

Insight Through Integration: Creating a Business Insight Network to Support eBusiness Analytics

WHAT IS A BUSINESS INSIGHT NETWORK?

The potential for integrating, analyzing, and delivering the wealth of data available to the enterprise is greater today than ever before. And so is the potential for personalizing the data – reducing “information overload” by turning data that managers and executives need into information that they can use to improve business performance.

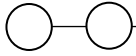
As spectacular as the growth of the Internet has been over the past several years, most companies are just now beginning to realize the Web's real potential. The emergence of eBusiness brings a world of opportunities for both established industry leaders and emerging “new economy” companies.

eBusiness clearly encompasses the many eCommerce or business-to-consumer applications. But, more importantly, it also covers the widening range of business-to-business applications that automate links with business partners – such as supply chain management – as well as operational applications, including customer relationship management and sales force automation. Across all of these applications, the need for

business insight is universal. For eCommerce companies, essential insight includes the demographics, behavior patterns, and preferences of customers and prospects. For business-to-business companies, it includes information collected from partners, suppliers, and manufacturing and distribution activities. No matter what the business model is, without business insight companies are flying blind, trying to survive in an increasingly competitive environment without a solid foundation.

eBusinesses face a number of fundamental business and technology challenges that impact their ability to derive meaningful business insight from enterprise data:

- *Exponential Growth in Transaction Volume and Complexity* – Partners and customers now interact directly with a company's IT infrastructure, increasing both the amount and diversity of data generated. eBusinesses must be able to integrate this data with information that exists in their traditional ERP, sales/marketing and other operational systems.
- *A Proliferation of New Types of Systems* – The number of strategic applications has more than doubled in the last decade. Many companies combine best-of-breed applications such as Siebel and Ariba with PeopleSoft, SAP, and various legacy systems.



THE NEW DATA SOURCES.

eBusiness applications produce large volumes of new source data, creating new demands on analytical systems. For eBusinesses, a major challenge in building a Business Insight Network is combining data from ERP and other operational systems with data from sources such as:

- *Web Logs* – Gather click-stream data from the Web site
- *Ad Servers* – Local or Internet-based servers that dispense targeted advertisement graphics and collect user information
- *Exchange Networks* – Business-to-business networks for buying and selling goods online
- *Content Servers* – Systems that store, organize and present content strategically across the Web site
- *Catalog Servers* – May include product information and shopping carts, and be integrated with ad, personalization, or commerce servers to construct product listings
- *Commerce/Transaction Servers* – Support sales, payments, tax calculations, shipping and handling, and often supply chain management
- *Personalization Servers* – Leverage customer/prospect profiles to match users with targeted content and commerce promotions
- *Supplier/Exchange Data* – Supplier information, mostly formatted in XML, for sharing and processing within an exchange or corporate supplier network
- *Flat-file Customer-Supplied Data* – Data from legacy midrange and mainframe systems. May include 3rd party/partner sources like Dun & Bradstreet or Experian

- *Decreased Cycle Times* – The speed at which eBusiness operates requires faster decision making and more timely access to consistent information. Data must be loaded at high speed into data warehouses, then presented for interpretation by users of the analytic applications that deliver enterprise business insight.

SYNOPSIS.

This white paper examines how eBusiness applications are driving the transformation of enterprise analytics from departmental reporting to cross-enterprise business insight, and highlights the requirements for a data integration solution that meets the key infrastructure and analytical demands of eBusinesses, today and tomorrow.

AS eBUSINESS GROWS, THE VOLUME AND DIVERSITY OF INFORMATION EXPLODES.

The trend toward eBusiness has resulted in a flood of information. As companies turned to the Internet to manage and enhance interactions with their customers, suppliers, and business partners, the volume, range, and scope of collected and consolidated data has skyrocketed. It is estimated that *Yahoo!* collects 400 billion bytes of data – equivalent to a library of 800,000 books – every day. And one relatively new advertising targeting company, Engage, has already gathered 30 million unique customer profiles.¹ Information is growing at an exponential rate – some 90 percent per year. Global 2000 companies see data storage doubling every 12-14 months, primarily driven by the growth of eBusiness initiatives.²

Despite the growing abundance of raw data, valuable information is becoming harder to find. Critical business data is dispersed across the enterprise, difficult to access, and sometimes even more difficult to interpret. Unlike traditional businesses, whose vital operational information resides in mainframe or server-based enterprise database systems, much eBusiness data comes from the very source of the business

itself – including Web logs, advertising and content servers, exchange networks and supplier data, transaction servers, and personalization engines, to name just a few sources (see sidebar). More “information consumers” throughout the corporation are demanding faster reporting, deeper analysis, and the ability to access and leverage information beyond the company’s four walls. All of this has put unprecedented stress on companies’ management processes and information technology infrastructures.

To truly capitalize on the promise of the Internet, large organizations must address the integration, analysis, and personalized delivery of critical corporate information across their entire value chain – including customers, partners, and supplier relationships. As Halsey Minor, CEO of the online news company C|Net, said, “The value of marketing on the Internet isn’t in click-throughs, it’s in the data you capture.”³ eBusinesses must leverage that data and transform it into actionable insight to improve operational performance and enhance competitive advantage.

THE GROWING NEED FOR BUSINESS INSIGHT.

Not only is eBusiness creating a growing volume and diversity of information, but it is demanding increasingly complex analysis.

This presents a second major challenge: integrating multiple new and disparate data sources into one coherent analytical format.

For example, marketing communications have evolved from relatively static data sheets, product manuals and other generalized marketing materials to include more dynamic, personalized, and customer-driven applications. As this trend continues, innovative personalization technologies will combine interactive voice recognition, intelligent content distribution, and other event-based techniques to enhance companies’ ability to create highly targeted, customized online experiences for their customers and partners. For these techniques to succeed, however, more sophisticated analytical tools are required. Companies

¹Business Week, July 26, 1999

²IBM Corporation: Booz, Allen, and Hamilton

³Business Week, July 26, 1999

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will demand more timely and meaningful detail about who their customers are and what they want (as well as how, when, and where they want it). Such knowledge requires a comprehensive solution capable of delivering 360-degree business insight and supporting immediate, closed-loop execution of initiatives driven by that insight.

Business insight is meaningful and actionable information that suggests a clear execution path – information that sees across the range of functional silos that make up the value chain, organizes ideas for clarity and consistency, provides accurate decision support, and lays the foundation for competitive advantage. Business insight enables “the best of what the Internet has to offer – personalized, one-to-one content/experiences, targeted service selection, and a seamlessly integrated fulfillment chain.”⁴⁷

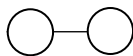
THE BUSINESS INSIGHT NETWORK: THE OPTIMAL INFRASTRUCTURE FOR eBUSINESS ANALYTICS.

With all the obstacles to finding, integrating, and interpreting data, it's no surprise that most companies use less than 20 percent of the information they own. To unlock silos of data, bring information together, and deliver actionable analysis requires a *Business Insight Network*. A Business Insight Network is an analytic infrastructure that combines the principles of data warehousing, business intelligence, the Internet, and wireless technologies into a unified network that gives professionals a 360-degree view of their business – internal operations as well as customer and supplier relationships. A Business Insight Network delivers unprecedented visibility across the extended value chains of today's complex enterprises.

A variety of vendors currently offer analytic applications that track and measure sales efficiency, customer service, advertising campaigns, supply chain logistics, e-mail marketing, and other business metrics and activities. Unlike these solutions that provide “stovepipe” views of single business

functions, a Business Insight Network integrates and analyzes customer, supplier and business operations data to deliver comprehensive *enterprise* intelligence to anyone, anywhere, at any time. As the breadth and complexity of eBusiness data sources evolve, leading companies are defining the fundamental architectural characteristics required to create a sustaining Business Insight Network.

- *Robust Data Integration* – In addition to integrating data from current sources – including mainframe, relational, CRM and ERP operational systems – a Business Insight Network must also accommodate wide-ranging new sources, from Web transaction and XML data to integrated online supply chain systems.



“eBusiness is emerging at breakneck speed as the new context for global commerce, bringing with it greater quantities and a higher quality of actionable information than ever before.”

— DIAZ NESAMONEY, PRESIDENT, INFORMATICA CORPORATION

- *Platform Scalability* – A Business Insight Network must be able to scale in two dimensions, efficiently handling both the growing number of transactions and the increasingly distributed and mobile user community requiring analytical output. It should also be built on an open architecture that enables companies to introduce solutions at the department or division level, then broaden deployment as business needs grow.
- *Platform Extensibility* – A Business Insight Network must be able to access valuable business data from a broad number of databases, systems, and applications, and must allow the easy integration of additional information as the enterprise infrastructure evolves.
- *Fine Granularity* – A Business Insight Network must be able to aggregate information both horizontally (i.e., identify trends across entire populations) and vertically (i.e., drill down for any given customer to determine important details).

- *Timely Data Refresh* – Perhaps the most daunting requirement of a Business Insight Network is near real-time processing of eBusiness data to support immediate decision making and facilitate closed-loop communications.
- *Personalized Information Delivery* – Combining the Business Insight Network with new wireless, voice recognition, and Web technologies meets the unique requirements of individual knowledge workers by enabling personalized and timely delivery of data to the point of work via Web interfaces, wireless devices such as mobile phones and personal digital assistants, or voice recognition.

DATA INTEGRATION SUPPORTS BUSINESS INSIGHT.

At the center of the Business Insight Network is a data integration platform. This may consist of a single data warehouse, or it may encompass multiple warehouses synchronized via a central repository. Feeding this data integration platform are various data sources – from Web logs, external demographic systems, and personalization servers to the company's ERP and CRM systems and the mainframe and relational databases that maintain financial, marketing, sales, customer and service information. The role of the data integration platform is to extract data from these sources, cleanse and consolidate it, transform it to support meaningful analysis, and personalize this content for access by enterprise information consumers.

white paper

Such a system enables companies to “close the loop” by applying active intelligence to their eBusiness applications. For example, an eCommerce company may record click-stream data while users are at the Web site. If specific user profiles can be identified, this data may be supplemented with other information about past behavior at this site (or at others, if the company collaborates with business partners), as well as additional demographic or marketing intelligence. The result is a targeted marketing vehicle that gives customers a highly personalized,

more rewarding shopping or browsing experience. Active intelligence can be applied to other eBusiness pursuits, such as customer relationship or supply chain management. In fact, almost any information gathered via the Web can be merged with existing insight to produce real-time performance tracking and, if necessary, suggest corrective action.

Although they deliver powerful benefits, these and other eBusiness applications also place growing demands on data integration

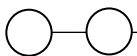
platforms – demands for a more scalable, more flexible and more extensible data integration platform optimized to support complex application interactions. New sources of data continue to emerge, even as existing sources merge into complete application suites. At the same time, analytic applications are becoming smarter and more capable – and thus, more demanding of scalable data integration platforms to optimize and present data for analysis.

THE NEW STANDARD FOR BUSINESS INSIGHT NETWORKS: INFORMATICA POWERCENTER® 5.

Informatica PowerCenter 5 is the world-wide standard platform for enterprise data integration, enabling leading organizations to bring together eBusiness data with other enterprise data for strategic business insight. Informatica PowerCenter 5 effectively and comprehensively integrates the wide array and high volume of information from such diverse sources as ERP applications, CRM systems, eCommerce systems, legacy databases, and other sources.

As the leader in providing the first analytic infrastructure for Business Insight Networks, Informatica now expands its proven performance and architectural principles to the integration of new eBusiness solutions. Specifically, Informatica gives eBusinesses these necessary infrastructure services:

- *Platform Extensibility* – Informatica eases the task of connecting to varying source systems, identifying the appropriate data, and extracting and consolidating that data into meaningful information for analysis. A comprehensive platform supports deployments of any size – from individual departments to the extended enterprise – and an open API and meta-data-centric architecture drive developer productivity and speed return on investment. Informatica PowerConnect products enable the integration of corporate data from SAP, IBM, and PeopleSoft systems, as well as an industry-leading array of generic sourcing capabilities – from Web log data to mainframe flat files to operational databases.



INFORMATICA POWERCONNECT™ FOR IBM® MQSERIES®: EXTENDING eBUSINESS INTEGRATION.

A comprehensive Business Insight Network must make all operational data available for analysis – including the messaging data that supports communication by different applications across an enterprise. Informatica PowerConnect for IBM MQSeries supports the real-time eBusiness messaging capabilities of IBM MQSeries, taking the Informatica data integration platform to an even higher level.

MQSeries, the most widely used message-queuing software on the market, enables users to exchange information between applications across more than 35 different platforms, from mainframes to PCs. IBM MQSeries enables business integration throughout the enterprise, allowing companies to maximize eBusiness opportunities by leveraging existing resources to improve speed-to-market and anticipate IT changes as their business changes. MQSeries' asynchronous technology assures message delivery even when programs or networks fail or the target system is temporarily unavailable. According to the Gartner Group, IBM MQSeries accounted for about three-quarters of the 1999 worldwide revenue for all embedded Message Oriented Middleware (MOM).

Informatica PowerConnect for IBM MQSeries integrates data from message queues, transforms the data according to specific business rules, and targets delivery to a central data warehouse or other message queues. By providing this direct connectivity, Informatica PowerConnect for IBM MQSeries allows companies to leverage messaging and queuing information for mission-critical eBusiness insight. This high-performance system supports the data integration needs of the most demanding eBusinesses, leverages existing technology investments and resource expertise in the leading real-time messaging application, and is flexible and extensible enough to support a spectrum of requirements, from data marts to global enterprise solutions.

Key benefits of Informatica PowerConnect for IBM MQSeries include:

- Generating closed-loop communications back to eBusiness systems, with bi-directional support for the sourcing and targeting of message queues
- Supporting faster, more relevant analytics and business insight through the integration of real-time message data with other enterprise data sources
- Providing scalable performance to support the critical transactions of the most demanding eBusinesses

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- *Scalable Performance* – To handle the exponentially greater volume of eBusiness data, Informatica PowerCenter 5 applies the power of parallel processing engines that can overlap extraction, transformation and load functions. This improves both speed and scalability, since the engines can be configured to run across symmetric multiprocessing (SMP) processors. Performance is further aided by the ability to perform true data streaming as a user option – offering significant performance advantages for certain applications by processing extract, transformation and load jobs exclusively in main memory and avoiding the time-consuming process of disk swapping.
- *eBusiness Adaptability* – In order to compete, eBusinesses must be able to redefine themselves and their markets literally overnight, if necessary. This means they must be able to quickly deploy new technologies and add or replace operational sources. Informatica PowerCenter 5 has incorporated XML sourcing capabilities as a standard feature, making it the industry's most comprehensive data integration platform, and the de-facto standard. Informatica PowerConnect products also support new eBusiness data sources, including IBM MQSeries (see sidebar to the left) and Siebel CRM systems.

DELIVERING BUSINESS INSIGHT WITH INFORMATICA APPLICATIONS.

Until recently, companies had to rely on stovepipe analytic applications that were difficult to piece together. Euphemistically called “best of breed,” each of these applications excelled at analyzing one, and only one, functional area (click-stream or financial data, for example), so they were incapable of providing the complete view needed to let business users make truly informed decisions.

Now, a new generation of analytic applications from Informatica delivers the consistency and completeness eBusiness requires, consolidating data from diverse sources that are simply not accessible to other analytic applications – sources that these niche applications don't even know exist. Informatica Applications can even source from these stovepipe analytic applications, allowing companies to leverage their past investments for the 360-degree business insight they really need. Informatica Applications perform the cross-functional integration necessary to create enterprise-wide analytics. At any time, users can drill across the value chain or drill down into functional areas to gain valuable insight. The data models for Informatica Applications conform to critical business definitions across the entire enterprise, and are extensible so analytic users can run customized queries integrating analytics from multiple departments. Best of all, the results these applications produce are dependable, consistent, and comprehensive.

Only Informatica delivers this kind of cross-functional, cross-value chain, analytic power through a growing family of applications for eCRM, eBusiness Operations, eProcurement, and eMarketplaces. And only Informatica lets companies analyze their entire range of customer, partner and supplier relationships, maximizing business performance by leveraging a comprehensive Business Insight Network.

TAKING CONTROL OF eBUSINESS INFORMATION.

The optimal Business Insight Network for eBusiness is built on a tested and proven platform designed to meet the demanding requirements of the largest and most complex companies in the world. It is a system that consistently delivers the broadest, most extensible set of analytic capabilities in the marketplace today. Industry leaders – from telecommunications infrastructure

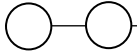
giant UUNet to eBay, the king of Internet auctions – rely on Informatica technology every day to provide critical business insight. For these companies, and for many others embarking on eBusiness initiatives, Informatica analytical solutions are at the heart of their expanding Business Insight Network.

Informatica has continually expanded its platform to leverage new standards such as real-time message queuing and XML pipelining. As eBusiness matures to adopt even newer technologies, such as wireless information delivery, Informatica is ahead of the technology curve and poised to deliver the solution set to support what eBusinesses need from their next-generation Business Insight Network.

FOLLOW THE LEADER.

Informatica provides eBusiness analytic software that enables companies to leverage business insight for competitive advantage. More than 1,100 global customers, including over half of the Fortune 100, leverage the Informatica Insight Network to integrate, analyze and personalize critical business information to improve business performance and responsiveness across the entire business value chain. Informatica products include a comprehensive family of analytic applications, the industry's most powerful data integration platform and a wide range of supporting services and partnerships.

Our list of leading customers includes 3Com, AMD, American Airlines, BMW, Boeing, Borders Group, Chevron, Cisco, CNET, Deutsche Bank, eBay, General Electric, Hewlett-Packard, Inktomi, Merck, Merrill Lynch, MetLife, MCI WorldCom, Motorola, Mutual of Omaha, Philips, Polo Ralph Lauren, Sprint and UBS. For more information, call 800.970.1179, or visit the Informatica Web site at www.informatica.com.



CASES IN POINT.

Companies with a Business Insight Network find growing competitive advantage each day. Here are three examples of how winning companies maintain strategic competitive advantages by incorporating and standardizing on Informatica as the analytical foundation of their eBusiness operations.

CNET

Each day millions of people worldwide pay a virtual visit to CNET.com sites seeking information on a vast assortment of technology issues and products, including computers, networking, software, and eCommerce. One of the critical factors to CNET's success is its ability to capture, aggregate, decipher and gain value from the unending flood of click-stream data that flows through the company's Web sites each day.

CNET relies on a Business Insight Network centered around Informatica PowerCenter 5 to consolidate click-stream and product information from three Web content databases, eight Web site traffic servers, and an advertising operational data store. Informatica eBusiness analytic software solution provides CNET with an easily-accessible data warehouse populated with site visitor statistics, customer demographics, and purchasing data.

CNET's business analysts, accountants and sales representatives use Informatica analytic platform to generate customer intelligence reports and billing figures for both internal and external consumption. Use of the Informatica solution has enabled CNET to increase revenues from advertising and other services, provide partners with faster, better service, and manage expenses more accurately.

eBay

eBay is the world's largest online trading community. On any given day, there are millions of items for sale on the site across thousands of categories. eBay views its web site and the information within it as extremely strategic, but the company faced a tremendous challenge in aligning the sheer volume of raw data with the growing user demand for meaningful information. To better understand its customer base and achieve financial targets, eBay has adopted the Informatica analytic platform to help manage the large volume of data it collects from its highly trafficked, and highly visible, Web site.

Informatica enables eBay to access and deliver information in ways that weren't possible before, at a lower cost than earlier, labor-intensive approaches. The timeliness of information and the ability to process large volumes of data help eBay run its business more effectively and deliver a better solution to customers.

Looking ahead, eBay is planning significant enhancements to its service. Measuring the impact of these enhancements is critical, which means more data and more users – with even shorter turnaround times. The Informatica architecture scales to supply eBay's growing needs for a complete Business Insight Network.

Owens & Minor

The nation's leading distributor of branded medical and surgical supplies, Owens & Minor has a supply chain that spans thousands of hospitals, healthcare networks and group purchasing organizations. To derive maximum value from this complex business network, Owens & Minor has implemented the Informatica analytic platform to track sales, inventory, and accounts receivables throughout the supply chain, and provide the data for a Web-based extranet for supporting customers and suppliers.

The supply chain monitoring system, called WISDOM (Web Intelligence Supporting Decisions from Owens & Minor), leverages the Informatica analytic platform to extract data from a variety of sources and deliver the results to customers and suppliers. These users rely on the system to analyze everything from product usage trends and shelf-life data to customer purchasing patterns. As the number and variety of users continue to grow, the ability of Informatica to easily scale to higher-volume, more complex environments will be key to Owens & Minor's success.

Deploying this critical foundation for a Business Information Network has enabled Owens & Minor to help customers and suppliers fine-tune their planning while achieving cost savings. This translates into a significant competitive advantage; the company has already won new customers and expanded existing business relationships as a direct result of WISDOM.

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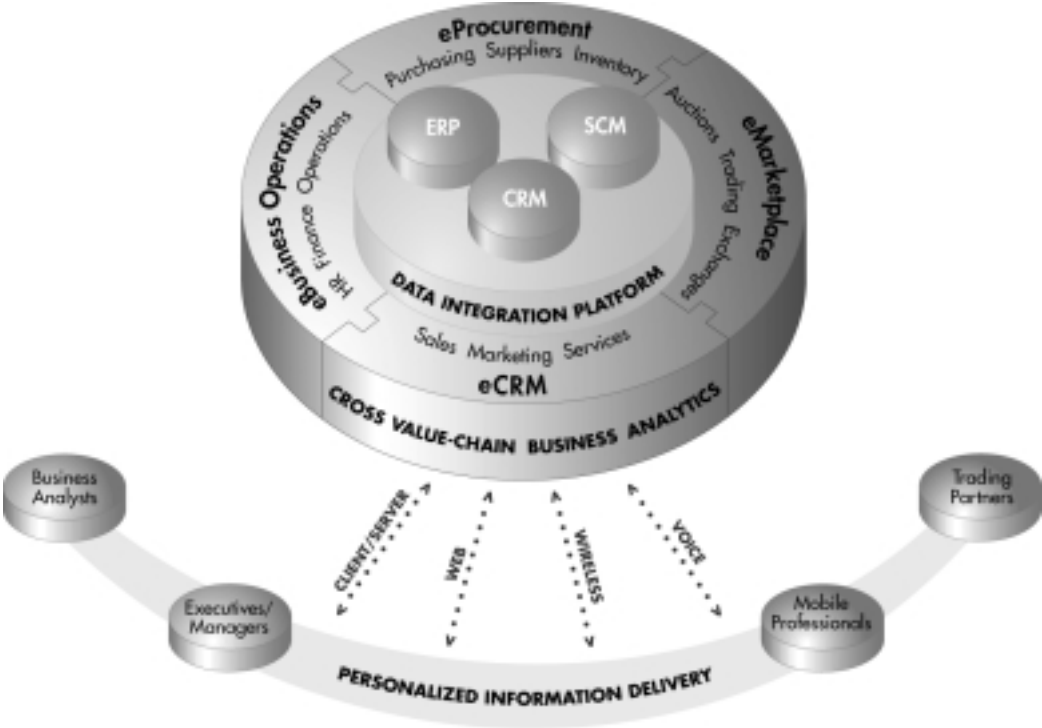


Figure 1: The Informatica Business Insight Network

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