New BI Capabilities in SAP NetWeaver 7.0

Version 5
March, 2007

Product Management SAP NetWeaver BI

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BI in SAP NetWeaver 7.0

Enterprise BI Data Management
Enterprise Query, Reporting, and Analysis
Business Planning and Analytical Services
SAP NetWeaver is a technology suite that:

- leverages SAP’s core strengths (proven, mission-critical)
- delivers the foundation for all application needs (complete)
- is integrated out of the box (low TCO)
- is built to extend SAP and to integrate non-SAP systems (open, standards-based)
In the age of “information democracy”, every employee is a potential consumer of BI applications. SAP NetWeaver BI is to facilitate extending the reach of BI by providing business-user-oriented easy-to-use UIs and reliable performance with fast response times.

In SAP NetWeaver 7.0, BI provides a foundation for reporting and analytics in business applications, extends its reach to more end-users, integrates planning into user interfaces and services, and strengthens its role as a strategic data warehouse platform.

BI as enabler technology for SAP and non-SAP business applications. The focus is on operational reporting and embedded BI as well as on service-enabling the BI platform in a service-oriented framework.

The information provided and stored in a modern data warehouse must be current, complete, and represent an enterprise view of your entire organization to ensure that decisions are accurate, strategic, and timely. SAP NetWeaver BI supports a strategic deployment as an enterprise-wide data warehouse: easy administration and lifecycle management, enhanced data transfer processes, and so on.

Today, planning and simulation is seen as the natural extension of BI. This is nothing new from the business process point of view. However, it is currently not adequately reflected in most of the BI product offerings. A fully integrated BI and planning solution is provided: common user interfaces, design tools, services, engines, persistency, metadata, and so on.
BI in SAP NetWeaver 7.0
Enterprise BI Data Management
Enterprise Query, Reporting and Analysis
Business Planning and Analytical Services
Appendix: Architecture Slides
Why Managing Enterprise BI Data?

Challenges

- Integration of multiple sources
- Consolidation of data
- Flexible and adaptive information basis
- (Near-)Real-Time Data Access
- Provisioning of high performance BI foundation

Managing Enterprise Business Intelligence Data

Sources

- Applications
- Data Warehouses
- Others

Real-Time

High Performance BI
Managing Enterprise BI Data

Ensuring Data Quality
- High Data Quality across all company levels
- ETL capabilities for data consolidation and integration

High Quality Decision Support
- Flexible information layers
- Integration of (near-)real-time data
- Closing the gap between strategic and tactical analyses

Reducing TCO
- Reduced and centralized administration
- Low maintenance performance booster (SAP NetWeaver BI Accelerator)

Driving ROI
- Sophisticated BI content
- Out-of-the-box connectivity to SAP applications
Managing Enterprise BI Data - Definition

Enterprise BI data represents the foundation for the reporting and analysis environment. It is the storage and integration layer for all BI-relevant data. The main purpose is to deliver a highly flexible and efficient basis for analytical and operational requirements.

Enterprise Data Warehousing

With SAP NetWeaver, you can design a data warehouse in an enterprise-wide environment. You can connect to various source systems and model, integrate and distribute data. You can administrate and monitor data load processes as well as manage the information life cycle.

Enabling Real-time Business Intelligence

You can acquire or (remotely) access data and make it available very rapidly, with low or no latency in respect to the availability for reporting and analysis.

Managing Data Marts

You can set up a high-performance reporting infrastructure. You can model data marts and make use of the SAP NetWeaver BI accelerator.
Enterprise Data Warehousing
- Flexible EDW Layer
- Data Consolidation and Integration

Enabling Real-time Business Intelligence
- Combining strategic and tactical reporting

Managing Data Marts
- High-Performance reporting layer
BI Architecture: Enterprise BI Data Management

Enterprise Query, Reporting & Analysis

Analytic Engine
- Calculation
- Caching
- Aggregation
- Security
- Planning Services

Enterprise Data Warehouse
- Operational Data Store (volatile)
- (Architected) Data Marts
- Data Warehouse Layer (historical)
- Open Hub Service

DataSource / PSA

Source Systems

Meta Data Repository / Documents
- InfoObjects / Master Data

BI Accelerator

Near-Line Storage

Monitoring / Administration

Data Flow Control / Process Chains
Additional material...

Find more information:
- http://sdn.sap.com
- http://service.sap.com/bi
- http://service.sap.com/bifaq
- http://service.sap.com/rkt-netweaver

Related other IT Scenarios and variants
- Enterprise Query, Reporting and Analysis
- Business Planning and Analytical Services
- Enterprise Search
- Master Data Management
BI in SAP NetWeaver 7.0
Enterprise BI Data Management

Enterprise Data Warehousing
Real-time BI
Managing Data Marts
Data Modeling for EDW
Business (Process) Experts can define the basis for the enterprise reporting. They define data containers (InfoProviders) and data consolidation rules. Multiple-layer EDW-architectures are supported.

Data Flow Design
The data flow (in particular DTP and InfoPackage) is defined at this level.

Maintaining Data Security
This process enables organizations to model the company’s security rules into the software in a highly flexible matter.

Administration and Monitoring
The BI administrator is offered a central admin and monitoring tool (NetWeaver Administrator), which facilitates monitoring of complex landscapes. In addition, lifecycle management tasks can be initiated from here.

Performance Management
Provides all means to accelerate query performance, in particular the SAP NetWeaver BI Accelerator.
Data Modeling for Enterprise Data Warehousing (EDW)

- Data Warehousing Workbench as successor of Administrator Workbench
- Improved usability
  - Split into modeling and administration aspects
  - New UI for InfoCube maintenance
  - Display of complete data flow from source to target
  - Integrated object editor
  - New navigation options
Enhanced DataStore objects (formerly: ODS objects)
Improved performance and flexibility

- Performance optimization of activation process
- New DataStore type: Write-optimized DataStore (without change log, no activation, partitioned using request ID)

Example for write-optimized DataStore object:
Staging of large volumes of document data with unique key into fast inbound layer

- Data can be directly written into the DataStore without activation
- The request information enables further processing/update of the data
- Missing change log does not allow delta determination of multiple records with the same key
Content Analyzer

New tool that is delivered with SAP NW 7.0 Content Add-On 2:
- Analysis of BI content objects for errors and inconsistencies
- Easy access and determination of analysis results
- Extensive reporting options based on analysis results
- Role-specific deployment: analysis (administration) and reporting (governance)
Content Browser

New standard business content objects. The content browser provides customers with a clear overview of BI Content that is applied in the customer’s installation of SAP NetWeaver BI and provides an easy way to identify appropriate standard BI Content:

◆ Overview of BI Content in a given area (such as CRM, SRM)
◆ Use of customer-defined content and SAP standard content
◆ Relationship between different content objects
## Content By Role

<table>
<thead>
<tr>
<th>Role</th>
<th>Workbook/Template Count</th>
<th>View/Query Count</th>
<th>InfoSource Count</th>
<th>InfoProvider Count</th>
<th>DataSource Count</th>
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<tbody>
<tr>
<td>Overall Result</td>
<td>31</td>
<td>55</td>
<td>51</td>
<td>13</td>
<td>48</td>
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<td>Sales Manager</td>
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<td>Quotation Tracking per Sales Area</td>
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<td>4</td>
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<td>4</td>
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<td>MD - Offer</td>
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## InfoProviders by InfoArea

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<tr>
<th>InfoProvider</th>
<th>Technical Name</th>
<th>InfoProvider Count</th>
<th>Basic CUBs</th>
<th>ODS Objects</th>
<th>InfoSets</th>
<th>Characteristics as InfoProviders</th>
<th>MultiProviders</th>
<th>SAP Remote CUBs</th>
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<tr>
<td>Supply Chain Event Management</td>
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</tbody>
</table>
New DataSource concept
Unified and improved maintenance

- Such as Web service (XML), UD Connect
- Additional DataSources enabled for remote access (including flat files and DB connect)
Data Modeling for Enterprise Data Warehousing (EDW)

- **Transformation**
  - Improved performance, flexibility and usability, simplification by unifying transfer and update rules
    - Unification of transfer and update rules
    - New rule type: end routine
    - New rule type: expert routine (pure coding of transformation)

- **Unit Conversion**
  - Capabilities for unit conversion during data load (and reporting)
Data Modeling for Enterprise Data Warehousing (EDW)

- Data transfer process (DTP)
  - Data ‘distribution’ within SAP NetWeaver BI (PSA/InfoProviders → InfoProviders)
    - Improved transparency of staging processes across data warehouse layers (PSA, DWH layer, ODS layer, architected data marts)
    - Improved performance and high scalability
    - Separation of delta mechanism for different data targets: delta capability is controlled by the DTP
    - Enhanced filtering in data flow
    - Repair mode based on temporary buffers (buffers store complete set of data)
Data Flow Design

**Example for separation of delta logic:**
Delta logic is part of the data transfer process
- One source PSA
- Two targets: One DataStore object that stores daily data, another that stores weekly data

```
PSA  └── Daily loads ─── Daily DataStore object
     |                    |
     V                    V
Weekly loads └── Weekly DataStore object
```
Data Flow Design

Process chain enhancements
New features include:
- Copy of process chains
- Display only mode
- Parsing of system command return codes
- Selection of background user for execution of process chain
- Accessibility

New process types:
- Decision: a particular path is chosen depending on conditions
Administration and Monitoring

- Data Warehousing Workbench as successor of Administration Workbench

  Improved usability
  - Contains process chain maintenance, monitors, delta queue, and so on
Enterprise Data Warehousing – Admin & Monitoring – 2 –
Administration and Monitoring

BI Administration Cockpit

Centralized monitoring

- Proactive support of SAP NetWeaver BI administrator in status tracking and performance optimization (data load, reporting and planning)
- Focused on critical issues
- Timelines and comparisons (with deviations)
- Drill down from overviews to details
- Direct navigation to facilitate problem solving
- Based on new technical content InfoCubes
- Based on BEx and portal technology enhancements easily supported
Administration and Monitoring

- Enhanced query performance statistics
  Additional information in technical content for performance statistics
  - Additional flexibility with 4 different modes: aggregated statistics, OLAP, OLAP & data manager, no data
  - Recording of parallel processes
  - Improved precision
  - MultiProvider information
  - Reading of cache

- Enhanced data load performance statistics
  - Process chains, processes
  - Data transfer process details

- New data load status
  - PSA tables, InfoProviders, InfoObjects
  - Process chains, processes
Administration and Monitoring

**Data Quality: Error handling**
Data transfer process (DTP) error stack containing erroneous records
- Error stack contains erroneous records; after fixing, the process can be restarted

**Example for error stack:**
Error stack enhances former error request handling
- Stack collects erroneous records based on semantic key
- Keeps sequence of records in order to serialize data for DataStore updates
- Keeps multiple records with the same key
Administration and Monitoring

Near-line storage

Supports sophisticated data aging strategies

- New robust, generic interface to near-line storage solutions of certified complementary software partners
- Data archiving processes implement near-line storage archiving capabilities for InfoCubes and DataStore objects
- Near-line storage archives transparently and is accessible for SAP NetWeaver BI queries
- Advantage: reduction in administration costs (TCO) and improvement of high volume data warehouse

Example for near-line storage:

‘Clustering’ data

- Online data (= latest data less than 3 years old) is accessed regularly
- Near-line data (= 3 – 5 years) is accessed less frequently
- Archived data (> 5 years) is accessed very rarely; before access, data must be reapplied into SAP NetWeaver BI
Improved performance of processes

Extended (intrinsic) parallelism and scalability of the following processes:

- Query execution
- Data Transfer Process
- DataStore object activation
- Roll-up, change run, and compression

Platform-specific improvements

- Multidimensional clustering on IBM DB6
BI in SAP NetWeaver 7.0
Enterprise BI Data Management

- Enterprise Data Warehousing
- Real-time BI
- Managing Data Marts
**Data Modeling for Real-Time BI**

- **Enhanced remote capabilities**
  - Remote master data access – no data replication, low TCO
    - Remote access of master data from source systems
Data Flow Design for Real-Time BI

- Enhanced real-time data acquisition capabilities
  - XML Web service
    - Direct push into PSA (instead of service API/delta queue)

InfoPackage and DTP for real-time data acquisition

- Daemon-based update from delta queue (service API)
- Daemon-based update of DataStore objects (ODS layer) – including lean staging (with minimal logging)
Data Modeling for Data Marts

- **Enhanced InfoSets**
  - Improved flexibility
  - Integrate InfoCubes into join condition

- **Example for new InfoSet features:**
  - **Slow-seller’s analysis**
    - Define outer join condition between article master data and sales InfoCube
    - Result: all articles, including those that were not sold

- **Transitive Attributes**
  - Join InfoCube containing material to InfoObject material, and join material to InfoObject material group
  - Now you can also use the (‘transitive’) attributes from material group
Data Modeling for Data Marts

Remodeling Toolbox
Changing InfoCubes without rebuilding them from scratch – improved flexibility

◆ Remove, exchange, replace, add, and fill dimension characteristics and key figures
◆ Information: during the (dictionary-based) conversion process, queries cannot be executed; aggregates are automatically deactivated and must be rebuilt afterwards
Maintaining Data Security

**New analysis authorization concept**

New concept replaces authorization object concept for analysis users

- Authorizations form a union (not an intersection) → ‘as expected’
- High flexibility of authorizations (for example, authorized only on the first 10 days of each month)
- No restrictions for number of InfoObjects
- Changeable at all times
- Navigation attributes can be selected individually
- Hierarchy authorizations at the same level as value/interval authorizations
- Special dimensions for every authorization: InfoProvider, activity, validity
- Simplified modeling
- Lower TCO
- Migration support available (not completely automatic)
Performance Management

SAP NetWeaver BI Accelerator

A new paradigm for high performance data access.

- Query performance is boosted by orders of magnitude
- Simultaneously, maintenance and the realignment processes roll-up and change run are improved significantly
- Using search engine techniques
- Provides linear scalability and is ready to fully leverage grid and adaptive computing capabilities
- Shipped as a preinstalled and preconfigured appliance provided by our premium hardware partners
SAP NetWeaver BI Accelerator – Value Proposition:

- Very fast query response time
- Increased end user benefits / Extended BI reach
- Stable query response time
- Independent of DB optimizer, aggregates, ...
- Performance improvements by factor 10 – 100
- High scalability
- Reduced operating costs
- No aggregate maintenance, minimized roll-up/change run
- Low maintenance
- Implemented for latest blade server hardware platforms
- Increased end user benefits / Extended BI reach
- Reduced operating costs
- No aggregate maintenance, minimized roll-up/change run
- Low maintenance

SAP NetWeaver BI Accelerator
Repartitioning enables the change management of partitioned InfoCubes

- Attaching, combining partitions or complete repartitioning

Example for repartitioning:
Change partitioning

- The InfoCube is partitioned on a weekly basis; this partitioning is too granular – too many partitions have been created in the previous years
- The new partitioning should be on monthly basis
BI in SAP NetWeaver 7.0
Enterprise BI Data Management
Enterprise Query, Reporting and Analysis
Business Planning and Analytical Services
SAP NetWeaver BI After 2005
Why Enterprise Reporting, Query & Analysis

- Fast & reliable BI data access on every organizational level
- User- and context-specific Business Intelligence (BI) data for every employee in any appropriate User Interface
- Flexible and adaptable BI tools & infrastructure that support strategic and operational decision making

People / Roles

- Account Manager
- Sales Manager
- Credit Manager
- Business Analyst

Flexible BI Design Tools

Adaptable BI Infrastructure

Flexible Data Access
Why Enterprise Reporting, Query & Analysis

Fast & reliable BI data access on every organizational level

An integrated and state-of-the-art modeling environment
- For all types of queries, reports, and analytics
- For business users and IT
- For BI data & external data

A state-of-the-art BI runtime for the masses:
- High visual appeal & usability
- High performance use of BI
- Mass distribution

A seamless integration into
- MS Excel
- SAP NetWeaver Portal
- Knowledge management & collaboration capabilities
- Composite applications

Any user type
Enterprise Reporting, Query, & Analysis - Benefits

The scenario comprises all ways that BI data is provided to end-users and how end-users interact with BI data

Reducing TCO by

- Minimizing the training costs for end-users (state-of-the art UIs)
- Use of an adaptable and flexible BI modeling environment (SAP Business Explorer & SAP NetWeaver Visual Composer)

Driving ROI by

- Extending the reach to masses of users
- Avoiding the IT bottle neck by enabling the business user
- Providing high end-user productivity
- Guaranteeing fast and informed business decisions on all company levels
Enterprise Reporting, Query, & Analysis – Scenario Variants

Query, Reporting & Analysis Design

- Describes how IT and/or business users can design and deploy standard reporting and analysis for large groups of end-users.

Ad Hoc Query & Analysis

- Describes how business users can analyze, configure and personalize ad hoc queries on various data sources

Excel Integration

- Describes how business users can model and interact with BI data by fully leveraging MS Excel capabilities (Add-On in Excel: BEx Analyzer)

Information Broadcasting

- Describes how IT and/or business users can distribute BI data at a required time (ad hoc, scheduled, when data is changed, or based on exceptions), via various channels (e-mail, printer or portal) and in various formats

Embedding BI into Applications

- Describes how to embed and use BI capabilities within applications
Development Options & Open Standards

Development of Business Content
- By SAP, Independent Software Vendors (ISVs) and Customers

Flexible Design & Modeling Tools
- SAP Business Explorer & SAP NetWeaver Visual Composer

Open Interfaces
- XML/A, ODBO, Web Services, BAPIs
- WEB API & Excel VB API

Development Kit
- Java Software Development Kit

Open Interfaces
- XML/A, ODBO, Web Services, BAPIs
- WEB API & Excel VB API

Third Party Openness

Visual Composer*
- Business Explorer Suite
- BI Consumer Services
- BI Analytical Engine

Third Party BI Data
- 3rd-Party BI Data (e.g., Teradata)
- SAP Operational Data (e.g., CRM, ERP)
- Non-SAP Operational Data (e.g., MS Access)
- SAP NetWeaver BI Data
- ODBO/XMLA OLAP BAPI (MDX)
- Web API
- VB (Excel)
- Web Service (XML Query Result)

Java SDK

SAP NetWeaver
Find more information:

- http://sdn.sap.com
- http://service.sap.com/bi
- http://service.sap.com/bifaq
- http://service.sap.com/rkt-netweaver

Related other IT Scenarios and variants

- Providing the Business Intelligence Foundation
- Business Planning and Analytical Services
- Running an Enterprise Portal
- Enabling User Collaboration
- Enterprise Search
- Creating Composite Applications
In many cases, it is necessary to provide managed and standard analyses and reports to a broader group of end-users.

This approach complements SAP NetWeaver’s capabilities to provide users with direct ad hoc analysis.

The variant describes how to design and deploy standard queries, reports and analyses by power users in (IT or Business Departments) for a large group of casual users.


Tools involved are BEx Query Designer, BEx Report Designer, BEx Web Application Designer and SAP NetWeaver Visual Composer.
Customer Needs:

- Customers are looking for state-of-the-art modeling and design environment to provide standard reporting in a managed process to masses of end-users.

- In this scenario, queries, formatted reports and BI applications are designed by power users for later use by masses of information consumers.

- The use of the design environment must not be restricted to IT only. It needs to be intuitive enough to be leveraged by power users in business departments.

SAP NetWeaver offers an integrated design and modeling environment for business users to design, deploy, and execute queries, enterprise reports, and BI applications.
Query, Reporting & Analysis Design

Variant overview and intro

IT processes and swimlanes

Required system landscape
Designing Queries
IT and business users can create queries based on data stored in BI data providers in an easy and intuitive manner.

Designing Reports
For optimized presentation and printing of BI data, IT and business users can design enterprise reports that can have highly-formatted layouts including, for example, headers and footers, as well as various fonts and cell styles, graphics and logos.

Modeling BI Applications
IT and business users can model interactive BI applications ranging from pure BI dashboards to composite applications.

BI User Interaction
After saving or broadcasting, any assigned user can use the queries, reports or BI applications
Guided, non-coding query design based on data stored in BI data providers

- Drag & drop
- Design capabilities including, for example, calculated and restricted key figures, hierarchies, exceptions and conditions, variables, etc.

- Reusable query components
- Extended error handling visualization of status and user actions

- Queries are a major starting point for multidimensional analyses, reports, and BI applications

Query design takes place in the SAP Business Explorer (BEx) Query Designer
Report design takes place in the SAP Business Explorer (BEx) Report Designer.

- Standard formatting: Font styles (e.g., bold, italic) and colors, etc.
- Group level changes with individual formatting
- Layout options, for example:
  - Height of rows, width of columns
  - Multi-line column headers
  - Flexible positioning of fields
- Support of hierarchies
- Rules for the presentation of special characteristic values
- Integration of texts, pictures, and charts
- Header and footer for reports and pages
- Print optimization
Model-driven BI application building

- Integrate SAP NetWeaver BI InfoProviders (InfoCubes, BEx queries and query views)
- Integrate third-party data via Java connectors (XMLA, ODBO, JDBC …)
- State-of-the-art User Interfaces and controls (charts, tables, navigation controls)
- Extendable from BI-data-only models to composite application models
- For enhanced analytical capabilities or formatting needs, seamless drill-through from WD/Flex dashboard to BEx-runtime (BEx Web Analyzer, enterprise reports, Web applications) is supported

Tools: SAP BEx Web Application Designer or SAP NetWeaver Visual Composer, depending on business requirements.

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<tr>
<th></th>
<th>Variance in Mio €</th>
<th>Variance in %</th>
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<td></td>
<td>vs Last Cycle</td>
<td>vs Previous Year</td>
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<td>Total Net Sales</td>
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User Interaction: BI Application (Web Application Designer)

- Designing Queries
- Designing Reports
- Modeling BI Applications
- BI User Interaction

![Image of Consolidated Sales Analysis]

- BI application developed in BEx Web Application Designer
- Enterprise report directly embedded
- Both: BEx Web runtime
### Web-based interaction with BEx query
- Opened by end-user in BEx Web Analyzer

#### DalSano: Company Analysis

Validity of Data: Aug 4, 2004

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**User Interaction: BEx Web Integrated into VC Model I**

- **Designing Queries**
- **Designing Reports**
- **Modeling BI Applications**
- **BI User Interaction**

- Contextual drill-through to BEx Web Analyzer based on BEx Web runtime
- Opened up in separate window

---

**Exposure List**

- **Business Unit**
  - Corporate Group: $500,000.00, $700.00
  - Hotels.com: $500,000.00, $400.00
  - USA: $500,000.00, $300.00
  - North: $500,000.00, $500.00
  - Compact: $500,000.00, $100.00
  - Labour: $500,000.00, $500.00

**Exposure Detail**

- **Business Unit**: Corporate Group
- **Credit Group**: Not assigned
- **Credit Limit**: $1,000,000.00
- **Exposure**: $2,500,000.00
- **Credit Limit Usage %**: 100%

---

**BEx Web Analyzer**

- **Columns**
  - Key Figures
    - Net Sales
    - Shipped Quantity
  - Product Group
  - Region Code

- **Values**
  - North East: $171,653,056.00, 64,957,862
  - West: $209,624,549.00, 109,770,508

- **Overall Result**
  - Net Sales: $499,177,549.00, 174,629,800
Contextual drill-through to enterprise report based on BEx Web runtime
-Opened up in separate window
# Scenario Variant 1: Query, Reporting, and Analysis Design

<table>
<thead>
<tr>
<th>Designing Queries</th>
<th>Designing Reports</th>
<th>Modeling BI Applications</th>
<th>BI User Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Select InfoProvider</td>
<td>(4) Select data set</td>
<td>(8) Select connection (if applicable)</td>
<td>(13) Access BI data</td>
</tr>
<tr>
<td>(2) Define query</td>
<td>(5) Add additional data set</td>
<td>(9) Select data set</td>
<td>(14) Analyze data (if applicable)</td>
</tr>
<tr>
<td>(3) Deploy query</td>
<td>(6) Configure layout</td>
<td>(10) Add additional data set</td>
<td>(15) Personalize data (if applicable)</td>
</tr>
<tr>
<td></td>
<td>(7) Deploy report</td>
<td>(11) Configure data set (if applicable)</td>
<td>(16) Integrate documents (if applicable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(17) Use KM services (if applicable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(18) Use export/printing services (if applicable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(19) Use information broadcasting (if applicable)</td>
</tr>
</tbody>
</table>

**Usage Type:**
- BI Java, EP

**Tools:**
- BEx Query Designer
- BEx Report Designer
- BEx Web Application Designer

**Usage Type:**
- BI Java, EP
- BI Java, CE
- Visual Composer

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**THE BEST-RUN BUSINESSES RUN SAP**
Query, Reporting & Analysis Design

Variant overview and intro
IT processes and swimlanes
Required system landscape
Required System Landscape: BI Plus SAP NetWeaver Composition Environment

- Web Browser
- SAP GUI
- Business Explorer
- Visual Composer

Systems with Usage Types:
- BI
- AS ABAP
- AS Java
- BI Java

Standalone Engines:
- BI Accelerator
- Search and Classification (TREX)

SAP NetWeaver Composition Environment
Availability: Variant Query, Reporting, and Analysis Design

Available as of SAP NetWeaver 7.0

IT Scenario:
http://help.sap.com/saphelp_nw7.0/helpdata/en/03/d8c041a227ca17e100000000a155106/frameset.htm

Release Notes:
http://help.sap.com/saphelp_nw7.0/helpdata/en/9f/eb1442be645133e100000000a155106/frameset.htm

Configuration:
http://help.sap.com/saphelp_nw7.0/helpdata/en/09/dae542a9347376e100000000a1550b0/frameset.htm

Administration and Monitoring:

Developer's Guide:
http://help.sap.com/saphelp_nw7.0/helpdata/en/5a/ec1e4203fad2ce100000000a1550b0/frameset.htm

Power User Guide:
http://help.sap.com/saphelp_nw7.0/helpdata/en/0e/1339427f82b26be100000000a155106/frameset.htm

Reference:
http://help.sap.com/saphelp_nw7.0/helpdata/en/b2/e50138fede083de10000009b38f8cf/frameset.htm
In many cases it is necessary to provide business users with intuitive means to do ad hoc analysis.

This variant complements SAP NetWeaver’s capabilities to provide standard analysis & reporting.

The variant describes how business users can analyze any type of data in an ad hoc fashion and how they easily can personalize the data result as well as the data representation.

It provides business users with the most important BI design and visualization capabilities without the need to switch to a specific design tool.

The tool involved is BEx Web Analyzer.
Customer Needs

Business users are looking for capabilities that allow them to create and analyze ad hoc analyses of SAP NetWeaver BI data and third-party data providers without the need to consult IT.

Business users need the possibility to configure and personalize the analysis as well as the layout without having to switch from the runtime to specialized design tools.

SAP NetWeaver offers a web-based tool for business users to analyze and deploy BI data in an ad hoc fashion.
Ad Hoc Query & Analysis

Variant overview and intro

IT processes and swimlanes

Required system landscape
Selecting Data Sets
Business users can select data from various data sources for their ad hoc analysis in an easy and intuitive manner.

Performing Ad Hoc Analysis
The analysis can be performed web-based and is facilitated by using drag & drop capabilities.

Configure & Personalize
For optimized presentation and printing of BI data, business users can configure the presentation of the data (charts, tables, etc.), they can add exceptions and conditions, and they can personalize the data for later usage (for example, the filter values).
BEx Web Analyzer allows the user to choose data sets from different BI systems:

- SAP & Non-SAP
- XMLA & ODBO

The systems are maintained in the portal system landscape.

Available data sets depend on system:

For SAP NetWeaver BI:
- InfoProvider
- Query
- Query View
BEx Web Analyzer: Intuitive User Interface for Business Users

- Enhanced options in the filter area help business users to choose the required filter values.

- Drag & Drop within the navigation block.

- Drag & Drop to columns/rows.

- Drag & Drop into the filter area.

- Drag & Drop characteristics, characteristic values, or key figures from the grid to remove them.
Detailed Overview: BEx Web Analyzer

BEx Web Analyzer

SAP NetWeaver BI InfoProviders (InfoCubes, DataStore Objects, Master Data, InfoSets, MultiProviders), BEx Queries, BEx Query Views

Save Result of Ad Hoc Analysis (using “Save” or “Save as…” Buttons)

Broadcast Result

BI Consumer Services

ODBO XML/A

3rd Party BI

Save as BEx Query View (using context menu)

Portal

KM Folder KM Folder

BI

BEx Query View

Save as BEx Query View (using context menu)

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Scenario Variant 2: Ad Hoc Analysis, Configuration & Personalization

Usage Type:
BI Java, EP

Tool:
BEx Web Analyzer

Analyze Data
(1) Select system
(2) Select data set
(3) Analyze data

Configure & Personalize
(4) Configure layout
(4) Personalize
(5) Deploy analysis
Ad Hoc Query & Analysis

- Variant overview and intro
- IT processes and swimlanes
- Required system landscape
Required System Landscape: BI Only

Systems with Usage Types:
- BI
- AS ABAP
  - EP
  - AS Java
  - BI Java

Standalone Engines:
- BI Accelerator
- Search and Classification (TREX)
Availability: Variant Ad Hoc Query and Analysis

Available as of SAP NetWeaver 7.0

IT Scenario:
http://help.sap.com/saphelp_nw7.0/helpdata/en/08/965b423be8de54e10000000a155106/frameset.htm

Release Notes:
http://help.sap.com/saphelp_nw7.0/helpdata/en/9f/eb1442be645133e10000000a155106/frameset.htm

Configuration:
http://help.sap.com/saphelp_nw7.0/helpdata/en/09/dae542a9347376e10000000a1550b0/frameset.htm

Administration and Monitoring:
http://help.sap.com/saphelp_nw7.0/helpdata/en/15/00a042b443c56ae10000000a155106/frameset.htm

Developer's Guide:
http://help.sap.com/saphelp_nw7.0/helpdata/en/5a/ec1e4203fadb2ce10000000a1550b0/frameset.htm

Power User Guide:
http://help.sap.com/saphelp_nw7.0/helpdata/en/0e/1339427f82b26be10000000a155106/frameset.htm

Reference:
http://help.sap.com/saphelp_nw7.0/helpdata/en/b2/e50138fede083de10000009b38f8cf/frameset.htm
Scenario & Variant Overview
Query, Report & Analysis Design
Ad Hoc Query & Analysis
Excel Integration
Information Broadcasting
Embedding BI into Applications
Excel Integration

Variant overview and intro
IT processes and swimlanes
Required system landscape
Excel Integration - Processes

- In many cases it is necessary to provide business users with a seamless BI integration into Microsoft Excel.
- This approach complements SAP NetWeaver’s web-based BI capabilities.
- Excel Integration for BI offers convenient functions for embedding and analyzing BI data interactively within Microsoft Excel. It allows the user to leverage existing Excel know-how directly on online and offline BI data.
- The tool involved is the BEx Analyzer.
Customer Needs

- Business users are looking for convenient capabilities to integrate BI data into Excel.
- Excel experts should be able to seamlessly use Excel capabilities such as formatting and formulas directly in combination with BI data.
- The training needs for Excel users on specific SAP NetWeaver BI know-how should be reduced.
- State-of-the-art workbook layouts and applications should be designed without the need to know VBA.

SAP NetWeaver offers an Excel Add-In for business users for seamless BI integration.
Enterprise Reporting, Query and Analysis

User Interfaces
- Composite
- Ad Hoc
- BI App
- Enterprise Report
- MS Excel

Information Broadcasting

SAP NetWeaver Visual Composer
- Embedded BI
- BI Extension Kit

SAP Business Explorer Suite (BEx)
- Ad Hoc Query & Analysis
- Reporting and Analysis Design
- Web Analyzer
- Web Application Designer
- Report Designer
- MS Excel Integration
- Analyzer (Add-In)

BI Consumer Services

Data Sources
- SAP Operational Data*
- Non-SAP Operational Data*
- 3rd-Party BI Data
- SAP NetWeaver BI
  - Info Provider
  - BEx Queries

* Not available for SAP Business Explorer BICS connection yet

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Excel integration

Variant overview and intro

IT processes and swimlanes

Required system landscape
**Designing Queries**
Business users can create queries based on data stored in BI data providers in an easy and intuitive manner.

**Embedding Data into Workbooks**
Apart from queries, users can embed data from any type of BI data provider and use analysis functions to evaluate data from different perspectives.

**Designing Workbooks**
A business user can easily design an Excel-based BI application and combine it with native Excel formatting and formula capabilities. Additionally, one can deploy or broadcast his work

**BI User Interaction**
After saving or broadcasting, any assigned user can use the workbooks
Embedding Data into Workbooks

Designing Queries

Embedding Data into Workbooks

Designing Workbooks

BI User Interaction

Analysis Mode

- Intuitive User Interaction via drag & drop and re-designed property dialogues
- Direct access to InfoProviders queries & query views
- Personalized filter value lists (favorites & history)
- Full Unicode support
- Local calculations
- Excel-based data entry and planning.
- Information Broadcasting
Design Mode

- Code-free application – modeling in Excel
- Any BI InfoProvider can be integrated into MS Excel

Items

Analysis Grid
Navigation Pane
List of Filters
Button
Dropdown Box
Checkbox Group
Radio Button Group
List of Conditions
List of Exceptions
Text
Messages
Workbook Settings
Excel Formula Mode

- Seamless integration of native Excel formatting and formulas
- Any cell of the result set is described via an Excel formula (BexGetData)
- Excel formatting options can be fully leveraged for BEx workbooks (e.g., blank lines, fonts, etc.)
- Combining Excel formulas and Excel formatting allows the design of high-end formatted solution workbooks
**Scenario Variant 3: Excel Integration**

### Designing Queries
- **Usage Type:** BI Java, EP
- **Tool:** BEx Query Designer
  - (1) Select InfoProvider
  - (2) Define query
  - (3) Deploy query

### Embedding Data into Workbooks
- **Usage Type:** BI Java, EP
- **Tool:** BEx Analyzer
  - (4) Select data set
  - (5) Embed data set
  - (6) Analyze data
  - (7) Deploy workbook
  - (8) Select design items and data binding
  - (9) Use Microsoft Excel formatting and formulas (optional)
  - (10) Define workbook layout
  - (11) Deploy workbook

### Designing Workbooks
- **Usage Type:** BI Java, EP
  - (12) Access BI data
  - (13) Analyze data (if applicable)
  - (14) Personalize data (if applicable)
  - (15) Integrate documents (if applicable)
  - (16) Use KM services (if applicable)
  - (17) Use export/printing services (if applicable)
  - (18) Use information broadcasting (if applicable)

---

* SAP Confidential & Subject to change

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Excel Integration

- Variant overview and intro
- IT processes and swimlanes
- Required system landscape
Required System Landscape: BI Only

Systems with Usage Types
- BI
- AS ABAP
- AS Java
- BI Java

Standalone Engines
- BI Accelerator
- Search and Classification (TREX)

- Web Browser
- SAP GUI
- Business Explorer
Availability: Variant Excel Integration

Available as of SAP NetWeaver 7.0

IT Scenario:
http://help.sap.com/saphelp_nw7.0/helpdata/en/ae/c363421b969c60e10000000a1550b0/frameset.htm

Release Notes:
http://help.sap.com/saphelp_nw7.0/helpdata/en/9f/eb1442be645133e10000000a155106/frameset.htm

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Administration and Monitoring:
http://help.sap.com/saphelp_nw7.0/helpdata/en/9c/03a042b443c56ae10000000a155106/frameset.htm

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Scenario & Variant Overview
Query, Report & Analysis Design
Ad Hoc Query & Analysis
Excel Integration
Information Broadcasting
Embedding BI into Applications
Information Broadcasting

Variant overview and intro
IT processes and swimlanes
Required system landscape
In many cases, it is necessary to provide IT as well as business users with means to distribute BI data across multiple channels, in different formats to multiple recipients.

This approach complements SAP NetWeaver’s web-based BI design capabilities by enabling an easy and effective distribution of queries, reports & analyses.

Describes how business users or IT can distribute BI data at a required time (ad hoc, scheduled, when data is changed, or based on exceptions), via various channels (e-mail, printer or portal) and in various formats.

The tool involved is the BEx Broadcaster.
Information Broadcasting – Benefits

Benefits

Customers are looking for ways to reduce TCO by having fast and flexible options to distribute BI data within their companies.

Less time for information gathering leads to faster decision making:
- Enabling users to pull (subscribe) BI data
- Enabling user to push data to others
- Enabling the system to automatically distribute data based on rules

Efficient Information Broadcasting includes:
- Active alerting
- Automated process
- Personalized information
- Right-time information
- Within and beyond company boundaries

Collaboration and information-sharing:
- BEx Portfolio & Universal Worklist
- Collaboration rooms
- Within and beyond company boundaries

Decrease Complexity Without Losing Functionality:
- Focus on usability, intuitive design, and ease of use
- Precise, tailored, and easy-to-consume information
Enterprise Reporting, Query and Analysis

User Interfaces
- Composite
- Ad Hoc
- BI App
- Enterprise Report
- MS Excel

Information Broadcasting

SAP NetWeaver Visual Composer
- Embedded BI
- BI Extension Kit

SAP Business Explorer Suite (BEx)
- Ad Hoc Query & Analysis
- Reporting and Analysis Design
- Web Analyzer
- Web Application Designer
- Report Designer
- MS Excel Integration
- Analyzer (Add-In)

BI Consumer Services

Data Sources
- SAP Operational Data*
- Non-SAP Operational Data*
- 3rd-Party BI Data
- SAP NetWeaver BI Info Provider
- BEx Queries

* Not available for SAP Business Explorer BICS connection yet
Information Broadcasting

Variant overview and intro

IT processes and swimlanes

Required system landscape
Configuring Broadcasting Settings

Create a broadcasting setting that decides on the trigger, format, channel and receivers of a broadcast

Broadcasting

At runtime the system processes the broadcasting setting according to its definition

Alerting

Alerting, formerly handled via the BW Reporting Agent, is now defined via broadcasting settings. The SAP NetWeaver Application Server alert framework takes care of routing the alert to the designated receiver

BI User Interaction

After broadcasting, any assigned user can interact with the alerts, queries, reports, BI applications or workbooks
Broadcasting settings enable:

... the right information: based on BEx queries, views, workbooks, Web applications & enterprise reports

... in different formats: HTML, MHTML, PDF, ZIP, printer formats, online links, SAP alerts...

... to the right people: e.g., single users, groups, distribution lists, user-specific or Role-specific (incl. non-SAP users via data bursting)

... in different channels: e-Mail, Portal (portfolios based on KM), collaboration rooms, Universal Work List, printer, multiple channels...

... at the right time: event driven, exception driven, ad hoc, scheduled, subscribed
The system processes globally maintained broadcasting settings according to their definition.

Additionally, end-users can use the Broadcasting Wizard to:

- Broadcast ad hoc
- Schedule and subscribe to broadcasts in an easy and intuitive manner
Warning can be defined via broadcasting settings. The SAP NetWeaver Application Server alert framework takes care of routing the alert to the designated receiver. Alerts are based on exceptions, defined for queries or query views.

**NW Application Server**

- **BI**
  - BEx Query with Exception
  - BEx Broadcaster

**Other Applications**

- Central Alert Framework
  - Send a Short Text via SMS or Pager
  - Send a Long Text via E-Mail or Fax
  - Send an Alert to the UWL
Exception Broadcasting

Configuring Broadcasting Settings

Broadcasting

Alerting

BI User Interaction

Query Designer

1. Create Exception…

2. Create Broadcasting Section…

Broadcast whenever a certain exception takes place

Broadcast only for specific exception level

THE BEST-RUN BUSINESSES RUN SAP™
Access to the UWL via the Business Explorer Role

Configuring Broadcasting Settings

Broadcasting

Alerting

BI User Interaction

Welcome Eric Schemer

Content Administration | User Administration | System Administration | Content Management | Business Explorer

Overview | My Portfolio | BEx Portfolio | BEx Web Analyzer | BEx Broadcaster | Universal Worklist | Collaborative BI

Overview

My Portfolio
My Portfolio displays your Personal BEx Documents. Under My Portfolio, various Knowledge Management functions are available to you for working with your documents. You can add ratings, evaluations, feedback and/or personal notes to documents.

BEx Portfolio
BEx Portfolio displays your Public Documents. Under BEx Portfolio, various Knowledge Management functions are available to you for working with your documents. You can add ratings, evaluations, feedback and/or personal notes to documents.

BEx Web Analyzer
The BEx Web Analyzer provides you with comfortable and powerful Ad-Hoc Query & Analysis capabilities.

BEx Broadcaster
Using the BEx Broadcaster, you can precalculate and distribute Web templates, queries, query views and workbooks. You can distribute these reporting objects either in precalculated form or as an online link. Your distribution options include sending by e-mail or exporting into the Enterprise Portal.

Universal Worklist
The Universal Worklist enables you to manage your work by bringing together assignments from different workflow systems, including Workflow, Alerts, KM notifications and Collaboration tasks. Here you can see and work with alerts (among other things) that were generated with the BEx Broadcaster and distributed to the universal worklist.

Collaborative BI
The Collaborative BI portal page contains iViews from Knowledge Management to display discussions, collaboration rooms and notifications.
Universal Worklist

- Centralized way to access work and relevant information
- Aggregates workflow task items from multiple and different systems
- Enables end users to make direct decisions and actions
- Personalization of the presentation of work items
Access to Business Explorer Role

Configuring Broadcasting Settings

Broadcasting

Alerting

BI User Interaction

Once broadcast, the data is accessible via various channels. Broadcasts can range from static pre-calculated objects (PDF) to semi-interactive data (pre-calculated HTML with offline navigation options) to fully interactive data (online links).
If broadcast to the SAP NetWeaver Portal, users can choose from a selection of Knowledge Management (KM) & Collaboration services to operate on the data:

- Subscription
- Feedback
- Discussion
- Collaboration
- Rating
- Search
- Notes
- Download
Scenario Variant 4: Information Broadcasting

Configuring Broadcasting Settings

(1) Start Broadcaster
(2) Select BI object (query, query view, workbook, Web template, or report)
(3) Specify output format
(4) Specify distribution type
(5) Save broadcast setting
(6) Schedule broadcast setting
(7) System determines distribution type
(8) System determines receiver
(9) System determines alert if defined
(10) System distributes BI object to selected destination

Broadcasting

(11) System checks alert category
(12) System delivers alert

Alerting

(13) Access BI data
(14) Analyze data (if applicable)
(15) Personalize data (if applicable)
(16) Integrate documents (if applicable)
(17) Use KM services (if applicable)
(18) Use export/printing services (if applicable)
(19) Use information broadcasting (if applicable)

BI User Interaction

Usage Type: BI Java, EP
Tool: BEX Broadcaster

THE BEST-RUN BUSINESSES RUN SAP™
Information Broadcasting

Variant overview and intro

IT processes and swimlanes

Required system landscape
Required System Landscape: BI Only

Systems with Usage Types:
- BI
- AS ABAP
- AS Java
- BI Java

Standalone Engines:
- BI Accelerator
- Search and Classification (TREX)
Behind the Scenes: Broadcasting into KM

Intuitive, personalized access to structured and unstructured data via

- BEX Portfolio in Portal
- Collaboration Rooms
- Knowledge Management Folders

Rich Set of Services for End-Users

Unified Information Access

- Repository Managers allow access to information residing in different repositories (e.g., BI, KM)

Repository Framework

Links to online data in BI can be broadcast

Pre-calculated BI data can be broadcast as PDF, HTML, MHTML, XLS into any document repository connected via a Rep. Manager

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Availability: Variant Information Broadcasting

Available as of SAP NetWeaver 7.0

IT Scenario:
http://help.sap.com/saphelp_nw7.0/helpdata/en/d0/d7c041a227ca17e10000000a155106/frameset.htm

Release Notes:
http://help.sap.com/saphelp_nw7.0/helpdata/en/9f/eb1442be645133e10000000a155106/frameset.htm

Configuration:
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Developer's Guide:
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Power User Guide:
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Reference:
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Scenario & Variant Overview
Query, Report & Analysis Design
Ad Hoc Query & Analysis
Excel Integration
Information Broadcasting
Embedding BI into Applications
Embedding BI into Applications

Variant overview and intro

IT processes and swimlanes

Required system landscape
The scenario comprises all ways that BI data is provided to end-users and how end-users interact with BI data.

Reducing TCO by
- Minimizing the training costs for end-users (state-of-the-art UIs)
- Use of an adaptable and flexible BI modeling environment (SAP Business Explorer & SAP NetWeaver Visual Composer)

Driving ROI by
- Extending the reach to masses of users
- Avoiding the IT bottle neck by enabling the business user
- Providing high end-user productivity
- Guaranteeing fast and informed business decisions on all company levels
Customers want SAP to solve the disconnect between processes and available information

- Automated business processes are efficient but lack contextual information and guidance
- Disconnect between transactional processing and decision support => operational decision making is sub-optimal

<table>
<thead>
<tr>
<th>People / Roles</th>
<th>Processes</th>
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<td>Transactional Processing</td>
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Embedded BI

- Business processes are composed to integrate transactional, analytical and collaborative steps

- BI can be embedded into Composite Applications as well as into transactional applications

- Embedded BI allows to benefit from BI’s reporting & analysis capabilities directly within the business context

- Composite applications are service-enabled, modelled applications:
  - Designed to support a specific business processes
  - Combine transactional, collaborative steps with contextual business information
  - Highly adaptable to changing processes
In many cases it is necessary to embed Business Intelligence data and capabilities directly into operational processes and to provide user- and context-specific BI data for every employee in any appropriate User Interface.

This approach complements SAP NetWeaver’s classic BI capabilities with a flexible infrastructure and tools that can embed BI into applications for strategic and operational decision making.

The variant describes how to embed and use BI capabilities within applications. The variant is re-used in the “Creating Composite Applications” scenario.

Scenario Variant needs the SAP NetWeaver Composition Environment because the necessary SAP NetWeaver Visual Composer version only comes with CE.
Integrating light-weight BI capabilities into the SAP NetWeaver Composition Environment on top of a common BI services layer

- Integrate key metrics from several heterogeneous systems into one user interface and one report without extensive and costly data modeling
- Supporting very quick hit dashboard style reporting and lightweight analytics
- Can be used side-by-side with NW BI and extends the flexibility of NW BI (e.g. for rapid prototyping or departmental BI extensions)
- Direct access to and joins of relational sources and multi-dimensional sources
Packaged Composition Environment enables light weight embedded BI

- Access and free combination of any relational / operational and multidimensional data source
- Flexible use of BI in applications with an operational flavor
- Easy implementation, set-up, adaptation and operation
- Separation of data storage and UI
Lightweight Architecture (Composition Environment)

User Interfaces

SAP NetWeaver Visual Composer

Embedded BI

BI Extension Kit

Other Services & BAPIs

BI Consumer Services

Data Sources

SAP Operational Data

Non-SAP Operational Data

3rd-Party BI Data

SAP NetWeaver BI

Info Provider

BEx Queries

optional
Example: Embedded BI in a Composite Application

Jump to Business Explorer Suite

BAPIs and Enterprise Services

BI Consumer Services
Enterprise Reporting, Query & Analysis – Architecture

SAP NetWeaver Portal
- Composite
- Ad Hoc
- BI App
- Enterprise Report
- Excel

SAP NetWeaver Visual Composer
- Embedded BI
  - BI Extension Kit

SAP Business Explorer Suite (BEx)
- Information Broadcasting
  - Ad Hoc Query & Analysis
  - Reporting and Analysis Design
  - Excel Integration
    - Analyzer (Add-In)

BI Consumer Services

BI Extensions & BAPIs
- SAP Operational* Data (InfoSets)
- Non-SAP Operational* Data (via JDBC)
- 3rd-Party BI (via ODBO & XMLA)
- SAP BI Info Provider (SAP NetWeaver BI Platform)
- BEx Query Designer (SAP NetWeaver BI Platform)

* Not available for SAP Business Explorer BICS connection yet
Embedding BI into Applications

Variant overview and intro
IT processes and swimlanes
Required system landscape
Embedding BI into Applications - Processes

Defining Data Set

Business Process Experts can choose data from different sources via BI Consumer Services and create federated queries.

Embedding BI

Business Process Experts can integrate BI capabilities into composite applications. These applications can be easily adapted to changing conditions.

BI User Interaction

If BI capabilities are embedded into applications, end users can directly benefit from them within their operational context.
Connectivity to BI systems via BI Consumer Services

- **BI Java Connectors:**
  - BI XMLA Connector (OLAP data sources such as SAP BW 3.x)
  - BI ODBO Connector (ODBO-compliant OLAP data sources)
  - BI JDBC Connector (relational JDBC-compliant data sources)
  - BI SAP Query Connector (InfoSets in SAP ERP Apps)

- **The BI Connector against SAP NetWeaver BI**
  - The "BI connector" gives you direct access to services needed for the SAP NetWeaver BI specific integration.
  - This comprises services for design-time as well as runtime, e.g., Object access (including History and Favorites), Meta Data access, Data Access.
**Embedded BI: Model-Driven Design**

**Defining Data Set**

**Embedding BI**

**BI User Interaction**

---

**High-End User Experience through Flex Technology**

- Enable high-end visualization of information
- High usability and flexibility through advanced modeling capabilities

**Model-Driven Application Design**

- SAP NetWeaver Visual Composer is a web-based visual modeling tool.
- It allows business users to create analytical applications, which cover analytical, transactional and collaborative steps.
- It offers the integration with BI content as well as with heterogeneous data sources (including OLAP and relational data sources)
Embedded BI: BI User Interaction

Defining Data Set

Embedding BI

BI User Interaction

SAP Operational Data

SAP NW BI

Applications with embedded BI data

Actions based on informed decisions

Data directly from an operational system (via Service)

Context-sensitive embedded BI data (via Service)
Contextual drill-through to BEx Web Analyzer based on BEx Web runtime
Opened up in separate window
User Interaction: BEx Web Integrated into VC Model II

Defining Data Set

Embedding BI

BI User Interaction

Contextual drill-through to enterprise report based on BEx Web runtime

Opened up in separate window
Scenario Variant: Embedding BI into Applications

Defining Data Set

1. Select connection (if applicable)
2. Select data set
3. Add additional data set
4. Configure Federated Query (if applicable)

Embedding BI

5. Embed data into model
6. Use BICS Query Wizard
7. Integrate BEx Web (if applicable)
8. Configure ALV

BI User Interaction

9. Deploy application
10. Access BI data
11. Analyze data (if applicable)
12. Personalize data (if applicable)
13. Integrate documents (if applicable)
14. Use KM services (if applicable)
15. Use export/printing services (if applicable)
16. Use information broadcasting (if applicable)
BI and SAP NetWeaver Composition Environment in 2007/8

Integrating light-weight BI capabilities into the SAP NetWeaver Composition Environment on top of a common BI services layer

- Easy Access to Business Information in relational *) / operational and multidimensional data source
- WebDynpro ALV as a general UI Control for list processing and light-weight Analysis
- Built-in query design capabilities including Distributed Query capabilities *)

*) longterm: 2008+

SAP NW Composition Environment

Composite Apps using Embedded BI

SAP Operational Data (e.g. CRM, ERP)

3rd-Party BI Data (e.g., Teradata)

Non-SAP Operational Data (e.g., MS Access)

SAP NetWeaver BI Data

Visual Composer*

BI Consumer Services*
Embedding BI into Applications

Variant overview and intro
IT processes and swimlanes
Required system landscape
Required System Landscape: CE 1.1 ONLY

- Web Browser
- SAP GUI (optional)
- Business Explorer (optional)
- Visual Composer

- Systems with Usage Types (optional)
  - BI
  - AS ABAP
  - EP
  - AS Java
  - BI Java

- Standalone Engines (optional)
  - BI Accelerator
  - Search and Classification (TREX)

- SAP NetWeaver Composition Environment
Availability: Variant Modeling Embedded BI Applications

Available as of SAP NetWeaver

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http://help.sap.com/saphelp_nw7.0/helpdata/en/42/c2ba7f545e3116e10000000a1553f7/frameset.htm
BI in SAP NetWeaver 7.0
Enterprise BI Data Management
Enterprise Query, Reporting and Analysis
Business Planning and Analytical Services
SAP NetWeaver BI After 2005
The IT scenario variant Business Planning and Analytical Services covers processes that collect data from InfoProviders, queries, or other BI objects, transform this data in various ways and write the new information back into a BI InfoProvider (real-time InfoCube and aggregation level).

This includes capabilities for:

- Homogeneous analysis and planning user interface
- One generic planning tool for all solutions
- BI analytical services (such as drilldown, alerting, calculated key figures) for planning
- Simplification of system operation using component consolidation
CHALLENGE

- Slow reaction times due to long analysis and planning processes
- Availability of actual data for forecasting
- Turn high-volume data into high-value information
- Increasing importance in more and more business processes

SOLUTION

- Open and flexible planning framework for all SAP applications
- Fully integrated with BI and analytics services
- One user interface, one design environment, one engine
- Shared services and persistency and integrated metadata
Decoupled Landscape vs. Integrated Landscape

Sales Planning | Revenue Planning | Sales Analysis & Reporting

Tool A | Tool B | Tool C | Tool D | Tool E | Tool F

Collaboration

Common Set of Tools

Personalization

Common Database and Common Data Models

Collaboration

Sales Planning | Revenue Planning | Sales Analysis & Reporting
Planning Model

- Data Warehousing Workbench
- Planning Modeler
- BEx Query Designer
- BEx Analyzer
- BEx Web Application Designer

Real-Time InfoProvider
Aggregation level
For designing a query
For Excel Frontend
For Web application
Planning Model Design

You can design your planning structure using the Web-based planning modeler.

- Demand for modeling of planning scenarios by business experts who do not have access to Data Warehousing Workbench (RSA1)
- Administration of a planning process requires frequent setting changes (variables, data slices, formulas, and so on)
Planning Model Design

Using a planning wizard, a business expert can create a planning model in a simple way.

The InfoProvider determines the data basis for planning. It contains all the objects that are relevant to a planning model. In most cases, this is a real-time InfoCube for direct update. It can also be a partially writeable MultiProvider.

Example: the InfoCube contains the characteristics fiscal year, country, product line and product and the key figures quantity, amount and revenue.

Select an InfoProvider. If you choose “start” immediately without making further entries, the system displays all InfoProviders that can be used for planning. You can restrict the list that is displayed according to various search criteria. Select the InfoProvider you want to use by clicking on the relevant row.
Planning Model Design

General benefits of a common concept for planning and analysis:

- Multidimensional business structures
- Common variable concept
- Shared authorization concept
- Dynamic lock concept (for example, user locking)
Planning Model Design

Choose real-time InfoCube

- InfoCube as the common database for planning and analysis
- Defines relationship between characteristics
- Concept for locking of specific values (such as actual data)
- Flexible design of variables concept
Planning Model Design

Create aggregation level

- Selection of key figures and characteristics for the planning process
- Defines level of aggregation for the planning process (top down, bottom up)
Create filter

- Define a selection of characteristics values within your aggregation level
- Dynamic use of variables, hierarchies, and attributes
- Flexible design of a version concept
- Define the work packages for the planner
- Filter is shared with the Query Designer
Planning Model Design

Variable Wizard

With the variable type you determine the categories of values for which the variable is defined. With the processing type, you determine how a variable is replaced with concrete values at runtime.

For more information, see the documentation. The variable type, processing type and variable name cannot be changed after you save.

General information

Variable Type: Characteristic value
Variable Name: 
Description: 
Processing By: 
Input/Output: 

Create variable (Characteristic value)
Planning Function Creation

Definition of planning function: With these features, you can edit your plan data using an algorithm.

- This step contains the automatic functions for planning and simulation
- Select from a list of function types delivered by SAP (such as copy, revaluate, distribute, formula)
- Option to develop customer-specific function types
Planning Function Creation

Automatic Functions
- Planning Functions -

- Revaluation
- Reposting
- Formulas
- Currency translation
- Unit conversion
- Copy
- Distribution by reference data
- Distribution by keys
- Delete
- Repost (characteristic relationships)
- Delete (invalid combinations)
Planning Model

Planning Function Creation (Example: Formula)
You can use your planning functions in planning sequences.
You can integrate planning sequences into process chains for automatic execution of your processes.
Validate your data model when you create it. You can capture data manually and validate it if your data model returns the expected result.

- Step-by-step execution of functions and manual data entry
- Manual ad hoc data entry and display for initial test
Different User Interfaces

- BEx Analyzer as Excel front end
- BEx Query Designer for designing queries
- BEx Web Application Designer
- Embedding the query into a workbook

Web Application
aktueller screenshot (Query Designer) aus features list nehmen

001693; 17.08.2005
Queries based on aggregation levels can write back to the InfoProvider

Following new features for planning:

- Drilldown
- Hierarchical data in rows and columns
- Calculated key figures
- Structures
- Unit conversion
- Alerts
- Conditions
- Graphics
- Ad hoc currency
- Currency translation

The features are explained in more detail in the “Query, Reporting & Analysis” scenario.
User Interface

BEx Analyzer

- New workbook default template (similar to the BEx Web Template)
- Intuitive user interaction using Drag&Drop and redesigned property dialogs
- Personalizable filter value lists (Favorites & History)
- Full accessibility and Unicode support
- Excel-based data entry and planning. Manual data entry into planning aggregation levels and usage of planning functions
- Takes advantage of many new information broadcasting features

Integration of business planning

Application-building in Excel

Excel formulas allow access to any cell of the result set

Excel formatting options can be fully leveraged for BEx Workbooks (e.g. blank lines, fonts etc.

Combining Excel formulas and Excel formatting allows the design of high-end formatted solution workbooks
BEx Analyzer as Excel Add-In

Integration of flexible Excel functionality and common database

- Input-ready query for planning
- Data provided from back end
- Query with exception
- Button covers back-end planning functions
- Example of user-specific calculation area in your own Excel environment
User Interface

Web Application Designer

Combine planning and analysis capabilities in Web applications to provide intuitive planning for end user.

- Create a layout
- Configure a layout
- Choose data binding
- Configure interaction
User Interface

Web Application Design

- Zero installation, zero footprint (no SAP GUI installation required, no local software installations [Excel] required)
- Seamless portal integration
- Export to PDF
- Web items available

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Common Features
for embedding queries into workbooks and Web application design

Configure individual end user UIs from BI building blocks

- Tables/charts for templates
- Buttons to execute planning functions
- Wizards for charts, maps, command editing
- Wizard for layout elements (such as buttons)
- Dialog boxes for parameterization of planning and analysis services
- Navigation area for selection
- Dropdown for selection
- Variable selection using:
  - Dropdown, radio button group, input field
- Document browser
Planning Application Execution

You can execute your Excel-based process in the BEx Web Application Designer and your Web-based process in the Enterprise Portal.

To run your planning sequences automatically, embed the sequences in process chains.
Simulation

Applications can also be executed for simulation purposes

Available features for simulation:

- Multiple versions
- Forecast
- Forecast (methods)
- Excel capabilities
- Reference data
- Planning sequences
- Formulas (loops, iteration)
- Aggregation
Benefits

- **Combines analysis & planning** in the same database (single version data).
- **Improved strategy implementation** resulting from flexible top-down distribution capacities and target setting.
- **Fast reaction to market changes** using analytical methods that allow actions to be derived from data.
- **Establish cross-selling opportunities** using market basket analysis.
- **Improved usability and flexibility** thanks to graphical design, much sought-after transformations, and third-party interfaces to a larger number of specialized data mining tools.
- **Companies can easily enhance their existing SAP BI implementation** by using data transformation, data entry, and planning functionality.
**IT Processes in this process:**
**Business Planning – Web based**

**Planning Model Design**
1. Choose InfoProvider
2. Create aggregation level
3. Create filter
4. Test planning model

**Planning Function Creation**
5. Create planning function
6. Create planning sequence

**Designing a Query**
7. Test planning model
8. Choose InfoProvider (aggregation level)
9. Create query
10. Save query

**Designing a Web Application**
11. Create new Web template
12. Insert Web items
13. Assign data provider
14. Configure interaction
15. Save Web application
16. Execute

*IT-Processes are covered by IT-Scenario „Business Reporting, Query and Analysis“*
*IT processes are covered by the IT scenario “Business Reporting, Query and Analysis”*