SAP Solution Manager 7.1
Scope and Effort Analyzer: Only adjust and test what matters

Solution Management, Active Global Support, SAP AG
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Agenda: Scope and Effort Analyzer for SAP EHPs and SPs

Introduction and Motivation

Prerequisite

Analysis Creation

Result Analysis

Key Take Away
Introduction and Motivation
Main challenges managing enhancement package projects

Customers’ perceived challenges

<table>
<thead>
<tr>
<th>Source release: Any</th>
<th>Target release: Any</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning phase</td>
<td></td>
</tr>
<tr>
<td>Cost/effort estimation</td>
<td>25%</td>
</tr>
<tr>
<td>Justify budget for project/value proposition</td>
<td>25%</td>
</tr>
<tr>
<td>Building phase</td>
<td></td>
</tr>
<tr>
<td>Project management</td>
<td></td>
</tr>
<tr>
<td>IT infrastructure/sizing</td>
<td>50%</td>
</tr>
<tr>
<td>Minimize downtime</td>
<td></td>
</tr>
<tr>
<td>Modification adjustment</td>
<td>75%</td>
</tr>
<tr>
<td>Efficient testing</td>
<td></td>
</tr>
<tr>
<td>End-user training</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>75%</td>
</tr>
</tbody>
</table>

Based on customer feedback:
Information on project costs & efforts is essential to better plan and run maintenance events.

Main issues to address challenges

- **No Transparency**
  - Missing transparency what custom code and modifications are really used

- **Sandbox upgrade required**
  - High costs for evaluation because upgrade of sandbox system is required before project start

- **Set-up efforts for existing analysis tools**
  - Significant implementation efforts for Business Process Change Analysis used for Test Scope Optimization

Source: SAP EHP Experience Database, 08/2012, Link: http://service.sap.com/ehp-db
Customer requirements for improved planning of EHP projects

1. Transparency about change impact of EHP deployments before physical installation
2. Reliable effort estimation for major development adjustments and test activities
3. Tailored impact analysis for custom code and modifications
4. Test scope optimization with significant reduced test scope and test effort
5. Test plan for impacted business processes including custom code and modifications
6. Simple guided tool based procedure without significant preparation effort
# New SAP Solution Manager Innovations to resolve the Issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
<th>Benefits</th>
</tr>
</thead>
</table>
| No Transparency | **New: Usage and Procedure Logging (UPL)** | - SAP Kernel based logging technology with no manual effort  
- Transparency about usage information of ABAP procedure units  
- Clear statements about system usage |
| Sandbox upgrade required | **New: ABAP object lists** now obtainable with Maintenance Optimizer procedure | - Transparency about SAP objects implemented with EHP and Support Package before physical installation |
| Set-up efforts for existing analysis tools | **New: Semi-dynamic TBOM generation** based on UPL  
**New: automated generation** of Blueprint (SAP Module oriented) | - Simplified set-up of BPCA  
- Test scope optimization with significant reduced test scope and test effort |
**SAP Solution Manager - EHP Scope and Effort Analyzer**

**Approach**

1. **SAP Solution Manager**
   - User enters system for planned EHP deployment
   - User enters target SP / EHP
   - Information send to SAP

2. **SAP OSS**
   - Calculation of SAP objects (BOM) for target Enhancement Package
   - SAP sends BOM back to SAP Solution Manager

3. **SAP Solution Manager**
   - Usage statistics
   - Taylored impact analysis for custom code / modifications
   - Effort calculation
   - Business Blueprint generation
   - Test Scope and Effort Optimization
   - Recommendations

4. **Customer Project Team**
   - Result review through **Fact Sheet**
   - Assessment of analysis details
   - Parameter variation for result optimization
Project Planning and Project Execution for planned SP / EHP Deployments

**Scope and Effort Analyzer (SEA)**
- Inventory of updated SAP objects by Application Component Hierarchy and Object Type
- Information about impacted custom developments and modifications
- Information about estimated code adjustment effort
- Information about impacted business processes
- Information about test scope optimization, expected test effort, distribution between manual / automated tests and missing test cases

**Optional activities**
- Creation of missing test cases
- Reduction of custom developments and modifications
- Identification of required developers for code adjustments
- …

**Custom Development Management Cockpit (CDMC)**
- Conflict resolution for custom developments

**ABAP Test Cockpit (ATC)**
- Analysis of ABAP code issues

**Business Process Change Analyzer (BPCA)**
- Test scope optimization and test plan generation

**Test Management**
- Test case creation and BB assignment
- Test plan management, tester assignment
- Test status reporting and sign-off

Note: more applications can be used for further analysis
Prerequisites
Scope and Effort Analyzer: System roles in analysis landscape

Managed Systems

Role: System to read custom developments and modifications

DEV
- Role: System to read custom developments and modifications
- ST-PI
- Read RFC

QAS
- Role: System used for test scope optimization activities (incl. calculation of TBOMs)
- ST-PI
- Read and trusted RFC

PRD
- Role: System to read usage statistics (workload statistics and UPL)
- ST-PI
- Read RFC

ST 710 SP11

Role: System to read usage statistics (workload statistics and UPL)

Support Backend

Role: System to calculate target software stack and return ABAP object piece list

Mopz interface

Firewall

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Business Blueprint
Solution documentation of System Landscape and Business Processes

System landscape documentation

Business process documentation

Single source of truth

Non-SAP business apps

Infrastructure

SAP CRM
DEV
TST
PRD

SAP ERP
DEV
TST
PRD

Non-SAP business apps

Order to Cash (O2C)
- Quotation
- Sales Order
- Outbound Delivery
- Goods issue
- Billing
E2E Business Blueprint versus SAP Module oriented Process Steps

Business Blueprint with E2E business processes

Sales
- Order to Cash
- Quotation
- Sales Order
- Delivery
- Goods Issue
- Billing

Procurement
- Procure to Pay

E2E business process

Business Blueprint with process steps by SAP Modules

LE Logistic Execution
- LE-SHP Shipping
  - Delivery (VL01N)
  - Goods Issue (VL02N)

SD Sales & Distribution
- SD-BIL Billing
- Billing (VF01)
- SD-SLS Sales
- Quotation (VA21)
- Sales Order (VA01)

Process steps grouped by SAP Modules

Alternatives to create E2E Business Blueprint

1. File upload using existing process documentation
2. Solution Documentation Assistant (tool) and Reverse Business Process Documentation (service)
3. Data transfer from ARIS or HP QC (tool by ALM COE EMEA)
4. Manual documentation supported by BPR (SAP content)

Automated generation of SAP Module oriented Blueprint

1. Application: Scope and Effort Analyzer
   - Availability: SAP Solution Manager 7.1 SP11 (Q1 2014)
   - Blueprint items generated in background based on usage statistics of executables in PRD systems
   - Grouping by SAP Application Component Hierarchy (ACH)
BPCA and Scope and Effort Analyzer
Semi-dynamic TBOM generation

1. Execute business transaction

2. UPL: trace usage of SAP objects

3. UPL: store used SAP objects

Automated BPCA TBOM generation

Info: Technical Bill of Material (TBOM) = list of all SAP objects used by an executable (transaction, report, …)

1. Selects all executables of the Business Blueprint
2. Background job analyzes programs and involved SAP objects for each executable. UPL data is used to remove unused branches of the codeline for TBOM creation
3. TBOM is automatically generated via background job
Analysis Creation
Scope and Effort Analyzer is available in Work Centers of SAP Solution Manager 7.1 SP11.
Create Analysis – Step 1: Select System

Purpose

In this step you define the system which you plan to upgrade to a newer software version and for which you wish to create the impact analysis. In addition, you specify the name of this analysis. When saving your input a maintenance transaction for the selected system is created in the background. This maintenance transaction is used to specify the target software version to which you wish to update the selected system. In return the application calculates the software package required for this update and identifies all ABAP repository objects that are changed by the update.

Activities of this view

- Name
  - Enter a name for this analysis.
- Product System
  - Enter the System-ID (SID) to be analyzed.
- Actions
  - After specifying the required information press ‘Save draft’ or ‘Next’. This will create a maintenance transaction for the selected system in the background. The maintenance transaction is used to calculate the delta software stack to reach the planned target version. This delta software stack is then resolved in the ABAP repository object piece list which is returned from the SAP support backbone to your SAP Solution Manager.
  - Note: You cannot change the system information anymore after saving your draft.
  - To process the created maintenance transaction, continue with this guided activity to step 5. In this step you can open the Maintenance Optimizer to process the maintenance transaction. Alternatively, you can open the maintenance transaction from the start screen of the application by executing the activity in course ‘Target Definition’.
  - Note: You cannot process the maintenance transaction assigned to this Scope and Effort Analysis directly with the Maintenance Optimizer.
Create Analysis – Step 2: Specify Additional Systems

### Purpose

In this step, you specify the additional systems which the application uses to read required information and to perform certain calculations. Please read the detailed descriptions for each system role which explains the purpose of this system and which systems you should normally use.

### Additional information

The application will retrieve parts of the custom code and usage statistic data from info objects in the SAP Solution Manager business information warehouse. This requires that you set-up the corresponding BW Extractors in the Solution Manager extractor framework for these systems. If this is not done, the application will not continue to the next step. To set the required BW extractors you can use the guided set-up procedure for Custom Code Management in the work center SAP Solution Manager Configuration.

### Activities of this view

- Specify system to read custom developments and modifications.
  - Enter the system ID (SID) of the system from which the modifications and custom developments are selected for the change impact analysis.
  - Note: Usually, you should select the production system that shall be upgraded for this role as well. This ensures that only those custom developments are analyzed that are actually deployed to production. If you wish to extend the analysis also to project work not yet released to production, you can choose other systems, such as a development system.

- Specify system to read usage statistics.
  - Enter the SID (SID) of the system from which all statistics about the actual usage of executable programs and transactions and ADAP program objects called by these executable objects are collected.
  - Note: This system has to be a production system because only there valid usage information exists.

- Specify the system used for test scope optimization activities.
  - Enter the system ID (SID) of the system on which information used for the test scope optimization is generated.
Create Analysis – Step 2: Specify Additional Systems

System Checks
Create Analysis – Step 3: Specify Business Blueprint

Project with available Business Blueprint with process steps and executables.

Project will be generated including all executables used, but not documented in above Blueprint.
Create Analysis – Step 4: Specify Test Scope

Test Management
1. SAP Solution Manager
2. HP Quality Center
3. IBM Rational

![Create Analysis Interface]

**Purpose**
In this step you can select your Test Management Application and preferred approach for Test Scope Optimization, which is calculated by BRCA in the background.

**Activities of this view**
- Test Management Application
  - Please specify your Test Management Application, such as SAP Solution Manager or HP QC. You can flag more than 1 application, in case you are using more than one application for test management.
- Test Scope Optimization
  - In case you have already defined an Optimization Approach, you can select it for use during the subsequent background analysis. Please include a test coverage of 100% or less, such as 99% which determines whether all impacted objects shall be included in the test scope.
- Test Case Recommendation for creating Test Cases
  - The application can provide recommendations for creation of automated test cases. For this you can specify up to which test coverage percentage automated tests shall be considered. In addition, you can select a rule how to perform recommendations for the remaining percentage to cover 100% test coverage.
Create Analysis – Step 5: Review
Create Analysis – Section 2: Target Definition

Selection of target EHP / SP – no file download required!
Create Analysis – Start Background Analysis and Result Calculation
Start Background Analysis and Result Calculation

1. Start analysis from Work Center in SAP Solution Manager

   ![Analysis for SAP ERP 6.0 - ERPT](image)

   - Status & Action
   - Name: Analysis for SAP ERP 6.0 - ERPT
   - System Selection: OK
   - Target Definition: OK
   - Production System: XU1
   - Product Version: SAP ERP 6.0

2. User can track status of background jobs in SAP Solution Manager and managed systems (DEV, QAS, PRD)

3. Results ready for analysis
Average values used for result calculation
# Average Values (1)
Default values provided by SAP – can be adjusted by customer

## Average Values for Adjustment Effort

<table>
<thead>
<tr>
<th>Impact Category</th>
<th>Average Adjustment Effort</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deleted modifications of type program, func group or class</td>
<td>120 Minutes</td>
<td></td>
</tr>
<tr>
<td>Deleted modifications of type table, data element or domain</td>
<td>30 Minutes</td>
<td></td>
</tr>
<tr>
<td>Deleted modifications of all other R/3TR types</td>
<td>15 Minutes</td>
<td></td>
</tr>
<tr>
<td>Modifications of type program</td>
<td>30 Minutes</td>
<td></td>
</tr>
<tr>
<td>Modifications of type class</td>
<td>15 Minutes</td>
<td></td>
</tr>
<tr>
<td>Modifications of type function group</td>
<td>15 Minutes</td>
<td></td>
</tr>
<tr>
<td>Modifications of type business Forms</td>
<td>15 Minutes</td>
<td></td>
</tr>
<tr>
<td>Modifications of data dictionary objects</td>
<td>3 Minutes</td>
<td></td>
</tr>
<tr>
<td>Modifications of other object types</td>
<td>6 Minutes</td>
<td></td>
</tr>
</tbody>
</table>

## Average Efforts for Custom Code Adjustment

<table>
<thead>
<tr>
<th>Impact Category</th>
<th>Average Adjustment Effort</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom code using deleted SAP data dictionary objects</td>
<td>30 Minutes</td>
<td></td>
</tr>
<tr>
<td>Custom code using deleted SAP code Objects</td>
<td>120 Minutes</td>
<td></td>
</tr>
<tr>
<td>Custom code with syntax errors after upgrade</td>
<td>30 Minutes</td>
<td></td>
</tr>
<tr>
<td>Changes with changed SAP references and originals</td>
<td>120 Minutes</td>
<td></td>
</tr>
<tr>
<td>Changes with changed SAP original</td>
<td>30 Minutes</td>
<td></td>
</tr>
<tr>
<td>Custom code using changed obsolete SAP functions</td>
<td>60 Minutes</td>
<td></td>
</tr>
<tr>
<td>Custom code using changed unreleased SAP functions</td>
<td>60 Minutes</td>
<td></td>
</tr>
<tr>
<td>Custom code using obsolete SAP functions</td>
<td>30 Minutes</td>
<td></td>
</tr>
<tr>
<td>Custom code using changed SAP references</td>
<td>12 Minutes</td>
<td></td>
</tr>
</tbody>
</table>
## Average Values (2)
Default values provided by SAP – can be adjusted by customer

### Additional Overall Factors

<table>
<thead>
<tr>
<th>Impact Category</th>
<th>Average Adjustment Effort</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correction factor for development efforts</td>
<td>1.0</td>
<td>Factor (1=100%, 1.5=150%)</td>
</tr>
<tr>
<td>Overall factor for unit test efforts</td>
<td>20.0</td>
<td>Percentage</td>
</tr>
</tbody>
</table>

### Average Values for Test Management

#### Time Required to Build Test Cases

<table>
<thead>
<tr>
<th>Test Case Type</th>
<th>Time Required</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated Test Case</td>
<td>370</td>
<td>Minutes</td>
</tr>
<tr>
<td>Manual Test Case</td>
<td>240</td>
<td>Minutes</td>
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</table>

#### Time Required to Execute Test Cases

<table>
<thead>
<tr>
<th>Test Case Type</th>
<th>Time Required</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Test Case</td>
<td>10</td>
<td>Minutes</td>
</tr>
<tr>
<td>Manual Test Case</td>
<td>120</td>
<td>Minutes</td>
</tr>
<tr>
<td>Transaction</td>
<td>120</td>
<td>Minutes</td>
</tr>
<tr>
<td>Report</td>
<td>120</td>
<td>Minutes</td>
</tr>
<tr>
<td>Other Objects (e.g. URL)</td>
<td>60</td>
<td>Minutes</td>
</tr>
<tr>
<td>Function Module Test</td>
<td>60</td>
<td>Minutes</td>
</tr>
<tr>
<td>External Application</td>
<td>60</td>
<td>Minutes</td>
</tr>
<tr>
<td>Generic Manual Test Case</td>
<td>120</td>
<td>Minutes</td>
</tr>
<tr>
<td>Generic Automated Test Case</td>
<td>10</td>
<td>Minutes</td>
</tr>
</tbody>
</table>
Result Analysis
SAP Solution Manager - EHP Scope and Effort Analyzer

Approach

1. SAP Solution Manager
   - User enters system for planned EHP deployment
   - User enters target SP / EHP
   - Information send to SAP

2. SAP OSS
   - Calculation of SAP objects (BOM) for target Enhancement Package
   - SAP sends BOM back to SAP Solution Manager

3. SAP Solution Manager
   - Usage statistics
   - Taylored impact analysis for custom code / modifications
   - Effort calculation
   - Business Blueprint generation
   - Test Scope and Effort Optimization
   - Recommendations

4. Customer Project Team
   - Result review through Fact Sheet
   - Assessment of analysis details
   - Parameter variation for result optimization
The project team can view and analyze the simulation results:

- Overview and details for Project Manager, Development Manager, and Test Manager.

**Scope and Effort Analyzer**

**Overview**

- Summary
- Modifications / CC
- Test Management
- Updated SAP Objects

**Details**

- Details Modifications / CC
- Details Test Management
Result Analysis

View “Overview” – suitable for the entire Project Team
Scope and Effort Analyzer
Result Analysis – Summary (1)
Scope and Effort Analyzer
Result Analysis – Summary (2)

Regression Test Efforts for Optimized Test Scope [days]

- Test Effort for all affected processes: 40.15 days
- Test Effort with Test Scope Optimization: 11.85 days
- Gain (absolute) compared to Test Effort for all affected processes: 28.30 days
- Gain (percentage) compared to Test Effort for all affected processes: 70.49%
Scope and Effort Analyzer
Result Analysis – Updated SAP Objects (1)
Scope and Effort Analyzer
Result Analysis – Updated SAP Objects (2)
Scope and Effort Analyzer
Result Analysis – Modifications / Custom Developments (1)

![Image](image_url)

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Impact Category</th>
<th>Number of objects</th>
<th>Number of objects [shaded in %]</th>
<th>Estimated Development Efforts [days]</th>
<th>Estimated Unit Test Efforts [days]</th>
<th>Total Efforts [days]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustments required</td>
<td>Deleted modifications (SPDD and SPAU)</td>
<td>2.446</td>
<td>100.00</td>
<td>2.67</td>
<td>0.57</td>
<td>3.44</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
<td>1.36</td>
<td>58.1%</td>
<td>2.87</td>
<td>0.57</td>
<td>3.44</td>
</tr>
<tr>
<td>Adjustment not needed</td>
<td>*</td>
<td>2.00</td>
<td>94.43</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

- SPDD: S/4 Planning and Development Dictionary
- SPAU: S/4 Personal Area, User and Customer
- IDOC: Integration Document Object Code
### Scope and Effort Analyzer

**Result Analysis – Modifications / Custom Developments (2)**

#### Custom Developments

**Impact to Custom Developments (number of objects)**

- 2,377
- 84

#### Development and Unit Test Efforts

<table>
<thead>
<tr>
<th>Development and Unit Test Efforts [days]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom code using deleted SAP objects</td>
</tr>
<tr>
<td>Custom code with syntax errors after upgrade</td>
</tr>
<tr>
<td>Clones with changed SAP references and original</td>
</tr>
<tr>
<td>Custom code using changed obsolete SAP functions</td>
</tr>
<tr>
<td>Custom code using obsolete SAP functions</td>
</tr>
<tr>
<td>Clones with changed SAP original</td>
</tr>
</tbody>
</table>

#### Development Efforts

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Impact Category</th>
<th>Number of objects</th>
<th>Number of objects (shared in %)</th>
<th>Estimated Development Efforts (days)</th>
<th>Estimated Unit Test Efforts (days)</th>
<th>Total Efforts (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment not needed</td>
<td>Custom code using deleted SAP objects</td>
<td>34,100</td>
<td>100.00</td>
<td>749.93</td>
<td><strong>49.16</strong></td>
<td><strong>799.09</strong></td>
</tr>
<tr>
<td>Adjustment not needed</td>
<td>Custom code with syntax errors after upgrade</td>
<td>*</td>
<td>2,499</td>
<td>97.26</td>
<td>19.66</td>
<td>116.72</td>
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<tr>
<td>Adjustment not needed</td>
<td>Clones with changed SAP references and original</td>
<td>2,377</td>
<td>6.57</td>
<td>140.57</td>
<td>26.72</td>
<td>170.20</td>
</tr>
<tr>
<td>Adjustment not needed</td>
<td>Custom code using obsolete SAP functions</td>
<td>3,899</td>
<td>90.64</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Adjustment not needed</td>
<td>Clones with changed SAP original</td>
<td>13,899</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
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</table>

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Scope and Effort Analyzer
Result Analysis – Test Management (1)
Scope and Effort Analyzer
Result Analysis – Test Management (2)
### Scope and Effort Analyzer

#### Result Analysis – Test Management (3)

<table>
<thead>
<tr>
<th>Test Scope and Effort with TSO - Full Scope versus Custom Code and Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test Effort</strong></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Test Effort - manual tests</td>
</tr>
<tr>
<td>Test Effort - automated tests</td>
</tr>
<tr>
<td>Test Effort - missing tests</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Cases</th>
<th>Nb. of Test Cases with TSO</th>
<th>Nb. of Test Cases with TSO limited to CC / Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>manual tests</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>automated tests</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>missing tests</td>
<td>32</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Blueprint</th>
<th>Number with TSO</th>
<th>Number with TSO limited to CC / Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenarios</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Business Processes</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Process Steps</td>
<td>45</td>
<td>13</td>
</tr>
</tbody>
</table>
Scope and Effort Analyzer
Result Analysis – Test Management (4)

Test Case Recommendations

Test Case Creation Effort [Days (8 Hours)]

Test Execution Effort [Days (8 Hours)]

<table>
<thead>
<tr>
<th>Category</th>
<th>Effort [Days (8 Hours)]</th>
<th>Number of tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>New manual test</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>New automated test</td>
<td>24.67</td>
<td>32</td>
</tr>
<tr>
<td>Replacement with new automated test</td>
<td>0.00</td>
<td>0</td>
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<tr>
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<td>Total test case execution effort gain</td>
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Example for SAP Transaction
including Modifications and Custom Code
SAP Transaction with Modifications and Custom Code
Example: SAP Transaction F110 Automatic Payment Transactions

1) Situation in customer SAP ERP system

SAP Transaction F110

Main Program SAPF110V

Modification
Include F110VI00
Call ZSAPF110S
(before: Call SAPF110S)

Custom Code
Report ZSAPF110S

Custom Code
Include ZF110STOP

Custom Code
Include ZF110SFB0

SAP…

SAP…
# SAP Transaction with Modifications and Custom Code

Example: SAP Transaction F110 Automatic Payment Transactions

## 2) Usage Statistics in customer SAP ERP system

**SAP Transaction F110**

- **Main Program SAPF110V**
  - Include F110VI00
  - Call ZSAPF110S
    - (before: Call SAPF110S)
  - Report ZSAPF110S
  - Include ZF110STOP
  - Include ZF110SFB0

<table>
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<tr>
<th>ST03N</th>
<th>UPL</th>
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<td>⭐</td>
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Indirect– UPL column „name of processing block“ shows executed Forms / Methods / Report Calls. BPCA functionality to determine Includes which contains executable units, e.g.:

- Module BUPLA_PRUEFEN → UPL: yes
- SUBMIT ZSAPF110S → UPL: yes

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SAP Transaction with Modifications and Custom Code

Example: SAP Transaction F110 Automatic Payment Transactions

2) Usage Statistics in customer SAP ERP system
SAP Transaction with Modifications and Custom Code
Example: SAP Transaction F110 Automatic Payment Transactions

3) EHP7 object list and SEA Analysis Results

SAP Transaction F110

Main Program SAPF110V

Include F110VI00

Call ZSAPF110S
(before: Call SAPF110S)

ZSAPF110S

ZF110SFB0

ZF110STOP

SAP...

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<td>SAP...</td>
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Key Take Away
Project Planning and Project Execution for planned SP / EHP Deployments

**Project Planning**

- **Scope and Effort Analyzer (SEA)**
  - Inventory of updated SAP objects by Application Component Hierarchy and Object Type
  - Information about impacted custom developments and modifications
  - Information about estimated code adjustment effort
  - Information about impacted business processes
  - Information about test scope optimization, expected test effort, distribution between manual / automated tests and missing test cases

- **Optional activities**
  - Creation of missing test cases
  - Reduction of custom developments and modifications
  - Identification of required developers for code adjustments
  - ...

**Project Prep**

- **Custom Development Management Cockpit (CDMC)**
  - Conflict resolution for custom developments

- **ABAP Test Cockpit (ATC)**
  - Analysis of ABAP code issues

- **Business Process Change Analyzer (BPCA)**
  - Test scope optimization and test plan generation

- **Test Management**
  - Test case creation and BB assignment
  - Test plan management, tester assignment
  - Test status reporting and sign-off

**Project Execution**

- Optional activities

Note: more applications can be used for further analysis
Key Take Aways: Benefits of EHP Scope and Effort Analyzer

- Early upgrade change impact analysis without physical EHP/SP installation
- Reliable project effort estimation for required adjustment and test activities
- Test Scope Optimization with significant reduced test scope and test effort
Result Analysis

View “Details – Custom Developments and Modifications”
Section 1: Modifications
Scope and Effort Analyzer
Result Analysis – Details Modification / Custom Developments (2)

Section 1: Modifications
Scope and Effort Analyzer
Result Analysis – Details Modification / Custom Developments (3)

Section 1: Modifications
Scope and Effort Analyzer
Result Analysis – Details Modification / Custom Developments (4)

Section 1: Modifications

List of Impacted Modifications

- prog: APB_LPD_SHOW_TEXT_KEY, REPT: APB_LPD_SHOW_TEXT_KEY
  - Impact Category: impacted used modifications (SPAU)
  - Changed by: WEISSANJA, Changed on: 19.08.2011

- prog: F110V00, REPT: F110V00
  - Impact Category: impacted used modifications (SPAU)
  - Changed by: D058228, Changed on: 25.11.2013

- prog: GET_ETRAVEL_PNR, REPT: GET_ETRAVEL_PNR
  - Impact Category: impacted used modifications (SPAU)
  - Changed by: D032661, Changed on: 18.10.2010

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Scope and Effort Analyzer
Result Analysis – Details Modification / Custom Developments (5)

Section 2: Custom Developments
Scope and Effort Analyzer
Result Analysis – Details Modification / Custom Developments (6)

Section 2: Custom Developments
Scope and Effort Analyzer
Result Analysis – Details Modification / Custom Developments (7)

Section 2: Custom Developments
Scope and Effort Analyzer
Result Analysis – Details Modification / Custom Developments (8)

Section 2: Custom Developments
Result Analysis

View “Details – Test Management”
Scope and Effort Analyzer
Result Analysis – Details Test Management (1)

Tab 1: Result Overview
Scope and Effort Analyzer
Result Analysis – Details Test Management (2)

Tab 1: Result Overview
Scope and Effort Analyzer
Result Analysis – Details Test Management (3)

Tab 2: Test Scope Optimization Ranking
Scope and Effort Analyzer
Result Analysis – Details Test Management (4)

Tab 2: Test Scope Optimization Ranking
Scope and Effort Analyzer
Result Analysis – Details Test Management (5)

Tab 3: Business Process Hierarchy

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<th>Effectivity</th>
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<th>Cumulated Total Effort</th>
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</table>
Scope and Effort Analyzer
Result Analysis – Details Test Management (6)

Tab 4: Test Case Recommendations

Current Situation with TSO

Number of Test Cases with TSO

- Manual Test Cases: 23 (69.70%)
- Automated Test Cases: 7 (21.21%)
- Missing Test Cases: 3 (9.09%)

Total (available): 33 tests

Test Case Recommendations

- Recommendation 1: Creation of missing tests
  - Number of missing test cases: 3
  - Creation of automated test cases selected for effort calculation

- Recommendation 2: Replacement of existing manual with automated tests
  - Creation of automated test cases up to a Coverage of 69%

Test Case Creation Effort (Hours)

- Before Recommendations: 3.75
- After Recommendations: 0.00

Test Execution Effort (Hours)

- Before Recommendations: 46.00
- After Recommendations: 38.00

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<tr>
<th>Category</th>
<th>Effort (Hours)</th>
<th>Number of tests</th>
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<tr>
<td>New automated test</td>
<td>0.00</td>
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<td>Replacement with new automated test</td>
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<td>Total test case execution effort gain</td>
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Scope and Effort Analyzer
Result Analysis – Details Test Management (7)

Tab 4: Test Case Recommendations
Appendix – more details
EHP Installation Across the Project Phases

Plan

- Requirements
  - Find and evaluate SAP innovations
  - Plan landscape and software changes
  - Analyze change impact to business and estimate costs

Design

- Deploy new software version
- Test and optimize deployment and downtime
- Manage dual landscapes

Build

- Create development work packages
- Adjust and configure applications
- Define test plan
- Perform regression and integration test

Test

- Go-live with new software version and stabilize

Deploy

- Hand over to production

Run

SBX
DEV
QAS
PRD
## EHP Installation – Most Important Tools

<table>
<thead>
<tr>
<th>Tool/Module</th>
<th>Platform</th>
<th>Find Innovations</th>
<th>Plan landscape changes</th>
<th>Analyze change impact and estimate costs</th>
<th>Deploy software</th>
<th>Create development work packages</th>
<th>Adjust and configure</th>
<th>Define test plan</th>
<th>Perform tests</th>
<th>Optimize downtime</th>
<th>Manage Dual landscapes</th>
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</table>

**Legend:**
- SMP: SAP Service Market Place
- NW: SAP Netweaver
- SM: SAP Solution Manager
Consolidation of innovative tools: EHP Scope & Effort Analyzer

How can we evaluate the usage of our system?

Which business processes do we need to test?

How can we evaluate the project effort?

Benefits:
- Guided procedure
- Consolidation of different tools
- Common report to plan the project

Guided Procedure: EHP Scope & Effort Analyzer

Evaluate system usage
- ABAP usage
- UPL

Change impact
- ABAP Object lists

Transparency of test scope & code adjustments

Analysis & Results Report

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Scope and Effort Analyzer: System requirements

ST-PI 2008_1_xxx SP09 (xxx depends on SAP_BASIS version in managed system)

minimum: ST-PI 2008_1_xxx SP07 for UPL transfer
recommended: ST-PI 2008_1_xxx SP09

UPL requirements:
SAP Netweaver 7.01 SP10 or 7.02 SP09 + Kernel 720 Patch 94 or 7.31 SP03 and 7.40
Recommended kernel patch level: 720 Patchlevel >430; 721 >120 or any higher

ST 710 SP11 and related stack (incl. ST-PI 2008_1_xxx SP09)

Set-Up requirements
- Basic managed system set-up for all three system roles
- Maintenance Optimizer set-up
- Custom Code Management set-up at least for DEV and PRD
- BPCA basic configuration
Usage and Procedure Logging (UPL)
UPL - the foundation for enhanced ABAP usage and impact analysis

Usage and Procedure Logging (UPL)

- SAP Kernel based logging technology providing runtime usage information of ABAP procedure units like methods, function modules, subroutines and much more...
- UPL is available as of SAP Netweaver 7.01 SP10 with Kernel 720 Patch 94
- Major improvements in SAP Solution Manager 7.1 SP09 and later using UPL
  - Integration with EHP Scope and Effort Analyzer
  - Integration with System Recommendations for evaluation of critical SAP notes
  - Basis for semi-dynamic TBOM generation for BPCA
  - Integration with ABAP Test Cockpit and SQL Monitor for custom code impact analysis for migrations to SAP HANA

1. Execute business transaction
2. Load ABAP procedure units
3. Log ABAP usage
4. Evaluate usage

SAP Business Suite System like SAP ERP (system role: PRD)

SAP Solution Manager
BPCA - TBOM Generation
Semi-dynamic TBOM generation

BPCA TBOM Background Job

+ UPL Data in PRD system
  (Usage and Procedure Logging of ABAP objects at Kernel level)

+ UPL Filter for BPCA TBOM generation

= Semi-dynamic TBOM
  ✓ No manual effort through background processing (overnight)
  ✓ High precision
  ✓ Repeatable at any time

SAP Solution Manager

Managed Systems

SAP ERP
  DEV
  TST
  PRD

UPL Data Load to Solution Manager BW

TBOM generation job

1. T-Code

2a. Code analysis for level nn

2b. UPL analysis for level nn

3. “Semi-Dynamic” TBOM

Solution Documentation
- Order to Cash (O2C)
- Sales Order
- Outbound Delivery
- Goods Issue
- Billing

UPL recording is activated

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Scope and Effort Analyzer – Test Management

**Advanced features** (delta features compared to BPCA)

1. Automated Blueprint generation (complete or delta to existing blueprints)
2. Automated TBOM generation
3. Test Scope Optimization
   - full test scope *versus*
   - test scope limited to impacted Custom Code
SAP Solution Manager 7.1 – Scope and Effort Analyzer

Customer benefits

- Change impact analysis without physical EHP deployment
- Simple Guided procedure in local SAP Solution Manager
- No external transfer of customer code to protect Intellectual Property

Hazzle-free analysis

- Tailored impact analysis for custom code and modifications
- Early estimation of project effort and required adjustment activities
- Overview on used and unused code based on reliable usage statistics

Custom code & modifications

- Automatic generation of preliminary business blueprint (if required)
- Test Scope Optimization with significant reduced test scope and test effort
- Additional test plan for business processes including custom code & modifications
- Recommendations for missing test cases and process traces (BPCA TBOM)

Test Management

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