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FURNIT-SAVER

Smart Augmented and Virtual Reality Marketplace for Furniture Customisation

D4.1 Validation Protocols

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1 FurnIT-SAVER project introduction

The traditional nature of the furniture industry and the limited incorporation of ICT tools have reduced the ability of SMEs in the sector to innovate and respond to the competition coming from larger companies. These specialised furniture shops and small furniture manufacturers have been unable to compete with the economies of scale advantages that larger furniture retailers can offer.

On the other hand, smaller furniture companies can offer higher levels of personalization and quality of customized goods that truly meet customers' preferences and needs which represents a potential competitive advantage over larger furniture providers. Nevertheless, as it is impossible to envisage how the furniture will look and fit into the customers home, customised furniture also bears an expensive risk if the final piece of furniture does not meet the customer's needs or does not complement other furniture. Furthermore, these customised services are predominantly provided on a face-to-face basis in local and fragmented markets which prevents small manufacturers to benefit from ecommerce growth and limit their international reach.

The FURNIT-SAVER project makes use of innovative ICT solutions based on a combination of Virtual and Augmented Reality (VR/AR) technologies, recommendation engines and ecommerce solutions, to produce a smart marketplace for furniture customisation. Customers will be able to select among an extensive furniture catalogue and properties and virtually try the selected pieces in their rooms with three very simple steps: (1) Creating an accurate 3D virtual representation of their place, (2) Trying furniture of different manufacturers in this virtual scenario and get recommendations according to their preferences of a wide range of properties and pieces, and (3) Visualizing the fit of the chosen products in their place using augmented reality.

2 Scope of the document

This document details the validation protocols defining actions, methodologies and indicators to carry out the validation of the results and harmonizing them independently of the pilot and validation site.

The report shows the unified procedure that will be able to compare the results obtained in different sites in terms of data, user feedback, performance levels, etc., summarizing a complete and detailed list of protocols specifying the procedures to be followed during system validation, as well as the information to be gathered.

On the other hand, and taking into account that there are 4 different application scenarios, the validation protocols will be in line with these scenarios.

The document is divided into 2 main parts:

- **Scenarios Validation Protocols**: an scenario definition, with the involved actors, explaining how to select the test users, how to get feedback from the involved actors, … The part of the validation protocol is divided into 2 parts:
    - Common methodology for all the scenarios
    - Specific issues associated to each scenario

- **Test Plan**: A list of tests that will cover all the requirements defined in the deliverable D1.1 User Requirements Document. Once the tests are executed, this Test Plan will become the Test Report, filled during the activities developed in the task 4.2 System Validation Activities, and reported as part of the D4.2 Validation Results and Recommendations

3 Scenarios validation

3.1 Scenarios summary

Scenario	Title	Description
Scenario 1	Furnishing online a domestic space	A domestic user furnishes the living room of an accommodation using only the online capabilities of the FurnIT-SAVER marketplace, i.e. without attending a physical furniture retailer
Scenario 2	Furnishing a domestic space with the support of a retail shop	A domestic user that furnishes the living room of an accommodation attending to a furniture retailer and using the online capabilities of the FurnIT-SAVER marketplace to visualize the chosen furniture and add or modify new furniture pieces to the purchasing list
Scenario 3	Furnishing online an office or a hotel by a professional user	An interior designer or architect uses the platform online to furnish one or several hotel rooms or an office space
Scenario 4	Furnishing hotel rooms or office spaces by a professional users with the support of a retail shop/showroom	A professional user makes use of the platform to visualize and get recommendations of possible furniture. The user captures one or several room layouts using the mobile app or through the web-based application. Then the user can visit a manufacturer/showroom to see the furniture. Finally, the user shows the final results to the client

3.2 Involved actors

The involved actors for all the scenarios are:

- Tester (domestic user or professional user), who is using the FurnIT-SAVER platform
- Furniture manufacturer, who uploads the furniture in the platform
- In some scenarios, the furniture salesperson (who helps the domestic user and the professional user) and/or the person who attends the showrooms (who helps the professional user)

3.3 Test manager

The test manager is the test responsible for each scenario:

Scenario	Partner	Test Responsible
Scenario 1	WWING	Lilit Delia
Scenario 2	CENFIM	Jordi Albacar
Scenario 3	GONZAGA	Iztok Bizjak
Scenario 4	WIC	Bernard Likar

The main responsibility for each test manager is to manage and implement the common and specific protocols of his/her scenario.

3.4 Furniture Styles

The furniture styles to test in the scenarios will be the following:

3.4.1 Classic

3.4.2 Contemporary

3.4.3 Modern

4 Common methodology for all the scenarios

Taking into consideration that all the scenarios are different: from the steps to follow in each one, the type of involved users/testers, the places and locations, the type of feedback, etc., there is a common methodology to follow in all of them.

4.1 Before the test

4.1.1 Looking for manufacturers

Before starting the test, it is necessary to look for interested furniture manufacturers that agree in uploading furniture pieces into the platform. For scenarios with domestic users, the furniture will be living room and bedroom, and for "contract channel" scenario, hotels, bars and restaurants, and offices.

Due to technical requirements the file format for the furniture pieces must be in the **.3ds** extension or **.dae** extension. In both cases, these files must include the texture references, and in separate files, the associated texture files. For these reasons, only the furniture manufacturers that can provide the furniture in these formats should be selected.

In case we don't have enough manufacturers providing files with the "accepted" extensions, we will try to add other manufacturers, converting their furniture files to the Virtual Reality environment format.

Depending on the scenario, the manufacturer requirements could be different, but, in any case, the project partners related to the furniture sector (CENFIM, WWING, GONZAGA and WIC) are in charge to find and select the necessary and appropriate manufacturers.

4.1.2 Looking for furniture shops/showrooms

In some scenarios (scenario 2 and 4) it will be necessary to develop the test on-site, meaning that the test will be in the furniture shop (scenario 2) and/or in showrooms (scenario 4).

The requirements for the furniture shops are:

- First of all, is to look for a furniture shop that sells furniture from the/some manufacturers who agree in uploading their furniture in the platform, if possible. This is a very important issue because the domestic users should be able to see and touch in the shop the real furniture that they can see virtually in the FurnIT-SAVER platform.
- Secondly, is to have an agreement with the shop owner and salespersons in order to help us and collaborate in the test. We understand that the test could interfere in the sell process of the shop and this is why we probably have to "sell" the test, explaining the owner the potential impact in terms of dissemination and publicising on one

hand, and on the other hand, the possibility of being part and participate in one European innovation project and the prestige for the shop.

The profile of the domestic users that will participate in the test includes that they are interested in purchase furniture and/or accessories in the following 6 – 9 months, that should help to convince the furniture shop to participate in the test.

4.1.3 Looking for testers

All the scenarios need the testers: the users that will test the FurnIT-SAVER platform.

Depending on the scenario, each test manager responsible will be in charge of selecting the suitable testers, taking into account the specific scenario requirements.

4.1.3.1 Testers profile definitions

The testers recruitment should be different and it will be necessary to define the profile for the required testers.

4.1.4 Recording the test

The test manager will verify that the test is recorded using a video camera.

4.1.5 Put in context the testers

Before starting any test in any scenario, it is essential to explain all the testers some information about the project (Innovation Action in H2020) in order to **stimulate their interest**, putting them in context, and explaining them the usefulness and importance of their participation.

1) **Read the following text to explain them the project**:

"You have been selected as a user for a Research and Development project funded by the European Commission under the H2020 programme.

The project is focussed to demonstrate the usefulness of several tools based on Virtual and Augmented reality to help the people to buy furniture."

2) **Show the testers the project video** https://www.powtoon.com/online-presentation/byq0GweqUkp/20150515-funrit-saver-project that should help them to understand the concept.
3) Ask them if they have understood the project concept, they have any question about virtual or augmented reality technologies, and/or any other question, …
4) **Read the following text**:

"Now, we are going to start the test taking into account that you are interested in furnishing a room and that we have a limited number of furniture pieces and manufacturers in the platform.

Once the test finishes, we will ask you some questions because we need your important opinion to give feedback to the European Commission."

4.2 During the test

4.2.1 Recording the PC activities

The test manager will verify that all the activities that happen in the PC where the test will be executed are saved.

For this reason, there are several options:

- Use WebEx tool. This tool is very easy to use because the user only has to define the name of the file where to record the activity and the PC application to save. This tool saves all what happen in the PC screen and the voice (needs a microphone).
- Use some other tools such as OpenBroadcaster (https://obsproject.com/)

4.2.2 Reporting the bugs

In case that happens something unexpected and/or a bug or error is detected, the test manager must fill the Bug Report Form (defined in the annexes of this document) and notify this event to the WP4 responsible.

4.3 After the test

4.3.1 Getting Feedback

The test manager will be the responsible for getting feedback of all the testers.

The feedback will be collected using a Feedback Form, defined in the annexes of this document. Depending of the specific scenario, the user feedback is different, but there are a set of common questions for all of them.

Even if a common methodology has been defined for all the validation scenarios, there are clear differences between them and there fore some specific aspects need to be particularized among the different scenarios. Then, the following chapters, explains the particular issues for the different validation scenarios.

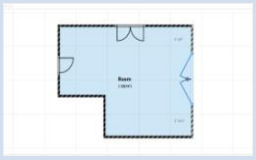
5 Scenario 1: Furnishing online a domestic space

5.1 Scenario workflow

In this scenario, all the activities will be done online.

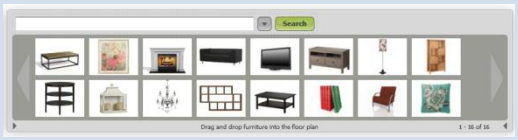
The domestic user or personal purchaser accesses to the marketplace and registers introducing basic data such as email and password

The user will be asked about their preferences with a short user-friendly survey



The user maps the room layout through the mobile app or the web-based application at home and upload it to the marketplace

The user runs the virtual reality environment and places 3D models of the desired furniture into the 3D room layout



The system learns about the user's preferences and provides recommendations of similar or complementary furniture pieces

The user exports the list of selected furniture and visualize it at home by placing a printed mark in the desired space

5.2 Scenario definition

The scenario 1 is composed by a domestic user furnishing the living room of an accommodation using only the online capabilities of the FurnIT-SAVER marketplace, i.e. without attending a physical furniture retailer. The stakeholders involved are a domestic user, a furniture ecommerce company and furniture manufacturers.

The goal of this test is to know and understand three important points of view:

- The digital customer of home and living
- The traditional customer of home and living
- The digital home and living expert

5.3 Involved actors

The involved actors of this scenario are:

- Domestic user, who is using the FurnIT-SAVER platform and wants to buy furniture
- Furniture customer service person, who helps the domestic user, if necessary, in using the platform and selecting the furniture that best fits with his/her ideas and needs
- Furniture manufacturer, who uploads the furniture in the platform and provides the furniture shop where the salesperson is working

5.4 Minimum requirements for validation

After the project meeting in Rome the scenario 1 was defined for living room only, but some of the furniture manufacturers that produce living room furniture can also provide digital furniture models for bedrooms as well. For this reason, is seems reasonable to open the options to furnish several rooms such as a **living room** and/or a **bedroom**.

In order to properly cover the validation of this scenario the minimum available resources to test the functionalities of the platforms should be the following:

- Furniture pieces for **living room:** At least 4 pieces of furniture for 3 different styles for tables, chairs, sofas, tea tables and accessories such as floor lamps, carpets, pictures, pillows, etc. (around 60 pieces in total).
- Furniture pieces for **bedroom:** At least 4 pieces of furniture for 3 different styles for beds, chest of drawers, dressers, nightstands, cupboards or wardrobes and headboards (around 72 pieces in total).
- Collaboration of 5 furniture manufacturers
- More than 50 users involved in the validation (buyers, experts and other stakeholders)

5.5 Looking for manufacturers

WWING will use the list of their furniture providers that work usually with them to look for the ones that can provide the furniture in the expected file extensions. Nevertheless, the partners will taking into consideration the advantage that the domestic scenarios, the scenario 1 and scenario 2, can share and use the same furniture digital models, hence reference to manufacturers.

5.6 Selecting the domestic users

WWING will organize focus groups and panels of experts in order to perform the validation of the platform according to the following division of users and stakeholders:

- Professionals: people involved in the eCommerce business.
- Digital consumers: frequent online buyers
- No digital consumers: people that never or very rarely buy online

With these opinions we can draft an overview of the scenarios one that we use for the business case and describe the two sides of the platform integration. For this reason in order to test the platform we are going to organize: two focus groups of digital customers, two experts panels and 1 focus group of no-digital customers.

5.6.1 Panels of experts

The panels of experts will be organized on two different groups of 7 people each based on this profile:

- Men and women
- 25-55 years old
- Occupation: IT, digital marketing, buyers of home and living and products managers of furniture.

5.6.2 Focus groups of digital customers

For the focus groups of digital customers we are going to choose two different groups of seven people based on this profile:

- Men and women
- 25-55 years old
- Living in urban environments
- They usually prefer the digital shopping more than traditional shopping
- Normal buyers from desktop, mobile and tablet

5.6.3 Focus groups of no-digitals customers

- Men and women
- 25-55 years old
- Living in urban environments
- They do not buy (or very rarely) products online, even if they can be frequent ICT users.

5.7 Testing with the clients

The focus groups and expert panels will be organized in three steps:

1. Introducing the topic of home and living shopping
2. Description and demonstration of FurnIT-SAVER technologies and functionalities
3. Individual and/or group use of the platform
4. Feedback gathering about the use of the platform

5.8 Getting feedback

The feedback from the digital customers is crucial in order to know what they think about the platform. For this reason, all the clients will have to answer/fill a form about their experience as well as participate in an open discussion.

The expert feedback is also very interesting in order to improve the platform functionalities, user interface and add new features. For this reason, the manufacturers and furniture salesperson will fill a form with their feelings using the platform in addition to participate in an open discussion.

The traditional customers feedback will provide clear indicators on how the FurnIT-SAVER technology helps breaking down barriers and negative mindsets with respect online furniture purchasing.

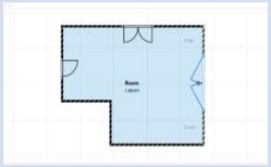
6 Scenario 2: Furnishing a domestic space with the support of a retail shop

6.1 Scenario workflow

In this scenario, some activities are done in the physical furniture shop with the support of salespersons and some other activities can be done at home.

The domestic user or personal purchaser is introduced to the marketplace by a furniture salesperson and registers with basic personal data

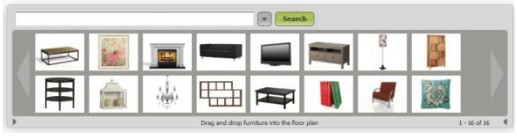
The user will be asked about their preferences with a short user-friendly survey



The user creates a room layout of his room through the web-based application at the shop and upload it to the marketplace

The user runs the virtual reality environment and places 3D models of the desired furniture into the 3D room layout while he can see the furniture in the shop

Once at home the user accesses the marketplace and runs its virtual reality session to modify or add new pieces to the list of selected furniture.



The system learns about the user's preferences and provides recommendations of similar or complementary furniture pieces

The user exports the list of selected furniture and visualize it at home by placing a printed mark in the desired space

6.2 Scenario definition

The scenario 2 is composed by a domestic user that furnishes a living room of an accommodation attending to a furniture retailer and using the online capabilities of the FurnIT-SAVER marketplace to visualize the chosen furniture and add or modify new furniture pieces to the purchasing list.

6.3 Involved actors

The involved actors of this scenario are:

- Domestic user, who is using the FurnIT-SAVER platform and wants to buy furniture
- Furniture salesperson, who helps the domestic user, if necessary, in using the platform and selecting the furniture that best fits with his/her ideas and needs
- Furniture manufacturer, who uploads the furniture in the platform and provides the furniture shop where the salesperson is working

6.4 Minimum requirements for validation

This scenarios shares type of room and digital furniture models with scenario 1, i.e. **livingroom** and **bedroom**.

In order to properly cover the validation of this scenario the minimum available resources to test the functionalities of the platforms should be the following:

- Furniture pieces for **living room:** At least 4 pieces of furniture for 3 different styles for tables, chairs, sofas, tea tables and accessories such as floor lamps, carpets, pictures, pillows, etc. (around 60 pieces in total).
- Furniture pieces for **bedroom:** At least 4 pieces of furniture for 3 different styles for beds, chest of drawers, dressers, nightstands, cupboards or wardrobes and headboards (around 72 pieces in total).
- Collaboration of 5 furniture manufacturers
- Collaboration of at least 2 furniture retailers
- More than 50 users involved in the validation (buyers and salesperson)

6.5 Looking for manufacturers

At this moment, CENFIM has the commitment of 3 furniture manufacturers:

- Mobenia (http://www.mobenia.com/): living room and bedroom. They can provide their furniture in the expected file extensions (.3ds/.dae)
- Baix Moduls (http://www.baixmoduls.com/): living room and bedroom. They can provide their furniture in the expected file extensions (.3ds/.dae)
- Emede (http://www.emedemobles.com/): living room and bedroom. The problem of this manufacturer is that they do not have the furniture in the desired file format and

it is necessary to adapt their furniture to the requirements of the virtual reality environment

6.6 Looking for furniture shops

The profile of the domestic users that will participate in the test includes that they are interested in purchase furniture and/or accessories in the following 6 – 9 months, that should help to convince the furniture shop to participate in the test.

At this moment, CENFIM has the commitment of one big and nice furniture shop (4.000 m^2) in Girona province (north of Barcelona). For this reason, some of the testers should come from this geographical area.

6.6.1 Agree with the shop in the days to do the test

In order to make easier the presence of the FurnIT-SAVER team during the normal activity of the shop, we will agree on one or more days to do the test.

6.6.2 Training the salesperson

The salesperson must know how to use the FurnIT-SAVER platform, and this is why several training sessions should be planned before the test, because should be the salesperson who supports the clients who want to buy furniture.

In case the shop owner doesn't want that the test interfere with the normal shop operation, CENFIM will provide a salesperson that will manage the test, using the FurnIT-SAVER platform, and with years of experience selling furniture.

6.7 Selecting the domestic users

The clients selection will be following one or more of the criteria below, always agreed with the shop:

1. The clients are interested in the manufacturers furniture that have uploaded their products in the platform because they asked the salespersons about this type of furniture
2. The clients are looking at the furniture pieces in the shop exhibition area of one or more of the furniture manufacturers that have uploaded their furniture in the platform, and they seem interested on them
3. The clients want to furnish a living room or a bedroom
4. The salesperson knows that the clients are in process of buying furniture and are interested in living room and/or bedroom, and previously the salesperson have sent them the link to the FurnIT-SAVER platform just in case they want to test it (for example, to use the mobile application for defining the room layout).

5. The partner responsible of the scenario can also use companies specialized in contacting and recruiting selected users (either buyers or experts from the sector) near the specific geographical area of the selected retailers.
6. Just waiting in the furniture shop for the clients visit the retailer

It is very important to explain the clients that they are selected to participate in the test of an innovation project and the test is with a reduced number of furniture pieces and manufacturers in order to manage their initial expectations about the platform.

6.8 Testing with the clients

The first thing to do is to define the layout of the room to be furnished, together with the support of the salesperson. Once the layout is defined, it starts the process of furnishing the room using the virtual reality environment using the uploaded furniture.

With the support of the salesperson, the client can select and save the different combinations using the virtual reality environment, that can be downloaded by the augmented reality application in order to see the final combination at home.

The salesperson has the added value in this scenario because they have the experience and know how to generate different furniture combinations that fit with the user needs.

The idea is to test between 2 and 4 domestic users per day, meaning that approximately, the test days with domestic users will be around 7.

6.9 Getting feedback

The feedback from the users will be mainly gathered in the retail site through open discussion and a survey. The feedback from the clients is crucial in order to know what they think about the platform. For this reason, all the clients will have to fill this survey about their experience which including open questions for a brief open discussion.

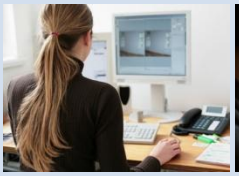
The salesperson and furniture manufacturers feedback is also very interesting in order to improve the platform functionalities, user interface and add new features. For this reason, the manufacturers and furniture salesperson will fill a form with their feelings using the platform in addition to participate in an open discussion.

The feedback should give the project consortium some indicators and qualitative answers about the platform fitting for the purpose.

7 Scenario 3: Furnishing online an office or a hotel by a professional user

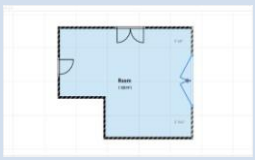
7.1 Scenario workflow

In this scenario, all the activities are done on line.



The professional user accesses to the marketplace and registers introducing basic data such as email and password

The user will be asked about their preferences with a short user-friendly survey



The user creates one or several room layouts through the web-based application or uploading 2D files into the marketplace

The user runs the virtual reality environment and places 3D models of the desired furniture into one of the 3D room layout and repeat it for the rest of layouts

The system learns about the user's preferences and provides recommendations of similar or complementary furniture pieces

The user exports the 3D design and the list of selected furniture to present it to the clients

7.2 Scenario definition

The scenario 3 is composed by a professional user, namely an interior designer or architect that uses the platform online to furnish one or several hotel rooms or an office space. The professional user will get recommendations based on their choices and will not make use of the augmented reality capabilities of the platform. A professional user, a furniture ecommerce company and furniture manufacturers should be part of this scenario.

7.3 Involved actors

The involved actors of this scenario are:

- Professional user, who is using the FurnIT-SAVER platform
- GONZAGA, supporting the professional users
- Furniture manufacturer, who uploads the furniture in the platform and provides the furniture shop where the salesperson is working

7.4 Minimum requirements for validation

The scenario 3 is focused on the contract channel. According to the experience and resources of the partners and their contact network the scenario to furnish will be an **office**. In order to properly cover the validation of this scenario the following minimum requirements are set:

- Furniture pieces for **office**: At least 3 types of tables, chairs, attachment tables and lamps; 2 types of cupboards and 1 type of drawer, separate screen and panel for the tables, all from at least 3 different styles (around 50 furniture pieces).
- Collaboration of GONZAGA and at least one more manufacturer
- More than 20 professional users involved (architects, designers, etc.)

7.5 Looking for manufacturers

GONZAGA, one of the project partners, could provide these models. At least an additional manufacturer form WIC and CENFIM network will contribute.

7.6 Selecting the professional users

To select the testers, GONZAGA will use their department for furniture development, and will involve some of their professional customers.

GONZAGA will support them in any question and/or problem that the users can have during the online test.

7.7 Testing with the clients

GONZAGA will contact with their professional customers to take part in the test, with their support. They will select the most appropriate customers (digital knowledge, ...) among them.

In some cases, the online test could be done at professional customer office, and in some other cases at GONZAGA offices, to make easy the use of the FurnIT-SAVER platform.

7.8 Getting feedback

After the tests, all the professional customers will fill a feedback form and have an open discussion with the corresponding partner. In some cases, the form will be filled online, in some other cases via Internet (Google Forms, for example), and in some other cases at the GONZAGA offices.

8 Scenario 4: Furnishing hotel rooms or office spaces by a professional user with the support of a retail shop/showroom

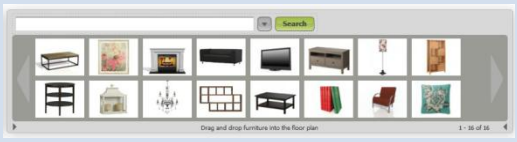
8.1 Scenario workflow

The professional user accesses to the marketplace and registers introducing basic data such as email and password

The user will be asked about their preferences with a short user-friendly survey

The user creates one or several room layouts through the mobile app or the web-based application or uploading 2D files into the marketplace

The user runs the virtual reality environment and places 3D models of the desired furniture into one of the 3D room layout and repeat it for the rest of layouts



The system learns about the user's preferences and provides recommendations of similar or complementary furniture pieces

The user runs the virtual reality environment and add or modify the list of selected 3D models while he can see the furniture in the shop

The user exports the list of selected furniture and visualize it at the client's hotel or offices by placing a printed mark in the desired space

8.2 Involved actors

The involved actors of this scenario are:

- Professional user, who is using the FurnIT-SAVER platform

- Furniture salesperson (and/or person in charge of the showrooms), who helps the professional user, if necessary, in selecting the furniture that best fits with his/her ideas and needs
- Furniture manufacturer, who uploads the furniture in the platform and provides the furniture shop where the salesperson is working

8.3 Minimum requirements for validation

The scenario 4, as well as the previous scenario, is focused on the contract channel. The room to be furnish will be an **hotel**. In order to properly address the validation of this scenario the following minimum requirements are set:

- Furniture pieces for **hotel**: At least 3 types of beds, cupboards, nightstands, headboards and desks from 3 different styles (around 45 furniture pieces).
- Collaboration of at least 1 more furniture manufacturers in addition to the partner GONZAGA
- More than 20 professional users involved (architects, designers, etc.)

8.4 Looking for manufacturers

At this moment, Murales company, who use SolidWorks as software for construction of new products and visualisation of 3D models, will provide furniture to upload in the platform. Other companies, such as GONZAGA and the furniture manufacturers of the scenarios 1 and 2, work in the “contact channel” and can complement the furniture provided by this company.

8.5 Selecting the professional users

Murales will include in their test, professionals from their development department and professional customers.

8.6 Testing with the clients

The tests will be done at the Murales installations where there is one showroom with their furniture products.

8.7 Getting feedback

The feedback with the professional testers will be based on interviews and eventually survey forms once they have finished the validation usage of the FurnIT-SAVER platform.

9 Annex I. Getting feedback

9.1 Getting feedback from the clients

The clients (people that wants to buy furniture) should fill a form related to their experience using the FurnIT-SAVER platform.

The form should include the following data:

Personal Data

Gender ☐ Male ☐ Female

Age _____

Occupation _____

City/Town and Country of residence _____

Which devices do you have?

Smartphone	
PC	
Tablet	

Habits

How many times do you connect to Internet?

Several times a day	
Once a day	
Every 2 or 3 days	
Other frequency	
Never	

When was the last time that you bought products and/or services using Internet?

One month ago or less	
Between 6 and 1 month ago	
More than one year ago	
Never	

How often do you buy furniture or decoration accessories (select only one option)?

a. ☐ Once a month
b. ☐ Once per season
c. ☐ Once a year

d. ☐ Rarely, when I need it

Concerning your furniture or decoration accessories purchases, which percentage of them are done online?

76% to 100%	
51% to 75%	
26% to 50%	
0% to 25%	

Last time you bought furniture, did you use Internet to look for furniture?

Yes	
No	

Last time you bought furniture, where was it?

Online	
Shop	

How do you prefer buying furniture?

See and buy the product online	
See the product online and then buy in store	
See and buy the product in store	
See the product in store and then buy it online	

In case you need to buy furniture, would you use Internet before going to the shop?

Yes, for sure	
Yes, I think so	
Maybe	
No	

FurnIT

Which of the following features are useful for you?

a. ☐ Define the room layout using a mobile device app
b. ☐ Define the room layout in a PC environment
c. ☐ Visualising furniture using the Virtual Reality Environment
d. ☐ Visualising furniture using the Augmented Reality Environment
e. ☐ Using the recommendator

Do you consider important visualizing the furniture in the Virtual Reality Environment for your purchasing process?

Essential	
Important	
So so	
No	

Do you consider important visualizing the furniture in the Augmented Reality Environment for your purchasing process?

Essential	
Important	
So so	
No	

What is the best of the FurnIT?

What is the worst of the FurnIT?

How positive are these aspects of the FurnIT-SAVER platform for you?

	( )	(+)	(++)	(+++)
Visualizing lots of furniture combinations				
Useful recommendator that helps to take decisions				
Saving different furniture combinations in my personal area				

How negative are these aspects of the FurnIT-SAVER platform for you?

	( )	(-)	(--)	(---)
Too Complex				
Too many steps				
Not much furniture pieces				

What is you general opinion of the FurnIT-SAVER platform?

Very interesting	
Interesting	
Not much interesting	
Not interesting at all	

Would you use the FurnIT-SAVER platform in the future?

Yes, for sure	
Yes, I think so	
Maybe	
No	

Would you recommend the FurnIT-SAVER platform?

Yes, for sure	
Yes, I think so	
Maybe	
No	

Add any comment and/or suggestion if you have it, please.

9.2 Getting feedback from the salesperson/showroom

Personal Data

Gender ☐ Male ☐ Female

Age _____

Years of experience in the furniture sector _____

City/Town and Country of residence _____

Do you use the PC and/or tablet/iPAD as a support tool for your sales?

Yes	
Sometimes	
Never	

Company Data

Company name_____

City/Town and Country _____

Number of sales centres _____

Does the company belong to a business group and which one? _____ _____

Does the company sell furniture online? _____

Which ecommerce platform does your company use?

I use my own website/app	
Amazon	
Other (indicate):	

User experience

In your opinion, how many people look for furniture on the Internet before coming to the shop?

76% to 100%	
51% to 75%	
26% to 50%	
0% to 25%	

Do you think that the FurnIT-SAVER Platform would help you in the sales process?

Yes, for sure	
Yes, I think so	
Maybe	
No	

Why?

Would you recommend the FurnIT-SAVER platform to your clients?

Yes, for sure	
Yes, I think so	
Maybe	
No	

Why?

Would you recommend the FurnIT-SAVER platform to your providers?

Yes, for sure	
Yes, I think so	
Maybe	
No	

Why?

What is the best of the FurnIT-SAVER platform?

What is the worst of the FurnIT-SAVER platform?

What do you suggest to improve the FurnIT-SAVER Platform?

What is you general opinion of the FurnIT-SAVER platform?

Very interesting	
Interesting	
Not much interesting	
Not interesting at all	

Add any comment and/or suggestion if you have it, please.

9.3 Getting feedback from the furniture manufacturers

Personal Data

Gender ☐ Male ☐ Female

Age _____

Years of experience in the furniture sector _____

City/Town and Country of residence _____

Company Data

Company name_____

City/Town and Country _____

Number of sales centres _____

Does the company belong to a business group and which one? _____ _____

Does the company sell furniture online? _____

Which ecommerce platform does your company use?

I use my own website/app	
Amazon	
Other (indicate):	

Which are your current sales channels?

_____

Does the company create 3D models for its products?

Yes	
Sometimes	
Never	

User experience

Do you think that the FurnIT-SAVER Platform would help you in the sales process?

Yes, for sure	

Yes, I think so	
Maybe	
No	

Why?

Do you think that the FurnIT-SAVER Platform would help your retailers (stores) in the sales process?

Yes, for sure	
Yes, I think so	
Maybe	
No	

Why?

Would you recommend the FurnIT-SAVER platform to your clients/retail channel (stores)?

Yes, for sure	
Yes, I think so	
Maybe	
No	

Why?

Would you use the FurnIT-SAVER platform to sell directly to the final client (people who wants to buy furniture)?

Yes, for sure	
Yes, I think so	
Maybe	
No, never	

Why?

What is the best of the FurnIT-SAVER platform?

What is the worst of the FurnIT-SAVER platform?

What do you suggest to improve the FurnIT-SAVER Platform?

What is you general opinion of the FurnIT-SAVER platform?

Very interesting	
Interesting	
Not much interesting	
Not interesting at all	

Add any comment and/or suggestion if you have it, please.

10 Annex II. Reporting bugs/errors

It is very important to give the technical partners the clues to know what happened during the process, when happens something unexpected.

For this reason, the test manager must provide the necessary information in the Reporting bug form.

Report Form

Date: DD/MM/YYYY

Location: _____

City / Country: _____

Test manager: _____

Operating System: _____

FurnIT-SAVER Version: _____

Select the part of the process where the problem happened

Registration	
Defining the room layout	
Using the VRE	
Using the ARE	
Usign the Recoomendator	
Ordering	
...	
...	

Bug summary

Bug description?

When happened (minute in the recorded session)? _____

What did you do to solve the problem?

How can you reproduce the bug?

11 Annex III. Indicators

It should be very interesting to gather the feedback of some **exploitation indicators** to have an estimation of the positive and negative business aspects of the FurnIT-SAVER Platform.

Most of these indicators will be for furniture manufacturers, salespersons and/or people in charge of the furniture shops/showroom:

- **Time-to-order (or: time-to-decision):** the amount of time (in days) that passes from the first contact by the professional and until dispatching the order. This can be measures in different business cases: time to placing order from client to shop, client to manufacturer, shop to manufacturer, etc.
- **Salesperson effort:** the number of hours and cost of time dedicated by the salesperson to close the order
- **Support material:** cost of catalogues or any auxiliary marketing material used by the salesperson in the process
- **Total orders:** how many such orders are done per month
- **Percentage successful orders (or: conversion rate):** out of each relevant contact (or online shopping cart), how many finally accept an order.
- **Order value:** the average deal value to the retailer.
- **User value:** the total value of a user to the shop
- **Profit on order:** the average profit made by the retailer on the order.
- **Profit per manufacturer:** the average profit made by the retailer per manufacturer.
- **% Returned goods:** the ratio of furniture returned to the retailer.
- **Client and end-user satisfaction:** measured via a questionnaire asking them to rank certain aspects from 1-10 (satisfaction with product, prospects of contacting retailer again, etc).
- **Conversion rate furniture/deco sales:** the proportion of furniture sells compared to decoration accessories sales