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SAP Business Suite 7.0

Suite Excellence Overall Architecture Guideline

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Change History

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0.7	2007-09-21	W. Kleis	First milestone version for publishing as “work in progress”. Contains corrections based on feedback from review session.
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1 Introduction

1.1 About This Document

This document contains the key findings of the architecture work groups of the Suite Excellence project. It provides overall architecture rules and findings for SAP Business Suite 7.0[1]. The document is high-level guideline which contains basic rules that are common for all parts of SAP Business Suite 7.0. More detailed rules will be provided in local guideline documents by the different development areas and programs.

Target group of this document are architects and developers who are involved in the development of the Business Suite 7.0.

This document is still work in progress. All rules and guidelines presented in this document are to be obeyed, but the document is not yet a complete architecture guideline. The work in the Suite Excellence project is still ongoing, and therefore architectural rules and guidelines cannot be given for all topics at this time. In those cases, an overview of the work in progress is given, so architects and developers know what is about to come in the future. Open questions and work in progress is listed in each of the topic specific chapters. For these topics, concrete rules and guidelines will be added in a future version of this document. If necessary, chapters about new topics will be added as well.

In some chapters you find references to detail documents without a working hyperlink. In those cases the detailed document is not finished yet or is not yet published. The hyperlink will be added once the documentation is published.

1.2 Rules and Exceptions

Rules in this document are tagged with an identifier ***[<topic>-<number>]***. The following abbreviations are used for the different topics:

Abbreviation	Meaning
CO	Coexistence (side by side)
EHP	Stable Core and Enhancement Packages
IM	Identity Management
LM	Life Cycle Management
RE	Reuse
SC	Service Consumption
SCE	Scenario Orientation
SP	Service Provisioning
UX	User Experience Harmonization

[1] In this document we use SAP Business Suite 7.0 as the name for the 2008 release of the SAP Business Suite. This name shall be treated as a place holder until the final product name is announced.

In general all the rules have to be obeyed by all who are involved Business Suite development. Especially the local architecture guidelines shall be consistent with these rules.

The process for exception handling still has to be defined and will be announced by the Suite Excellence project. The description of the exception process will define where and how to apply for exceptions.

1.3 SAP Business Suite 7.0

For an overview of the SAP Business Suite and the corresponding development organizations see the Business Suite pages in the corporate portal.

A list of the products that are part of the Business Suite 7.0 will be compiled based on

- a generated list of software components based on the SCL/PCL data in PPMS,
- a collected list of software components needed by new scenarios outside the suite excellence program,
- a collected list of software components needed by suite excellence scenarios.

The goal for SAP Business Suite Release 7.0 is to deliver the most holistic, integrated, business-user focused suite that SAP has ever offered. With SAP Business Suite 7.0 SAP will harmonize the suite offering for customers, while at the same time eliminating duplication of efforts and functions across SAP (see Business Suite Presentation , slide 12).

2 Stable Core and Enhancement Packages

2.1 Innovation without Disruption

With the SAP Business Suite 7.0 a new model is used for developing and shipping innovations. This new model is based on a stable core release and innovation via enhancement packages. It is already applied for SAP ERP 6.0. Instead of providing a new release ERP ships all new functionality as enhancement packages that are optional for the customer. Support packages for the stable core are shipped in addition and strictly separated from the enhancement packages.

The goal of the new delivery model is to make innovations accessible to customers more quickly while minimizing the risk of affecting existing functionality used by the customer. The customer should be able to benefit from new functionality without being forced to apply a release update. In addition, the customers should be able to select only those new functions that are required for their business.

The new model has consequences for application architecture and development. The most important rules are presented in this chapter. For more details see the product roadmap detail document Stable Core And Enhancement Packages. There you also find technology specific rules (ABAP, Java, content). The additional rules presented in that document also have to be obeyed for all Business Suite 7.0 development.

2.2 Basic Rules for Stable Core and Enhancement Packages

[EHP-1] The stable core release for ERP is SAP ERP 6.0. The stable core release of all other products of the Business Suite is the 2008 release.

[EHP-2] Enhancement Packages must be optional. There must be no dependencies from the core to enhancement packages. Support packages for the core shall contain only bug fixes for the core and must be strictly separated from the development of enhancement packages.

[EHP-3] All enhancements must be explicitly activated (switched on) by customers to become effective. Customers who install enhancement packages shall not be affected by enhancement package content they don't want to activate.

A customer shall not be forced to do any regression tests or end-user trainings if no new functionality is activated. In ABAP the switch framework technology can be used to implement switching of enhancements. With all enhancements switched off, there must be no noticeable changes of system behavior (UI, business processes, functionality, customizing, performance, stability, resource consumption, deployment scenarios).

[EHP-4] Architectural changes have to be done before the stable core release is shipped. Architectural changes like relocation of objects between software components are not allowed in enhancement packages.

[EHP-5] Interoperability between the applications of the suite must not be affected by installing enhancement packages.

Customers will not apply a new enhancement package to all application systems simultaneously. Therefore it shall be possible to run a customer landscape with business suite applications that have different enhancement package versions installed.

[EHP-6] Changes that are made as part of any enhancement package version must be strictly compatible with the stable core release.

This is a prerequisite for making software component versions of an enhancement package optionally installable. Changes in one software component must be done in a way that existing versions of using components still work correctly without being updated. Incompatibilities are regarded as errors that must be fixed by the component that made the incompatible change. The explicit definition of reuse contracts (for

example based on ABAP package concept, Java development component model) is a recommended preparation for managing the compatibility and shall be implemented in the stable core release.

[EHP-7] Technology Platform: The SAP Business Suite 7.0 and all enhancement packages must run on SAP NetWeaver 7.0. Content shall be developed using SAP NetWeaver 7.0 environments only[2].

2.3 Minimal Upgrade Effort

[EHP-8] Customers shall experience minimal downtime, minimal upgrade processing time and minimal modification adjustment effort when applying an enhancement package.

[EHP-9] Application specific upgrade or migration programs (XPRA, after import methods or similar mechanisms in non-ABAP technology) are not allowed in enhancement packages.

[EHP-10] Customer test activities shall be supported by delivering external test case templates, lists of changed transactions with detailed description and a bill of material with all needed components

2.4 Software Logistics

[EHP-11] One enhancement package will be shipped for all products of the SAP Business Suite 7.0 at one time (even if consisting of multiple technical pieces).

[EHP-12] New versions of an enhancement package contain the whole functionality of the previous enhancement packages instead of only the delta compared to the previous version.

[EHP-13] Software components only have to deliver a new version with an enhancement package if enhancements were done in that component. Otherwise the software component need not be included it into the enhancement package.

[EHP-14] Patches for enhancement packages are shipped with separate enhancement support packages.

[EHP-15] New enhancement package versions may require a new NetWeaver support package stack. Support packages of enhancement packages shall not require a new NetWeaver support package stack.

2.5 Quality Assurance

[EHP-16] Additional test cases have to be provided and executed to prove that new enhancement packages versions comply with the above rules.

Examples are test cases for compatibility and for correctness of switches. Compatibility tests have to ensure that new enhancement package versions of software components work with the stable core version of other software components. Test cases for switches have to ensure both that the deactivated functions do not affect the existing system and that the new functionality works correctly when the switches are activated.

2.6 Open Questions

The open questions in the area of stable core and enhancement packages are also described in Stable Core And Enhancement Packages. The most important open questions are:

- Rules and guidelines for switches in program code (“code switches”)
- Activation or switching in non-ABAP technologies
- Defining and managing switches across multiple technology stacks and application systems.

[2] One exception to this rule is the development of enterprise services which are developed using SAP NetWeaver 7.1 but are provided in a 7.0 version as well. (see 5.1)

3 Reuse

3.1 Introduction

Bringing all parts of the Business Suite together (harmonizing the applications) will increase the reuse potential within the suite. It will become more important to have an appropriate software layer that supports reuse, and a team and infrastructure to help make reuse reality.

In the past, the software component SAP_ABA was the reuse layer for business applications, but has been used less and less because of its restrictions. SAP_ABA is delivered as a part of NetWeaver and therefore development in SAP_ABA is affected by the schedules and restrictions of SAP NetWeaver. The granularity for consuming changes (entire support package stacks) and the different schedules of SAP NetWeaver (early development close) were obstacles for reuse in the past: Often reuse opportunities are recognized late, when NetWeaver development is already closed. And sometimes there is the need to introduce or change reusable functionality, but without forcing the reusing applications to move to a new version of the entire NetWeaver.

3.2 Reuse Layers

Business Suite 7.0 has two reuse layers: The software component SAP_ABA and the new software component SAP_BS_CO. The software layer SAP_BS_CO has been introduced as a new reuse layer for the Business Suite to tackle the “reuse problems” with SAP_ABA.

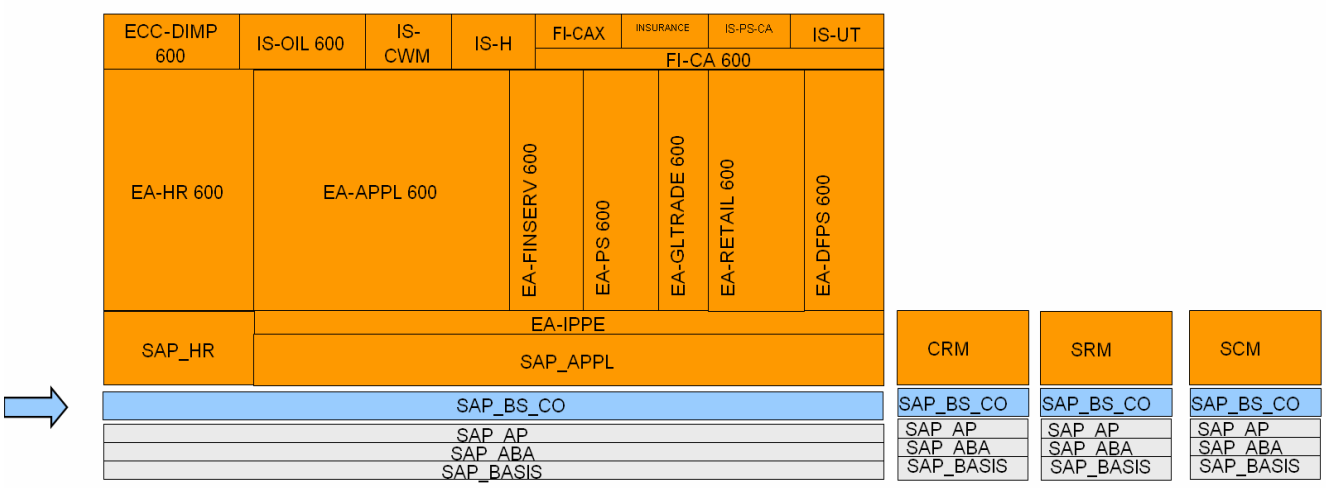

Figure 3-1 Target Software Component Structure

3.3 Reuse Rules

[RE-1] **SAP_ABA shall only be used for objects which already exist there or will be used in AP as well. For all new reuse objects, SAP_BS_CO is the appropriate layer.**

This new SAP_BS_CO layer will be synchronized with the release of the Business Suite. Hence, reuse development will be possible until shortly before development close of the Business Suite applications. This reuse layer will obey the stable core rules. In other words, new function in reusable objects must use switches in the same way as the other application components.

[RE-2] **No moves from other software components to SAP_BS_CO are allowed. Only new reuse objects or a copy to a new namespace are allowed.**

To ensure stability of our customers' landscapes, no shifts between software components are allowed. If we need to make software that has already been shipped reusable for additional clients/users, it must be copied to the Business Suite reuse layer under a different name.

If an object is duplicated in the reuse layer, the original application can use either the existing object in the original application layer, or the new, copied object in the reuse layer. This will be a business case decision.

Example:

A reusable object, which is currently located in SAP_APPL, may not be moved to SAP_BS_CO to make it available for other software components. The only option here is to copy the object to SAP_BS_CO with a new name. The owners of the using components have the choice of adapting their components to use the new (copied) objects in the SAP_BS_CO layer, or to continue using the original object in SAP_APPL and live with two copies (depending on business case).

3.4 Reuse Organization

We are currently setting up a governance process for all reusable objects in this new reuse layer and a dedicated reuse team responsible for the governance process. The team and governance process will ensure that all objects in SAP_BS_CO obey both the stable core rules and reuse guidelines. The Suite reuse team will also support developers with all kinds of reuse questions and help them make reusable functions and features.

The Suite reuse team is headed by Rolf Sieberg, reporting to Willi Oechsler. They have already started to work on the reuse governance concept.

3.5 Open Issues

The dedicated Suite reuse team is going to provide a more detailed concept about reuse in the Business Suite. The concept will cover questions like

- Release planning for the reuse layer SAP_BS_CO
- Development systems for the software component SAP_BS_CO
- Stable core rules for reuse

4 Scenario Orientation

SAP applications must be oriented towards the needs of the market and the needs of the business of the customers. A key factor for achieving this goal is a scenario oriented approach to application development.

With the scenario oriented approach, end-to-end scenarios have to be identified and defined before architecture is defined and development starts. This applies both to new development and to harmonization of existing applications. Detailed information about scenario orientation can be found in the whitepaper Scenario Definition and Harmonization.

In a first step the business scenarios must be modeled on a customer-oriented level of abstraction. Then the business scenarios must be mapped to components in a system landscape. The results of this step are deployment scenarios. In the last step, the architecture is defined based on the business and deployment scenarios.

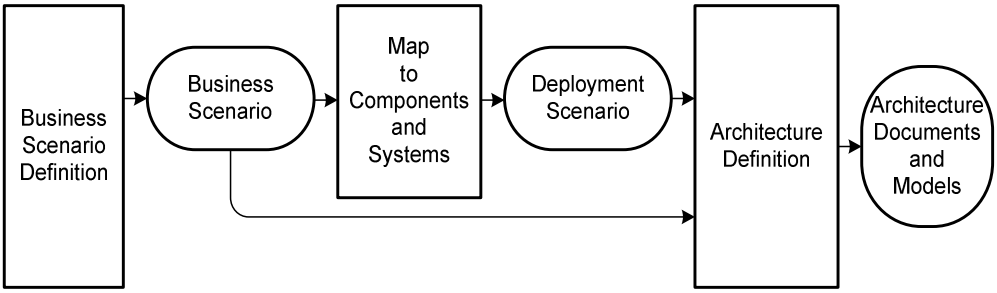

Figure 4-1 Scenarios and Architecture

A scenario oriented extension to the PIL process is currently being prepared. This extension will define the details about the deliverables and the roles that are needed to ensure scenario oriented development from the process standards side.

For application architects and developers scenario orientation first of all means that they have to know and understand the scenarios to which their application components contribute. This is required for ensuring an outside-in approach.

In addition, the scenario oriented approach has consequences with respect to compatibility as well as for the development of new scenarios.

4.1 Scenarios and Compatibility

[SCE-1] New development, for example in an enhancement package, must not invalidate existing scenarios and integrations. Architecture guidelines of development programs have to explain in detail how compatibility with existing integrations is ensured.

As a prerequisite for obeying rule *[SCE-1]*, application architects should know the existing scenarios in which their component participates. The Scenario and Process Component List on SAP Service Marketplace can be used to browse scenarios and see which versions of which components are required to realize the scenarios.

The compatibility with existing scenarios must be taken into account during design, development and quality assurance.

4.2 Developing New Scenarios

For new development (unless it is a foundation topic) scenarios provide the orientation for setting the right priorities. It has to be assured that the architecture serves the planned scenarios. To support this goal it is planned to define future development projects according to scenarios.

[SCE-2] For every new deployment scenario, there shall be one development architect assigned as responsible **scenario architect**. The scenario architect is responsible for ensuring that the architecture matches the requirements of the deployment scenario and the underlying business scenario.

4.3 Harmonization and Scenarios

Scenario orientation is also important for harmonization efforts. Ideally everything should be harmonized, but in reality there will be exceptions and trade-offs and priorities will have to be defined. Here is important not to think in terms of applications and components. Instead the focus must be on scenarios. The leading idea shall be to harmonize scenarios, not applications.

[SCE-3] Harmonization efforts shall focus on scenarios. It is most important that at least those pieces are harmonized that participate in the same deployment scenario.

[SCE-4] Harmonization of user experience shall be done with focus on user roles. At least in the same user role there shall be a harmonized user experience.

4.4 Scenarios and Switched Functionality

A concrete application of scenario orientation is the scenario oriented harmonization of switches and business functions in the SAP Business Suite. Switches and business functions are technical entities of the ABAP switch framework. Business functions are used to activate a specific business functionality. Semantically business functions represent a self-contained piece of business functionality, implemented as a collection of technical switches. Activating one business function typically turns on many technical switches.

Technical switches can be assigned to multiple business functions. If a switch is assigned to multiple business functions, and one of these business functions is turned on, the activation of the cross-used switch will implicitly impact the behavior of the other business functions.

In addition, the same business process can be reused in more than one scenario. If a reused business process is enhanced by activating a corresponding business function, this will affect all scenarios which share this process.

The reuse of switches between business functions and the reuse of switched behavior between scenarios may lead to undesired side effects: The intention may be to switch the behavior of one scenario but with the dependencies described above other scenarios may be affected in an way that was not intended by the customer.

[SCE-2] Switches, business functions, business function sets and scenarios have to be harmonized across all components. Conflicts and side effects have to be avoided as far as possible. Dependencies that are intended and cannot be avoided must be documented and made transparent.

This is required to ensure the harmonized and consistent interoperability of scenarios, especially of those that span multiple components.

4.4.1 Open Question

More detailed rules and guidelines have to developed about how to ensure a common, uniform and aligned usage of the switch framework with respect to scenarios and unwanted side-effects.

5 Enterprise SOA – Service Provisioning and Consumption

The goal of enterprise SOA is to enable the implementation of innovative business processes spanning multiple Business Suite applications in an efficient and consistent way - via composition and/or integration of processes based on enterprise services and events. This will not only be done by customers and partners, but also SAP will implement new standard functionality through composition against the business process platform wherever feasible to leverage the benefits of enterprise SOA.

In the SAP Architecture Whitepaper "Near-Term Architecture" SAP's near-term strategy for enterprise SOA and composite applications is depicted. Even though there is still some way to go to completely fulfill the strategy, major steps have already been made in that direction.

From a high-level perspective the following types of applications providing and consuming enterprise services and events can be distinguished:

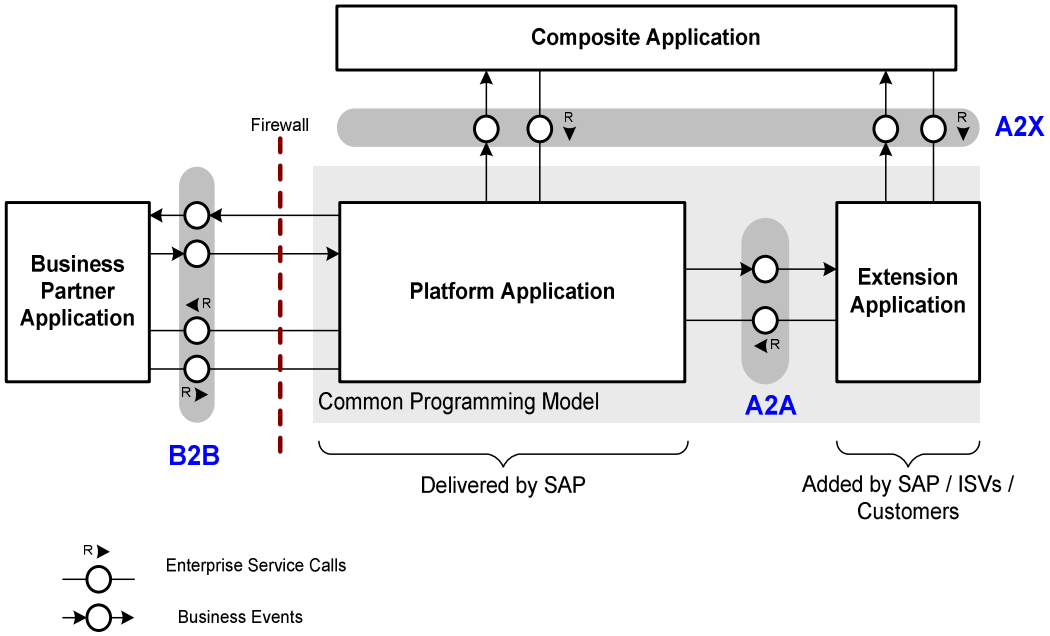

Figure 5-1 Composite Applications and Platform Extensions

Platform applications deliver a high number of standard, highly integrated, mission-critical processes applicable to many industry or customer segments. They are designed to satisfy a high demand for integration, integrity and legal compliance – and therefore offer controlled flexibility through configuration and extensibility. SAP offers two platforms for large and mid-size enterprises: SAP Business Suite following the "enterprise SOA by evolution" approach, and AP/SAP Business ByDesign based on the "enterprise SOA by design" approach.

Extension applications extend a platform to deliver integrated, mission-critical processes applicable to specific industry, customer or business segments. Examples are "Transportation Management", "Talent Management" or "Bank Accounting" for the Financial Services industries. Extension applications share the key characteristics of platform applications, including their programming model, but are built to satisfy more specific business needs. An extension application is typically closely integrated with one platform: SAP Business Suite or AP/ SAP Business By Design.

Composite applications are specifically built to satisfy more individual business needs ranging from simple extensions of platform and extension applications to new business processes (“next practices”). Composite applications are dedicated to a specific business need of the user, focusing on usability and flexibility.

Platform applications and extension applications expose services and events that allow building additional business processes, user interfaces or composite applications. In addition they may also consume other services. Composite applications, on the other hand only act as consumers and do not provide services themselves.

[SC-1] Composite Applications, Platform Extensions and Platform Applications communicate via Enterprise Services and Business Events.

In general, platform applications, extension applications and composite applications must be designed for independent lifecycles to address the different frequency of changes and to decouple release cycles between SAP, ISVs and customers. Hence the interaction among applications must be based on the principle of loose coupling through stateless services and events. Stateful or transactional service calls are not allowed across application borders.

Business Events are a new concept in addition to service based communication. Conceptually Business Events are different from service calls because the recipient may be unknown to the sender and publish-subscribe mechanisms may be used. The details of the Business Events concept still have to be developed. This is one task of the work stream “eSOA Service Provisioning & Consumption” of the Suite Excellence project. If you have requirements in that direction, please contact the working group.

Enterprise SOA by evolution addresses two scenarios:

- The **composition scenario** enables customers to easily build or use composites on top of SAP Business Suite. Duet, for example, uses enterprise services to access SAP Business suite applications and therefore falls in this category. Enterprise services supporting arbitrary composition scenarios are called A2X services. They are typically built for peer-to-peer communication between composite applications on one side and platform applications or extension applications on the other side. A2X services are not designed for a specific composite application but are general purpose services for new applications that are not planned or foreseen by the service provider. Very often A2X services are synchronous services and are optimized for UI-like consumption (e.g. by providing descriptions for IDs and codes in response messages).
- The **integration scenario** enables customers to integrate two or more application systems through enterprise services. Business-to-business (B2B) and application-to-application (A2A) integration across and within enterprise boundaries are the classical examples which in particular comprise the integration of the Business Suite and AP-based applications. Mastering heterogeneous landscapes is another example including 3rd party and legacy system integration. A2A and B2B services are very often asynchronous services and designed and optimized for a well-defined integration purpose. Such scenarios often require mediated communication via a SAP NetWeaver PI integration server for proper mapping and routing of messages. A2A integration scenarios have a pre-planned choreography between known partners. This is different to composition where completely new composite applications with arbitrary functionality can be invented.

In 2008 the target customer landscape will be based on SAP NetWeaver Composition Environment 7.1 (SAP NetWeaver CE 7.1) and SAP NetWeaver PI 7.1 which rely on the Enterprise Services Repository (ES Repository) 7.1. The latter will be shipped with both, CE 7.1 and PI 7.1, but can be shared at customer side:

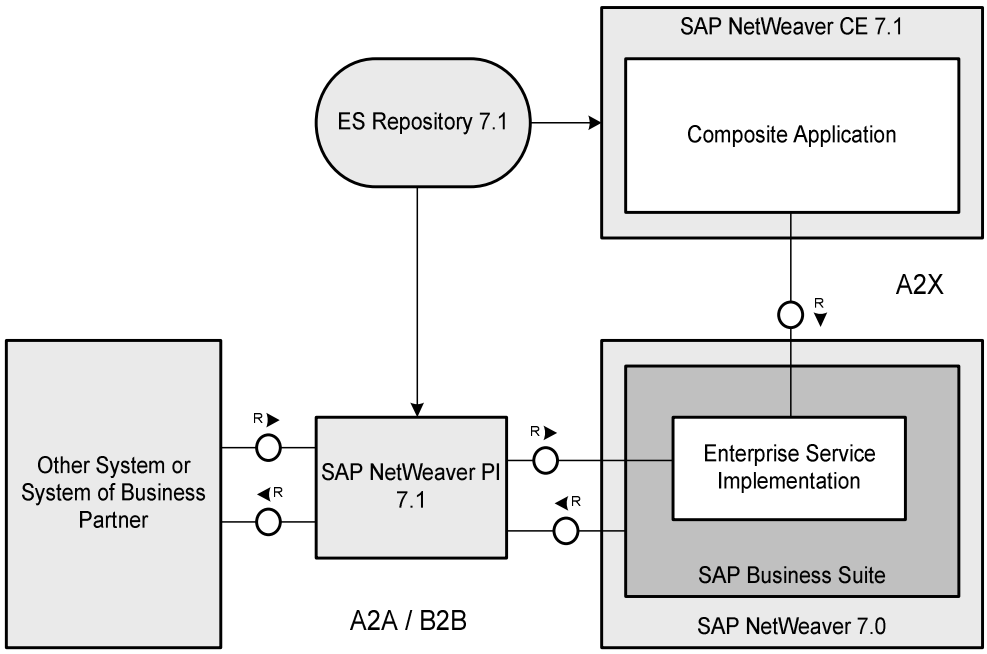

Figure 5-2 Enterprise SOA Target Architecture by End of 2007

Customers running SAP NetWeaver XI 7.0 need to upgrade to SAP NetWeaver PI 7.1 to arrive at this target architecture. To avoid such an upgrade as part of the activation of an enhancement package, using SAP NetWeaver PI 7.1 must not be mandatory. It shall be possible to use SAP NetWeaver CE 7.1 in conjunction with SAP NetWeaver XI 7.0 at the expense that two installations are needed for the functionality of the ES Repository:

- the existing Integration Repository as a part of SAP NetWeaver XI 7.0 which is still used for integration scenarios and offering 7.0 functionality only;
- the new ES Repository 7.1 which is used for composition scenarios only.

The general strategy is to support new enterprise SOA capabilities only with SAP NetWeaver 7.1 and selectively with SAP NW Application Server (AS) 7.0 (≥ SP 13) – but not with SAP NetWeaver XI 7.0.

5.1 Service Provisioning

As mentioned above, SAP Business Suite follows the “enterprise SOA by evolution” approach. A full service enabling over all software layers, covering every object, interface and method, is not in scope for the SAP Business Suite. The scenarios that should be fully service enabled must be identified according to portfolio cases and are coordinated by the central enterprise SOA program team (see https://portal.wdf.sap.corp/go/esoa for details).

According to an SAP-wide agreed definition an enterprise service is a callable entity that provides business functionality and is published by SAP in the Enterprise Service Repository. Enterprise services are structured according to a harmonized enterprise model based on global data types (GDTs), process components, and business objects. They are well documented, guarantee quality and stability, and are based on open standards.

SAP promotes enterprise services by means of enterprise services (ES) bundles. Each ES bundle comprises a set of enterprise services to support an end-to-end business scenario (for example Order to Cash) across SAP Business Suite.

[SP-1] To be compliant with Suite Excellence standards, a corresponding enterprise services bundle (ES Bundle) shall exist for every business scenario.

Note that these ES bundles are only considered from a business point of view. From a technical point of view, however, enterprise services are not delivered within ES bundles but as independent entities within different software components.

For all enterprise services developed in SAP Business Suite the following rules apply:

[SP-2] All services have to follow the PIC governance process for SAP Business Suite (see https://wiki.wdf.sap.corp/display/PTGSOA/Interface+Design). According to the service level concept (https://wiki.wdf.sap.corp/display/PTGSOA/Service+Level+Concept) there exist three "quality" levels (1, 2, 3) for services with increasing degree of harmonization requirements and governance effort.

[SP-3] Modelling of process components, business objects and service interfaces / operations in ARIS business designer is mandatory for all service levels.

[SP-4] All data types, message types and service interfaces / operations shall be defined in SAP's central enterprise services repository (ESR) based on SAP NetWeaver 7.1 (which is currently X8R) and shall be based on global data types (GDTs).

[SP-5] Enterprise services shipped as ESR 7.1 content must also be provided as XI 7.0-compatible content. Therefore certain features of ESR 7.1 cannot be used (e.g. multiple operations per interface). Therefore new software component versions have to be developed in X8R and the attribute "Use of interface object" has to be set to "SAP NetWeaver 7.0".

[SP-6] Every enterprise service shall be callable mediated via XI integration server as well as peer-to-peer via direct invocation of the SOAP / web service runtime of the providing backend system. Therefore web service definitions have to be created in the backend for the generated XI proxies (remark: This is currently only possible for synchronous services, but will be available for asynchronous services with NW04s SP14).

[SP-7] Enterprise services are stateless, self-contained atomic transactions. They must always end up in a – from a business-point-of-view – consistent state in the provider application.

[SP-8] For industry-specific enhancements of standard services the context driver concept has to be used. Details can be found here: https://wiki.wdf.sap.corp/display/IndSOA/Context+Driver

[SP-9] Further and more detailed rules can be found here: https://wiki.wdf.sap.corp/display/PTGSOA/Implementation+Guide

5.2 Service Consumption

5.2.1 Platform Extensions

The AP Adoption Project will pilot, how to build Platform Extensions to the SAP Business Suite based on AP programming model.

[SC-2] New Platform Extensions of the SAP Business Suite outside of the AP Adoption Project shall be built according to the High-Level Architecture Guideline for Heavy-Weight Composite Applications and Platform Extensions (work in progress).

The most important rules from that guideline are summarized here (unless covered by other chapters of this document)

- Integrate with the platform and other platform extension applications via Enterprise Services, preferably asynchronous via A2A Services.

- Implement business objects using Business Object Processing Framework (BOPF) avoiding forbidden ABAP statements according to BOPF implementation guideline.
- Externalize Business Rules using Formula and Derivation Tool or Business Rules Framework
- Use universal work list (UWL) and personal object work list (POWL) to bring the work to the end-user
- Define Portal Roles and Work Centers according to Best Fit Approach of People Productivity4ERP
- Provide application access via SAP NetWeaver Portal and SAP NetWeaver Business Client
- Use SAP NetWeaver 7.0 Usage Type AS ABAP
- Platform Extension Applications shall be deployable to hosting business suite application server component, e.g. ECC 6.0

5.2.2 Composite Applications

[SC-3] The recommended environment for building composite applications on top of SAP Business Suite 7.0 is SAP NetWeaver Composition Environment 7.1 (SAP NW CE 7.1).

[SC-4] When a composite application is developed in Java as a part of SAP Business Suite 7.0, the SAP NetWeaver Composition Environment 7.10 is mandatory as the design time and runtime platform.

[SC-5] Composite Applications built on CE shall be developed according to the Architecture Guideline for Model-Driven Composite Development in the Composition Environment developed by iCOD.

5.3 Open Issues

As Enterprise SOA is still an evolving topic, there are several architectural topics, for which a concept has to be worked out, which will be done within the work stream “eSOA Service Provisioning & Consumption” of the Suite Excellence project:

- Customer and Partner Extensibility of Enterprise Services
- Consumer Driven Service Adaptation & Orchestration. A specific consumer often requires a certain combination of services to achieve some goal (orchestration). In addition, the provided services are sometimes too coarse granular for a specific consumer, for example, when too much data is retrieved. In those cases adaptation is required. The goal is to develop dynamic mechanisms that allow doing the adaptation and orchestration on the provider side (which is more efficient) without creating consumer specific static definitions in the providing systems.
- Cross-system monitoring, Supportability and Customer-Problem-Resolution in an eSOA system landscape
- Asynchronous communication based on Web Services Reliable Messaging (WS-RM)
- Heavy Weight Composites and Platform Extensions implemented in ABAP
- Business Event Provisioning and Consumption
- Transaction model for business transactions that are implemented using atomic stateless Enterprise Services (two-phase commit problem, compensation services etc)
- Testing of Enterprise Services

6 Identity Management

6.1 Identity Hub

SAP NetWeaver Identity Management is the central hub for managing Identities for all kind of SAP systems as well as for non-SAP systems (see Figure 6-1). It uses a Central Identity Store to store basic information of all identities, mainly

- Userid of all systems (with information in which systems the user exists)
- Name
- Basic address information (email, telephone, workplace address)
- Assigned Roles and Authorizations

By defining and assigning Business Roles (that consist of roles from different systems and applications), the Identity is automatically provisioned and granted access to these systems and applications.

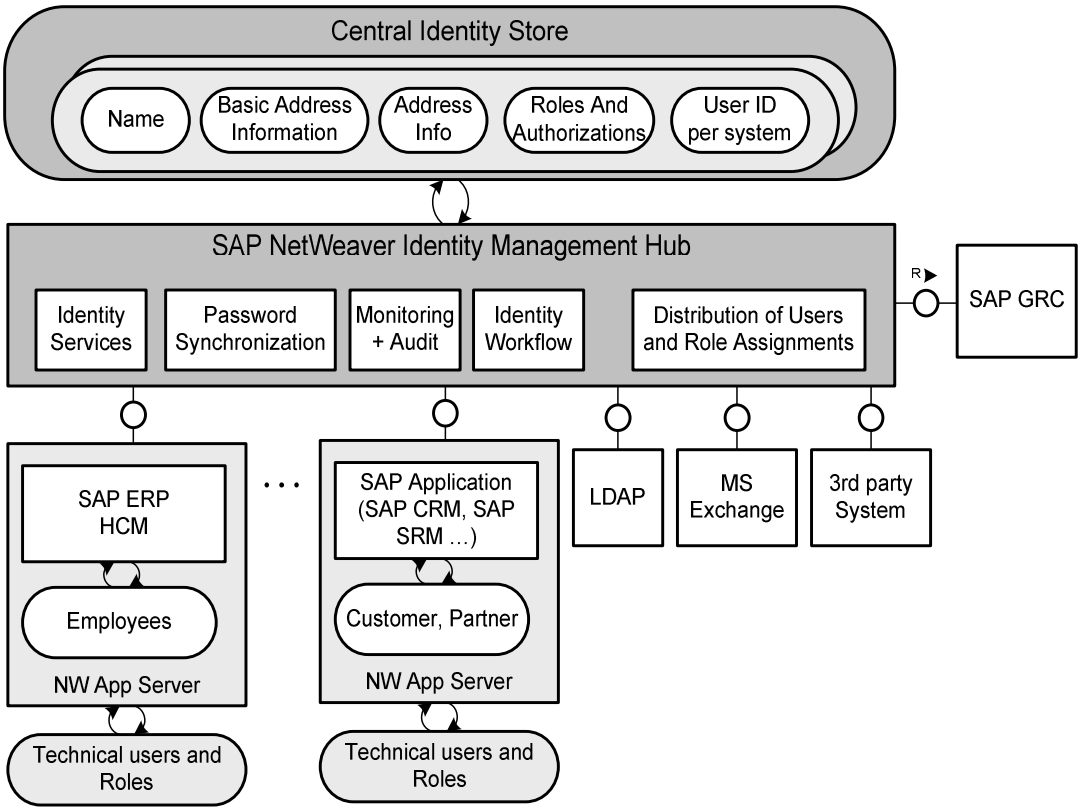

Figure 6-1 SAP NetWeaver Identity Management Hub

Example

An employee is hired in HCM. Based on this event, the identity is created in the central Identity Store. Email address and userid is derived from the employee's name. The business role is determined from the employee's job and position. Based on the business role, a user account is provisioned (i.e. created) in the various backends such as Portal, BI, HCM, FIN, MS Exchange Server, Corporate LDAP Server.

If your application creates identities (like employee creation in HCM, partner or customer creation in SRM, CRM), the following 3 rules apply. Otherwise, only [IM-3] is relevant:

[IM-1] Every application where identities are created or modified shall send an event to Identity Management including the necessary data.

[IM-2] Additionally, a query service shall be provided that allows retrieving either all identities or the identities that were changed since a certain point in time.

This query will be used by Identity Management for two purposes: First, during the initial load process for reading all existing identities at installation time. Second, if the event of [IM-1] is not available to periodically check for changes.

[IM-3] Every application shall accept provisioning requests to create identities and provide necessary inbound services for identity creation, modification and de-provisioning (if necessary).

These requests are preferable based on SPML (Service Provisioning Markup Language); other remote protocols are also possible.

All 3 rules (IM-1, IM-2, IM-3) apply to application specific identity information only, for example if application objects such as business partner or HCM person are used, or if the application doesn't rely on neither SAP NetWeaver AS ABAP nor SAP NetWeaver AS Java.

Services for standard ABAP (SU01) and Java (UME) users are provided by NetWeaver, this also includes role assignments and password management.

Details of the service description and available frameworks are currently being discussed. Results, guidelines, references etc. will be published here.

6.2 Testing with end-user roles

Testing new developed applications / transactions with a user that is assigned to the respective end-user roles and its limited authorization is essential to ensure sufficient quality of our roles.

[IM-4] Test processes during MIT in Suite and NW need to ensure that at least one such test per new developed application / transaction and role is executed, and roles / authorizations are adopted accordingly.

7 UX Harmonization

7.1 Basic Principles and Goals

The goal of the work stream UX Harmonization in the Suite Excellence project is to define concepts and a roadmap for a "light" harmonization focusing on the UI experience of the end user and to deliver a common set of UIs for harmonized scenarios across the Business Suite.

A basic goal is to ensure a unified look of all Business Suite 7.0 applications. The solutions that are part of SAP Business Suite 7.0 must "feel like one suite" and it must be easy to recognize that they all come from SAP. We want to have a recognizable SAP UI Brand on the desktop and we need consistency with the new global marketing campaign. The target time line for achieving this goal is the Business Suite 7.0 delivery.

However, there is an important constraint for the efforts to unify the look of the Business Suite applications: Existing customers shall not be forced to conduct new end user trainings for existing functionality. Only non-disruptive changes shall be made to existing user interfaces.

[UX-1] Don't change existing UI's in a disruptive manner. Provide additional UI's for selected business processes.

7.2 The five levels of UI Harmonization

7.2.1 Brand unification

Goal: Aligning visual design of product UI peripherals (desktop icon, about box, splash screen, logon screen, HTML Page Header and Wizard design).

In Business Suite 7.0 every product is supposed to use as many of those peripherals as it makes sense. For example, not all solutions have their own login or desktop icon, so those solutions don't need to implement one. But if you use a UI peripheral in your solution today it has to be upgraded to the new visual design.

[UX-2] All existing UI peripherals have to be changed to UI peripherals fitting to the "peripherals style guide" (provided by PDC team)

7.2.2 Common UI Look

Goal: Harmonizing visual design of clients and applications (shell and canvas).

All major clients (SAPGUI, NetWeaver Business Client, EP Client) will support the NOVA design for the shell area. All major rendering technologies (Unified Rendering, Smart Client Rendering, DYNPRO Rendering) will support the tradeshow design (canvas area). CRM will also support the NOVA shell design and the tradeshow canvas design through a special theme.

[UX-3] It is forbidden to use red listed UI technology.

[UX-4] Standard UI Technology is WebDynpro ABAP. CRM is based on the CRM BSP Framework.

With this central approach we want to achieve a harmonized look for the majority of our solutions.

[UX-5] For all solutions we don't cover with this approach a case by case decisions is required: Can the design of the solution be changed to a NOVA/tradeshow like design with reasonable effort?

The Netweaver Business Client and the Enterprise Portal are alternative and equivalent clients to host our applications. Our Customers need to be able to freely choose their client according to their needs Following UI standards and usage of the standard UI technologies enables the application to run in both clients.

[UX-6] Client specific implementation is neither necessary nor allowed! All applications must run on both clients.

[UX-7] No extra navigation framework shall be implemented.

7.2.3 Common Navigation

Goal: Align navigation to applications and align navigation between applications

We have to distinguish between the launching of applications from a role, launching of applications from a work list and the launching of applications from other applications.

Application as a role entry

[UX-8] Each new application must be shipped as an entity in a role or work center according to described rules in General Guidelines for Roles Development. How to build work centers is described in Work Center & Control Center (Guideline). The creation of worksets for the workcenter pool role is depicted in How to build work sets for the work center pool role.

Usage of work lists

[UX-9] Use POWER Lists to display lists of business objects (if suitable). POWER Lists can provide easy operations for business objects directly (without the necessity to launch an application) or can launch an application parameterized for “complex” operation on business objects.

Launching from other applications

[UX-10] If the navigation from one application to another application is required, the usage of OBN (object based navigation) is mandatory. Any kind of “hard-coded” navigation is forbidden. Usage of OBN in Webdypro ABAP is described here.

7.2.4 Common Interaction

Goal: Align interaction behavior within selected applications

[UX-11] The UI Standard & Guidelines are binding for the UI design of new applications.

[UX-12] For a new application a suitable floor plan has to be chosen.

[UX-13] Using the Web Dynpro ABAP based Floor Plan Manager is mandatory for the development of new applications. Applications that have been built before Floor Plan Manager was created and which have an own UI framework in place can be handled as exceptions. For each exception a roadmap towards a harmonized UI strategy has to be provided.

7.2.5 Consistency Side by Side (long-term)

Goal: Ensure a harmonized Interoperability to run Side by Side scenarios.

Business Suite applications and AP based applications must be “close enough” in look (and feel). The details for this goal have to be defined and concrete rules have to be derived. This is work in progress. The results will be presented in a future version of this document.

8 Deployment/Lifecycle Management

8.1 Reference System Landscape for Business Suite 7.0

One goal for the Business Suite 7.0 is to make ERP, CRM, SCM and SRM work together closer and easier. An important prerequisite for achieving this is goal to get a clear picture of the 'Bill of Material' of all Software Components of the suite constituents. The next step is to make the dependencies between the software components and their versions transparent. Software Component dependencies are mainly defined in the PPMS (Product and Production Management System) but data quality has to be reviewed. Last but not least all these pieces of software will run on different technology stacks (ABAP, JAVA, C++) to be installed on separate hardware boxes with different deployment tools.

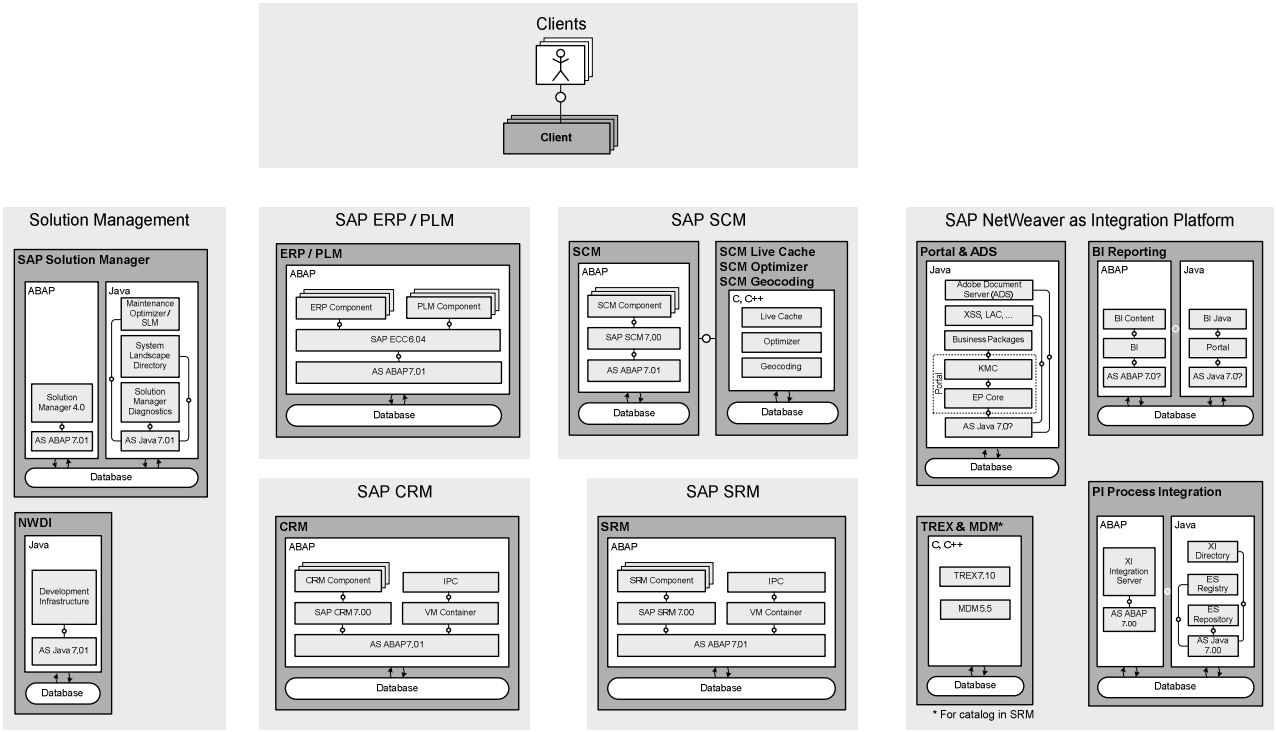

Figure 8-1 Reference System Landscape for Business Suite 7.0

A most optimized Reference System Landscape consists of at least 7 ABAP Stacks and 6 JAVA/C++ Stacks plus the Business Suite applications. All suite constituents can use the same major hubs like SAP NetWeaver Portal (EP), SAP NetWeaver Portal Business Intelligence (BI) and SAP NetWeaver Portal Process Integration (PI) for hosting their content. The current Reference Landscape for the Business Suite 7.0 looks as shown in Figure 8-1.

This is a pure NetWeaver 7.0 (equal to NW 2004s) infrastructure where extensions might occur because of scalability and security reasons.

Architecture rules in the area of lifecycle management have the aim to ensure that the size of the system landscape does not increased beyond the minimal reference landscape. The complexity of the landscape must be controlled by restricting dependencies between the systems and technology stacks. The following architecture rules have to be obeyed by Business Suite 7.0 development to achieve this goal:

[LM-1] Avoid the necessity of new stacks – new stacks increase complexity and TCO.

[LM-2] New processes based on Business Suite 7.0 have to fit into the existing reference landscape.

This 'freeze' of system complexity is only a first step to stop the TCO increase. In addition it has to be avoided that software components have interdependencies of certain support packages of other components. Otherwise maintenance of the system landscape becomes extremely difficult.

[LM-3] Software component versions shall not rely on a particular support package level of a used software component.

This helps customers to align the maintenance process for the same technology stack based on a common support package level.

The next rule is focusing on the question of reuse of available functionality. In general reuse is positive. However, it becomes difficult if components in a different vertical stack are reused crossing system boundaries. Such a dependency forces the customer to install and operate the second stack to make the reused functionality available. This has a negative impact on TCO, especially if a second stack has to be operated only for the purpose of reusing a specific piece of functionality.

[LM-3] Avoid the reuse of components which do not belong to your vertical stack

8.2 Upgrade Dependency Matrix

The Upgrade Dependency Matrix describes possible upgrade paths from existing and running product and release combinations to the Business Suite 7.0. The aim is to make visible non-interoperability or missing upward compatibilities. A first proposal of the Upgrade Dependency Matrix is given in Figure 8-2.

UDM			ERP																																CRM									
	Technical Usage	target release	R/3 or ECC								SEM					FSCM Server (FINBASIS)			FSCM Biller Direct					LSO				Erecruiting			Self Services		CRM Server						CRM Mobile				
	release of existing Technical Usage		3.1I	4.0B	4.5B	4.6B	4.6C	4.71/1.10	4.72.00	5.0/5.00	6.0/6.00	3.1	3.2	3.5	4.0	6.0	2.0	3.0	6.0	1.0	1.5	2.0	3.0	6.0	2.00	3.00	6.00	7.00	3.0	6.0	7.0	XSS 100	XSS 600	3.0	3.1	4.0	5.0	5.1[1]	5.2[2]	3.0	4.0	5.0	5.2[2]
ERP	ECC	5.0/5.00	s	s	s	s	s	s	s	s	s	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	s	s	a	a	a	a	a	a	a	a	a	a
		6.0/6.00	s	s	s	s	s	s	s	s	s	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	s	s	a	a	a	a	a	a	a	a	a	a
	SEM	4.0	h	h	h	h	h	h	h	h	h	h	h	h	h	h	hk	hk	hk	hu	hu	hu	hu	hu	he	he	he	he	hr	hr	hr	hf	hf	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha
		6.0	h	h	h	h	h	h	h	h	h	h	h	h	h	h	hk	hk	hk	hu	hu	hu	hu	hu	he	he	he	he	hr	hr	hr	hf	hf	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha
	FSCM Server (FINBASIS)	6.0	k	k	k	k	k	k	k	k	k	hk	hk	hk	hk	hk	k	k	k	uk	uk	uk	uk	uk	sek	sek	sek	sek	rk	rk	rk	kf	kf	k	k	k	k	k	ka	k	ka	ka	ka
	FSCM Biller Direct	6.0	u	u	u	u	u	u	u	u	u	hu	hu	hu	hu	hu	uk	uk	uk	u	u	u	u	u	seu	seu	seu	seu	ru	ru	ru	fu	fu	u	u	u	u	u	u	u	u	u	u
	LSO	6.00	e	e	e	e	e	e	e	e	e	sh	sh	she	sh	sh	se	se	se	seu	seu	seu	seu	seu	e	e	e	e	er	er	er	e	e	sa	so	mo	di	mi	do	fr	sa	so	mo
	Erecruiting	6.0	r	r	r	r	r	r	r	r	r	shr	shr	shr	shr	shr	srk	srk	srk	sru	sru	sru	sru	sru	er	er	er	er	r	r	r	f	f	sra	sra	sra	sra	sra	sra	sra	sra	sra	sra
	Self Services	XSS 100	s	s	s	s	s	s	s	s	s	hf	hf	hf	hf	hf	kf	kf	kf	fu	fu	fu	fu	fu	e	e	e	e	rf	rf	rf	sf	f	f	f	f	f	f	f	f	f	f	f
		XSS 600	s	s	s	s	s	s	s	s	s	hf	hf	hf	hf	hf	kf	kf	kf	fu	fu	fu	fu	fu	e	e	e	e	rf	rf	rf	f	sf	f	f	f	f	f	f	f	f	f	f
CRM	CRM Server	5.0	a	a	a	a	a	a	a	?	a	h	h	h	h	h	k	k	k	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	a	a	a	a
		5.2[2]	a	a	a	a	a	a	a	?	a	h	h	h	h	h	k	k	k	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	a	a	a	a
		7.0[3]	a	a	a	a	a	a	a	?	a	h	h	h	h	h	k	ka	ka	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	a	a	a	a
	CRM Mobile	5.0	a	a	a	a	a	a	a	a	a	ha	ha	ha	ha	ha	ha	ha	ha	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	a	a	a	a
		5.2[2]	a	a	a	a	a	a	a	a	a	ha	ha	ha	ha	ha	ha	ha	ha	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	a	a	a	a
		7.0[3]	a	a	a	a	a	a	a	a	a	ha	ha	ha	ha	ha	ha	ha	ha	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	a	a	a	a
	E-Commerce	5.0	a	a	a	a	a	a	a	a	a	ha	ha	ha	ha	ha	ha	ha	ha	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	a	a	a	a
	IPC	4.0	a	a	a	a	a	a	a	a	a	ha	ha	ha	ha	ha	ha	ha	ha	u	u	u	u	u	sea	sea	sea	sea	ra	ra	ra	f	f	a	a	a	a	a	a	?	?	?	?
SRM	SRM Server	6.0	z	z	z	z	z	z	z	z	z	hz	hz	hz	hz	hz	k	k	k	u	u	u	u	u	se	se	se	se	rz	rz	rz	f	f	za	za	za	za	za	za	za	za	za	za
		7.0[3]	z	z	z	z	z	z	z	z	z	hz	hz	hz	hz	hz	k	k	k	u	u	u	u	u	se	se	se	se	rz	rz	rz	f	f	za	za	za	za	za	za	za	za	za	za
	Catalog	Integrated Catalog	z	z	z	z	z	z	z	z	z	hz	hz	hz	hz	hz	zk	zk	zk	zu	zu	zu	zu	zu	sez	sez	sez	sez	rz	rz	rz	zf	zf	za	za	za	za	za	za	za	za	za	za
		Catalog Content Mi	z	z	z	z	z	z	z	z	z	hz	hz	hz	hz	hz	zk	zk	zk	zu	zu	zu	zu	zu	sez	sez	sez	sez	rz	rz	rz	zf	zf	za	za	za	za	za	za	za	za	za	za
		SRM-MDM-Catalo	z	z	z	z	z	z	z	z	z	hz	hz	hz	hz	hz	zk	zk	zk	zu	zu	zu	zu	zu	sez	sez	sez	sez	rz	rz	rz	zf	zf	za	za	za	za	za	za	za	za	za	za
SCM	APO incl. EWM, SNC	5.0	t	t	t	t	t	t	t	t	t	th	th	th	th	th	tk	tk	tk	tu	tu	tu	tu	tu	tse	tse	tse	tse	tr	tr	tr	tf	tf	t	t	t	t	t	t	ta	ta	ta	ta
PLM	cProject Suite	3.10_6.40	t	t	t	t	t	t	t	t	t	th	th	th	th	th	tk	tk	tk	tu	tu	tu	tu	tu	tse	tse	tse	tse	tr	tr	tr	tf	tf	t	t	t	t	t	t	ta	ta	ta	ta
		4.00	t	t	t	t	t	t	t	t	t	th	th	th	th	th	tk	tk	tk	tu	tu	tu	tu	tu	tse	tse	tse	tse	tr	tr	tr	t	t	t	t	t	t	t	t	ta	ta	ta	ta
NetWeaver	BW/BI	3.5	y	y	y	y	y	y	y	pc	cy	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	f	f	a	a	ac	ac	a	a	a	a	a	a
		7.0	y	y	y	y	y	y	y	cy	pcy	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	f	f	a	a	ac	ac	a	a	a	a	a	a
		7.1[4]	y	y	y	y	y	y	y	y	y	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	f	f	a	a	ac	ac	a	a	a	a	a	a
	BI Java	7.0	y	y	y	y	y	y	y	cy	cy	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	f	f	a	a	a	a	a	a	a	a	a	a
	EP	6.0_6.40	y	y	y	y	y	y	y	c	c	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	s	s	?	?	c	c	?	?	a	a	a	a
		7.0	y	y	y	y	y	y	y	y	y	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	s	s	?	?	c	ac	?	?	a	a	a	a
		7.1[4]	y	y	y	y	y	y	y	y	y	h	h	h	h	h	k	k	k	u	u	u	u	u	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	a	a	a	a
	XI/PI	7.0	?	?	?	?	?	?	?	c	c	gh	gh	gh	gh	gh	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	s	s	a	a	c	c	a	a	a	a	a	a
		7.1[4]	?	?	?	?	?	?	?	?	?	h	h	h	h	h	k	k	k	u	u	u	u	u	e	?	?	?	r	r	r	s	s	a	a	a	a	a	a	a	a	a	a
	ITS	6.20	y	y	y	y	y	y	y	y	y	h	h	h	h	h	k	k	k	u	u	u	u	u	se	se	se	se	r	r	r	f	f	?	?	?	?	?	?	a	?	?	?
	TREX	7.0	?	?	?	?	?	?	?	?	?	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	s	s	?	?	?	pa	a	a	?	?	?	?
		7.1[4]	?	?	?	?	?	?	?	?	?	h	h	h	h	h	k	k	k	u	u	u	u	u	e	e	e	e	r	r	r	s	s	?	?	?	pa	a	a	?	?	?	?

Figure 8-2 Upgrade Dependency Matrix (1st proposal)

Note that 'green' does not always mean that all processes will work 100% - the meaning is rather that there are no known processes or scenarios of which we know that they do not work. A detailed legend will be provided together with the official release of the Upgrade Dependency Matrix.

This Matrix shows very clearly that in the past upward and downward compatibility was not always one of the major goals. For the Business Suite 7.0 – and especially for the development of enhancement packages – compatibility of processes, scenarios as well as application content running on hubs is mandatory. When a Upgrade Dependency Matrix is built in the future on the level of enhancement packages with the stable core of Business Suite 7.0 as its starting point, 'red' entries will not be accepted.

Out of these consolidated findings the following architectural rule can be derived:

[LM-4] Upward and Downward compatibility for processes, scenarios and content is mandatory.

For compatibility of scenarios see also 4.1. For compatibility of enhancement packages see also 2.2 (rule [EHP-6]).

8.3 Open Questions/Work in Progress

- In between the Minimal System Landscape Business Suite 7.0 Stable Core and the 'Full Blown' Landscape where all Processes and Scenarios of the Business Suite are able to run, there has to be a few Landscape Layers in between with a reasonable balance between complexity and increase of processes.

9 Co-Existence With "eSOA By Design"

It is expected that the "eSOA by evolution"-based Business Suite and the new "eSOA by design"-based solutions will co-exist in SAP's market space from 2008 on. This will happen in two ways:

- SAP intends to provide "out-of-the-box" support for communication between companies running SAP Business Suite and companies running SAP Business By Design.
- From 2009 on, the SAP Business Suite will be extended by "eSOA by design" based innovations that run in side-by-side mode.

Coexistence of "eSOA by evolution" and "eSOA by design" in different companies is an example of B2B communication. Therefore the following rule applies:

[CO-1] Communication between SAP Business Suite and SAP Business ByDesign systems of other companies shall be based on level-3 Enterprise Services (like every B2B communication).

9.1 Side-by-Side (Outlook and Open Questions)

There will be two scenarios for side-by-side process extensions to the SAP Business Suite based on "eSOA by design": A loosely coupled side-by-side scenario and a tightly integrated side-by-side scenario. The tightly integrated scenario has higher requirements for the availability of the extension, communication happens more frequently and a higher amount of data is exchanged. It is expected that for an on-demand solution the loosely coupled side-by-side scenario will be used, while the tightly integrated scenario will be found in the on-premise case, when the core applications and the side-by-side extensions run at the same customer.

Currently there are many open questions (see below) regarding the details of side-by-side process extensions. As the side-by-side topic and the open questions are relevant for just a few projects during the Business Suite 7.0 timeline, these will be tackled locally in those projects. Common architectural guidance for side-by-side will be discussed from Q1/2008 onwards – driven by the ERP Architecture and AP Engineering teams.

Some of the most important open questions are summarized in the following table:

Area	Issue	Target
User Interface	Different UI technology options exist in AP/SAP Business ByDesign and SAP Business Suite	Avoid double implementations and achieve that Business Suite plus side-by-side extension feel like one application
Business Configuration	Potential inconsistencies between configuration in AP/SAP Business ByDesign and SAP Business Suite	Synchronize AP/ SAP Business ByDesign business configuration with Solution Manager and IMG to avoid inconsistencies and reduce customers' TCO
Search	Different search technologies exist in AP/SAP Business ByDesign and SAP Business Suite.	Clarify technology usage to allow for consistent cross-system search
Master Data Integration and Management	Risk of need for double maintenance. Risk of inconsistencies.	Automate master data harmonization between Business Suite and side-by-side extensions
Multi-Client	Multi-client concept in Business Suite vs. mega tenancy in AP	Support multi-client deployment in side-by-side mode

Table 1: Side-By-Side – Important open questions

10 Master Data and BI Content

This chapter addresses two topics: master data management and BI content. The final architecture guidelines are not complete for these relatively new topics. The work stream "Master Data Management and Reporting" of the Suite Excellence Project is currently working on describing target architectures and guidelines.

Therefore, the purpose of this chapter is twofold:

a) Share with the reader the intermediate results, which we have for the architecture guidelines for using MDM and in providing harmonized BI content.

b) Make the reader aware of the ongoing activities and encourage her/him to get in contact the work stream lead Stefan Kusterer, so that alignment is possible at an early stage in the process.

10.1 Master Data Management

Master data, sometimes also referred to reference data, is data which usually does not change frequently. Typical master data are business objects that represent customers, employees, vendors, products, trade items organizational units etc.

Most business processes, e.g. selling goods to customers etc. heavily rely on having read-access to master data (e.g. the delivery address of a customer), but only rarely would change it. In contrast to master data, transactional data is commonly created during the execution of a business process (e.g. invoices, shipment notes etc.).

Master data management deals with the creation and processing of master data. Common tasks, which arise in the context of master data management, are:

- Data cleansing: Normalization and standardization of information
- De-duplication: Match and merge objects for obtaining unambiguous and consistent data
- Data enrichment: By adding data to master data objects, they become more complete and meaningful
- Mapping: Often attribute names, values or even the complete structure of master data needs to be mapped from a source definition into a target definition e.g. for transferring master data from one system to another.
- Data validation: Perform checks, which verify the correctness, consistency and accuracy of data.

The list above is not complete in that sense, that it describes the full spectrum of master data management tasks. However, it should illustrate what master data management is about.

10.1.1 Pure Synchronization

An important sub-class of master data management use-cases is master data synchronization. In master data synchronization, the main task is to transfer master data from one system to another. Issues like mapping, de-duplication, and validation are either not relevant or solved by specific components (for example Customer Vendor Integration (CVI), partly also known as Mini-Platform). Therefore, using SAP NetWeaver MDM is not really necessary for these use cases. All that's required is infrastructure for replicating data and sometimes also key-mapping functionality.

Currently a design is evaluated, which uses SAP NetWeaver PI (formerly known a SAP NetWeaver XI) in combination with NetWeaver UKMS (Unified Key Mapping Service) in one typical example for such scenarios. Based on the experience made in this project, an architectural recommendation for master data synchronization scenarios will be given.

10.1.2 Other Master Data Management Scenarios

For all other use-cases, we strive for an architecture, which incorporates NetWeaver MDM. NetWeaver MDM is an infrastructure which offers functionality for data cleansing, central master management, matching of data, validation rules, mapping etc.

The architectural guideline for scenarios, which fall into the category where NetWeaver MDM becomes an essential component, is not yet finalized. As a result of front-runner projects and discussions between several architects, we hope to be able to propose the architecture for well integrated solutions, which combine NetWeaver MDM with Business Suite components,

10.2 BI Content

As a result from the architecture that was evaluated in ERP financials, guidelines will be derived for the whole business suite concerning the construction of BI content (not only of master data objects). This is work in progress.

11 Glossary

Business Event	Upcoming concept in addition to service based communication. The sender of a business events need not know the recipients and publish-subscribe mechanisms may be used. Details are still being developed.
Business Process	A business process is a set of activities transforming a defined business input into a defined business outcome.
Business Process Platform (BPP)	The combination of SAP's Application Platform with SAP's technology platform, which supports the creation, enhancement, and seamless execution of business processes and business scenarios.
Business Scenario	A sequence of business processes designed to achieve key business objectives. A business scenario is either specific to one industry (industry-specific scenario) or applicable to multiple industries (cross-industry scenario).
Composite applications	Built based on services and events offered by platform applications and extension applications to satisfy specific business need of the user, focusing on usability and flexibility. Composite applications range from simple extensions of existing applications to new business processes. They are service consumers that don't provide services to others.
Deployment Scenario	A Deployment Scenario is the representation of a business scenario in a concrete system landscape. It consists of a list of technical components and of a configuration bill of material. It describes the physical shipment of a scenario and considers the various release levels.
Enhancement Package	Mechanism to ship innovations in a non-disruptive way based on a stable core release. Enhancement package follow a set of rules to ensure that they can be installed smoothly and fast without affecting the customers business processes. New functionality in enhancement packages must be explicitly switched on by the customer in order to become effective.
Enterprise Service	A Web service that has been co-defined by SAP and/or partners. Enterprise Services provide business processes or business process steps that can be used to compose business scenarios while ensuring business integrity and ease of reuse.
Extension Application	Extends the business platform (SAP Business Suite or AP/ SAP Business By Design) by adding integrated, mission-critical processes applicable to

	specific industry, customer or business segments. They are closely integrated with platform applications but are built to satisfy more specific business needs.
Floor Plan	A floor plan defines the composition of user interface building blocks on the screen. Depending on the floor plan, only certain user interface building blocks and sequences are allowed.
Stable Core Release	The stable core release of SAP ERP is ERP 6.0. For all other products of the business suite it is the 2008 release of the SAP Business Suite. After the stable core release innovations are shipped via enhancement packages. Support packages of the stable core contain only bug fixes but no new functionality.
Platform Application	Application which is part of either the SAP Business Suite (enterprise SOA by evolution) or AP/ SAP Business ByDesign (enterprise SOA by design). Platform applications deliver standard, highly integrated, mission-critical processes applicable to many industry or customer segments. They offer controlled flexibility via configuration and extension mechanisms.