

**SAP Solution in Detail  
SAP NetWeaver**



# **EXTENDING BUSINESS INTELLIGENCE WITH SAP NetWeaver™**

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## EXECUTIVE SUMMARY

Over the past 30 years or so, business has become adept at collecting data from sales, marketing, purchasing, manufacturing, and various other operational disciplines. But business has had difficulty in transforming that data into useful, actionable information – or business intelligence.

Today, many enterprises have a kind of “business intelligence” system in place – systems that over the years have grown into piecemeal, disconnected entities. The result: business information that is unreliable and/or incomplete. Not only are these systems untrustworthy, they are so complex and costly that they are difficult to extend or grow into new business intelligence applications.

Despite these challenges, enterprises should not give up on business intelligence. In fact, an *integrated* business intelligence infrastructure can provide a broad range of tactical and strategic benefits that can lift an enterprise well above its competitors. Such a business intelligence infrastructure can help reduce costs and ease the path into new markets. It can help executives improve competitive strategies and plan for long-range revenue growth. In short, integrated business intelligence can make the difference between becoming an industry leader, or getting left behind.

For many of today’s most successful companies, business intelligence integration is delivered by the SAP NetWeaver™ technology platform. With SAP NetWeaver, companies can install a basic business intelligence solution, and then expand that solution to encompass the most important dimensions of integration – that is, of people, information, and processes.

The goal of this white paper is to describe in detail how SAP NetWeaver enables business intelligence integration – even for today’s largest and most complex enterprise infrastructures.

Specifically, the discussion here assumes that the reader has a basic understanding of the offerings that make up the SAP® Business Intelligence (SAP BI) solution – notably, SAP Business Information Warehouse (SAP BW) and such tools as Business Explorer and Business Planning and Simulation. (For more details about the SAP BI solution, please see [www.sap.com/bi](http://www.sap.com/bi))

This report begins with a basic primer on SAP BI, and then goes on to explain how SAP BI leverages and extends SAP NetWeaver to deliver a complete solution that enables and extends business intelligence integration throughout the enterprise and across the most important business intelligence dimensions: people, information, and processes.

## AN SAP® BUSINESS INTELLIGENCE PRIMER

SAP® Business Intelligence (SAP BI), an SAP NetWeaver™ business intelligence component, delivers unrivaled performance, scalability, and completeness.

### DATA WAREHOUSE

#### Data Warehouse Management

With SAP BI, companies can create and control data warehouses and align technology infrastructure with business requirements. They can control, monitor, and maintain all processes connected with data staging and processing in SAP Business Information Warehouse (SAP BW), the core product within the SAP BI technology component. SAP BW supports processing large volumes of data within the data warehouse.

#### Extraction, Transformation, and Loading

Using SAP BI, companies can extract, integrate, and transform data from multiple sources, including enterprise resource planning (ERP) systems, customer relationship management (CRM) systems, online exchanges, click-stream data sources, XML data sources, and relational databases. Data-cleansing functions and application of business rules ensure data quality.

#### Business Modeling

SAP BW provides material for analysis quickly, in the right context, and at the appropriate level of detail. It addresses the requirements of global companies because it can be deployed in a distributed environment with multiple data warehouses and data marts. Organizations can model information architecture to match their business structure in either an enterprise-wide data warehouse or a distributed environment.

### BUSINESS INTELLIGENCE

#### Online Analytical Processing (OLAP)

SAP BI provides a foundation for accessing, presenting, and analyzing data across several dimensions, such as time, place, and product. It models a company's business processes and helps answer complex questions by mapping architectural concepts – multidimensional models and aggregates, for instance – to business requirements.

#### Data Mining

Workers can search for patterns in data and address questions in areas where none have previously been defined. SAP BW supports clustering, customer segmentation, and decision-tree algorithms.

#### Alerts

Employees can quickly and easily identify exceptions. A threshold-based intelligent agent runs in the background and pushes business-critical information to decision makers, independent of their location or the device they are using.

## **BUSINESS INSIGHTS**

### **Query Design**

SAP BI provides powerful tools to quickly and easily create and deploy graphical, interactive analysis reports and applications. It supports ad hoc queries and distributes responses to the desktop, a Web client, or a mobile device.

### **Reporting and Analysis**

With SAP BW, reporting can range from static, formatted management discussions to graphical, interactive analysis. Employees are able to access information of various levels of granularity and can share and analyze data.

### **Web Application Design**

SAP BW supports the visualization and design of business intelligence applications on the Web and via mobile devices. It enables the creation of Web-based reports, analytical applications, and dashboards for fast and easy dissemination of information to a broad business community.

## **MEASUREMENT AND MANAGEMENT**

### **Business Content Management**

Data flow models provide predefined templates for reporting and analysis, with corresponding technical and business definitions, such as extraction and transformation rules, queries, and Web applications.

### **Metadata Management**

Metadata management is handled throughout the business intelligence process, from extracting data to querying it. A preconfigured, extensible metadata repository ensures the data is consistent, accurate, and integrated. Metadata can be reused from applications throughout the enterprise, and workers can easily understand the information they analyze.

### **Business Intelligence Collaboration**

Decision makers can resolve business issues by working together within the SAP portal, which integrates structured and unstructured data.

With SAP BI, companies can achieve the following benefits:

- **Intelligent ways to run their organizations**  
With SAP BI, organizations can ensure complete alignment of strategy and execution, ensuring efficient and intelligent business processes.
- **Increased value and reduced costs**  
With SAP BI, companies can obtain a complete view of revenue operations and opportunities across various processes and determine how best to offer value-added services. They can also leverage historical data to make better strategic decisions.
- **Improve business efficiency**  
SAP BI integrates disparate data from heterogeneous sources to provide a comprehensive view of business operations. Companies can identify new sources of revenue and highlight cost components. SAP BI empowers people with the right information at the right time.
- **Enhance the quality of business relationships**  
SAP BI merges customer, operational, financial, and supplier data. Companies can investigate costs, revenues, and exceptions to become more responsive to customers, suppliers, and shareholders.
- **Achieve maximum business value**  
With SAP BW, companies can leverage their investments and drive innovation. They can identify and act on business opportunities, producing significant returns on their business intelligence investment.

## SAP NetWeaver OVERVIEW

SAP NetWeaver is SAP's technology platform for aligning people, information, and business processes across technologies and organizations. SAP NetWeaver helps enterprises integrate their business intelligence infrastructures in a number of ways. SAP NetWeaver sees to it that organizations not only have a robust, scalable business intelligence solution, but an overall application and integration platform to run their business intelligently.

For business intelligence, SAP NetWeaver supports people integration through:

- **Multichannel access**  
Enabling companies to tie mobile, voice, and radio frequency devices into their enterprise systems
- **Portal technology**  
Delivering a variety of ready-made business content
- **Collaboration**  
Including a comprehensive collection of technologies, such as shared e-mail, calendars, threaded discussions, and document stores

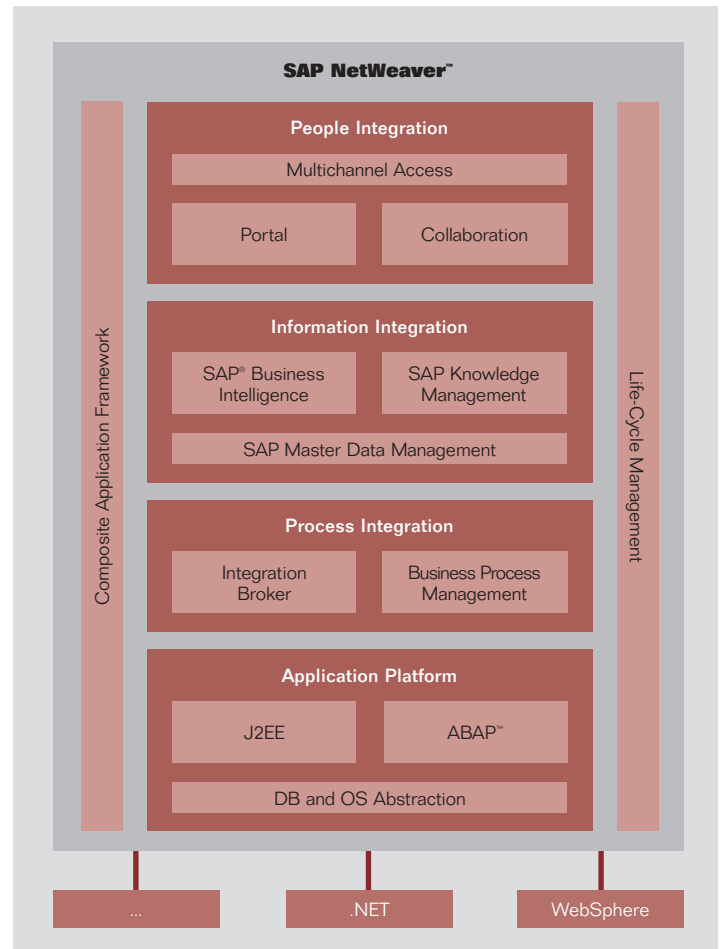


Figure 1: SAP BI and SAP NetWeaver

SAP NetWeaver supports information integration through:

- **Business intelligence**

SAP BI has an open, standards-based architecture that enables organizations to integrate, analyze, and disseminate relevant and timely information for decision making at all organizational levels. By integrating data from various sources, it provides consistent information for analysis quickly, in the right context, and at the appropriate level of detail.

- **SAP Knowledge Management (SAP KM)**

SAP KM has tools that deliver integrated search, taxonomy, classification, content management, publishing, and work flow management processes.

- **SAP Master Data Management (SAP MDM)**

SAP MDM ensures the integrity of master data across the business network, in a heterogeneous landscape.

SAP NetWeaver supports process integration through:

- **An integration broker**

Including capabilities for describing software components, interfaces, mappings, and routing rules, as well as executing the corresponding integration in a stateless fashion

- **Business process management**

Enabling the modeling and driving of end-to-end processes in a dynamic landscape

People, information, and process integration are supported by the SAP NetWeaver application platform, which in turn supports platform-independent Web services, business Web applications, and open-standards-based development built on technologies such as Java 2 Platform, Enterprise Edition (J2EE) and ABAP™.

Also, business intelligence integration benefits from life-cycle management, providing tools for developing, testing, and deploying Web applications through the entire software life cycle. Finally, SAP NetWeaver adds a composite application framework, which includes the tools, methodology, rules, and patterns that allow SAP and its partners to efficiently develop SAP xApps™.

In the following sections, we will examine how these functions enhance the overall business intelligence solution by extending the integration platform upon which increasingly powerful SAP BI functions can be built.

## HOW SAP NetWeaver ENABLES PEOPLE INTEGRATION

The SAP NetWeaver integration and application platform enables the extension of basic SAP BI capabilities through a growing range of functions for integrating people, information, and processes. This section details how SAP NetWeaver adds people integration to its SAP BI technology component, which includes data warehousing, predefined business content, as well as analytics and reporting capabilities.

To meet the needs of all types of users – authors, analysts, executives, knowledge workers, and information consumers – the SAP BI system must deliver information in a personalized, targeted manner. To do so, SAP BW, the core product of SAP BI, draws on the functionality of SAP Enterprise Portal (SAP EP), another product of SAP NetWeaver.

SAP EP gives users convenient access to the tools and information they need to do their jobs, all through a single point of access and interaction, using a single sign-on and a common security and authentication mechanism. The portal unifies all types of enterprise information, including business applications, databases, stored documents, and Internet information.

The delivery of information and tools can be tailored to users' roles in the organization; users can further personalize their individual portals to suit their own preferences and needs. And no additional software needs to be installed on users' desktops; only a Web browser is required. The portal includes unification technology, a portal content catalog, and portal and technical services.

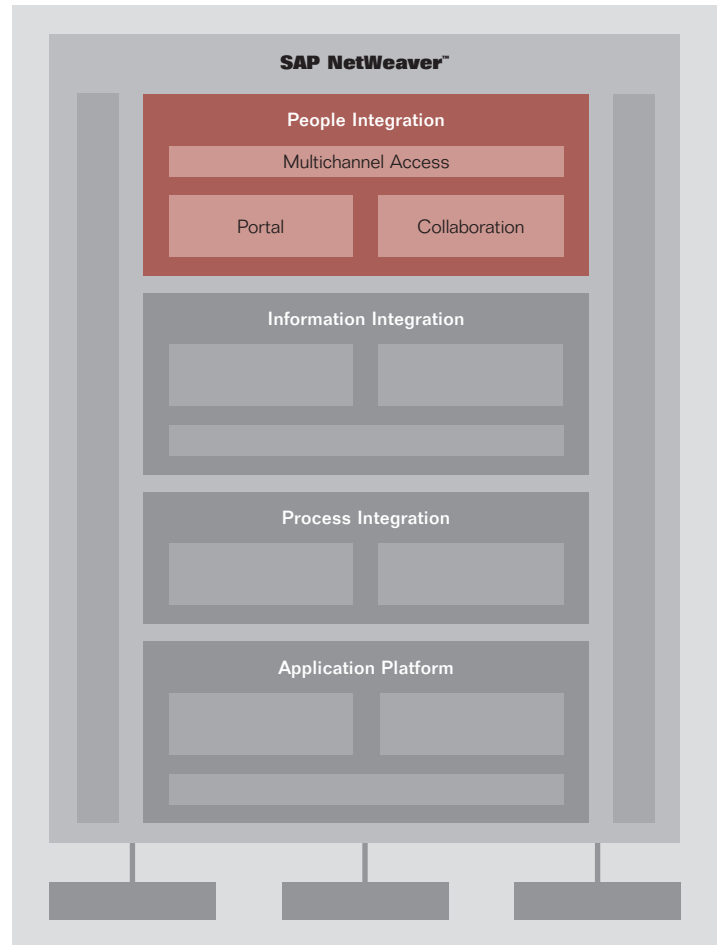


Figure 2: SAP BI and the people-integration layer of SAP NetWeaver

## Unification Technology

The concept of unification allows disparate applications and information sources to exchange data and work together seamlessly within an enterprise portal. SAP EP includes “unifiers” – programs that enable the integration of enterprise systems on the user level. Unification is also the basis for Drag&Relate™ functionality, which lets users drag and drop icons to move information and easily navigate across application boundaries.

A unifier features an abstraction layer of the target application’s business logic and object model, as well as a repository of metadata it has extracted from the target application database. Unifiers leverage the underlying application’s architecture, user interfaces, security, and customization. They are available for both databases and applications.

## Portal Content Catalog

The portal content catalog is a repository of data about roles and relationships that allows hierarchies and links, supports user personalization, and enables distributed administration and transport.

The portal content catalog includes:

- **iViews**  
Programs that retrieve data from content sources, both within the company and on the Internet, and display it in the enterprise portal.
- **Pages**  
Contain the layout information for the portal. Using a page-builder tool, administrators can change the page default layout and add content, such as iViews, to a page.
- **Roles**  
A collection of tasks, services, and information that is available for a specific group of users. Roles determine which services can be accessed, and provide a navigation hierarchy of pages, iViews, and user interfaces from applications – all based on the job being performed by the user.

## Portal and Technical Services

The portal framework provides a range of technical services, such as user management, caching, rendering, and so forth. To enable integration and connectivity in today’s heterogeneous environments, the entire framework is based on open standards, including HTTP/HTTPS, eXtensible Markup Language (XML), and simple object access protocol (SOAP).

## FACILITATING COLLABORATION

The portal provides functions and services for various forms of collaboration. For example, users can provide feedback to an author, rate content on the basis of its usefulness, participate in discussion forums and online chats, and so forth. Since many business problems do not occur in isolation and must be resolved by a work group, collaboration is very important for business intelligence. This is particularly true in cases where a key performance indicator (KPI) or a report value is outside the expected range and the optimal resolution involves multiple organizational team members.

## AIDING MOBILE ACCESS

SAP Mobile Infrastructure (SAP MI) enables organizational users who are off-site or away from their LAN connections but who have access to WAP-enabled mobile devices to leverage SAP NetWeaver common security and authentication mechanisms to access relevant, timely business intelligence insights. SAP MI automatically presents the content in a device-appropriate format, ensuring that users have access to the right information at the right time in the right format, regardless of access method, all managed within a common alerting, security, and authentication framework.

## **BROADCASTING INFORMATION**

To support the decision-making process, Business Explorer Broadcaster (BEx Broadcaster), a function of SAP BW, can be used to share and disseminate insights by leveraging the people-integration functionalities of SAP NetWeaver. BEx Broadcaster is able to pre-query and then automatically distribute relevant reports to a broad set of users, thereby providing access to the complete business intelligence information portfolio via SAP EP – or even via a user’s e-mail inbox. The configuration of BEx Broadcaster is accomplished through a single, Web-based wizard that distributes personalized business intelligence information portfolios to diverse end users.

In addition, BEx Broadcaster leverages features of SAP KM, a technology component of SAP NetWeaver, which is discussed later. BEx Broadcaster manages report and research subscriptions, feedback, discussions, collaboration, rating, searches, and so on. BEx Broadcaster services include different scheduling options, precalculation of queries and workbooks, sending precalculated queries, and sending Web templates as e-mail attachments.

Thus, information broadcasting leverages the complete people-integration layer of SAP NetWeaver to meet the information requirements of all members of an organization’s user community.

## **A COMMON PEOPLE-INTEGRATION LAYER**

Because SAP BI and SAP EP are both part of the overall SAP NetWeaver architecture, they are seamlessly integrated. That is to say, the two are not simply linked; they are integrated on several levels and share a number of concepts and technologies, enabling business intelligence users to take full advantage of the enterprise portal.

Specifically – SAP BI, in conjunction with SAP NetWeaver – integrates people by allowing SAP BW to:

- Use a role concept to handle authorization. Business intelligence roles can be migrated easily to SAP EP roles; a single role concept is used across both systems.
- Support iViews used in the portal framework. Working with the BEx Web Application Designer, users can create iViews by simply saving queries as iViews. BEx Web applications can thus be deployed easily (as iViews), and information can be combined with other iViews, such as those that provide direct access to operational systems for data entry.
- Work seamlessly with the unification features of SAP EP. Users can use Drag&Relate to link business intelligence data with information from other systems or from the Internet to obtain additional information. A user can, for example, select a customer order (a business object) and move it to an external shipper’s Web site (an object from another system). The system executes the Drag&Relate action to display the delivery status of the order. Users can employ Drag&Relate objects from one BEx Web application to another within the same SAP BW system; from a BEx Web application to a Web site, and from a Web application to objects in other systems (by defining a correlation between the unifier for SAP BW and other unifiers).
- Automatically distribute information using the BEx Broadcaster capability.

## **BENEFITS OF PEOPLE INTEGRATION**

By integrating people into the SAP BI infrastructure, the enterprise can serve many different user types – from senior managers to business analysts – providing not only the most appropriate information for each of them, but also in the best format. For instance, senior managers may see an executive dashboard, with red lights for critical issues, while business analysts may get data-rich reports, with abilities to slice and dice information in myriad ways.

Additionally, people integration enhances an organization’s ability to “sense and respond” to SAP BI insights, making critical business intelligence not only passively available but empowering people to investigate, collaborate, and act on the SAP BI information.

In the end, each user is empowered in the most robust way possible, the overall business intelligence infrastructure is streamlined, and all the tools necessary for business insights are unified within a single people-integration layer of SAP NetWeaver. Users can be certain that they have access to timely, accurate information, and that that information represents a “single version of the truth.”

## HOW SAP NetWeaver ENABLES INFORMATION INTEGRATION

The SAP NetWeaver integration and application platform enables the extension of basic SAP BI capabilities through a growing range of functions for integrating people, information, and processes. Here we look at how SAP NetWeaver adds information integration to its SAP BI technology component, which includes data warehousing, predefined business content, as well as analytics and reporting capabilities.

### INTEGRATING INFORMATION

As the business intelligence infrastructure grows – both in importance and size – within an enterprise, it faces demands for increasingly sophisticated handling of information, regardless of data type or data source.

While it is SAP BW that integrates structured data arriving from operational applications, databases, Web sites, and external sources via its data warehousing capabilities, enterprise users also can benefit from the integration of the data-warehouse-resident data with the unstructured data – such as e-mail, Web content, IM chat, documents, images, and video or audio files – that pervade the enterprise and that provide context within which organizations make business decisions. Also, as the business intelligence infrastructure grows, ensuring the integrity of the data moving among the various enterprise systems becomes a more critical factor.

Two components of the SAP NetWeaver information-integration layer – SAP KM and SAP MDM – deliver complete information-integration, thus enhancing SAP BI native data integration and management capabilities.

### SAP Knowledge Management

SAP KM, a technical component of SAP NetWeaver, integrates content management functions as well as search, retrieval, and classification functions.

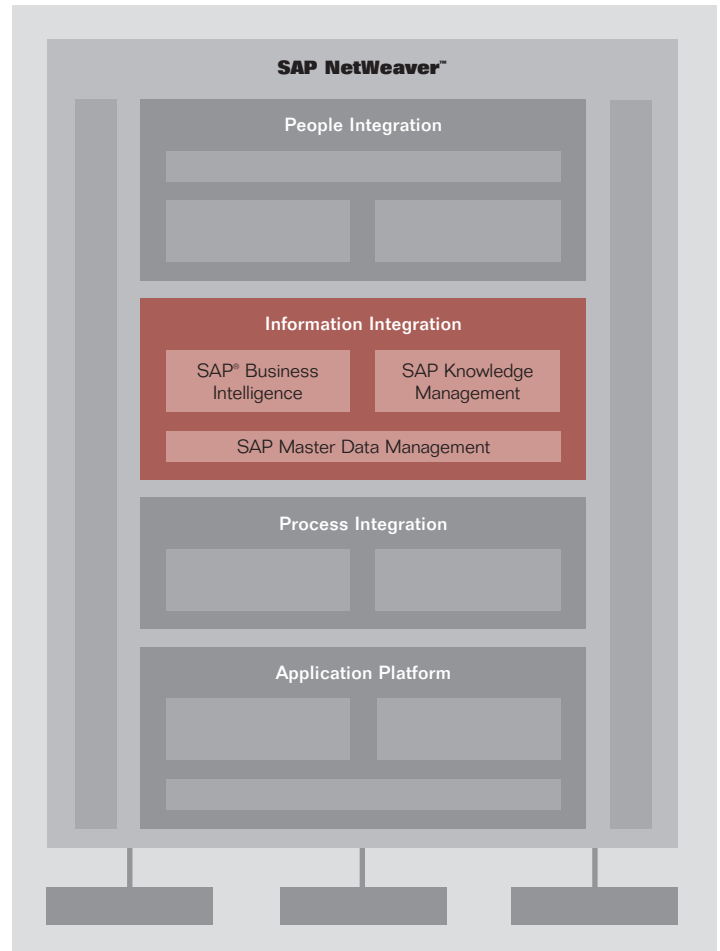


Figure 3: SAP BI and the information-integration layer of SAP NetWeaver

Content management functions and services allow users to manage unstructured content such as e-mail and other corporate documents. SAP KM and SAP MDM support the entire document life cycle, including authoring, storage, management, and display of documents. These capabilities are key, because so much business information is unstructured and not maintained in databases and operational systems. By nature, these disparate kinds of information are found in many different repositories.

SAP EP provides a common, standardized connection layer for linking all these sources. Once repositories are connected to the layer, they can be treated in the same way, meaning that the portal provides users with a unified view and taxonomy and common services for managing unstructured information. Operating on top of the content management layer, SAP EP enables free-text search by way of various search options, including an automatic classification system.

SAP BI draws on the knowledge management capabilities of SAP EP to allow users to attach documents to objects of the SAP BW information model, and add comments to documents through the portal. This capability enhances the overall business intelligence decision-making process by delivering contextually relevant documents, files, or guidelines for information consumers attempting to make strategic decisions based on insights provided by SAP BI.

For example, a sales manager checks his/her information dashboard and discovers that sales to a particular customer have dropped significantly. And an icon next to the Web application on the dashboard shows that a sales representative has linked a document to key figures such as EPS, inventory turns, and so forth. Checking the document, the manager learns that the customer's corporate owner has announced a cost-cutting program, which is affecting the customer's spending. With this deeper insight into the customer's behavior, the sales manager might adjust a sales campaign – or modify the following month's forecast.

### **SAP Master Data Management**

Master data – the unique, descriptive data that defines specific elements, from business partners and customer information, to product masters, product structures, and technical asset information – plays a key role in many business applications, and is of great importance to business intelligence. Often, however, due to a lack of an overall coordinating mechanism, various versions become “trapped” in different systems and companies end up with inconsistent master data, thereby preventing a common, consistent view of business processes.

By identifying, harmonizing, and then resynchronizing disparate master data definitions, SAP MDM solves that problem, and facilitates master data integrity across the business network, even in heterogeneous IT landscapes.

As another information-integration component of SAP NetWeaver, SAP MDM aligns master data by providing services that recognize identical master data objects and keep them consistent. In addition, it enables the “federation” of business processes, by providing consistent distribution mechanisms of master data objects into other systems – both within a company and from one company to another.

By leveraging SAP MDM capabilities to consolidate master data and create new, common, centrally administered and managed master data, SAP BW integrates and stores master data consistently for use in analyses and reporting.

### **Benefits of Information Integration**

By integrating organizational information into the SAP NetWeaver infrastructure, an enterprise can ensure the most complete and accurate business insight delivery possible. This guarantees that the data is complete, accurate, timely, and that it integrates all sources – whether they are structured data streams or unstructured data repositories. For instance, senior managers may see an executive dashboard, with red lights for critical issues, while business analysts may get data-rich reports, with abilities to slice and dice information in many different ways; yet both have additional links within those reports that permit them to access corporate documents, presentations, and files that can place reports and KPIs into contextually relevant perspective.

Overall, each user is empowered in the best way possible; the overall business intelligence infrastructure is streamlined, and all key tools for business insights are unified within a single information-integration layer of SAP NetWeaver.

## HOW SAP NetWeaver ENABLES PROCESS INTEGRATION

The SAP NetWeaver integration and application platform enables the extension of basic SAP BI capabilities through a growing range of functions for integrating people, information, and processes. In this section we will look at how SAP NetWeaver adds process integration to its SAP BI technology component, which includes data warehousing, predefined business content, as well as the analytics and reporting capabilities of SAP BI.

### INTEGRATING PROCESSES

Integrating business processes can be a major challenge for an enterprise and its business intelligence infrastructure. The reason: more than ever before, business processes tend to cross organizational and technological boundaries. This can produce multiple, disconnected, real-time data streams that a business intelligence solution must integrate, organize, and present for analysis to organizational information consumers. Business processes may run both inside and outside the firewall, and they may cross over from one type of system – or from one company – to another, and, increasingly, they may require integration of data acquired from real-time applications. In fact, the most advanced business processes not only provide data to an enterprise business intelligence solution but may in fact draw from a business intelligence system to optimize processes and make those processes intelligent by “closing the loop.”

SAP BI supports the concept of real-time data-acquisition process analysis and monitoring, in which data is updated in the data warehouse or the operational data store in real time, as events in the source systems take place. To do so, SAP BI draws on capabilities of SAP Exchange Infrastructure (SAP XI), the component that forms the core of the process-integration layer of SAP NetWeaver.

With SAP XI, process integration is message-based – an approach that eliminates the high costs, complexity, and inflexibility associated with multiple direct connections. SAP XI provides two process-integration capabilities: an integration broker and business process management.

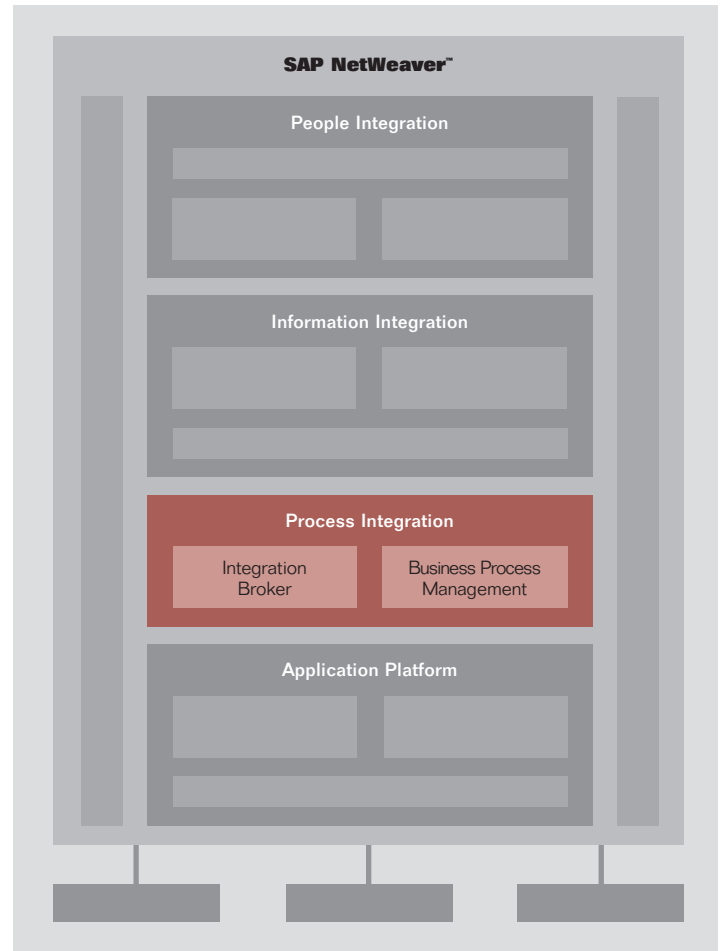


Figure 4: SAP BI and the process-integration layer of SAP NetWeaver

The integration broker capability uses adapters to talk to different application components. These adapters ensure connectivity to business partners, exchanges, third-party systems, and SAP solutions. In addition to technical connectivity, they address semantic issues, and include the capability to define and use software components, interfaces, proxies, mappings, and content-based routing rules.

Technical adapters – such as Java Database Connectivity (JDBC) and JMS adapters – allow the integration broker to communicate with the respective databases, files, or messaging providers. Other adapters link the integration broker to SAP and third-party systems such as those of Siebel, Oracle, and PeopleSoft as well as to legacy systems, and thus enable integration at the application level. These adapters translate XML- and HTTP-based messages into the specific protocols and formats of a given application or industry standard. SAP works with various partners to expand the range of adapters that SAP XI can use for integration with third-party systems and industry standards.

Business process management provides capabilities for modeling and driving business processes in a dynamic, heterogeneous landscape. It allows companies to combine underlying applications into adaptive end-to-end processes spanning the entire value chain. It also enables the ad hoc creation and execution of work flows by end users.

When using the process-integration capabilities of SAP XI to support real-time data acquisition, the data warehouse and operational data store act as another subscriber to the real-time data being distributed by the integration broker.

To streamline the integration of processes across multiple systems, SAP XI provides templates known as business scenarios. These scenarios help companies configure message-based interaction between application components or business entities. They are, in a sense, a guide to choreographing the flow of messages between interfaces and their respective components.

## **ENABLING EAI**

SAP® XI lets enterprises employ a methodology that can significantly enhance overall business intelligence value: enterprise application integration (EAI).

EAI operates at the relatively abstract business-process level, preserving the integrity of data and business rules in the underlying data sources. It focuses on the execution of business processes across multiple systems and components, and does so by propagating messages that will trigger actions, rather than aggregating and transforming bulk data for analysis. Therefore, it moves small bursts of information, transaction by transaction, from one system to another in real time.

Many companies now see EAI as a way of including more up-to-date information in their data warehousing systems, and so meet the needs of the growing number of business intelligence users. While EAI might seem like a replacement for traditional batch-oriented extract/transform/load (ETL) tools, because they both extract data from multiple sources, the two technologies are in fact optimized for different purposes, and, in their SAP NetWeaver™ implementation, are highly complementary.

And SAP NetWeaver allows companies to take advantage of both capabilities, since SAP NetWeaver integrates EAI technologies such as SAP XI with ETL and SAP BI technologies. SAP NetWeaver can thus handle batch and continuous feeds simultaneously, using its integrated information architecture as a unifying element, and providing the most complete data and process-integration capabilities possible.

### **Business Benefits of Batch/Real-Time Business Intelligence**

By combining SAP BI batch data integration with the capabilities of SAP XI, companies can improve decision making through better use of data. For example, with the two technologies working together in a single environment and using a single, metadata model, companies can easily combine historical information and real-time data to give users a richer context.

Then too, not all end users need data to have the same degree of timeliness. With SAP NetWeaver, companies have options; they can provide up-to-the-minute data to those who need it for immediate decisions or deliver large amounts of historical data to those who may need to perform strategic analyses. There's no need to create copies of the data for each type of user.

Overall, SAP BI provides comprehensive capabilities for data acquisition from a wide variety of sources – capabilities that are greatly expanded with the use of application-integration capabilities from SAP XI.

### **BENEFITS OF PROCESS INTEGRATION**

SAP NetWeaver affords decision makers a complete and up-to-date view of the business – one that transcends data stovepipes and departmental barriers. This view is complete, and is much more than simply process-centric. It can be tailored to the unique processes of the enterprise, whether they encompass Web services or legacy mainframe systems, and whether they stay within company boundaries or run across entire supply chains.

SAP BI and the process-integration layer of SAP NetWeaver thus provide complete process knowledge – timely and relevant data streams coupled with historical, aggregated data warehouse information. This helps organizations gain better process insights and take appropriate, timely actions.

## THE SAP NetWeaver APPLICATION PLATFORM

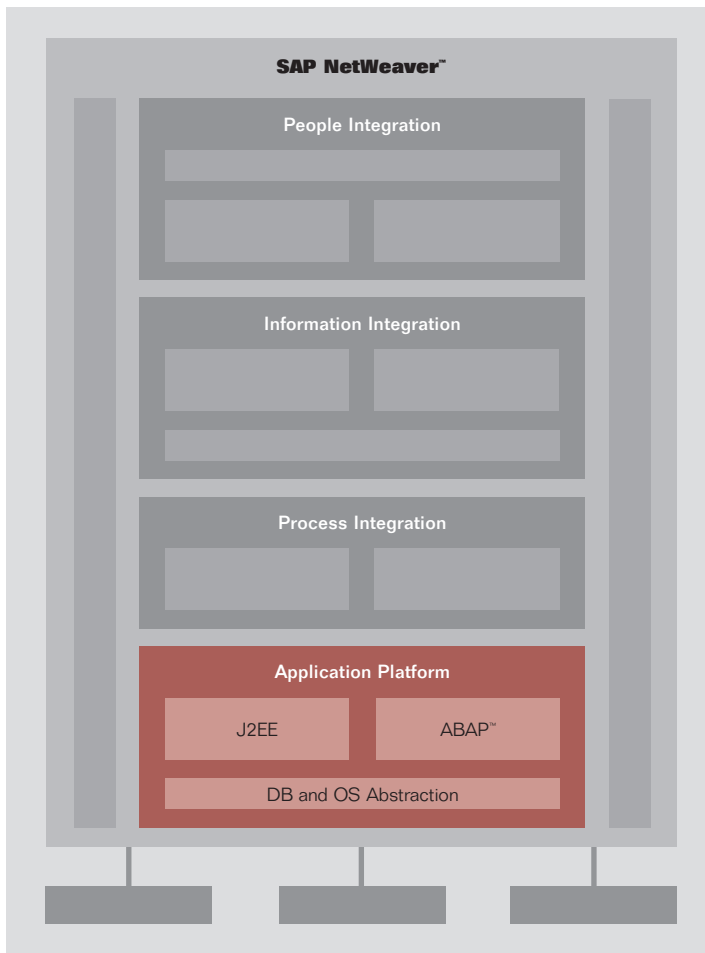


Figure 5: SAP BI and the application-integration layer of SAP NetWeaver

The SAP NetWeaver integration and application platform enables the extension of basic SAP BI capabilities through a growing range of functions for integrating people, information, and processes. This section details how platform abstraction works to add program-development flexibility to the business intelligence infrastructure, which includes the data warehousing capabilities and analytics-reporting capabilities of SAP BI.

### SAP WEB APPLICATION SERVER

The SAP Web Application Server (SAP Web AS), the Web application and development layer of SAP NetWeaver, enables SAP BI extensions and applications to be built using J2EE, and to run as a separate business layer on top of any of today's popular database management systems in any of the common operating systems.

If the business model changes, the elements of the SAP BI information model can be modified to reflect those changes, and the modifications will be applied automatically to the underlying relational database management system (RDBMS). To guarantee that this application happens seamlessly, SAP cooperates with the major RDBMS vendors such as Oracle, Microsoft, and IBM to leverage and optimize the unique capabilities of each platform, while at the same time insulating the organizational users or developers from the variations.

The same platform abstraction capabilities of SAP Web AS also provide a common user authentication and security infrastructure, and deliver uniform alerting mechanisms for SAP BI and all other SAP NetWeaver components. For SAP BI, SAP Web AS provides a graphical server which, coupled with SAP BI online analytical processing (OLAP) capabilities, ensures rapid, accurate, and functionally rich graphic rendering and analysis.

### BENEFITS OF PLATFORM ABSTRACTION

Through its application platform, SAP NetWeaver lets the enterprise take advantage of existing system resources to form the underpinnings of its SAP BI infrastructure. An RDBMS- and OS-independent environment delivers fast ROI, since enterprises do not have to replace entire IT infrastructures to take advantage of integrated SAP BI capabilities. Through SAP Web AS extensions, organizations are able to quickly and easily integrate SAP NetWeaver and its business intelligence capabilities into existing environments, whether they are homegrown or involve aspects of Microsoft .Net architecture or IBM's WebSphere. SAP NetWeaver's platform abstraction benefits future growth, since it lets enterprise developers take evolutionary changes to fundamental software and hardware systems in stride.

## CONCLUSION

Today more than ever, companies need up-to-date information and in-depth insight into their business – an uncertain economic environment, an accelerating pace of business change, increased competition, and growing scrutiny from regulators demand that companies have “up to the minute” information about their customers, employees, partners, costs, quality, and other aspects of business performance.

To gain those insights, companies frequently turn to business intelligence systems that can align strategy and execution and permit the organization to leverage all resources at its disposal in order to be more intelligent about its business, and therefore more successful.

An SAP BI infrastructure can do more than keep an organization “in the know” about its day-to-day business; it can also deliver strategic competitive advantages, helping to build more efficient business processes, capture new customers, and open new markets.

To accomplish these goals, many organizations are turning to SAP BI, an SAP NetWeaver technology component. But SAP NetWeaver also offers a suite of preintegrated technologies, such as SAP Enterprise Portal, SAP Mobile Infrastructure, and SAP Exchange Infrastructure that all work seamlessly together. These technologies ensure that SAP NetWeaver delivers on its objective of being an enterprise-wide integration and application platform with world-class business intelligence capabilities.

Taken together, the SAP NetWeaver components equal more than the sum of their parts. They deliver an effective, integrated business intelligence infrastructure that can power enterprises of any size and in any industry, thereby supplying the business intelligence to help businesses operate intelligently.

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