LINEAR
PERSPECTIVE

*A professional article series dedicated to
extending the value of your SAP investments*

Extend the value of SAP investments through integration best practices — a catalyst for productivity, innovation and efficiency

Leveraging and maximizing existing investments

Since the earliest days of trying to get systems to communicate with each other, the industry has searched for ways to align heterogeneous and complex IT infrastructures to support agility and flexibility for the business. Clients don't want, nor do they have the ability to just throw away previous investments to start again. They need a way of leveraging and maximizing their existing investments while having the flexibility to build new solutions.

Service-oriented thinking is gaining popularity in both the business and the IT communities because it allows interoperability between heterogeneous systems, reuse of components, and flexible and efficient business processes. Investments in middleware to implement service oriented architecture (SOA) have become strategic: they have a long-lasting and positive impact on a company's ability to operate and compete. And significant resources will go into these investments over time.

The main difference between SOA and other approaches is that in SOA all assets are represented as services whether they are components, applications, data sources, processes or whatever else. At the heart of a service is a well-defined interface that enables reuse of the assets.

This separates the business view of what the technology does from the actual technical implementation. As a result, a stronger bond is created between business and information technology (IT) because:

- *Business analysts can identify, analyze, and model the principal business processes ('as is' and 'to be') across the enterprise, putting that understanding in context against the goals and trends of the organization;*
- *IT can then take action quickly to improve the execution, mapping the assets as services, and integrating the business processes with the underlying infrastructure.*

This interaction (parallel or iterative) between business and IT delivers a structure for continuous business improvement.

IBM WebSphere® solutions enable clients to leverage their existing and newly created assets to participate in an SOA by abstracting the individual complexities of their applications and systems into a more meaningful business representation. This means that although the underlying technologies might change (such as applications, data sources, middleware, IT vendors and suppliers) the business view of the assets can remain stable. Conversely, the business view of the assets can change whenever the business deems necessary — allowing for business flexibility — independent of the technology changes. This alignment but separation of business and IT needs is driving the rapid adoption of SOA and standards across the industry.

Extend the potential of your SAP environment
There are many factors to consider when evaluating a business integration solution: capability, productivity, performance and cost. A solution capable of supporting complete business processes end-to-end helps define winners more completely than solutions based around specific applications.

As a user of SAP software, you understand and appreciate the advantages of SAP business applications for your enterprise resource planning (ERP). And with the rapid growth and evolution of the business environment, the importance of IT to support business processes increases constantly.

Integrating business applications is key to a company's improved productivity and potential for innovation. But the organic growth of heterogeneous IT environments too often leads to hidden cost factors. Therefore, infrastructure and process optimization is an important element in helping lower your costs and increasing your flexibility.

Even in an SAP environment, the whole must be more than the sum of its parts. Only if you can create an integrated unit from the individual applications and processes will you be able to work more efficiently, faster and better in the future. The integration of data, applications, business processes and employees — also while interacting with clients and suppliers — can help create the competitive advantage that you need.

Hanaro Telecom — connects existing and new services and other assets using WebSphere software

Hanaro Telecom
Location: Seoul, Korea, AP
Industry: Telecommunications

Headquartered in Seoul, Korea, Hanaro Telecom (Hanaro) is a full-service communication provider. Its offerings include wired telecommunications services, including local and long-distance phone services; Internet services, including very high bit-rate digital subscriber line (VDSL) and asymmetric digital subscriber line (ADSL) services; and wireless local area network (WLAN) service.

Business challenges: To gain market share and increase its competitiveness, Hanaro needed to streamline its business operations and increase its efficiency by implementing an enterprise resource planning (ERP) solution. But the company's complex and inflexible back-end IT infrastructure did not enable easy integration between Hanaro's internal systems and a new ERP application. To maximize the effectiveness of a new application environment, Hanaro needed to implement an efficient, flexible and robust infrastructure that would integrate its existing IT systems with a new front-end ERP application environment.

Business solution: Hanaro engaged IBM and IBM Business Partner MOCOCO to develop and deploy an enterprise application infrastructure (EAI) to manage transactions between its new SAP ERP system and its existing internal applications. The EAI allows the SAP application to integrate with other back-end systems without requiring a point-to-point interface.

Benefits:
- *Increased business flexibility and competitive advantage*
- *Speed and ease of use*
- *Solid foundation for building an SOA*
- *Cost-effective integration of new technologies being added*
- *Scalability and longevity*

The client's new integrated SAP system provides it with an ERP solution that is more flexible, faster and easier to use than competing solutions. And because the EAI solution allows it to integrate seamlessly with the client's existing back-end applications, the SAP system can access accurate business data in a timely fashion. The IBM EAI, based on IBM WebSphere software and an IBM System p5™ 550 server, is the client's first step in building an overall SOA. In the future, Hanaro will be able to easily, quickly and cost-effectively integrate new technologies into the EAI. And the flexible and scalable IBM System p5 550 environment helps ensure that the client will be able to leverage this solution for many years.

Solution synopsis: The IBM WebSphere Message Broker software, which routes messages from the back-end applications to the SAP environment and conversely, converts code from each system into a usable format, transforms data formats and uses intelligent routing to ensure efficient and reliable transmission of data. The IBM WebSphere Adapter software allows the client's existing client relationship management (CRM), billing, human resources (HR), rating, groupware, code management, statistics, online bidding and external gateway applications to integrate with its new SAP environment. Approximately 2000 Hanaro personnel are directly or indirectly affected by this solution.

Software, services and applications: The EAI includes IBM WebSphere Message Broker, Version 5 software, IBM WebSphere Adapter for mySAP V2.6 software and an IBM System p5 550 server.

Integration — unsolved, complex and a priority for SAP clients

Thinking in terms of business process and application integration

SAP software clients need to address business needs by reducing the cost and complexity of integration across multiple enterprise applications and disparate systems. However, for many SAP clients, the integration challenge can be extremely complex. **In fact, many SAP users indicate that the integration of their SAP applications with other enterprise applications is a critical 2006 priority.**

In an effort to achieve greater business efficiency and to become more responsive to change, today's business leaders place great importance on being able to make better reuse of existing assets. By leveraging these assets (in the form of applications and data) in new ways, and being able to do this faster than previously possible, the organization is better equipped to quickly respond to changes in market conditions with less new spending, and with reduced complexity, lowering ongoing maintenance costs.

Get connected

Integrating systems, applications and data across your enterprise

As a user of a strategic business applications such as those provided by SAP software, you generally have a multitude of systems in your corporation. The integration of these systems along the supply chain, and across different platforms and applications, is a key factor in your company's success. Your company can be more competitive and successful if you are able to connect and integrate data from various heterogeneous systems. To accomplish this, all factors — people, information and business processes — have to be integrated, regardless of whether the associated systems are SAP, from another vendor or developed in-house.

Today's businesses are acutely aware they need to move from rigid siloed application approaches to more flexible business process focused solutions. This is driving the need for transparency in the underlying technologies, and for better levels of standardization and virtualization of the infrastructure, along with consideration of the value chain including suppliers and clients.

Best practices in connectivity

Underlying connectivity to support business-centric SOA

One of the key needs of SAP clients is to be able to integrate SAP applications into an SOA to increase business process and application integration, reuse flexibility and optimization. By using IBM's WebSphere software solutions to integrate your SAP ERP and SAP NetWeaver solutions with other applications in your IT Infrastructure, you can feed data and implement business processes directly from other systems in right time — without reentering, duplicating or omitting vital steps in your process.

Many organizations are integrating SAP applications using WebSphere software as it allows them to integrate heterogeneous systems, applications and data across the enterprise in a secure, reliable and scalable fashion. Connecting business applications and SAP systems using WebSphere Message Broker and WebSphere Adapter software can help you maximize business flexibility, reduce total cost of ownership (TCO) and earn a faster return on investment (ROI) on existing SAP software assets.

IBM WebSphere Adapter for SAP software, when combined with IBM enterprise service bus (ESB) offerings, allows SAP applications to be exposed as services and integrated with other applications, so SAP clients get more value out of their existing application asset base.

A banking and financial services organization achieves a win-win situation using WebSphere Adapter for mySAP

Industry: Banking and financial services

Summary: A leading banking and financial group connects business applications and a SAP system using IBM WebSphere Adapters and IBM WebSphere Message Broker software.

Business challenge: Running a varied and complex IT infrastructure that included an ERP system from SAP and many dependent business applications required the management of multiple standards, varied resources and different skill sets. The client wanted to implement a technology solution that would simplify administration of the infrastructure and ease the burden on its IT staff. The organization was looking to reduce operational costs and improve efficiency; additionally, it had created approximately 180 point-to-point connections and interfaces using IBM WebSphere Message Broker software. These connections were difficult to manage and increased the complexity of the infrastructure.

Business solution: To simplify communication between its applications and the SAP system, the banking group implemented IBM WebSphere Adapter for mySAP software, creating a cost-effective and easy-to-use connection between the IBM WebSphere Message Broker software and the SAP system.

Benefits:
- *Simplified administration of the infrastructure*
- *Eased the administrative burden on IT staff*
- *Reduced operational costs*
- *Improved efficiency*

IBM WebSphere Adapters software provided a more cost-effective connection between business applications and the SAP system by simplifying the complexity of the overall IT infrastructure, and thereby reducing the number of IT administrators that were required to manage the infrastructure. In fact, in this instance, the client was able to redeploy some of its staff to other critical IT tasks.

After it had been deployed, the new system efficiently managed calls from all 180 connections, routing them to the SAP system to ensure real-time application integration. Ultimately, more than 1000 users within the organization were positively affected by the implementation of this solution.
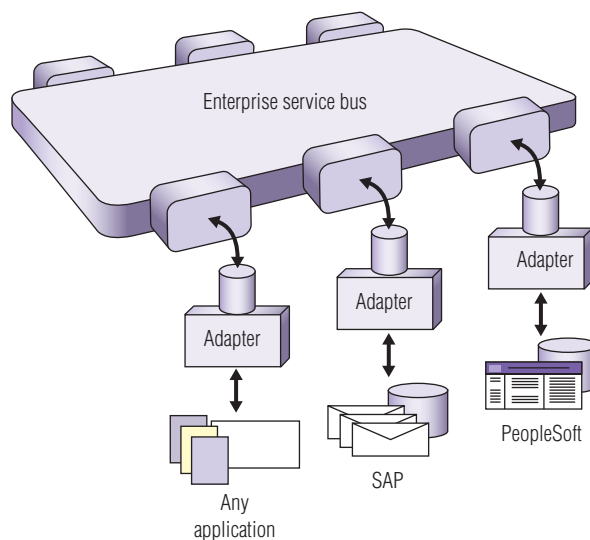
IBM WebSphere is uniquely able to help SAP clients better address their business needs by helping reduce the cost and complexity of integration across their multiple enterprise applications and disparate systems within and beyond their SAP environment. As the leading worldwide integration platform, IBM WebSphere offers you an excellent extension to integrate a multitude of applications for your employees.

- *IBM WebSphere Message Broker offers powerful mediation between services, enabling standards-based, nonstandard applications, systems and data sources to be integrated. It leverages and extends the universal connectivity of WebSphere MQ and complements IBM WebSphere ESB. These products maximize reuse of existing investments so that they can be used in multiple business processes.*
- *WebSphere Message Broker Toolkit, based on the latest release of IBM Rational® Application Developer and Eclipse, is included in the WebSphere Message Broker license. The toolkit runs on either Microsoft® Windows® or Linux® on Intel® platforms, and enables the client to configure the system, develop the message flows and manage deployed environments.*
- *IBM WebSphere Adapters help clients complete the last part of the integration of their technology and business application investments. WebSphere Adapters expose the structure and processes within applications as services, which extends the reach of the ESB into the heart of critical business applications and touch points in a client's SOA.*

WebSphere Adapter for SAP software
IBM WebSphere Adapter for SAP: provides bidirectional, multithreaded, real-time integration between SAP and other applications, using all SAP's interfaces capabilities.

- *The prebuilt WebSphere Adapter for SAP software discovers how information is stored in your SAP application and integrates it into your infrastructure. The adapter accurately maps and controls the inbound and outbound flows of information between your SAP application and your infrastructure.*

IBM application integration solutions for SAP software offer you a logical step in helping to achieve the benefits you need today.

Mission accomplished integration

Taking the next logical step in achieving greater business flexibility

IBM WebSphere offers you an SOA platform for EAI, which defines the seamless connection and integration of business processes and applications in your company. The combination of IBM's ESB offerings combined with WebSphere Adapters results in "mission accomplished" integration.

Staying ahead of the game requires the ability to react to market changes quickly. Increasing flexibility and keeping costs low are factors that can help to contribute to a faster ROI. By integrating your existing application environment, reusing existing assets and services, and improving connectivity, you can protect investments while automating and optimizing critical business processes.

An industrial products giant stays ahead of the game with a fully integrated ERP system that enables profits and costs to be viewed in real time

Industry: Industrial products

Summary: An industrial products organization gains the ability to view profits and costs in real time, using a fully integrated ERP system based on mySAP modules and IBM WebSphere software, reducing manual data-entry tasks, eliminating several mainframe applications that were nearing end-of-life status and acquiring a better understanding of costs and profit margins.

Business challenges: This industrial products giant relied on a cumbersome and predominantly manual accounting system that made it difficult to manage costs and profits efficiently. Powered by various mainframe accounting applications and aging Oracle databases that pre-dated the time when integrated solutions were readily available, the ERP system required employees to manually enter important information into databases—a process that was both time consuming and prone to human error.

Business solution: Recognizing the limitations of this system, the organization embarked on a project to upgrade the existing ERP system with a robust, integrated solution that provided real-time cost and profit information online. IBM Business Consulting Services was engaged to design and implement the new, fully integrated ERP system.

Benefits:
- *Reduced manual data-entry tasks*
- *Eliminated several ageing mainframe applications*
- *Gained a better understanding of costs and profit margins*
- *Achieved greater insight into the business' position in the marketplace*
- *Improved the visibility and understanding of the business in preparation for market expansion and growth*

Solution synopsis: At the core of the solution was a suite of mySAP modules, providing real-time access to a wide array of critical profit and cost information. The ERP modules were then integrated with the organization's asset-management, production-planning and packaging systems using IBM WebSphere Message Broker and IBM WebSphere Adapter for mySAP software.

- *The WebSphere Message Broker software allowed important transactional data, such as materials consumption and purchase orders, to be freely exchanged from the Oracle database to all of the company's systems, reducing the amount of manual data-entry required.*
- *The WebSphere products delivered tight integration between the mySAP modules and the organization's back-end systems, resulting in a resilient new ERP system that provided real-time views of critical cost and profit information for every key decision.*
- *The new WebSphere software-based solution allowed the organization to integrate back-end systems with robust mySAP ERP modules, giving immediate online access to critical cost and profit information.*
- *The WebSphere software solution promoted cohesion and integration among a wide array of systems, improving information sharing throughout the organization.*

Overall, approximately 3500 users were positively affected by this solution.

Implementing integration solutions based on IBM WebSphere software can help organizations achieve benefits such as:

- *Increased agility—flexible connectivity infrastructure allows easy addition and change of services and reduction in number and complexity of interfaces.*
- *Increase cost savings—you can reduce your integration costs substantially when using prebuilt adapters, compared with traditional methods.*
- *Speed time to market—prepackaged, ready-to-use adapters mean that you are not bogged down in coding, helping you to get to market more quickly and focus on achieving business results.*
- *Lower your business risk—IBM provides expertise in interfacing disparate systems. Each specialized adapter offers a proven solution to meet your integration needs.*

- *Exploit extensive functionality and ease of use – a common architecture provides event detection, full application programming interface (API) support, asynchronous and synchronous messaging, and transactional support.*
- *Leverage existing investments in legacy applications – enable wider sharing of business data and manage complexity through end-to-end enterprise integration, making use of all applications and systems.*

A major chemicals manufacturer quadruples its monthly business-to-business (B2B) transactions by replacing an existing electronic data interchange (EDI) solution with IBM WebSphere Message Broker and corresponding SAP Adapter software
IBM WebSphere Adapters enable software to easily communicate with the SAP environment

Industry: Chemicals and petroleum

Summary: An organization's approach to integration and networking offers a unique competitive advantage that helps generate continued long-term growth and profitability from its activities.

Business challenges: To continue to keep up with demand, the organization wanted to buy and sell more frequently over existing connections. But, the incumbent EDI solution used to send and receive payment orders from suppliers and clients already presented problems that needed to be resolved:

- *The particular platform in place was unable to provide the level of service that was required.*
- *The system lacked any local support and it was difficult to use.*
- *The environment was unreliable, resulting in frequent data loss for which the organization had to financially compensate its partners. As a result of these deficiencies, any increase in data volumes was certain to further tax the system.*

Business solution: IBM WebSphere Message Broker and corresponding WebSphere Adapters for mySAP software were selected as the new interface between the organization's SAP systems. After replacing the existing EDI solution, the chemical manufacturer was able to reliably exchange approximately 1.1 GB in orders, payments and other information each month.

Benefits:
- *Faster B2B implementations*
- *Increased B2B transactions*
- *Increased partner connections*
- *Efficiency and speed*
- *Responsiveness to business changes*
- *Improved vendor and partner communications*

Business benefits:
- *Expanded its base of partners from 37, to more than 57 banks, suppliers and clients*
- *Resulted in an increase in transactions from 4500 to 8300 each month, which represented a jump in monthly B2B transactions to US$200 million, up from US$50 million.*
- *An additional benefit discovered – bringing each new EDI partner implementation into full production took significantly less time than the previous system, requiring on average only 56 hours.*

Getting ahead faster together

You, IBM and SAP: A range of technologies to help innovate and improve

Whether you are running R/3 or mySAP applications, IBM can help you address your connectivity needs today. Connectivity has always been a requirement, but connectivity in the context of an SOA brings new levels of flexibility. As well as acting as a building block for additional SOA initiatives, connectivity provided through an SOA has distinct, stand-alone value — helping align your IT infrastructure with your business goals and maximizing your organization's ability to be flexible and responsive to competitive threats and new opportunities.

Getting more value from your SAP investments using application integration solutions from IBM

Enhance existing SAP R/3 environments with a proven IBM SOA today without the pain of migration	• Gain responsiveness: Real-time ability decreases time to market • Gain flexibility: Leverage SAP assets in new business opportunities • Gain openness: Extend your SAP environment to include other applications. • Gain reliability: Proven technology reduces your risk
Profit from best-of-breed integration in an SAP environment	• Reduce time, cost and complexity of building and maintaining application interfaces • Simplify and improve the performance of moving information between all your applications • Accelerate your time to value with best-of-breed, prebuilt SAP adapters
Extend your current IT environment, integrating not only SAP-to-SAP but also all other applications	• Save migration cost and effort • Leverage SOA from your SAP R/3 environment • Consolidate and migrate with a proven solution — easy, efficient, low-risk
Reduce application integration costs in heterogeneous environments	• Productive tools • Application adapters for all leading applications • Minimal changes to leverage coexisting applications
Make the most of your existing investments — through openness, independence, scalability and security	• IBM WebSphere is synonymous with innovative middleware technology offering openness, independence, scalability and security • IBM participates in both open standards, demonstrated through the recent release of more than 500 software patents • IBM is committed to the definition and timely implementation of open standards such as JMS, SOAP, .NET, Linux,® Eclipse, SDO and SCA)

To achieve this flexibility, you need to make the most of existing SAP systems and investments by allowing them to participate in new business processes, integrating them with new systems and applications. An SOA-based infrastructure can align your business processes with the strategic business objectives to drive your success.

With more than 1500 unique ways to connect into an SOA (across IBM WebSphere, IBM Rational®, IBM Lotus®, IBM Tivoli® and IBM DB2® brands), IBM and its Business Partners provide a strong solution to client integration challenges, offering you the flexibility to implement the right solution for your needs.

In fact, IBM can connect more of your assets and services and has the product breadth to support the most connected SOA platforms in the industry, to help you maximize reuse. Many of these solution options are available through the IBM SOA Business Central initiative, an ecosystem that showcases IBM and Business Partner solutions.

So where should you start?

In partnership with Mercer Management Consulting, we found that there are three types of problems customers tend to be dealing with when facing integration challenges: extending existing systems, accessing data across divisions or partners, and consolidated customer management. Case studies of IBM's SOA engagements identified these as SOA entry points. These were also validated with in-depth interviews with customers. (Mercer QCV Study for WebSphere, 2005.)

Through business-centric SOA, you can tie IT projects to the business need, directly addressing your organization's immediate pain points:

- *People: Productivity though people collaboration*
  Improve people productivity by aggregating views that deliver information and interaction in the context of a business process. This enables human and process interaction with consistent levels of service.

  Start by building a view of a key business process by aggregating information to help people make better decisions. Next steps: tighter management of performance with alert-driven dashboards that link to more processes.

- *Process: Business process management for continuous innovation*
  Deploy innovative business models quickly with reusable and optimized processes,
  adapting the enterprise to changing opportunities and threats.

  Start by modeling an underperforming process, remove bottlenecks, and then simulate
  and deploy the optimized process. Next steps: create flexible linkages between multiple
  processes across the enterprise and outside the firewall to suppliers and partners. Then,
  monitor the process to measure and track performance.

- *Information: Delivering information as a service*
  Improve business insight and reduce risk with trusted information services delivered
  inline and in-context.

  Start by discovering and understanding information sources, relationships and the
  business context. Next steps: expand the volume and scope of the information delivered
  as a service across internal and external processes.

Individually, each approach has the potential to deliver strong ROI. In combination, the potential
for SOA to transform business performance rises sharply. IBM calls this the *multiplier effect*.

Two IT-centric starting points can help your enterprise integrate business-centric SOA and
to build and reuse SOA services effectively.

- *Connectivity: Underlying connectivity to support business-centric SOA*
  Connectivity has always been a requirement. But SOA brings new levels of flexibility.
  As well as acting as a building block for additional SOA initiatives, connectivity
  provided through SOA has distinct, stand-alone value.

- *Reuse: Creating flexible, service-based business applications*
  Cut costs, reduce cycle times and expand access to core applications through reuse.
  Analysts estimate it is up to five times less expensive to reuse existing applications than
  *to write new applications.**

Use portfolio management to consider which assets you need to run your company. Identify
high-value existing IT assets and service-enable them for reuse. Satisfy remaining business
needs by creating new services. Finally, create a registry or repository to provide centralized
access to and control of these reusable services.

SAP User Integration Download page

View the growing number of links and resources in the Integration Resource Downloads Center. A single sign-in gives you access to the SAP User Integration Download page (registration required). View, read, download and visit more than 25 resources — including white papers, Web broadcasts, articles, analyst reports, links to useful sites and customer reference books. New materials will be added to the resource download page as they become available.

For more information

IBM can help you lay out an approach that's right for you to help you reach your goals.

To find out more about how IBM WebSphere solutions can help you achieve your SAP integration, contact your IBM representative.

View the Web event entitled, *Extending your ESB with WebSphere Adapters: Mission Accomplished at* www.bulldogsolutions.net/IBMWebSphere/IBW05232006/ index.aspx?bdls=4089

For further exploration, visit the WebSphere Adapters home page, **ibm.com**/software/ integration/wbiadapters

To find out more about SOA, or to take a self-assessment, visit **ibm.com**/soa

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* "New IBM Software and Services Help Drive Customer Adoption of SOA" IBM press release, April 3, 2006,
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