Service-Oriented Architecture for Business Intelligence

Trends, Needs and Practices

Executive Summary
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Ventana Research performed this research for a fee to determine the needs and practices of organizations that use or intend to use a service-oriented architecture (SOA) for business intelligence (BI). This document is based on our research and analysis of a quantitative survey administered via the Web to qualified respondents. Qualification was based upon involvement with business intelligence or service-oriented architecture initiatives.

This research was designed to investigate the practices and needs of individuals and organizations that use or want to use service-oriented architectures for business intelligence deployments. It is not intended for use outside of this context and does not imply that organizations are guaranteed success by using only these results to improve organizational productivity. Moreover, gaining the most benefit from your BI applications, regardless of architectural approach, requires an assessment of your organization’s unique needs.

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 BI and SOA, and that the analysis and conclusions are entirely our own.
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Executive Summary

There is constant pressure on IT organizations today to reduce the costs of business intelligence (BI) software and demonstrate its business value. To meet these challenges, many organizations are considering implementing a service-oriented architecture (SOA) for BI, with which they can create reusable BI services for integrating data, performing analysis and delivering information for decision making. Yet they have difficulty finding accurate information about this topic. Although much has been said and written about it, useful details about interest in and implementations of SOA for BI remain scarce. As a result, uncertainty is rampant among end users and vendors alike.

To address this lack of reliable guidance and offer some insight into this complex and rapidly growing area, Ventana Research undertook a primary research program on business intelligence and service-oriented architecture, sponsored by Cognos and Composite, which included a research study conducted in August and September 2006. We collected data for this study from a Web-based survey of 488 business and IT professionals. About three-fourths of respondents were from businesses that had revenue last year of more than US$100 million.

In processing the survey responses, we applied the Ventana Research Maturity Model™. It ranks maturity in four ascending levels: Tactical, Advanced, Strategic and Innovative. We determined maturity by analyzing the responses to specific questions from the survey. Overall, our analysis indicates, organizational maturity with respect to SOA for BI is low, currently standing on average at a point between Tactical (26%) and Advanced (26%), a finding that indicates there is still room for greater maturation in deployment and utilization of BI services. Although our analysis cannot claim to benchmark every aspect of SOA for BI, it does provide a useful guide for organizations wanting to assess their position relative to others in this cutting-edge area of business technology usage.

This research reveals several significant trends in SOA for BI. We found, for example, that SOA is in the early adoption phase with large companies (those having annual revenue in excess of US$500 million), which account for 59 percent of the organizations expecting to adopt SOA infrastructures within 12 months. The most common use of SOA, reported by 27 percent of companies, will be a basic one: to create Web services wrappers around legacy interfaces to facilitate point-to-point integration between IT systems. Furthermore, only 26 percent of respondents reported that their companies have a defined strategy for SOA that includes a reference model specifying how services should be accessed and interact with each other and a governance process to ensure that services conform to the reference model; without these precautions, however, companies are at risk of creating BI services that may be incompatible with each other.

The majority of respondents believe SOA is important to some degree for BI because they need these BI services. From a business perspective, companies expect BI services to help them make information more broadly available, respond faster to change and make better decisions. From an IT perspective, they expect BI services to help them increase responsiveness to business needs, ease integration of systems and lower costs. In terms of functional areas, respondents believe BI services will provide the most value in customer operations, followed by IT, supply operations and finance.

Our research identified as the most important BI services capability Web services interfaces, followed closely by three other essentials: services defined at the level of business logic, the ability for services to run independently of each other and the ability to run in any IT
environment. But when we got to more technical considerations, the responses became rather tentative. For example, the industry standards that respondents expect will deliver the most value are WS-Security, WS-Metadata Exchange and XML for Analysis, but most of them didn’t know what value standards will provide for BI services. For creating user interfaces, although Ajax is growing in popularity, participants expect Java and some form of HTML (DHTML or XHTML) to be the primary technologies for at least the next 18 months. Respondents believe the vendors with the best SOA capabilities are Cognos, Oracle, IBM and Business Objects, in that order, but this was not a definite identification; most organizations don’t know what level of SOA capabilities vendors provide.

Perhaps the most revealing finding was regarding actions that respondents believe they need to take to adopt BI services: In order, they are to acquire general knowledge about SOA, to determine the SOA capabilities of BI vendors’ products and to identify IT resources required to migrate to and support an SOA environment. All are rather basic steps.

Yet despite some lack of familiarity, many companies plan to implement BI services within 12 months. Organizations are planning to implement back-end data services for source connectivity, transformation and integration, cleansing and quality, and movement between sources. Query and reporting services were cited most often for implementation on the front end, followed by analytics and data mining, dashboards and scorecards and alerting and notification. The functional business areas slated for the earliest deployment is customer operations, followed by finance, IT and supply operations. The four technologies named most often for integration with BI services are portals, business processes, security services and transactional applications.

Our survey revealed barriers to companies’ implementation plans. Respondents reported they are concerned about visibility and management of services, security, meeting service level agreements and reuse of services. Most IT organizations lack the necessary knowledge and skill sets; only one-third of companies plan to use internal personnel to implement BI services.

Thus, it appears that businesses recognize the benefits SOA for BI can bring them, but they need education and preparation are needed before most are ready to implement it. Based on our findings, Ventana Research recommends that organizations considering deployment of BI services start by getting help to define a strategy, a reference model and a governance process for SOA. A critical step toward success is to understand both your business needs and the process changes that will be required before you’re ready to evaluate technology capabilities. Then identify the key performance indicators (KPIs) you will use to monitor any benefits that accrue. We believe that as companies progress in maturity with BI services, the benefits increase, from lower integration costs, to faster application development, to broader performance visibility and control, and finally to greater business agility. This upward curve is a path worth following.
What To Do Next

Ventana Research undertook this research program to understand the trends, needs and practices of organizations that are in the early stages of implementing or intend to implement BI services in order to provide important guidance in the form of the following recommendations. They are derived from the results of this research and from our knowledge of the BI market.

Start with business drivers and benefits.

Do not begin by considering technology. Instead, first determine the needs in your organization that BI services can address and the business processes that will be impacted by moving to an SOA infrastructure. You can use the lists in our survey questions (available in the full research report) to initiate this exercise. Similarly, define the benefits you are seeking. These considerations also will provide valuable input to the construction of your business case.

Identify KPIs you will use to monitor benefits.

Once you have identified business drivers and benefits, the next step is to determine the key performance indicators you will use to monitor the extent to which those benefits are being realized. Our research revealed that in the near term, most organizations can expect lower IT costs to be their top benefit. Ventana Research recommends that organizations wanting to use lower IT costs as a metric make sure they have a process for measuring their BI costs and establish a baseline beforehand. Our research on unlocking value from IT shows that less than one-quarter of companies know the ongoing IT costs of maintaining and updating reports to keep up with evolving needs in their lines of business.

Establish a reference model and a governance process.

We advise strongly against starting a project without having a reference model for services and a governance process to ensure services conform to the reference model. Time spent up front on defining the model and governance process will save you much time and money as you go forward. Ventana Research believes companies that do not implement both a reference model and a governance process for services will not realize the full value of BI services and risk creating a new layer of IT components that do not interoperate with each other.

Understand the technical requirements.

Half of the companies in our survey said they need to acquire general knowledge about SOA and to determine SOA capabilities in BI vendors’ products before they adopt BI services. In addition, gaining visibility and operational management of broadly deployed disparate services was respondents’ number-one concern about adopting BI services. However, only 14 percent thought UDDI, which can provide visibility into what services are broadly deployed and help establish reuse of services once published, has high value for the implementation of BI services. Similarly, only 15 percent said BPEL, which can aid in the operational management of disparate services, provides high value. These examples of technical misunderstanding indicate that many organizations are not ready to go forward with implementation.
Ventana Research believes that understanding of what a complete infrastructure for SOA is and how to properly evaluate technical solutions for BI services is vital if projects are to succeed.

Use our maturity analysis.

We advise end users to take advantage of the Ventana Research BI and SOA Maturity Assessment™ (see below). If you are about to embark on implementing BI services, your responses to some of the key questions will help to direct your next steps. If you are implementing BI services already, the analysis will help you check whether you are including key aspects, such as establishing a reference model and a governance process in your program.

How Ventana Research Can Help

In order to remain competitive and profitable, companies need to re-examine their information management strategy and create and improve programs and processes to better utilize their information assets. The various pressures of global business and close scrutiny by governmental agencies and shareholders place an ongoing strain on today’s organizations. To handle these stresses, companies must take several broad actions:

- Demonstrate business return from investments in enterprise applications and information systems.
- Adhere to strict governance and compliance requirements for data.
- Integrate business and IT roles to ensure a viable data strategy and to build a roadmap to maximize existing and future investments.
- Plan and work diligently to assure high-quality and consistency of data across the enterprise.

For many organizations, the first step will be an evaluation of your organization’s current maturity level. Ventana Research has developed a tool for this purpose, the Ventana Research BI and SOA Maturity Assessment™. We will work with you to carry out for your organization a focused maturity analysis, using the approach applied in this research program to assess the position of your organization relative to the survey results. Our assessment will result in a detailed plan showing the next steps that we recommend the organization take. If you are about to embark on improving your IT strategy and processes, your responses to some of the key maturity assessment questions will help direct you. If you are fine-tuning your established processes, the analysis will help you make sure you are including all key aspects in your program.

Ventana Research, the leading Performance Management research and advisory services firm, can help you address the challenges you face and increase your organization’s efficiency and effectiveness. We deliver these business improvements through a top-down approach that first connects your people and processes and then integrates information technology. Our proven PerformanceCycle™ methodology and process connects business and IT for maximum value by assessing your existing IT portfolio and programs in the context of planned new investments.

We will help you build the business case, including these key components:

- **Total Potential Ownership** assesses the organization and defines strategies for innovation.
• **Total Benefit of Ownership** measures strategic innovations and business benefits.
• **Total Cost of Ownership** provides visibility into costs throughout the project life cycle.
• **Consensus Management** captures consensus scores from all business stakeholders.

Serving as an independent and objective third party, we will conduct an external assessment and with your help create a BI services strategy and roadmap to maximize the potential of your existing and future investments. Our BI Services Strategy & Technology Assessment is conducted through three key steps – Discovery, Insights and Guidance.

In the **Discovery** phase, we
• Interview management and managers to determine your current state of and needs for BI services in business areas including finance and operations.
• Investigate investments in BI services from business and technology perspectives.
• Determine the outcomes you desire from existing and future data management investments.
• Assess how your business users and processes utilize information within your organization.
• Determine the benefits already achieved in your data management investments.

In the **Insights** phase, we
• Assess challenges to your desired improvements in managing data across the enterprise.
• Perform a gap analysis between the current and desired states for utilizing data.
• Analyze the benefits and costs of products and services from data management suppliers.
• Compare your efforts to results of industry research and benchmarks.
• Determine the facts and insights that lead to recommended actions.

In the **Guidance** phase, we
• Emphasize benefits not being realized from BI services investments.
• Prioritize and present cost scenarios for your BI services strategy and roadmap.
• Present a plan and steps through which you can maximize the value of existing and future investments.
• Advise on direct steps to achieve improvements in data utilization.
• Deliver a written report and a presentation of the assessment findings.

Through this high-value, low-risk strategic assessment services approach, you will receive these deliverables:
• **BI Services Strategy and Roadmap** – Your customized strategy and roadmap will serve as a foundation to build and manage BI services across the enterprise. It will encapsulate aspects you require for building a business case for investment and steps to achieve desired objectives.
• **Industry Benchmarks and Best Practices Education** – We will deliver education and transfer knowledge through research and benchmarks and help you leverage best practices.
• **Decreased Project Risk** – Through our understanding of how to build a BI services program and processes, we will assess existing investments and evaluate new ones.

• **Increased ROI and Reduced Costs** – We will demonstrate how you can get your BI services strategy on the road to full optimization and minimize costs to increase ROI.

To learn how Ventana Research Performance Management Assessments can increase your organization’s efficiency and effectiveness, contact us at info@ventanaresearch.com.

**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 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.

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.