

LearnSAP

Your SAP Training Partner



SAP Business Intelligence

step-by-step guide

www.LearnSAP.com

5101 Camden Lane, Pearland, TX 77584

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SAP BIW Manual

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SAP History

FROM START-UP SOFTWARE VENDOR TO GLOBAL MARKET LEADER

Over the course of three decades, SAP has evolved from a small, regional enterprise into a world-class international company. Today, SAP is the global market leader in collaborative, inter-enterprise business solutions. The company now employs more than 51,500 people, whose commitment and innovative spirit pace our future success.

The 1970s: A Real-Time Vision

In 1972, five former IBM employees launched a company called Systems Applications and Products in Data Processing. Their vision: to develop standard application software for real-time business processing.

One year later, the first financial accounting software was completed what later came to be known as the "R/1 system." "R" stands for real-time data processing. By the end of the decade, intensive examination of SAP's IBM database and dialog control system leads to the birth of SAP R/2.

The 1980s: Rapid Growth

The SAP R/2 system attains the high level of stability of the previous generation of programs. Keeping in mind its multinational customers, SAP designs SAP R/2 to handle different languages and currencies. With this and other innovations in SAP R/2, SAP sees rapid growth.

SAP History contd....

The 1990s: A New Approach to Software and Solutions

SAP R/3 is unleashed on the market. The client-server concept, uniform appearance of graphical interfaces, consistent use of relational databases, and the ability to run on computers from different vendors meets with overwhelming approval. With SAP R/3, SAP ushers in a new generation of enterprise software – from mainframe computing to the three-tier architecture of database, application, and user interface. To this day, the client-server architecture is the standard in business software.

The 2000s: Innovation for the New Millennium

With the Internet, the user becomes the focus of software applications. SAP develops SAP Workplace and paves the way for the idea of an enterprise portal and role-specific access to information. Currently, more than 12 million users work each day with SAP solutions. There are now 121,000 installations worldwide, more than 1,500 SAP partners, over 25 industry-specific business solutions, and more than 75,000 customers in 120 countries. SAP is the world's third-largest independent software vendor.

Relational Database

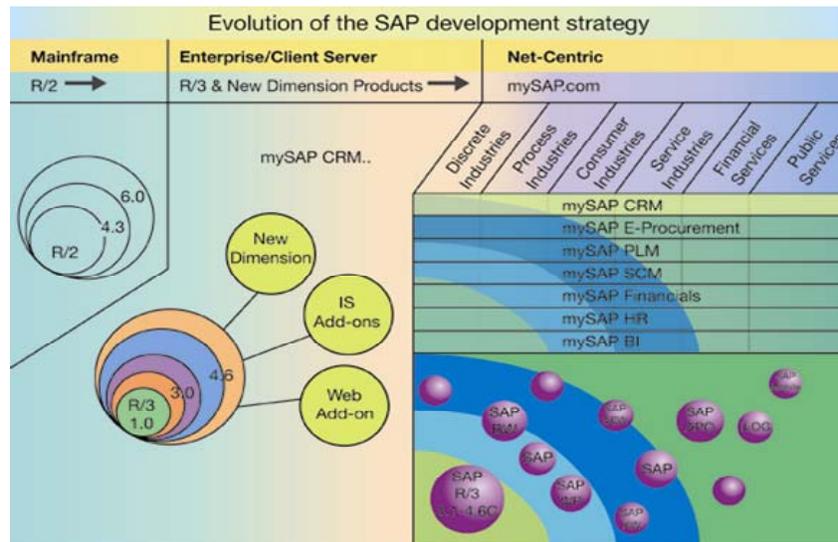
Basically SAP, an enterprise application is made up of programs together with the data used and formed by programs. The data are organized in a meaningful way within the database, making it easy for the programs to access and find the data necessary to do something useful like run a financial report or create a sales order.

Database tables in an Relational Database Management System (RDBMS) are obligatory to hold a unique field that distinguishes one particular record separately from others found in the database. This unique field is called a primary key and is composed of one or more fields

Originally, databases were **flat**. This means that the information was stored in one long text file, called a **tab delimited file**. Each entry in the tab delimited file is separated by a special character, such as a vertical bar (|). Each entry contains multiple pieces of information (**fields**) about a particular object or person grouped together as a **record**. The text file makes it difficult to search for specific information or to create reports that include only certain fields from each record

The "relational" part of the name comes into play because of mathematical relations. A typical relational database has anywhere from 10 to more than 1,000 tables. Each table contains a column or columns that other tables can key on to gather information from that table

Evolution of the SAP development strategy



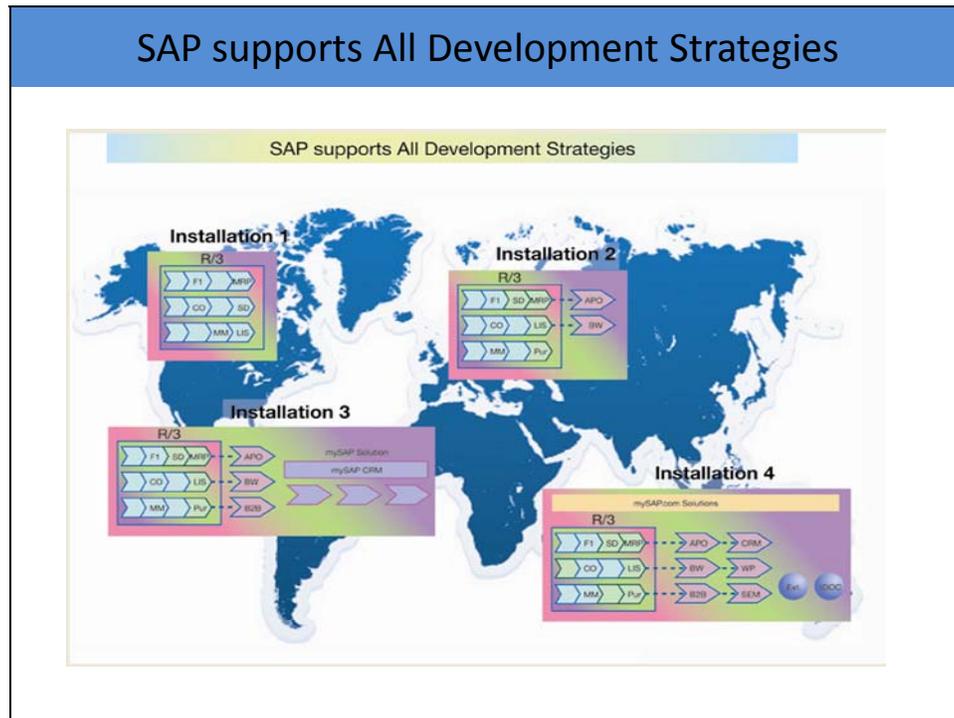
- Integration in the "old" economy meant integration of the business processes:

Enterprise resource planning (ERP) made SAP R/3 a standard worldwide.

Since 1996 SAP R/3 has been capable of doing e-commerce.

Future technology was incorporated in SAP products so customers would be prepared for future developments without having to perform system changes.

- Integration in the “new” economy requires an integration of processes that extends beyond the organization’s borders, allowing companies to collaborate.



- R/3 is an integral part of the ySAP.com e-business platform
- A key aspect is ensuring a good return on investment for SAP customers
- Customers decide on an implementation strategy that is right for their business needs

Definition of ERP and E-Business

Definition of ERP and E-Business		
	ERP	E-Business
Business Model	Enterprise centric extended and collaborative
Processes	Integrated, core within enterprise and collaborative, beyond company boundaries
Goals	Internal process optimization and value creation through collaboration
Architecture	Integrated system and open integration platform

To understand what ERP is, we need to define what is ERP functionality and what is e-business functionality.

- ERP offers enterprise centric functionality (general ledger, payroll, order entry) to integrate core, internal processes
 - Value is generated via internal efficiencies and optimization
- E-Business builds on ERP functionality and offers additionally
 - Extended collaborative functions (e-recruitment, crm campaign management etc.
 - Value is generated through collaborative possibilities and
 - There is easy integration into heterogeneous landscapes
- ERP is NOT mySAP Financials and mySAP HR
 - There is basic HR financials functionality, but mySAP FI and mySAP HR offer much more

SAP Industry and Cross Industry Expertise

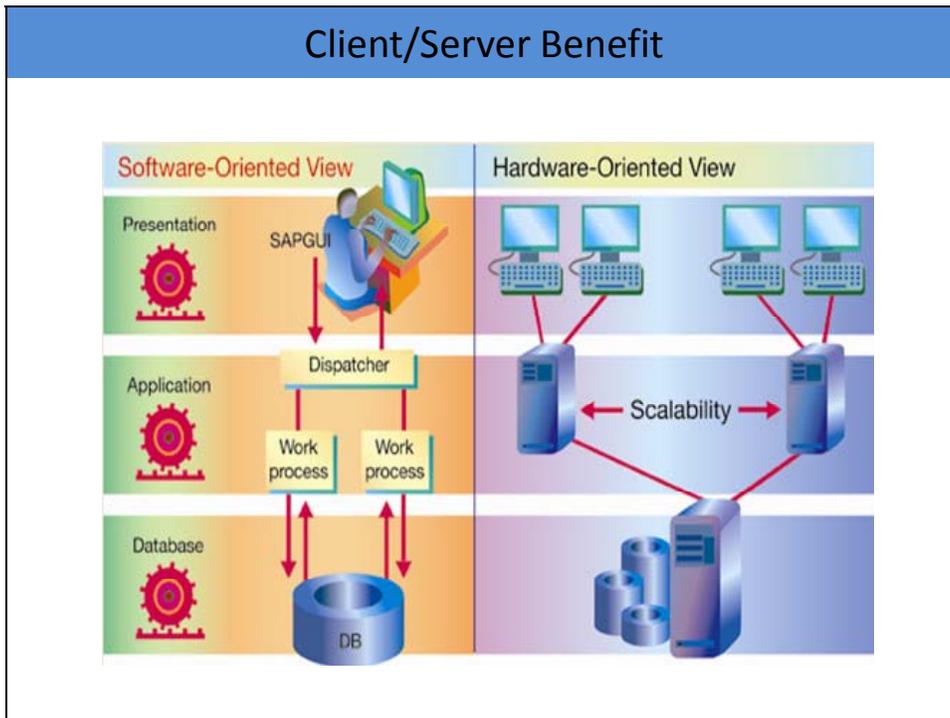
SAP Industry and Cross Industry Expertise	
	Industry Solutions
Cross-Industry Solutions	mySAP Aerospace & Defense
mySAP Enterprise Portals	mySAP Automotive
mySAP CRM	mySAP E & C
mySAP SCM	mySAP High Tech
mySAP BI	mySAP Chemicals
mySAP Exchanges	mySAP Mill Products
mySAP E-Procurement	mySAP Pharmaceuticals
mySAP PLM	mySAP Oil & Gas
mySAP HR	mySAP Mining
mySAP Financials	mySAP CP
mySAP Mobile Business	mySAP Retail
	mySAP Media
	mySAP Service Providers
	mySAP Telecommunications
	mySAP Utilities
	mySAP Banking
	mySAP Financial Service Prov.
	mySAP Insurance
	mySAP Healthcare
	mySAP Higher Ed. & Research
	mySAP Public Sector

Tailored industry solutions make use of the cross-industry solutions, infrastructure, and services as well as custom developed industry expertise

For example, all industry solutions can be linked to mySAP Exchanges, accessed via mySAP Enterprise Portals solution, be seamless connected to mySAP CRM solution

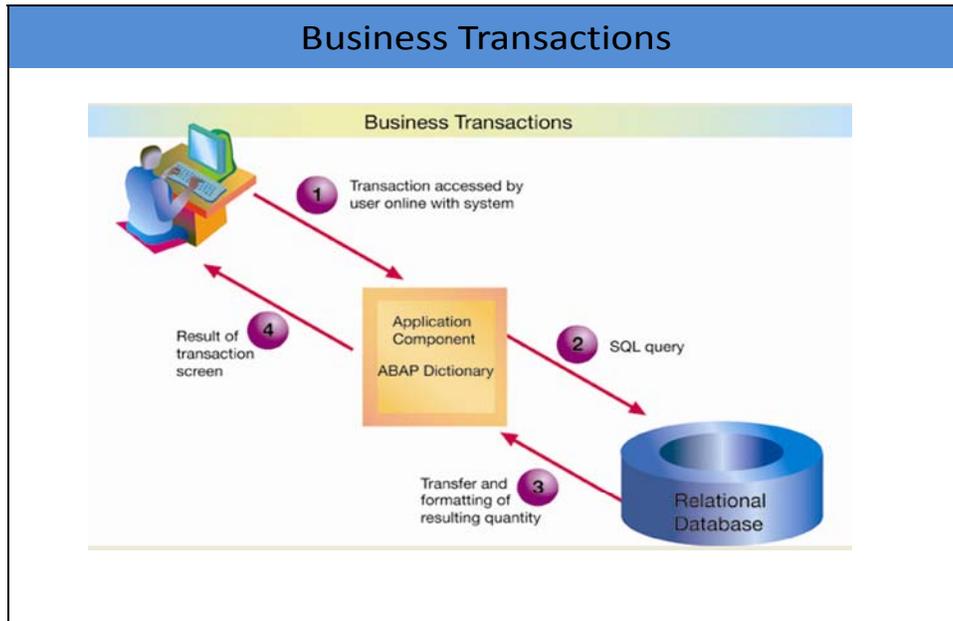
All industry solutions are packaged and configured with detail features bases on industry best practices.

Client/Server Benefit



- The R/3 System architecture allows you to separate application from the presentation and the database. This is this prerequisite for distributing load onto several application servers in client/server configurations. Therefore, the system can be distributed in hardware terms, at three different levels.
- This architecture means that the installed host service can be adjusted without any problems (**scalability**) especially where load profiles have changed as a result of increasing user numbers, pr because additional components have been used. R/3 systems scalability provides you with flexibility when choosing hardware and software.
- Examples of R/3 system scalability:
 - Brewery 20 users
 - Small Telecom company- 415 users
 - Large Software Company-2000 users
 - Oil & Gas Company-2500 users
 - Large Engineering Company 3200 users
 - Large Telecom Company-5800 users

Business Transactions



- An R/3 transaction is a sequence of dialog steps that are consistent in a business context and that belong together logically. When an R/3 transaction is executed, all individual dialog steps are performed and the data entered in the transaction is updated in the database. From the viewpoint of the database, this is a conversion from one consistent state to the next.
- After a user accesses a transaction, the R/3 System starts a query from the application level to the database level. The query is performed in SQL (Structured Query Language), the language compatible with most database systems. The scope of SQL enables the full functionality of the database system, including all vendor-specific enhancements, to be used.
- The ABAP (Advance Business Application Programming language) Dictionary contains the field definitions that are defined in the standard SAP System. While online, the system uses the definition of the table fields in the ABAP Dictionary to check the format of the user's field entries. The check on R/3 application level guarantees data consistency before the data is transferred to the database.
- All data and programs in the SAP R/3 System are stored in the database.

Enterprise Resource Planning ERP

- ❑ An ERP system supports most of the business systems that maintain single database that is needed for a variety of business functions such as Manufacturing, Supply Chain Management, Financials, Projects, Human Resources and Customer Relationship management.
- ❑ An ERP system is based on a common database and a modular software design. The common database can allow every department of a business to store and retrieve information in real time. The information should be reliable, accessible and easily shared. The modular design should mean a business can select the modules they need, select functionalities from different modules and add new modules of their own to improve business performance

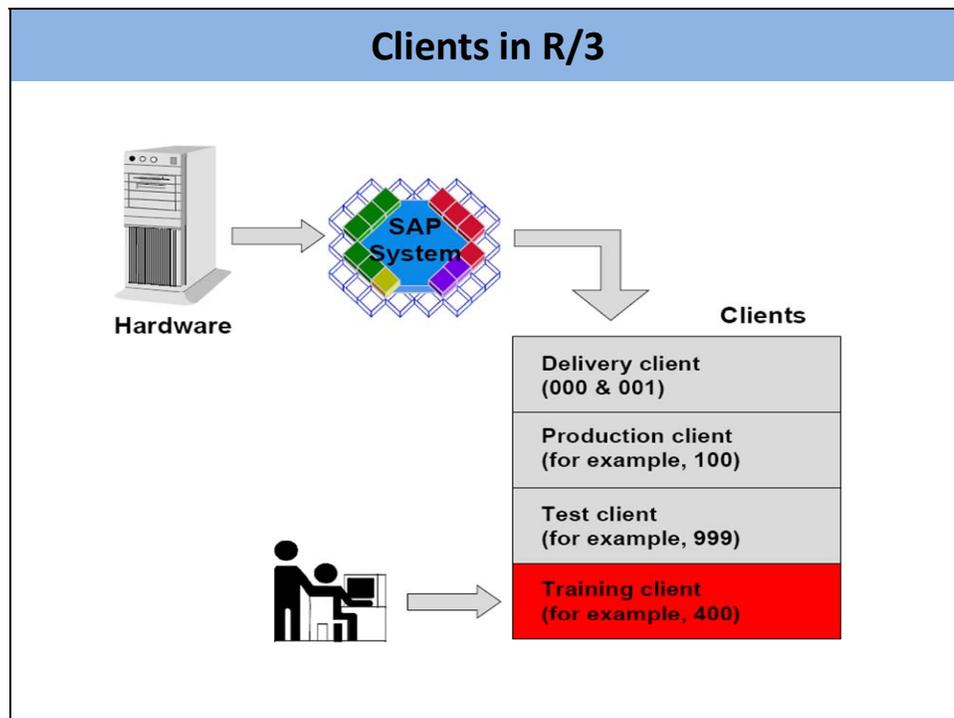
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The R/3 Integration Model



- SAP's R/3 System has set new norms for standard software that can be universally implemented. R/3 uses advanced development techniques to achieve comprehensive integration of business administration and data processing.
- R/3 combines state-of-the-art technology with comprehensive business administration functions to provide a fully-integrated business solution for your company.



- **Clients** are used to divide data in a SAP System into various data areas for various purposes. If a company, for example, wants to use its SAP System for both test and training purposes, a client is created for each purpose.
- A client is identified via a three character code. Data can be moved via transports and corrections from one client to another.
- When logging on to the system, the user has to select a client in which he/she wants to work. The user can then only access data in this client.

Navigation

Contents:

- Navigation in the system
- User-specific settings
- Navigation in the mySAP Workplace

Navigation: Unit Objectives

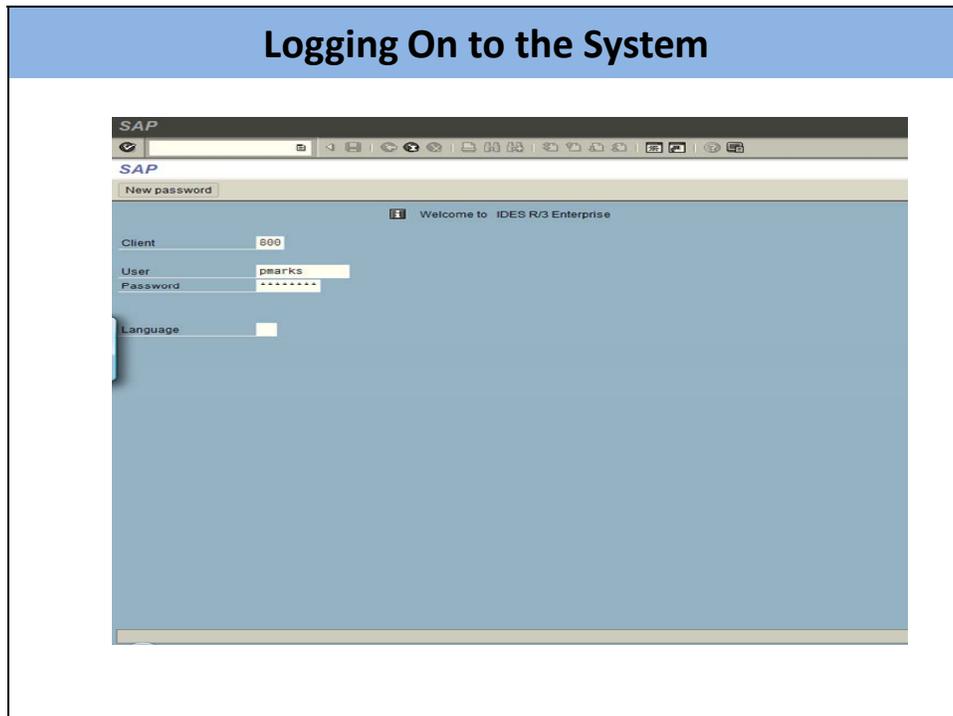
At the conclusion of this unit, you will be able to:

- Identify the elements of a typical window
- Navigate in the system
- Personalize your user settings

Navigation: Business Scenario

- **New users need to familiarize themselves with the screens in the system and define their personal default settings**

Logging on to SAP system

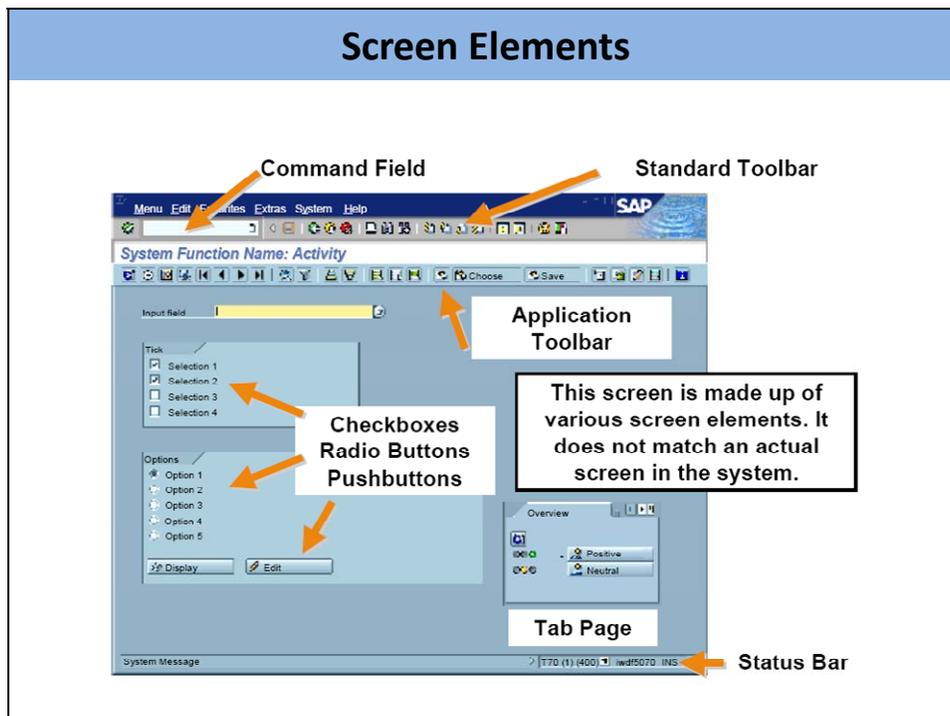


SAP BI Systems are **client systems**. The client concept enables the parallel operation, in one system, of several enterprises that are independent of each other in business terms. The components

SAP Business Information Warehouse (BW) and SAP Knowledge Warehouse (KW) are exceptions to this: in these cases only one client is used. During each user session you can only access the data of the client selected during logon.

- A **client** is, in organizational terms, an independent unit in the system. Each client has its own data environment and therefore its own master data and transaction data, assigned user master records and charts of accounts, and specific Customizing parameters.
- For a user to log on to the system, a master record must exist in the system for that user. To protect access, a password is required for logon. The password is hidden as you type (you only see asterisks).
- SAP R/3 Systems are available in several languages. Use the *Language* input field to select the logon language for each session.

- Multiple logons are always logged in the system beginning with SAP R/3 4.6. This is for security as well as licensing reasons. A warning message appears if the same user attempts to log on twice or more. This message offers three options:
 - Continue with current logon and end any other logons of the same user in the system
 - Continue with current logon without ending any other logons in the system (logged in system)
 - Terminate current logon attempt

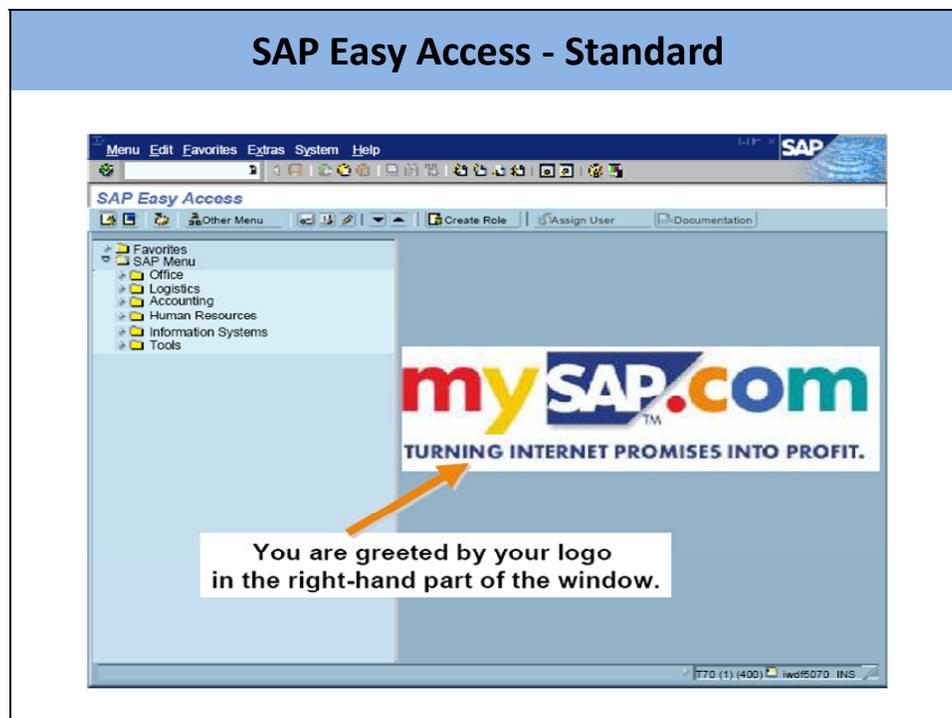


- **Command field:** You can use the command field to go to applications directly by entering the transaction code. You can find the transaction code either in the *SAP Easy Access* menu tree (see the page *User-Specific Personalization*) or in the appropriate application by choosing *System® Status*.
- **Standard toolbar:** The icons in the standard toolbar are available on all SAP R/3 screens. Any icons that you cannot use on a particular screen are dimmed. If you leave the cursor on an icon for a moment, a QuickInfo appears with the name (or function) of that icon. You will also see the corresponding function key. The **application toolbar** shows you which functions are available in the current application.

- **Checkboxes:** Checkboxes allow you to select several options simultaneously within a group.
- **Radio buttons:** Radio buttons allow you to select one option only.
- **Tabs:** Tabs provide a clearer overview of several information screens.
- **Status bar:** The status bar displays information on the current system status, for example, warnings or error messages.

Other elements are:

- **Menu bar:** The menus shown here depend on which application you are working in. These menus contain cascading menu options.
- **Title bar:** The title bar displays your current position and activity in the system.



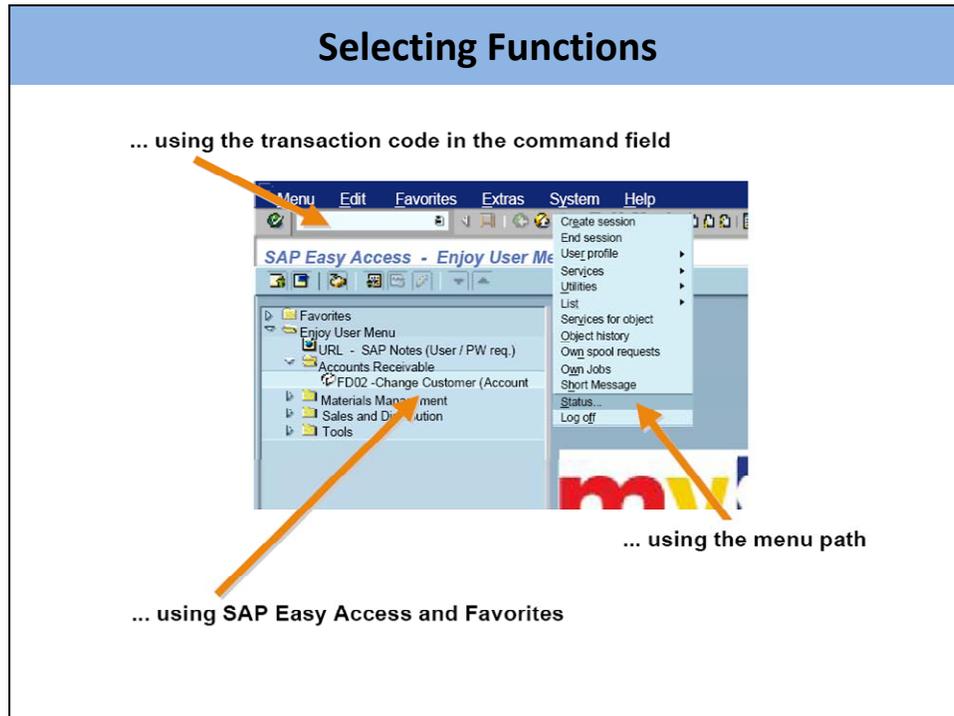
SAP Easy Access is the standard entry screen displayed after logon. You navigate through the system using a compact tree structure.

You can include an image on the right-hand side of the screen such as your company logo. This image can only be entered system wide, and is a cross-client setting. Assuming you have the appropriate authorization, you can find a detailed description of the necessary settings by choosing *Extras*

Administration Information. Note that this image is stored in the system and transported to the SAP Frontend every time it is called by SAP Easy Access. Although

this transfer is compressed, the image for the initial screen should not be bigger than around 20 kB.

You can prevent this image being called either by using the setting *Low Speed Connection* in the SAPLogon program (see SAP Note 161053), or by switching off the calling of the image under *Extras > Settings*. See also *User- Specific Personalization*.



You can select system functions in the following ways:

Use the mouse to choose: Menu options, Favorites, and SAP Easy Access options

Use the keyboard (ALT + the underlined letter of the relevant menu option)

Enter a **transaction code in the command field**:

A transaction code is assigned to each function in SAP R/3 Systems. You can access the assigned transaction code from any screen in the system. For example, to display customer master data, enter /n and the appropriate transaction code (in this case /nfd03). You can find the transaction code for the function you are working in under the *Status* option of the *System* menu. Other possible entries:

- /n ends the current transaction.

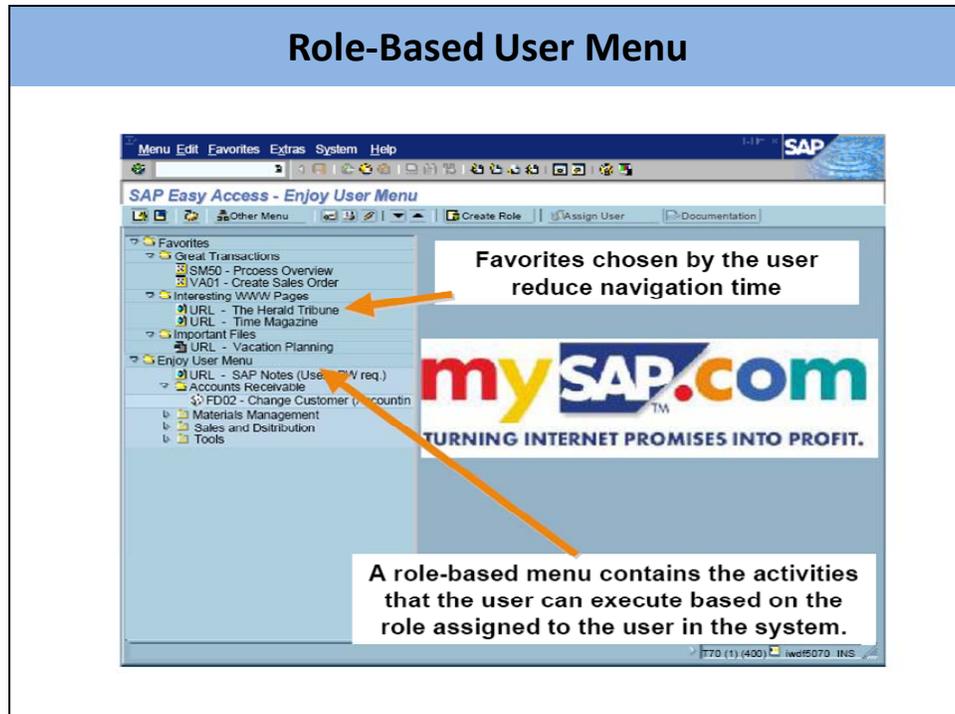
- /i ends the current session.

- /osm04 creates a new session and goes to the transaction specified (SM04).

You can also use the keyboard to go to the command field. Use the CTRL + TAB key combination to move the cursor from one (input) field group to the next.

Use TAB to move between fields within a group.

By entering search_sap_menu in the command field, you can search for and display the menu path for an SAP transaction. You can also search for text strings.

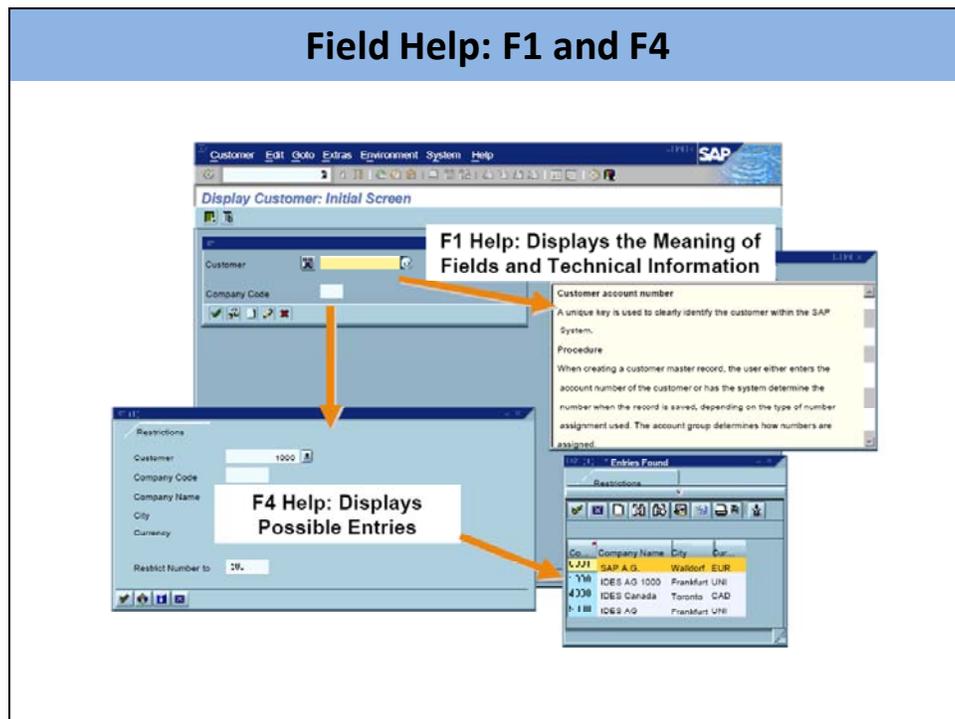


- A **Role** describes a set of logically linked transactions in the system. These represent the range of functions users typically need for their work.
- **User roles** (previously “activity groups”) have to be set up using the Profile Generator so that SAP R/3 System users can work with **user-specific** or **position-related** menus.
- The authorizations for the activities listed in the menus are also assigned to the users using user roles. With Release 4.6, predefined user roles from all application areas are included in the standard system.
- Users who have been assigned a user role can choose between the user menu and the SAP standard menu.

The above screen shows the role-based user menu for a user with the name "Enjoy". You can find roles that are supplied in the standard SAP R/3 System by choosing *Other menu* on the *SAP Easy Access* initial screen.

Every end user can personalize the initial screen using *Favorites*. You can create your own **Favorites list** containing the transactions, reports, files, and Web addresses that you use most often.

You can add favorites either by choosing *Favorites* or by using the mouse to “drag & drop” items into the *Favorites* directory.



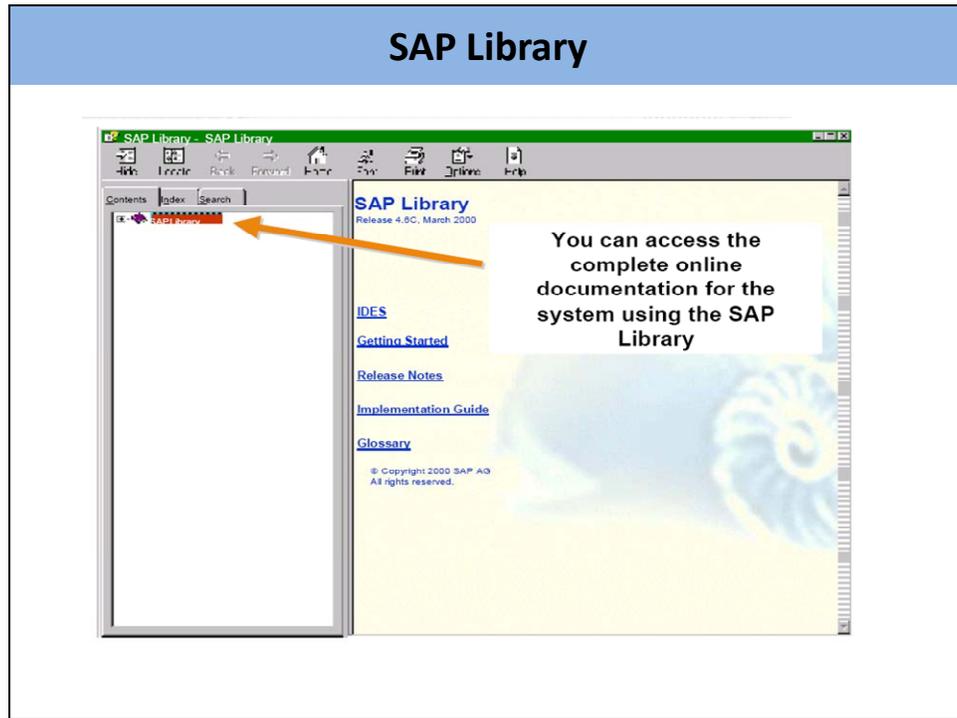
For help on fields, menus, functions, and messages, use **F1**.

F1 help also provides technical information on the relevant field. This includes, for example, the parameter ID, which you can use to assign values for your user to input fields, which have to refer to these parameter IDs.

For information on what values you can enter, use **F4**. You can also access F4 help for a selected field using the button immediately to the right of that field.

If input fields are marked with a small icon with a checkmark, then you can only continue in that application by entering a permitted value. You can mark many fields in

an application as either required entry fields or optional entry fields. You can also hide fields and pre-assign values using transaction or screen variants or Customizing.

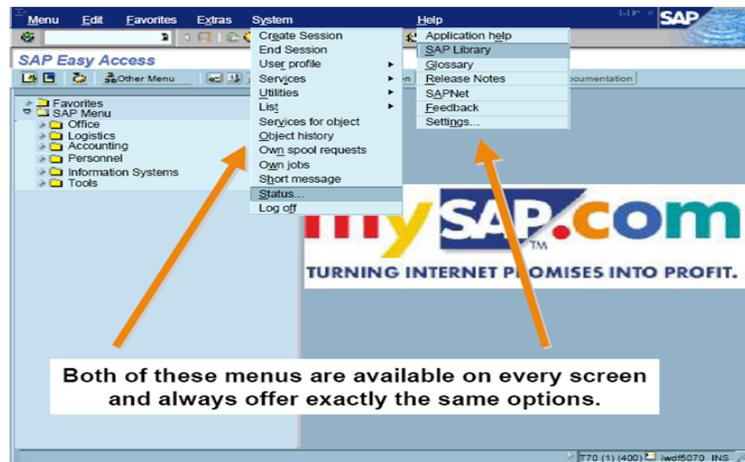


SAP R/3 Systems provide comprehensive online help. You can display the help from any screen in the system. You can always request help using the *Help* menu or using the relevant icon (the yellow question mark).

You can access the SAP Library quickly and comfortably by using the SAP Service Marketplace. There you can find the *SAP Help Portal* under *Knowledge and Training*, where you can not only access Help in HTML format, but can also perform efficient full-text searches in the SAP Library. If you have the SAP Library installed, you also have, of course, these opportunities within your company.

You can access the Help Portal directly at <http://help.sap.com>

Menus: System and Help



The *System* menu contains, among others, the following options:

Create/End Session: Allows you to create and end sessions. The maximum number of sessions can be set to a number between 2 and 6 by the system administrator using the parameter

`rdisp/max_alt_modes`.

User profile: This is where you can enter user-specific settings. For example, you can use Parameter IDs in *Own Data*, in order to set default values for specific user-dependent fields in the system (for example the company code field).

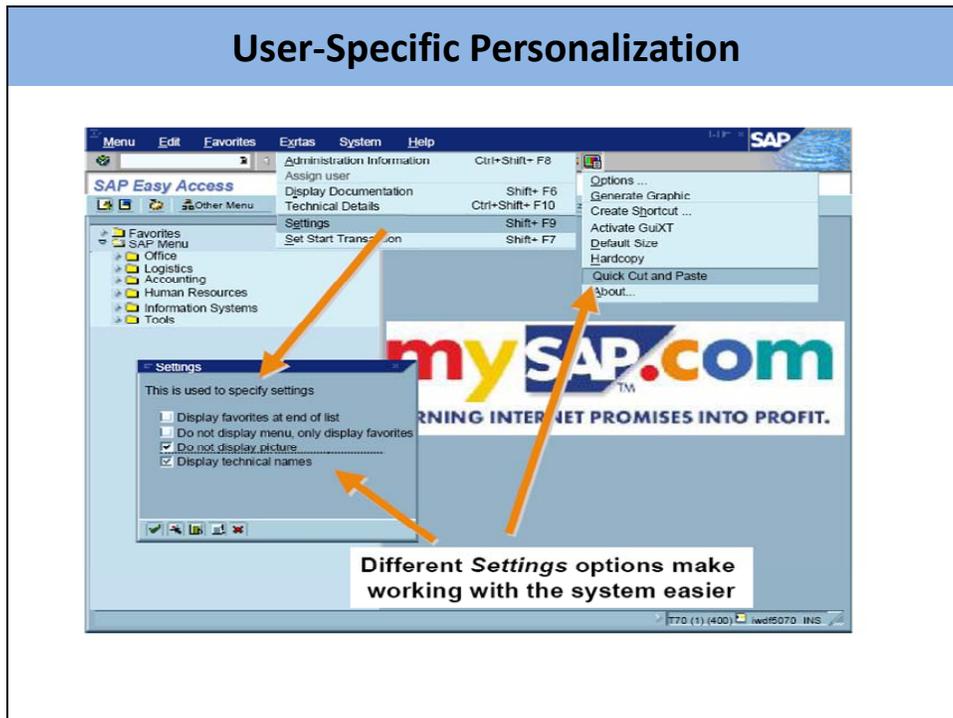
List: Contains important list functions, such as searching for character strings, saving in PC files, printing, and so on.

- **Status:** Enables you to display important user and system data.
- **Log off:** Ends the R/3 session with a confirmation prompt.

The *Help* menu contains, among others, the following options:

- *Context-sensitive Application Help*
- Access to the *SAP Library* (see previous page)
- a *Glossary*

User-Specific Personalization



The end user has many possibilities for personalizing the system. Some are described below:

- You can alter the layout of your initial screen under *Extras*® *Settings*, for example by switching off the image in the right-hand part of the window or by turning on the option to display the technical names (transaction codes) in the SAP Easy Access Menu.
- Among other things, you can activate a quick cut and paste in the *Options menu*. Using *Options* you can change the reaction speed of the QuickInfo that is displayed when you hold your mouse cursor over an icon or a push button.
- By following the path *System*® *User profile*® *Own data*, you can set personal standard values. You can choose the tabs *Address*, *Defaults*, and *Parameters*. As an example, the setting of *Parameters* is explained here:

- Parameters: Here you can set defaults for frequently used input fields. In order to be able to set a

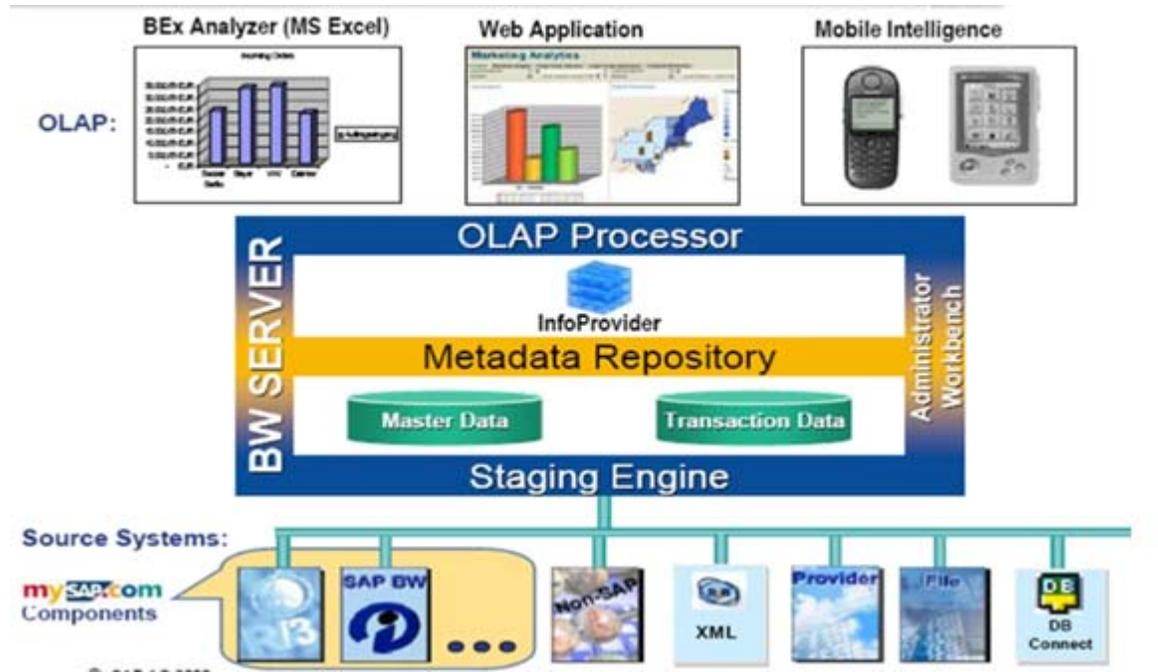
default value for a field, it must have been assigned a Parameter ID.

Procedure for finding the Parameter ID: Go to the field for which you wish to set a default value. Select the F1 help, and then choose *Technical Info*. The system displays an information window that contains the relevant parameter ID under the heading *Field Data* (as long as the field has been assigned a *Parameter ID*).

Most Commonly Used Buttons

Enter	User Menu	Drop down Menu	Create doc.
Save	SAP Menu	Hit list	Change doc.
Back	Workplace	Pick list	Display doc.
Exit	Edit <-> Display	Possible entries	Copy Template
Cancel	Change	Check box	Insert Rows
Print	View Detail	Select All	Delete Rows
Find	Copy / Transfer	Deselect All	Property Tree
New	Header	Variant table	Other Prop Tree
Session	Document information	Sort Ascending	Previous
Help	Refresh	Sort Descending	Next
Create	Expand Section	Radio button chkd	Where-Used
Display	Collapse Section	Radio button unchkd	
Delete	Execute		
Undo			

Business Intelligence: Overview



This documentation is geared to beginners who would like a quick introduction to the functions offered by SAP NetWeaver Business Intelligence (SAP NetWeaver BI). An overview of the key areas is given. The tools, functions and processes of SAP NetWeaver BI that enable your company to implement a successful business intelligence strategy are introduced.

1 What Is Business Intelligence?

The Purpose of Business Intelligence

During all business activities, companies create data. In all departments of the company, employees at all levels use this data as a basis for making decisions. Business Intelligence (BI) collates and prepares the large set of enterprise data. By analyzing the data using BI tools, you can gain insights that support the decision-making process within your company. BI makes it possible to quickly create reports about business processes and their results and to analyze and interpret data about customers, suppliers, and internal activities.

Dynamic planning is also possible. Business Intelligence therefore helps optimize business processes and enables you to act quickly and in line with the market, creating decisive competitive advantages for your company.

Key Areas of Business Intelligence

A complete Business Intelligence solution is subdivided into various areas. SAP NetWeaver Business Intelligence (SAP NetWeaver BI) provides comprehensive tools, functions, and processes for all these areas:

A data warehouse integrates, stores, and manages company data from all sources. If you have an integrated view on the relevant data in the data warehouse, you can start the analysis and planning steps. To obtain decisive insights for improving your business processes from the data, SAP NetWeaver BI provides methods for multidimensional analysis.

Business key figures, such as sales quantities or revenue, can be analyzed using different reference objects, such as Product, Customer or Time. Methods for pattern recognition in the dataset (data mining) are also available. SAP NetWeaver BI also allows you to perform planning based on the data in the data warehouse.

Tools for accessing and for visualization allow you to display the insights you have gained and to analyze and plan the data at different levels of detail and in various working environments (Web, Microsoft Excel).

By publishing content from BI, you can flexibly broadcast the information to all employees involved in your company's decision-making processes, for example by e-mail or using an enterprise portal.

Performance and security also play an important role when it comes to providing the information that is relevant for decision-making to the right employees at the right time.

Preconfigured information models in the form of BI Content make it possible to efficiently and cost-effectively introduce SAP NetWeaver BI.

The following sections give an overview of the capabilities of SAP NetWeaver BI in these areas. You can find out more about the tools, functions, and processes provided by SAP NetWeaver BI using the links to more detailed information in the documentation.

2 Integration, Storage and Management of Data

Comprehensive, meaningful data analyses are only possible if the datasets are bundled into a business query and integrated. These datasets can have different formats and sources. The data warehouse is therefore the basis for a business intelligence solution.

Enterprise data is collected centrally in the Enterprise Data Warehouse of SAP NetWeaver BI. The data is usually extracted from different sources and loaded into SAP NetWeaver BI. SAP NetWeaver BI supports all kinds of sources - relational and multidimensional, SAP and non-SAP. Technical cleanup steps are then performed and business rules are applied in order to consolidate the data for evaluations. The consolidated data is stored in the Enterprise Data Warehouse. This entire process is called **extraction, transformation and loading (ETL)**.

Data can be stored in different layers of the data warehouse architecture with different granularities, depending on your requirements. The **data flow** describes the path taken by the data through the data warehouse layers until it is ready for evaluation.

Data administration in the Enterprise Data Warehouse includes **control of the processes** that transfer the data to the Enterprise Data Warehouse and broadcast the data within the Enterprise Data Warehouse as well as convert strategies for optimal data retention and history keeping (limiting the data volume. This is also called **Information Lifecycle Management**.

With **extraction to downstream systems**, you can make the data consolidated in the Enterprise Data Warehouse available to further BI systems or further applications in your system landscape.

A **metadata** concept permits you to document the data in SAP NetWeaver BI using definitions or information in structured and unstructured form.

The **Data Warehousing Workbench** is the central work environment that provides the tools for performing the tasks in the SAP NetWeaver BI Enterprise Data Warehouse.

2.1 Extraction, Transformation and Loading (ETL)

SAP NetWeaver BI offers flexible means for integrating data from various sources. Depending on the data warehousing strategy for your application scenario, you can extract the data from the source and load it into the SAP NetWeaver BI system or directly access the data in the source without storing it physically in the Enterprise Data Warehouse. In this case the data is integrated virtually in the Enterprise Data Warehouse. Sources for the Enterprise Data Warehouse can be operational, relational datasets (for example in SAP systems), files or older systems. Multidimensional sources, such as data from other BI systems, are also possible.

Transformations permit you to perform a technical cleanup and to consolidate the data from a business point of view.

Extraction and Loading

Extraction and transfer processes in the initial layer of SAP NetWeaver BI as well as direct access to data are possible using various interfaces, depending on the origin and format of the data. In this way SAP NetWeaver BI allows the integration of relational and multidimensional data as well as of SAP and non-SAP data.

BI Service API (BI Service Application Programming Interface)

The BI service API permits the extraction and direct access to data from SAP systems in standardized form. This can be SAP application systems or SAP NetWeaver BI systems. The data request is controlled from the SAP NetWeaver BI system.

File Interface

The file interface permits the extraction from and direct access to files, such as csv files. The data request is controlled from the SAP NetWeaver BI system.

Web Services

Web services permit you to send data to the SAP NetWeaver BI system under external control.

UD Connect (Universal Data Connect)

UD Connect permits the extraction from and direct access to both relational and multidimensional data. The data request is controlled from the SAP NetWeaver BI system.

DB Connect (Database Connect)

DB Connect permits the extraction from and direct access to data lying in tables or views of a database management system. The data request is controlled from the SAP NetWeaver BI system.

Staging BAPIs (Staging Business Application Programming Interfaces)

Staging BAPIs are open interfaces from which third party tools can extract data from older systems. The data transfer can be triggered by a request from the SAP NetWeaver BI system or by a third party tool.

Transformation

With **transformations**, data loaded within the SAP NetWeaver BI system from the specified interfaces is transferred from a source format to a target format in the data warehouse layers.

The transformation permits you to consolidate, clean up and integrate the data and thus to synchronize it technically and semantically, permitting it to be evaluated. This is done using rules that permit any degree of complexity when transforming the data.

The functionality includes a 1:1 assignment of the data, the use of complex functions in formulas, as well as the custom programming of transformation rules. For example, you can define formulas that use the functions of the transformation library for the transformation. Basic functions (such as and, if, less than, greater than), different functions for character chains (such as displaying values in uppercase), date functions (such as computing the quarter from the date), mathematical functions (such as division, exponential functions) are offered for defining formulas.

Availability Requirements for Data in SAP NetWeaver BI

For different business problems, the data might need to be more or less up-to-date. For example, if you want to check the sales strategy for a product group each month, you need the sales data for this time span. Historic, aggregated data is taken into consideration.

The scheduler is an SAP NetWeaver BI tool that loads the data at regular intervals, for example every night, using a job that is scheduled in the background. In this way no additional load is put on the operational system. We recommend that you use **standard data acquisition**, that is schedule regular data transfers, to support your strategic decision-making procedure.

If you need data for the tactical decision-making procedure, data that is quite up-to-date and granular is usually taken into consideration, for example, if you analyze error quotas in production in order to optimally configure the production machines. The data can be staged in the SAP NetWeaver BI system based on its availability and loaded in intervals of minutes. A permanently active job of SAP background processing is used here; this job is controlled by a special process, a daemon. This procedure of data staging is called **real-time data acquisition**.

By loading the data in a data warehouse, the performance of the source system is not affected during the data analysis. The load processes, however, require an administrative overhead. If you need data that is very up-to-date and the users only need to access a small dataset sporadically or only a few users run queries on the dataset at the same time, you can read the data directly from the source during analysis and reporting. In this case the data is not archived in the SAP NetWeaver BI system. Data staging is virtual. You use the **Virtual Provider** here. This procedure is called **direct access**.

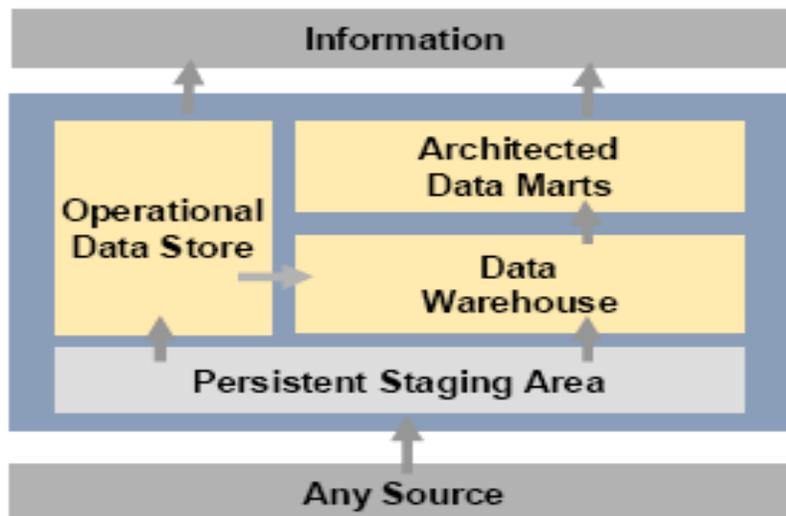
2.2 Data Storage and Data Flow

SAP NetWeaver BI offers a number of options for data storage. These include the implementation of a data warehouse or an operational data store as well as the creation of the data stores used for the analysis.

Architecture

A multi-layer architecture serves to integrate data from heterogeneous sources, transform, consolidate, clean up and store this data, and stage it efficiently for analysis and interpretation purposes. The data can be stored with varying granularity in the layers.

The following figure shows the steps involved in the data warehousing concept of SAP NetWeaver BI:



Persistent Staging Area

After being extracted from a source system, data is transferred to the entry layer of the Enterprise Data Warehouse, the persistent staging area (PSA). The data from the source system is stored unchanged in this layer. It provides the backup status at a granular level and can offer further information at a later time in order to ensure a quick restart if an error occurs.

Data Warehouse

The way in which data is transferred from the PSA to the next layer incorporates quality-assuring measures and the clean up required for a uniform, integrated view of the data. The results of these first transformations and cleanups are stored in the data warehouse layer. It offers integrated, granular, historic, stable data that has not yet been modified for a concrete usage and can therefore be seen as neutral. The data warehouse forms the foundation and the central data base for further (compressed) data retentions for analysis purposes (data marts). Without a central data warehouse, the enhancement and operation of data marts often cannot be properly designed.