embedded BI, integrated metadata that aids in executing transactions right from BI applications, and integrating BI with business process management (BPM) tools to kick off complex processes (such as credit approvals). Sixty percent of fast-growing companies with successful BI use actionable BI in comparison to just 14% of slow-growing companies with unsuccessful BI.

- Suggestive BI addresses a significant gap of earlier-generation BI of I-don't-know-what-I-don't know. Suggestive BI can automatically suggest the best metric to answer a business question, the best data visualization to analyze a particular metric, the relevant next step in analysis, etc., based on best practices instantiated as rules in BI applications, machine-learning generated rules, and suggestions based on popular social trends (how others are using the same application). Sixty-two percent of fast-growing companies with successful BI use suggestive BI in comparison to just 9% of slow-growing companies with unsuccessful BI.

› **Implementing continuous learning and improvement.** Sixty-five percent of fast-growing companies with successful BI continuously monitor BI success and failure, learning and adjusting in their organization. In contrast, only 20% of slow-growing companies with unsuccessful BI leverage the continuous feedback-loop mechanism.

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Key Recommendations

Forrester's in-depth surveys with business and IT executives yielded several important observations:

> **Leveraging real-time BI reduces data latency.** Your BI environment should support improved decision-making. This means that refreshing data warehouses and data marts with data architectures based on end-of-day processes is a thing of the past. The trend is toward real-time environments. Plan to increase your real-time capabilities and reduce your reliance on daily, weekly, monthly, or quarterly data refreshes.

> **Businesses cannot succeed or potentially even survive without systems of insight.** Even though correlation is not causation, this study clearly shows that industry leaders invest more in BI and big data and leverage next-generation systems of insight technologies and best practices. Don't be left behind; join the leaders!

> **Start with building blocks to help you deploy successful business insight.** All big bang approaches, including legacy enterprise data warehouses, have a low chance of success. Take the baby steps. Improve your enterprise BI first, then deploy and start practicing Agile BI, and, last but not least, democratize data with big data technologies. Then you will have a solid foundation to converge all three disciplines into systems of insight.

> **Business must own systems of insight.** Systems of insight leaders don't bury BI, analytics, and big data in technology cost centers; they embed these initiatives and budgets in front-office revenue-generating departments. C-level business executives must become the owners, not just the sponsors, of systems of insight.

> **IT must shift its priorities from building BI and analytics apps to enabling insights environment.** In the systems of insight world, IT pros are no longer responsible for building reports and dashboards. Instead, they empower their business peers with self-service tools, platforms, and applications, enabling them to get their own insights and turn these insights into action.

> **Systems of insight require an investment.** These investments carry tangible ROI, as this study shows a direct correlation between higher investment and maturity of enterprise BI and big data deployments and overall business success.

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Appendix A: Methodology

In this study, Forrester conducted an online survey of 275 cross-industry organizations in the US, the UK, Germany, France, India, and China to evaluate the current state of BI environments. Survey participants included decision-makers in IT, data, and line of business. Questions provided to the participants asked about their use of Agile BI and big data. Respondents were offered an incentive as a thank you for time spent on the survey. The study began and was completed in August 2015.

Appendix B: Supplemental Material

RELATED FORRESTER RESEARCH

"It's Time To Upgrade Business Intelligence To Systems Of Insight" Forrester Research, Inc., July 20, 2015

"Transform Customer Experiences With Systems Of Insight" Forrester Research, Inc., August 7, 2015

"Benchmark Your BI Environment For Continuous Improvement" Forrester Research, Inc., March 5, 2015

Appendix C: Demographics/Data

FIGURE 6
Geography And Company Size

Country

- United States 35%
- India 15%
- China 15%
- Germany 12%
- United Kingdom 12%
- France 11%

Employees

- 20,000 or more employees — 22%
- 10,000 to 19,999 employees — 13%
- 5,000 to 9,999 employees — 15%
- 1,000 to 4,999 employees — 36%
- 500 to 999 employees — 13%

Base: 275 global IT and business decision-makers responsible for Business Intelligence

Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, August 2015

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FIGURE 7

Industry And Department
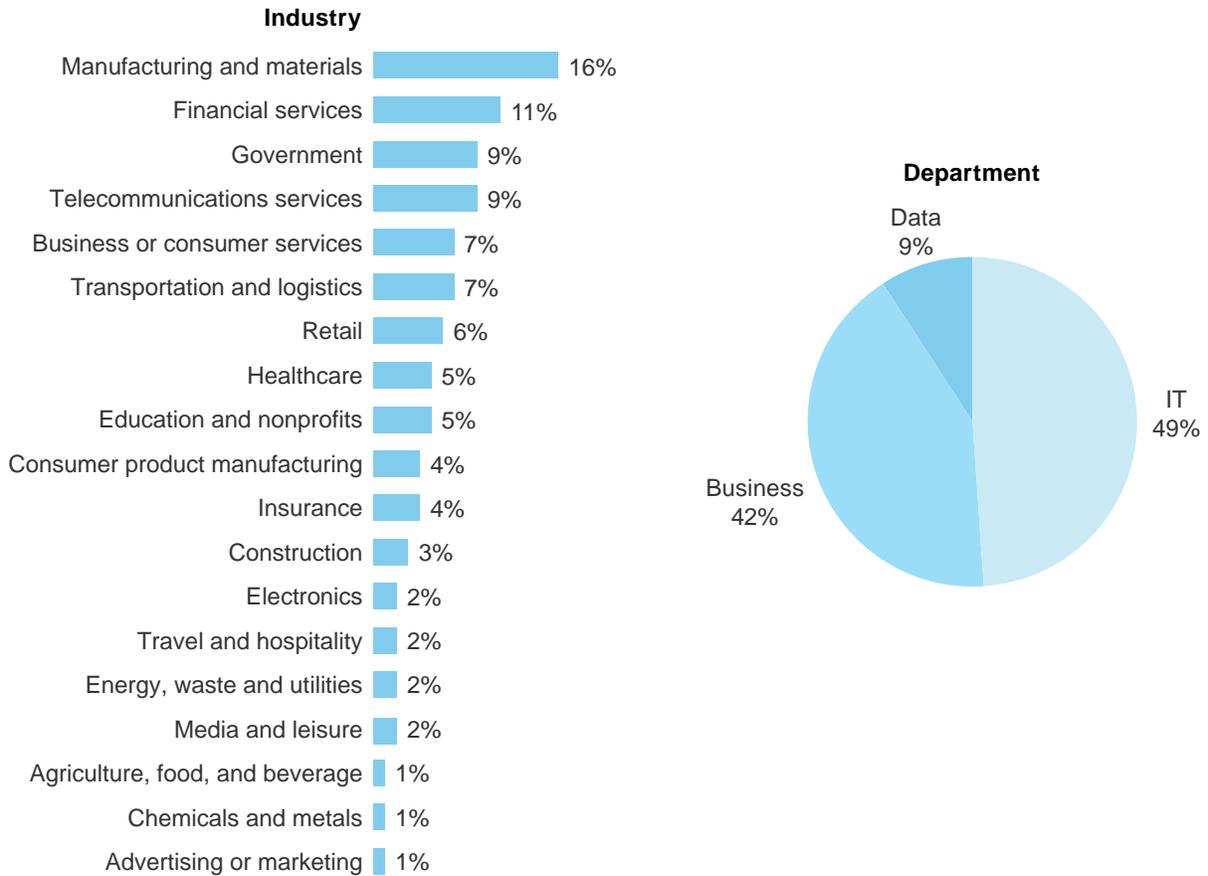
Industry

Industry	%
Manufacturing and materials	16%
Financial services	11%
Government	9%
Telecommunications services	9%
Business or consumer services	7%
Transportation and logistics	7%
Retail	6%
Healthcare	5%
Education and nonprofits	5%
Consumer product manufacturing	4%
Insurance	4%
Construction	3%
Electronics	2%
Travel and hospitality	2%
Energy, waste and utilities	2%
Media and leisure	2%
Agriculture, food, and beverage	1%
Chemicals and metals	1%
Advertising or marketing	1%

Department

Data 9%

IT 49%

Business 42%

Base: 275 global IT and business decision-makers responsible for Business Intelligence

Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, August 2015

Appendix D: Endnotes

[1] For more information, refer to the "It's Time To Upgrade Business Intelligence To Systems Of Insight," July 20, 2015 report.

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