
Business Intelligence Web Services

- ▶ *Enabling Next-Generation BI Extranets for
Total Visibility over the Value Chain*



Author: Karl Van den Bergh.

Contributors: Erin O'Malley with Mike Bendel, Paul Clark, Darren Cunningham, Mark Heisten, Jennifer Meegan, Emily Mui, Isabelle Nuage, Frank Prabel.

Audience: This paper is intended for IT and business-line managers who wish to improve visibility over the value chain and enhance business collaboration. This paper is ideal for those considering implementing a business intelligence (BI) extranet, or who already have a BI extranet and wish to take it to the next level.

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Executive Summary

A basketball team at its best is fast, furious, and fabulous to watch. The ball darts in quick, deft movements from one player to the next. Communication is perfect. Though five individuals, they seem to move as one, unstoppable in their path to victory.

Now imagine the same team... blindfolded. With no communication and no visibility, the "team" is little more than symbolic. Yet, in many cases, this is the reality collaborative business faces today.

Market forces are driving the need for collaboration. Customers are expecting more and the economy is demanding greater cost efficiencies. As a result, businesses must focus on core competencies, and on establishing effective business alliances to complement their offering. Not surprisingly, according to a Forrester survey, 85 percent of executives ranked tighter links with partners and customers a top priority for business success.¹

But collaborative business faces a significant hurdle – lack of visibility in the value chain. At best, companies have visibility over their own operations and those of a few close partners. This incomplete view of business leads to information delay and distortion in the value chain. The result? Past-due deliveries and excess inventory buildup, which negatively impact the bottom line and customer satisfaction. Dramatic real-world examples in companies today highlight this problem.

Hundreds of forward-thinking organizations have understood that business intelligence (BI) extranets are a first step to clearing this hurdle and gaining visibility over the value chain. With BI extranets, businesses can share information with direct customers, suppliers, and partners.

Thanks to a new emerging set of internet-based standards called "web services", businesses are taking BI extranets to the next level. These next-generation extranets, built as BI web services, will enable visibility throughout the entire value chain and eliminate the problems of delay and distortion that currently affect collaborative business.

Effective collaborative business is no game to play blindfolded. Visibility is key, and companies can begin to achieve this today through BI extranets. By moving forward with BI web services, this visibility can be extended so that companies may team together more effectively to reduce costs and win the business of their customers.

¹ Steven J. Kafka, "The Collaboration Imperative," *Forrester*, May 2001.

The Need for Visibility Over the Value Chain

► The Need for More Effective Collaboration

Today's economy demands that businesses work together more effectively. Due to an increased concern for mounting costs and customer expectations, businesses are focusing more on core competencies and partnering with those who can more efficiently deliver additional products and services requested by customers. According to Gartner, "Enterprises of all sizes must cooperate more than ever to meet the demands of customers. They need to collaborate with customers, suppliers, and business partners to develop the right products, for the right markets, at the right time."²

In recognition of the increasing importance of collaboration, Forrester predicts that Wall Street will replace traditional measures of financial performance, such as return on assets (ROA), with a new metric for return on connection (ROC).³ Where the established metrics do not account for the possible risks involved with partnerships, this new measurement will reward or penalize companies based on a holistic view of business performance – including how well they partner.

► The Problem Collaborative Business Faces Today

When individual organizations attempt to work together as a single "extended enterprise," they often find themselves faced with a significant problem – lack of visibility or transparency in the value chain. In a collection of businesses attempting to operate as a single entity, each participant only has partial access to the sum total of information that is pertinent to the entire value chain. This accessible information comes from their own systems and possibly those of a few key partners. For example, a company will know what its distributor is ordering, but will generally not know what its distributor's customers are ordering. As illustrated in the classic "beer game" taught at Massachusetts Institute of Technology's (MIT's) Sloan School of Management, this lack of transparency can have a devastating effect.⁴

Delay and distortion in the value chain

The MIT beer game simulates the production and distribution of beer. A team consists of four players – the retailer, wholesaler, distributor, and factory. Each simulated week, customers place orders with the retailer. The retailer then orders from the wholesaler. The wholesaler orders from the distributor. And finally, the distributor orders from the factory, where the beer is brewed. The objective for each team is to minimize total costs due to inventory holding and backlog along the entire collaborative chain. In each team, any given player knows the orders he or she has placed and received, but does not know what is happening further up or down the chain.

For the first few weeks, the orders are kept constant and the value chain operates relatively smoothly. However, when customer orders begin to change, the effects are dramatic. For example, customer demand might increase by 20%. At first, the retailer maintains his regular order to the wholesaler, using some of his excess inventory to satisfy the increased demand. When the increased demand persists the following week, the retailer increases orders to the wholesaler by 30% to satisfy increased demand and to help replenish his tapering inventory. The wholesaler, though, can only ship a 20% increase because her own inventory levels are low. Panic and a chain reaction ensue. The retailer, fearful of being under stocked, ups orders to 35%.

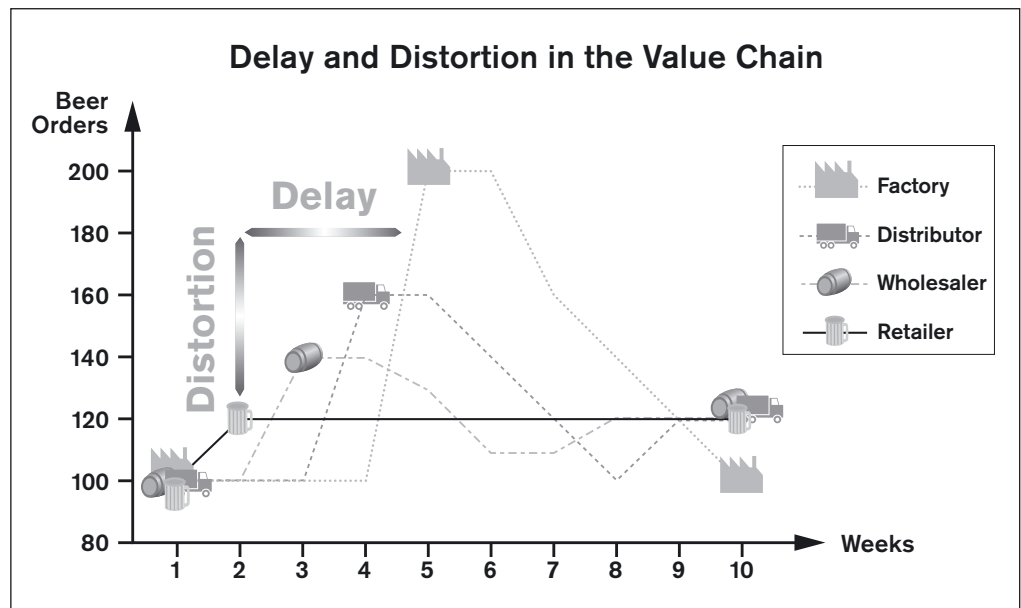
² James Browning, Robert Anderson, "Attention SMBs: Plan for Collaborative Commerce Now," *Gartner*, 12 October 2001.

³ Steven J. Kafka, "The Collaboration Imperative," *Forrester*, May 2001.

⁴ John Sterman, "Modeling Managerial Behavior: Misperceptions of Feedback in a Dynamic Decision Making Experiment," *Management Science*, 1989.

Equally alarmed, the wholesaler increases orders to her distributor by 40%. Consequently, a wave of information distortion moves up the collaborative chain. By the time orders reach the factory, weeks may have elapsed from the initial increased customer demand, and what started as a 20% increase in real demand may have been distorted into a 100% virtual increase in demand.

■ **Diagram 1:**
Results of a beer game simulation showing information delay and distortion in the value chain.



Results of the beer game show that delayed delivery or excess inventory costs – caused by this delay and distortion of information – are on average ten times higher than costs in a normal situation. The game successfully highlights how the lack of visibility over a collaborative chain can lead to dramatically increased costs. The lesson learned in the game, as noted by MIT professor John Sterman, is that you need “to figure out how the ultimate consumers are behaving and produce to suit them, not the manufacturers, distributors, or retailers in between. So-called panic-ordering and other distortions only confuse everyone.”⁵

Unfortunately, in today’s business world this is anything but a game. Even the most efficiently run companies have fallen prey to information delay and distortion in the value chain – waking up one day to find themselves burdened with millions of dollars in excess inventory.

⁵ Joseph Weber, “Lessons From the Bust,” *BusinessWeek*, 27 August 2001.

Providing Visibility Over the Value Chain

Organizations working together as part of a collaborative chain have understood the need for better information exchange. Many use technologies such as electronic data interchange (EDI), supply chain management (SCM), and business-to-business integration (B2Bi) to achieve more effective collaboration. Rather than visibility, however, the focus of these technologies has been on process optimization and automation. As the need grows for businesses to cooperate as a single entity, there is an increasing requirement for greater visibility in order to avoid the problems highlighted in the beer game. Indeed, Gartner predicts that by 2003, value-chain visibility applications will surpass value-chain optimization technologies in importance for users.⁶

► Gaining Visibility Through BI Extranets

For more than a decade, business intelligence has provided organizations with visibility over their enterprise operations. In recent years, leading organizations have understood that business intelligence can also be used to increase visibility in the value chain – through BI extranets. BI extranets allow organizations to share information securely outside their firewalls with direct customers, suppliers, and partners, thus enabling greater transparency in business relationships.

The BI extranet market is experiencing rapid growth as companies realize the significant return on investment (ROI) that enhanced transparency brings. Specifically, BI extranets offer a number of key benefits:

- **Improved customer satisfaction.** BI extranets give customers immediate self-service access to information.
- **New revenue opportunities.** Companies can charge for the information services they offer to customers, suppliers, and partners via BI extranets, as well as increase competitive differentiation through these services.
- **Reduced costs.** Using BI extranets, companies can reduce support costs (e.g., calls into a call center) and paper-based services.

Owens & Minor, Penske Logistics, and Zurich US are some of the leading businesses that have benefited from BI extranets:

Owens & Minor: In the past, customers of this multi-billion dollar medical supplies distributor had to order printouts on their account activity. These would be printed from the mainframe, and shipped to the customers through express mail. As a result of providing real-time business intelligence data to customers over the web, Owens & Minor not only reduced IT expenses (no more paper reports), but also was able to increase its revenue by attracting new business. Thanks to its BI extranet, it estimates to have gained at least \$40M in new business.

⁶ Lora Cecere, Karen Peterson, "Going With the Flow: C-commerce Focuses on Supply Chain Visibility," *Gartner*, February 2001.

Penske Logistics: Penske is using a BI extranet to allow its customers to access and analyze their shipping and logistics information. Armed with this information, customers find it easier to reroute deliveries to respond to such circumstances as a depleted inventory, or have a truck make an additional stop. In this way customers can save costs and get better service. The BI extranet gives Penske's customers powerful incentives to continue using the firm's services. It also raises the bar for competitors – they have to not only undercut Penske's prices, but also provide the same level of information service as Penske does.

Zurich US: Instant access to claims information over the web allows clients to analyze their accident trends and take action to prevent accidents and reduce claims. Examples include increasing safety measures in areas where the most injuries occur. Customers are so happy with this BI system that adoption rates were far greater than Zurich had originally anticipated. This has led to significant cost savings (\$400,000 in the first year) and new revenue through subscription fees.

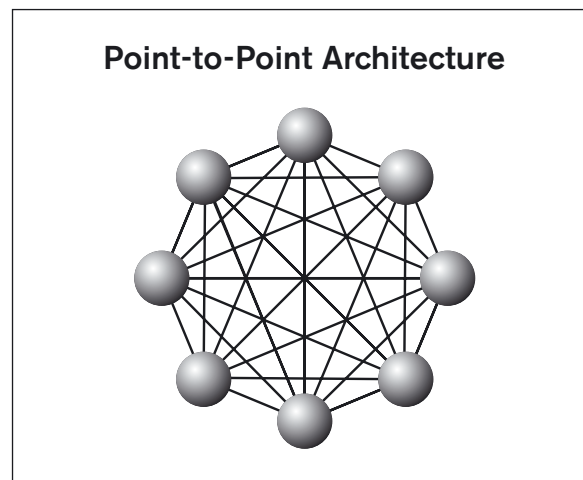
► The Drive for Next-Generation BI Extranets

BI extranets are an indispensable first step to sharing information with third parties and increasing transparency in business relationships. The architecture of next-generation extranets promises to further extend the sharing of information and transparency in the collaborative value chain.

Extending reach

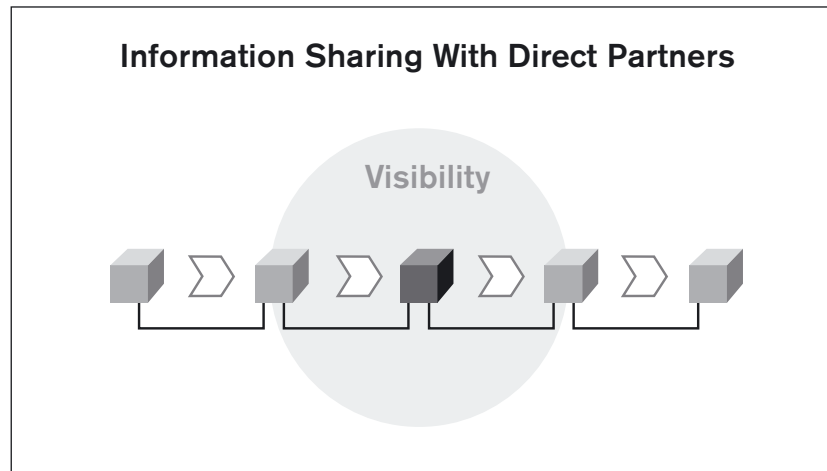
Extranets are point-to-point. A separate connection has to be established for any two companies that wish to be linked. This leads quickly to a lot of connections. For example, ten companies wishing to exchange information over BI extranets would have to establish ninety connections. In value chains with perhaps thousands of participants, the complexity and potential costliness of exponential connections becomes prohibitive. For this reason, companies generally opt to exchange information with only their top-tier partners via BI extranets.

■ **Diagram 2:**
The point-to-point extranet architecture means that a separate connection is needed for every two companies wishing to exchange information. This quickly leads to an exponential number of connections.



What's more, companies must have an existing business relationship before even attempting to establish an extranet link. Therefore, it is only possible to exchange information over a BI extranet with direct suppliers, partners, and customers. The need to gain visibility over the entire value chain increases the need to share information with indirect suppliers and customers.

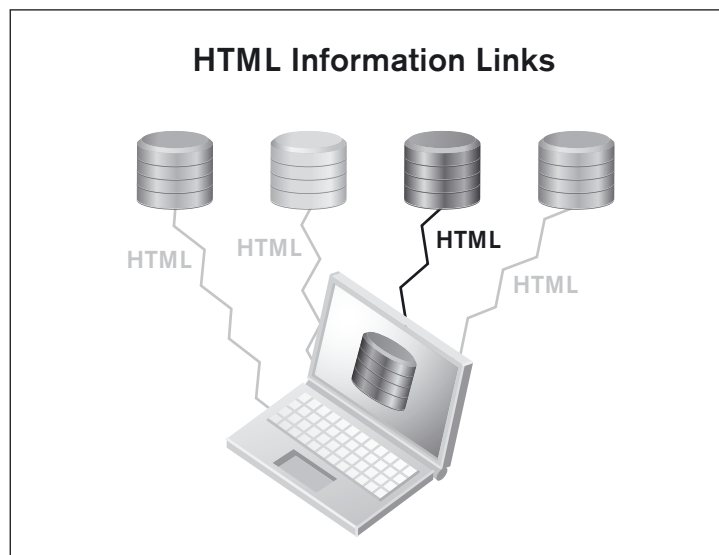
■ **Diagram 3:**
Companies require a direct partner relationship before they can share information over a BI extranet. This limits visibility to the first hop in the value chain.



Broadening integration

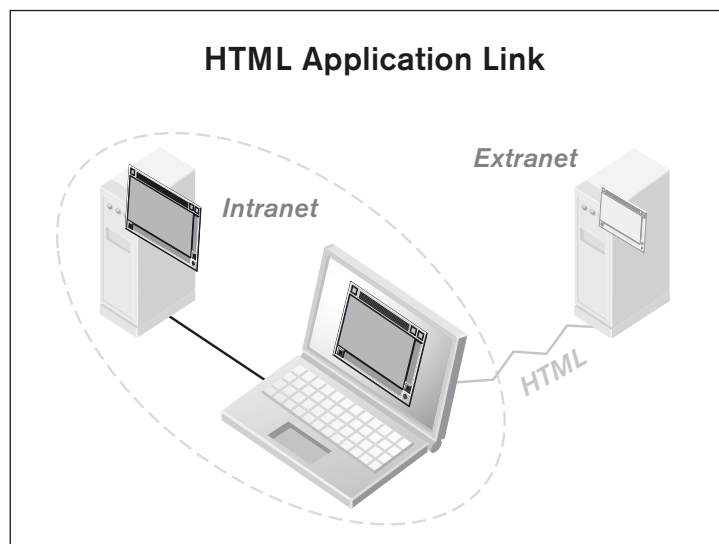
Because extranets are proprietary in nature and communicate information through HTML, it is difficult to integrate information from multiple extranets. For example, a manufacturer cannot pull product-pricing data from all of its suppliers' extranets to combine and compare. The manufacturer would have to log into each supplier's extranet and somehow manually bring the information together.

■ **Diagram 4:**
Because extranets are proprietary in nature and communicate information through HTML, it is difficult to integrate information from multiple extranets.



Extranets run outside the firewall. Therefore, it is difficult to seamlessly integrate an extranet within an intranet. For instance, a company could not build an HR application that incorporates its investment fund's extranet, which maintains information on 401(K) plans.

■ **Diagram 5:**
Extranets run outside the firewall. Therefore, it is difficult to seamlessly integrate an extranet application within an intranet application, say an enterprise portal.



The need for extended reach and broadened integration are compelling organizations to develop and deploy more powerful, next-generation BI extranets.

► **BI Web Services: Enabling Next-Generation BI Extranets**

The emerging web services technology will enable companies to extend the reach and integration capabilities of BI extranets. As explained in a Hurwitz article, "The concepts embodied by web services mirror the driving forces in the BI market today. Web services address the need for device and platform independence that could break down barriers to effective inter-company communication and increase the reach of information."⁷

Web services defined

Web services represent a new and simplified standards-based model for creating and connecting distributed applications across the internet. They are built around widely adopted, existing internet standards (such as TCP/IP, HTTP, and XML) as well as a set of new standards, which include simple object access protocol (SOAP), web services definition language (WSDL), and universal description, discovery, and integration (UDDI).

- SOAP defines the XML-based message format that software applications use to communicate and interoperate with each other over the internet. With SOAP, applications can call functions from other applications, written in any programming language, and running on any hardware platform or operating system.
- WSDL is a collection of metadata about XML-based services. It is used to describe what businesses do, as well as how to access their services electronically. Based on SOAP, WSDL specifies the procedures to discover functional and technical information about web services over the internet.
- The UDDI business registry is often compared to the Yellow Pages. It is a standard for cataloging and publishing WSDL descriptions of web services that are available over the internet. In much the same way as people peruse the Yellow Pages for a particular service, software applications can search the UDDI registry to find a web service (using WSDL), download the parameters for interaction, and effectively network with the web service (using SOAP).

The two main development platforms for web services in use today are the .NET platform from Microsoft and the J2EE platform from the Java community. The standards-based nature of web services ensures that web services built on either platform are interoperable.

BI web services and next-generation BI extranets

A BI web service is a business intelligence application component exposed as a web service. It could be a simple service that displays a report, or a more complex one that drills on data in a given report. BI extranets built as BI web services provide enhanced reach and integration capabilities.

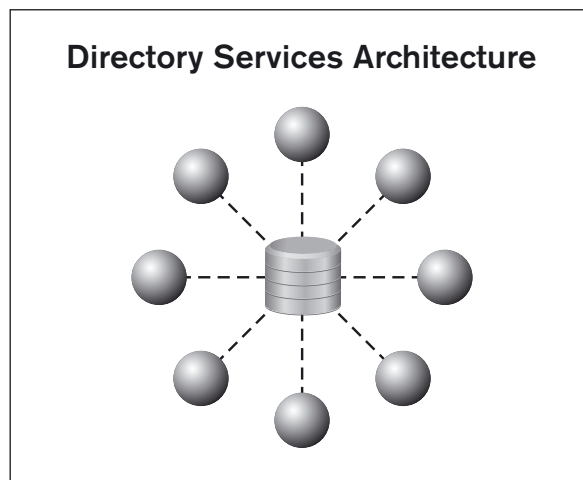
⁷ Jacqueline Sweeney-Coolidge, "BI Market Primed for Web Services," *Hurwitz*, 2001.

Extended reach

The UDDI directory services in the web services framework facilitate the sharing of information in a value chain. A company can register its BI web services in the UDDI directory (e.g., regarding product catalog information) and other members, with the appropriate security profile, can subscribe to those services and access the information. The UDDI directory would be typically a private one, managed by one or more of the major players in the value chain.

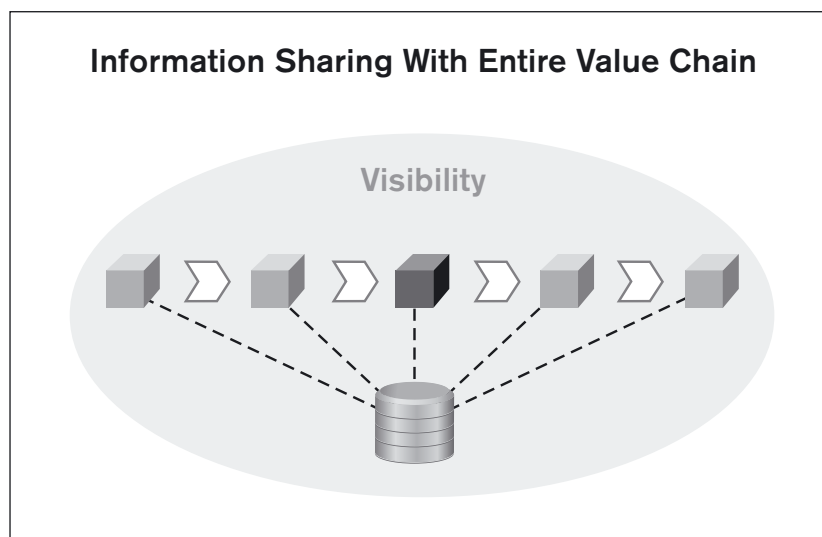
The use of UDDI directory services lessens the point-to-point connection problem, as companies now have a simple standards-based framework with a central directory for creating connections. This allows a company to share information more easily with a greater number of partners.

■ **Diagram 6:**
The use of UDDI directory services lessens the point-to-point connection problem, as companies now have a simple standards-based framework with a central directory for creating connections.



A directory also allows companies to share information without necessarily needing a direct business relationship. A company can simply access information from an indirect supplier or customer once that party's BI web services have been registered in the directory.

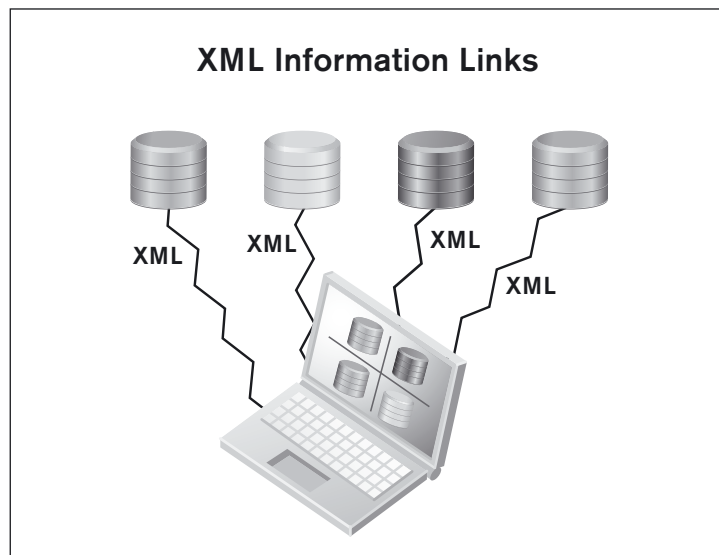
■ **Diagram 7:**
The UDDI directory services allow companies to share information without necessarily requiring a direct business relationship. This extends visibility to cover the entire value chain.



Broadened Integration

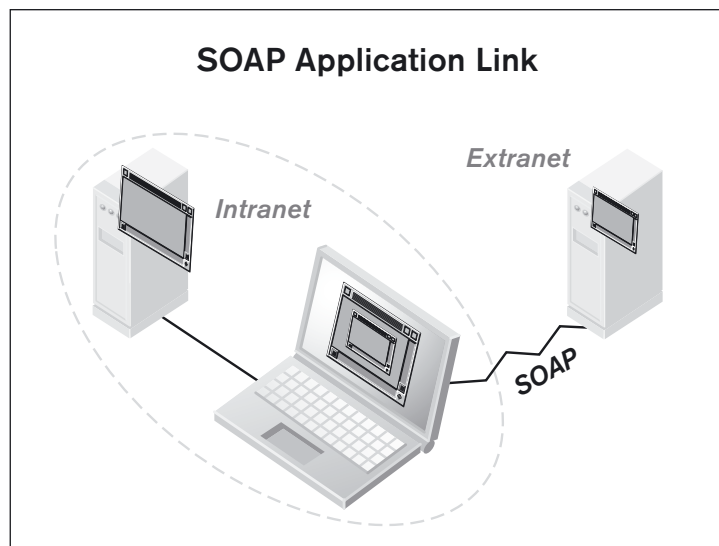
Web services exchange information as XML. The use of XML facilitates the information integration between multiple BI extranets exposed as web services. For instance, a company could pull information from the BI web services of its distributors and combine in a report to analyze distributor performance.

■ **Diagram 8:**
Web services exchange information as XML. The use of XML facilitates the information integration between multiple BI extranets exposed as web services.



Web services allow for distributed application building in a standards-based framework. Using this distributed application framework, companies can seamlessly integrate their partners' BI extranets, exposed as web services, within intranet applications. So, within the same enterprise portal, a company could view information on customer orders from its enterprise resource planning (ERP) system and information on the order deliveries from its logistics contractor's BI web services.

■ **Diagram 9:**
Web services allow for distributed application building in a standards-based framework. Companies can seamlessly integrate a partner's BI extranet, exposed as web services, within intranet applications.



► BI Networks and Visibility in the Value Chain

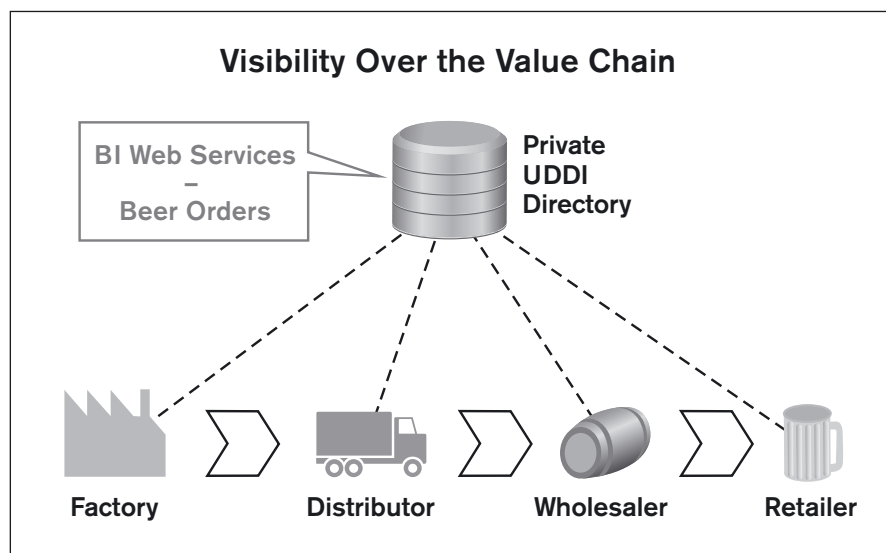
The growing adoption of BI web services for information exchange between businesses will lead to the establishment of BI networks. A BI network represents the exchange of BI web services between the participants in a value chain or, more precisely, value network.

So how will BI networks help visibility in the value chain? Let's take the collaborative chain outlined in the beer game example. The problem? Members only had visibility over their immediate business sector. This created a delay and distortion of information as it moved along the chain.

With BI web services, each participant can register information about orders in a private UDDI directory. Other participants can then subscribe to these services and, in this way, gain visibility over the entire chain. For instance, the factory can view the orders being placed at the retailer and immediately prepare for the increase in customer demand. This eliminates the delay in information relay. The visibility through to the end customer also prevents distortion of information because the factory can now see the real increase in demand and does not have to rely solely on the distributor's orders for information.

The greater integration capabilities afforded by BI web services mean that information in the value chain can be leveraged more effectively. The wholesaler might build a single application using BI web services from both the retailer and the distributor to ensure supply-to-demand alignment.

■ **Diagram 10:**
Each member of the value chain registers its BI web services in the UDDI directory. In this way, each member has visibility over the entire value chain. This eliminates the problem of information delay and distortion.



► Adoption Timeline

Industry adoption of BI web services will be dependent on the acceptance of web services technology. Given their benefits and foundation in existing, widely adopted internet standards and technology, web services are expected to see a quick uptake in the market. Gartner predicts that through 2H02, 75% of enterprises with more than \$100M revenue will interface periodically with web services. Gartner also predicts that through 1H03, 50% of enterprises with less than \$100M revenue will interface periodically with web services.⁸

The greatest barrier to the establishment of BI networks will be the reluctance of companies in the collaborative chain to share information. As pointed out in an *InformationWeek* article on web services, "The biggest hurdle may have little to do with technology and more to do with convincing business managers to adopt the more collaborative practices the technology enables."⁹

Nevertheless, there is a growing expectation for transparency in business relationships. A company is far more likely to choose a partner that provides a degree of visibility into its business operations over another partner that provides none. It is this need for transparency that has driven the strong growth in BI extranets over the last few years.

Likewise, there is a growing expectation from shareholders for greater visibility into the operations of public companies. This is reflected in a move by SEC chairman Harvey Pitt. According to *BusinessWeek*, Pitt "wants to encourage companies to issue current numbers, along the lines of weekly auto production or retailers' monthly sales, that give frequent updates on how businesses are performing."¹⁰ To meet these expectations, companies will look to BI web services as a simple standards-based model for sharing information with shareholders and businesses alike.

The next step will come from an increasing realization that companies can benefit from sharing information with the entire value chain – thus leading to the establishment of BI networks. It is clear that problems, such as delayed deliveries and excess inventory at any point in the value chain will ultimately affect all participants in terms of added costs, unhappy customers, and lost competitive advantage. By sharing information over a BI network, companies can remove the delay and distortion of information in the value chain that leads to these problems.

As Gartner points out, the sharing of information over a value chain leads to numerous benefits. "Once enterprises have collected information from a collaborative value chain, they are able to analyze, plan, and implement new business strategies aligned to technology and services. Competitive intelligence built from multiple channels and multiple participants creates multiple opportunities – such as market share, strategic alliances, and business value – for the enterprise and the entire collaborative value chain."¹¹

8 Darryl Plummer, "Web Services: The Internet's Operating System," *Gartner*, 22 June 2001

9 Paul McDougall, "Decoding Web Services," *InformationWeek*, 1 October 2001

10 Mike McNamee, "New Yardsticks for Investors," *BusinessWeek*, 5 November 2001.

11 Waldir Arevalo De Azevedo Filho, "Rethinking Collaboration, Business Challenges and Opportunities," *Gartner*, January 2001.

The Path to Greater Visibility

Over the last decade, business focus has transitioned from dealing largely with internal efficiency (e.g., ERP) to dealing with external connection (e.g., web, B2B, CRM). To operate effectively in this new world, "firms must offer and gain visibility into partners' activities."¹² Such visibility can be achieved through BI web services.

Although the industry consensus is that web services will succeed, it is new technology and, as with all new technology, some prudence is required. Therefore, the adoption of a phased approach is advised. It is recommended that organizations start with BI extranets and then move to BI web services. For this transition to happen smoothly, it is important to choose a BI solution with demonstrated capacity in the extranet environment and proven ability to move forward into BI web services.

► Establishing BI Extranets

As a first step towards visibility in the collaborative chain, organizations need to look at existing partnerships – with customers, partners, and suppliers – and understand where they can best profit from sharing information. Once these opportunities have been identified, the corresponding BI extranets can be built. The next step is for organizations to encourage their partners to do likewise, thus establishing a bi-directional exchange of information.

► Moving to BI Web Services and BI Networks

To move to BI networks, organizations will need to familiarize themselves with the web services technology. Internal web service deployments will help organizations achieve greater cost efficiencies and provide a relatively safe test bed for this adjustment. With this accomplished, organization can expose existing BI extranets as BI web services, before leveraging the full web services framework through the introduction of UDDI directories.

Using web services internally

At first, most companies (60% according to a Jupiter Media Metrix survey) will use web services for internal applications.¹³ Internal deployments will allow companies to experiment with web services in a relatively safe and familiar environment in order to better understand their benefits and eventual challenges. And the benefits appear to be very promising. Gartner estimates that "using web services will help reduce costs and improve efficiency of IT projects by 30%."¹⁴ Given the compelling benefits and relatively low risk associated with web services, Gartner recommends that "enterprises should commence pilot projects using web services standards and deployment models no later than 2H02; affected industries should try for 1H02."¹⁵

¹² Steven J. Kafka, "The Collaboration Imperative," *Forrester*, May 2001.

¹³ Steven Sachs, "The US Web Services Revolution ...," *Jupiter Media Metrix*, 30 August 2001.

¹⁴ Darryl Plummer, Whit Andrews, "The Hype is Right," *Gartner*, 9 October 2001.

¹⁵ Darryl Plummer, Whit Andrews, "How Web Services Mean Business," *Gartner*, 8 October 2001.

Creating BI web services

With BI extranets in place, and having acquired some internal experience with web services, organizations are ready to share BI along the value chain through the web services framework. They can start by exposing existing BI extranets as web services. It is recommended that this change be brought in gradually to maintain availability of the current BI extranets while introducing the web service-enabled versions. This is necessary because partners might take some time before adopting the new framework. However, organizations should not delay too long in making this changeover as the web services architecture leads to significant benefits. Gartner recommends that “through 2003, businesses should look for opportunities to introduce web service models in established partnerships.”¹⁶

As described earlier, sharing information as BI web services leads to greater integration of business intelligence between the participants in a collaborative value chain. BI web services from third parties can be integrated into intranet applications through the distributed application framework that web services provide. This means that organizations can seamlessly view BI from internal and third-party systems. Also, BI web services exchange information as XML, meaning that a company can easily integrate BI from multiple partners and perform analysis locally to achieve a greater understanding of its inter-enterprise operations.

The need for less customization is another benefit of web services. As pointed out in an InformationWeek article, businesses that develop extranets for their customers often have to customize the extranet to fit their customers’ corporate look and feel. With thousands of customers this can be a complex and costly process.¹⁷ With the web services architecture, businesses need only expose BI content and do not have to worry about display. This suits extranet customers too because they can control how content is integrated and displayed within their own environment.

¹⁶ Darryl Plummer, “Categorizing Web Services,” *Gartner*, 9 May 2001.

¹⁷ Paul McDougall, “Decoding Web Services,” *InformationWeek*, 1 October 2001.

Introducing UDDI directories

To leverage the full web services framework, businesses will need to consider how they can use UDDI directories, both in terms of locating and publishing their own BI web services. It is probable that most businesses will use private industry-specific UDDI directories to publish and search for BI web services.

As previously stated, the main benefit of using a UDDI directory is to help extend the reach of BI exchange in the collaborative value chain. A standards-based framework with directory services facilitates how businesses connect to each other. With this reduced connection complexity, a business can share BI information with a greater number of partners. Moreover, there is no requirement for a direct business relationship, as information is published centrally so that all directory members with the appropriate security profile have access. This allows a business to share and receive information from indirect suppliers, customers, and partners.

Lastly, publishing BI web services in a UDDI directory – as with the regular Yellow Pages – helps advertise a company's presence and provide potential partners with relevant information regarding its services.

► Choosing the Right BI Solution

The increasing need for cost effectiveness and improved customer service in the value chain, combined with the growing adoption of BI extranets and web services, will drive the establishment of BI networks. In preparation, businesses need to carefully choose their BI partner and the solution best adapted to helping them make this transition.

Market leadership

BI web services represent the emerging architecture of next-generation BI. Only those BI vendors who have already addressed the needs of enterprise BI – the foundation for future BI systems – and who have sufficient market presence to invest in web services, will be equipped to lead the transition.

Additionally, now more than ever, businesses want to make a safe choice – they need a market leader. Organizations cannot afford to invest in a solution that risks being discontinued in the near future because the BI partner is no longer in business or has been acquired by another company.

Vision

The drive to BI networks will again push the frontiers of business intelligence. Only when working with a BI partner that has consistently demonstrated a leading vision can businesses be assured of success at this next level.

BI extranet experience

BI extranets are the first step towards BI networks. It is clear that the chosen BI partner must have extensive experience in this area. The risk of adopting a solution that has not demonstrated its ability to work in an extranet environment is too high.

To operate effectively as a BI extranet, the BI solution must demonstrate ease of use, scalability, security, and extensibility.

- **Ease of use**

For end users: Ease of use is consistently rated as one of the top requirements for a BI solution. The purpose of business intelligence is to provide easy access to relevant information. This means providing users with a simple tool that hides data complexity through a semantic layer while providing all the necessary BI functionality in a single interface accessible from the users' preferred device (browser, PC, mobile phone, personal digital assistant, etc.).

For IT: Administering a BI solution – particularly in an extended enterprise setting – is no trivial task. It is essential that the chosen BI solution be as simple and efficient to administer as possible. To achieve this, the BI solution should demonstrate complete integration, both at the back end through a single metadata, security, and server layer, and at the front end by providing all BI functionality from a single access point.

- **Scalability**

Deploying a BI solution in an extended enterprise environment can mean giving access to tens of thousands of users. It is evident that the chosen BI solution must be able to support a large load of users in terms of performance and reliability. A distributed component architecture that can run on Windows NT and UNIX ensures BI solution performance regardless of the load, and guarantees continuous availability, even following a server crash, through its failover capability.

- **Security**

Deploying System security is a top priority. A BI system for collaborative business will involve opening up corporate information to employees, customers, partners, and suppliers. The BI solution should provide a single central security layer for all tools as well as enable integration into existing IT security infrastructure.

- **Extensibility**

Many BI extranets need to be customized to the look and feel of the customer company. This can be a laborious process, involving perhaps thousands of custom-designed extranets. To simplify this task, the user interface of the BI solution must be easily and quickly customizable.

Conclusion

The business world is moving inextricably towards a more collaborative model. Market play will increasingly breed competition between rival collaborative business networks, rather than between individual companies. The leaders in this new market challenge will be those that partner best.

Businesses cannot collaborate effectively if they are blindfolded. Organizations require visibility into the collaborative value chain. Without it, they will continue to be plagued by the information delay and distortion that result in increased costs and dissatisfied customers.

With BI extranets, organizations have begun to remove their blindfolds and achieve greater transparency in direct customer, supplier, and partner relationships. Through BI web services, businesses can now take extranets to the next level and enable complete visibility in the value chain.

The game play has shifted – teamwork is everything. And the new motto is “visibility.” The question is: Do you want to be on the winning team?

About Business Objects

Business Objects provides the industry's most integrated business intelligence suite, called BusinessObjects™ Enterprise 6. This suite includes the industry's best web query, reporting, and analysis; the most advanced and complete suite of analytic applications; and the best connectivity to packaged applications. Business Objects has more than 17,500 customers in over 80 countries.

► Market leadership

Business Objects is recognized as the market leader in business intelligence. It is the only major BI vendor to have maintained strong growth in both revenues and profits. Consequently, the company continues to gain market share – IDC numbers, at the time of printing, indicate that Business Objects is 50% bigger than its main competitor in the query and reporting market.¹⁸

Business Objects continues to receive many industry awards, including the InfoWorld Readers' Choice Award and the DM Review Readership's Award, as best BI product of the year. Additionally, it was voted by Intelligent Enterprise as one of the 12 Most Influential Companies in IT for the third year running.

In the wider business arena, Business Objects has become a recognized leader with, for example, its CEO ranked in the top ten list of CEO Magazine's annual survey.¹⁹

► BI extranet experience

Business Objects has become the standard for BI extranets. As described in the appendix, the Business Objects product suite fully satisfies the BI extranet requirements of ease of use, scalability, security, and extensibility. For this reason, Business Objects has more extranet customers than any other BI vendor.

"We view information delivery over the internet to customers as a core component of our company's business strategy today. Business Objects is clearly the market leader in enabling these internet information bridges, and we look forward to continuing our partnership with them."

Keith Johnson, vice president of information technology, The Frank Gates Companies.

"With this extranet, our clients are likely to stay very close to us for a very long time. It's building loyalty – or even more than loyalty."

Robert Vesoul, vice president of marketing and e-business, VedioBis.

"The company has won at least \$40 million in new contracts that cited the extranet as a contributing factor, and the system is expected to help increase sales by at least 10% a year and give up to 400 customers the medical-supplies data they need."

Don Stoller, director of information management, Owens & Minor.

¹⁸ "Information Access Tools Market Forecast and Analysis Summary, 2001-2005," IDC, May 2001.

¹⁹ "CEO Growth 100," CEO Magazine, May 2001.

► Vision

Throughout its eleven-year history, Business Objects has continuously brought innovations to the BI market. In 1990, Business Objects pioneered the modern BI industry by inventing a patented “semantic layer” that insulates users from the complexity of databases. In 1995, the company was first to focus on enterprise-scale BI deployments and today supports customers with more than 20,000 users. The company moved aggressively to the internet in 1997 by pioneering the market for BI extranets, a market that it continues to lead today. In 2000, the company delivered the industry’s first interactive mobile BI solution and, in early 2001, Business Objects created and delivered a unique vision for enterprise analytic applications.

Today, Business Objects leads the industry again with the introduction of BI web services – allowing its customers to integrate BI into their applications using web services. Commenting on this release, a Hurwitz paper notes, “For buyers that want to stick with the winners, Business Objects has achieved a position that will draw even the most skittish buyers into its camp. Alternatively, buyers may decide to leverage new technologies such as web services and mobile computing to drive much needed increases in efficiency, innovation, and customer intimacy. For these buyers, Business Objects early experience and delivery of enhanced extranet, mobile BI, and web services support will make it a very attractive partner.”²⁰

²⁰ J. Sweeney-Coolidge, “A Preview at Business Objects 2002: Driving Growth and Innovation in the IDA market,” *Hurwitz Group*, 7 December 2001.

► Business Objects Product Capabilities

Ease of use – for end users

Ease of use is consistently rated as one of the top requirements for a BI solution. Indeed the purpose of business intelligence is to provide easy access to relevant information. This means allowing users to access their data wherever it may be and in whatever format it might be. Business Objects does this thanks to its patented “semantic layer” that automatically translates complex database terminology into familiar business terms. For example, the simple business term “customer” may actually translate to different columns or combination of columns with different names in multiple tables. Business Objects hides this complexity from users ensuring that they can easily create their own queries without having to wait on availability from IT.

Sometimes users will just need to view and refresh reports but, depending on their profile or current requirements, may also want to analyze the report data or create their own reports. Business Objects provides all this functionality within a single tool. This means that users only have to learn one tool and can easily and seamlessly move from one task to another without having to change tools.

Ease of use also means that users have access to their information wherever they are and whatever their preferred device is. Business Objects leads the industry in providing mobile business intelligence. Users can access their information whether from a browser, PC, mobile phone, or PDA.

Ease of use – for IT

Administering a BI extranet is no trivial task. It is therefore essential that the chosen BI tool be as simple and efficient to administer as possible. Business Objects ensures this thanks to its central repository, common metadata layer, and single security layer. IT can easily control all resources from the central repository. Metadata is defined only once and can then be immediately shared by all users with appropriate access rights. The single security layer means that user profiles are defined only once for all resources.

Business Objects has been designed to minimize the burden on IT staff while allowing them to maintain control. First, Business Objects provides all query, reporting, and analysis functionality within a single tool. IT does not have to worry about managing and integrating multiple tools. Secondly, as it is so easy to use, users can access, analyze, and share information themselves, without having to rely on IT. However, IT remains in control as it defines all resource access.

Ease of administration also means that the BI solution must integrate with existing IT infrastructure. Business Objects maintains an open platform policy so that it works with all major operating systems, browsers, application servers, and web servers. Also, Business Objects is ensuring integration with third party vendors and service providers through its open API and strategic integration partnerships. Examples of these partnerships include the Open Portal Initiative with all major enterprise portal vendors, the Open CRM Partner Initiative, the Data Integration Initiative with major ETL players, and the Mobile BI Initiative.

Scalability

Deploying a BI solution in an extended enterprise setting can mean giving access to thousands of users. It is essential that the chosen BI solution be able to support such a load. Because of its high scalability, Business Objects is the choice vendor for BI extranet solutions, with more extranet customers than any other BI vendor. To further prove this point, Business Objects has published scalability benchmarks on both Windows NT and UNIX.

With time the user population will grow. The BI solution will therefore need to seamlessly scale with increased usage. Business Objects is built on a distributed component architecture (CORBA). This means that as usage changes, load can be passed from one server to another or more servers can be added, without disrupting the system.

BI extranets are often mission-critical. The BI solution must guarantee 100% availability. The Business Objects CORBA architecture enables failover, which means that if one server stops another will automatically take over.

Security

A BI system for collaborative business will involve opening up corporate information to employees and, in many cases, to customers, partners, and suppliers. It is clear that system security is a top priority. Business Objects provides a single central security system to allow IT control over all resources for both intranet and extranet users. Security profiles can be extremely fine-grained, reaching down to the column and row levels for data access.

Integration with existing security infrastructure is also important. Therefore, Business Objects works over firewalls, supports SSL, integrates with standard directories, and can leverage NT login information.

Extensibility

BI extranets often require laborious customization, as customers want them tailored to their own look and feel. Through its Developer Suite product, Business Objects allows easy and fast customization through a high-level API and using XSL style sheets.

**Americas**

Business Objects Americas
3030 Orchard Parkway
San Jose, California 95134
USA
Tel: +1 408 953 6000
+1 800 877 2340

Asia-Pacific

Business Objects Asia Pacific Pte Ltd
350 Orchard Road
#20-04/06 Shaw House
238868
Singapore
Tel: +65 6887 4228

Europe, Middle East, Africa

Business Objects, SA
157-159 rue Anatole France
92309 Levallois-Perret Cedex
France
Tel: +33 1 41 25 21 21

Japan

Business Objects Japan K.K.
Head Office
Yebisu Garden Place Tower 28th Floor
4-20-3 Ebisu, Shibuya-ku
Tokyo 150-6028
Tel: +81 3 5720 3570

For a complete listing of our sales offices, please visit our website.

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