

ΙΝΕΟΙΤ

open INnovation Ecosystems for Do It Together process

SPECIFICATION OF THE OVERALL FRAMEWORK FOR THE USE CASES VALIDATION

SUPSI	Version 2.1
	07 2020









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Executive Summary

The report addresses the early description of the use cases for the INEDIT platform that acts as a digital multi-sided platform bringing furniture design and production technologies, as well as experts knowledge, closer to customers willing to exploit INEDIT services for customizing furnishings. Prior the definition of the use cases scenarios, the analysis of the tools and technologies that will be developed during the INEDIT project and serving the INEDIT approach has been performed. This analysis allowed to identify the connections between each tool, input, output and their main functionalities, necessary for the identification of use cases main characteristics. Each use case has then been described by means of the involved stakeholders and tools or technologies involved, detailing the processes that each use case is meant to demonstrate.

Twofold is the outcome of the work done within task 2.3 and documented in this report:

- 1. INEDIT technology map: a map of the tools and technologies that will be developed in the context of INEDIT and that will be deployed in the INEDIT platform. The map will be the basis for the characterisation of the use cases;
- 2. INEDIT use cases: four use cases have been described, starting from the initial definition provided in the DoA, and analysing which tool will be demonstrated through them and defining criteria for assessing their success.

The report is divided into three parts: the first two chapters are devoted to a brief introduction and the INEDIT validation approach. § 3 is dedicated to the creation of the INEDIT technology map, whereas each technology description has been reported in § 8. §4 contains the description of the different use cases and the methodology used for formalizing each use case. Eventually, the document concludes with the match between each use case and the stakeholders' requirements as defined in D2.1





1. Introduction

INEDIT aims to create an open innovation European DIT ecosystem for sustainable furniture co-creation. The INEDIT paradigm is meant to empower consumers to produce their own furniture and to enable industrial companies to integrate innovative approaches for machines, processes and customer-driven production into their portfolio. To achieve this new paradigm, INEDIT integrates new methods and technologies to support creativity and design in open innovation ecosystems, pushes further the access to production means through the development of new sustainable manufacturing processes integrated in agile manufacturing networks and simplifies personalization of furniture.

The main objectives of the project are:

- To unleash creativity of consumers and designers towards co-creation of new pieces of furniture addressing the needs of the single user in an industrial context.
- To democratize the access to production resources in the furniture sector.
- To support SME operating in the furniture sector in finding new business opportunities.
- To create a framework of solutions for creation, engineering and distributed production of customer-driven pieces of furniture.
- To define design and manufacturing strategies focusing on lowering ecological impact and addressing societal challenges.
- To create an ecosystem of all stakeholders within Europe.

These high-level objectives will be demonstrated through different use cases where to assess different parts of the INEDIT approach:

- 1. Manufacturing of wood furniture: this use case is meant to demonstrate both the design process and the manufacturing process, involving all the stakeholders active in the co-creation phase for the design of the customer-driven furnishings and the production facilities.
- 2. 3D printing of wood: this use case will allow to integrate into the furniture prototyping and production the possibility to use 3D printers of wood for complex and personalized pieces of furniture.
- 3. 3D printing of recycled plastic: the use case is meant to put in place a plastics recycling environment including collection of plastics, preparation of plastics, prototyping and test by use of produced furniture piece.
- 4. Smartification: smart objects will be incorporated into furniture pieces and tested by the user.

Remarkably dense and detailed it is the use case 1, containing the technologies that provide both the product's manufacturing and the solution's design. The latter part is essential for the implementation and evaluation of the other three use cases, granting inputs for further steps.

The aim of task 2.3 is to specify a framework for demonstration and validation of each use case scenario as well as the definition of the success criteria for each scenario. The use cases validation process aims to assess that the INEDIT solutions meet the project's objectives. To this purpose, the successful coverage of stakeholders' requirements and needs will be assessed through the performance evaluation of the solutions implemented in the different use cases. Validation is a critical activity for the project and needs to cover and consider:

• all the requirements defined in the previous deliverables, D2.1 and D2.2;





• all the tools and technologies integrated through the project solution.

Both quantitative and qualitative performance indicators related to software and hardware will be used to assess the correct achievement of INEDIT objectives.

The task establishes the foundation for the validation of the project through demonstration pilots. The outcome of this task will mainly be the input for WP6 activities, but will impact also on WP3, WP4 and WP5. The relationships of Task 2.3 are depicted in Figure 1 and explained below.



Figure 1 Tasks and WPs relationships

The interdependencies within WP2 are:

- Task 2.1 objective is to identify the interests and requirements of the potential stakeholders of the INEDIT platform. The outcome of this task provided reference information for the development of the demonstration scenarios, regarding general needs and expectations of possible customers.
- Task 2.2 aims to design the overall DIT approach. Task 2.3 will take into account during the use case definition DIT processes defined within Task 2.2.
- Task 2.4 and Task 2.5 will exploit Task 2.3 output for the definition of DIT services and the development of training activities, especially dedicated to learning and implementing the DIT approach.





The interdependencies with other WPs are:

- WP3: the main objective of this WP is to create a framework of technologies and methods supporting the different phases of the INEDIT process from co-creation to co-manufacturing. A preliminary map of technologies to be adopted is defined as output of Task 2.3.
- WP4: this WP aims to create a demonstration framework for OMDFs which matter for the customers and SMEs, allowing stakeholders switch from Conceptualization to Materialization with the adapted sustainable Logistic in a DIT dynamic. The use case scenarios from Task 2.3 contribute to identifying the technologies involved and their interconnectivity that are later on developed within WP4. The overview of all the tools and technologies will be used as input for the specifications for Open Manufacturing Demonstration Facilities (Task 4.1) and for the technological and organizational development of the future use cases (Task 4.3), as well the overall framework for Task T4.4 (validation and implementation).
- WP5: this WP aims to characterize the INEDIT services and business model. As Task 2.3 ensures a closer, more in-depth understanding of the implementation scenarios of the INEDIT use cases, the discussions and information gathered throughout Task 2.3 will also be of interest to WP5 and the development of the business model.
- WP6: this WP deals with the actual demonstration of the INEDIT platform and business model potential. Task 2.3 can be considered as a preparation stage for WP6, where the demonstration scenarios are executed and evaluated in detail based on the framework and initial plan resulting from Task 2.3.