



*Symbiotic Platform for PLM-SLM concurrency  
User Manual*

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## VERSION HISTORY

NBR	DATE	NOTES AND COMMENTS
v1.0	01/11/2016	First Version

## DOCUMENT ACRONYMS AND DEFINITIONS

Acronym	Full Name/Explanation
BPMN	Business Process Modelling Notation
BSM	Business Strategic Model
MSEE	Manufacturing Service Ecosystem
PLM	Product Lifecycle Management
PROVIDER	TXT e-solutions
SLM	Service Lifecycle Management
TIM	Technology Independent Model
TSM	Technology Specific Model

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## 1 Software Disclaimer

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## 2 Introduction

The platform allows to manage PLM-SML concurrency.

The platform has the goal to allow the creation of product-services or their evolution. The starting point are the ideas selected from the ideation phase; of course not all the ideas are feasible in the time and cost frames of companies so a specific operation of modelling, feasibility study and acceptance is needed. The platform technically design a path of steps to be followed by end-users, and guide them through it in order to pass from ideas to the implementation of the new service-product system.

First step to address is the design of the idea by project management tools that are enhanced with predefined templates in order to speed the process up. Times and costs are roughly managed at this stage. Project plan is moved to a “general requirements definition” step in order to be even further analysed by the technical side. The “business process modelling” step allows to define the business processes checking if the company is ready to support next processes, how much has to change existing ones. Last steps are actually two sub processes by which the product and the service are developed following three main path: Organisational/human modelling and adapting the organisation to the new products service (for example a company can not have the service manager as company role), physical means and IT side focusing on software developments. (eg: embedded software in a product or an app for the service).

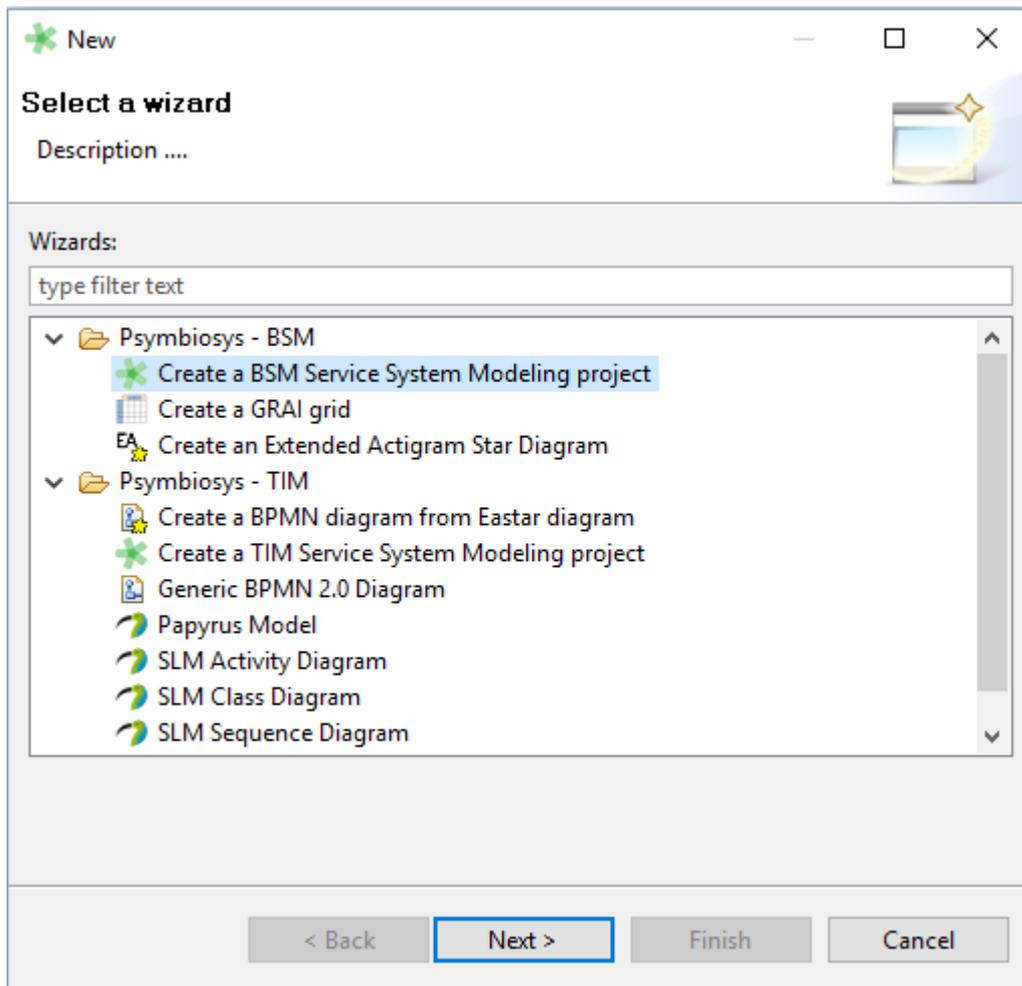
### 3 User Manual

#### 3.1 Creation of Models

The first step is to **create a BSM project**.

To do that follow the following steps:

1. Click on “File” in the toolbar and select “New”. Then, select “Create a BSM Service System Modeling project” wizard in the window shown (see following fig.1)



**Figure 1: BSM wizard**

2. Indicate names for (1) Project, (2) Organization and (3) Service to be modelled.

Once a BSM project has been created, you are now able to **create models at BSM level**. By opening the window in fig.2, you can select “Create a GRAI grid” or “Create an Extended Actigram Star Diagram” depending on the type of model you want to create. In case of EA of diagram, the following information are to be provided:

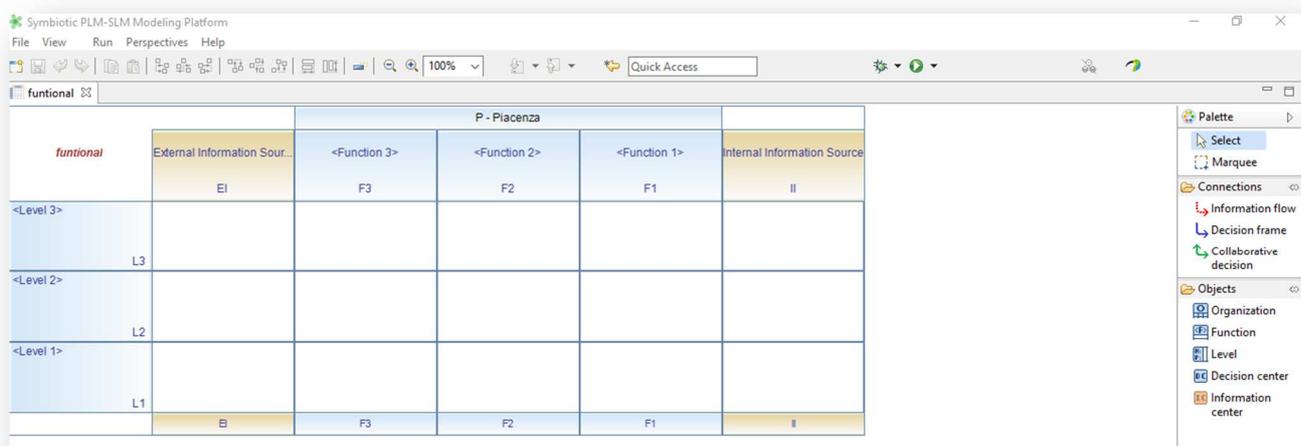
- *Location*, namely the BSM project the model belongs to;
- *Process name*, e.g. “Virtual Showroom service”;

- *Organisation name*, which corresponds to the organisation name indicated for the BSM project in case of a single organisation eco-system;
- *Code*, a numerical ID of the process modelled;
- *Decomposition Code*;

In case of GRAIGRID, the following information are needed:

- *Location*, namely the BSM project the model belongs to;
- *Company name*, which corresponds to the organisation name indicated for the BSM project in case of a single organisation eco-system;
- *GRAIGRID name*;

Then, SLM toolbox allows you to use its symbols and formalism. For instance, an empty GRAI grid is automatically created and connections/flows as well as objects (i.e. Organisation, Function, Layers, Decision Center and Information Center) are selectable in the right bar (fig.2).



**Figure 2: GRAI interface**

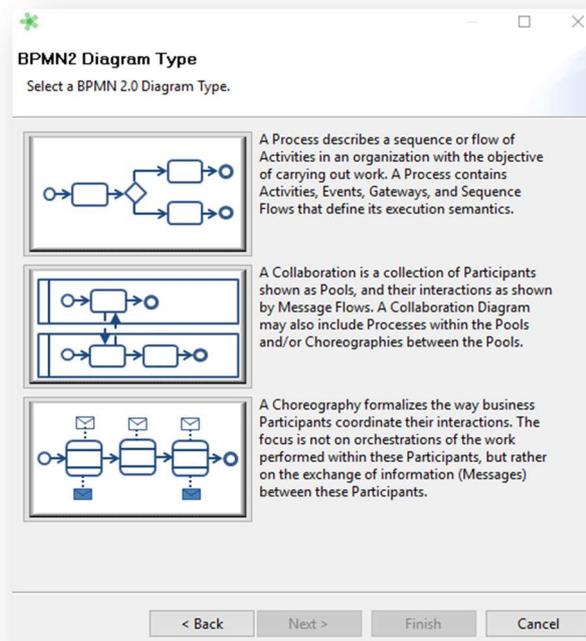
As for the BSM, at TIM level the first step is to **create a TIM project**. You have two options to build a new TIM project:

- deriving from a BSM project you have already created
- starting from scratch, with no link with a BSM project

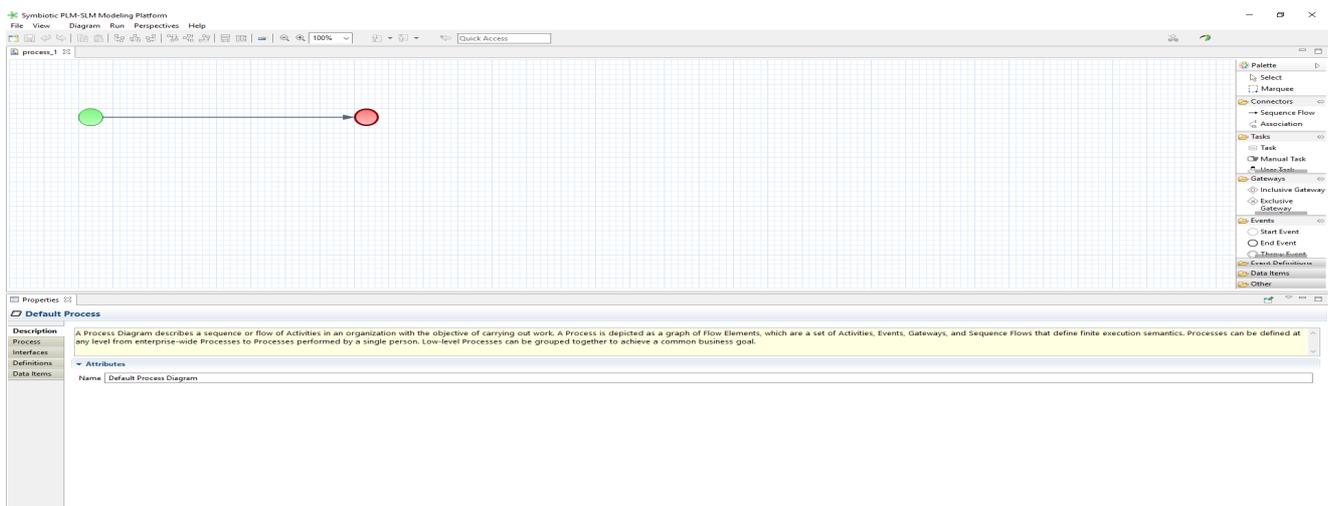
In the first case, you have just to select the BSM project from which the SLM toolbox will retrieve information. In the second case, you have to indicate names of Project, Organisation and service.

After that, you are able to model with TIM languages. In summary, you have two modelling options:

- *UML*, which comprises four diagrams of this language: “Activity”, ”Class”, “Sequence” and “State”.
- *BPMN2.0*, which can be created in two ways:
  - o from an Extended Actigram Star Diagram (EAstar), in this case only types of BPMN models can be created: a Collaboration and a Process. Then, you must select project and the EAstar from which retrieving the input for building the BPMN2.0 model.



**Figure 3: TIM Wizard**



**Figure 4: BPMN visualisation**

- from the scratch (“Generic BPMN 2.0 Diagram”). In this case, you have first to select the type of BPMN2.0 model among three possibilities: “Process”, “Collaboration” and “Choreography” (Fig.4).

Then, you must indicate under Location, the TIM project in which the BPMN2.0 model is included and saved.

It is worth highlighting that in the modelling window in the bottom side you find the properties, which includes several information, variables and data to be fulfilled accordingly with the modelling diagram selected. In any case, you may find a brief explanation of the meaning (i.e. semantic) of the

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symbols/objects selected according with the specific modelling diagram. For instance, in the BPMN collaboration model, if the End event the following description is provided:

*“As the name implies, the End Event indicates where a Process will end. In terms of Sequence Flows, the End Event ends the flow of the Process, and thus, will not have any outgoing Sequence Flows and no Sequence Flow can connect from an End Event. An End Event may have one or more triggers (Event Definitions), which are passed back to an invoking or containing Process (if any).”*

*If no specific element is selected, the description is about the Diagram.*

### 3.2 Import/Export of Models

Projects and models **can be imported and exported**, by clicking on “File” in the toolbar and then on “Import” or “Export”. In case of exporting, you must select the location folder and the format, i.e. zip