Business Analytics in Government

Benchmarking the Analysis of Data To Gain Insight

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Benchmark Research
White Paper

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San Ramon, California
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Ventana Research performed this research to determine attitudes toward and utilization of business analytics and metrics in government. This document is based on our research and analysis of information provided by organizations that we deemed qualified to participate in this benchmark research.

This research was designed to investigate the business analytics and metrics practices and needs of individuals and organizations and the potential benefits from improving their existing processes, information and systems. This research is not intended for use outside of this context and does not imply that government organizations are guaranteed success by relying on these results to improve planning. Moreover, gaining the most benefit from improving the use of business analytics and metrics requires an assessment of your organization's unique needs to identify gaps and priorities for improvement.

We certify that Ventana Research wrote and edited this report independently, that the analysis contained herein is a faithful representation of our evaluation based on our experience with and knowledge of analytics and the government sector, and that the analysis and conclusions are entirely our own.

Ventana Research

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Executive Summary

Today where business and technology intersect it seems as if everything is about analytics. Why? The key is information. Organizations, especially those in the government sector, have more of it than ever before, stored in more systems and locations, being produced in increasingly varied forms and being used in strikingly varied ways. Advances in information technology, many of them newly developed and involving the Internet, have fueled this explosive growth, creating both opportunity – in new ways for businesses to reach new markets and customers – and complexity – in trying to collect, manage and interpret data and turn it into information that can help guide them to success. Technology, a two-sided coin, also can provide tools to handle the complexity, and that is where analytics come in.

Government agencies now can collect and track information from a wider, deeper array of sources: multiple enterprise systems, real-time external feeds, their own websites and those of others, and even voice recordings and videos. But this is only the first step. Under increasing pressure to operate more efficiently and make better decisions, business people in government need capabilities to analyze information, foresee future outcomes and plan how to take advantage of them. In the past they have relied on their organization's IT department to manage business intelligence (BI) systems that provide insight on processes and performance. Such efforts have made strides in standardizing querying, reporting and the delivery of information, but they cannot provide the complex analytic capabilities that line-of-business analysts and management require today.

The upshot is that analysts and managers in government must take more active roles, in collaboration with business management, in defining the analytics they need and the information sources that go into them. To advance efforts in analytics, business people in this sector must take responsibility for improvement and not assume that IT will know how to deliver what they need.

> **Government organizations must recognize that they cannot take only a general approach to improving business analytics; they must focus on each line of business and its needs.**

Greater collaboration and cooperation between business and IT departments is necessary, as is greater clarity from the business side on what the right analytics are.

Government organizations also must recognize that they cannot take only a general approach to improving business analytics; they must focus on each line of business (LOB) and its needs, which vary from finance and human resources to the agencies and departments. Just as important is supplying analytics so the internal IT group can improve its own operations and better support the enterprise systems and infrastructure that enable the rest of the organization. In all of these cases a strong foundation of analytics for government can support improvement in the key areas of people, processes, information and technology.

In many cases, however, government organizations and individuals must understand first what analytics can do and ascertain what analytics they need. The buzz about

analytics in government has created confusion in several ways. Not only is the meaning of the term itself misunderstood, so are the definitions of the business tools analytics are used to produce: measures, metrics and key performance indicators (KPIs). Nor is there only one kind of government analytics; confusion also surrounds the differences among historical, root-cause, real-time and predictive analytics. And managers, executives and their reports need to understand clearly the practical business value of applying analytics to their own activities.

Ventana Research undertook this benchmark research to acquire real-world information about levels of maturity in this sector, trends and best practices in how organizations use business analytics. It explores how they do this now, how their personnel feel about the current processes and tools, plans they have to change or improve them, and benefits they hope to gain by doing so. We conducted comprehensive benchmark research into the nature, use and value of analytics in business. As well as extensive research across all industries and lines of business

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worldwide, an undertaking that analyzed input from more than 2,600 participants, we did focused analyses of seven key lines of business and IT. We also examined in depth analytics use in small and midsize businesses and in 11 vertical industries. This report summarizes the state of business analytics in the government sector.

This research in government found that the most important categories of metrics (which we define as measures of business performance) are central to business: cost (identified by 58% of participants), operational (56%) and financial (52%). These priorities understandably varied by line of business: Financial metrics rank first for those in finance departments, but cost is the first priority for executives, management and administration. Cost also was most important for 80 percent of small government agencies.

Issues also arise in providing current metrics and KPIs to people. Although 47 percent of government organizations do so within one week after the end of the month, quarter or year, the rest take longer than that. The timeliness of the source data for metrics and KPIs is a related challenge: For half of these organizations (52%), some or most of the data is stale or outdated. Similarly, more than half (58%) said the data they use for business analytics is only somewhat accurate or somewhat inaccurate. Having outdated or inaccurate data is likely to undermine confidence in the metrics it is used to produce, and the research also shows that 32 percent are only somewhat confident or not confident in the quality of the information being generated by their analytics.

In broader terms, nearly as many government organizations are not satisfied with the process currently used to create analytics (40%) as are satisfied with it (43%). Regarding the current technology for creating and applying analytics, as many are only somewhat satisfied or not satisfied with it as are satisfied or very satisfied (48% each).

The findings about which technologies government organizations currently use shed some light on these numbers. The only tool used by more than half of these organizations (65%) to generate analytics is spreadsheets. More than 40 percent of all organizations use spreadsheets regularly (44%) or universally (43%) for business intelligence and analytics – a total of almost 90 percent who use them at least regularly. We have found repeatedly that spreadsheets are not well suited for complex analytics and recurring analytical and reporting tasks. We often find excessive spreadsheet use associated with negative impacts on accuracy and timeliness, which this research confirmed. Overall, we find that companies that use spreadsheets universally or regularly take about two days longer to provide metrics and KPIs than those that use spreadsheets occasionally or rarely. Those that seldom use them are more likely to describe the data they use in metrics and KPIs as accurate.

> **Companies that use spreadsheets universally or regularly take about two days longer to provide metrics and KPIs than those that use them only occasionally or rarely.**

For these and other reasons, our Maturity Index analysis concludes that only 7 percent of all government organizations attain the highest Innovative level of maturity in their use of analytics; that's tied with Education for the fewest of any industry sector in this research. Maturity requires a balanced focus on people, process, information and technology; the research found issues in each category and also concerns about progress in addressing them. Although exactly half of these participants said that it is very important to their business goals to simplify making analytics and metrics available, only one-fifth (21%) plan to take the Innovative step of changing the way they generate and apply analytics in the next 12 to 18 months. The dominant reasons for making changes are to improve operational efficiency for cost savings (for 65%), business processes (60%) and decision-making (55%).

When we analyzed the maturity of companies' individual lines of business by aggregated industry sectors, Government, Education and Nonprofit had the smallest percentage of companies at the two highest maturity levels in five of them (and was tied for the fewest in one other). Thus, as regards business analytics, government organizations are in the least mature industry.

At the same time, fundamental barriers block the road to improvement for many government organizations. The absence of a budget, of resources, of a strong business case, and of awareness of the need to change all were identified as issues by more than 40 percent of these participants. To overcome these barriers will require first understanding the business benefits of investing in an initiative and then choosing the right tools to help deliver them. Among our standard seven technology and vendor considerations, 47 percent of government organizations said that the most important is usability – being able to apply the tool readily to business needs; second-most is reliability of the software (cited by 44%). Executives in this sector rated both of these more highly than did the average of all job titles. We note also that in today's environment in which nontechnical users must be able to benefit from a tool as much as analysts, both ease of use and a gamut of capabilities from the simple to the sophisticated are necessary.

Thus, government organizations are maturing only slowly in their use of analytics despite the fact that they view them as valuable and important. This benchmark research indicates that usability and flexible functionality are important criteria in their search for the right analytics, that failing to examine timely availability, broad access and efficient handling can obstruct analytics use, and that in technology terms spreadsheets should be replaced with more appropriate tools. When business users of analytics are clear about their needs, analytics can be developed and tuned more efficiently and they can explore new approaches such as predictive analytics and the availability of analytics on mobile devices. But investments in analytics must still be sold, using arguments about improving business processes, decision-making and operational efficiency.

About This Benchmark Research

Methodology

Ventana Research conducted this benchmark research over the Web from March through December 2010. We solicited survey participation via e-mail blasts, our Web site and social media invitations. E-mail invitations were also sent by our media partners and by vendor sponsors.

We presented this explanation of the topic prior to entry into the survey:

> There isn't an aspect of business today in which people don't claim they use analytics to generate information, typically in the form of metrics and key indicators. But there is much confusion about their usefulness and value to the business and about how best to select and implement historical, root-cause, real-time and predictive analytics. The uncertainty this causes poses a challenge for organizations.

> Management and managers need advice on how to select the measures most useful for them and guidance about best practices and common mistakes in choosing business and operational measures, metrics and key indicators. They also need more reliable information than is currently available about integrating historical and predictive analytics into systems and processes so they can make better use of existing investments and plan new ones that provide deeper insight from multiple systems using more sophisticated analytical methods. This benchmark research is designed to generate that advice and guidance by examining the use of metrics across the entire business. It also will determine the maturity distribution of organizations in their use of analytics.

We included the following definitions:

> Analytics – Programs or algorithms that derive meaning from data
> Metric – A measure of business performance
> Performance indicator – A specific metric chosen to measure the performance of an organization or some component of it.

The following promotion incented participants to complete the survey:

> All qualified participants will receive a report on our research findings that you can apply to your organization's efforts and a quarterly membership to the Ventana Research Community valued at US$125 or €92. In addition, all qualified participants will be entered into a drawing to win a benchmark research report of your choice valued at US$995 or €732. Thank you for your participation!

Qualification

We designed the research to assess the use of and plans for deployment of business analytics across organizations and industries. We described qualification to participate as follows:

> The survey for this benchmark research is designed for business and IT managers who develop, deploy or use analytics or are involved with the purchasing of analytics technology. Others such as consultants and

systems integrators may participate in the survey but are not eligible for incentives and will be used in the analysis only if they meet the qualifications. Incentives are provided to qualified participants in the research and also are conditional on provision of accurate contact information including company name and company e-mail address that can be used for fulfillment of incentives.

Further qualification evaluation of participants was conducted as part of the research methodology and quality assurance processes. It entailed screening out responses from companies that are too small, questionnaires that were not materially complete, or those where the submission is from an inappropriate submitter or appears to be spurious.

Demographics

We designed the survey used for this research to be answered by executives and managers across a broad range of roles and titles working in government organizations. We evaluated the qualifications of those who clicked through to the survey and included the answers of all qualified respondents. In this report, the term "participants" refers to that group, and the charts in this section characterize various aspects of their demographics and qualifications.

Company Size by Number of Employees

We require participants to indicate the size of their entire company. Our research repeatedly shows that size of organization is a useful means of segmenting companies because it correlates with the complexity of processes, communications and organizational structure as well as the complexity of the IT infrastructure. In this research, when measured by number of employees more than half of government participants (58%) are larger organizations: That is, about one-fourth are very large (having 10,000 or more employees), and slightly more are large (with 1,000 to 9,999 employees). About the same number as large are midsize organizations (with 100 to 999 employees), and a bit more than one in 10 are small (with fewer than 100 employees). This distribution is consistent with our research objectives and provides a suitable sample from each size category.

Figure 1
Participants by Company Size (Number of Employees)
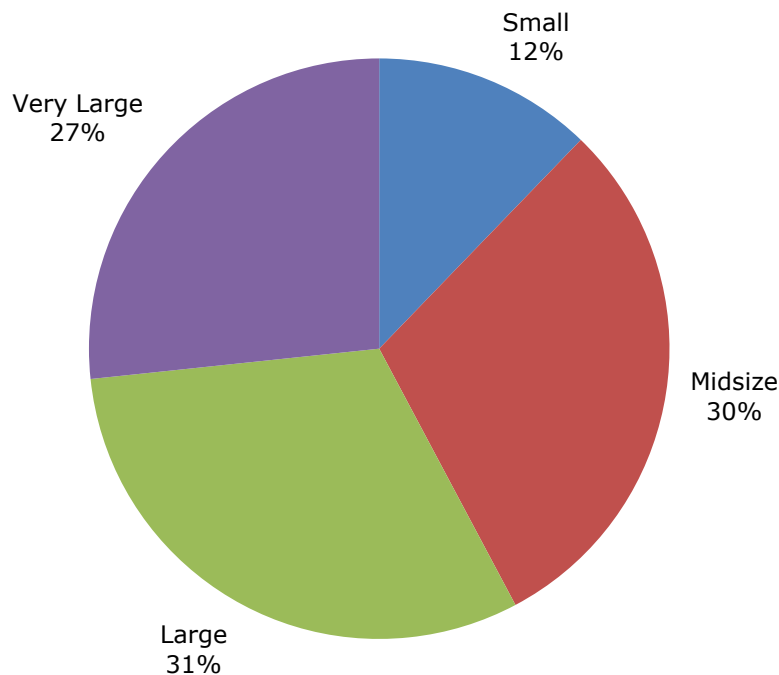
Source: Ventana Research

Company Size by Annual Revenue

When we measured size by annual revenue, the distribution of categories shifted downward, with small organizations gaining substantially. By this measure, about half as many are very large (having revenue of more than US$10 billion), 10 percent fewer are large (having revenue from US$500 million to US$10 billion), about half as many are midsize (having revenue from US$100 to US$500 million), and four times as many are small government organizations (with revenue of less than US$100 million).

Figure 2
Participants by Company Size (Annual Revenue)
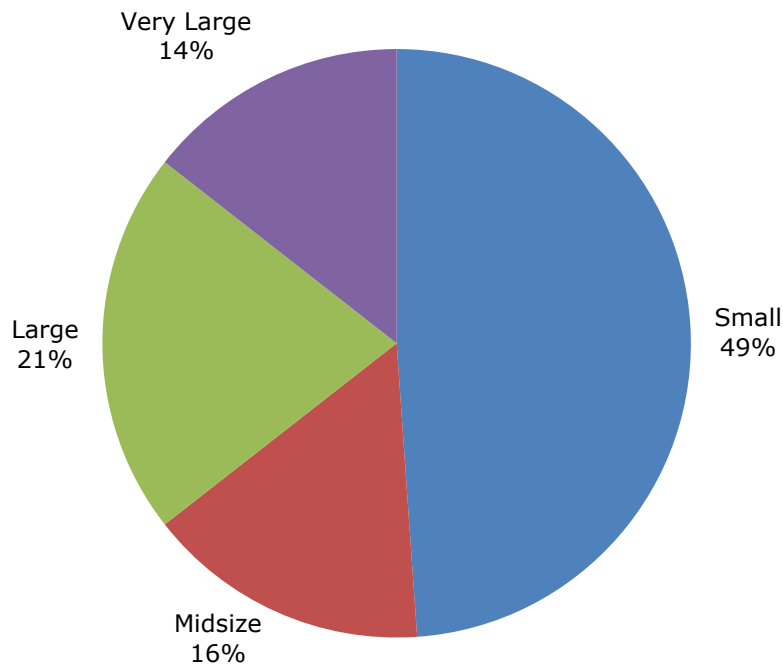
Source: Ventana Research

Geographic Distribution

Almost nine in 10 participating organizations are located or headquartered predominantly in North America. Those based in the Middle East formed the second-largest area at 4 percent, followed by those in Europe (3%), Asia Pacific (2%) and Africa and Central and South America at 1 percent each. This result was in keeping with our expectations at the start of this investigation, since organizations participating in our research most often are headquartered in North America, and we expected this public sector to have even more than usual.

Figure 3
Participants by Region
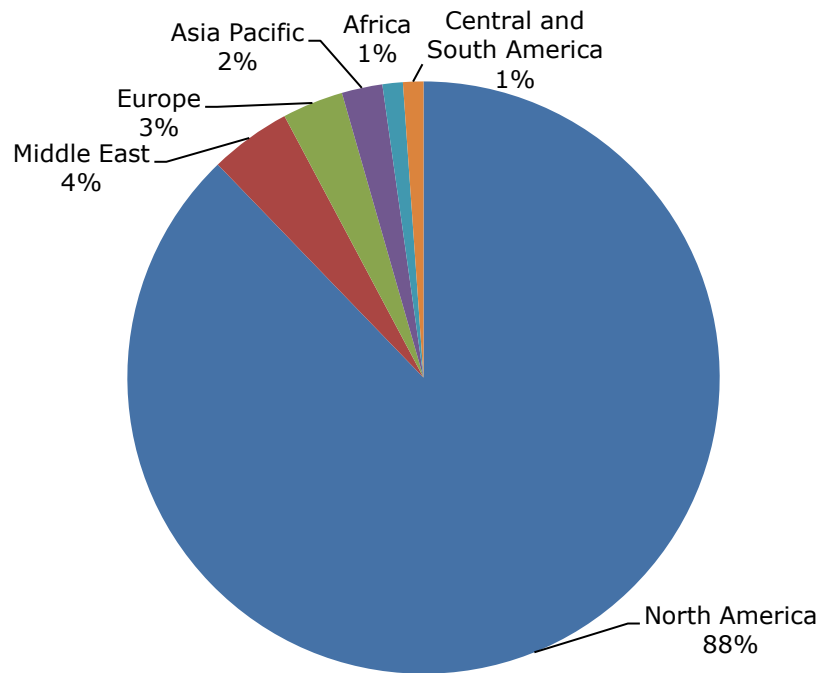
Source: Ventana Research

Agency

We grouped the government organizations in this benchmark research into five general categories, as shown below. The largest share are from local or city governments, followed by state or provincial; together they account for more than half (59%) of all participants. Federal agencies account for more than one in four (28%), and unspecified types comprise the remainder.

Figure 4
Participants by Type of Agency
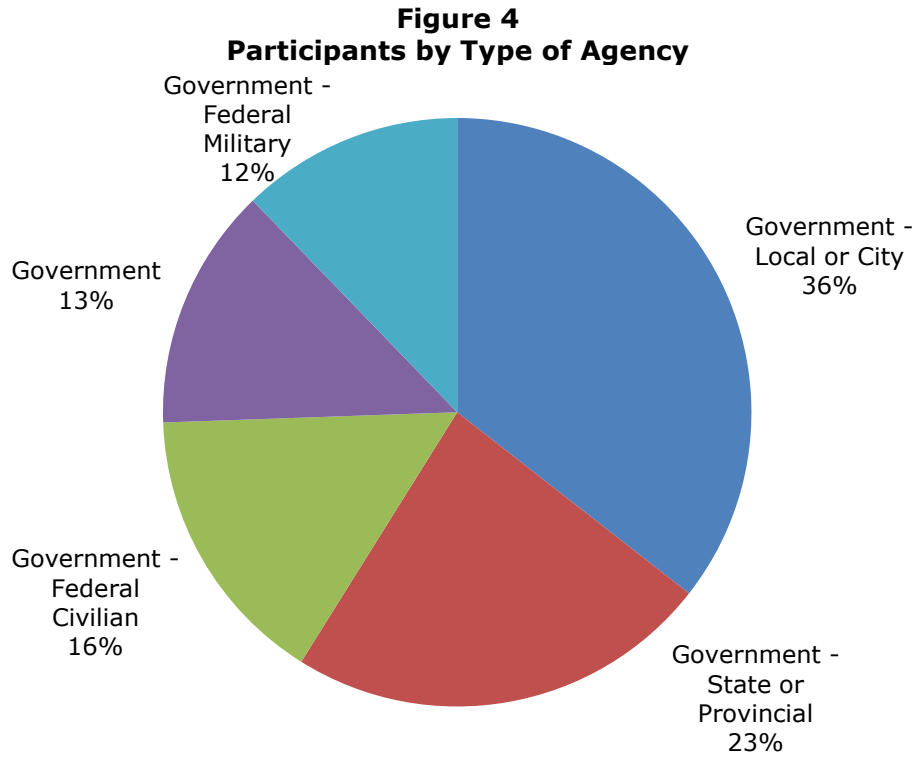
Source: Ventana Research

Job Title

We asked participants to name the job title that best describes theirs. We sorted these responses into four categories: executives, management, users and others. More than two-thirds identified themselves as having titles that we categorize as users, a grouping that includes senior manager or manager (29%), director (14%), analyst (21%) and staff (8%). Those with vice president titles (which are not common in government) constitute the management category and amount to just 1 percent of the total, and 17 percent are executives. A handful of other titles, each with small numbers of participants, added up to 10 percent.

Figure 5
Participants by Job Category
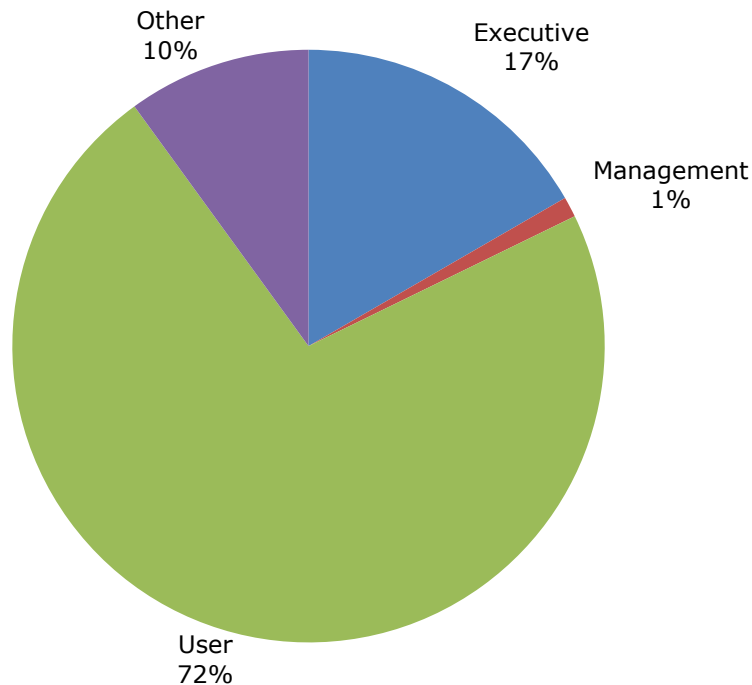
Source: Ventana Research

This is how we aggregated the core title response options:

Executive
CEO, President
Other CxO

Management
EVP or SVP
VP

User
Senior Manager or Manager
Director
Analyst (Business, Financial, etc.)
Staff

We concluded after analysis that this response set provided a meaningfully broad distribution of job titles.

Role by Functional Area

We asked participants to identify their functional area of responsibility as well. Finance, the largest grouping, and IT jobs accounted for more than half of them (59%). Five areas with 4 to 7 percent each comprised 29 percent of the total, and seven other areas each with only 1 to 2 percent comprised the Other category; combined they contribute to a diversity of functions among participants in this sector.

Figure 6
Participants by Functional Area
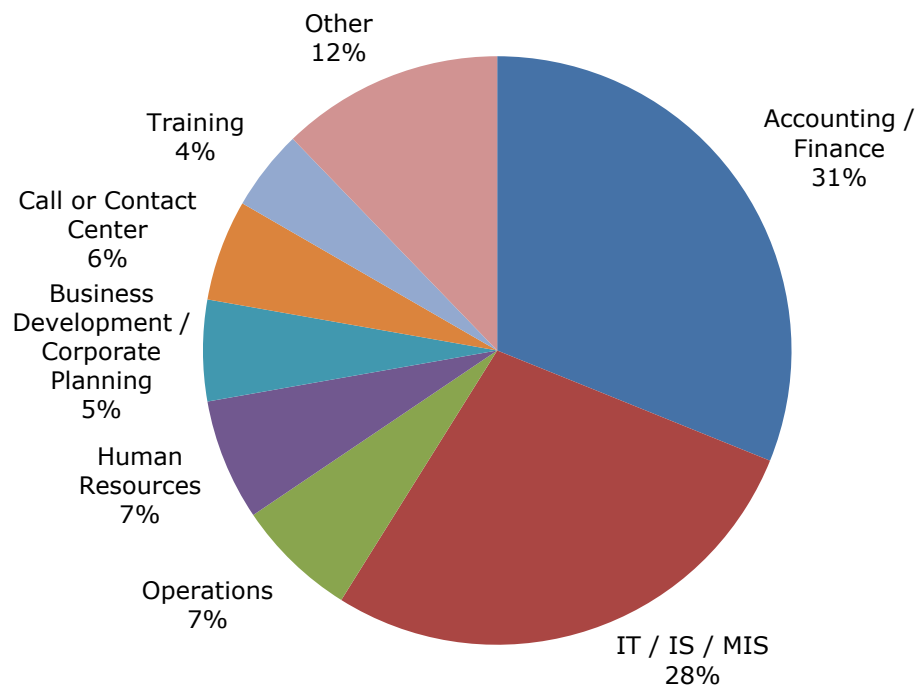
Source: Ventana Research

Key Insights: Government Analytics

Our benchmark research yielded the following important general findings and key insights regarding the use of analytics in government organizations. (We discuss maturity levels in the Maturity Index portion of the full research report; the actual questions asked in our survey are in the Appendix to the research report.)

Government organizations are maturing slowly in their use of analytics.

This benchmark research found that government organizations are struggling in their ability to apply analytics and have substantial room for improvement. The Ventana Research Maturity Index places only 7 percent of them at the highest Innovative level in their use of analytics; that is tied (with Education) for the fewest of any industry sector in this research. More than two-thirds (69%) are in the bottom half of the maturity hierarchy.

Government organizations are held back in the maturity of their business analytics by a variety of factors. In people-related issues our analysis identified lack of skilled resources and lack of executive support. Process-related issues include taking longer than a week to provide metrics from analytics, formally reviewing metrics no more often than quarterly or annually and low prioritization and lack of budget. In information-related issues negatively impacting business analytics use the research identified stale, outdated and inaccurate information as well as failing to prioritize basic informational needs. In the category of technology the research found immature technology that is not working, unsophisticated technology that is known to be ineffective and a failure to prioritize forward-looking and predictive analytics.

All these shortcomings impede a government organization's effectiveness and performance. The research confirms our long-established hypothesis that maturation in business analytics requires a balanced focus on people, process, information and technology and a dedication to methodical improvement.

Government organizations generally make less use of analytics than others.

Findings of our line-of-business reports on business analytics reveal that organizations in government trail many others in the use of analytics. For example, in dealing with finance, 45 percent of organizations in the category of Government, Education and Nonprofit (of which Government comprises 38% of participants) spend less than one-fourth of their time working with analytics, while 64 percent of those in the private sectors spend more time than that. They also are less likely to consider the data they use accurate (26% vs. 32% of all industries). Understandably they are much less focused on issues such as competitive advantage or return on investment and not nearly as concerned with the time it takes to prepare management reports or close their books.

The most important categories of business metrics for government are cost, operational and financial.

Among the categories of metrics, participants from most industries identified financial metrics most often as important or very important to their role in their business. Government was one of three that placed cost metrics first (for 58%), with operational metrics (56%) and financial (52%) following. These choices are understandable for this sector; holding down costs and keeping things running are perpetual concerns. Also reasonable is the rating of sales (13%), an irrelevant factor

as the least important metrics. The category that finished last for nearly all other industries, sustainability, was chosen by 21 percent of government participants and placed ahead of five others, its highest ranking in any industry; this currently is more of an issue in governments than in private companies.

In our research on the importance of the types of data that underlie metrics, employee (62%), financial (60%) and customer (60%) data topped the list; these were the only types chosen by more than 36 percent of government organizations. Two-thirds of participants in IT chose employee and customer data as the top two, while those on the business side ranked financial first. Executives rated customer data (79%) well ahead of financial and employee (64% each). Regardless of the type, users need important data to be integrated efficiently into their business analytics, but the research indicates that government organizations face impediments: More than two-thirds (69%) spend most of their time in unproductive tasks – waiting for data, preparing data and reviewing it for quality and consistency. Complicating integration is the finding that more than just traditional data from databases is important: text, unstructured data, events and even voice recordings have become needed input for business analytics.

Business analytics users in government require flexible, capable tools.

The research investigated from several perspectives the qualities government organizations seek in business analytics. Of the seven categories of product and vendor considerations we use to evaluate analytics products, organizations ranked usability highest, with 47 percent rating it very important. At least 40 percent each rated reliability, functionality and manageability very important. Even the lowest-ranked factor – vendor validation – was considered important or very important by three-fourths of the participants. That the least important category is validation of vendor references, viability and commitment suggests one of two possibilities: that users generally assume vendors are viable and stand by their software or that they have become wary of vendor references and do not consider them reliable.

Usability stands out as the most important of seven categories of consideration in selecting business analytics because companies deploy software to "do something." This is more or less the case regardless of company size, industry, individual role or functional area. Government organizations rated reliability second-most important, perhaps because they use systems for longer than the private sector. Ranking next most important is functionality. To be usable and functional, analytics systems also must have the right presentation components; while charts, reports and tables are the presentation vehicles most often selected, documents, visualizations such as gauges and sliders, Web pages, maps and text were also identified as important by one-third to one-half of these organizations.

Analytics tools must support a range of roles in a government organization.

The benchmark research examined analytics needs in the lines of business as well as by analysts in this sector. Much of analytics use is to measure and monitor specific conditions; doing so can, for example, enable management by exception. Such periodic, repetitive analyses (in contrast to one-off data discovery efforts) are fundamental to deriving value from data. Not surprisingly, then, the research finds that for most industries the most important capability for an analytics system is to make it possible to search for specific existing answers; this was rated very important by one-third of participants and important by another half across all

sectors. For government, however, the most important capability is to be able to publish analytics and metrics (chosen by 32% vs. 29% for search); this is consistent with government's mission to inform the public and with its need for transparency. The third-most frequently chosen capability is to explore data underlying analytics, deemed very important by 28 percent. Rated of least importance was to access analytics and metrics via a mobile device, selected as very important by just 13 percent and important by 24 percent; we anticipate that this will grow in importance as more users come to rely on these devices to do their jobs, though it may be less critical in an industry sector that lacks sales forces.

Analysts need more sophisticated analytics. All of the nine capabilities we suggested were rated important or very important by analysts in at least half of government organizations. The most important, with more than one-third (37%) rating it very important, is being able to source data for the analytics; without this capability it's difficult to put together meaningful analytics. Equally highly rated in government was to be able to generate presentations and other analytics outputs for review (also 37%), which is consistent with the need to publish analytics and metrics and inform the public. The third choice was to be able to take action based on the outcome of the analytics (that is, to complete the cycle of measure, decide and act).

Business analytics should be more accessible in government.

Analytics are not always at hand when people need them, the research shows. Among all our research participants, only one-third of senior executives and one-fourth of vice presidents, directors and managers have them always available. While it is true that a large majority of executives have most of what they need, this is insufficient for optimally effective performance. All organizations pursuing excellence need programs and processes to continuously evaluate the adequacy of the analytics and metrics available to executives and managers and to quickly and efficiently address gaps that they find.

Government participants said making analytics more accessible is a priority: Almost nine in 10 regard making it simpler to provide analytics and metrics to those who need them as important or very important. The implication of this finding is clear: Government organizations must focus on making it easier for employees to access useful and relevant analytics and metrics. Those who have management-level job titles most often said this is very important (63% vs. 56% overall). The research found that the tools that are used most often for analytics are Microsoft Office and spreadsheets, which often produce individual silos of data and analysis.

Issues of timeliness and readiness impede productive use of business analytics and metrics in government.

Business analytics should be about determining what is happening and will happen to an organization. Unfortunately the research shows that people spend more time fiddling with data than analyzing it, in government as well as generally. Dividing the process into data preparation (waiting for data, preparing data and reviewing it for quality and consistency), data analysis and working with metrics, we find that the first takes the most time for more than three-fourths (77%) of government organizations. Another 4 percent spend most of their time grappling with not-easily accessible metrics. Less than one-fifth (18%) spend most of their time on the analysis portion of the cycle: assembling scenarios, trying to determine root causes and determining how changes will impact current business; this is 10 percent fewer

people than those in all industries combined who spend their analytics time productively. There was only a small difference in this pattern between those who spend 75 percent or more of their time working with analytics and those who spend less. If these issues could be addressed, the amount of time people work with analytics could be reduced; currently 56 percent are spending more than 25 percent of their time with them.

The time required to prepare data for analytics is not the only challenge the research found. The timeliness of the data to which analytics are applied is critical if organizations are to be able to discover and act on metrics and key indicators to improve the performance of processes and people. Even though more than one-third (37%) of government organizations work with data that they receive in real time or close to real time, more than half (52%) said that some or most of the data is stale or outdated. Time is the enemy of data and business effectiveness. If it takes too long to produce or present the data needed to do analyses and assessments, the results will have less relevance and credibility. Similarly critical is the accuracy of the data, which if it is dubious will require more time to review and ensure consistency and quality. The challenge here also is similar: 31 percent said the data they use for business analytics is accurate, while more than half (58%) characterized it as only somewhat accurate or somewhat inaccurate. In other words, it falls short of what it should be: utterly reliable. While it's hard to gauge the seriousness of the accuracy shortfall, persistent small errors in data detract from the perceived validity of assessments and leave room to argue that the data, not the performance it measures, is at fault.

Spreadsheets are not appropriate for business analytics in government.

Spreadsheets are ubiquitous, and the research shows that along with business intelligence technologies (for querying, reporting and performing analysis) and analytic warehouses and databases, they are the tools most commonly used to generate analytics. The research found that Microsoft Office, with its spreadsheet, presentation and electronic mail components, is used for business analytics in two-thirds of government organizations. In addition spreadsheets are used universally in 43 percent and regularly in as many (44%) of them.

However, our analysis shows that organizations that use spreadsheets least have more accurate, timely data and deliver periodic reports about 30 percent sooner. This finding leads us to repeat one of our most persistent admonitions: While spreadsheets are appropriate for ad-hoc analysis and for information used by a limited number of people, organizations must limit their use of them as data stores and for repetitive analyses, particularly in cases where the results are reported to and used by more than a few people. Although many people are comfortable with spreadsheets, their failings, limitations and necessary work-arounds undermine the needs identified by this research to simplify analytics and metrics and ensure technology usability in for the process of producing business analytics within government.

In government, IT and the lines of business sometimes work together on analytics.

The research found that most people who have primary responsibility for designing and deploying analytics typically have experience with sophisticated tools. In more than half of government organizations (54%) analytics are designed and deployed by

the business intelligence or data warehouse team or by general IT resources. Line-of-business (LOB) analysts are involved in more than one-third of companies; 22 percent use LOB analysts alone and another 16 percent have IT analysts and LOB analysts collaborate. Fewer than one-tenth go outside the company, using external LOB consultants (7%) or outsourced IT resources (only 1%). This pattern validates our conclusion that a deep understanding of a company's specific operations and requirements is critical to the analytics creation process.

The research also finds less cooperation of business analysts with IT in business analytics for government than in industries overall. In 26 percent of these organizations (as compared to 30% in all industries) the two work together to design and deploy analytics, while business units do that for themselves in 42 percent (vs. 29 percent overall). In the process of making new analytics available, only 21 percent will have the IT organization alone build them. Purchasing prebuilt analytics could be a quick way to deploy analytics when resources are scarce, but only 11 percent plan to do that. In government organizations the general business budget provides the funds for analytics technology investment much more often than in industries overall (63% vs. 42%); a distant second is the business IT budget (16%), while only 5 percent use the general IT budget.

Predictive and forward-looking analytics should have higher priority in government.

Technology has advanced to a stage where it is feasible to enable a variety of users to harness the potential that predictive analytics offer. Yet predictive analytics are not high-priority analyst capabilities for the lines of business, nor are what-if and planning-based analytics. Exceptions were contact centers, in which predictive analytics ranked second-most important, and supply chains, where they are third-most important. Some industries (for example, telecommunications, medicine and financial services) and some roles (such as IT or R&D) are heavier users of these analytics, but even there no more than 20 percent said they employ them. Finance departments are the least likely to use predictive analytics, even though they could be widely applicable within this function.

In government predictive analytics ranked higher than overall among analyst capabilities (in fourth place, very important to 26%) but are actually used by only 12 percent, the least of all. What-if and planning-based analytics ranked next-to-last in important analyst capabilities. Both of these types of forward-looking analytics could help advance maturity in business processes. These findings contribute to the prevalence of immaturity our Maturity Index analysis found in government organizations.

Although organizations in government realize they need to improve business analytics, many are not ready to act.

Overall, only about one-third (34%) of government organizations are satisfied with their current analytics efforts. Moreover, 71 percent of executives in this sector said that their company can significantly improve its use of analytics and performance indicators. Organizations that have issues with the timeliness and accuracy of their data are more likely to say that improvement is necessary, and that their efforts to do a better job must address these issues and their underlying causes. Yet while half of government organizations recognize a need to make changes, just one-fifth are planning to make them in the next 12 to 18 months. Another 30 percent

acknowledge the need to make changes but don't view this as a sufficiently high priority on which to take action. We discern some unwarranted complacency in these findings. While government organizations consistently score lower in maturity and analytics capabilities, they are more often satisfied with or at least accepting of the status quo.

The research shows that the most significant barriers to making changes in analytics are fundamental: lack of resources, no budget, a business case that is not strong enough and too low a priority assigned to the effort. In our experience these barriers are interrelated: Failure to provide a compelling business case results in a project receiving a low priority and therefore not being allocated the resources or budget sufficient to implement the changes. Resources must be adequate to enable investment in technology to make analytics easy to access and use; lack of resources is the foremost process and technology barrier in half of the lines of business. Driving change and addressing barriers require understanding the benefits of investments; the research found that the factors most often driving change in government organizations are seeking to improve operational efficiency (in 65%) business processes (60%) and decision-making (55%).

Cloud computing is on the rise for business analytics in government.
Installation on-premises remains the most popular option for deploying business analytics in government, with more than half of organizations (56%) preferring this method to purchase and maintain them. However, the research found a significant preference (of 23%) for software as a service (SaaS), an on-demand approach commonly called cloud computing. Only 3 percent prefer software hosted by the supplier, but 17 percent expressed no preference for any of these approaches and so may be open to new methods to acquire business analytics. We conclude that SaaS is no longer a marginal preference and can provide affordable, rapid deployment to enable any size of government organization to gain access to business analytics. Participants with IT titles in this sector prefer on-premises significantly more often than business people do (61% vs. 53%); IT groups traditionally have wanted systems installed under their control. However IT also prefers SaaS slightly more often than business (25% vs. 22%). Analyzed by size of organization, midsize and large ones insisted most often on on-premises while very large government agencies were much more willing to consider SaaS (38% vs. 23% of all sizes).

What To Do Next

Participants in this benchmark research expressed a number of common concerns regarding the need for and use of business analytics. The metrics they most often identified as important across their varying roles span the core categories of cost, operations and financial. The research makes clear that many are concerned about how well they handle them; fewer than half (43%) of government participants are satisfied with their current analytics efforts. For government organizations wishing to improve their performance through business analytics, we offer the following recommendations.

Assess the maturity of your business analytics.

This benchmark research found that government organizations are held back in the maturity of their business analytics by a variety of factors. The Ventana Research Maturity Index places only 7 percent of them at the highest Innovative level in their use of analytics, and more than two-thirds (69%) are in the bottom half of the maturity hierarchy. In people-related issues our analysis identified lack of skilled resources and lack of executive support. Process-related issues include taking longer than a week to provide metrics from analytics, formally reviewing metrics no more often than quarterly or annually and low prioritization and lack of budget. In information-related issues that negatively impact business analytics use, the research identified stale, outdated and inaccurate information as well as failing to prioritize basic informational needs. In the category of technology the research found immature technology that is not working, unsophisticated technology that is known to be ineffective and a failure to prioritize forward-looking and predictive analytics. These shortcomings all impede a government organization's effectiveness and performance and all need to be addressed. We advise those seeking to mature in business analytics to take a thorough and balanced approach to their people, process, information and technology issues.

Look for business analytics tools that are easy to use and flexible.

The research investigated qualities government organizations seek in business analytics. Of the seven product and vendor considerations we use to evaluate analytics products, these organizations ranked usability highest, with 47 percent rating it very important. At least 40 percent each rated reliability, functionality and manageability very important. Even the lowest-ranked factor – vendor validation – was considered important or very important by three-fourths of the participants.

Usability and functionality – that is, business capabilities – stand out as important considerations in selecting business analytics regardless of company size, industry, individual role or functional area. These should be central focuses in evaluating tools, as is reliability in the government sector. To be usable and functional, analytics systems must provide a range of options for how to include the information in presentations, and these are increasing; government participants indicated an interest most often in the standard charts, reports and tables, but documents, visualizations such as gauges and sliders, Web pages, maps and text were also identified as important by one-third to one-half of these organizations. Determine which of these are important to you today and may be tomorrow.

Look for tools that support a range of roles in your government organization.

The benchmark research examined analytics needs of people in the lines of business as well as analysts in government. For them, the most important capability for an analytics system is to be able to publish analytics and metrics (chosen as very important by 32%), followed by making it possible to search for specific existing answers (29%). The third-most frequently chosen capability is to explore data underlying analytics (28%). The participants rated similarly (21% to 26% deemed them very important) three other capabilities: to set alerts and thresholds; to collaborate in the review of analytics; and to explore data by working with maps, charts and tables. When you evaluate products, ask about these capabilities for business users and also about the more sophisticated analytics needed by your analysts. The most important capability for them, rated by more than one-third as very important, is being able to source data for the analytics; without this capability it's difficult to put together meaningful analytics. Equally highly rated in government was to be able to generate presentations and other analytics outputs for review (also 37%), which is consistent with the need to publish analytics and metrics. The third choice was to be able to take action based on the outcome of the analytics (that is, to complete the cycle of measure, decide and act).

Ensure that business analytics are widely accessible.

Analytics are not always at hand when people need them. Among all our research participants, only one-third of senior executives and one-fourth of vice presidents, directors and managers have them always available. While it is true that a large majority of executives have most of what they need, this is insufficient for optimally effective performance. Almost nine in 10 government organizations regard making it simpler to provide analytics and metrics to those who need them as important or very important. Executives and management most often said this is very important (63% vs. 56% overall). We urge such companies to focus on making it easy for employees to access relevant analytics and metrics. In your efforts to improve accessibility of analytics and metrics, keep in mind that doing this from mobile devices such as smartphones and tablet computers will only increase in demand; already more than one-third of participants said this is important or very important.

Don't let inferior data undermine use of business analytics and metrics.

Business analytics should be about determining what is happening and will happen to an organization. But the research shows that people spend more time preparing data than analyzing it. In more than three-fourths (77%) of government organizations they spend the most time waiting for data, preparing data and reviewing it for quality and consistency. Conversely less than one-fifth (18%) spend most of their time on true analysis processes such as assembling scenarios, trying to determine root causes and determining how changes will impact current business. If these preparation obstacles could be addressed, the amount of time people work with analytics could be reduced; currently 56 percent are spending more than 25 percent of their time with them.

A related issue is the timeliness of the data to which analytics are applied. It is encouraging that more than one-third (37%) of government organizations work with data that they receive in real time or close to real time, but in more than half (52) some or most of the data is stale or outdated. Analyses and assessments based on such data will have less relevance and credibility. Similarly critical is the accuracy of

the data; if it is dubious more time will be required to review it and ensure consistency and quality. While 31 percent said the data they use for business analytics is accurate, more than half (58%) characterized it as only somewhat accurate or somewhat inaccurate. Take steps to ensure that your source data for analytics is both fresh and correct; if it isn't, you risk undermining the use of metrics and KPIs as business improvement tools.

Replace spreadsheets as tools for business analytics.

Spreadsheets are well-established as a tool for analysis in organizations of all kinds and sizes, but they are ineffective for repetitive analyses shared by more than a few people. Yet the research shows that along with business intelligence technologies (for querying, reporting and performing analysis) and analytic warehouses and databases, spreadsheets are the tools government uses most commonly to generate analytics. Indeed, spreadsheets are used universally in 43 percent and regularly in 44 percent of these organizations. While they may be familiar, our research shows that organizations that use spreadsheets least have more accurate, timely data – and they deliver periodic reports about 30 percent sooner. This and similar findings lead us to urge all organizations to limit the use of spreadsheets as data stores and for repetitive analyses, particularly in cases where the results are reported to and used by more than a few people. Their failings, limitations and necessary work-arounds undermine the needs identified by this research to simplify analytics and metrics and ensure technology usability in the process of producing business analytics.

It helps when IT and the lines of business work together on analytics.

The research found that most people who have primary responsibility for designing and deploying analytics have experience with sophisticated tools. In more than half of government organizations (54%) analytics are designed and deployed by the business intelligence or data warehouse team or by general IT resources. Line-of-business (LOB) analysts are involved in more than one-third of companies; 22 percent use LOB analysts alone and another 16 percent have IT analysts and LOB analysts collaborate. The research also finds some cooperation of business analysts with IT in analytics. In 26 percent of organizations the two work together to design and deploy analytics, while business units do that for themselves more often (42%). Investigate working relationships between those on the business side and IT and explore how strengthening them can help make your analytics more useful.

Understand the value of predictive and forward-looking analytics.

Predictive analytics can give a business glimpses of what may happen, the consequences of actions and scenarios for how to respond to change. Technology has advanced to a stage where it is feasible to provide them to a variety of business users. Yet the research shows predictive analytics are not yet high-priority analyst capabilities for the lines of business (LOB), nor are what-if and planning-based analytics; each is deemed very important by less than 30 percent in the LOBs. Exceptions were contact centers, in which predictive analytics ranked second-most important, and supply chains, where they are third-most important. Finance departments are the least likely to use predictive analytics, even though they could be widely applicable within this function. Both of these types of forward-looking analytics can help advance maturity in business processes; consider what they could do for your organization.

Address barriers standing in the way of improving business analytics and performance.

The research shows that the most significant barriers to making changes in analytics are fundamental: lack of resources, no budget, a business case that is not strong enough and too low a priority assigned to the effort. In our experience these barriers are interrelated: Failure to provide a compelling business case results in a project receiving a low priority and therefore not being allocated the resources or budget sufficient to implement the changes. Resources must be adequate to enable investment in technology to make analytics easy to access and use; lack of resources is the foremost process and technology barrier in half of the lines of business. Driving change and addressing barriers require understanding the benefits of investments; the research found that the factors most often driving change in government organizations are seeking to improve operational efficiency (in 65%), business processes (in 60%) and decision-making (55%). Demand that vendors show how their products deliver clear benefits such as these and address issues such as total cost of ownership and return on investment that can help lower the barriers in your organization.

Consider cloud computing for deploying for business analytics.

More than half of government organizations still prefer on-premises deployment for business analytics, but the research found that nearly one-fourth (23%) prefer software as a service (SaaS), an on-demand approach commonly called cloud computing. Only 3 percent prefer software hosted by the supplier, but 17 percent expressed no preference for any of these approaches and so may be open to new methods to acquire business analytics. SaaS can provide affordable, rapid deployment to enable any size of organization to gain access to business analytics. We advise you to evaluate it if your organization is looking to avoid the effort and expense of having in-house technology resources manage your business analytics.

How Ventana Research Can Help

Ventana Research helps organizations develop, execute and sustain business and technology programs that align people, processes, information and technologies essential for success. As an objective and trusted advisor, we are your insurance that your business and IT initiatives deliver both immediate and long-term improvements to your business.

We offer a variety of customizable services to meet your specific needs including workshops, assessments and advisory services. Our education service, led by analysts with more than 20 years of experience, provides a great starting point to learn about important business and technology topics from compliance to business intelligence to building a strategy and driving adoption of best practices. We also offer tailored assessment and benchmarking services to help you connect the business and technology phases of your project by leveraging our research foundation and methodologies. And we can provide Ventana On-Demand access to our analysts on an as-needed basis to help you keep up with market trends, technologies and best practices.

Everything at Ventana Research begins with our focused research, of which this report is a part. We work with thousands of organizations worldwide, conducting research and analyzing market trends, best practices and technologies to help our clients improve the efficiency and effectiveness of their organizations.

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Individual membership: For business and IT professionals* interested in full access to our Web site and analyst team for themselves. The membership includes access to our library of hundreds of white papers and research notes, briefings and telephone/e-mail consulting sessions to provide input and feedback.

Team membership: For business and IT professionals* interested in full access to our Web site and analysts for a five-member team. The membership includes access to our library of hundreds of white papers and research notes, briefings, telephone/e-mail consulting sessions to provide input and feedback and the use of Ventana Research materials for business purposes.

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To learn more about Ventana Research services – including workshops, assessments and advice – please contact clientservices@ventanaresearch.com.

* _Additional services are available for solution providers, software vendors, consultants and systems integrators._

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Ventana Research is the most authoritative and respected benchmark business technology research and advisory services firm. We provide insight and expert guidance on mainstream and disruptive technologies through a unique set of research-based offerings including benchmark research and technology evaluation assessments, education workshops and our research and advisory services, Ventana OnDemand. Our unparalleled understanding of the role of technology in optimizing business processes and performance and our best practices guidance are rooted in our rigorous research-based benchmarking of people, processes, information and technology across business and IT functions in every industry. This benchmark research plus our market coverage and in-depth knowledge of hundreds of technology providers means we can deliver education and expertise to our clients to increase the value they derive from technology investments while reducing time, cost and risk.

Ventana Research provides the most comprehensive analyst and research coverage in the industry; business and IT professionals worldwide are members of our community and benefit from Ventana Research's insights, as do highly regarded media and association partners around the globe. Our views and analyses are distributed daily through blogs and social media channels including Twitter, Facebook, LinkedIn and Business Week's Business Exchange.

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