

Annotation using Web Service

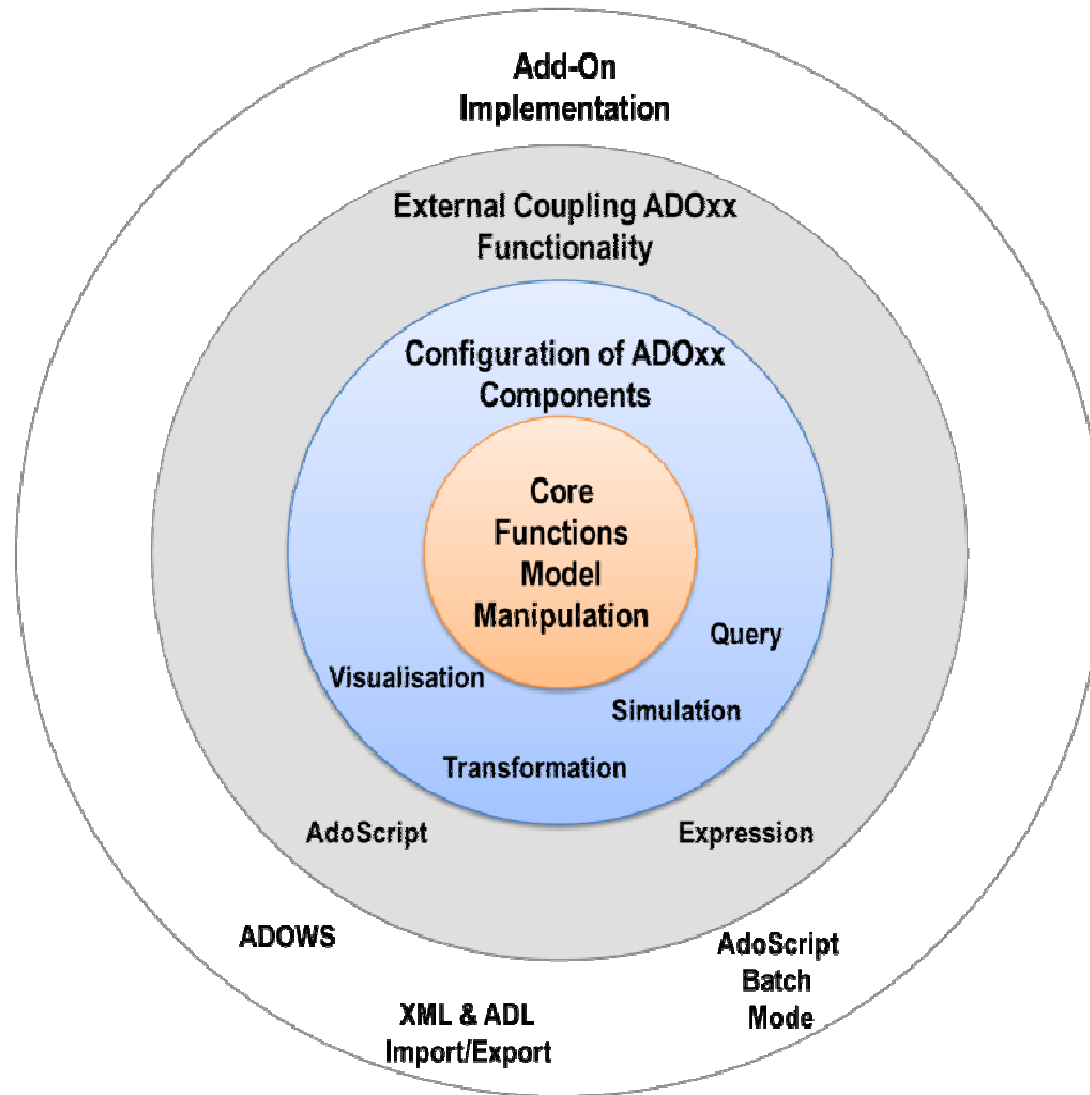
SCENARIO:
Invoking a Web Service with GET Method to Retrieve Information

Scenario Description

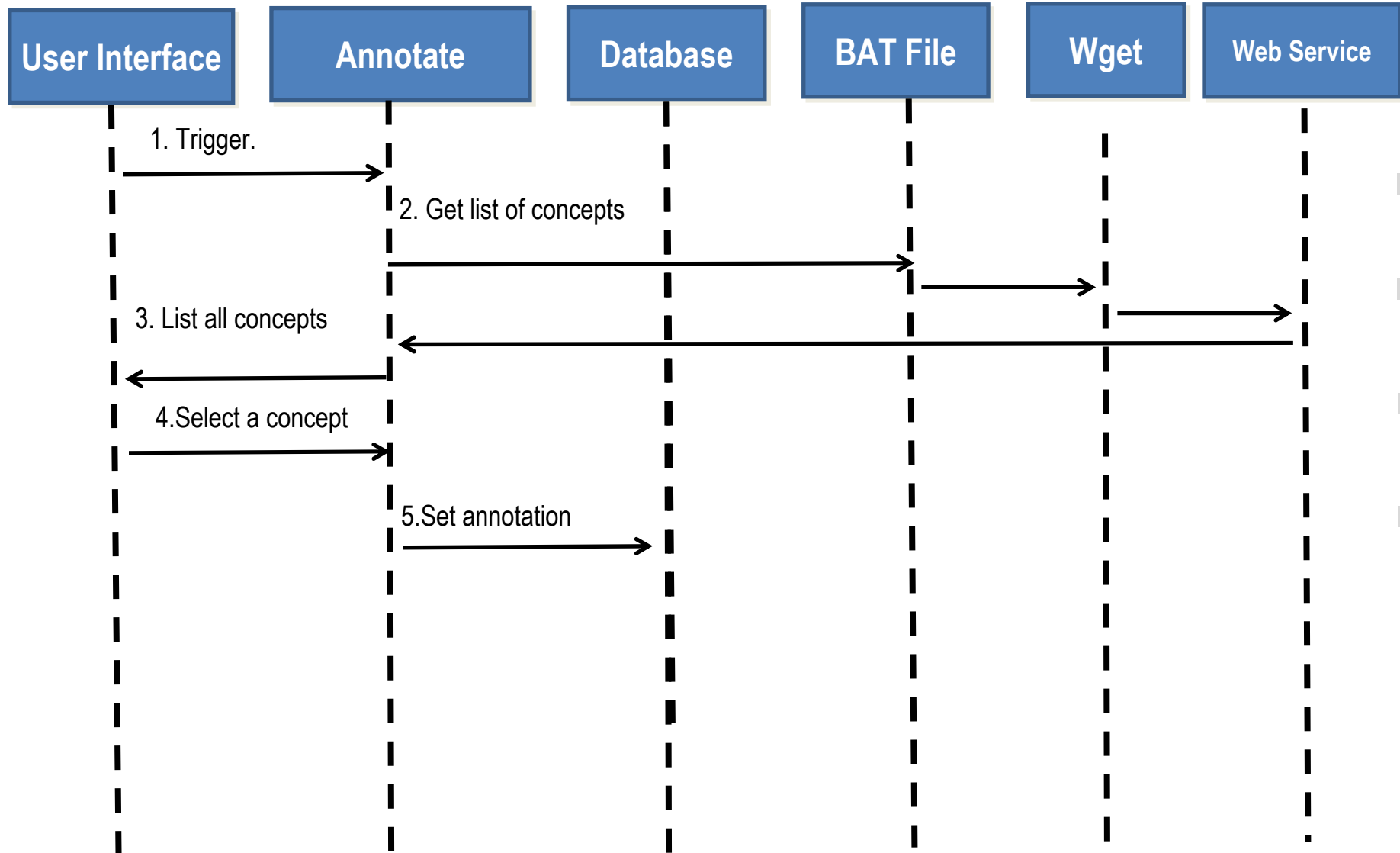
Goal: Demonstrate functionality for the web service based import of a list of concepts and subsequent annotation of objects in a given models using these imported concepts.

Case: Importation of a list of concepts for the annotation of objects in the modelling environment using a web service and subsequent annotation of objects using these concepts.

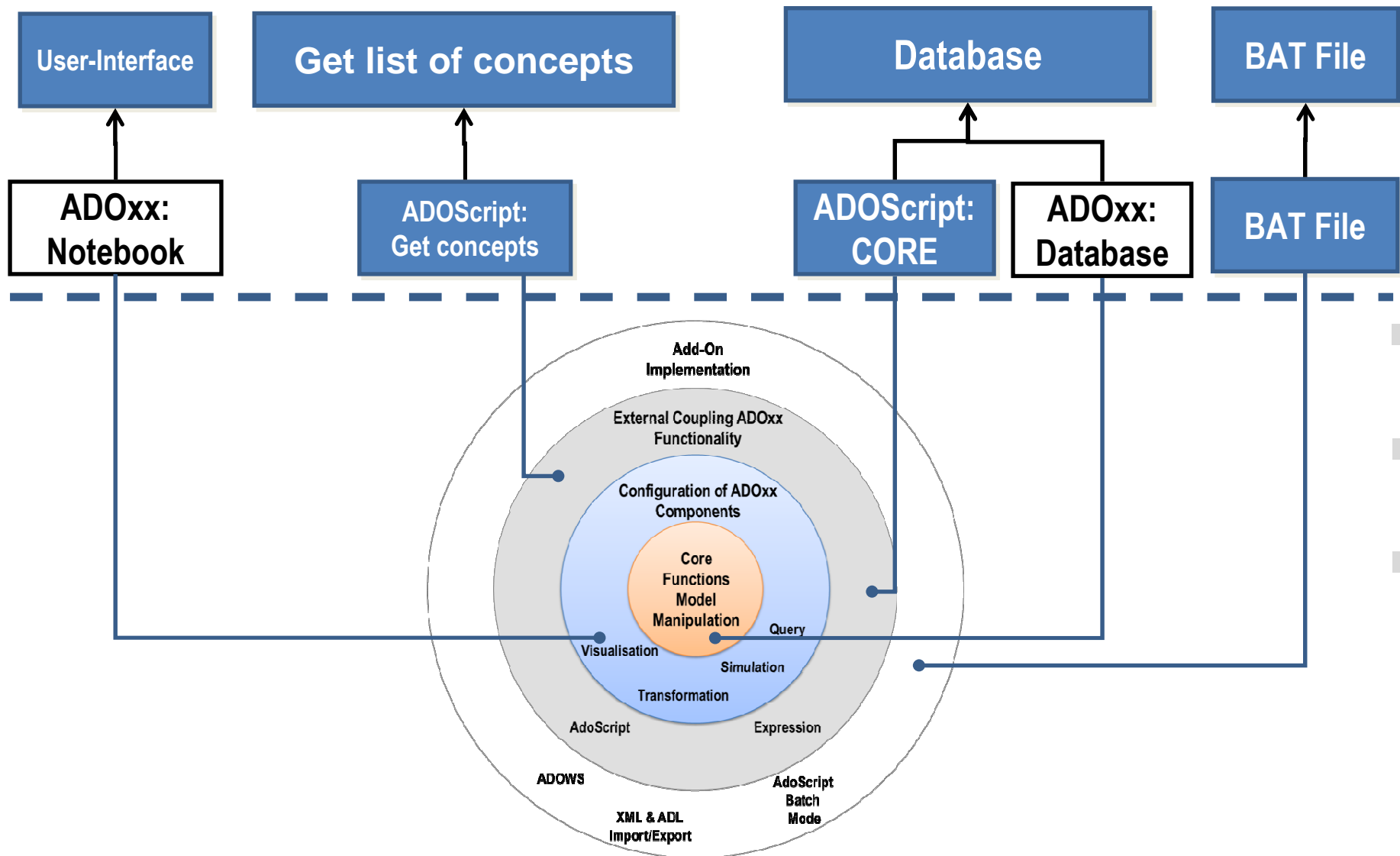
ADOxx Functionality on Meta Level



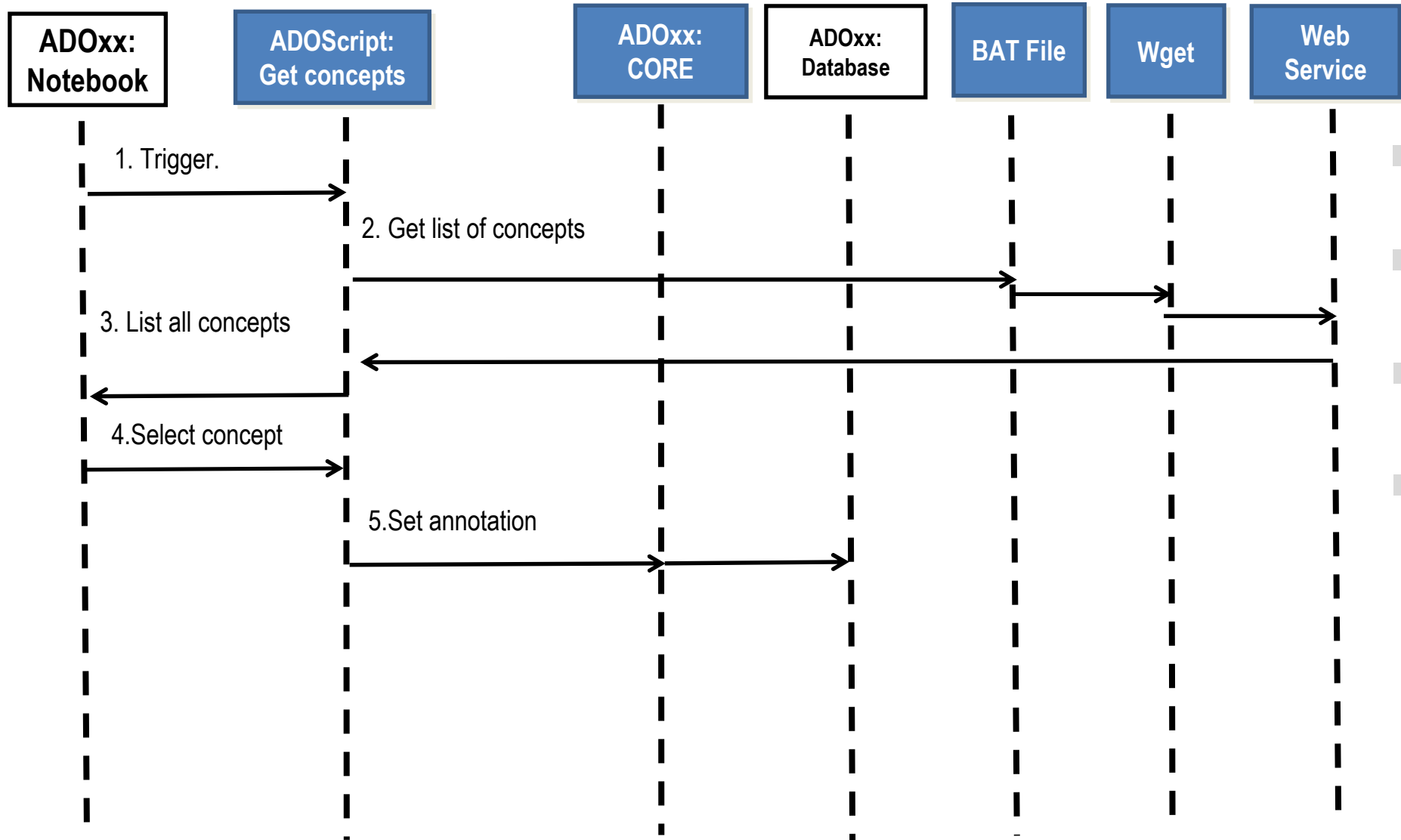
Description of Algorithm



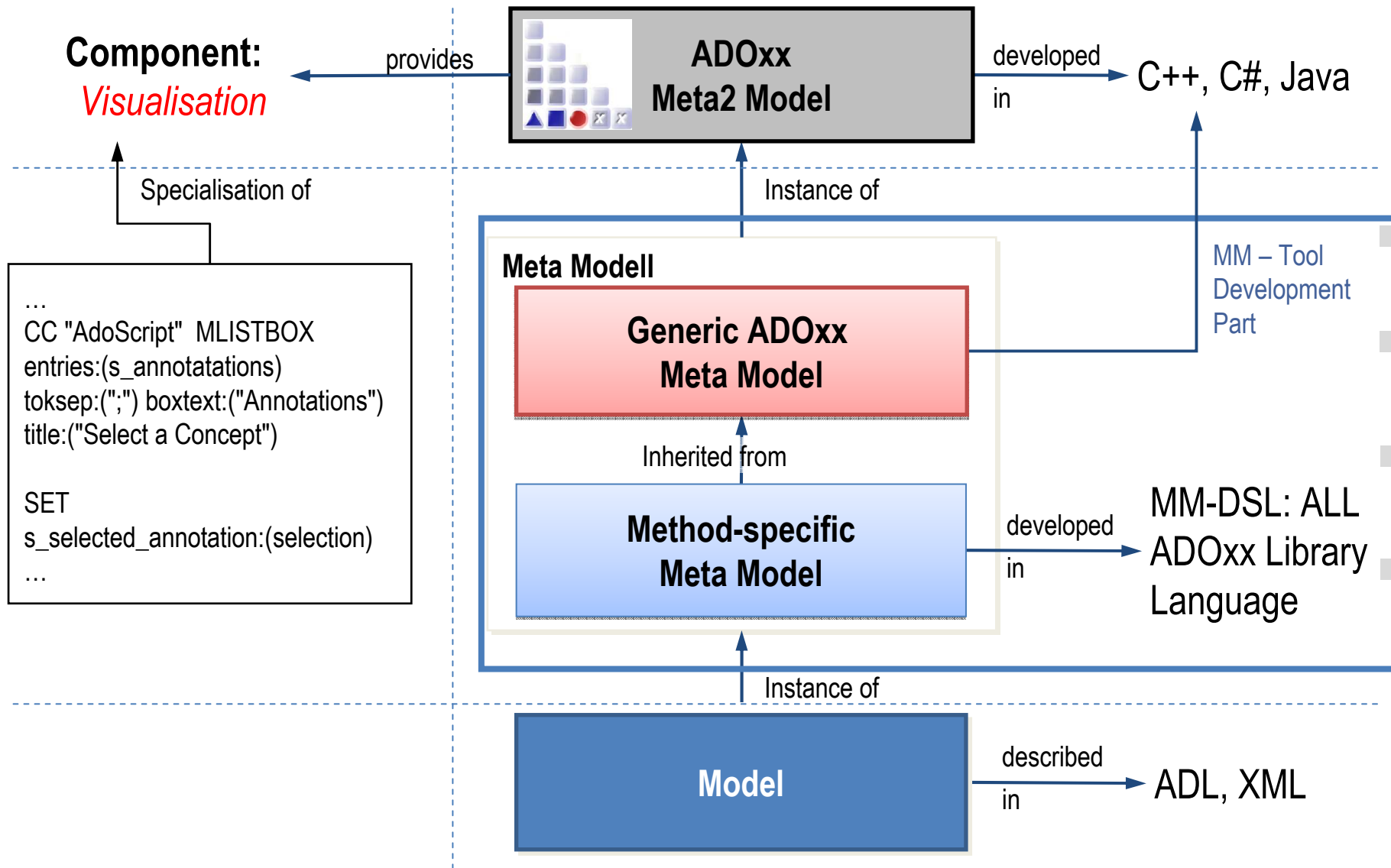
Mapping ADOxx Functionality



ADOxx Realisation Approach



Meta Modelling Layer: Implementing and Algorithm



Added Value of Metamodelling Platform

Used meta-modelling functionality for realisation of the scenario:

- **ADOScript:** ADOScript can retrieve model information, sends request to the API
- **ADOxx Visualisation Component:** is provided by the platform and enables configuration of the user interface of model editor
- **ADOScript Service:** ADOScript Service: ADOScript Service listens to a certain port to get and interpret requests

ADOxx Realisation Hands-On

1. Modelling Language

1. New attributes “Annotation” and “Set Annotation” for superclass __D-construct__
2. New chapter “Semantic Enrichment” in AttrRep for every class and relation to be annotated

2. Configure ADOxx





1. Set menu item for setting annotation service end point

3. Implement Algorithm with ADOscript

1. Retrieve list of concepts from the web service using an ADOscript(in setAnnotation.asc)

Used ADOxx Functionality: Implementing an Algorithm

Introduction	
Setup of Implementation Environment	
Modelling Language Implementation	
	Classes
	Relations
	Class Attributes and Attributes
	GRAPHREP
	ATTRREP
	CLASS Cardinality
	CONVERSION
	Model Pointer
	Attribute Facets
	Model Types

Mechanisms & Algorithms Implementation	
	Core Functions for Model Manipulation
	Database 
	Visualisation
	Query 
	Transformation
	Configuration of ADOxx Components
	Visualisation
	Query
	External Coupling ADOxx Functionality 
	ADOscript Triggers
	ADOscript Language Constructs
	Visualisation ADOscript
	Visualisation Expression
	Query ADOscript
	Transformation ADOscript 
	ADD-ON Implementation
	ADOxx Web-Service
	XML / ADL Import – Export
	ADOscriptBatch Mode

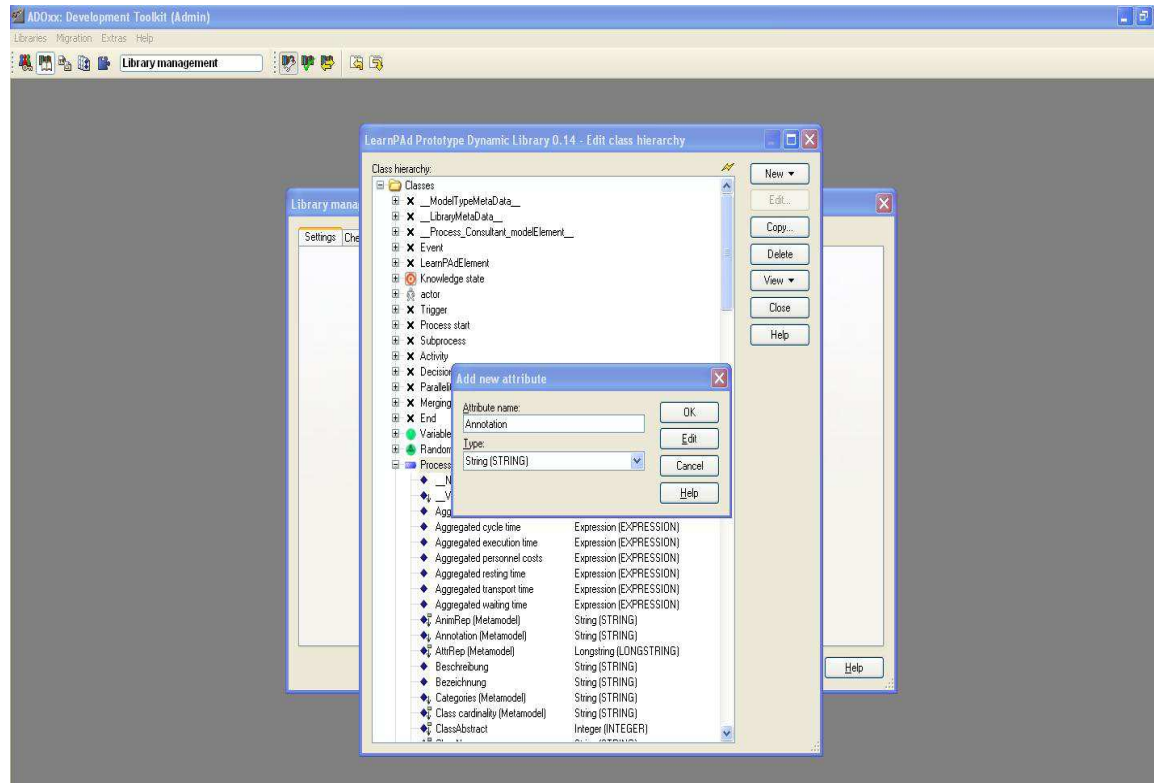
HANDS-ON

Retrieve list of concepts with GET Method

SCENARIO:

Invoking a Web Service with GET Method to Retrieve Information

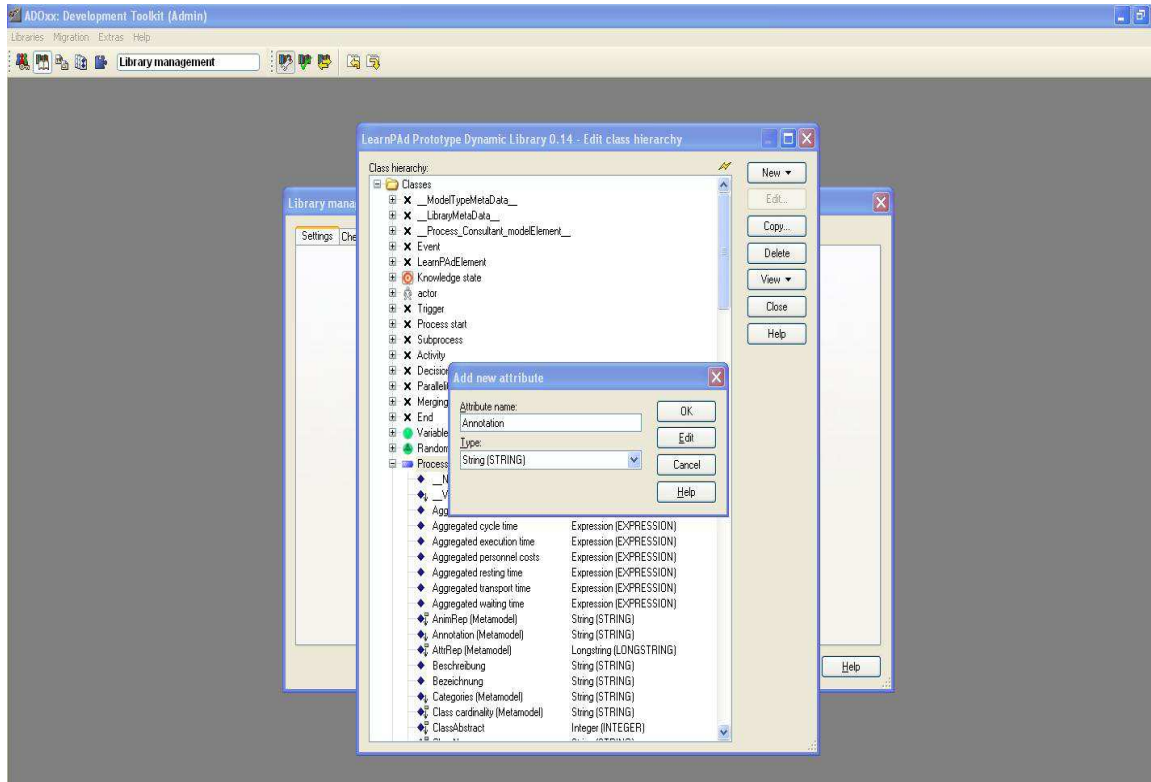
Add attributes for __D-construct__



Add New Attributes

- Select the LearnPAD library and open “Library attributes”.
- Open Class hierarchy
- For class __D-construct__ create two new attributes “Annotation” of type string and “Set Annotation” of type Programcall (see next slides)

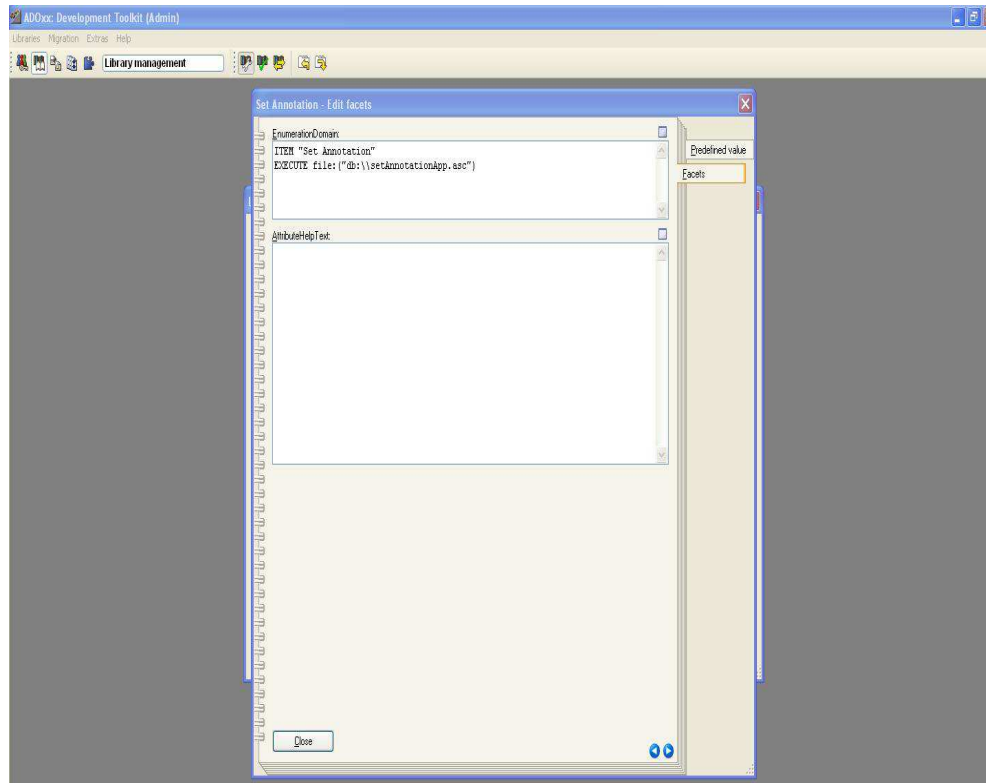
Add Attributes for `__D-construct__`



Add Attribute: Annotation

- Select class `__D-construct__` and click Newattribute.
- Create an attribute named “Annotation” of type STRING

Add Attributes for __D-construct__



Add Attribute: Set Annotation

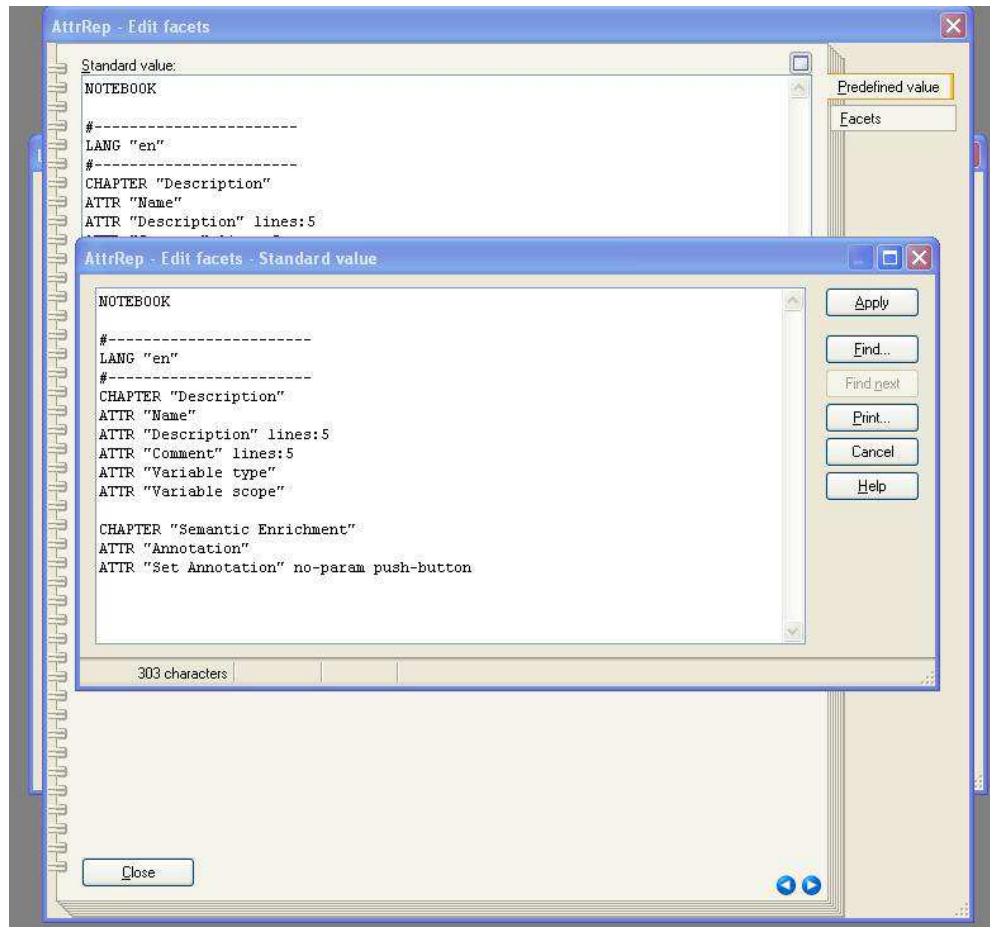
- Select class __D-construct__ and click Newattribute.
- Create an attribute named "Set Annotation" of type PROGRAMCALL
- Click on "Facets" and place the code

```
ITEM "Set Annotation"  
EXECUTE  
file: ("db:\\setAnnotation.asc")
```

in the field "EnumerationDomain".

- Go back to the tab "Predefined value" and set the "Standard Value" to "Set Annotation"

Add Chapter „Semantic Enrichment” for classes and relations



Add Chapter to AttrRep:

- For each class and relation that is to have an annotation, select the attribute AttrRep
- Edit the AttrRep to add the following code at the end:

```
CHAPTER "Semantic Enrichment"  
ATTR "Annotation"  
ATTR "Set Annotation" no-param  
push-button
```

Implement and Import ADOscript File into Database

setAnnotation.asc (please find complete code in the library file)

```
CC "AdoScript" GET_TEMP_FILENAME
SET s_TempFilename: (filename)
SET n_PosFileName: (bsearch ( s_TempFilename , "\\\" , (LEN s_TempFilename)-1 ))
SET s_TempFolder: (copy ( s_TempFilename , 0 , n_PosFileName+1 ))

SET s_BatFileName: ("annotationService.bat")
SET s_ResultsFileName: ("Results")
SET s_ClientName: ("wget.exe")

SET s_BatFilePath: (s_TempFolder + s_BatFileName)
SET s_ResultsFilePath: (s_TempFolder + s_ResultsFileName)
SET s_ClientPath: (s_TempFolder + s_ClientName)

CC "AdoScript" FILE_COPY from: ("db:\\\" + s_BatFileName) to: (s_BatFilePath)
CC "AdoScript" FILE_COPY from: ("db:\\\" + s_ClientName) to: (s_ClientPath)

CC "Modeling" GET_ACT_MODEL
CC "Modeling" GET_SELECTED modelid: (modelid)

SET s_selected_objid: (objid)
SYSTEM (s_BatFilePath+" "+g_AnnotationServiceEndPoint+" "+s_ResultsFilePath+" "+s_ClientPath) with-console-window

CC "AdoScript" FREAD file:(s_ResultsFilePath) binary:0 base64:0
SET s_annotatations:(text)

CC "AdoScript" MLISTBOX entries:(s_annotatations) toksep(";") boxtext:("Annotations") title:("Select an Concept")

IF (endbutton = "ok")
{
    SET s_selected_annotation:(selection)
.....
```


Configure Bat File and Webservice

- Write and import file “annotationService.bat” into the library, which contains the code

```
SET _urlParameters=%1
SET _tempResultFile=%2
SET _tempWgetPath=%3
%_tempWgetPath% -O %_tempResultFile% "%_urlParameters%"
```

- Deploy provided WAR file (ApplicationService.war) on a Tomcat (6.x or higher)

Configure ADOxx

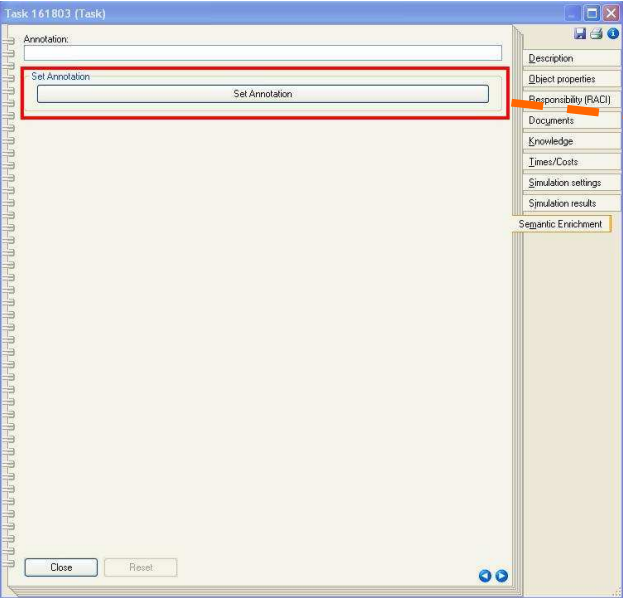
- Configure the menu item and initialisation for setting annotation service endpoint

- Go to the LearnPAd library and select “Library Attributes
- In the tab “Add-ons” in the section “External Coupling”, add the following

```
ON_EVENT "AppInitialized"
{
  SETG g_AnnotationServiceEndPoint: "0"
}
ITEM "Set Annotation Service End Point" modeling
CC "AdoScript" EDITFIELD title:"Enter Annotation Service End Point" caption:URL:
  text:"http://<host><port><appctx><service>"
IF (ecode = 0) {
  SETG g_AnnotationServiceEndPoint:(text)
  CC "AdoScript" INFOBOX ("Service Endpoint have been successfully set as:\n"+g_AnnotationServiceEndPoint)
}
ELSE {
  CC "AdoScript" INFOBOX ("You have not enter the Service End Point")
}
}
```

Results

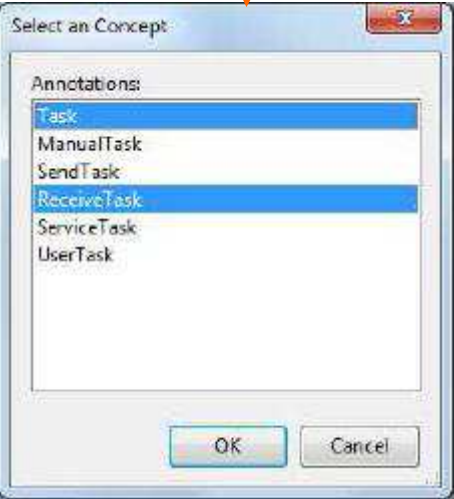
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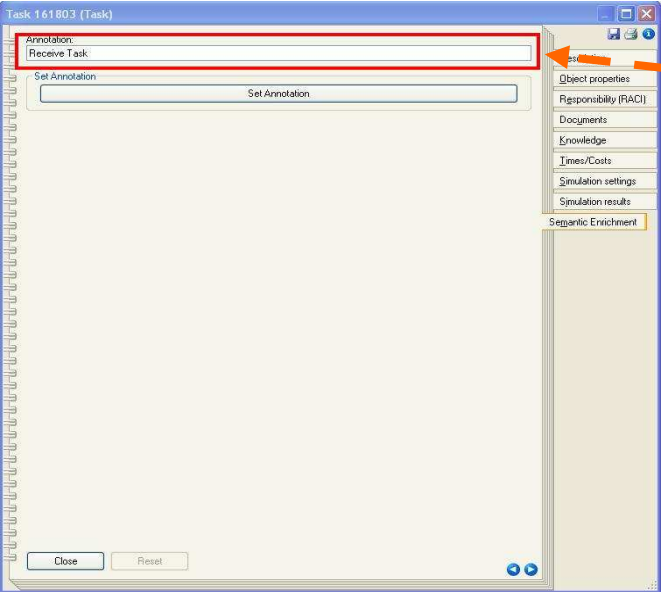
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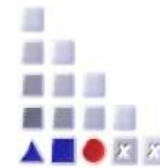
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Further Questions?



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