New SAP NetWeaver™ BI Capabilities in SAP NetWeaver 2004s

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SAP NetWeaver BI in 2005

Enterprise Data Warehousing
Enterprise Reporting, Query and Analysis
Business Planning and Analytical Services
SAP NETWEAVER PLATFORM

SAP NetWeaver™

PEOPLE INTEGRATION
- Multi channel access
- Portal
- Collaboration

INFORMATION INTEGRATION
- Bus. Intelligence
- Master Data Mgmt
- Knowledge Mgmt

PROCESS INTEGRATION
- Integration
- Broker
- Business
- Process Mgmt

APPLICATION PLATFORM
- J2EE
- ABAP
- DB and OS Abstraction
FROM COMPONENTS TO IT PRACTICES

Business information management
User productivity enablement
Application governance
Service-oriented architecture design and deployment
Unified life-cycle management
SAP NetWeaver™

INFORMATION INTEGRATION
Bus. Intelligence
Master Data Mgmt
Knowledge Mgmt

PROCESS INTEGRATION
Integration Broker
Business Process Mgmt

APPLICATION PLATFORM
J2EE
DB and OS Abstraction
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FROM COMPONENTS TO IT PRACTICES
# IT PRACTICES & SCENARIOS WITH SAP NETWEAVER

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<td><strong>Enabling B2B processes</strong></td>
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**Additional Features**
- Enterprise service application integration
- Enterprise service-enabling
- Unified user authentication & Single Sign-On
- Message and data security
- Consolidated user and access management
- Enterprise service application integration
- Enterprise service-enabling

**Additional Services**
- **Discovery**
  - Enterprise Portal operation
  - Knowledge Management workplace
  - People Collaboration
  - Mobilizing Business processes

**Evaluation**
- Enterprise reporting, query & analysis
- Business planning and analytical services
- Enterprise data warehousing

**Implementation**
- Business event resolution
- Unified Data
- Content consolidation harmonization
- Central master data management
- Product Content Management

**Operation**
- Enabling B2B processes
- Enabling A2A processes
- Business process management
- Enabling e-business infrastructure

**Enterprise Portal operation**
- Knowledge Management workplace
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**Business planning and analytical services**
- Enterprise data warehousing

**Enterprise data warehousing**
- Content consolidation harmonization
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- Product Content Management

**Central master data management**
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- **Enterprise service application integration**
- **Enterprise service-enabling**

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BI in NetWeaver 2004s

**BI Scenarios in NetWeaver 2004s**

- **Enterprise Reporting, Query & Analysis**
  - High Focus on User Productivity
  - Formatted Reporting
  - Intuitive Ad-hoc Analysis
  - Advanced Excel Integration
  - Model-driven BI Applications

- **Business Planning and Analytical Services**
  - Business Planning integrated in BI Platform and Suite

- **Enterprise Data Warehousing**
  - High Performance Analytics (HPA)
  - Flexibility by enhanced data modeling capabilities
  - Data Transfer Process
  - Real-Time Data Acquisition
  - Web-based Administrator Cockpit
SAP NetWeaver BI in 2005

Enterprise Data Warehousing
Enterprise Reporting, Query and Analysis
Business Planning and Analytical Services
Modeling the EDW - Flexibility

Data Modeling

SAP NetWeaver 2004s provides additional flexibility for implementing new data models and changing existing ones.

- **Re-Modeling Toolbox**
  Changing InfoCubes without rebuilding them from scratch – improved flexibility

- **Enhanced DataStore objects** *(formerly: ODS objects)*
  Improved performance and flexibility

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

SAP NetWeaver 2004s improves and streamlines the DataSource definition. In addition, it enhances remote access capabilities.

- **New DataSource concept**
  - Unified and improved maintenance
  - E.g. Web Service (XML), UD Connect
  - Additional DataSources enabled for remote access (including flat files and DB Connect)

- **Enhanced remote capabilities**
  - Remote master data access – no data replication, low TCO
  - Remote access of master data from source systems
Transformation

SAP NetWeaver 2004s significantly improves transformation capabilities. The improved graphical UI contributes to decrease TCO.

- **Transformation**
  - Improved performance, flexibility and usability
    - Graphical UI
    - Unification and simplification 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)
Running the EDW - Data Transfer Process

Data Flow Control

SAP NetWeaver 2004s improves and streamlines the data flow definition and the process chain set-up. In addition, it provides new real-time data acquisition capabilities that facilitate operational reporting:

- **Data transfer process (DTP)**
  - Data ‘Distribution’ within SAP BI (from PSA or InfoProviders to InfoProviders)
    - Improved transparency of staging processes across data warehouse layers (PSA, DWH layer, ODS layer, Architected Data Marts)
    - Improved performance: Intrinsic parallelism
    - Separation of delta mechanism for different data targets: delta capability is controlled by the DTP
    - Enhanced filtering in dataflow
    - Repair modus based on temporary buffers (buffers keep complete set of data)
Data Flow Control

SAP NetWeaver 2004s improves and streamlines the data flow definition and the process chain set-up. In addition, it provides new real-time data acquisition capabilities that facilitate operational reporting:

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

Near-real-time InfoPackage & DTP

- Daemon-based update from delta queue (BW Service API)
- Daemon-based update of DataStore objects (ODS layer) – including lean staging (with minimized logging)
SAP NetWeaver 2004s provides a pro-active monitoring framework and enhanced administration capabilities. TCO reduction is the guiding principle in this context.

**Administrator Cockpit**
- Pro-active support of SAP NetWeaver BI administrator in status tracking and performance optimization (Data Load, Reporting and Planning)
- Based on BEx and EP technology
  - Enhancements easily possible
- Based on new technical content InfoCubes

**Enhanced BI run-time statistics**
- Additional flexibility by 4 different modes: aggregated statistics, OLAP, OLAP & Data Manager, no data

**Enhanced data load statistics**
- Process chains, processes
- Data Transfer Process details

**New data load status**
- PSA tables, InfoProviders, InfoObjects
- Process chains, processes
Running the EDW - High Performance Analytics

Performance Optimization

SAP NetWeaver 2004s provides various tools to increase the data load and query performance significantly – among them the innovative high performance analytics approach. Thus, the implementation of large enterprise data warehouses is facilitated.

- **High performance analytics (HPA)**
  - A new paradigm for high performance data access.
  - Query performance is boosted by orders of magnitude
  - Simultaneously the realignment processes roll-up and change run are improved significantly
  - HPA is used in connection with KM search engine TREX
  - Provides linear scalability and can fully leverage grid and adaptive computing capabilities
Running the EDW – Near-line storage

Information Lifecycle Management

SAP NetWeaver 2004s supports SAP BI customers in reducing the amount of ‘online‘ data that has to be administrated and hence improves overall performance.

- Near-line storage
  Supports data aging (together with data archiving capabilities)
  - 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 accessible for SAP BI Queries
  - Advantage: reduction of administration costs (TCO) and improvement of high volume data warehouse

- Example for Near-line storage:
  ‘Clustering’ data
  - Online data (= latest data until 3 years ago) is accessed regularly
  - Near-line data (= 3 – 5 years) is accessed once in a while
  - Archived data (> 5 years) is accessed very rarely; before access, data must be re-applied into SAP BI
EDW – Further enhancements

Modeling the EDW

- **Data Warehousing Workbench**
  - Improved usability and lucidity
- **Content Analyzer and Content Browser**
  - New overview-, search- and analysis capabilities for Business Content

Running the EDW

- **Process Chains**
  - Additional functionality and process types
- **Data Quality**
  - Improved error handling
- **Re-partitioning**
  - Supports attaching, combining partitions or complete re-partitioning
- **New Analysis Authorization concept**
  - Higher flexibility and simplified modeling
SAP NetWeaver BI in 2005

Enterprise Data Warehousing

Enterprise Reporting, Query and Analysis

Business Planning and Analytical Services
Designing a Query

State-of-the-art UI concept, providing for example:

- Available tasks for a selected object presented via a task pane
- Message panel shows warnings and error messages in context → helps to avoid or correct errors
- Enhanced application menus, toolbars and context menus
- Extended visualization of status and user actions

Query design takes place in the Business Explorer (BEx) Query Designer, a Visual Basic .NET-based Unicode-compliant tool.

Support of multi-selected objects – drag&drop, properties

Options for BI-integrated Planning
Designing a Report

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

Designing a Web Application

- Model-driven BI application building
  - Wizards for charts, maps, command editing
  - Wizard for layout elements (e.g. buttons)
  - „Intellisense“ support for Web API developers
  - Easy integration of native HTML commands

- New layout elements (Tab strips etc.)

- New Web items

- New chart types, e.g. GANTT chart, MTA chart

- Design of planning aware business applications

Web application design takes place in the Business Explorer (BEx) Web Application Designer, a Visual Basic .NET-based, Unicode-compliant tool.
Intuitive Ad-Hoc Analysis – BEx Web Analyzer

Web-based Ad-hoc Design Leveraging Drag & Drop

- Easy navigation, when dropping characteristics on top of rows or columns
- Easy filtering, when dropping a characteristics to filter area
- Personalized Filters
- Saving and distribution of analysis results through strong portal integration
- Close integration to Information Broadcasting and Knowledge Management
- Wizard-based definition of exceptions and conditions
- Query creation on top of SAP BW and 3rd party data (via XMLA Connectors)

Drag and Drop
Comfortable PDF based BEx Web printing

- Any type of BEx Web query, Report or Web Application can be converted to PDF and printed
- Leveraging the SAP NetWeaver AS integration with Adobe Document Service
- Adobe Acrobat Reader required, no plug-ins necessary
- Printing options can be maintained globally or individually by an end-user

![pdf-conversion of a web item]
Excel integration - Query Embedding with BEx Analyzer

Embedding Queries, Views & InfoProviders

- Direct Access to InfoProviders as well as queries & query views
- New workbook default layout
- Intuitive User Interaction via Drag & Drop and re-designed property dialogues
- 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
- Taking advantage of many new information broadcasting features
Workbook Design

- Application-building in Excel (similar to Web Application Designer)
- New Options for Queries with 2 Structures
  - 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
- Integration of Business Planning
Additional new broadcasting features include:

- **New Object Types**
  - Query Views
  - Formatted Reports

- **New Distribution Types**
  - Data Bursting → Broadcast to recipients derived from BW master data and optionally adapt the output format for each recipient
  - Exception broadcasting - Create Alert settings based on defined exceptions
  - Integration into SAP Alert Framework &UWL

- **New Output Options**
  - Printers
  - PDF Files
Modelling of BI Applications using the BI Kit of the Visual Composer

- Allows Business Users to create analytical content for SAP Enterprise Portal
- Offers the integration with BI content (InfoCubes, BEx Queries and Query Views, BEx Web Applications) as well as with heterogeneous data sources (including OLAP and relational data sources)
Business Planning and Analytical Services

CHALLENGE

- Overcome 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 meta data
Planning Model Design – Planning Modeler –

- Central Application for complete modeling and customizing of BI integrated planning
  - Web based modeling environment for all planning related tasks
  - Single point of entry for planning experts

- Modeling of all planning specific objects
  - Choose InfoProvider and create characteristic relationships and data slices
  - Create Aggregation Level
  - Create filters
  - Planning functions
  - Planning sequences
Business Planning and Analytical Services – Wizard Mode

Planning Model Design – Wizard Mode –

- Create a simple model of BI integrated planning by means of the Planning Wizard
  - Web based modeling environment for planning related tasks
  - Using the “Road map Pattern”

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 volatile 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 filling 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.

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Query Design (BEx Query Designer)
Queries that are based on aggregation level are able to write back to the InfoProvider

BEx Web Application Designer
- Create a layout
- Configure a layout
- Choose data binding
- Configure interaction

- Drilldown
- Hierarchical data in rows and columns
- Calculated key figures
- Structures
- Unit conversion
- Alerts
- Conditions
- Graphics
- Ad-hoc currency
- Currency translation
### Business Planning and Analytical Services – Run-time 1

**THE BEST-RUN BUSINESSES RUN SAP**

<table>
<thead>
<tr>
<th>Product Line</th>
<th>Juice001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
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<tr>
<td>Product</td>
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</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Calendar Year/Month</th>
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<th>02.2005</th>
<th>03.2005</th>
<th>04.2005</th>
<th>05.2005</th>
<th>06.2005</th>
<th>Overall Result</th>
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<tr>
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<td>220 L</td>
<td>363 L</td>
<td>424 L</td>
<td>440 L</td>
<td>121 L</td>
<td>3</td>
<td>1,144 L</td>
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<tr>
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<td>363 L</td>
<td>424 L</td>
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<tr>
<td>Product 3</td>
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<td>363 L</td>
<td>424 L</td>
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<tr>
<td>Product 4</td>
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<tr>
<td>Product 5</td>
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<td>363 L</td>
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<td>3</td>
<td>1,144 L</td>
</tr>
</tbody>
</table>

There are messages. Please double-click to display them.
Web Application Design – Example

Product Line: Juice001
- Product 1: Q1 2005 440,000 L, April 2005 123,000 L, May 2005 120,000 L, June 2005 694 L, Q2 2005 101 L
- Product 4: Q1 2005 242,000 L, April 2005 121,000 L, May 2005 1,000 L, June 2005 364 L, Q2 2005 1 L
- Product 5: Q1 2005 484 L, April 2005 242,000 L, May 2005 121,000 L, June 2005 484 L, Q2 2005 0 L


Product Line: Juice002
- Product 6: Q1 2005 484 L, April 2005 11,000 L, May 2005 121,000 L, June 2005 363 L, Q2 2005 495 L, Q2-Q1 11 L
- Product 7: Q1 2005 720 L, April 2005 280,000 L, May 2005 454,000 L, June 2005 424,000 L, Q2 2005 1,050 L, Q2-Q1 300 L
- Product 8: Q1 2005 568 L, April 2005 720,000 L, May 2005 121,000 L, June 2005 7,000 L, Q2 2005 450 L, Q2-Q1 410 L
- Product 9: Q1 2005 363 L, April 2005 440,000 L, May 2005 121,000 L, June 2005 77,000 L, Q2 2005 1,001 L, Q2-Q1 638 L
- Product 10: Q1 2005 1,212 L, April 2005 484,000 L, May 2005 121,000 L, June 2005 121 L

Result: Q1 2005 2,682 L, April 2005 1,111 L, May 2005 1,210 L, June 2005 688 L, Q2 2005 30,100 L, Q2-Q1 348 L

Overall Result: Q1 2005 5,302 L, April 2005 2,809 L, May 2005 2,422 L, June 2005 1,174 L, Q2 2005 6,008 L, Q2-Q1 703 L
Summary

- SAP NetWeaver BI will facilitate to extend the reach of BI
- SAP NetWeaver BI will provide a fully integrated BI and planning solution
- SAP NetWeaver BI will further support a strategic deployment as an enterprise-wide data warehouse

Nomination for Ramp-Up has started!