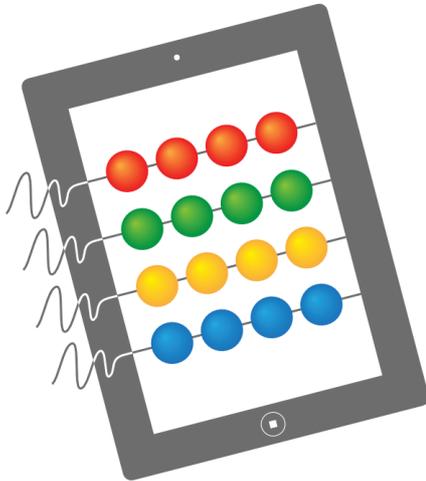




FP7 ICT STREP Project



LEARN PAD

Deliverable D7.4

# Integration Testing Procedures – Final Iteration

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## Abstract

D7.4 is the fourth and last deliverable of Learn PAd Work-Package 7. Its aims to define integration test procedures basing on the use cases “*Grant Management*” and “*Sportello Unico Attività Produttive*”. The integration test procedures plan is described in terms of Objective, Prerequisite Tests, Involved Modules, Procedure, Inputs, Expected Outputs and Results, and Status. This plan is organized in a bottom up-like approach and aims to be defined for all the released software.

## Keyword list

Integration Plan, Test Procedures, Testing, Business Process, Simulation, Questionnaires.



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# Table of Contents

<b>1. Introduction .....</b>	<b>1</b>
1.1. <i>Related deliverables</i> .....	1
1.2. <i>Deliverables outline</i> .....	1
1.3. <i>Changes from previous version</i> .....	1
<b>2. Strategy for the test plan.....</b>	<b>3</b>
2.1. <i>Methodology</i> .....	3
2.2. <i>Test card</i> .....	3
2.3. <i>Preparation of the test environment</i> .....	4
2.3.1. <i>Test Machine</i> .....	4
2.4. <i>Working with the test cases models</i> .....	5
<b>3. Learn PAd Platform Set-up and deployment Testing.....</b>	<b>6</b>
3.1. <i>Test of Learn PAd Platform – Installation</i> .....	6
3.2. <i>Test of Learn PAd Platform – Launch</i> .....	6
3.3. <i>Test of Learn PAd Platform – Connection</i> .....	6
<b>4. Grant Management: Unicam Use Case Test.....</b>	<b>8</b>
4.1. <i>Upload Model</i> .....	8
4.2. <i>Generate questionnaires</i> .....	9
4.3. <i>Assess model quality</i> .....	9
4.4. <i>Browse process documentation</i> .....	10
4.5. <i>Share business process knowledge</i> .....	11
4.6. <i>Simulate business process</i> .....	11
4.6.1. <i>Initialize Simulation</i> .....	11
4.6.2. <i>Execute Simulation</i> .....	12
4.7. <i>Monitor learning progress</i> .....	13
<b>5. Sportello Unico Attività Produttive Use Case Test.....</b>	<b>14</b>
5.1. <i>Upload Model</i> .....	14
5.2. <i>Generate questionnaires</i> .....	15
5.3. <i>Assess model quality</i> .....	15
5.4. <i>Browse process documentation</i> .....	16
5.5. <i>Share business process knowledge</i> .....	17
5.6. <i>Simulate business process</i> .....	17
5.6.1. <i>Initialize Simulation</i> .....	17

5.6.2. <i>Execute Simulation</i> .....	18
5.7. <i>Monitor learning progress</i> .....	19
<b>6. Conclusion</b> .....	<b>20</b>

# 1. Introduction

In the context of Learn PAd project, WP7 focuses on interfaces, interface management, integration and deployment processes, and architectural and implementation. This current document is positioned within this Work-Package and provides an integration plan for the overall Learn PAd Platform.

This document is the deliverable 7.4, the Integration Testing Procedures – Final Iteration. Its aim is to define the integration test procedures defined for all the released software basing on the demonstrators defined in Work-Package 8 and it is based on two use cases: *EPBR* and *SUAP*. It can be used as a guide when evaluating the functionalities of Learn PAd platform on the demonstrators, and allows the evaluator to verify that the Learn PAd Platform as a whole satisfies its functional requirements.

We define a set of tests covering the different uses that have been defined for the Learn PAd Platform. The main goal of these tests is to specify for each tested demonstrator scenario a series of actions leading to an expected result. This test suite will allow to ensure without ambiguity whether or not each functionality defined for the Learn PAd Platform is implemented according to its requirements and meets the user's needs.

This deliverable is the final iteration of the deliverable D7.3. It builds upon the use cases definition work produced in D2.1 and D2.3. Each test corresponds to a use case or a part of a use case defined in these documents.

## 1.1. Related deliverables

Our work considers other work provided in already completed deliverables.

- D2.1 defines the set of uses cases that should be satisfied by the platform. These use cases have been used as the basis for defining the test suite.
- D2.3 details the architectural changes that may require to adapt/rework some of the work cases.
- D7.3 is the previous version of this deliverable.
- D8.1 outlines the demonstrators, which are used to ensure that the tests will be executed on non-trivial inputs.

## 1.2. Deliverables outline

The document is composed of six chapters:

- Chapter 2 contains a description of the strategy followed for the test plan.
- The third chapter deals with tests concerning the set-up and the deployment of Learn PAd platform.
- Chapters 4 and 5 contain tests related respectively to the EPBR and the SUAP Use Cases.
- Finally, the sixth chapter concludes the deliverable with a summary and hints at future work directions.

## 1.3. Changes from previous version

As the implementation of the different components of the platform did not vary significantly from the planned design since the previous iteration of the deliverable, no major revision was required in the description of the tests procedure in themselves regarding their initial formulation in D7.3.

The main change from the previous version concerns the introduction of section 2.4. This section introduces a quick summary on how to work with the test cases model files in order to quickstart the platform for testing. It also presents some possible recovery scenarios in order to be able to continue testing in case of failure at some stages of the testing procedure.

## 2. Strategy for the test plan

### 2.1. Methodology

The test plan has been structured around the different use cases defined for the project in the D2.1. Based on these use cases, we define the tests adopting the point of view of an end-user of the system. Each test is defined around a self-contained task a user may want to perform, similar to agile test plans centered on user stories<sup>1</sup>. By using an end-user perspective as the basis for the tests definition, our goal is to validate that the system conforms not only to its technical specification, but also to its intended use. To ensure the validity of the test on non-trivial cases, we base our tests on the two demonstrators defined in the context of WP8. For each demonstrator we focus on a specific process:

- The “*Grant Management*” process of the EPBR demonstrator.
- The “*Titolo Unico*” process of the SUAP demonstrator.

These two processes have been selected due to the fact that they are both non-trivial and come from different demonstrators. Consequently they provide interesting and varied inputs that ensure that the tests results will be significant.

The first part of the tests, defined in section 3, is independent of the process being considered. However the tests defined in sections 4 and 5 are testing similar functionalities on the two processes. This ensures the functionalities of the platform work correctly on different sets of realistic inputs. The description of the test case should provide a detailed step-by-step description of the different actions needed for the test, based on the activities of the corresponding use cases described in D2.1 and revised in D2.3. The test should also provide the expected results or observations produced by the described series of actions. Note that, since the architecture of the platform has naturally evolved since the inception of the project, some of the original Use Cases no longer translate directly into user activities and had to be reworked or merged for the definition of the tests. For the writing, the point of view that will be assumed is the one of a person without a priori knowledge of the Learn PAd Platform but with reasonable technical knowledge relating to the task at hand. For example, tests related to the installation of the platform will provide a level of information sufficient for a person having at least a basic knowledge of how to interact with a Linux system and its command-line.

### 2.2. Test card

Each test case is described using a test case template of the following format:

Test Identifier	Test Name
Objective	
Prerequisite Tests	

---

1

User stories. <http://guide.agilealliance.org/guide/user-stories.html>

Involved Modules	
Procedure	
Inputs	
Expected Outputs & Results	

With the following definition for each field:

- Test Identifier: an unique identifier of the test
- Test Name: a human-readable designation for the test
- Objective: a short description of the functionality or functionalities being tested
- Prerequisite Tests: The identifiers of the tests that must have be successfully executed for this test to take place.
- Involved Modules: the list of the modules involved in the test
- Procedure: a detailed description of the steps involved for the testing procedure
- Inputs: inputs to be used for the test. Be it files to be used, values for form fields, etc.
- Expected Outputs & Results: The expected result of the test. This can be produced files, displayed info on a GUI, REST return values and so on.

A test is successful if the entire observed results match the ones defined in Expected Outputs & results. If only some of the observed results match, the test is only partially successful. If none of the observed result matches the defined expectation, the test is failed.

In some cases, for example when a prerequisite test failed, a test cannot be executed. In such case it should be marked so.

(This field is to be filled only at the end of the project)

## 2.3. Preparation of the test environment

### 2.3.1. Test Machine

Here are the requirements for the machine on which the tests will be performed:

<b>OS</b>	Ubuntu 12.04 LTS (Precise Pangolin) <sup>2</sup>
<b>Memory</b>	>= 3GB
<b>Additional installed packages (latest version)</b>	Firefox, git, curl, gcc, make, maven, nodejs, openjdk-7-jdk, openjdk-7-jre
<b>Others</b>	Internet access (for platform installation)

<sup>2</sup> <http://releases.ubuntu.com/12.04/>

## 2.4. Working with the test cases models

As explained in the previous section, the integration testing procedure makes use of two use cases: EPBR and SUAP.

The required files to work with these use cases are available at the following URLs:

- <http://wiki.learnpad.eu/LearnPAdWiki/bin/view/WP8/EPBR> for the EPBR use case
- <http://wiki.learnpad.eu/LearnPAdWiki/bin/view/WP8/SUAP> for the SUAP use case

These pages contain links to the latest versions of the use case model set files required for the tests described in sections 4 and 5.

For each use case, a zip file is provided containing:

- An adl file that can be used to initialize the modelisation tool for tests 4.1 and 5.1.
- A zip file containing the the exported model set files that can be used to set up the platform in case of failure during the test 4.1 or 5.1

Assuming failure during either test 4.1 or 5.1, the corresponding model set archive file can be uploaded manually into the Learn PAd platform using the following command:

```
curl \
  --verbose \
  --request PUT \
  --user "superadmin:LearnPAss" \
  --header "Content-Type: application/octet-stream" \
  --data-binary "@</path/to/LP_ME_ADOXX_MODELSET_XXXX.zip>" \
  "http://<platformhost>/xwiki/rest/learnpad/me/corefacade/importmodelset/<modelsetid>?t
ype={ADOXX,MD}"
```

Where:

- **</path/to/LP\_ME\_ADOXX\_MODELSET\_XXXX.zip>** is the local path to the zip archive file
- **<platformhost>** is the host address at which the platform is accessible (usually *localhost:8080*)

**<modelsetid>** is a string used to uniquely identify the model set

### 3. Learn PAd Platform Set-up and deployment Testing

#### 3.1. Test of Learn PAd Platform – Installation

Test 3.1	Learn PAd Platform - Installation
Objective	Install the platform on a new machine.
Prerequisite Tests	None.
Involved Modules	All.
Procedure	<ol style="list-style-type: none"><li>git clone <a href="https://github.com/LearnPAd/learnpad.git">https://github.com/LearnPAd/learnpad.git</a></li><li>In the <i>learnpad</i> folder, run <i>bash./build</i></li></ol>
Inputs	Having Git, Java and Maven installed on the machine.
Expected Outputs & Results	The complete platform source code has been downloaded inside the <i>learnpad</i> folder. The <i>build</i> script has completed successfully (return code 0). You have an <i>out</i> folder in each component.

#### 3.2. Test of Learn PAd Platform – Launch

Test 3.2	Learn PAd Platform - Launch
Objective	Launch the Learn PAd Platform.
Prerequisite Tests	T3.1
Involved Modules	Core Platform, Collaborative Workspace.
Procedure	<ol style="list-style-type: none"><li>Inside the <i>learnpad</i> folder, run the following command: <i>bash launch start</i>.</li><li>Using a web browser, go to <a href="http://localhost:8080">http://localhost:8080</a>.</li></ol>
Inputs	None.
Expected Outputs & Results	The launch start script should return a value of 0, indicating a success (can be viewed using the <i>echo \$?</i> command). When going at <a href="http://localhost:8080">http://localhost:8080</a> , the user should be presented with the Learn PAd home page.

#### 3.3. Test of Learn PAd Platform – Connection

<b>Test 3.3</b>	<b>Learn PAd Platform - Connection</b>
Objective	Launch the Learn PAd Platform.
Prerequisite Tests	T3.1, T3.2
Involved Modules	Core Platform, Collaborative Workspace.
Procedure	<ol style="list-style-type: none"> <li>1. Using a web browser, go to <a href="http://localhost:8080">http://localhost:8080</a>.</li> <li>2. Click on the “login” link in the top-right corner.</li> <li>3. Enter the login and password defined in Inputs.</li> <li>4. Click on the “log-in” button.</li> </ol>
Inputs	User login (provided for the test). User password (provided for the test).
Expected Outputs & Results	The user should now be connected under the “test” profile. This can be verified by observing the profile icon on the top right corner.

## 4. Grant Management: Unicam Use Case Test

The University of Camerino (UNICAM) is a public institution of higher education participating in the construction of the European Research Area and the European Higher Education Area. Over the last years the Seventh Framework Program (FP7), and now Horizon 2020, are funding opportunities for many organizations such as UNICAM in Europe in order to support innovation and collaboration. Submitting a EU project the organizations have to be aware of the complexity of the environment in which they are working. They have to be able to manage different way to work considering the different programs, funding and reporting schemes, etc.

The Grant Management process is triggered by the reception of the notification acceptance of the project by EU. It involves several offices inside UNICAM. After the pre-financial the project activities start, the university has to manage project activities and according to the grant agreement the Periodic Reports and related Amendments if needed. At the end of the project the Final Report has to be sent to the EU community.

### 4.1. Upload Model

Test 4.1	Upload Model Set
Objective	Upload Model Set consists of selected models by user.
Prerequisite Tests	T3.1
Involved Modules	Learn PAd Modeling Environment, Core Platform.
Procedure	<ol style="list-style-type: none"><li>1. Launch Learn PAd Modeling Environment Rich Client.</li><li>2. Open Interaction Scenarios Menu.</li><li>3. Select Push Model Set Scenario.</li><li>4. Select Models related to the Grant Management process set through opened table of content in the pop-up window (Decide, if referenced models also should be included into model set).</li><li>5. Click Start Button.</li></ol>
Inputs	The models related to the Grant Management process.
Expected Outputs & Results	<p>Learn PAd Modeling Environment Model Exporter and Transformer, retrieves models from model repository.</p> <p>Transforms in one single XML file.</p> <p>XML File is named with UNIQUE ID as identified by Core Platform.</p> <p>This XML file with unique ID has been uploaded on Core Platform through <i>PushModelSet</i> API.</p> <p>A pop-up window displays if the action was successful.</p>

## 4.2. Generate questionnaires

Test 4.2	Generate Questionnaires
Objective	Generate a questionnaire from a model.
Prerequisite Tests	T4.1
Involved Modules	Core Platform, Questionnaire Manager.
Procedure	<ol style="list-style-type: none"> <li>1. Notify the Questionnaire Manager from a new model  <code>curl -X PUT \</code>  <code>"http://host:port/learnpad/qm/importmodel/&lt;modelsetid&gt;"</code></li> <li>2. Ask for the generation of a new questionnaire  <code>curl -X GET \</code>  <code>"http://host:port/learnpad/qm/generate/&lt;modelsetid&gt;"</code></li> <li>3. Get the generation process ID (result from the previous request).</li> <li>4. Ask for the status of the generation  <code>curl -X GET \</code>  <code>"http://host:port/learnpad/qm/generate/&lt;generationid&gt;/status"</code></li> <li>5. Get the questionnaire.</li> </ol>
Inputs	The model (with <i>modelsetid</i> related to the Grant Management process) and a configuration file (related to the generation of the questionnaire).
Expected Outputs & Results	A questionnaire has been returned in an XML format from the call to the API.

## 4.3. Assess model quality

T4.3	Assess Model Quality
Objective	Verify model according to defined modeling metrics, rules and guidelines. Find out all non-conformity to defined rules and guidelines.
Prerequisite Tests	T4.1
Involved Modules	Core Platform, Model Importer, Model Verification.
Procedure	<ol style="list-style-type: none"> <li>1. Get Grant Management model from core platform.</li> <li>2. Get validation rules and guidelines. Rules and guidelines define what should be assessed in model.</li> <li>3. Evaluate model: <ol style="list-style-type: none"> <li>a. Check if model meets all defined rules and guidelines.</li> <li>b. Define all non-conformity to defined rules and guidelines.</li> </ol> </li> <li>4. Identify all non-conformity to rules and guidelines. Create list with</li> </ol>

	<p>concrete examples and references to these non-conformities.</p> <p>5. Define status of assessment:</p> <ol style="list-style-type: none"> <li>OK - if test didn't find any non-conformity.</li> <li>KO - if test find non-conformities.</li> </ol>
Inputs	<ol style="list-style-type: none"> <li>The model (with <i>modelsetid</i> related to the Grant Management process).</li> <li>The associated metrics, rules and guidelines for model assessment. These rules defined by rules check methods defined in Model Verification module.</li> </ol>
Expected Outputs & Results	<ol style="list-style-type: none"> <li>Assessed model. Assessment status OK.</li> <li>If assessment status is KO then expecting to get list of reasons, list of rules, which are not passed.</li> </ol>

#### 4.4. Browse process documentation

Test 4.4	Browse process documentation
Objective	The user can navigate along a process in the wiki.
Prerequisite Tests	T4.1
Involved Modules	Collaborative Workspace.
Procedure	<ol style="list-style-type: none"> <li>The user goes on the platform with a web-browser.</li> <li>She/he connects with his account.</li> <li>Among the displayed list of general process available, he clicks on the Grant Management process.</li> <li>Among the list of models in the process "Grant Management", she/he clicks on the main Business Process.</li> <li>A list of all steps of this Business Process is displayed; she/he can filter them to access the "Event" whose action is "Notification of acceptance from EU".</li> <li>A description of the "Event" is shown and a button which links to the next step in the process is displayed.</li> <li>The user goes onto the next step.</li> </ol>
Inputs	<p>User login (provided for the test).</p> <p>User password (provided for the test).</p>
Expected Outputs & Results	The user should be able to go forward and backward in the Business Process with buttons in order to discover each step of the process.

Status	
--------	--

## 4.5. Share business process knowledge

Test 4.5	Share Business Process Knowledge
Objective	The user share her/his experience about a process.
Prerequisite Tests	T4.4
Involved Modules	Collaborative Workspace.
Procedure	<ol style="list-style-type: none"> <li>1. The user is browsing the Grant Management process.</li> <li>2. About the activity "Investigation by MIUR", she/he wants to share experience.</li> <li>3. She/he clicks on "Share knowledge" button.</li> <li>4. A template of "Knowledge" document is presented to him to help him to fill his experience.</li> <li>5. She/he fills and saves the "Knowledge" document.</li> </ol>
Inputs	None.
Expected Outputs & Results	In the activity "Investigation by MIUR", the user can see the newly created "Knowledge" document displayed as a suggestion that may give additional information about the activity. Clicking this link should lead to the document.

## 4.6. Simulate business process

### 4.6.1. Initialize Simulation

Test 4.6.1	Learn PAd Platform - Initialize Simulation
Objective	Initialize a simulation of the Grant Management process.
Prerequisite Tests	T3.1, T3.2, T3.3, T4.1
Involved Modules	Core Platform, Collaborative Workspace, Simulator.
Procedure	<ol style="list-style-type: none"> <li>1. On the home page, click on the <i>simulate</i> button corresponding to the Grant Management model.</li> <li>2. Set the parameters to the given Input values and validate.</li> </ol>
Inputs	<ul style="list-style-type: none"> <li>• The Grant Management model.</li> <li>• Configuration for the Business Process:</li> </ul>

	<ul style="list-style-type: none"> <li>○ For each role: select test.</li> <li>○ All other parameters left to their default value</li> </ul>
Expected Outputs & Results	<ol style="list-style-type: none"> <li>1. After having clicked the <i>validate</i> button, the user should be directed to a configuration interface for starting a simulation of the Grant Management process.</li> <li>2. After having configured the simulation, the user should be directed to the simulation interface, containing the first task of the business process.</li> </ol>

#### 4.6.2. Execute Simulation

Test 4.6.2	Learn PAd Platform - Run Simulation
Objective	Run a simulation of the Grant Management process.
Prerequisite Tests	T3.1, T3.2, T3.3, T4.1, T4.6.1
Involved Modules	Core Platform, Collaborative Workspace, Simulator.
Procedure	In this first iteration of the Integration Testing Procedures, we don't have yet the required information for describing the test of the Run Simulation.
Inputs	<ul style="list-style-type: none"> <li>• The Sportello Grant Management: Unicom Use Case.</li> <li>• Configuration for the Business Process: <ul style="list-style-type: none"> <li>○ For each role: select test.</li> <li>○ All other parameters left to their default value.</li> </ul> </li> </ul>
Expected Outputs & Results	<p>All the tasks are validated.</p> <p>The simulation completes successfully.</p> <p>The user is redirected back to her/his home page.</p>

## 4.7. Monitor learning progress

Test 4.7	Learn PAd Platform - Monitor Learning Progress
Objective	Check the learning indicators associated with the Grant Management process.
Prerequisite Tests	T3.1, T3.2, T3.3, T4.1, T4.6.1, T4.6.2
Involved Modules	Core Platform, Collaborative Workspace, Simulator.
Procedure	From the home page, the user goes to the dashboard.
Inputs	None.
Expected Outputs & Results	The dashboard displays the session score of the user for the session in T4.6.2. The other indicators (BP score, global score etc.) have been updated accordingly.

## 5. Sportello Unico Attività Produttive Use Case Test

*Sportello Unico Attività Produttive* (SUAP) refers to the activities that the Italian Public Administrations have to put in place in order to permit to entrepreneurs to set up a new company or more general to organize a business activity. Reducing the administrative burden the entrepreneurs refers to a single office, the SUAP office. Contact between entrepreneurs and SUAP office has to be done completely online. SUAP office can be considered as a mediator among entrepreneurs and PAs.

The “*Titolo Unico*” process is named in English as “Standard Request to Start a Business Activity”. The entrepreneur applies for opening the activity and he/she has to wait for feedback by the administration before to start. Such application is a request reporting details of the activity, location, etc. SUAP office forwards the request to the municipality offices and third parties administrations involved in the verification activity.

### 5.1. Upload Model

Test 5.1	Upload Model Set
Objective	Upload Model Set consists of selected models by user.
Prerequisite Tests	T3.1
Involved Modules	Learn PAd Modeling Environment, Core Platform.
Procedure	<ol style="list-style-type: none"> <li>1. User launches Learn PAd Modeling Environment Rich Client.</li> <li>2. Opens Interaction Scenarios Menu.</li> <li>3. Selects Push Model Set Scenario.</li> <li>4. Selects Models related to the Titolo Unico process set through opened table of content in the pop-up window (decides, if referenced models also should be included into model set).</li> <li>5. Clicks Start Button.</li> </ol>
Inputs	The models related to the Titolo Unico process.
Expected Outputs & Results	<p>Learn PAd Modeling Environment Model Exporter and Transformer, retrieves models from model repository.</p> <p>Transforms in one single XML file.</p> <p>XML File is named with UNIQUE ID as identified by Core Platform.</p> <p>This XML file with unique ID has been uploaded on Core Platform through <i>PushModelSet</i> API.</p> <p>A pop-up window displays if the action was successful.</p>

## 5.2. Generate questionnaires

Test 5.2	Generate Questionnaires
Objective	Generate a questionnaire from a model.
Prerequisite Tests	T5.1
Involved Modules	Core Platform, Questionnaire Manager.
Procedure	<ol style="list-style-type: none"> <li>6. Notify the Questionnaire Manager from a new model  <code>curl -X PUT \</code>  <code>"http://host:port/learnpad/qm/importmodel/&lt;modelsetid&gt;"</code></li> <li>7. Ask for the generation of a new questionnaire  <code>curl -X GET \</code>  <code>"http://host:port/learnpad/qm/generate/&lt;modelsetid&gt;"</code></li> <li>8. Get the generation process ID (result from the previous request)</li> <li>9. Ask for the status of the generation  <code>curl -X GET \</code>  <code>"http://host:port/learnpad/qm/generate/&lt;generationid&gt;/status"</code></li> <li>10. Get the questionnaire</li> </ol>
Inputs	The model (with <i>modelsetid</i> related to the Titolo Unico process) and a configuration file (related to the generation of the questionnaire).
Expected Outputs & Results	A questionnaire has been returned in an XML format from the call to the API.

## 5.3. Assess model quality

T5.3	Assess Model Quality
Objective	Verify model according to defined modeling metrics, rules and guidelines. Find out all non-conformity to defined rules and guidelines.
Prerequisite Tests	T5.1
Involved Modules	Core Platform, Model Importer, Model Verification.
Procedure	<ol style="list-style-type: none"> <li>1. Get Tito Unico model from core platform that will be verified.</li> <li>2. Get validation rules and guidelines. Rules and guidelines define what should be assessed in model.</li> <li>3. Evaluate model: <ol style="list-style-type: none"> <li>a. Check if model meets all defined rules and guidelines.</li> <li>b. Define all non-conformity to defined rules and guidelines.</li> </ol> </li> <li>4. Identify all non-conformity to rules and guidelines. Create list with</li> </ol>

	<p>concrete examples and references to these non-conformities.</p> <p>5. Define status of assessment:</p> <ol style="list-style-type: none"> <li>OK - if test didn't find any non-conformity.</li> <li>KO - if test find non-conformities.</li> </ol>
Inputs	<ol style="list-style-type: none"> <li>The model (with <i>modelsetid</i> related to the Titolo Unico process).</li> <li>The associated metrics, rules and guidelines for model assessment. These rules defined by rules check methods defined in Model Verification module.</li> </ol>
Expected Outputs & Results	<ol style="list-style-type: none"> <li>Assessed model. Assessment status OK.</li> <li>If assessment status is KO then expecting to get list of reasons, list of rules, which are not passed.</li> </ol>

#### 5.4. Browse process documentation

Test 5.4	Browse process documentation
Objective	The user can navigate along a process in the wiki.
Prerequisite Tests	T5.1
Involved Modules	Collaborative Workspace.
Procedure	<ol style="list-style-type: none"> <li>The user goes on the platform with a web-browser.</li> <li>She/he connects with his account.</li> <li>Among the displayed list of general process available, he clicks on the Titolo Unico process.</li> <li>Among the list of models in the process "Titolo Unico", she/he clicks on the main Business Process.</li> <li>A list of all steps of this Business Process is displayed; she/he can filter them to access the "Event" whose action is "Notification of acceptance from EU".</li> <li>A description of the "Event" is shown and a button which links to the next step in the process is displayed.</li> <li>The user goes onto the next step.</li> </ol>
Inputs	<p>User login (provided for the test).</p> <p>User password (provided for the test).</p>
Expected Outputs & Results	The user should be able to go forward and backward in the Business Process with buttons in order to discover each step of the process.

## 5.5. Share business process knowledge

Test 5.5	Share Business Process Knowledge
Objective	The user share her/his experience about a process.
Prerequisite Tests	T5.4
Involved Modules	Collaborative Workspace.
Procedure	<ol style="list-style-type: none"> <li>1. The user is browsing the Titolo Unico process.</li> <li>2. About the activity “Check the correctness of the request”, she/he wants to share experience.</li> <li>3. She/he clicks on “Share knowledge” button.</li> <li>4. A template of “Knowledge” document is presented to him to help him to fill his experience.</li> <li>5. She/he fills and saves the “Knowledge” document.</li> </ol>
Inputs	None.
Expected Outputs & Results	In the activity “Check the correctness of the request”, the user can see the newly created “Knowledge” document displayed as a suggestion that may give additional information about the activity. Clicking this link should lead to the document.
Status	

## 5.6. Simulate business process

### 5.6.1. Initialize Simulation

Test 5.6.1	Learn PAd Platform - Initialize Simulation
Objective	Initialize a simulation of the Titolo Unico process.
Prerequisite Tests	T3.1, T3.2, T3.3, T5.1
Involved Modules	Core Platform, Collaborative Workspace, Simulator.
Procedure	<ol style="list-style-type: none"> <li>1. On the home page, click on the <i>simulate</i> button corresponding to the Titolo Unico model.</li> <li>2. Set the parameters to the given Input values and validate.</li> </ol>
Inputs	<ul style="list-style-type: none"> <li>• The Titolo Unico model.</li> <li>• Configuration for the Business Process:</li> </ul>

	<ul style="list-style-type: none"> <li>○ For each role: select test.</li> <li>○ All other parameters left to their default value.</li> </ul>
Expected Outputs & Results	<ol style="list-style-type: none"> <li>3. After having clicked the <i>validate</i> button, the user should be directed to a configuration interface for starting a simulation of the Titolo Unico process.</li> <li>4. After having configured the simulation, the user should be directed to the simulation interface, containing the first task of the business process.</li> </ol>

### 5.6.2. Execute Simulation

Test 5.6.2	Learn PAd Platform - Run Simulation
Objective	Run a simulation of the Titolo Unico process.
Prerequisite Tests	T3.1, T3.2, T3.3, T5.1, T5.6.1
Involved Modules	Core Platform, Collaborative Workspace, Simulator.
Procedure	In this first iteration of the Integration Testing Procedures, we don't have yet the required information for describing the test of the Run Simulation.
Inputs	<ul style="list-style-type: none"> <li>• The Titolo Unico model.</li> <li>• Configuration for the Business Process: <ul style="list-style-type: none"> <li>○ For each role: select test.</li> <li>○ All other parameters left to their default value.</li> </ul> </li> </ul>
Expected Outputs & Results	<p>All the tasks are validated.</p> <p>The simulation completes successfully.</p> <p>The user is redirected back to her/his home page.</p>

## 5.7. Monitor learning progress

Test 5.7	Learn PAd Platform - Monitor Learning Progress
Objective	Check the learning indicators associated with the Titolo Unico process.
Prerequisite Tests	T3.1, T3.2, T3.3, T5.1, T5.6.1, T5.6.2
Involved Modules	Core Platform, Collaborative Workspace, Simulator.
Procedure	From the home page, the user goes to the dashboard.
Inputs	None.
Expected Outputs & Results	The dashboard displays the session score of the user for the session in T5.6.2. The other indicators (BP score, global score etc.) have been updated accordingly.

## 6. Conclusion

In this deliverable, we reported the final version of the Integration Testing Procedures. The testing strategy is based on the two use cases identified in the project: *Grant Management Unicam* and *Sportello Unico Attività Produttive*, in order to test the functionalities of the platform using different data sets.

Besides, we presented a quick summary of how to work with the test cases model files in order to quick start the platform for testing. It also presents some possible recovery scenarios in order to be able to continue testing in case of failure at some stages of the testing procedure.

In addition, we specified the expected requirement for the testing environment, such as some required characteristic regarding the testing machine and installed software.

Finally, we separated the tests in three parts:

- Setup and deployment tests, those are independent of the use cases.
- Grant Management Unicam tests, corresponding to the use of the Learn PAd platform for the first use case models and files.
- Sportello Unico Attività Produttive, corresponding to the use of the Learn PAd platform for the second use-case models and files.