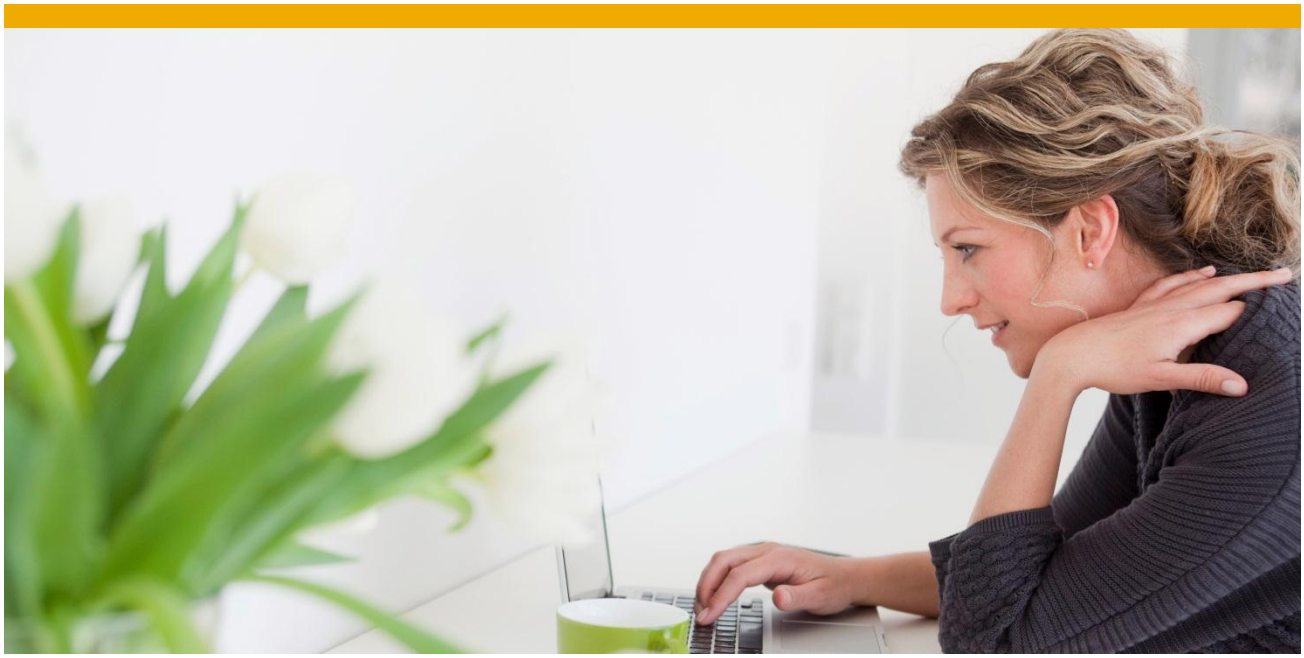

The NetWeaver Enterprise Procurement Model – An Introduction

This document provides an introduction to the Enterprise Procurement Model, its intended usage, features and structure. It also provides an overview of stakeholders who already use the Enterprise Procurement Model and its technical availability.

TABLE OF CONTENTS

DISCLAIMER

The NetWeaver Enterprise Procurement Model (EPM) is an application intended to be used for demonstration and testing purposes. While the scope of EPM is complex enough to be used as basis for testing and demonstration of NetWeaver technologies it is not a full-fledged application for a productive system environment. Product support is not offered.
The following is only meant to be an example for demonstration purposes and not intended to be used in a productive environment. Any use by the customer is therefore at its own risk.

MOTIVATION

Developers working on new features for the NetWeaver technology stack or for a solution that accesses it are typically faced with the problem of finding a way to run tests that are easy and affordable to set up but at the same time represent realistic and sufficiently complex conditions of product usage. They have to make sure that testing adequately represents future use of the new features, that the new development integrates well within the NW stack and that existing development remains free of regression errors. Aside from testing, they might also look for a way to easily demonstrate the newly developed features to receive early feedback from consumers.
To fulfill these goals, developers have to use an environment that simulates the usage of the feature, as for example by building their own demo application or setting up an adequate system landscape if the new features are accessed by consumers' applications.
For these purposes, the Enterprise Procurement Model offers a solution as it provides a unified demo and testing environment for the NetWeaver stack. EPM is a test application that serves as a proxy for SAP's real-world Business Suite applications. It is based on real-world business logic and scenarios that can be used for differing testing approaches and is equipped with the means to generate meaningful test data.
To summarize, EPM can support various testing or demo purposes:

- Simulation of standard business processes inside the NetWeaver layer. This allows verifying, demonstrating and testing the usage of the technology at an early stage.
- Automated regression testing of existing development
- Demo application for rollouts or trainings
- Performance measurement of NW technologies

In short, by using EPM developers can focus on their own development and do not have to invest heavily into designing and building local test applications or test data generators. They can easily automate testing procedures so that they don't have to manually test for regressions. What is more, EPM is easy to use as the model is only as complex as necessary to be a sufficient basis for testing and can be easily understood by all technology developers even if they don't have experience in creating business process applications. EPM is a pure demo application residing in the NetWeaver layer with no dependencies. EPM runs out-of-the box without additional configuration efforts.

This document will give you an introduction to the Enterprise Procurement Model, a description of the business scenario, the EPM structure and the technical availability.

EPM MODEL

This section provides an overview of the business scenario implemented in EPM and the EPM underlying Business Objects.

ITelO Web Shop

The business scenario at the core of EPM is that of a web shop run by a retail company called ITelO, a fictitious company that buys and sells computers & accessories. ITelO is a global player with several subsidiaries and locations world-wide selling its products through direct distribution channels. The company has various reseller and standard customers as well as various suppliers. Customers can purchase goods either directly from ITelO or indirectly from a supplier if the goods are not on stock. In order to support a realistic scenario, there are means to generate mass data which allow the simulation of real-world data volumes for business entities such as purchase orders and master data such as products. The generated data is approved and can be used at customers' sites.

A typical usage of EPM might be the following scenario:

A customer accesses the web shop with the intention of buying a laptop. He searches the web shop for the right product, places it into his shopping cart and proceeds to place the order. As the product is not on stock, ITelO contacts a supplier for the product and places an order. Once ITelO receives the product from the supplier it forwards the product to the customer along with the invoice.

Here is a graphical overview of the basic business processes in EPM:

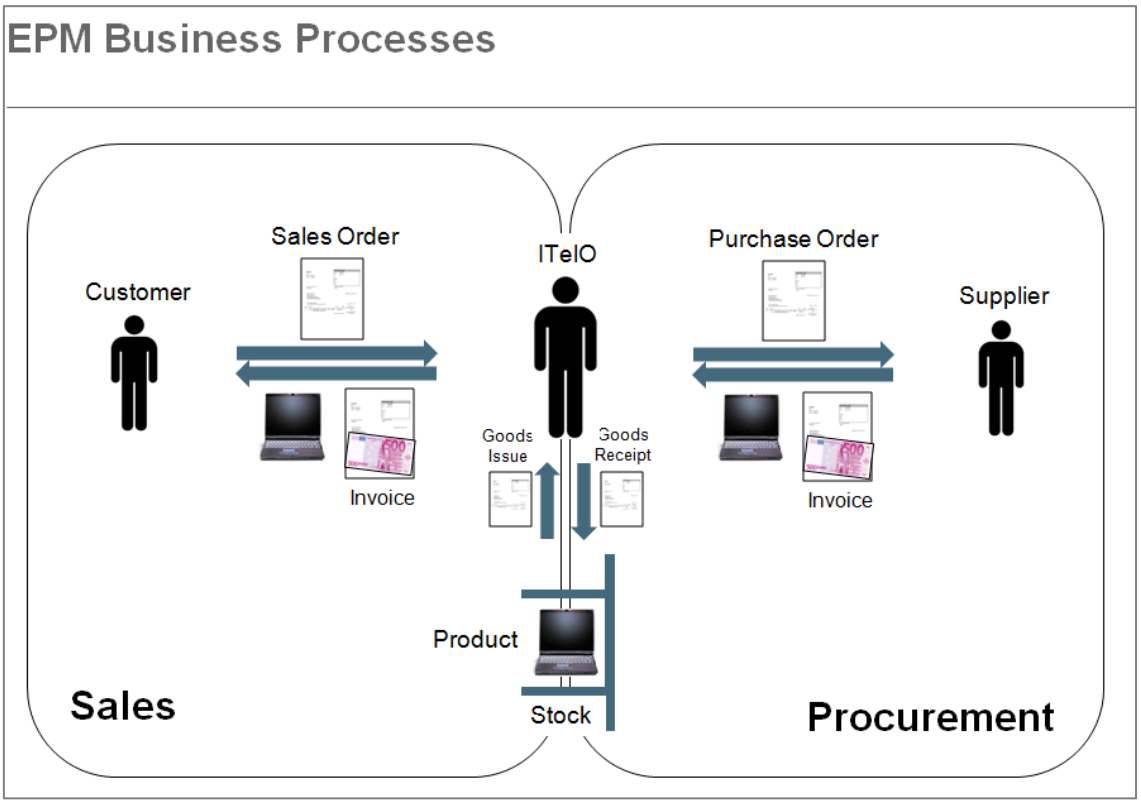

Figure 1: EPM Business Processes

EPM Business Objects
The main entities supporting the business scenario in EPM are implemented as Business Objects (BO). An example of an EPM BO is the Product BO, which encapsulates the business logic for maintaining and browsing products. The business objects available in EPM support the sales and procurement processes.

Referring to the business process example as described earlier, the following BOs would be involved:

- Browsing the catalog is supported by the Product BO providing basic data on the product such as name, category or price of the product
- When placing the order a sales order is created using the Sales Order BO
- The Storage Bin BO provides the information how many items are available and that the product in question is currently out of stock
- The product is requested from the supplier by using the Purchase Order BO
- The customer and the supplier are identified by data stored in the Business Partner BO
- When the product is received by ITelO, a goods receipt is created based on the Goods Receipt BO
- The invoices sent from the supplier to ITelO and from ITelO to the customer are created by using the Purchase Order Invoice and Sales Order Invoice BOs respectively

Here is an overview of the BOs available in EPM. You can see which process type the BOs belong to and find a short explanation for each BO:

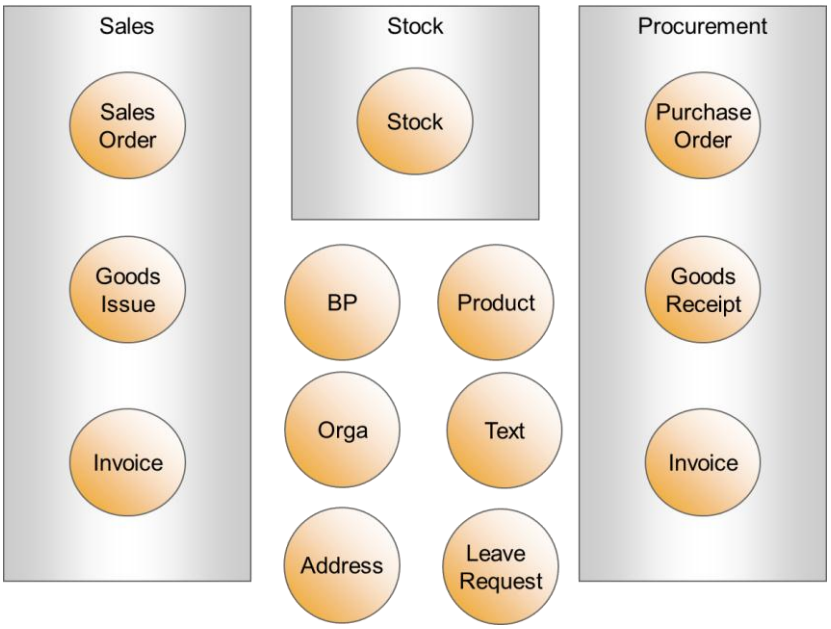

Figure 2: EPM Business Objects

Business object	Description
Product	The Product BO maintains product data, such as product ID, product category or product price. Additionally, it contains user information. Please note that a pricing engine or sourcing is not part of EPM.
Storage Bin	The EPM does not include a stock per se but only storage bins. A storage bin holds a product until the product is sold and indicates the product and the quantity. Each location (i.e. branch of ITelO) has exactly one storage bin per product.
Organization	The Organization BO maintains org units, hierarchies and employees.
Leave Request	An employee can create leave requests for his own and a manager can accept or decline it.
Business Partner	A business partner is the detailed description of a customer or supplier. All external contact persons are defined as business partners.
Address	The Address BO maintains address information that is independent of any entity.
Sales Order	A sales order consists of a header, several items and the corresponding schedule lines; a sales order can be created either manually by a sales team member or generated automatically by an inbound processing step.
Goods Issue	Goods Issue consists of a header and one or more items and contains the information on the goods that have been sent out to the Business Partner who has ordered some goods from ITelO. The creation of a Goods Issue BO is triggered by sales order processing or by a planning engine.
Sales Order Invoice	An invoice maintains a header and items and completes the sales process.
Purchase Order	Purchase orders and sales orders are symmetrical. Sales Orders can be created by the Business Partner or by ITelO employees while Purchase Orders can only be created by ITelO employees.
Goods Receipt	A goods receipt indicates that ordered goods have been received by the company and is triggered by a goods receipt message. Goods are stored directly in bins.
Purchase Order Invoice	An invoice contains a header and items and completes the purchasing process.

Table 1: EPM Business Objects

EPM ENVIRONMENT

The following section provides information on EPM architecture, its implementation model and an overview of stakeholders already using EPM.

EPM Data Generator

As mentioned before, EPM comes with test data to simulate realistic test and demo scenarios. Test data can be generated with the help of the EPM Data Generator (DG), which generates master data and transactional data for the modelled business processes. It can be used to provide generic or stakeholder specific test data and supports the infrastructure for automated testing based on SAP's ECATT technology. What makes the data generator unique is that it delivers the data at the click of a button, so that the user has zero effort.
Here is an overview on the master data provided by the Data Generator:

- ITelO Employees
- ITelO Business Partners
- Products that ITelO buys and sells
- Organizational Units of ITelO
- Employee assignments
- Product storage locations etc.

Examples for transactional data that can be generated are sales and purchase orders.
The data generator can provide generic data sets, but it can also be customized in case for example you want to exclude certain products when generating master data. Existing data can be deleted and recreated and it is also possible to take snapshots of the current state and store them for later usage. You can also fine-tune the generation of transactional data so that purchase orders are created by specific employees or within a specific timeframe.
The figure below shows the Basic Settings tab, where you can access the most important features of the data generator. It is the initial screen of the data generator and provides basic options which should be sufficient for most users:

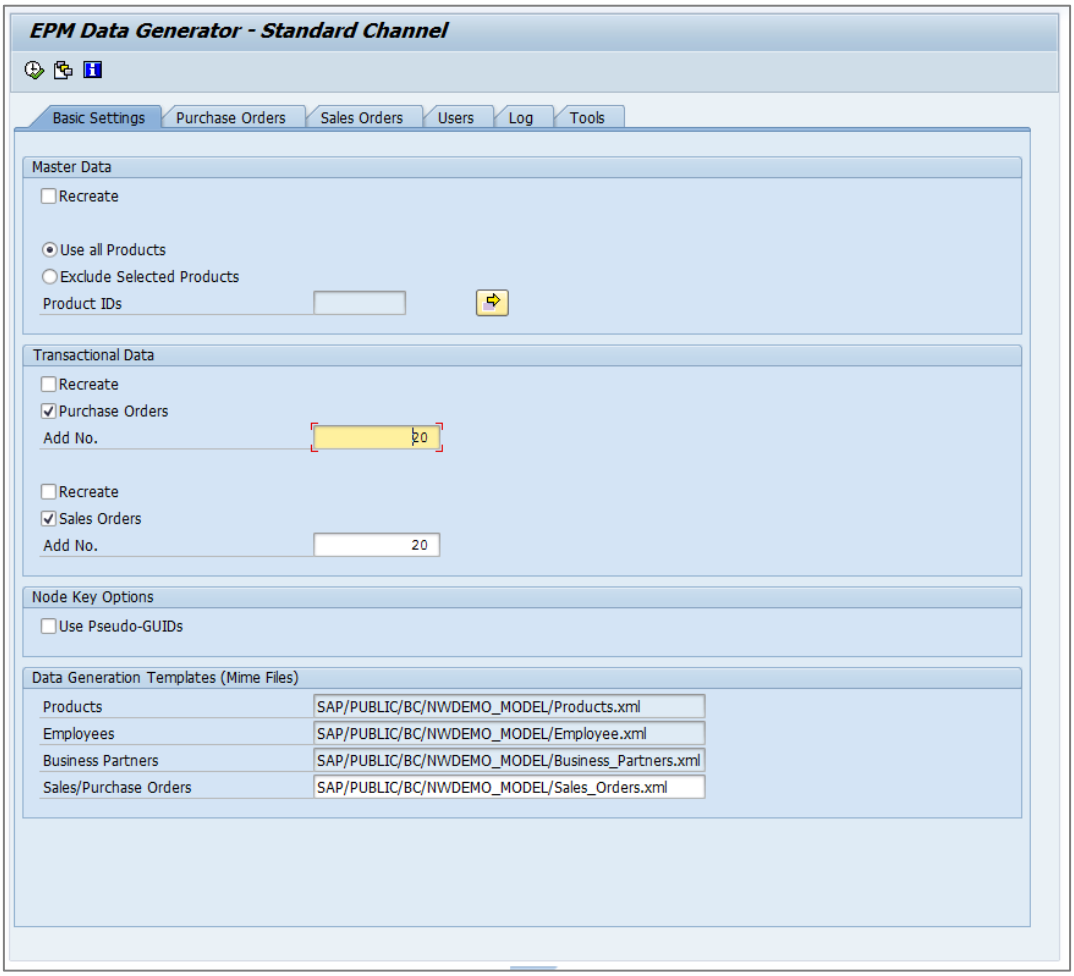

Figure 3: General Settings

The data generator can be accessed by starting the ABAP transaction SEPM_DG. New data can be generated by selecting F8.

EPM as Test Application for NetWeaver Technology
EPM can be used as demo and test application and is used for setting up test suites for NetWeaver technologies. It does not have any dependencies to the objects under test, meaning that the EPM and the NW technologies and architecture are completely independent from each other. EPM based test and demo applications are built on top of the EPM business objects. These applications integrate the NW technologies to be tested and demonstrate and connect to the stakeholder sub systems if necessary as can be seen in the following overview:

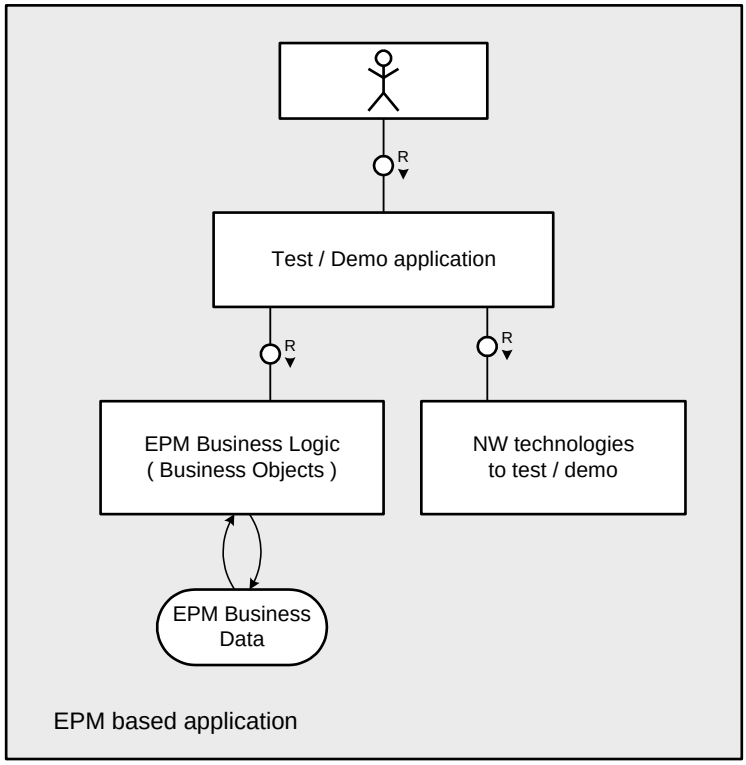

Figure 4: EPM based application

For further details on the architecture and implementation approach of EPM you can see the corresponding section in the appendix.

EPM Usage Example: Product Maintenance

The following section will give you a few examples of typical EPM user interface screens. You can see some of the steps that a user would take while searching and editing product data. In this example, EPM is based on SAP NetWeaver 7.31 and is running within SAP NetWeaver Business Client for HTML 3.5. The screens shown are also a good example of how UI technologies such as Floor Plan Manager could be tested.

- **Search Screen of the demo application**

This is the entry screen of the EPM Demo user role. From this screen, the user can access the main sections of EPM such as products, business partners, purchase orders, invoices, and so on. He can do so by navigating the menu on the left panel or by direct access links that can be saved to the Favorites area in the middle of the screen. In our example the user intends to search for product data and starts with selecting the menu item ‘Products’ on the left panel.

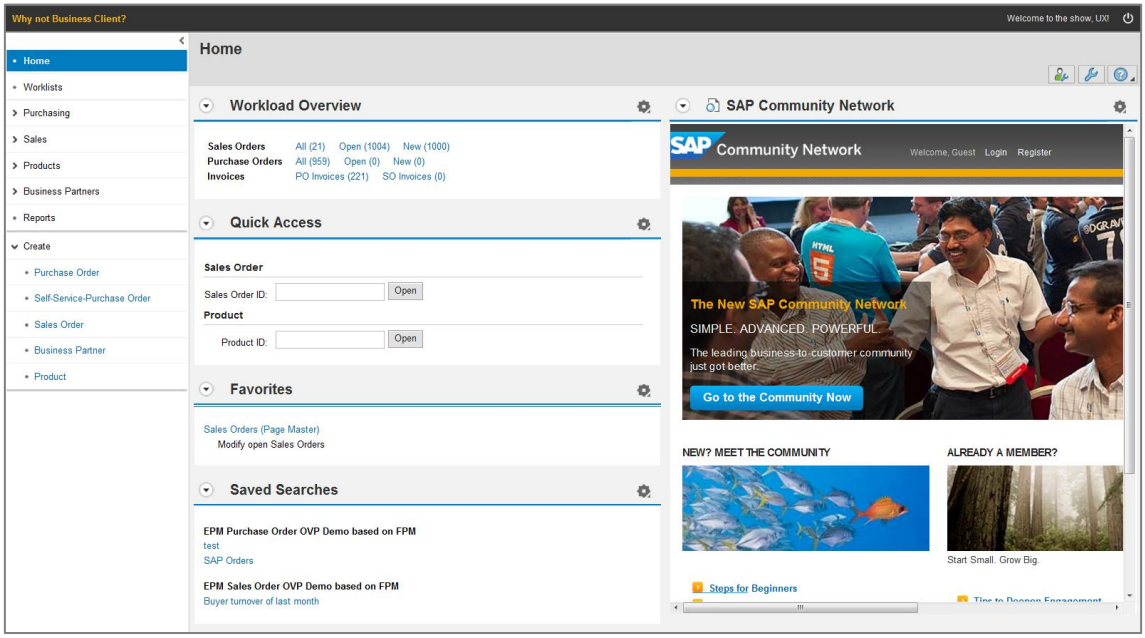

Figure 5: Search Screen

- **Search and modify products**

On this screen the user can execute searches using various search criteria and save these search queries for later reuse. It is also possible to simply display the list of all products without entering any search criteria, e.g. by selecting F4 help.

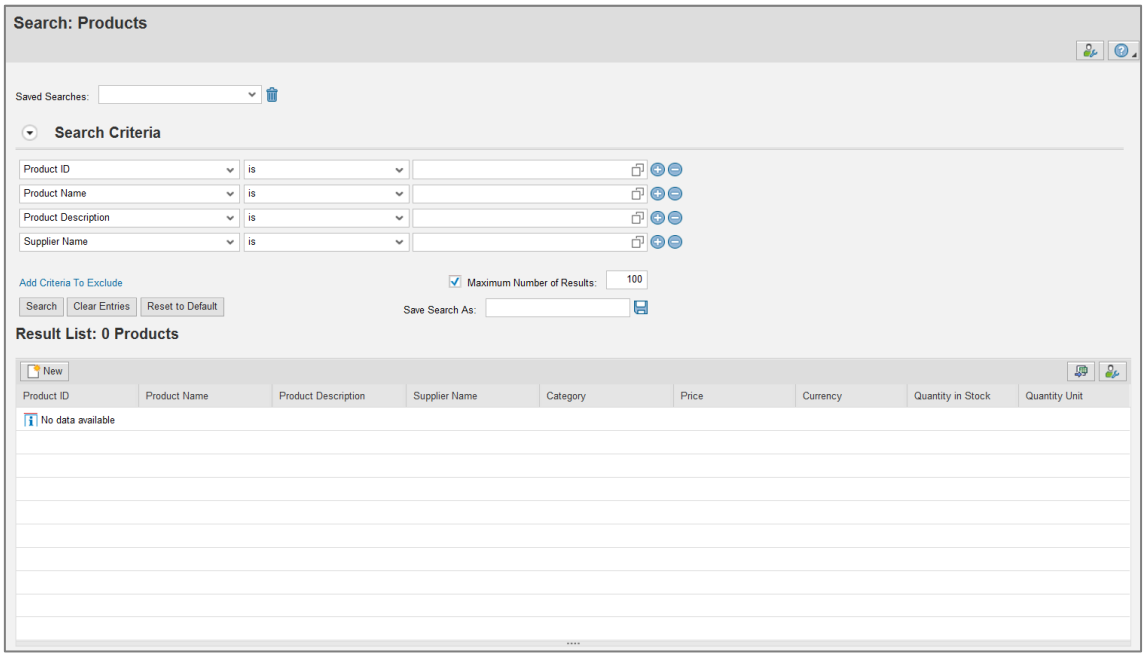

Figure 6: Product Search

- **Search result list for products**

The result list displays the products that match the search criteria. The details per product can be accessed by selecting the product name.

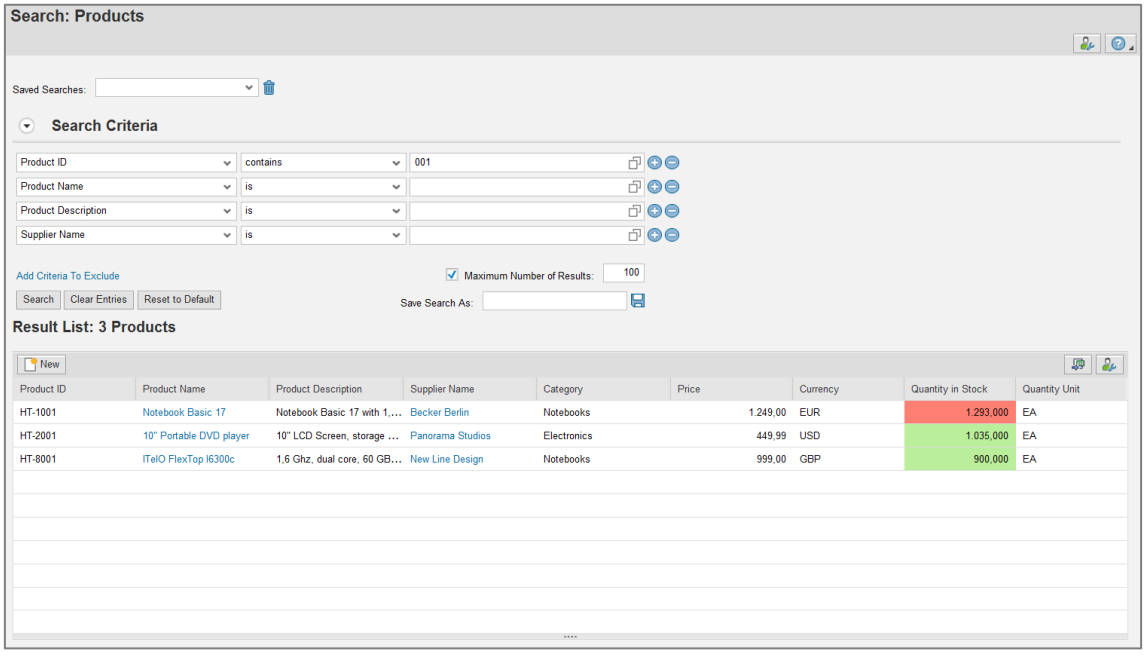

Figure 7: Product List

- **Displaying and modifying product information**

The detailed product information is presented on the main screen. From this screen, the user can also start to modify the data or create new product data.

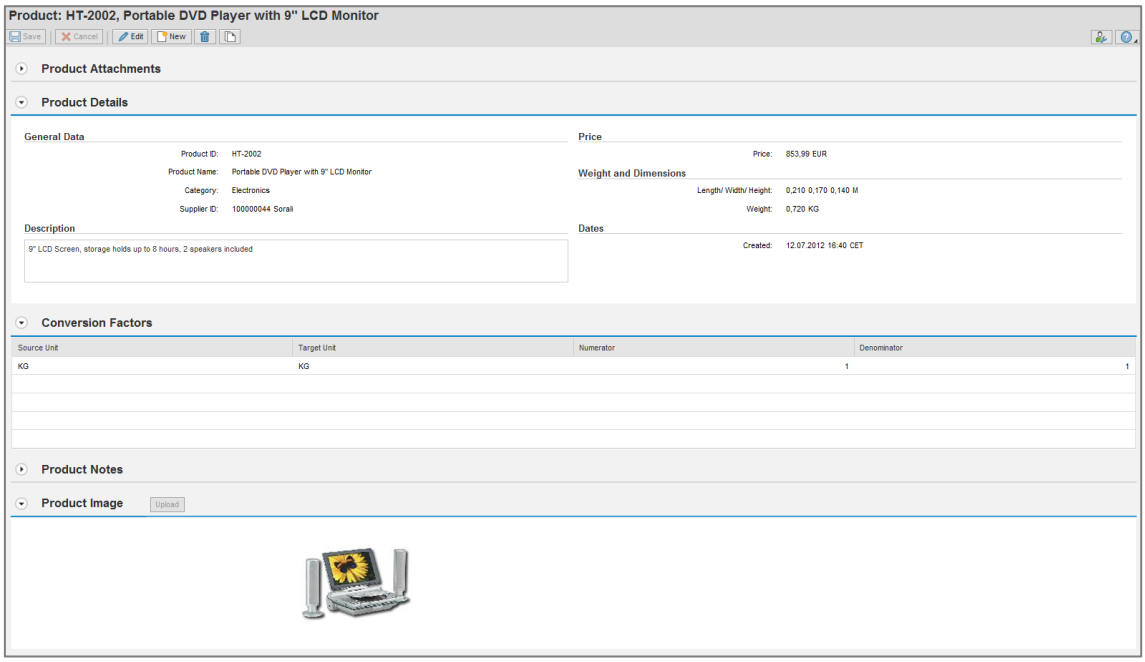

Figure 8: Product Detail

EPM Stakeholder Components

The following list contains some of the technologies and components integrated into EPM:

- SAP Floor Plan Manager
- SAP NetWeaver Gateway
- Interactive Forms based on Adobe Software
- ABAP Web Dynpro
- SAP NetWeaver Business Client

TECHNICAL DATA

Availability

EPM is an ABAP only solution and integral part of NetWeaver starting with release NW 7.02. In detail, EPM is available for the following NetWeaver releases:

- SAP NetWeaver 7.0 including Enhancement Package 2 (including applicable stakeholder additions)
- SAP NetWeaver 7.3
- SAP NetWeaver 7.3 including Enhancement Package 1 (including all stakeholder additions)
- SAP NetWeaver 7.4

Installation and Configuration

Generally speaking, EPM comes with the NetWeaver releases as mentioned in the section on availability and runs out of the box without any configuration efforts. The following steps are required to use EPM:

- Ask your SAP system administrator to add the following role to your user profile: SAP_BC_EPM_DEMO (Note: if this role does not exist on your system it might be that you are using an older Support Package. Use the role SAP_BC_EPM_UX in this case, but be aware that in the latest Support Package releases this role has been replaced by SAP_BC_EPM_DEMO.)
- Run the EPM data generator before using EPM for the first time.

Extensibility and Adaptability

There are no specific design time tools needed for EPM BOs and data generators. The general rule of thumb is: EPM entities are designed and implemented by using the standard ABAP development tools such as SE80.

APPENDIX

EPM Architecture Overview and Implementation Approach

EPM is implemented according to the service oriented paradigm by providing business logic encapsulated in the form of so called Business Objects (BO). A BO encapsulates the logic of a business entity, such as a Purchase Order and allows a service oriented access to it. As an example, you can use a Purchase Order BO to create a new Purchase Order by requesting the corresponding service from the BO. Each BO can offer one or more so called 'Service Operations' which allow a consumer to request different services from the BO. A typical Service Operation might be CRUD operations (creating, retrieving, updating, deleting BO node data) or 'actions' which allow the triggering of business related actions such as 'Send Purchase Order to Supplier'.
Besides Business Objects, EPM consists of technical objects, database tables, the data generator, a Business Object oriented API and stakeholder components.
The high-level building blocks of EPM are depicted in the following diagram:

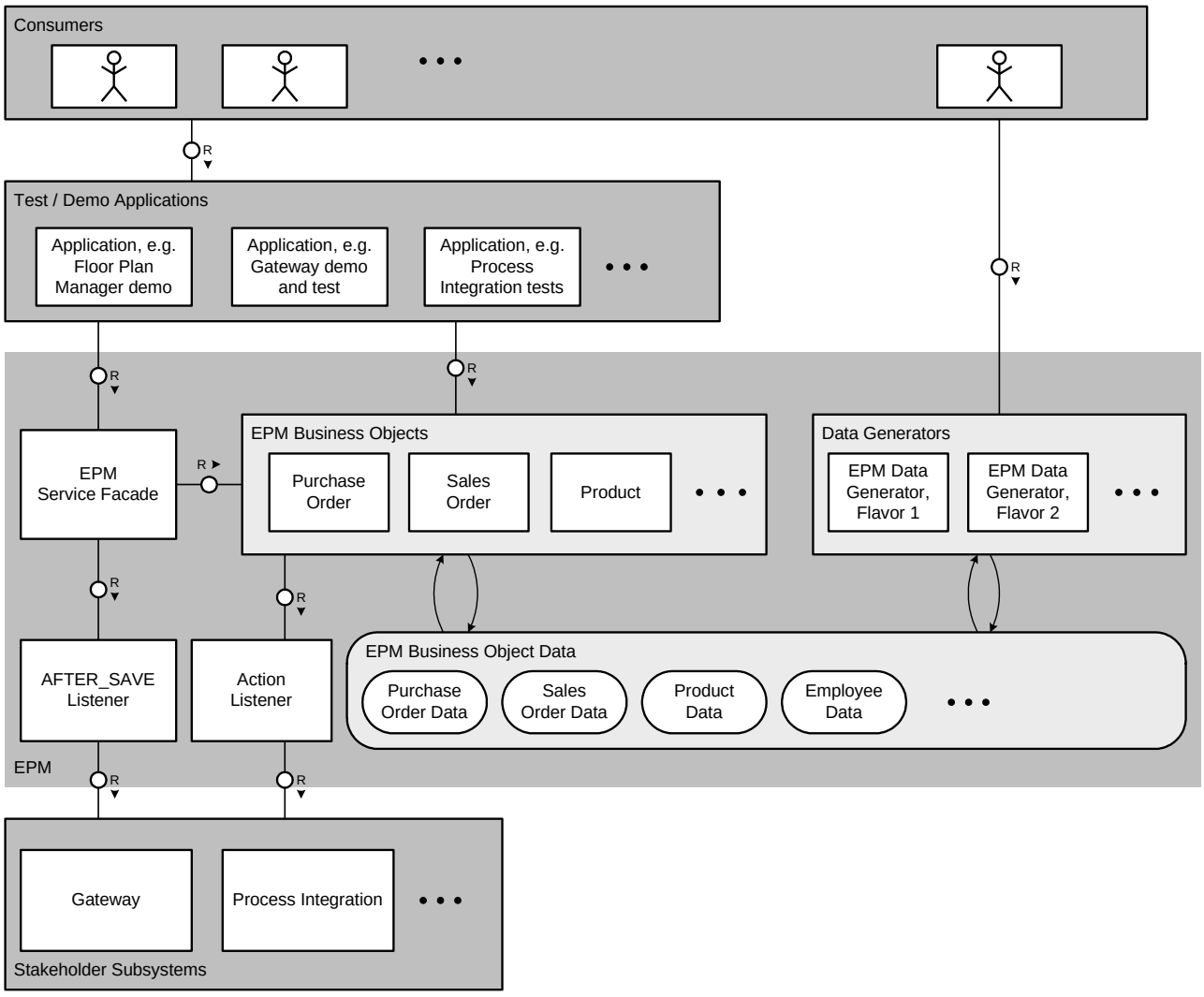

Figure 9: EPM Building Blocks

Glossary

Here is an overview of the most relevant terms as used in the context of this document:

Component	Description
EPM Business Objects	Entity which encapsulates EPM business logic, e.g. the logic required for Purchase Order handling. Access to the services of a BO is performed via so called Services Operations.
ITelO	NetWeaver demo company that can be used for testing and demo purposes. It is a fictitious company with an online shop selling computers and accessories. EPM's data generator can be used to generate master data and transaction data as basis for the web shop.
Test / Demo applications	Applications which are built on top of EPM BOs.
Data Generator	Generators for EPM BO data, e.g. Purchase Order, Sales Order and Product Data. The main purpose is to generate EPM data according to stakeholder needs as the data sets can be customized to a certain degree.
Stakeholder Subsystems	Non-EPM environment supplied by EPM stakeholders, e.g. Enterprise Search and Process Integration.
Proxy Application	A proxy application is a test bed typically used for platform development to simulate the behavior on stakeholder side and to provide the basis for test scenarios. The proxy application offers a set of services like providing automated configuration, test data generation and test automation. Proxy applications offer the chance to implement test scenarios as early as possible without using the full blown application.

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