



Understanding SAP XI: Exchange Infrastructure

Preparing for SAP's Integration Strategy

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Executive Summary

Integration is mission critical, and the rules are changing for SAP customers. Enterprises should consider integration as a core component of their IT ecosystem, and not simply as a set of tools that facilitate translation and communication. With the introduction of NetWeaver, SAP has brought integration into their core functionality and partnered with SEEBURGER to provide embedded adapter solutions, integration architecture experience, and implementation services. What does this mean for an organization?

- Reduce the hand-off of information and failure points between technologies
- Consolidate older technologies and reduce annual maintenance fees, and
- Long-term stability and reusable content through out SAP applications.

NetWeaver is part of a new way of looking at integration and collaboration. These integration platforms are known as Application Platform Suites. Companies will continue to see the proliferation of these suites into their application base. Over the next few years, decision makers who control the IT landscape will need to make critical decisions on the direction that they want to take their application infrastructure. Every major vendor is developing a solution that combines portals, business process management, integration brokers, web services, and application servers. The leading vendors have released solutions to the marketplace including SAP NetWeaver, IBM WebSphere, Oracle 10g/E-business Suite, and Microsoft Longhorn.

For SAP customers, it is critical to understand how NetWeaver will affect and benefit their existing investment in SAP applications. Why is NetWeaver important? SAP NetWeaver is and will be the development and deployment platform for all SAP solutions including mySAP™ ERP, SCM, SRM, CRM, PLM, and APO. It is also important to look at a consolidated and long-term integration architecture as these platforms are designed not only to solve the “spaghetti effect” of a heterogeneous application landscape but also provide an easier way to extend processes beyond the firewall.

From an integration view, organizations need to understand:

- Why an Application Platform Suite is necessary to solve business issues
- What SAP NetWeaver is and does
- How SAP XI, the integration platform of NetWeaver, interacts with SAP applications
- What are the key factors for evaluating XI, and
- Who they can partner with to assess, adapt and implement a strategic integration strategy

The software industry is consolidating as integration moves towards the internal application providers. This subject goes beyond just solving issues and providing platforms; it is also about risk avoidance. Consolidation is a natural part of business, and organizations should be sure that their software solutions are not only expanding in functionality with the times, but that they are going to be around to solve the changing issues in the future. For increased functionality, for a long-term solution, and for lasting value, now is the time to re-evaluate your integration strategy and infrastructure.

Application Platform Suites

The only true way to explain the benefits of an Application Platform Suite (APS) is to understand the evolution of technology. As the old adage goes, we must understand where we have been, to know where we are going. There are two key concepts that must be understood in the evolution of technology in order to understand why we are at the point where an APS is now necessary in business.

1. Applications were developed in a best-of-breed environment
2. Business is not conducted in multiple silos, business processes span business units

Applications are written first and foremost to solve critical business needs. Financial software has a distinct purpose that solves distinct problems. The same goes for Customer Relationship Software, Sales Force Automation, and Supply Chain Management. The problem that exists is that each of these applications houses business processes which are inter-related. Today, as companies expand into global marketplaces, as products become more complex, and as consumers demand quality products in a shorter time frame, the ability for an organization to extend their core processes (housed in internal applications) out to their functional business units, divisions, suppliers and customers (trading partners) becomes extremely important.

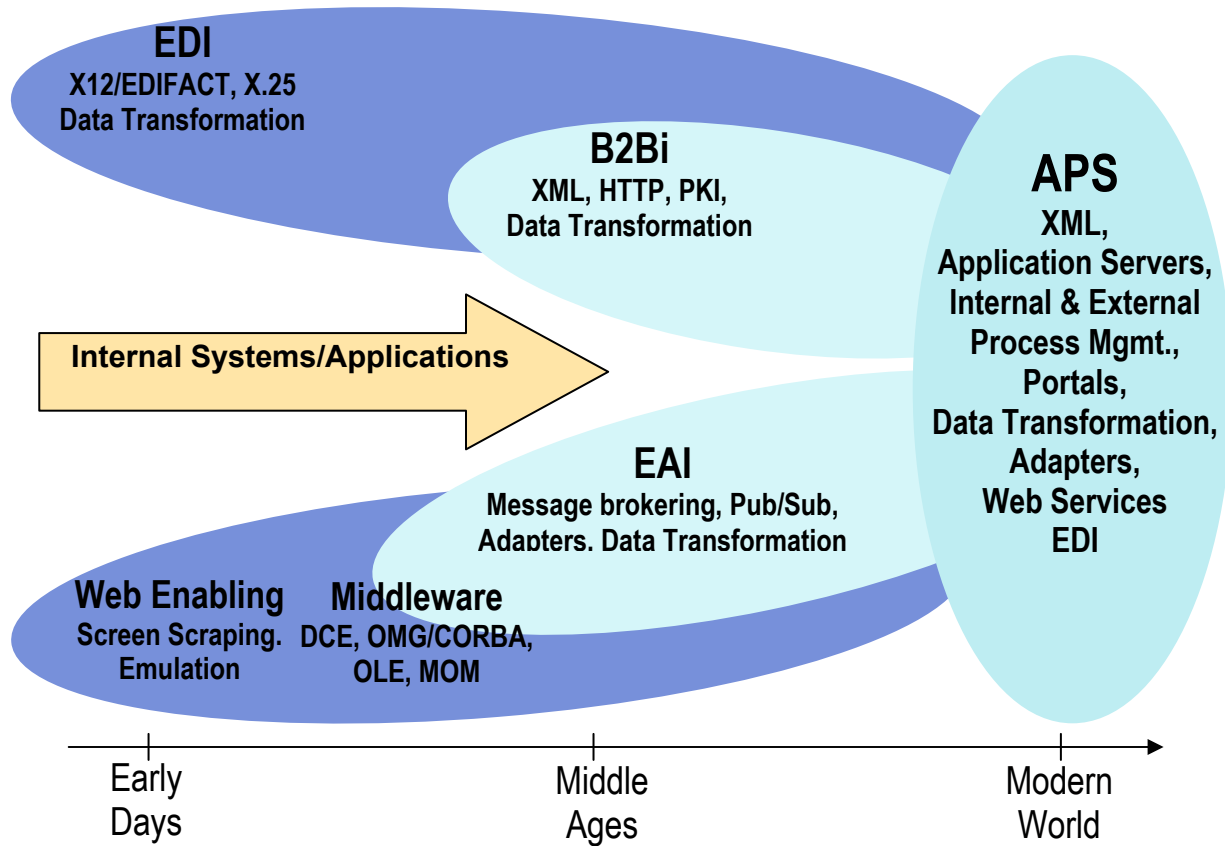
The concept of extending information beyond the silos originated in the mid-90's when organizations first started to experiment with the combination of applications and the web. We all remember the terms of Screen Scraping, Java Script, and Perl; these techniques and languages generated the first step in the evolution otherwise known as Web Enabling. With the advent of the Internet, we could extend the reach of applications by extending the ability to access them over the Web. For example, companies could now extend what was once isolated to terminal access to whomever they wished with a very easy to use Graphical User Interface. This concept of extension later evolved into the whirlwind of e-business; through the use of technologies such as Message Oriented Middleware and Object Request Brokers we could now connect the application logic of disparate systems. Companies now had the ability to at least link these application silos together. The boundaries started to break. However, this integration is just the first step in solving the real business issues that exist.

Today companies still face:

- **Cross-Functional Business Processes-** An end-to-end business process still runs across multiple applications.
- **Global Trading Communities & Standards Compliance-** As organizations expand into new regions and industries, they must integrate new data formats
- **Multi-Channel Support-** Companies must be able to provide multiple application interfaces, devices (i.e. Wireless), and partner connectivity options
- **Event-Driven Architectures-** For every event, there is a necessary reaction in order to complete a process. For example, an order from a website could trigger up to 15 different events from checking inventory in a SCM system to executing payment in a financial system.
- **RFID-** New mandates for visibility and transparency throughout the supply chain

An Application Platform Suite is designed to be the next generation of integration to solve these issues. It is the convergence of the best-of breed application with an open integration layer as a core foundation. See Figure 1 below:

Figure 1



What is SAP NetWeaver

NetWeaver is SAP's version of the Application Platform Suite. It is critical to understand that SAP NetWeaver currently is and will be the foundation for all future SAP applications. As an organization adds new SAP applications such as Supplier Relationship Management or upgrades to mySAP ERP, the core components of SAP NetWeaver will be present:

- **Enterprise Portal-** Many companies have heterogeneous IT landscapes, and on a daily basis any number of employees must access critical business processes from multiple applications. The portal allows you to give these employees and/or your partners a unified, personalized, and role-based view of your applications.
- **Business Intelligence-** In a real time economy it is critical that decision makers have the ability to access reports and analytics of your core business processes. This tool allows you to generate customized reports that contain information from many disparate applications to support your decision making.
- **Exchange Infrastructure-** This is the core solution which allows a company to integrate many different applications (EAI) and external trading partners (B2B/EDI). The broker defines software components, interfaces, mappings, and content-based routing rules. Cost reductions come from out-of-the-box integration scenarios to mySAP ERP and a reduction in interfaces.
- **Master Data Management-** This is a universal data management system that can both accept information from all the disparate sources as well as distribute data to them. MDM can collect data from all the separate databases, cleanse the information, store in a universal database, store relationships between items in the different databases, distribute items from this universal storage area, and control exactly who can alter each database.
- **Web Application Server-** This single platform supports both J2EE and ABAP programming language allowing an organization to continue using programs of the past while taking advantage of the newer java applications. It provides independence from existing databases and operating systems while at the same time supporting a development environment based on open standards.
- **Business Process Management-** BPM allows a company to orchestrate business processes across multiple applications in order to define the end-to-end processes.

SAP Exchange Infrastructure: It Will be Part of Your SAP Investment

SAP is changing the way in which its applications are deployed. SAP recognizes that in order to expand its suite of applications it must solve the “spaghetti effect” and help to remove the silos that occur with best-of-breed technologies. Additionally, as businesses strive to become more real-time and collaborative, applications must become more integrated. It is a natural progression of this industry to move integration closer to the application. Remember, what are you trying to extend anyway? Is it not those core business processes? Internal and external collaboration solutions are no longer just simply a set of tools that facilitate translation, routing, and communication – they are a core component of your IT landscape, and critical to your operational planning and, ultimately, to your bottom line.

What is the SAP (XI) Exchange Infrastructure?

Before we take a closer look at how the Exchange Infrastructure will enter into the IT landscape of every SAP customer, let’s take a closer look at the capabilities as well as the strategic direction of XI. This particular module of NetWeaver is one of the most powerful and is undeniably the most critical. Its purpose is really three-fold:

Connect:

XI has the ability to connect all applications regardless of whether it is an application from a 3rd party or from SAP. The solution has pre-built connectivity to all SAP modules such as SAP CRM and utilizes the Adapter Framework to integrate 3rd Party solutions such as Siebel, PeopleSoft, Legacy systems, or AS/400s and Mainframes.

Coordinate:

XI has the ability to define a path/workflow for each business transaction that is integrated. The system actively routes each message to ensure that it is properly delivered from the source to the target destination. Active monitoring allows administrators to manage document exchange on an exception basis.

Communicate:

XI has the ability to translate files into any format whether an internal file format or any Business to Business integration standard including but not limited to an XML format, an EDI format, a marketplace, or a Web Service. Finally, there are multiple communication protocols included which allow the routing of a file over protocols such as s/FTP, http/s, SOAP, ebMS, Value-Added Networks, or EDI INT (AS1, AS2).

Now, you might be saying to yourself, we already have solutions that provide all of this functionality. True, most organizations have invested previously in an integration strategy, but what we see in over 90% of organizations is that they have multiple translators and communication brokers which they are supporting on a daily basis. This is both a resource drain as well as a monetary drain. For example, it is not uncommon to see the following even in smaller organizations:

- Multiple Point to Point connectivity: For example, R/3 connected to a 3rd party Warehouse Management Solution via an internally developed adapter or with the SAP Business Connector
- A 3rd party EAI Integration Broker to connect legacy mainframe systems to SAP and WMS
- A 3rd party EDI translator to communicate messages
- A 3rd party XML broker to communicate XML messages to marketplaces and non-EDI trading partners
- A communication server that focuses on sending messages via FTP, Value-Added Networks and Internet protocols such as AS2

Why do most organizations have this environment? There are three simple answers to this question. First, many of the point to point connections were created prior to the decision of investing in an integration broker. Second, most organizations had multiple requirements that were not covered by one solution at the time of purchase. And finally, in many organizations the decision to purchase these solutions was not done centrally—each division or business unit brought in a different tool. The reality of this environment is that it is extremely costly to maintain. Costs associated with maintaining this environment arise from multiple annual maintenance fees as well as internal support costs every time there is an error and every time there is a new upgrade in any of the systems.

It is also true that many of the 3rd party integration vendors have gone out into the market and acquired solutions to complete their offerings to compete with the Application Platform Suites. These solutions are not strategic to the core application investment of an SAP system. SAP customers need to understand the impact that NetWeaver will have on their integration strategies during the next one to three years. Let's take a closer look at how NetWeaver and XI are directly tied to the SAP ecosystem and should therefore be heavily considered as the solution of choice for SAP end users.

Effect of XI Strategy on SAP R/3 & Other SAP Applications

One area that most companies are either overlooking or are not aware of is the effect that NetWeaver will have on their current SAP R/3 upgrade strategy. The key concept to be aware of is: whether a company is actively looking at the NetWeaver components and specifically SAP XI, an organization will have to react and prepare for the changes as they move through the R/3 upgrade cycle. It is important to remember that NetWeaver as a whole will take a larger role in the core base of R/3 functionality. The first insertion can be seen with the inclusion of the Web Application Server as the base in 4.7 Enterprise. Future releases will transition the Portal framework to the standard front-end of the ERP system and XI as the standard integration interface.

Figure 2 below shows how NetWeaver components become more critical as end users upgrade their core solution:

Figure 2

SAP R/3 Versions	3.1i to 4.6c	4.7 Enterprise	mySAP.com, mySAP ERP or mySAP Business Suite
Core Base	Basis: Relying on ABAP as core programming language	Web Application Server: Handles both ABAP and J2EE	Web Application Server: Handles both ABAP and J2EE Additionally: more extensions and value add
NetWeaver Components	None included: purchased as One Off Licensing	Only Web Application Server, additional modules are One Off Licensing	All NetWeaver components for SAP to SAP Integration are included except for MDM
Effect of SAP Exchange Infrastructure	XI would be additional purchase unless a mySAP license holder	XI would be additional purchase unless a mySAP license holder	XI is included for SAP to SAP integration in licensing

Another key driver is the fact that if you have purchased any of the additional SAP applications including:

- Customer Relationship Management
- Supply Chain Management
- Supplier Relationship Management
- Product Lifecycle Management
- Global Data Synchronization
- Cross Apps (X-Apps like Project Resource Management or Cost & Quotations)

XI will become the standard interface from R/3 and 3rd Party applications to these modules. All of the solutions listed above are built on top of the NetWeaver platform. For example, the interface to SRM for supplier connectivity is done through an XI interface. Over the past decade, SAP released multiple ways to access their applications including Remote Function Calls (RFC), Application Linking and Embedding (ALE), Business Application Programming Interfaces (BAPI), CRM integration middleware, and the SAP Business Connector. SAP realized this was causing more issues for their users, so they are now developing all solutions with one standard way of interfacing: the Exchange Infrastructure. As one can see, whether you are adding additional modules or you upgrade your core R/3 purchase, SAP XI is going to enter into your environment. The question now: How do you evaluate your environment to prepare for these changes?

Top 10 Drivers When Evaluating SAP XI

1. Multiple Integration Brokers Implemented

Many organizations have implemented at least 2 to 3 corporate integration strategies as stated in previous sections of this paper. When you consider that on average more than 80% of an annual IT budget is spent on maintaining an existing environment, it is a natural area of the business to analyze for cost reduction. The soft costs associated with having internal or outsourced staffing supporting multiple bottlenecks and breaking points can be a significant driver when looking at consolidating to one integration infrastructure.

2. Maintenance Fees Associated in Supporting Multiple Integration Strategies

One of the most obvious cost savings is the multiple maintenance fees associated with multiple strategies. Companies that purchased integration solutions from vendors in the past are facing annual maintenance charges in excess of 6 figures (\$100,000) per solution. During SEEBURGER's analysis, we have uncovered many integration solutions with maintenance fees upwards of \$500,000 dollars per year which can be used as a significant driver when evaluating a consolidated infrastructure.

3. Outdated Software implemented

Many companies are using solutions that have not been updated in over 10 years. The lack of functionality means that many processes are still manual. Additionally, monitoring and updating these solutions is a time consuming and expensive endeavor.

4. Integration Market Conditions

There are drastic changes in the financial viability of the larger integration vendors around the globe as integration moves closer to the internal application providers. Some organizations have seen their corporate valuation drop by more than 50% while others have been purchased by financial holding firms. This will be a continuing story over the next 2 to 3 years as the market consolidates and these vendors try to acquire new solutions and alter their go to market strategy. Each organization should take a long look at the viability of their vendors. One trend that is obvious is that every single one of these vendors has altered their product strategy which means that there will be a substantial upgrade regardless of a decision to evaluate SAP XI. Organizations should look at these upgrades as an opportunity to evaluate a long term and consolidated strategy.

5. SAP's Deployment Strategy with NetWeaver

Simply stated, all SAP applications from R/3 to CRM will be developed and deployed with the NetWeaver platform as the core base. It is critical for organizations to look at the role of SAP in their landscape. Organizations that have licensed or are looking to license the mySAP solution set should look at this as a driver in the consolidation of the integration infrastructure.

6. Point-to-Point Procedural Language Interfaces are Difficult to Maintain

Some companies have chosen to use procedural languages such as ABAP, visual basics, or java to process data via older sap interface methods like Remote Function Calls, SAP tables, reports, and batch data sessions. While this methodology has supplied the “glue” to link applications together, they do not provide an easy way to monitor and reconfigure. SAP XI provides a multitude of tools above and beyond the “glue” to help internal organizations support their integration strategy.

7. Sun-setting of SAP Business Connector

During the mid-90's SAP partnered with a 3rd party firm to help develop an XML interface to their applications. With the introduction of SAP NetWeaver and the deterioration of this 3rd party relationship, SAP has decided to sunset the Business Connector in favor of XI. Any company that has the Business Connector in their infrastructure must proactively prepare for this change.

8. Newer Technologies (i.e. Web Services)

SAP XI is based on the newest protocols and technologies such as Web Services, Business Process Management, and Business Activity Monitoring. Looking to bring in these solutions is also a time to reassess an integration strategy.

9. B2B Integration issues

Organizations have always been challenged when trying to integrate 100% of their trading partners. Smaller organizations faced technical and economic barriers to enter this collaborative environment in the past; however, newer technology solutions are now available to the market. Unfortunately, many larger organizations have not implemented these offerings for their smaller trading partners, so inefficiency and manual process gaps still exist through much of the extended supply chain.

To close these gaps, look to flexible solutions provided by SEEBURGER and SAP:

- **Portal Access, mySAP SRM or WebEDI** - Browser-based access allows partners to manage their document exchange.
- **Hub & Spoke** - A spoke provides translation and communication to the hub, as well as supporting basic integration with suppliers' back-end applications.
- **Paper2ERP** - Automated processing made possible for paper-based documents by converting inbound faxes into a usable data format such as Flat File, IDOC, or XML, with the help of innovative recognition and data validation technology.

10. Globalization of System Access

As organizations expand into new regions and industries, they must integrate new data formats. Integration competency centers especially when looking at financial consolidation for reporting or Business to Business Integration are a direct way to consolidate multiple maintenance and support costs in an organizations infrastructure. For companies that licensed multiple vendors to provide integration capabilities, a large return on investment can be calculated when bringing on a centrally licensed and common integration hub like SAP XI.

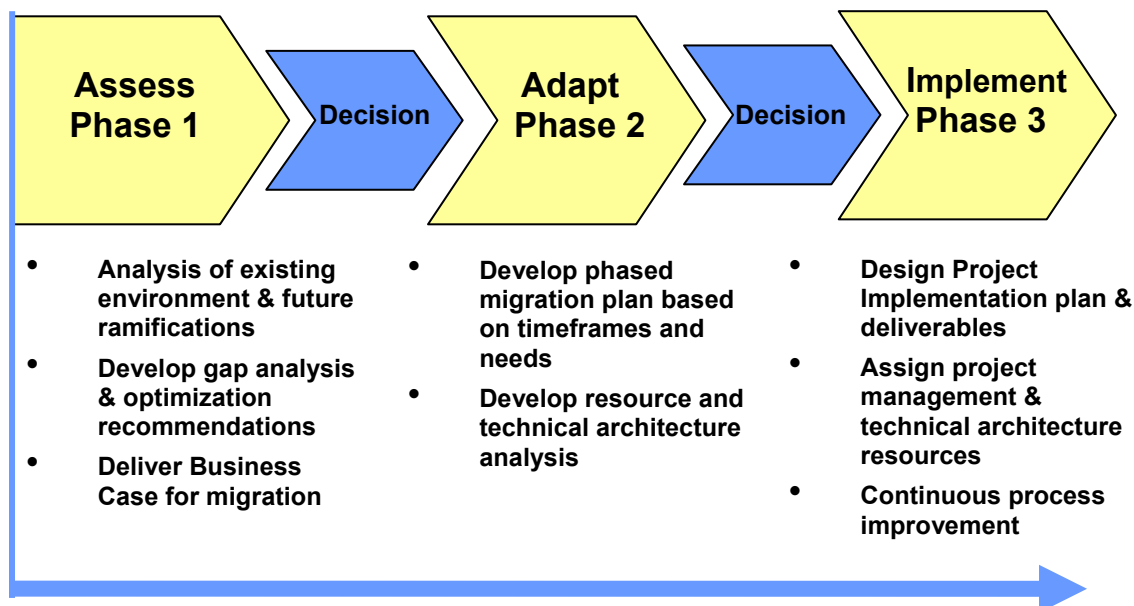
SEEBURGER: SAP XI Integration Experts

SEEBURGER has been on the forefront implementing initial and well-known international pilot and productive projects jointly with SAP. Companies such as Masterfoods (USA), SPAR (Switzerland), SupplyOn (Germany) utilized SEEBURGER expert services during their implementation of SAP XI. Our customers have access to an enormous knowledge base of development, project, and industry experience to efficiently transition existing applications and integration environments into SAP XI. Our experience around the entire Exchange Infrastructure platform far surpasses any other global organization:

- Expert advisors & joint development partner in Walldorf with SAP since version XI 1.0
- One of first partners trained on SAP XI
- 3 Global XI Competency Centers: US, Germany, and Hong Kong
- SAP partnered exclusively with SEEBURGER to provide EDI and B2B industry solutions for SAP XI

SEEBURGER services provide valuable insight into your company's EAI and B2B capability.

- Measure how well your company's approach to enterprise integration and eCommerce supports the needs of your business
- Understand how you may benefit from the evolution of integration middleware
- Identify and eliminate performance and scalability problems
- Improve information flow when a "Best of Breed" application approach or "Growth by Acquisition" strategy has restricted the efficiency of transacting business
- Eliminate costly components of your technology stack like Value Added Network charges, renewable term license fees, and maintenance of "home grown" interfaces



Assess

Prior to implementing an integration strategy, companies must evaluate all of their options as this decision will have long-term effects on the efficiencies gained and total cost of ownership. SEEBURGER offers the following packages:

Strategic Assessment — This is the most comprehensive of our engagements. Through this offering our experts will address your top 5 business goals and work with you to understand how your existing EAI/B2B approach supports or impedes your business strategy. The outcome of this assessment will validate how your existing technology plan supports your business. Working with your staff, we will develop a short, mid, and long-term recommendation that optimizes and further aligns your technology strategy with your business goals.

Focus Assessment — The focused assessment uses our standard pattern based methodology to assess a specific EAI or B2B challenge or goal. The result will be a detailed recommendation and plan to meet your immediate need.

Performance Assessment — This program is designed to address specific performance or throughput problems for any component in your integration architecture. Our team will assess overall scalability, reliability, extensibility, and security. All of these issues relate to your organization's Total Cost of Ownership with regards to your integration architecture. The result is a detailed report which will provide direction toward continuous improvement.

Adapt

Enterprises should consider collaboration as a core component of their IT ecosystem, and not simply as a set of tools that facilitate translation and communication. With the introduction of the Exchange Infrastructure, SAP has brought integration into their core functionality and partnered with SEEBURGER to provide B2B/EDI functionality today and in the future.

SAP XI Migration — Our guided technology evaluation offers you a comprehensive way to quickly evaluate the potential benefits of utilizing SAP XI in your current and future IT landscape. The result will be a comparison of your current architecture versus SAP XI allowing your organization to build out the appropriate ROI and timelines to adapt to the evolving technology landscape.

Implement

When you're ready to go live with SAP XI, whether in a pilot or productive environment, SEEBURGER provides the right resources to ensure that your project goals are met on-time and on-budget. Our implementation and planning team cover the entire spectrum of the project from project management to technical architecture. Our processes are proven in over 6,000 engagements worldwide and our team remains the industry leader in SAP Exchange Infrastructure implementations.

Conclusion

Integration is changing and companies cannot avoid looking at the application platform suites, especially those offered by their core application provider (i.e. SAP NetWeaver). These technology platforms will be the foundation on which all new development is based. By creating an open architecture where information can flow freely, business content is no longer isolated by boundaries and applications. However, organizations can take advantage of these benefits only if they have a strategic and consolidated integration strategy.

For SAP customers, there are many choices on the marketplace and many solutions already implemented, so it can be a tough decision to look at additional solutions. However, when you consider the way in which SAP is positioning the Exchange Infrastructure, it can not be overlooked and must be evaluated. For example,

- SAP XI and the rest of the NetWeaver stack will be delivered as you upgrade your R/3 investment from 4.6c and below, to 4.7 Enterprise, and finally to mySAP ERP
- Additional SAP applications such as CRM, SCM, and APO are being developed and deployed on top of the NetWeaver stack and utilizing the Exchange Infrastructure as the core interface to both R/3 and 3rd party applications
- The majority of integration vendors on the market are creating new suites to compete with SAP NetWeaver. Most of these new releases require a re-install and the majority of mapping work must be re-done.
- Existing mySAP license holders potentially have access to this tool set sitting unused on the shelf

The foundation of SAP and integration is changing, but the knowledge needed to implement these solutions has not changed. Integration knowledge goes beyond technology and requires years of industry and architecture expertise. This is one of the many reasons that SAP partnered with SEEBURGER to provide solutions and implementation expertise for SAP XI. For over 18 years, SEEBURGER has been the global leader in business integration. More than 1,000 SAP customers both large and small – utilize our solutions and expertise to connect with their applications and trading partners. Today, our solutions are key components which extend the core functionality of the SAP Exchange Infrastructure. The development knowledge gained jointly with SAP in Walldorf, Germany combined with our integration heritage provides organizations with the complete picture to assess, adapt and implement strategic integration solutions.

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