



FUNCTION POINT MODELER

TAKE A LOOK INSIDE YOUR SOFTWARE

White Paper, Instructions and Example

Function Point Modeler™

ISBSG Import Interface

Writer:

CFPS, M.E. Dipl.-Ing. M. Öztürk,,

Update:

04 March 2011

Introduction

The purpose of this paper is to give you an overview of the new International Software Benchmarking Standard Group (**ISBSG**) database import interface for **Function Point Modeler™ Enterprise Edition**. It also details the process of the **ISBSG** database import and provides an example.

Overview

It is very important for IT companies to identify software process, product and project metrics. A metric is a characteristic of a process, product or project used to enhance business decisions in IT companies. It is also very important for IT companies to manage these metrics in order to make sound business decisions about processes and products.

The **Function Point Modeler™** Software Life Cycle Experience Database (**SLED**) is designed to meet the needs of a wide range of product, process and project metrics. It delivers significant metrics about products, processes and projects.

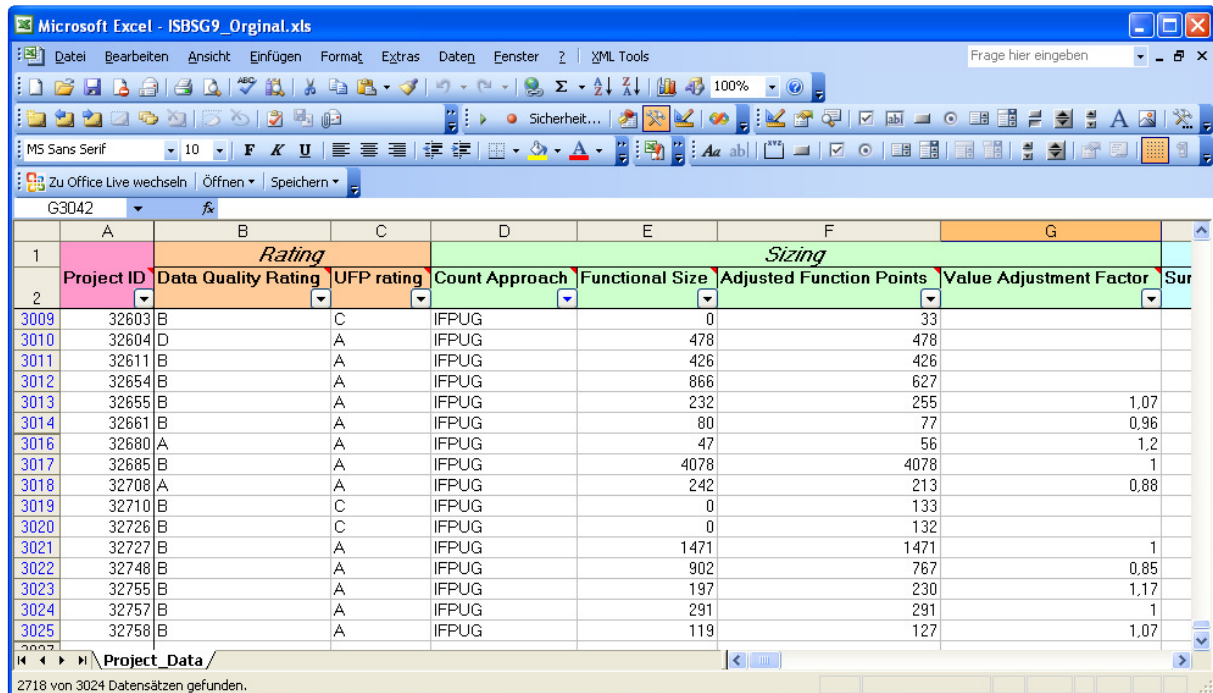
Function Point Modeler COCOMO II™ conforms to **COCOMO II** and calibrates the cost factors of COCOMO to conform to your own data, based on your experience data in the **SLED**.

But many companies do not have their own experience data in the **SLED** to allow calibration of the COCOMO factors. As an alternative, **Function Point Modeler™** now offers you the opportunity to import selected **ISBSG** data into the **Function Point Modeler™ SLED** in order to calibrate COCOMO based on the **ISBSG** data. This allows you to select from the ISBSG database, projects that are similar to the project that you wish to estimate. You can then import these projects into the **SLED** and use them to calibrate the cost factors in COCOMO to provide you with a reliable estimate.

Function Point Modeler™ ISBSG Interface White Paper

What is the ISBSG

The **ISBSG** delivers a database of software project history data that is used for estimation, benchmarking and project management. The **ISBSG** database has data on over 5000 projects from a wide variety of software domains where the functional size was measured using the IFPUG method. **ISBSG** database is delivered in an Excel spreadsheet (see below).



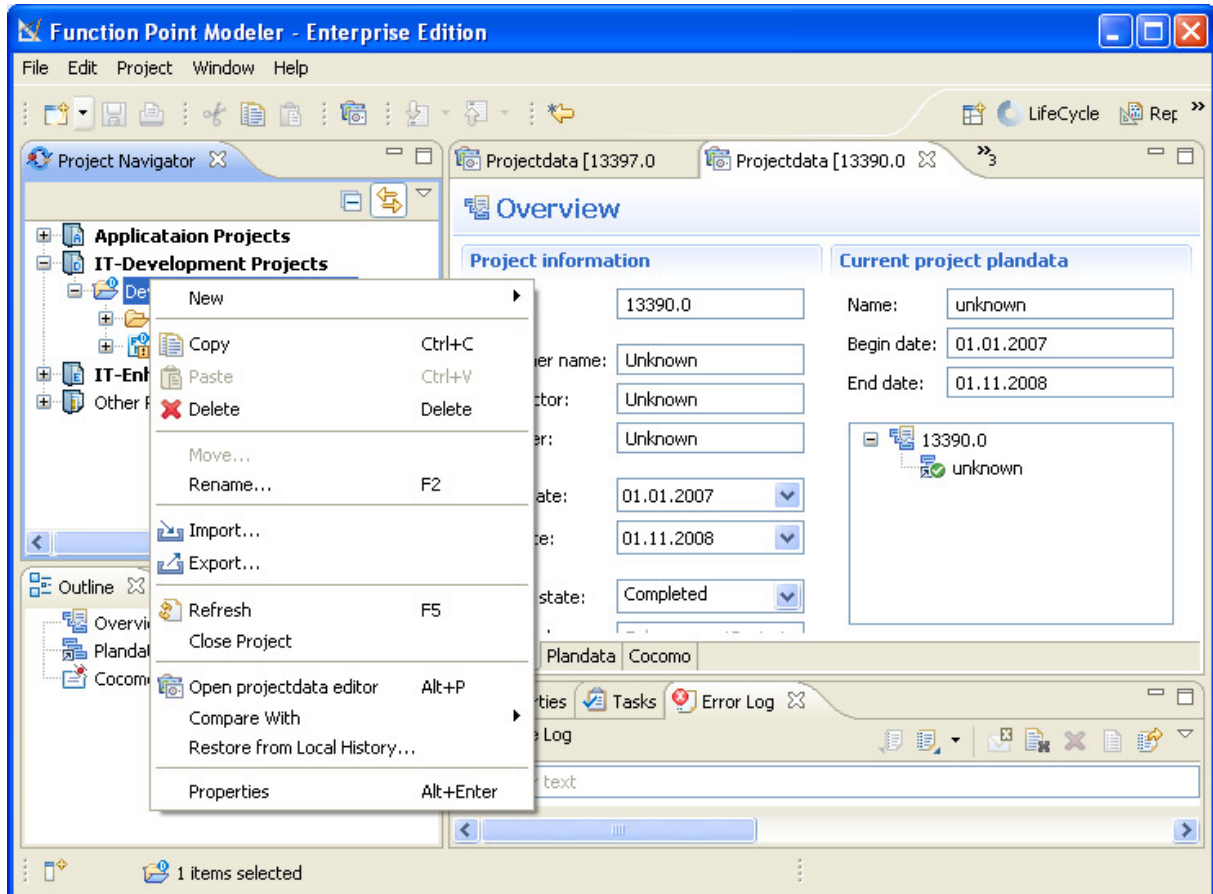
	A	B	C	D	E	F	G	
1		<i>Rating</i>				<i>Sizing</i>		
2	Project ID	Data Quality Rating	UFP rating	Count Approach	Functional Size	Adjusted Function Points	Value Adjustment Factor	Sur
3009	32603	B	C	IFPUG	0	33		
3010	32604	D	A	IFPUG	478	478		
3011	32611	B	A	IFPUG	426	426		
3012	32654	B	A	IFPUG	866	627		
3013	32655	B	A	IFPUG	232	255	1.07	
3014	32661	B	A	IFPUG	80	77	0.96	
3016	32680	A	A	IFPUG	47	56	1.2	
3017	32685	B	A	IFPUG	4078	4078	1	
3018	32708	A	A	IFPUG	242	213	0.88	
3019	32710	B	C	IFPUG	0	133		
3020	32726	B	C	IFPUG	0	132		
3021	32727	B	A	IFPUG	1471	1471	1	
3022	32748	B	A	IFPUG	902	767	0.85	
3023	32755	B	A	IFPUG	197	230	1.17	
3024	32757	B	A	IFPUG	291	291	1	
3025	32758	B	A	IFPUG	119	127	1.07	

Extract from ISBSG database

Import ISBSG Database

The following steps show how to import **ISBSG** data into **Function Point Modeler™**.

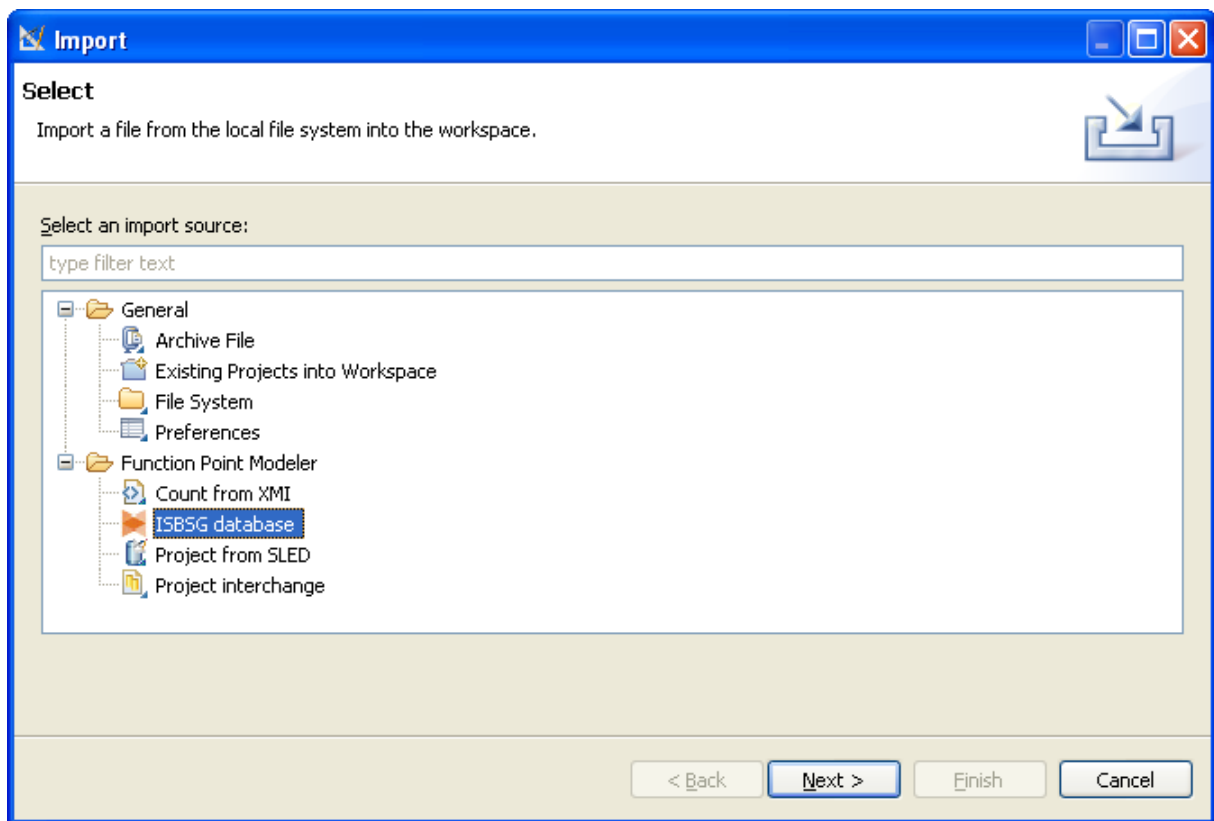
Select **Import** from the pop menu



Function Point Modeler Popup Menu

Function Point Modeler™ ISBSG Interface White Paper

The Import/Select View is presented



Function Point Modeler Import wizard

Click on the **Browse** button ... and click the associated **Browse** to locate the directory or file containing the ISBSG excel file. Before you click on the **Browse** button ... you have to select the excel spreadsheet row containing the header.

Function Point Modeler™ ISBSG Interface White Paper

The whole **ISBSG** data is now shown in the wizard.

You can now specify in the wizard the **ISBSG** data that you want to import into the **Function Point Modeler™**. You can see a lot of project metrics like *function points* and *actual effort*. It is recommended to deselect all projects that don't have *function points* and *actual effort*.

ISBSG database Import File

Import the ISBSG database into the Function Point Modeler workspace

Select File: C:\Projekte\ISBSG\Subscriber Data example.xls Browse...

Use as header: First row

Project ID	Data Quality Rating	UFP rating	Year of Project	Count Ap...	Functiona...	Adjusted Function...	Value Adju...	Normalised Work Ef...
<input type="checkbox"/> All	All	All	All	All	All	All	All	All
<input type="checkbox"/> 10736.0	B	Not defined	2008.0	COSMIC	11.0	11.0	Not defined	40.0
<input checked="" type="checkbox"/> 10737.0	A	A	2000.0	IFPUG	340.0	391.0	1.15	676.0
<input type="checkbox"/> 10908.0	B	Not defined	2004.0	COSMIC	36.0	36.0	Not defined	2924.0
<input checked="" type="checkbox"/> 13390.0	B	B	2007.0	IFPUG	357.0	357.0	Not defined	5497.0
<input checked="" type="checkbox"/> 13396.0	B	C	2006.0	IFPUG	Not defined	82.0	Not defined	576.0
<input checked="" type="checkbox"/> 13397.0	B	C	2003.0	FISMA	Not defined	207.0	Not defined	610.0
<input checked="" type="checkbox"/> 13400.0	C	A	1996.0	IFPUG	644.0	799.0	1.24	4500.0
<input checked="" type="checkbox"/> 13403.0	A	A	2005.0	IFPUG	184.0	201.0	1.09	1830.0

< Back Next > Finish Cancel

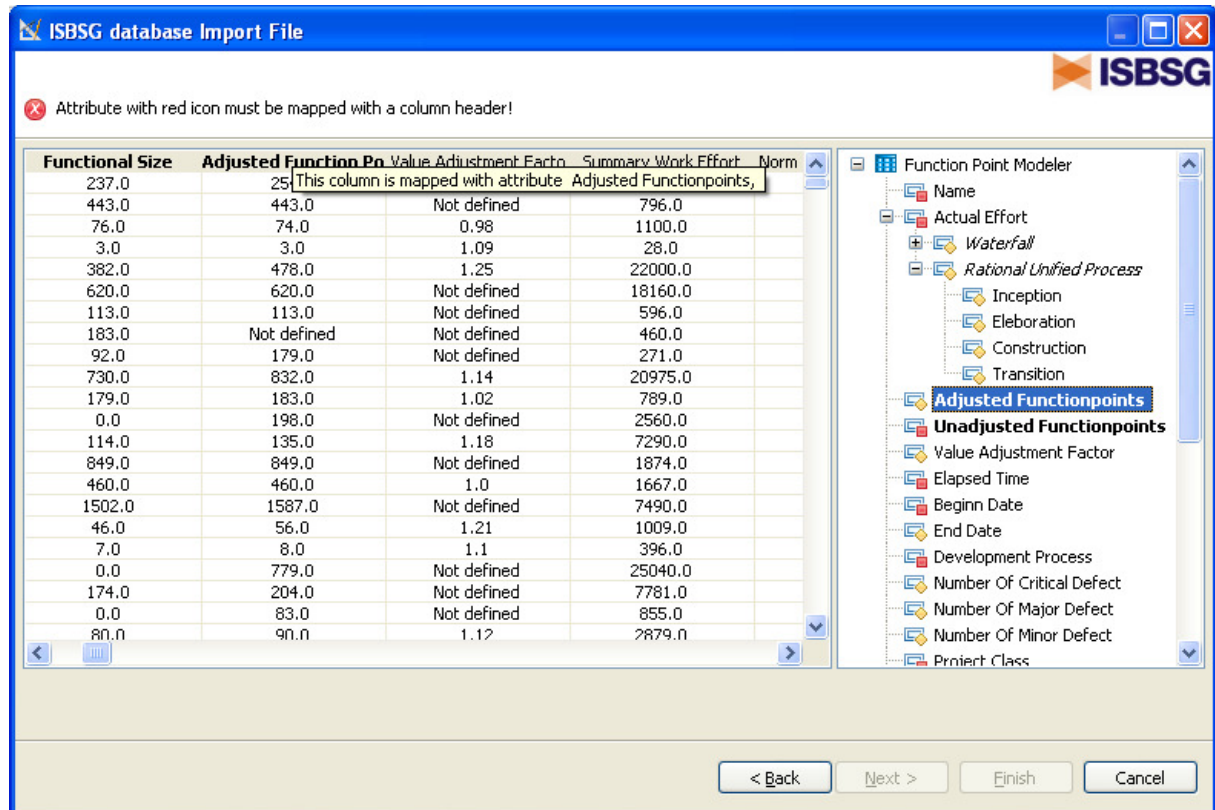
Function Point Modeler ISBSG import wizard

Function Point Modeler™ ISBSG Interface White Paper

After you have specified the **ISBSG** data to be imported you have to map the **Function Point Modeler™** data model with the **ISBSG** data model. In the tree on right side you see the **Function Point Modeler™** data model. The tree items with red icon are obligatory to map and with yellow icon are optional to map.

Click the desired tree item on the tree and drag the item from a tree to the desired row in the **ISBSG** table on left side. The font of the mapped tree items and rows are in **Bold** typeface. To delete mapping, right click on the desired tree item.

If you have mapped all obligatory items in the tree, you can click on the **Next >** button.

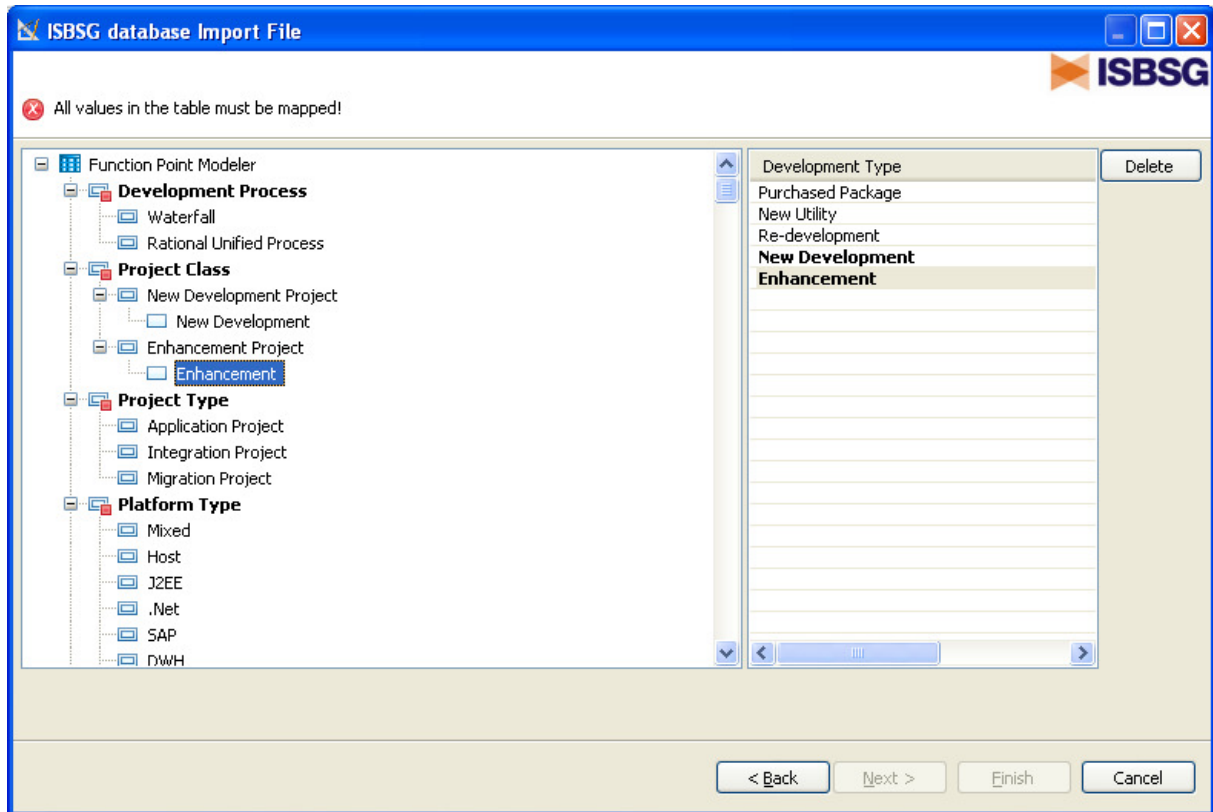


Function Point Modeler ISBSG model mapping wizard

Function Point Modeler™ ISBSG Interface White Paper

This is the last wizard to map the content of some rows of the ISBSG data to the content of **Function Point Modeler™** data model. In this wizard you see on the left side the tree of **Function Point Modeler™** data model and on right side the content of the specified row of the **ISBSG** database.

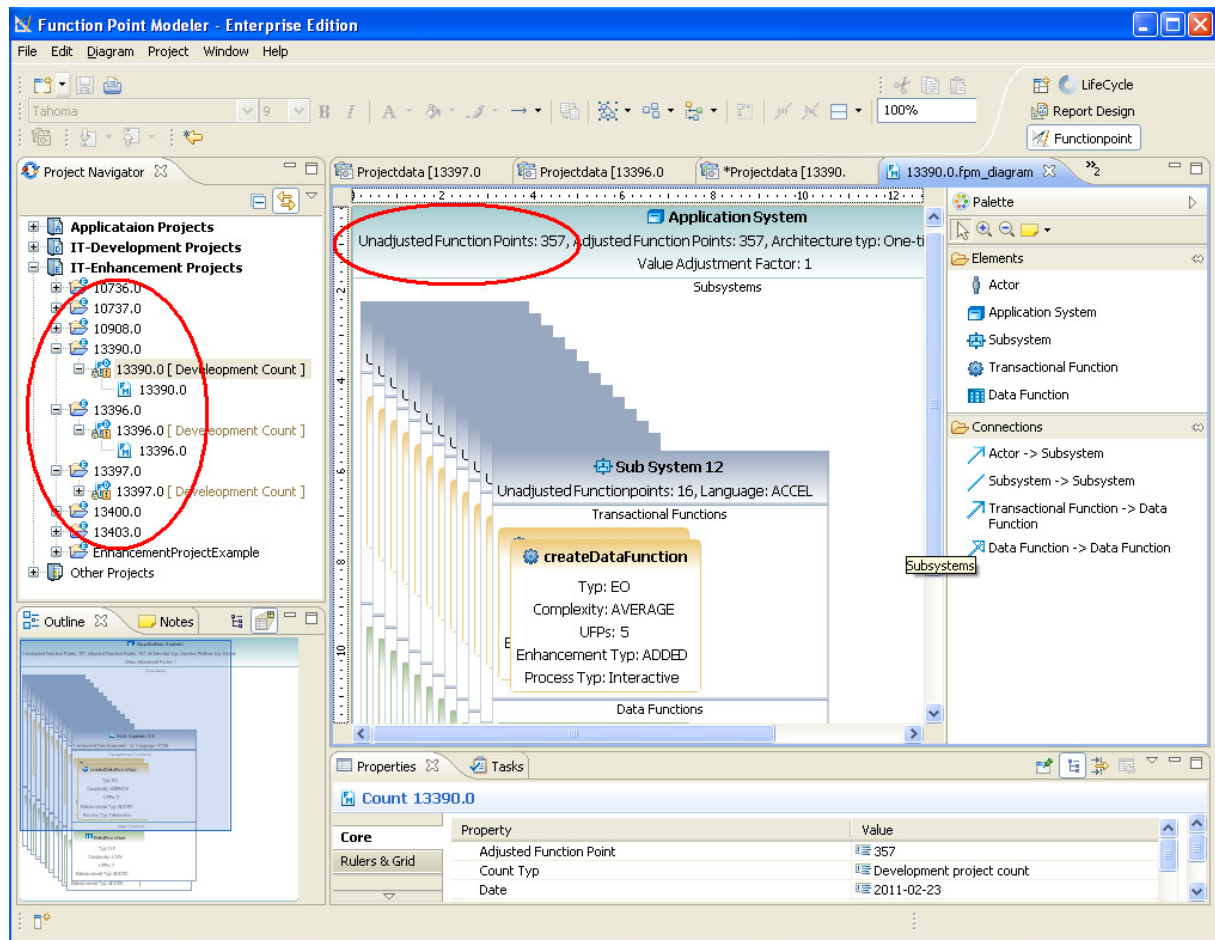
Click the desired table item on the table and drag it from a table to the desired tree item in the tree on left side. The fond of the mapped table items are **Bold**. To delete mapping, click on the desired tree item in the tree. After mapping all table items click on the **Finish** button.



Function Point Modeler ISBSG content mapping wizard

Function Point Modeler™ ISBSG Interface White Paper

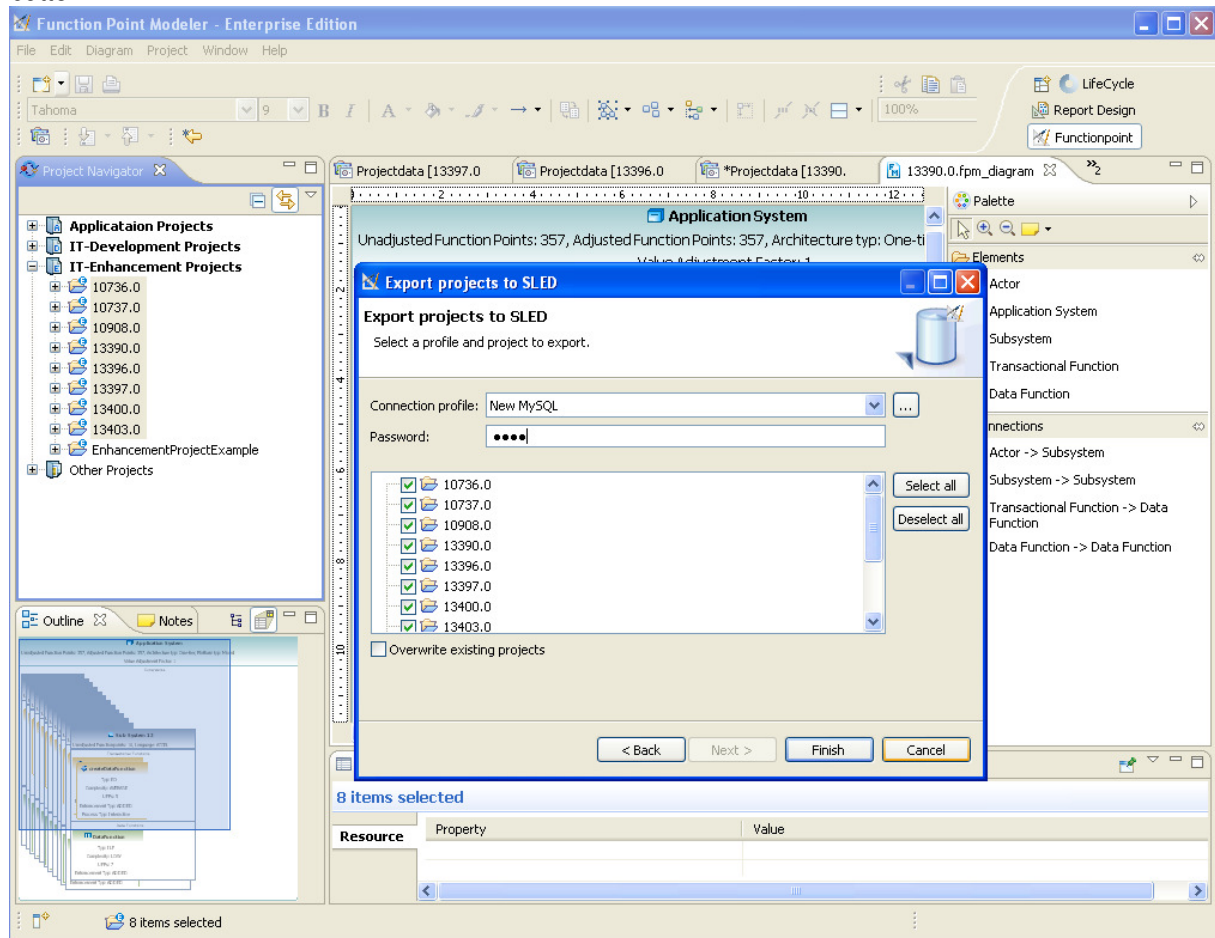
Now you can see the in the **Function Point Modeler™** the imported ISBSG project and function point size in the **Function Point Modeler™ Workspace**. All the metrics you have selected and mapped are imported in the **Function Point Modeler™**. You can open **Function Point Modeler™ Count or Project Editor** to show the information.



Function Point Modeler Workbench

Function Point Modeler™ ISBSG Interface White Paper

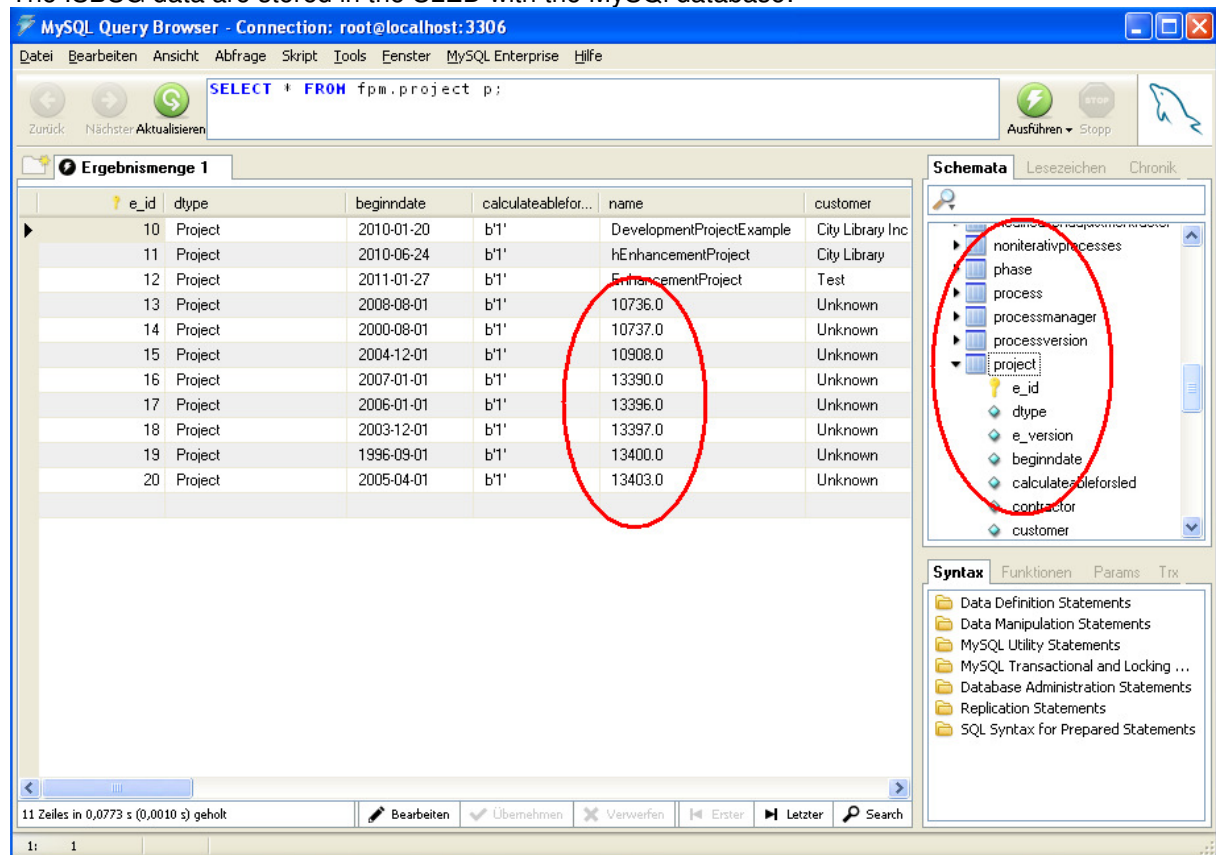
You can now export the ISBSG project data into the **SLED**. Select all the ISBSG projects and right click on **Export > Project to SLED**. Select your SLED database connection and click on the **Finish** button.



Function Point Modeler SLED export wizard

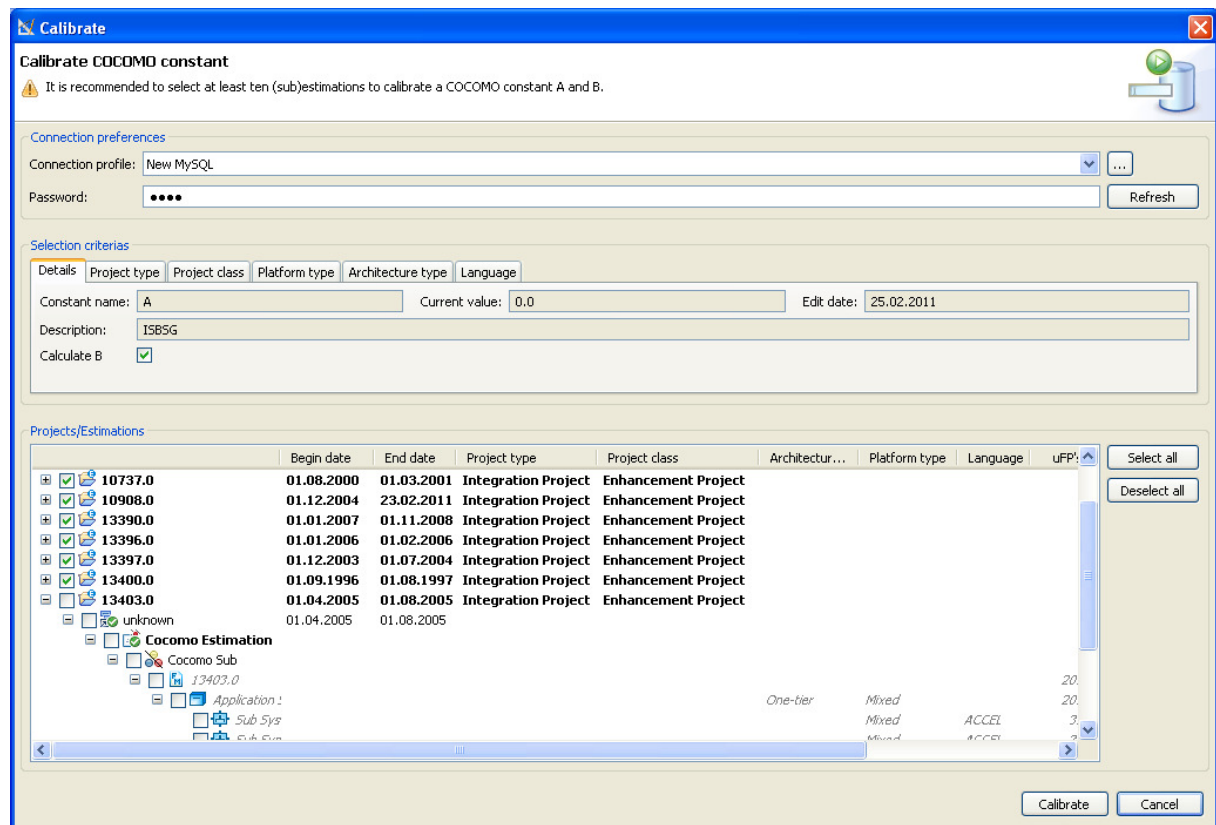
Function Point Modeler™ ISBSG Interface White Paper

The ISBSG data are stored in the SLED with the MySQL database:



SLED in RDBMS / MySQL

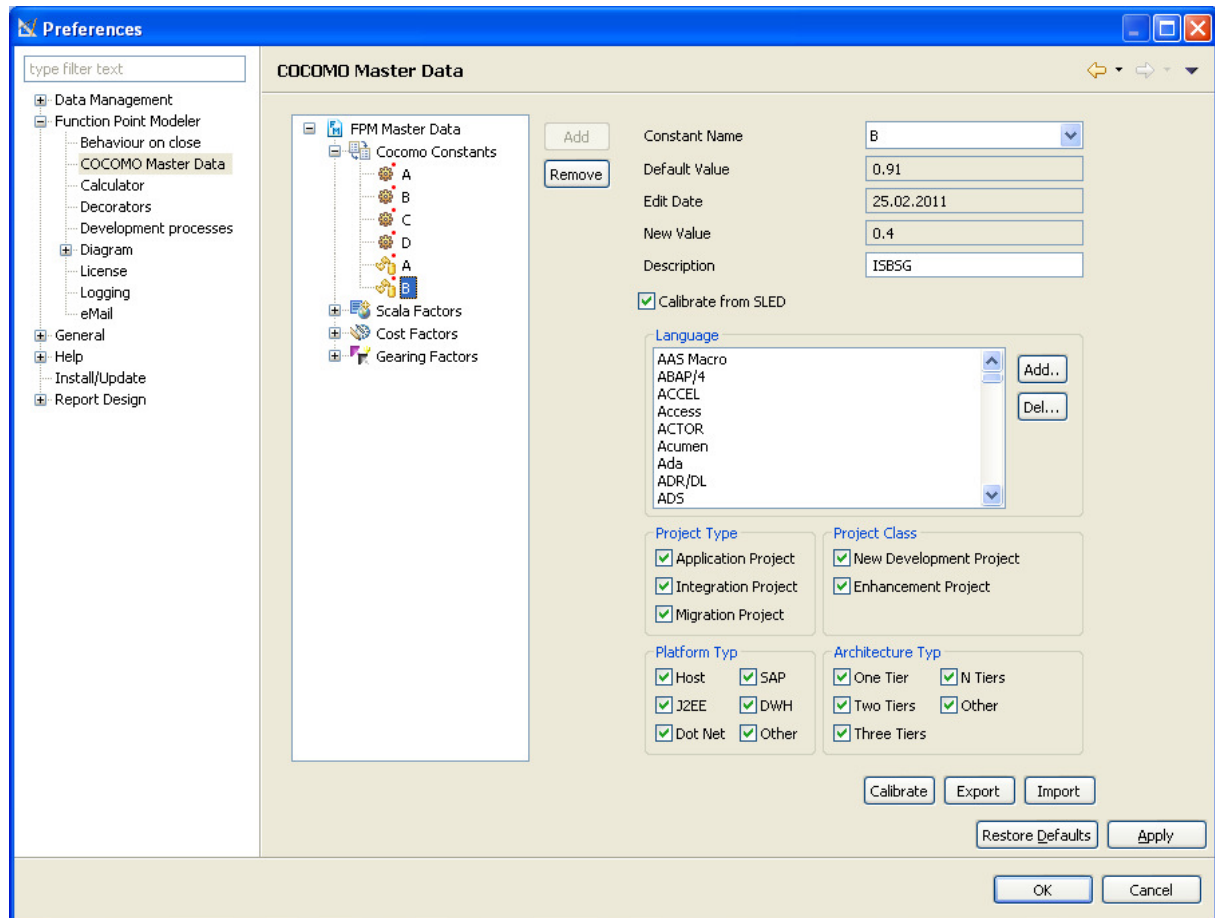
The next step is to calibrate your **COCOMO** factors based on the **ISBSG** projects in the **SLED** with the calibration feature of **Function Point Modeler™**.



Function Point Modeler COCOMO calibration wizard

Function Point Modeler™ ISBSG Interface White Paper

The new **COCOMO** constants calibrated based on the **ISBSG** data are shown below.

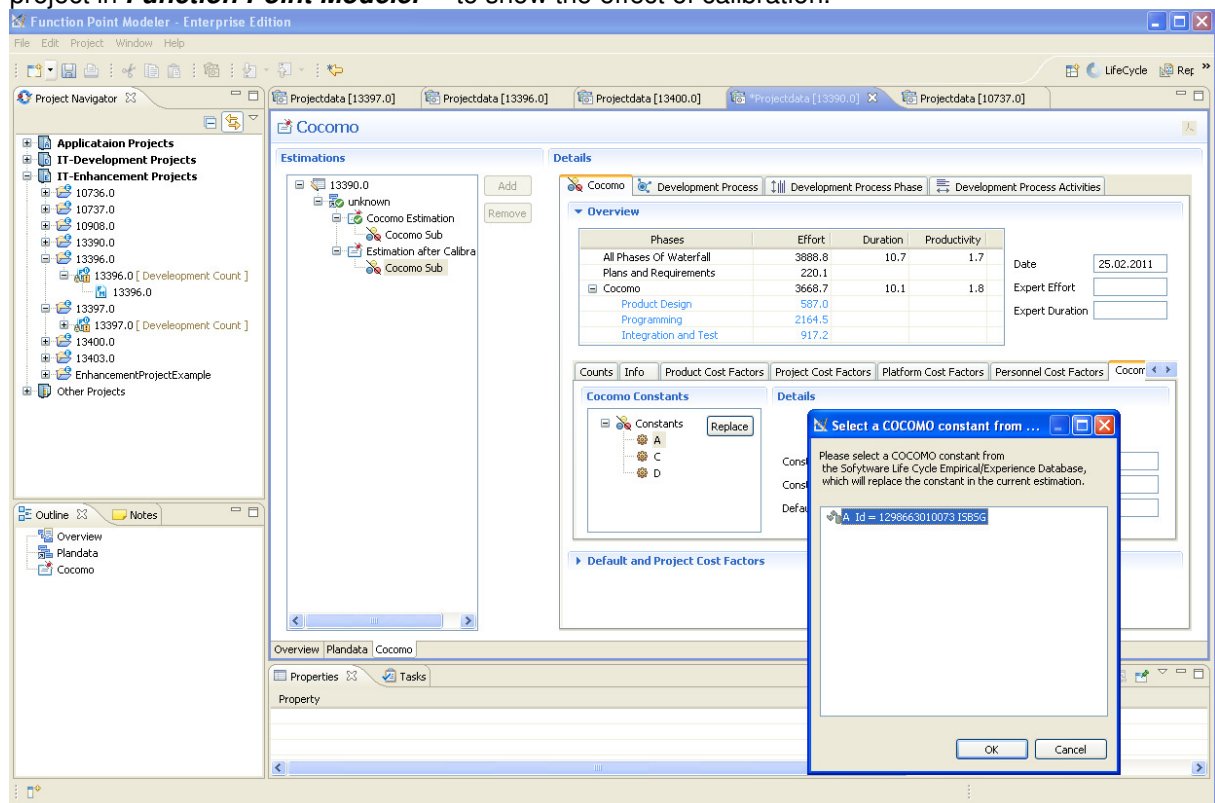


Function Point Modeler COCOMO Preferences

The last step is to use the calibrated **COCOMO** constants for your next project estimate using project history data from the ISBSG that has the same *Project Type*, *Project Class*, *Platform Type* and *Architecture Type* as your planned project.

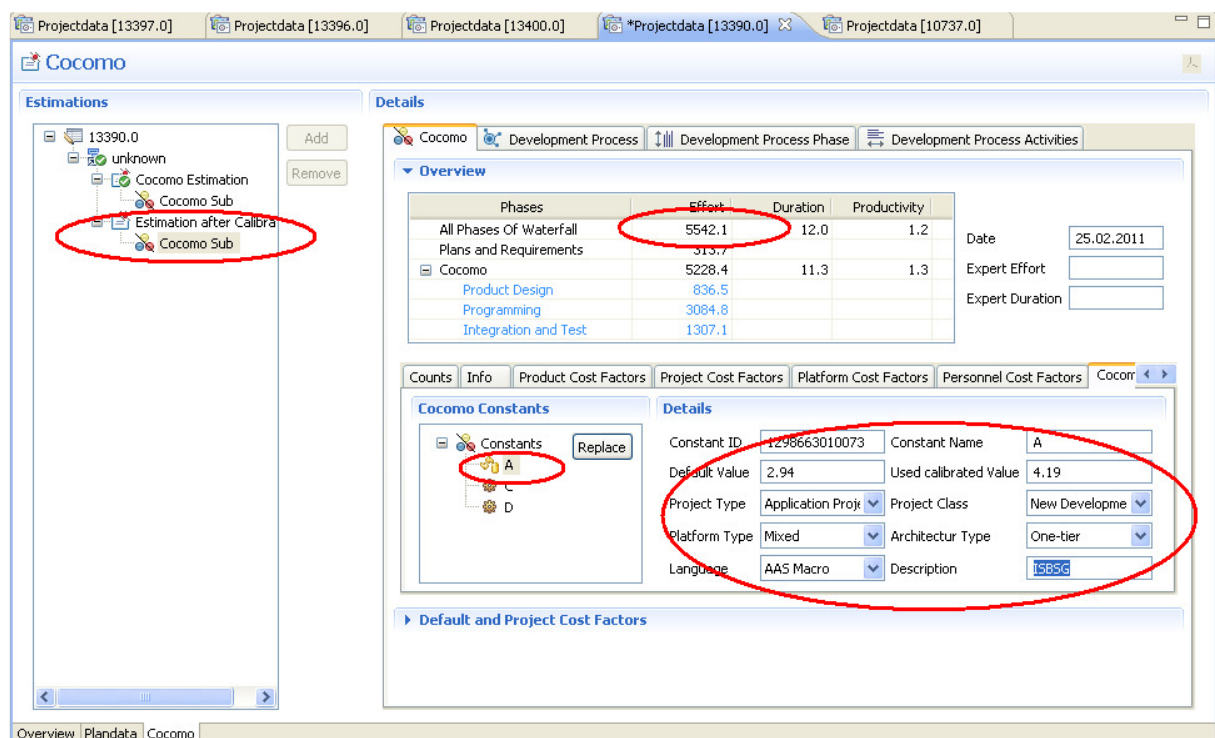
Function Point Modeler™ ISBSG Interface White Paper

In the following example we have used the calibrated **COCOMO** constant **A** for an imported **ISBSG** project in **Function Point Modeler™** to show the effect of calibration.



Function Point Modeler COCOMO editor

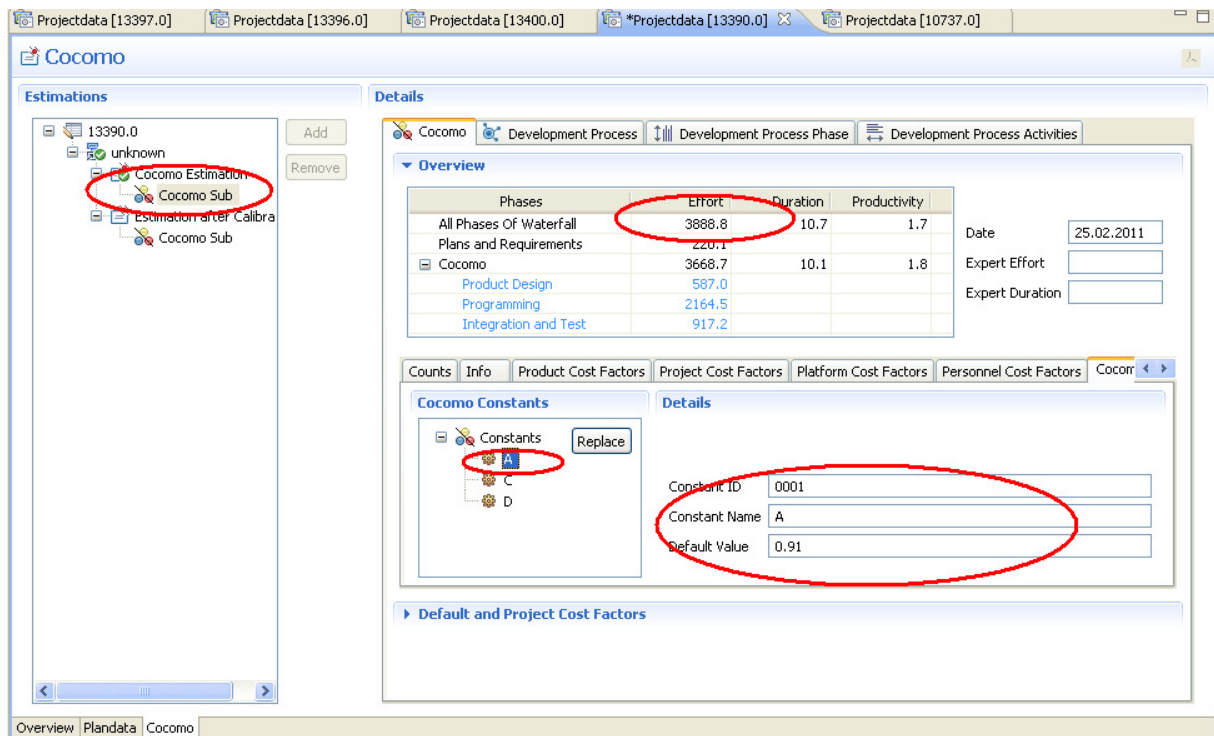
We create a new estimate named “**Estimation After Calibration**” with the same COCOMO cost factor settings as the first **COCOMO** estimate that was made at the beginning of the project. For the new estimate “**Estimation After Calibration**” we have replaced the standard constant **A** with calibrated **A** based on the selected **ISBSG** data shown in the following picture. The new effort for the project with the ID **13390** is now calculated at **5542** hours as shown in the following picture.



Function Point Modeler COCOMO editor

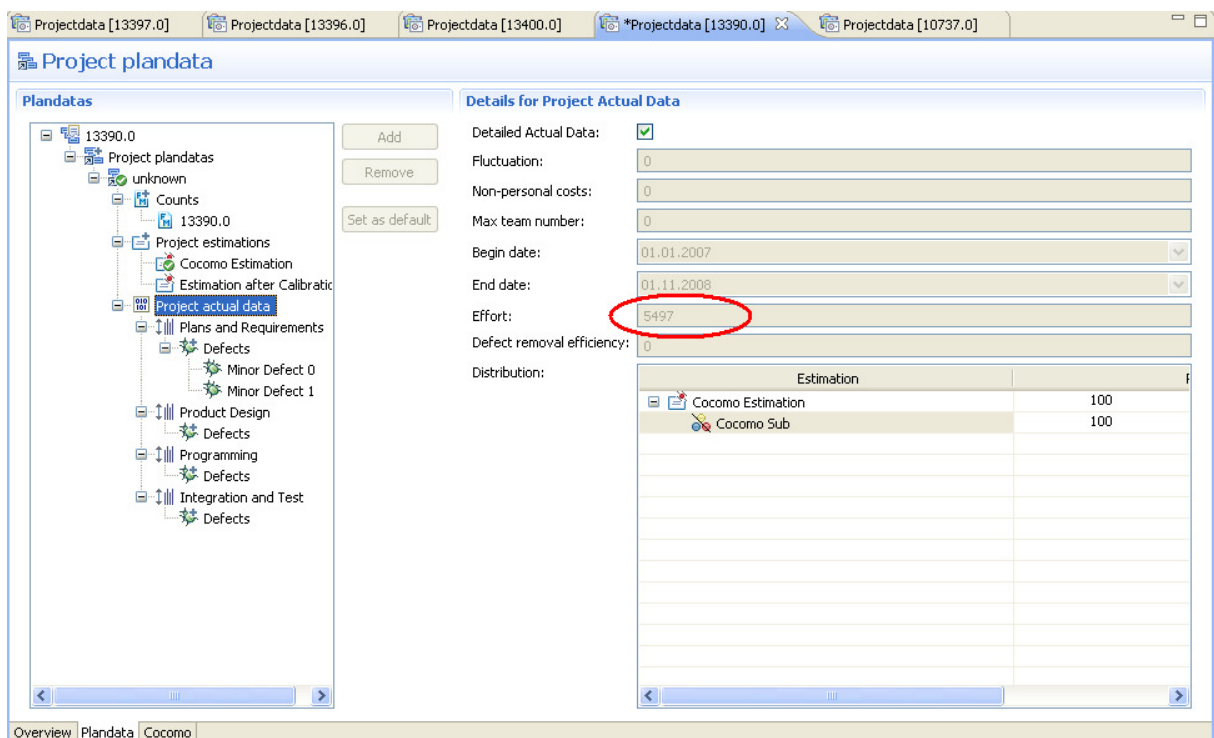
Function Point Modeler™ ISBSG Interface White Paper

The following picture shows the first estimation for the project. This estimation is made with **COCOMO** standard constants at the beginning of the project. The effort was calculated **3888** hours.



Function Point Modeler COCOMO editor

In the following picture you can see the actual project data. The actual project data for this project is **5497** hours.



Function Point Modeler Project Plandata editor

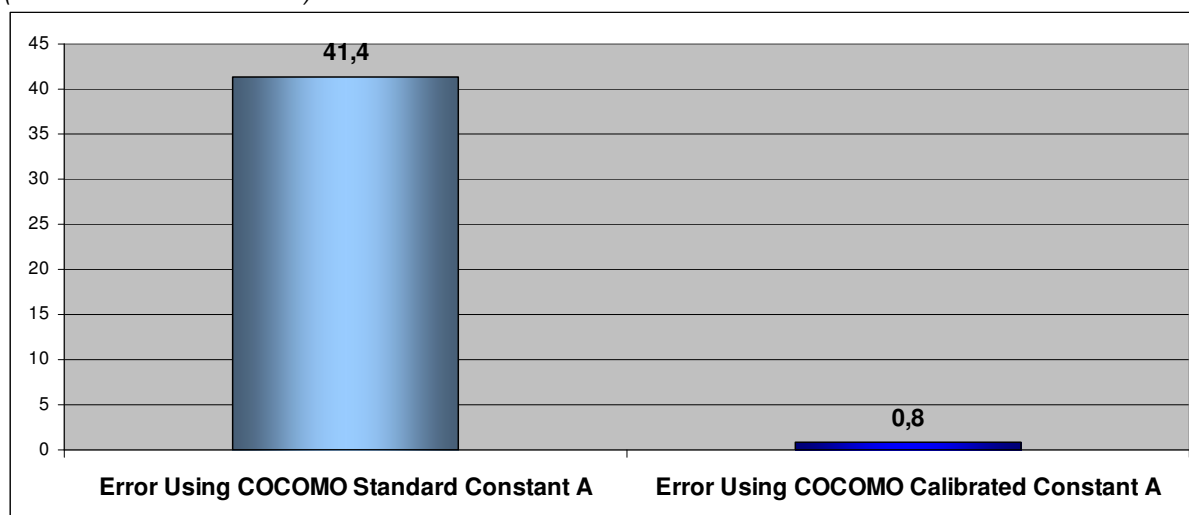
Summary

We have shown you the **ISBSG** import feature of **Function Point Modeler™** in conjunction with the key **Calibration** feature of **Function Point Modeler™** along with an example. In this example we imported 8 **ISBSG** projects and calibrated the **COCOMO** constants based on these **ISBSG** projects. We have used the calibrated constants to estimate a project after calibration.

The result is impressive. Use of the new calibrated **COCOMO** constant A improves the accuracy of the **COCOMO** estimate from 41,4% to 0,8%.

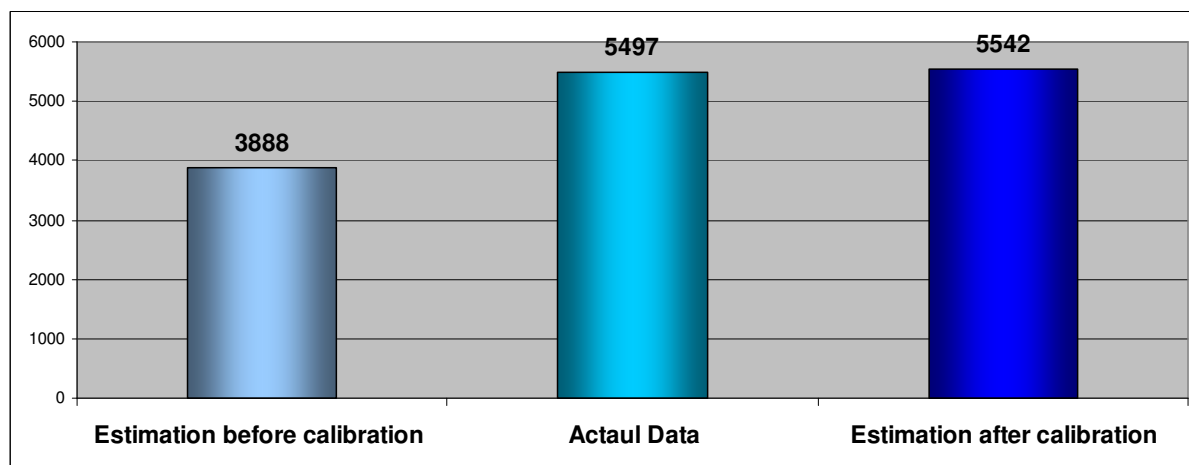
The difference in **COCOMO** accuracy before and after calibration is shown below and calculated with the following formula:

$(Actual\ Data - Estimation) / Actual\ Data * 100$.



Improvement in Accuracy Of COCOMO Using Calibrated Constant A

In the following diagram you can see the differences between the estimates produced before and after calibration.



Estimation Before And After COCOMO Calibration

Conclusion

What we have shown here is that if you do not have your own history data then you can use **Function Point Modeler™** with data from selected **ISBSG** projects (that are similar to the project that you want to estimate) to produce calibrated **COCOMO** based estimates that provide a high level of accuracy.