



VENTANA RESEARCH



Information Optimization

Techniques for Gaining Full Value
from Business Information

White Paper



Sponsors

December 2013



Ventana Research performed this research to determine attitudes toward and utilization of techniques to optimize information. 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 information optimization practices and needs and potential benefits. It is not intended for use outside of this context and does not imply that organizations are guaranteed success by relying on these results to improve information optimization. Moreover, gaining the most benefit from information optimization requires an assessment of your organization's unique needs to identify gaps and priorities for improvement.

The full report with detailed analysis is available for purchase. We can provide detailed insights on this benchmark research and advice on its relevance through the Ventana On-Demand research and advisory service. Assessment Services based on this benchmark research also are available.

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 information management, and that the analysis and conclusions are entirely our own.

Ventana Research
2603 Camino Ramon, Suite 200
San Ramon, CA 94583-9137
info@ventanaresearch.com
(925) 242-2579
www.ventanaresearch.com



Table of Contents

Executive Summary 5

Key Insights 11

- Organizations are maturing unevenly in information optimization. 11
- Simplifying access to information is as important as analytics in improving decision-making. 12
- The increasing number of information sources is stressing processes that already require significant time. 12
- Many organizations aren't satisfied with their information processes and systems. 13
- Timely integration of information increases satisfaction with tools. 14
- Organizations often manage information informally. 14
- SQL is still a standard interface, but newer standards are becoming widespread. 15
- Technology use for information deployment and presentation is fragmented. 16
- IT groups have a key role in improving information availability. 17
- Big data is increasingly being used for information optimization. 17
- Collaboration tools and activities must be included in information optimization. 18
- Mobile technology also will impact efforts to optimize information. 19
- Diverse usage pressures vendors to make technology more usable and meet more user requirements. 20
- Gaining operational efficiency and competitive advantage are driving information optimization. 21

10 Best Practice Recommendations 22

- Realize that simplifying access to information is as important as analyzing it. 22
- Keep goals in mind when deciding how to make changes in information systems. 22
- Take account of the impact of increasing information sources on your processes and systems. 22
- Question whether you should be managing information informally. 23
- Include newer standards and big data in your information efforts. 23
- Be systematic about technology use for information deployment and presentation. 23
- Recognize the role and needs of IT groups while helping them help business users. 24
- Note that timely integration of information increases satisfaction with tools. 24
- Look for tools that rate highly in usability. 24
- Make collaboration and mobility part of your information optimization strategy. 24

About Ventana Research 26

Appendix: About This Benchmark Research 27

- Methodology 27
- Qualification 27
- Demographics 28
- Company Size by Workforce 29



Company Size by Annual Revenue 29
Geographic Distribution 30
Industry 30
Job Title 31
Role by Functional Area 31



Executive Summary

Without the right information available to all the right people at the right time, organizations today cannot make the right decisions – the decisions needed to compete effectively and to prosper. To have the right information available, they must ensure that they can turn content and data into information that is timely and ready to use. To do this is challenging, however. Businesses are amassing more data than ever before, in more variety, and both the volumes of it and the velocity at which it arrives continue to grow, with no end in sight.

Organizations need to be able to access and present it in ways simple and flexible enough for anyone to use it without training or assistance

from others. Turning all the data that's needed into information that analysts can derive insights from and decision-makers can be confident in is the main purpose of information optimization.

Optimizing information is essential to business success, but this advanced phase of information management is still evolving, at least as far as most businesses are concerned.

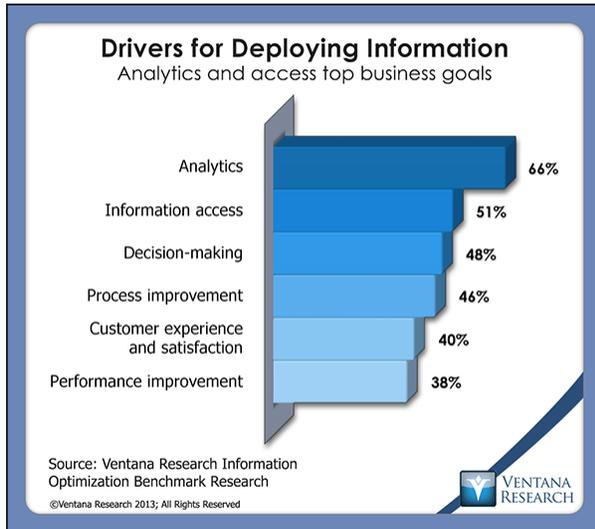
This advanced phase of information management is still evolving, at least as far as most businesses are concerned. Ventana Research undertook this benchmark research to determine the attitudes, requirements and future plans of those who engage in information optimization and to identify the best practices of organizations that are most mature in it. We set out to examine both the commonalities and the qualities specific to major industry sectors and

sizes of organizations. We considered how organizations optimize their information, issues they encounter in the process and the technologies they use to achieve it.

In this largely technical effort it is not surprising that, among the four dimensions our Maturity Index analyzes, the research finds participating organizations to be most mature in Technology and Information and least mature in People and Process. To put it simply, technology and information sources have developed faster than organizations can modernize their processes and provide the skills that people need to take full advantage of them.



Information access is an essential early step in information optimization. Nearly all participants in this research said that it is important or very important to simplify information access for both their business and their customers.



Yet information access ranks only second (important for 51%) among the needs that are driving deployments of information-related systems and applications; substantially more (66%) chose support of analytics.

Interestingly, the business goals of improving decision-making and the customer experience and satisfaction ranked third and fifth. This finding suggests that many organizations view information optimization as a technical matter not directly linked to

their performance and business results. In our view, such a mindset could keep them from making the people and process improvements our maturity analysis shows are necessary for better, more mature performance.

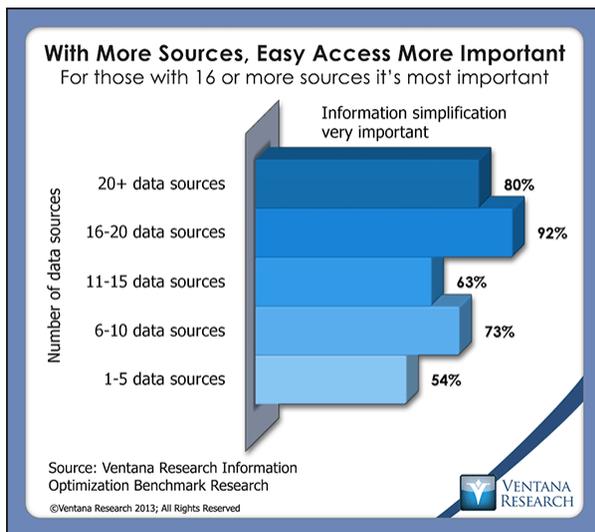
Reinforcing this view, the research also shows that two out of five (42%) organizations are not satisfied with the current processes they use to create information, almost as many as said they are satisfied with their processes. Two-thirds manage their information assets using a custom internal process; such processes often are rigidly built and hard to adapt to changing needs, which likely adds to frustration with them.

The research finds discontent as well with the technology being used to provide information: Twice as many organizations are only somewhat satisfied with it as are satisfied. Three-fifths use an application such as CRM or ERP to manage their information assets, and 48 percent use a business intelligence platform. Designed for other purposes, these systems are of limited help in optimizing information. Instead we recommend formally embracing information optimization as an initiative and deploying tools dedicated to it.



Ensuring easy access to information requires as a prior step data integration – formatting data from disparate sources in ways that users want and can work with. This research shows that half of organizations must integrate disparate data sources at least once a day, and some must do so multiple times each day. In a related finding, the most common complaints voiced about technology now being used are that it lacks capabilities to normalize information from disparate sources and makes it difficult to do integration across the business.

The challenges associated with both access and integration are intensified by the number of data sources businesses must deal with



now. More than 40 percent of organizations in this research must integrate data from six to 20 sources, while one-fifth must do so for more than 20 sources. Our analysis suggests that the pressure increases with the number of sources: Those that have the most sources were most insistent that it is very important to simplify information access.

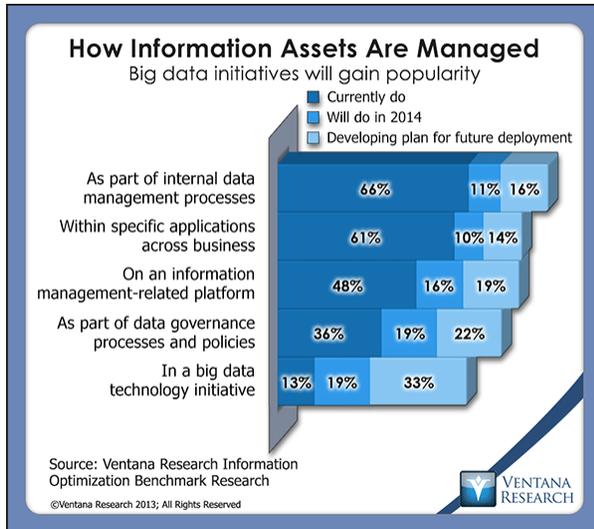
Difficulties in making information suitable for use contribute to the challenges of optimizing it. The

research shows that people spend the largest portions of their time not in deriving business value from information by interpreting or presenting it but in preparing data, assuring data quality and waiting for analysts to assemble information. The time and effort these tasks require impede productivity and degrade the immediacy of business information. And, ironically, the larger the volume of diverse data that must be processed, the more time that is required to standardize it.

As they seek to retain their agility in the face of this flood of data, more organizations are turning to big data systems that can process and analyze large volumes rapidly. Of those participating in this research, more than half of organizations currently use big data technologies, and another one-fourth plan to use it within the next 12



months. The research also finds that while big data currently is used less often than other technologies to manage information assets, it ranks first for implementation in 2014 and in planning for future deployment.



Organizations attempt to manage big data with various tools. Currently more than half use legacy approaches, most often relational databases and flat files. These we believe will not be up to the test as volumes continue to grow. More advanced technologies are less often used, although nearly half rely on data warehouse appliances. For those that will begin to manage big data within 12 months the top choices are Hadoop (24%) and in-

memory databases (23%).

Despite the current environment of unprecedented proliferation of information types, the research finds structured data sources remain central for business; for example, most participants ranked transaction data first or second in importance to them among data types. Correspondingly, they most often named SQL as a critical technology standard to have in an information platform. More interesting is that 40 percent or more said HTML5, Java and XML are critical; this reflects the proliferation of unstructured data in various forms that must be integrated with structured types. In particular, two-thirds of organizations said it is important to integrate customer data of whatever kind with business applications.

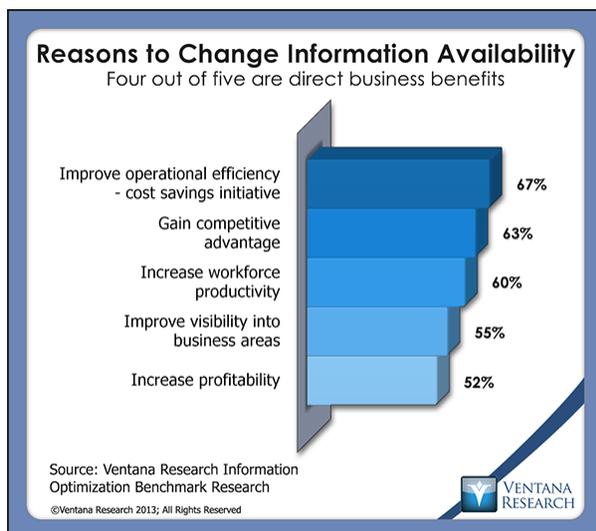
Adding further complexity are two innovative technologies widely accepted by consumers and fast gaining popularity for business use: social collaboration and mobility. More than half of research participants said business and social collaboration is important for improving their use of information, and 40 percent said the same about mobile technology. As with big data tools we find current use lacking advanced practices: The most important internal collaboration tools now are email and file sharing. However, social collaboration, which includes activity streams, broadcasts, discussion forums and



wall posting, ranked third, another indicator of organizations moving toward more innovative systems for making use of their information.

Regarding mobility, nearly half of organizations have used mobile devices for more than a year to access and deploy information and an additional one-fourth began using them within the past year; none said they won't use mobile tools. Almost as many use tablets (63%) as smartphones (67%), and more than half use both to access information. The Apple and Android operating systems are dominant.

The research indicates that most organizations are trying to maximize the value they derive from their business information. Today's dynamic data environment and intense competition are motivating many to change the way they design and deploy information: Four out of five



are making such changes now or plan to make them; more than half of the very large ones already are making changes.

Of the three most frequent reasons for changing the way they design and deploy information, each cited by about two in three organizations, one is operational (increasing efficiency and reducing costs) and the others are performance-related (gaining a competitive advantage and increasing workforce productivity). To make the changes, half plan to have business

analysts work with their IT group to design and deploy systems while one-fourth will leave the job to IT.

As noted, information optimization is a technical undertaking, but it's one in which business people must participate for it to succeed. The burden of ensuring this can be eased by making sure new systems are not only highly functional and scalable but also easy to use. Our research shows that organizations' most important software evaluation criteria are usability (very important for 58%), reliability (54%) and capability (51%). Notably, those in business roles placed even more emphasis on usability. For end users the most valued capabilities are



to be able to drill down into data, search for specific information and collaborate on information. On the administrative side the capabilities most often called very important are to integrate into security and access frameworks, to define, model and lay out information and to integrate into operational systems. And the research shows that analysts need most to be able to extract data from multiple source systems, design and integrate metrics, and develop policies and rules for access to information.

To assure that they meet all of these requirements, organizations must involve all stakeholders in the evaluation process and implementing the systems they choose. Only then are they likely to reach the goal of optimizing information and using it to direct decision-making that will result in optimal business results.



Key Insights

This benchmark research yielded the following important general findings and key insights regarding information optimization. (We discuss maturity levels in the Maturity Index portion of the full research report; the actual questions asked in our survey are in an appendix to the research report. Specifics of organization sizes are in the appendix "About This Benchmark Research.")

Organizations are maturing unevenly in information optimization.

Our Maturity Index analysis of this benchmark research places slightly more than half (52%) of participating organizations at the highest two levels of our four-level hierarchy. However, fewer than one in five reach the highest Innovative level. When we evaluated the data in terms of the four dimensions of maturity, significant differences emerged. More than half still reach the top two levels in the Technology (59%) and Information (51%) dimensions, but two-thirds of organizations rank at the two lowest levels for the People (65%) and Process (69%) dimensions. This is not surprising; technology innovations and new information sources have developed much more rapidly than organizations' abilities to modernize their processes and provide the skills that people need to take full advantage of those advances.

Technology innovations and new information sources have developed much more rapidly than organizations' abilities to modernize their processes and provide the skills that people need to take full advantage of those advances.



Analyses by company size and industry also reveal differences: Three in five very large companies as measured by number of employees reach the top two maturity levels, as do two-thirds of small organizations (which, however, accounted for only 13% of participants). In contrast, fewer than half of midsize companies make it to the top half and 37 percent of them are at the lowest Tactical level, a significantly higher percentage than any other size category. By industry sector, 30 percent of those in Finance, Insurance and Real



Estate (FIRE) and 21 percent in Services reach the Innovative level, compared to only 13 percent in Government, Education and Nonprofits and 10 percent in Manufacturing.

Simplifying access to information is as important as analytics in improving decision-making.

This research finds, somewhat surprisingly, that more organizations value analytics than decision-making or information access as an

It is important or very important to nearly all organizations to simplify information access for both their business and their customers.

important driver for deploying information through systems and applications. It is important or very important to nearly all (97%) organizations to simplify information access for both their business and their customers, yet information access ranks only second (important for 51%) among the needs that are driving deployments, behind analytics (66%). (The business goals of improving decision-making and the customer experience and satisfaction ranked third and fifth.) This suggests

that participants associate information optimization with the analysis of it. In our view businesses misplace the emphasis by focusing more on analytics than on the information that informs those analytics and impacts business results. Organizations should realize that effective use of analytics depends on the quality of information, ease of access to it and the decisions that information enables.

The increasing number of information sources is stressing processes that already require significant time.

It's no secret that information is proliferating throughout businesses. Nearly half (42%) of organizations in this research have six to 20 information sources they need to integrate, and one-fifth have more than 20 sources. Further analysis finds that the need to simplify information access correlates with the number of information sources; companies that have 16 or more information sources rated simplification very important (83%) more often than the average (69%). By industry Finance, Insurance and Real Estate (FIRE) has the highest concentration of information sources (53% claim 16 or more), while more than four out of five in Manufacturing and Government



have fewer than 16 sources. We conclude that while the proliferation of multiple information sources is a challenge for all businesses, those for which information *is* the business have more complicated environments and thus broader challenges than others.

The increasing number of data sources reflects a proliferation of new point tools, internal data stores, cloud applications and other new information sources. This growth contributes to the challenges of optimizing information by forcing people to spend the largest portions of their time not in interpreting the information (33%) but rather in the unproductive tasks of data preparation (47%), assuring data quality (45%) and waiting for analysts to assemble information (39%). Ironically, many of the point tools and cloud applications were introduced to simplify access to information, but now they are compounding the problem by increasing the number of data sources to be integrated.

Many organizations aren't satisfied with their information processes and systems.

Dissatisfaction with information creation processes is high, the research finds: Almost as many research participants (42%) said they are not satisfied with the current processes they use to create information as said they are satisfied (47%). The most common complaints are a lack of resources (cited by 63%), an inflexible process (50%) and a slow process (49%). Regarding the technology being used to provide information, more than half (53%) of organizations are only somewhat satisfied with it, twice as many as said they are satisfied. Executives reported more often than the average that they are satisfied with the technology, but they may be less involved with it than users, only 23 percent of whom are satisfied. Information-related technology and processes are entwined, of course, and the research findings reflect frustration concerning flexibility, timeliness and resources being allocated to address these issues.

Almost as many research participants said they are not satisfied with the current processes they use to create information as said they are satisfied.





Timely integration of information increases satisfaction with tools.

Faced with many new sources of information and needing to react competitively in their markets, organizations must be able to use information promptly. Doing so requires that they integrate it from those sources frequently. The research finds that 21 percent of organizations must integrate information from disparate sources multiple times each day, and 31 percent must do it daily. Further analysis shows that satisfaction with the software in use is highest among those that integrate on an hourly basis (39% vs. 26% on average). Moreover, causes of dissatisfaction are different for those that integrate on an hourly basis: Instead of timeliness of resources (43% vs. 51% on average) and flexibility of the system (29% vs. 51%), the major issues at this frequency are expense (43% vs. 37%) and lack of resources (71% vs. 63%)

We conclude that while the most frequent rate of integration addresses flexibility and timeliness issues, it comes with costs that organizations must consider.

More than 40 percent of participants said their technology lacks capabilities to normalize information from disparate sources and makes it difficult to do integration.

The two most common shortcomings of current technology identified in this research have to do with integration as well: More than 40 percent of participants said their technology lacks capabilities to normalize information from disparate sources and makes it difficult to do integration across the business and systems. Cloud computing is

adding to the challenge of integration, as nearly all organizations said it is very important (41%) or important (51%) to integrate these off-premises data sources with those in the enterprise.

Organizations often manage information informally.

In examining how organizations manage their information assets, we find that it often is still a custom process: Two-thirds (66%) rely on internal processes, 61 percent manage these assets within an application such as CRM or ERP, and 48 percent use a business intelligence platform. Moreover, fewer than one in five plan to change this within a year. It's not surprising then that the top barriers to



making changes in information-related technologies are lack of resources (for 56%), lack of budget (38%) and lack of a strong business case (30%). We assert that formal data integration initiatives provide a more efficient way to manage information assets and advise companies to find more flexible tools that can help them do this.

SQL is still a standard interface, but newer standards are becoming widespread.

The research finds that structured data sources are still at the core of business. Transaction data was ranked first or second in importance by most organizations, and analytics data from data warehouses received the second-most mentions. The dominance of structured data aligns

The need to integrate new data sources and platforms is reflected by the criticality of standards such as HTML5, Java, XML, Microsoft .Net and Ajax/JavaScript.

with the finding that organizations identify SQL (cited by 63%) as the most critical technology standard to have available in an information platform. However, also mentioned frequently is a second tier of data that includes external and less structured forms such as customer and partner data in the form of files and exports, information from content management systems, documents in formats such as Microsoft Word and Adobe Acrobat and text from documents and reports.

The need to integrate new data sources and platforms is reflected by the criticality of standards such as HTML5 (cited second-most often, by 54%), Java (43%), XML (43%), Microsoft .Net (35%) and Ajax/JavaScript (28%). It is important to note, however, that since SQL is still the primary data standard, many NoSQL developers are producing SQL access programs for less structured information. This helps address the so-called skills gap by enabling a simpler declarative language to take the place of more complex procedural forms of information access.



Technology use for information deployment and presentation is fragmented.

The research shows half a dozen technologies each in use for information deployment by more than one-third of organizations. The most often cited (by 59%) is business intelligence and analytics, followed by application servers or middleware (51%) and personal productivity tools such as Microsoft Office (49%). However, tool preferences vary according to the roles in the organization that use them. Business intelligence is mentioned more often by those in IT (68%) than by people in business (45%), who most often use office productivity suites.

The research shows half a dozen technologies each in use for information deployment by more than one-third of organizations.



A variety of tools also are in use to present information. At least two-thirds of organizations find it critical to have available charts (78%), tables (76%), documents (69%) and reports (66%). Executives more often than average said it is necessary to include documents (79%), text (74%) and images (65%). Because it is a standard that reflects these priorities, this may explain the strong backing of executives for HTML5 (71% vs. 62% across all roles), while users (75%) and management (62%) see SQL as the most important standard.

The research reveals a dynamic information environment with various standards and approaches for deployment. One area on which there is agreement, though, is a focus on customers: Customer data is an important type to integrate with applications for two in three (64%) research participants, followed closely by financial data (58%); about two in five said data dimensions, views and aggregations, content or text and metrics are important. Companies should pay attention to how various deployment options can integrate customer and financial data to improve organizational performance.



IT groups have a key role in improving information availability.

Organizations that are mature in the management of information view information availability as a cross-functional concern, one that involves roles in both IT and business. The research confirms that IT bears at

The research confirms that IT bears at least part of the responsibility for improving information availability through new tools and applications in 80 percent of organizations.



least part of the responsibility for improving information availability through new tools and applications in 80 percent of organizations. An even higher percentage of executives (87%) cited IT involvement, while management (32%) and users (18% vs. 12% of executives) more often said that only lines of business have primary responsibility for improving information availability. Echoing findings in our other research, this is evidence of business users working around IT to achieve their information objectives. While this may be feasible in some technology categories such as sales or visual discovery applications, it is much more difficult in information optimization, for

which responsibility is associated with IT (38%) twice as often as with any of the lines of business (18%). However, the largest percentage (42%) of participants said that IT and the lines of business share this responsibility. By industry sector Manufacturing involves IT almost always (96%), while FIRE relies more on the business side to take at least partial responsibility (68%).

Big data is increasingly being used for information optimization.

Big data systems are being adopted by organizations forced to deal with more information than ever. Participants in this research ranked big data third in importance among six important recent technology innovations, higher than its ranking of fifth in our research on business technology innovation. Only business analytics (important to 78%) and collaborative technologies (51%) outranked big data (41%) in this research. More than half (56%) of organizations currently use big data technologies, and another 23 percent plan to use it within the next 12 months.



To manage big data, most organizations currently use legacy approaches, specifically RDBMSs (73%) and flat files (58%). More advanced technologies – data warehouse appliances (49%), in-memory databases (31%) and specialized DBMSs (29%) – are less common. Hadoop (21%) currently ranks last in use but is the first choice (24%) of those that will begin to manage big data within 12 months; nearly as many will begin to use in-memory databases (23%). We take this as indicating that organizations will adopt more advanced tools to support their business objectives for big data. Yet we also find that while big data systems are making inroads, only one in four (26%) organizations are satisfied with their big data capabilities for creating and deploying information; almost half (45%) are only somewhat satisfied. Such feelings are likely to increase the impetus for adopting more effective systems.

Only one in four organizations are satisfied with their big data capabilities for creating and deploying information; almost half are only somewhat satisfied.



Collaboration tools and activities must be included in information optimization.

Ease of access to and presentation of information through collaboration tools are increasingly important. In this research business and social collaboration (important to 51% of participants) ranks second only to analytics (78%) as a technology to be used for improving the use of information. It is being used with business information in 62 percent of organizations, and 10 percent more plan to use it in the next 12 months. Yet the most widely used collaboration tools remain the traditional ones: Email (ranked first or second by 59%) and file sharing (49%) far outrank others. However, social collaboration finished third in number-one rankings (15%), and instant messaging and internal user groups and communities have moved ahead of enterprise portals and videoconferencing for collaborative activities. In specifically social collaboration activities, one in three organizations have implemented Twitter-like broadcast capabilities and 10 percent have plans to implement them in each of the next two years, but discussion forums are the hottest technology with 40 percent now using them and another 15 percent planning to implement them within 12 months. Companies likely prefer the control



offered by discussion forums, which may have a moderator to guide discussions and give structure to the group. Twitter-like capabilities, being more free-form and time-sensitive, can take on a more viral nature or be dominated by a few participants.

The pattern of how collaboration technology is made available is fragmented: More than one-third of organizations participating in the research each said that they want it embedded in other technology (44%), as a stand-alone application (42%), in productivity tools (36%) and in business applications (35%). These numbers for collaboration preferences are similar to those in our research on next-generation business intelligence except that business intelligence ranks higher in stand-alone deployment preference. Collaboration is a modern technology that became popular first among consumers, so companies likely do not have much of a vested interest in it as a separate application.

Mobile technology also will impact efforts to optimize information.

Two out of five research participants said mobile technology is important for improving the use of information in their organization, about as many as made the same statement about big data. Nearly half (44%) have used mobile devices for more than a year to access and deploy information and another one-fourth began using them within the past year; none said they won't use mobile tools. Nearly as many use tablets (63%) as smartphones (67%), and more than half (56%) use both to access information.

Nearly half have used mobile devices for more than a year to access and deploy information, and one-fourth began using them within the past year; none said they won't use mobile tools.



The research found no strong preferences for one mobile platform within organizations: 55 percent said they have a preference and 45 percent said they do not; similarly, 51 percent said they have a preference among smartphone platforms. These findings suggest that "bring your own device" (BYOD) remains a popular option.



Where there is a preference, the Apple operating system is more widely deployed than Android on both smartphones (59% vs. 24%) and tablets (71% vs. 13%). There is latent demand for adding Android support, however, with more than 40 percent considering it a second platform preference for smartphones and tablets. This trend may be influenced by the consumer market, where Android is now the dominant platform; we expect Android to increase in enterprise adoption. Microsoft and BlackBerry lag far behind Android and iOS, although Microsoft continues to invest in its mobile platforms as desktop systems wane in popularity in the enterprise as well as among consumers.

Diverse usage pressures vendors to make technology more usable and meet more user requirements.

In evaluating software, this research shows that organizations' most important criteria are usability (very important for 58%), reliability (54%) and capability (51%). Those in

The research examined usage by analysts, end users and administrators, as an information strategy must accommodate the needs of all three to deliver an optimal system.

business roles place even more emphasis on usability, but for information optimization, reliability, which includes components of quality and availability, must be a high priority as well. The research examined usage by analysts, end users and administrators, as an information strategy must accommodate the needs of all three to deliver an optimal system. Analysts, whose job it is to make sense of information, need most to be able to easily extract data from multiple source systems (very important for 39%), design and integrate metrics (37%) and develop policies and rules for access to information (34%). The ability

to apply analytics ranks only fourth (30%), which indicates that companies may be too focused on analytics instead of simplifying information.

For end users, the top requirements are to drill down into data (very important for 37%), search for specific information (36%) and collaborate on information (27%). From an administrative perspective, the capabilities most often cited as very important are to integrate into



security and access frameworks (37%), define, model and lay out information (33%) and integrate into operational systems (31%).

However, when we combine choices for important and very important, a different top set emerges: define, model and lay out information (79%), integrate with content and management systems (72%) and integrate with portals for operational use (71%). We believe that the three most often deemed very important constitute table stakes in optimizing information, whereas integrating with content management systems and with portals for operational use can be potential differentiators for organizations in using information effectively.

Gaining operational efficiency and competitive advantage are driving information optimization.

Overall, the research indicates that most organizations are not standing still in trying to optimize their business information. The dynamic environment and lack of standards uncovered here are not deterring them from changing the way they design and deploy information. Four out of five currently are making changes (43%) or plan to do so (37%). By size, it is very large organizations by number of employees (56%) that most often are making changes now.

Gaining operational efficiency and saving on costs (for 67%) and gaining a competitive advantage (63%) are the two most frequent reasons given for why an organization is changing how it designs and deploys information. To accomplish that change, a majority (52%) plan to have business analysts work with IT. Executives more often said that the IT organization will build the systems (42% vs. 27% of all roles) or that the organization will purchase a product (26% vs. 14%). This shows that if organizations are to build internally, executives expect IT to be the primary owner of the initiative. On-premises is still the preferred method of deployment for more than half (55%), more than twice as many as prefer on-demand software as a service (SaaS, 24%). These findings constitute evidence that companies wisely view information deployment from process and people perspectives as well as a technological one.



10 Best Practice Recommendations

This benchmark research reveals significant new insights into the evolving nature and use of information optimization processes and systems. For organizations considering how to optimize their business information, we offer the following recommendations.

1. Realize that simplifying access to information is as important as analyzing it.

Organizations must be able to get information easily to use it for making decisions, but more participants in this research said analytics is driving them to deploy information than is information access (66% vs. 51%, respectively). Understand that both are equally necessary, and remember that better decision-making is the ultimate aim for optimizing your use of information.

2. Keep goals in mind when deciding how to make changes in information systems.

About two-thirds of organizations in this research that are making changes or planning to make changes in the way they design and deploy information are doing that in hopes of gaining operational efficiency and saving on costs and gaining a competitive advantage. Remember your goals when deciding whether to build a new system internally or buy packaged software. Half of organizations plan to have business analysts and in-house IT build them. In your deliberations consider all the costs, including ongoing maintenance and staffing, and flexibility of the proposed system to meet your business needs.

3. Take account of the impact of increasing information sources on your processes and systems.

The size and scope of data are outgrowing the information management processes of organizations; most have at least six information sources they need to integrate, and some have 20 or more. As well, almost half aren't satisfied with the current processes they use to create information, which often are inflexible or slow. In planning your initiatives, assess the ability of systems to address time-consuming data integration and preparation tasks. Take care to



understand both process and technology issues that impact satisfaction, and include all stakeholders in the discussion.

4. Question whether you should be managing information informally.

The research shows that many organizations manage their information through informal processes driven by people rather than technology. We believe that this approach is insufficient to handle the growing challenges of information optimization. Examine tools that can automate information management tasks and overcome limits on resources including people and skills, which are major barrier to deploying new information-related technologies.

5. Include newer standards and big data in your information efforts.

Established structured data sources are still primary for organizations, but newer standards are gaining traction. Organizations should adapt their architectures to enable multiple types of data to coexist, in particular, those based on HTML5, XML and JSON. As well, consider tools that can manage the explosion of big data, such as data warehouse appliances, in-memory databases, specialized DBMSs and Hadoop. More than half of organizations currently use big data technologies, and one-fourth more plan to use it within the next 12 months, so don't be left behind.

6. Be systematic about technology use for information deployment and presentation.

Pay attention to how your organization assembles and consumes information. For information optimization in the context of the IT organization, focus on business intelligence systems, but for business users, provide office productivity tools. To align initiatives across roles, emphasize as unifying goals customer-oriented outcomes and integration of financial metrics, which represent the interests of all organizational stakeholders.



7. Recognize the role and needs of IT groups while helping them help business users.

■ Information availability is primarily the responsibility of IT, but the research finds organizations are more satisfied when business users are involved in it. Give IT the resources it needs for your information optimization initiative, but insist that it must work with business users to improve business decisions and time-to-value metrics that track end-user satisfaction.

8. Note that timely integration of information increases satisfaction with tools.

■ The research finds that half of organizations must integrate disparate sources at least once each day and that satisfaction with the software in use is highest among those that integrate most frequently. Focus on how to reduce the time allocated to data integration tasks, particularly manual data preparation and integration, to enable integration at whatever pace your business requires; doing so can enhance efficiency and free people for activities of more value to the business. If you are considering cloud-based systems, evaluate integration of such data with enterprise systems.

9. Look for tools that rate highly in usability.

■ Usability is rated by the largest percentage of research participants as an important criterion for evaluating software for purchase. Today's users of all types want tools that make it easy for them to do their jobs, and vendors increasingly are responding to this demand. Insist also on strong performance and a range of functionality, two other criteria very important to more than half of organizations.

10. Make collaboration and mobility part of your information optimization strategy.

■ The research shows that sharing information through collaboration tools is increasingly important. In developing your approach to information optimization, explore the role of collaboration and assess the ability of vendors to help you use collaboration tools to advance targeted outcomes. Most organizations prefer collaborative capabilities embedded in products standing alone. Mobile technology



also plays an important role in enabling access to information anywhere at any time, and it, too, should be part of your information optimization strategy. Make sure that vendors can accommodate the diversity of platforms among your users.



About Ventana Research

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 On-Demand. 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 [Google+](#).

To learn how Ventana Research advances the maturity of organizations' use of information and technology through benchmark research, education and advisory services, visit www.ventanaresearch.com.



Appendix: About This Benchmark Research

Methodology

Ventana Research conducted this benchmark research on the Web from March through August 2013. We solicited survey participation via email, our website and social media invitations. Email invitations were also sent by our media partners and by vendor sponsors.

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

Today's businesses can't function without information. Thus, organizations must do everything possible to ensure that they can turn content and data into information that is timely and ready to use. Ventana Research is conducting benchmark research to understand organizations' approaches to accessing and integrating information. Your participation in this research will provide valuable input on how companies can optimize their information and the technologies, standards and platforms in use and under consideration. Our research is designed to yield insights into best practices that may help your organization improve its operational performance.

The following promotion incented participants to complete the survey:

What's In It For You? Upon completion of the research, all qualified participants will receive a report on the findings of this benchmark research to support their organization's efforts, along with a \$5 Amazon.com gift certificate. In addition, all qualified participants will be entered into a drawing to win one of 25 benchmark research reports and a 30-minute consultation, a package valued at US\$1,495 or €1,232. Thank you for your participation!

Qualification

We designed the research to assess the use of and plans for spreadsheets across organizations and industries. Qualification to participate was presented to participants as follows:



The survey for this benchmark research is designed for business and IT managers who work with information management, access and integration or are involved in the purchase of technology for this area. Solution providers, software vendors, consultants, media and systems integrators may participate in the survey, but they are not eligible for incentives and their input will be used 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 email address that can be used for fulfillment of incentives.

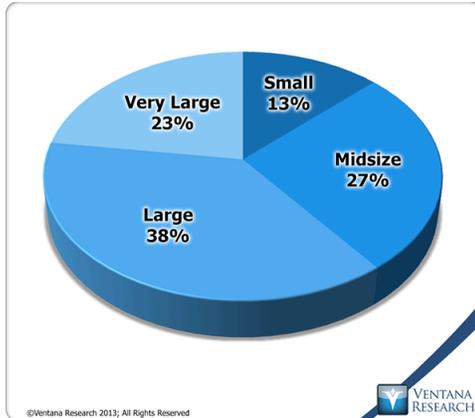
Further qualification evaluation of respondents was conducted as part of the research methodology and quality assurance processes. It entailed screening out responses from companies that are too small, questionnaires that were not materially complete, or those where the submission is from an inappropriate 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 organizations. We deemed 200 of those who clicked through to this survey to be qualified to have their answers analyzed in this research. In this report, the term “participants” refers to that group, and the charts in this section characterize various aspects of their demographics and qualifications.



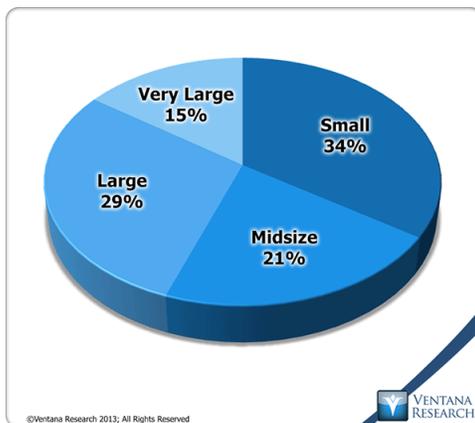
Company Size by Workforce



We require participants to indicate the size of their entire company. Our research repeatedly shows that size of organization, measured in this instance by employees, 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, participants represented a

broad range of organization sizes: 23 percent work in very large companies (having 10,000 or more employees), 38 percent work in large companies (with 1,000 to 9,999 employees), 27 percent work in midsize companies (with 100 to 999 employees), and 13 percent work in small companies (with fewer than 100 employees). This distribution is consistent with prior benchmark research and our research objectives and provides a suitably large sample from each size category.

Company Size by Annual Revenue

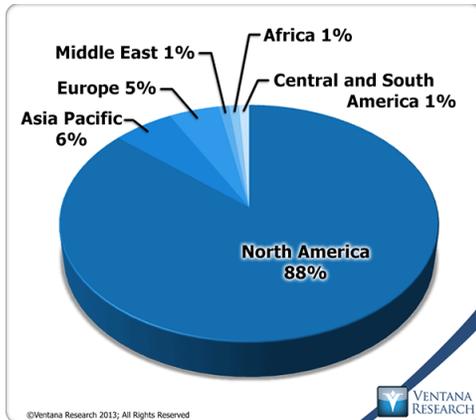


When we measured size by annual revenue, the distribution of categories shifted downward; fewer companies fell into the three largest categories and nearly three times as many are small. By this measure, 8 percent fewer are very large companies (having revenue of more than US\$10 billion), 9 percent fewer are large companies (having revenue from US\$500 million to US\$10 billion), 6 percent fewer are midsize

companies (having revenue from US\$100 to US\$500 million), and 21 percent more are small companies (with revenue of less than US\$100 million). This sort of redistribution is typical in our research projects when we measure by revenue instead of headcount.



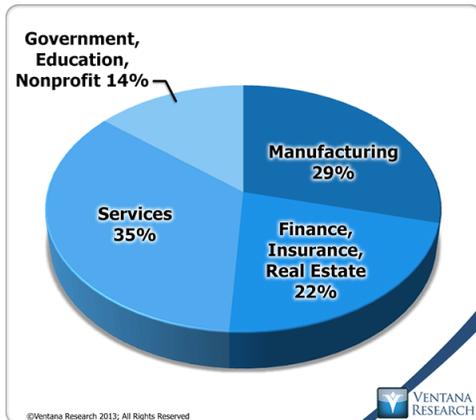
Geographic Distribution



A large majority (88%) of the participants were from companies located or headquartered in North America. Those based in Asia Pacific accounted for 6 percent, in Europe for 5 percent and in the rest of the world for 3 percent. 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.

However, many of these are global organizations operating worldwide.

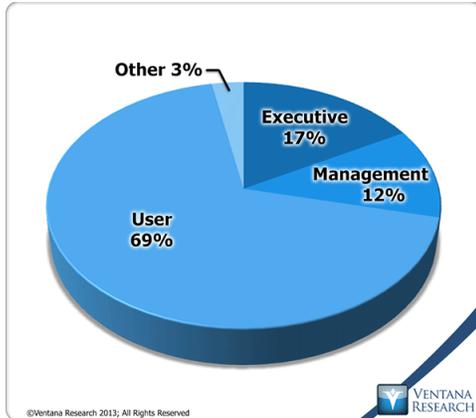
Industry



The companies of the participants in this benchmark research represented a broad range of industries, which we have categorized into four general categories as shown below. Companies that provide services accounted for 35 percent, those in manufacturing for 29 percent and those in finance, insurance and real estate for 22 percent. Government, education and nonprofits accounted for 14 percent.



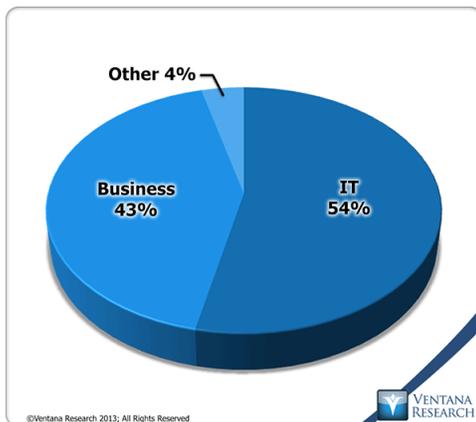
Job Title



We asked participants to choose from among 13 titles the one that best describes theirs. We sorted these responses into four categories: executives, management, users and others. Slightly more than two-thirds identified themselves as having titles that we categorize as users, a grouping that includes director (24%), senior manager or manager (27%), analyst (12%) and staff (7%). Fewer than one-

fifth are executives; the majority of them (11%) are CIOs. Another 12 percent are management, by which we mean vice presidents. Others, in this case consultants and teachers, accounted for the balance. 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. This enabled us to identify differences between participants who have differing roles in the organization. In this rather technical area more than half of the participants identified themselves as being in the IT function. The only line of business with more than 5 percent was finance or accounting, at 10 percent.