D6.1. Engagement and ecosystem establishment review report

White Research (WR)

June 2021

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 870037.

DELIVERABLE INFORMATION	
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Document type	Report
Document code	D6.1
Document name	Engagement and ecosystem establishment review report
Status	EU
Work Package / Task	WP6, T6.1
Delivery Date (DoA)	June 2021
Actual Delivery Date	27 June 2021
Abstract	This report outlines the concept, methodology, main steps and actions that underpin the iPRODUCE work towards the stakeholder engagement and ecosystem establishment in the pilot areas (cMDFs) of Spain, Germany, France, Italy, Denmark and Greece. Based on the scope of each cMDF at the local level, tailor-made engagement strategies are developed to address the needs and interests of different stakeholder groups. These strategies are supported by a suite of actions and events that will be deployed in each cMDF. Moreover, a specific strategy implementation plan with measurable targets is set for each cMDF, including the processes, procedures, tools, and techniques that will be used to effectively engage the local communities. Finally, a monitoring and evaluation framework is defined to ensure the optimal implementation of these strategies as well as the deployment of any mitigation actions, if necessary.

DELIVERABLE HISTORY			
Date	**Version**	**Author/ Contributor/ Reviewer**	**Summary of main changes**
10/03/2021	V0.1	WR	Table of Contents (ToC)
31/03/2021	V0.2	BetaFactory	First review of ToC
11/06/2021	V0.3	AIDIMME, FIT, MATERALIA, TS, BetaFactory, CERTH	Input from cMDFs for pilot-based strategies
18/06/2021	V1.0	WR	First version of deliverable
23/06/2021	V1.1	BetaFactory	Review
30/06/2021	V2.0	WR	Final version of deliverable

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PP	Restricted to other programme participants (including the EC services)	
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iPRODUCE ● Grant Agreement: 870037 ● Innovation Action ● 2020 – 2022 | Duration: 36 months

Topic: DT-FOF-05-2019: Open Innovation for collaborative production engineering (IA)

Executive Summary

This report outlines the concept, methodology, main steps and actions that will underpin the iPRODUCE work towards the stakeholder engagement and ecosystem establishment in the pilot areas (cMDFs) of the project, and more specifically in Spain, Germany, France, Italy, Denmark and Greece.

Setting the stakeholders' engagement strategy that will be deployed per cMDF constitutes a cornerstone for the iPRODUCE project as it aims to pave the way for the development of the manufacturers, makers and consumers (MMC) community that will participate in social manufacturing through the iPRODUCE platform.

By building on the experience and knowledge of the iPRODUCE local partners as well as by leveraging the information gathered through the previous iPRODUCE work, six pilot-based strategies have been designed and will constitute the basis for the iPRODUCE stakeholder engagement process.

In particular, this report highlights the concept that constitutes the baseline of each strategy and provides a clear definition of the cMDF scope at the local level. Furthermore, it identifies and analyses the local targeted stakeholders along with their interests, characteristics and interrelationships and provides the iPRODUCE partners with a standard strategy, steps, processes, procedures, tools, and techniques that will facilitate the active engagement of their local stakeholders.

These strategies are supported by a suite of actions and events that will be deployed in each cMDF. In fact, the current report stresses how these various activities towards stakeholders' engagement are supported and how they will unfold until the end of the project lifetime. A specific strategy implementation plan with measurable targets is set for each cMDF, including the processes, procedures, tools, and techniques that will be used to effectively engage the local communities. In addition, a Gantt chart for each regional strategy integrates in a timeline the different steps of the stakeholders' engagement process and provides a guideline for managing each activity as well as the interconnections between them.

The iPRODUCE engagement efforts will educate and inform the targeted stakeholders about the purpose of the project by highlighting local issues, technical considerations, best practices, implementation methods, and potential impacts of the social manufacturing concept. In addition, stakeholder engagement activities will yield a better understanding of stakeholders' interests, preferences and needs that will, in turn, enable us to fine-tune and streamline our methodology and future project actions in each of the six pilot areas.

Finally, it has to be noted that all the stakeholders' engagement strategies will be results-driven. This facilitates the nature of a stakeholders' engagement strategy which is not a one-off exercise but requires a specific level of flexibility in order to be able to face any unforeseen developments such as the identification of new and important key stakeholders, low effectiveness of selected channels, etc. To this end, the strategies and action plans will be closely monitored in order to ensure their optimal implementation and deployment of any mitigation actions, if necessary.

The stakeholder engagement strategies will be updated, if necessary, by the end of the project in the deliverable D6.2, reflecting the experience gained through the project activities.

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Abbreviations

BF	BetaFactory (iPRODUCE project partner)
B2B	Business-to-Business
B2C	Business-to-Consumer
CBS	Copenhagen Business School (iPRODUCE project partner)
CERTH	Center for Research & Technology Hellas (iPRODUCE project partner)
cMDF	Collaborative Manufacturing Demonstration Facilities
DIY	Do It Yourself
E@W	Energy@Work (iPRODUCE project partner)
FIT	Fraunhofer Institute for Applied Information Technology (iPRODUCE project partner)
IPR	Intellectual Property Rights
MMC	Manufacturers, Makers and Consumers
MSB	MakerSpace Bonn e.V. (iPRODUCE project partner)
OpIS	Open Innovation Space
STEM	Science, Technology, Engineering and Mathematics
TS	Trentino Sviluppo SPA (iPRODUCE project partner)
VLC	Océano Naranja SL (iPRODUCE project partner)

1. Introduction

1.1. Purpose and structure of the deliverable

The purpose of this deliverable D6.1 Engagement and ecosystem establishment review report (1st version) is to present a set of strategies for stakeholder engagement tailored to each cMDF. The goal of these strategies is to mobilize the multi-stakeholder communities in the target pilot areas around the cMDFs, based on their specific needs and motivations. To do so, it builds upon knowledge gained through project activities, as well as the partners' knowledge and information on engagement approaches and local stakeholders.

This report is structured in 5 chapters as follows:

- Chapter 2 describes the background and objectives of the deliverable
- Chapter 3 presents the methodology followed for stakeholder identification and classification
- Chapter 4 formulate the stakeholder engagement strategies per cMDF
- Chapter 5 presents the monitoring and evaluation framework of the engagement process

1.2. Connection with other deliverables

Due to the horizontal character of engagement, this deliverable is connected with several work packages of the project. In detail, the content of this deliverable is linked to the outcomes of several project activities which are:

- Market insights about user perceptions, motivations and other factors shaping their participation in collaborative manufacturing (T2.1 Users and stakeholders Requirements, Perspectives and Motivation)
- cMDF scope and description of use case scenarios (T2.4 Defining the Local Collaborative MDFs, Use-Cases, Innovation Challenges and KPIs)
- Composition and purpose of the cMDF (T3.2 Mapping and Reinforcing the Manufacturing Capacity of the cMDFs)
- Target audiences and key messages of iPRODUCE (T10.1 Target-Driven Dissemination Strategy, Plan and Review)

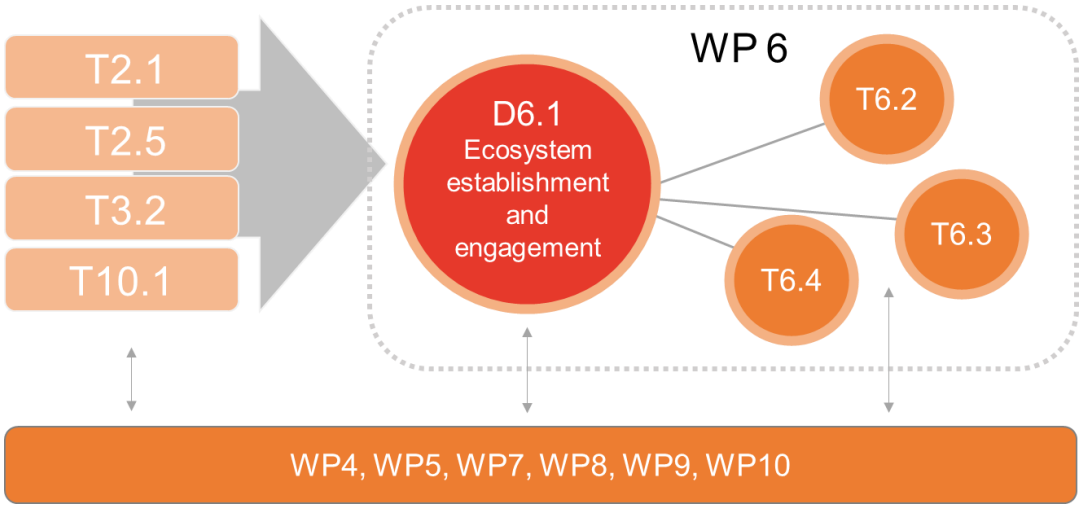

Figure 1 Interconnections between D6.1 and iPRODUCE workplan

These tasks act complementary for the identification of the stakeholders and their respective needs and motivations. At the same time, as a strategy document it is directly linked with all the activities of WP6, as they altogether target the engagement of makers and consumers in open innovation and collaborative manufacturing activities. These activities are:

- T6.2 Mobile App for Social Media-Enabled Consumers & Makers Feedback
- T6.3 Ambassador Programme for Early Adopters
- T6.4 Open Competitions on Consumer Products Innovation Challenges

The outcomes from these activities are continuously monitored as they are formulated and will be used complementary to the activities reported in this deliverable.

1.3. Upcoming deliverable

An updated version of this report entitled "*D2.2 - Engagement and ecosystem establishment review report 2*" is expected to be delivered at the end of the project (M36). The goal of this deliverable will be to provide an updated version of the strategies and action plans implemented in each cMDF if changes have been made, based on the experience gained through the project activities. It will also provide direct links with the social listening techniques supported by the mobile app developed under T6.2, as well as the digital features of the OpIS. At the same time, the report will present the progress that has been made in terms of engagement for each cMDF and will provide an overall assessment of the engagement strategies employed for collaborative manufacturing.

1.4. Procedures and management

The report "D6.1 - Ecosystem establishment and Engagement" is drafted by White Research (WR) and approved by iPRODUCE project coordinator AIDIMME. It is based on the information provided by partners involved in the cMDFs and, namely:

- AIDIMME, LAGRAMA and VLC for the Spanish cMDF
- FIT, MSB and ZENIT for the German cMDF
- Excelcar, FabLab Vosges and Materalia for the French cMDF
- TS and E@W for the Italian cMDF
- BF and CBS for the Danish cMDF
- AidPlex and CERTH for the Greek cDMF.

The pilot-based strategies that have been developed by the iPRODUCE partners are based on insights gathered through the previous iPRODUCE research as well as on the knowledge and experience that the iPRODUCE partners hold regarding their local ecosystem. Therefore, the stakeholders' engagement strategies are tailored to local specificities, contexts and stakeholders, based on the feedback provided by the local iPRODUCE partners.

It has to be noted that each event (i.e. warm-up events etc.) that will be implemented within the frame of the stakeholders' engagement strategies will lead to a report outcome that will summarise its major organisational characteristics and results. The cMDF partners, who will be responsible for the organisation of these events, will also have the responsibility of drafting the events' reports and WR will undertake to collect them.

The iPRODUCE pilot partners are expected to use this report as the baseline for their activities and approach towards the engagement and establishment of manufacturers, makers and consumers' communities in their respective areas.

2. Background and objectives

The maker movement is becoming increasingly popular and is considered to be a key driver for collaborative manufacturing. Over the last decade, it has been attracting attention while an immense growth of communities engaged in DIY activities has been observed (Rosa et al., 2018, 2017). Nevertheless, the manufacturing industry at large lacks a deeper understanding of the potential of the maker movement in the production of consumer goods. In iPRODUCE, we are working on encouraging collaboration between manufacturers and makers, while at the same time, on facilitating the transition of consumers into prosumers and of makers into co-innovators of SMEs.

At the same time, the participation of manufacturers, makers and consumers in the social manufacturing approach of iPRODUCE is considered one of the main challenges of the project. Not all consumers want to be makers, not all makers want to innovate for SMEs or scale up, not all SMEs are favourable to open innovation. To this end, we have to first understand the needs and perceptions of the different communities, in order to successfully engage them.

2.1. Drivers, barriers and challenges around social manufacturing

In the context of iPRODUCE, special focus has been given to better understand the consumers, makers and stakeholders in the pilot level of the cMDFs along with their perceptions, preferences and motivations with respect to the collaborative manufacturing and the maker movement. In particular, D2.1 and D2.2 shed light on the main drivers and barriers shaping their willingness to actively participate in collaborative manufacturing through a large-scale survey which targeted both pilot countries and the EU level.

In a nutshell, the report suggests there is an overall positive attitude towards citizen engagement in all pilot countries. As expected, higher levels of familiarity with terms related to social manufacturing, as well as previous experience in collaborative projects, constitute significant parameters positively affecting both overall perceptions and willingness to join the maker movement. Their main motivation for participation are to gain access to digital tools, exchange ideas and participate in collaborative projects for digital modelling and fabrication. The analysis also indicates that consumer empowerment, provision of higher quality services and the training character of makerspaces consist key factors for joining a collaborative manufacturing project. On the contrary, barriers related to health and environmental sustainability, as well as lack of makerspaces, information, and funding opportunities, affect almost all stakeholder groups' perceptions.

Finally, demographic aspects are also important factors for the engagement of different stakeholder groups. In particular, the report shows that the level of education and age are the factors that most affect their attitude towards collaborative manufacturing. Interestingly, people with lower income express are more positive and willing to join a social manufacturing project, while women are seen as one of the underrepresented communities of the maker movement.

2.2. Scope and objectives of ecosystem establishment and engagement

The scope of this task is to mobilize the multi-stakeholder communities in the target pilot areas around the cMDFs and establish an ecosystem of open innovation through social manufacturing. Stakeholder engagement refers to *"any process that involves stakeholders in some form of collaborative effort*

directed towards a decision, which might involve future planning and/or behaviour change" and may vary from information provision to more extensive and long-term relationships between participants (Gardner et al., 2018).

Multi-stakeholder engagement processes together with co-creation activities are among the key pillars of iPRODUCE and provide significant advantages in the context of social manufacturing. On the one hand, they contribute to developing products and services that are better adapted to the real needs of people and communities and thus allow more sustainable changes. On the other hand, involving stakeholders to develop innovative products through advanced digital technologies is even more relevant as digital collaboration is possible at a global level, while manufacturing is contextualized through local production and makerspaces.

In this context, it is crucial to have a clear understanding of the needs and motivations of local communities, in order to successfully engage them. This report leverages the findings of D2.1 and D2.2, as well as knowledge gained through other activities of the project, in order to define specific engagement strategies per cMDF and per targeted stakeholder group.

To this end, a set of strategic objectives that have to be sought after by all the partners have been defined under a context of mutual collaboration, information exchange and constant reporting. The objectives of the iPRODUCE stakeholder engagement approach are:

- **Define the stakeholder groups** to be engaged and integrated to the strategy;
- Provide **timely and appropriate information** in order to secure equal, informed and open participation in the project by stakeholder groups;
- Outline and construct a robust set of **action plans** to be coherently followed by each cMDF;
- **Consult and interact** with impacted stakeholder groups;
- Develop a set of **measurable, ambitious and realistic targets** that have to be met, in order the consortium to be able to measure the success of the action plans;
- **Disclose and disseminate** the anticipated impacts of the project and related mitigation measures in case of need;
- Continuously **provide information** about the project implementation process to the public and government agencies;
- Offer a robust **reporting framework** that all partners are expected to follow;
- Provide a relevant **timetable**, which will guide the consortium partners with regard to the timely and unhindered implementation of the stakeholder engagement action plans;
- Facilitate **open and continuous communication and consultation** between various groups including construction contractors, stakeholders, and the general public;

These objectives will be met through the implementation of the pilot-based strategies that are presented in detail in Section 4. Next, the methodology for stakeholder identification and classification is described.

3. Methodology

3.1. Stakeholder identification

The first and most important step in the stakeholder engagement process is to identify the key stakeholders with whom the iPRODUCE consortium partners will establish channels of communication and collaboration. In this context, by stakeholders we mean either individuals or groups who are going to be impacted, to a greater or lesser extent, by the project's outcomes, and who therefore may have an interest/stake in the project's design and implementation. Stakeholder's involvements in the identification process itself is also sought with the purpose of defining and refining the scope of the issues being considered, and provides more comprehensive information about who might have a stake in those issues.

To do so, a template for stakeholder mapping has been circulated to the consortium (see Annex 1) and each cMDF has been asked to provide information about their local ecosystem of stakeholders. An initial list of the iPRODUCE project's stakeholder groups was formulated in this template, which was then updated based on partners' input. The updated list of stakeholder groups comprising the iPRODUCE ecosystem is provided in Table 1.

Table 1. iPRODUCE Ecosystem

MANUFACTURERS & INDUSTRIAL STAKEHOLDERS	Consumer-goods manufacturers
	Manufacturing Startups
	Software companies
	Service providers
	Equipment / Material suppliers
MAKERS AND MAKER COMMUNITIES	FabLabs
	DIY communities and maker groups
	Co-working spaces
	Artists and designers
	Engineers, inventors and relevant experts
	Individual makers
CONSUMERS	Individuals
	Targeted market audience
SCIENTIFIC COMMUNITY	Research organizations
	R&D units in private companies
	Experts and individual researchers
FACILITATORS	Associations of engineers and manufacturers
	Funding agencies / Business incubators
	Policy making institutions
ENABLERS	Local /Regional authorities
	National authorities
	EU networks and initiatives
CIVIL SOCIETY	General public / Citizens
	Civil, social organizations / NGOs
	Public infrastructure (e.g. health, education)

However, the stakeholder identification process should be reassessed frequently throughout the project, in order to be ensured that no groups or individuals have been missed. This means that may involve identifying new stakeholders that need to be engaged through the project duration or as stakeholder needs and priorities change over the project implementation. It is important to ensure that groups or individuals that are considered to be potential sources of conflict are not left out of the engagement process simply because they have opposing views.

The stakeholders were initially selected following the **ex-ante approach**, according to which stakeholders are identified in advance, in relation to likely stakeholder categories, taking into consideration particular sectors or groups of relevance and specific roles or functions of different actors (e.g. manufacturers, policy makers, local communities).

Other methods used for identifying key stakeholders are:

- Brainstorming and consulting with project partners and with other organizations that have been involved in similar activities
- Initiating self-selection by promoting the engagement process and encouraging individuals with an interest to come forward
- Using 'snowball sampling' techniques, whereby one stakeholder identifies further stakeholders until no additional new stakeholders are identified
- Utilizing existing stakeholder lists and databases of the project partners in order to identify other groups, networks and agencies

Next, for each stakeholder, the following information has been provided:

- **CMDF involved**: The cMDF in which the stakeholder is involved (drop down menu)
- **Stakeholder name**: The stakeholder's organisation name or personal name
- **Stakeholder group**: The broader stakeholder group your identified stakeholder belongs to (drop down menu)
- **Stakeholder subgroup:** The stakeholder subgroup your identified stakehodler belongs to (drop down menu)
- **Potentially related expertise:** Further details on the (potentially related) expertise of the identified stakeholder (e.g. what kind of manufacturer? what kind of maker community? materials being used etc.)
- **Influence:** Influence is the capacity of each stakeholder group to affect the achievement of our project's results. Please rate low - very high (drop down menu)
- **Impact** Impact refers to the effect the project has on each specific group of stakeholders. Please rate low - very high (drop down menu)
- **Current level of engagement:** The current level of engagement with the specific stakeholder. Rate from Unaware -> Leading (drop down menu)
- **Desired level of engagement:** The desired level of engagement with the specific stakeholder. Rate from Unaware -> Leading (drop down menu)
- **Channel of communication:** If already engaged, specify the communication channel(s) that has been used so far (e.g. social media, email, face-to-face meetings). If not engaged, put TBD (to be defined).
- **Incentives**: The potential incentives for the stakeholder to join iPRODUCE (e.g. participation in an iPRODUCE event, access to certain features of the digital platform, etc.)
- **Contribution**: What the stakeholder could most likely contribute to? What does iPRODUCE need from this stakeholder?

3.2. Stakeholder classification

Nonetheless, not all categories require the same type or level of engagement. In order to determine the type of engagement activities that is most appropriate to integrate each stakeholder category, a Stakeholder Classification Model was used. The latter classifies stakeholders in four quadrants (Q1 Consult, Q2 Collaborate, Q3 Inform, Q4 Involve) based on the relationship of two variables, namely, influence and impact.

- **Influence** refers to the capacity of a stakeholder to affect the achievement of the project results
- **Impact** refers to the effect the project has on each specific group of stakeholders

Stakeholder engagement efforts are more geared towards stakeholders on the upper left/right quadrants (involve, collaborate). This is due to the fact these stakeholder groups are immediately relevant to the project either in terms of directly influencing its implementation or in terms of being more immediately affected by it. In this sense, the stakeholder groups with higher influence and impact in the project consist the Manufacturers, Makers and Consumers (MMC) communities that are created in iPRODUCE. On the contrary, stakeholder engagement efforts are less geared towards stakeholders on the low left/right quadrants (inform, consult). The latter can have an important multiplier or complementary role, but they exercise less influence over the project and are also less affected by it. Of course, this does not lower the significance or necessity of engaging these groups to the project.

Based on this model, the identified stakeholder groups relevant to the iPRODUCE Stakeholder engagement process were classified as illustrated in Figure 2. It should be noted that the position of stakeholders in the quadrants is not fixed in stone; the position is rather fluid and stakeholders may jump quadrant during the project.

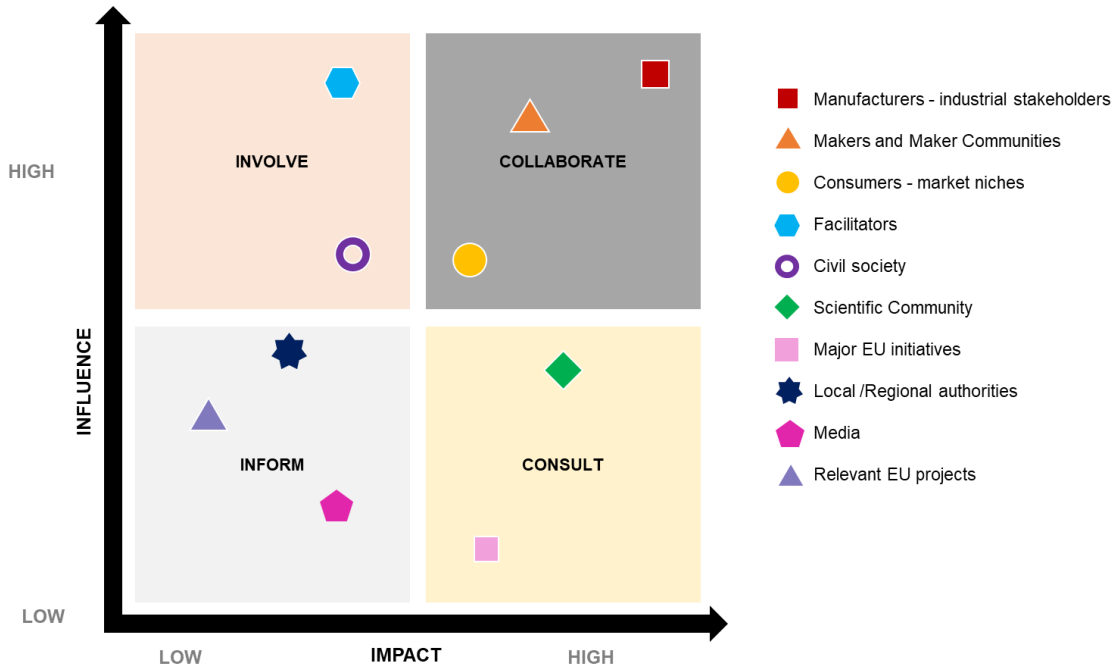

Figure 2 iPRODUCE Stakeholder groups classification

Building upon this classification, pilot-based strategies for stakeholder engagement have been developed and are presented below, focusing on the specific context and needs of each cMDF.

4. Pilot-based strategies for stakeholder engagement

The iPRODUCE engagement strategies are developed at a pilot level, in order to better address the specific scope and challenges of each cMDF. Each cMDF has a different focus not only in terms of industrial sector, but also in terms of composition and maturity. However, there are some common goals for all strategies which are:

- **Increase the awareness levels for collaborative production in the consumer goods sector.**
- **Stimulate information exchange and collaboration among different stakeholder groups.**
- **Increase willingness of stakeholders to actively participate in the co-creation activities.**

Based on these goals, the engagement strategies that have been developed for each cMDF are presented below, outlining the scope and composition and the targeted stakeholder groups. The engagement channels that will be deployed in each cMDF in the form of activities and events are presented. Moreover, an action plan and time plan for each cMDF and the channels to be used is provided.

It is important to mention that besides the activities foreseen at the local level of the cMDFs, there are several events at the project level which are also expected to contribute to the establishment of the iPRODUCE ecosystem. In particular:

- **2 online competitions and 1 hackathon** are foreseen as part of "T6.4 - Open Competitions on Consumer Products Innovation Challenges". The first competition is already running at the time of writing this deliverable
- **Workshops and demo shows** will be organized in the context of industrial exhibitions, trade fairs, etc. in the context of "T10.4 Workshops and Demo Shows"

However, these events are not focused at the pilot level of the cMDFs and thus are not presented in the action plan and time plan of the cMDF, as they are organized by other partners.

In the context of the iPRODUCE pilot implementation (WP9), there are additional activities requiring the participation of the local MMC communities. In particular, MMC communities are expected to contribute to the validation of the digital platform and the co-creation tools (T9.2), to the realization and demonstration of local cMDF pilots and open innovation mission (T9.4, T9.5), as well as to the evaluation of the Social Manufacturing Framework of the project.

Nevertheless, the format for the participation of local MMC communities in these activities (e.g. through online surveys, usability testing, online or face-to-face meetings, etc.) will be defined at an ad hoc basis by the cMDFs together with the partners responsible for these tasks.

4.1. cMDF1 – Spain

4.1.1. Current situation

The main scope of the Spanish cMDF is to develop customer-driven products through collaborative engineering between furniture manufacturing companies and maker communities. In particular, through the collaboration between manufacturers, FabLabs and the communities of makers, it aims at developing complex specifications for customized products that producers could not develop on their own. Therefore, the cMDF introduces co-production and co-design of physical products in the furniture sector addressing specific needs for new products, like new materials, or tailor-made shapes and functionalities. Custom furniture design will be tested through prototyping with digital manufacturing technologies and will then lead to the development of appropriate industrial processes for the documentation of the product elements.

The Spanish cMDF is composed of three partners:

Table 2. Composition of Spanish cMDF

Partner	Stakeholder group	Role in the project
AIDIMME (cMDF representative)	Technology Institute (metal processing, wood, furniture, and packaging)	○ Research Partner ○ Facility Party ○ Product Engineering activities ○ Contact to manufacturing SMEs (mainly associated members) ○ Support for dissemination actions
Lagrama	Furniture manufacturer	○ Representing the manufacturing companies who can approach to a cMDF ○ Product requirements definition
Océano Naranja	Fab Lab	○ Facility Party ○ Product Design activities ○ Contact to Fablabs, Makers, Consumers ○ Support for dissemination actions

In the context of the iPRODUCE pilots, the Spanish cMDF has developed 3 scenarios use cases in order to best meet the needs of their local ecosystem. The first is about a customizable smart bed headboard that integrates lighting, sound, and sensor engineering (IoT), the second about a smart adjustable gamer chair and the third about 3D-printed Components for assembling customized furniture.

The iPRODUCE engagement strategy for the Spanish cMDF shall help to bring together the industrial expertise of furniture producers and manufacturers with the creative and innovative ideas of the maker communities and the actual needs of the consumers. Besides the common goals of all engagement strategies, the specific goals of the engagement strategy for the Spanish cMDF are:

- **Familiarise the furniture sector with the methods and tools of collaborative production**
- **Facilitate collaborative engineering in customer-driven home furnishing products**

The communication strategy can combine face to face communication (e.g. workshops with key stakeholders, etc.), ad hoc interactions, as well as a widespread flow of information to the public (e.g. through social media, press releases, etc.).

4.1.2. Local ecosystem of stakeholders

Based on existing knowledge as well as information and findings from the iPRODUCE activities, the following stakeholder groups have been identified as the most relevant local actors who will constitute the Spanish MMC community that we aim to build within the iPRODUCE project.

1. Furniture manufacturers and industrial stakeholders

Manufacturers and industrial stakeholders relevant to the furniture sector are among the most important stakeholder groups of the Spanish MMC community. In fact, Spain is one of the largest European furniture manufacturing countries with exports in several EU countries. The key factors considered to be driving the growth of the Spanish furniture market are the developments in manufacturing technologies together with the increasing demand for customizable furniture[1] which are both addressed through the approach of iPRODUCE.

In this context, this stakeholder group refers to manufacturing SMEs and start-ups that are directly or indirectly linked with the production of furniture, such as companies with expertise on additive manufacturing. Clearly, engaging these stakeholders plays a crucial role for the collaborative manufacturing processes of the Spanish MMC community. They have a very good knowledge of the industrial processes and the manufacturing technologies and they can provide substantial feedback on different stages of the collaborative design and manufacturing of products. In turn, they can benefit from gaining access to the digital platform of iPRODUCE to further improve their products by extending their features and functionalities through prototyping and testing.

The biggest challenge in their engagement process will be to familiarize them with the concept of open innovation and the collaborative approach to manufacturing, and the differences to the traditional closed processes of manufacturing. Therefore, it is important that they get informed on the IPR management strategies for preserving and managing IPR issues in the collaborative production scenarios that will be also supported through the smart contracts of the digital platform.

2. FabLabs and maker communities

FabLabs, DIY and maker communities are also one of the most important stakeholder groups of the Spanish MMC community. As it has been shown in the large scale survey performed in T2.1[2], Spain had the highest share of makers among the respondents, as well as the largest share of people with previous experience with the maker movement. This indicates that the Spanish population is quite familiar with the concept of making, especially compared to other European countries, making the engagement process

This stakeholder group includes makerspaces, FabLabs, hackerspaces and formal or informal maker communities that are working with technologies of digital fabrication, electronics and programming. The motivation behind engaging this group in the Spanish cMDF is their experience with hands-on activities, including prototyping, through the use of digitally innovative technologies. Moreover, they are familiar with processes of co-creation and co-design which will make it easier for them to understand the iPRODUCE approach. Overall, they are expected to support the collaborative manufacturing of furniture with creative ideas on how to design and develop customised features and, therefore, contribute to the improvement of the final products. Individual makers can also act as

[1] Spain Furniture Market - Growth, Trends and Forecasts (2020 - 2025), Source: *https://www.researchandmarkets.com/reports/5176721/spain-furniture-market-growth-trends-and*
[2] D2.1. Stakeholder Requirements for UDI in the Consumer Goods Products *https://iproduce-project.eu/resources-results/d2-1-stakeholder-requirements-for-udi-in-the-consumer-goods-products/*

project ambassadors and consumer champions in order to accelerate the development of the collaborative manufacturing processes of the cMDF.

The main challenge for engaging this stakeholder group can be their commitment to the iPRODUCE activities. Since making is usually seen as a hobby or a leisure activity, there might be difficulties in retaining the participants' interest and motivation throughout the project activities. To address this challenge, the engagement strategy for this group will provide a set of incentives that could serve as additional motivation for their participation.

3. Associations of engineers and manufacturers

Another stakeholder group that has been identified to have a very high influence and impact to the Spanish cMDF includes engineers' and/or manufacturers' associations. The purpose of these associations is to serve as an advocate and partner for manufacturing and their related businesses and companies, defending their collective and individual interests to the public administration and other institutions. Furthermore, they also provide their associated companies with different services that seek to promote, develop and constantly improve their business activities through trainings, networking events and other activities.

This stakeholder group includes associations of engineers, sectorial business federations (e.g. furniture, metal, wood, etc.) as well as startup associations. These organisations usually act at a regional or even national level, and thus, their engagement in the Spanish cMDF is expected to support the dissemination of the scope and approach of the cMDF. More specifically, through their extensive networks of associated companies, they will play a key role in promoting social manufacturing and utterly contribute to engaging more companies in the collaborative activities of the Spanish cMDF.

4. Public authorities (local and national)

Public authorities at a local or national level are also considered as a key stakeholder group to be engaged in the Spanish cMDF. More specifically, this group include relevant ministries and local authorities that can promote co-creation and social innovation as a way to contribute to more efficient processes of manufacturing. Moreover, public authorities have a significant role in fostering education and training through STEM methodologies and in this way contribute to familiarising the general public with the potential and benefits of social manufacturing.

In this context, considering the role of public authorities in the Spanish cMDF, it becomes obvious that engaging this type of stakeholders will probably speed up the process of the other stakeholders' engagement and will, thus, help us to make fast progress in implementing collaborative manufacturing processes.

5. Consumers and general public

Finally, consumers and the general public are among the main stakeholder groups to be involved in the cMDF activities. After all, promoting new collaboration processes that will ease consumers' participation in the co-production of products will result in the creation of local added value in the local communities. Moreover, engaging consumers and the general public, fully corresponds to the core of the iPRODUCE vision, concept and approach that is to involve consumers in the collaborative manufacturing of consumer goods. We can include inventors, start-ups, researchers, and even students (mainly from university) addressing Open Innovation as Consumers.

Since there are specific use cases for each cMDF, the targeted consumers can be directly linked with the products that will be developed. While for the first use case about the customizable bed headboard the target consumers may come from the general public, for the second use case about the smart gamer chair, the target consumers should be people interested in videogames. In this way, it will be easier to identify specific user needs and integrate their feedback into the design and development phase.

4.1.3. Strategy for stakeholder engagement

Due to the already existing structures and the complexity of the thematic scope, we have developed a multi-stakeholder strategy for the Spanish cMDF. On the one hand, we need to stimulate and motivate different stakeholder groups to participate in collaborative manufacturing processes. On the other hand, depending on the type of participation other stakeholders need to be involved as well. Those might be associations, public authorities, consumers, etc.

As described in the previous section, the targeted stakeholder groups for the Spanish cMDF are the following:

- **Furniture manufacturers and industrial stakeholders**
- **FabLabs and maker communities**
- **Associations of engineers and manufacturers**
- **Public authorities**
- **Consumers and general public**

These stakeholder groups are very different in knowledge, scale and focus. Furthermore, they have different motivations for participating in collaborative manufacturing as well as different incentives and ways of contribution. Therefore, tailor-made strategies are developed and presented below, in order to better address the specific needs and motivations of different stakeholder groups.

❖ ***Strategy for engaging furniture manufacturers and industrial stakeholders***

The motivation of furniture manufacturers and industrial stakeholders for joining the Spanish cMDF can be triggered through economical aspects as well as through social benefits. The **first step** of communication will address the furniture manufacturers and industrial stakeholders with an **informative letter**, **pointing out the potential of social manufacturing as well as the collaborative design, engineering and manufacturing of consumer goods.**

Key messages for reaching furniture manufacturers and industrial stakeholders

In our initial interactions with furniture manufacturers and relevant industrial stakeholders, we will communicate specific messages for attracting their interest in the iPRODUCE approach. In particular, we will underline that social manufacturing offers a variety of benefits that could have direct impact on their product design and development, by offering positive future perspectives for the collaborative production activities integrating makers' and consumers' feedback. For instance:

- Identified consumer needs in home furnishing
- Development of complex specifications for customized furniture products
- New business models for manufacturing developed within the scope of iPRODUCE.
- Processes through which manufacturers can involve makers and consumers in the manufacturing process through open innovation.

- Intellectual property protection in collaborative environments for open innovation.

The letter that will be sent to the furniture manufacturers and relevant industrial stakeholders will have a two-fold aim: **(i) offer information about social manufacturing and the iPRODUCE approach** and **(ii) invite them to join the Spanish cMDF.**

AIDIMME (coordinator of iPRODUCE) is the representative of the Spanish cMDF and has extensive knowledge of the local furniture manufacturing landscape as well as of furniture and metal processing companies in the area of Valencia and all over Spain. As such, AIDIMME will offer a check of the individual conditions to interested manufacturers and will discuss their potential contribution in the foreseen collaborative activities within the context of iPRODUCE. After the first communication with furniture manufacturers and relevant industrial stakeholders, we will have an overview of manufacturers interested to join the Spanish cMDF. Based on their interest, the potential contribution of their participation will be analyzed and this process will enable us to identify priority stakeholders in the group of furniture and relevant manufacturers.

The **second step** of their engagement process includes interaction and information exchange between them and the cMDF mainly on local level. More specifically, cMDF visits, personal phone calls and warm-up events will help us communicate with the furniture manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Finally, the **third step** of their engagement process includes their participation in user-driven innovation workshops and their involvement in co-creation activities, for the collaborative design and manufacturing of furniture. The goal is to engage them in developing customized furniture while taking into account the views of consumers and makers.

❖ *Strategy for engaging FabLabs and maker communities*

The motivation of FabLabs and maker communities for participating in the Spanish cMDF can be sparked through indicating what can be offered to them. On the one hand, they will have the chance to participate in the design and manufacturing of actual products collaborating with industrial stakeholders of the furniture sector, putting in practice their skills and knowledge. On the other hand, they will gain knowledge on methods and tools for industrial product development which can support the further development of their ideas as well as understand how to create new cMDFs and expand or upscale existing makerspaces.

The **first step** of communication with FabLabs and maker communities will be to inform them about the overall approach of iPRODUCE as well as the specific scope of the Spanish cMDF via email communication. To this end, the promotional material of the project and the communication channels of the project and partners can be used. We will inform about the iPRODUCE tools used in our use cases trying to receive feedback and engage them in the process.

Key messages for reaching FabLabs and maker communities

In our communication with FabLabs and maker communities, we will use specific messages for attracting their interest in the iPRODUCE approach. In particular, we will explain how they can benefit from participating in collaborative production with industrial stakeholders and consumers. For instance:

- Identified consumer needs in home furnishing
- How to create new cMDF and expand existing or upscale makerspaces and infrastructures.
- New methods, strategies and tools to foster co-creation and open innovation, while simultaneously reducing development costs.

VLC (partner of iPRODUCE and of the Spanish cMDF) is a FabLab with connections to other FabLabs and maker communities in the area and will exploit the existing network of contacts. This is expected to ease the communication process as well as increase the chances for their active engagement in the Spanish cMDF.

The **second step** for the engagement of FabLabs and maker communities will be to invite them to participate in face-to-face activities and workshops that will bring together stakeholders relevant to furniture design and manufacturing. Through these events, potential early adopters and local maker champions can be identified to be contacted for the ambassador programme that will be developed under Task 6.3. These workshops can also be used to collect feedback on the user experience of the iPRODUCE platform. Overall, it is important to keep this stakeholder group regularly updated with the progress and the activities of the cMDF, providing opportunities for exchange of knowledge and skills through webinars and trainings but also through less formal ways of interaction.

❖ *Strategy for engaging Associations of engineers, designers and manufacturers, Public authorities, Consumers and general public*

The next step of the engagement strategy is to raise awareness across other stakeholder groups that will significantly affect the overall impact of the cMDF. We will try to integrate all the remaining stakeholder groups and namely: (i) associations of engineers and manufacturers, (ii) public authorities and (iii) consumers and general public.

As mentioned above, **Associations of engineers, designers and manufacturers** can play a significant role in supporting the engagement of industrial manufacturers in the Spanish cMDF through their extensive networks of associated companies. AIDIMME has already established good contact with some sectorial federations, so communication and information exchange through face-to-face or online meetings will further ensure their engagement in disseminating our ambition.

Key messages for reaching Associations of engineers, designers and manufacturers

In our communication with Associations of engineers, designers and manufacturers, we will explain how social manufacturing through the iPRODUCE platform can steer the growth of the Spanish furniture market in the area. More specifically we will focus on:

- New methods, strategies and tools to foster co-creation and open innovation, while also reducing development costs of new and existing customized furnishing products.
- Methods and tools that can be considered for standardization.
- New products that are open for external investment.

The engagement of **Public Authorities** is also seen as a vital part of this strategy and their contribution is twofold. First, they can promote co-creation and social innovation as as a way to move towards more efficient processes of manufacturing, convincing people to participate in collaborative production activities. In addition, they can also foster education and training through STEM methodologies to familiarise the general public with the potential and benefits of social manufacturing.

Communication can take place either through email or phone and further interaction through invitation to the project policy events is foreseen.

Key messages for reaching Public Authorities

In our communication with Public Authorities, we will focus on the impact of the cMDF, explaining:

- The role of the cMDF at a local level and opportunities for replication.
- Good practices learned from the project that promotes greener manufacturing processes.

Finally, **consumers and the general public** can considerably affect the way social manufacturing will be developed in the future. As digital technologies evolve, novel ways of collecting consumer feedback and integrating it in the design and development stages are developed. In the context of iPRODUCE, the mobile app developed under T6.2 enable interaction among users and feedback collection about specific products through polls. Special attention is paid to engaging and connecting consumers in areas of high social interest, such as vulnerable communities, female groups, migrants, etc.

Key messages for reaching consumers and general public

In our communication with consumers and the general public, we will use clear and direct messages to explain the benefits of social manufacturing, including:

- New customized furniture to meet consumers' needs
- Novel ways to share experience and provide feedback for a specific product
- Consumers can contribute to the design and development of better products.

To achieve broad dissemination of the cMDF scope and activities, social media campaigns through both the project and partners' accounts will take place. For these campaigns, local language will be used together with relevant hashtags that can easily convey key messages. Finally, it is important to note that the use of technical and scientific concepts in communication targeted to the general public should be avoided.

4.1.4. Channels

In this section the channels and activities that will be deployed in the cMDF in order to reach the targeted stakeholders are presented. In particular, below we summarize those actions that have been identified as the most suitable based on the specificities of the stakeholders that we intent to reach in the frame of our stakeholders' engagement strategy for the Spanish cMDF.

Information letter and proposal for participation (via email)

Targeted stakeholders: Furniture manufacturers, designers and relevant industrial stakeholders

The first step is to raise awareness to furniture manufacturers and relevant industrial stakeholders through an official letter to them. Arousing their interest in the iPRODUCE project will be achieved by offering concrete information on the benefits for those deciding to join the project and, namely, by presenting them the future perspectives for collaboratively designing and developing their products integrating makers' and consumers' feedback.

cMDF visits and personal interactions

Targeted stakeholders: Furniture manufacturers, designers and relevant industrial stakeholders

The second step is to have personal interactions between them and the cMDF to better understand their needs and expectations. cMDF visits, personal phone calls and emails will help us communicate with the furniture manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Warm-up activities

Targeted stakeholders: All

Warm-up activities are also an effective way to engage local stakeholders. At least 3 warm-up events shall be organized and their purpose is to mobilise people under the banner of social manufacturing and engage them in the collaborative manufacturing processes of the cMDF. A key outcome of these events is also to identify potential early adopters and local maker and consumer champions (lead users), who can act as ambassadors to mobilise and inform local communities on social manufacturing.

Workshops

Targeted stakeholders: Furniture manufacturers, designers and industrial stakeholders, FabLabs and maker communities, consumers and general public

Workshops will also be organised with the aim to bring together relevant stakeholders and involve them in co-creation activities around the topic of collaborative manufacturing. More specifically, based on the project workplan, the following workshops are foreseen:

- **Maker workshops** will be conducted to find new use of old material or even old industrial items in the context of "T5.5 - Lifecycle Management, Recycling, Repurposing and Reusing".
- **Consultation workshops** (2 per cMDF) will be organised in each site by the local partners with the aims to meet with early adopters from the target communities in order to gather their feedback and insights with regards to both community structures and products, in the context of "T6.3 - Ambassador Programme for Early Adopters".

Other workshops (e.g. for training, co-creation, etc.) may also be organised based on the specific needs of the cMDFs and their local communities.

Mobile app for social media-enabled feedback

Targeted stakeholders: Furniture manufacturers, designers and industrial stakeholders, FabLabs and maker communities, consumers and general public

The mobile application developed under "T6.2 - Mobile App for Social Media-Enabled Consumers & Makers Feedback" is also a key channel for engaging different groups of stakeholders in the collaborative manufacturing activities of the project. In particular, through the functionalities of the app, users will be able to collect feedback about a specific product through polls and interact with other users in real time. In this way, the mobile app is expected to increase interaction and therefore engagement among the local MMC communities of the cMDFs.

Press release and articles about iPRODUCE and the Spanish cMDF

Targeted stakeholders: Associations of engineers, designers and manufacturers, Public Authorities

Press release and articles will be published in local media aiming to inform about the vision of the iPRODUCE project as well as the scope of the Spanish cMDF.

4.1.5. Action plan

This section sets the time plan for the deployment of the channels and activities that will be used for each of the targeted stakeholders of the Spanish cMDF. The action plan for stakeholder engagement in the cMDF is summarized in Table 3.

Table 3. Stakeholders' engagement action plan for the Spanish cMDF

Targeted stakeholder	Channel/Action	Timing	Location	No. of Actions	Target No. participants
Furniture manufacturers, designers and industrial stakeholders	Information letter and proposal for participation	09/2021-12/2021	Online	30 letters	20
	cMDF visits and personal interactions	10/2021-03/2022	cMDF	20	20
All	Warm-up activities	10/2021-06/2022	cMDF	3	45 total / 15 per event
All	Workshops	01/2022-08/2022	cMDF	3	45 total / 15 per workshop
Associations of engineers and manufacturers **Public authorities**	Press release and articles	10/2021-10/2022	In office	2-5	N/A
Furniture manufacturers, designers and industrial stakeholders, FabLabs and maker communities, consumers and general public	Mobile app for social media-enabled feedback	12/2021 – 12/2022	Online	3-4 products fine-tuned through social media-based feedback	N/A

4.1.6. Time plan of the stakeholders' engagement activities

A detailed timeline of the iPRODUCE stakeholders' engagement strategy and plan for the Spanish cMDF is presented in Figure 3. The implementation time plan accounts for the stakeholders' engagement actions that are foreseen by the end of the project.

Figure 3. Implementation time plan the Spanish cMDF

Activity \ Project month	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
Information Letter																		
Furniture manufacturers, designers and industrial stakeholders																		
cMDF visits and personal interactions																		
Furniture manufacturers, designers and industrial stakeholders																		
Warm-up activities																		
All targeted stakeholders																		
Workshops																		
All targeted stakeholders																		
Press release and articles																		
Associations of engineers and manufacturers																		
Public authorities																		
Mobile app																		
Furniture manufacturers, designers and industrial stakeholders																		
FabLabs and maker communities																		
Consumers and general public																		

4.2. cMDF2 – Germany

4.2.1. Current situation

The main scope of the German cMDF is to enhance the co-creation capacity of manufacturing SMEs for consumer product innovation. Introducing the maker movement to the manufacturing sector, it aims to capitalize on the FabLab mentality and the respective working processes. The first step for that is to understand and determine the relationships between SMEs and makerspaces. Next, it will establish a concise list of services that are of interest and could be beneficial for SMEs and FabLabs alike. In this way, it will develop the mechanisms to facilitate initial equipment usage for new machine users and the corresponding processes and tools to support iterative prototyping with electronics.

The German cMDF is composed of three partners:

Table 4. Composition of German cMDF

Partner	Stakeholder group	Role in the project
Fraunhofer FIT	Research Institute	○ Research Partner ○ Responsible for methodology
Zenit GmbH	Public Private Partnership	○ Networking Partner ○ Provides Contact to SMEs ○ Organizational support for organizing events
MakerSpace Bonn	FabLab	○ Facility Partner ○ Production capacity ○ Hosting workshop and machinery ○ Support for dissemination actions

In the context of the iPRODUCE pilots, the German cMDF has developed 4 use cases covering different stages of collaborative production. The first is about developing trainings for innovative methodologies using design thinking approaches, the second is about virtual tutorials and sample projects for maker equipment in a fun and immersive way, while the third is focused on microelectronics and the fourth will develop an IoT education kit.

The iPRODUCE engagement strategy for the German cMDF shall help to better understand the needs of manufacturing SMEs as well as the work processes of makerspaces. In this way, the services that will be developed will directly benefit local companies while at the same time the potential of makerspaces will be further exploited. Besides the common goals of stakeholder engagement, the strategy for the German cMDF aims to:

- **Encourage open consultation about methods and tools used in makerspaces**
- **Facilitate collaborative product development between different stakeholder groups**
- **Promote innovative methods and tools for collaborative learning**

The communication strategy can combine face to face communication (e.g. workshops with key stakeholders, etc.), ad hoc interactions, as well as a widespread flow of information to the public (e.g. through social media, press releases, etc.).

4.2.2. Local ecosystem of stakeholders

Leveraging existing knowledge as well as information and findings from the iPRODUCE activities, the following stakeholder groups have been identified as the most relevant local actors who will constitute the core parts of the German MMC community that we aim to build within the iPRODUCE project.

1. **Industrial manufacturers**

Industrial manufacturers are among the most important stakeholder groups of the German MMC community. This group includes manufacturing SMEs and start-ups as well as industrial companies that are working on electronic devices and focus on emerging IoT applications for both industrial environments and smart cities.

The main motivation for their engagement in the German cMDF is to expand their manufacturing capabilities, experimenting and testing new methods and tools that are used in makerspaces. In other words, they have the chance to use rapid prototyping tools as well as co-creation methods that will make their working processes more efficient and will enable them to easier integrate user feedback and needs.

2. **FabLabs and maker communities**

FabLabs, DIY and maker communities are also among the most important stakeholder groups of the German cMDF. This stakeholder group includes makerspaces, FabLabs, co-working spaces, hackerspaces and maker communities working with technologies of digital fabrication, electronics and programming. The motivation behind engaging this group in the German cMDF is their experience with prototyping and their familiarity with processes of co-creation and co-design. Individual makers can also act as project ambassadors and consumer champions in order to accelerate the development of the collaborative manufacturing processes of the cMDF.

The main challenge for engaging FabLabs and maker communities can be keeping their willingness and interest to participate in the cMDF activities. To tackle this challenge, the engagement strategy for this group will provide a set of incentives that could further motivate their participation throughout the project activities.

3. **Consumers and general public**

Consumers and the general public are also an important main stakeholder group that will be involved in the German cMDF. Based on the outcomes of our survey performed in T2.1, the familiarity of the German sample with the maker movement is moderate compared to other pilot countries of iPRODUCE. At the same time, the results have shown that there is limited experience in working in collaborative projects. Both insights indicate that the engagement strategy targeting the general public should start from paying special attention on familiarizing people with the key concepts of the project.

4. **Local administration**

The final stakeholder group to be engaged in the German cMDF is local administration. This group includes local authorities as well as local organisations providing support to SMEs. Through a wide range of initiatives, they foster the diffusion of STEM topics in society, focusing either on the general public or specific target groups, such as kids, elder people, etc. Therefore, the engagement of local administration will play a crucial role in raising awareness on collaborative manufacturing across society and accelerate the social acceptance of digital fabrication. In this way, they will significantly contribute to the promoting and dissemination of the overall approach of iPRODUCE.

4.2.3. Strategy for stakeholder engagement

A multi-stakeholder strategy has been developed for the engagement in the German cMDF in order to address the needs and motivation of different stakeholder groups. On the one side, interactions and interconnections between manufacturers and maker communities have to be encouraged. On the other side, raising awareness on social manufacturing and digital fabrication is essential for all stakeholder groups.

As described in the previous section, the targeted stakeholder groups for the German cMDF are:

- **Industrial manufacturers**
- **FabLabs and maker communities**
- **Consumers and general public**
- **Local administration**

The tailor-made strategies that have been developed for the targeted stakeholder groups are presented below, addressing their specific needs and motivation.

❖ *Strategy for engaging industrial manufacturers*

The motivation of industrial stakeholders for joining the German cMDF can be triggered through both economical aspects and social benefits. The **first step** will be to communicate industrial manufacturers with an **official letter, pointing out the potential of social manufacturing as well as the collaborative design, engineering and manufacturing of consumer goods.**

Key messages for reaching industrial manufacturers

In our interactions with industrial manufacturers, we will communicate specific messages for attracting their interest in the iPRODUCE approach. In particular, we will underline that co-creation and open innovation could further improve processes of product design and development better aligned to consumers' needs and expectations. For instance:

- Identified consumer needs in electronic devices and IoT and smart city applications
- New business models for manufacturing developed within the scope of iPRODUCE.
- Processes through which manufacturers can involve makers and consumers in the manufacturing process through open innovation.

The letter addressing industrial manufacturers will have a two-fold aim: **(i) offer information about open innovation, co-creation and the iPRODUCE approach** and **(ii) invite them to join the German cMDF.** To do so, we will exploit the extensive contact network of local SMEs of ZENIT, as well as the professional network of FIT. Based on their interest, the potential contribution of their participation will be analyzed and this process will enable us to identify priority stakeholders relevant to electronic devices, IoT and smart city applications.

The **second step** is to deepen interaction and information exchange between priority stakeholders and the German cMDF, through cMDF visits, personal phone calls or email. Inviting them to participate in warm-up events can also help us communicate with them and better understand their needs and expectations for collaborative design and manufacturing.

Finally, the **third step** of their engagement process includes their active involvement in user-driven innovation workshops and co-creation activities together with makers and consumers. In these events,

they will have the chance to experiment on using methods and tools for open innovation and co-creation, in order to enhance their manufacturing capacity and their innovation potential.

❖ *Strategy for engaging FabLabs and maker communities*

The motivation of FabLabs and maker communities for participating in the German cMDF has multiple aspects. First, they will have the opportunity to collaborate with industrial stakeholders and exchange knowledge on methods, tools and practices for collaborative design and manufacturing. Second, they will have the chance to present their work and mission in a wide range of stakeholders and find support in their ideas. Third, they will learn how cMDFs are built and operating in order to either create new or expand and upscale existing makerspaces.

The first step of communication with FabLabs and maker communities will be to inform them about the overall approach of iPRODUCE as well as the specific scope of the German cMDF via email communication. To this end, the promotional material of the project and the communication channels of the project and involved partners can be used. MSB (partner of iPRODUCE and of the German cMDF) is a FabLab with connections to other FabLabs and maker communities and hence, the existing network of contacts will be exploited. This is expected to ease the communication process as well as increase the chances for their active engagement in the German cMDF.

Key messages for reaching FabLabs and maker communities

In our communication with FabLabs and maker communities, we will explain how they can benefit from participating in collaborative production with industrial stakeholders and consumers. For instance:

- Identified consumer needs in electronic devices and IoT and smart city applications
- How to create new cMDF and expand existing or upscale makerspaces and infrastructures.
- New methods, strategies and tools to foster co-creation and open innovation, while simultaneously reducing development costs.

The second step for their engagement will be to invite them to participate in face-to-face activities and workshops that bring together a wide range of stakeholders relevant to IoT and smart city domains. In these events, potential early adopters and local maker champions can be identified to be contacted for the ambassador program that will be developed under Task 6.3. These workshops can also be used to collect feedback for the iPRODUCE platform, while maker communities could also have the chance to present their work, in case this is aligned with the overall scope and purpose of the event.

❖ *Strategy for engaging local administration*

The engagement of local administration is also seen as a crucial element of this strategy and their contribution is twofold. On the one hand, they can promote co-creation and open innovation as as a way to move towards more efficient processes of manufacturing, convincing people to participate in collaborative production activities. In addition, they can also foster education and training through STEM methodologies to familiarise the general public with the potential and benefits of social manufacturing. The first step for their engagement is to create awareness about the project and the cMDF, through a press release or an article published at the local media. The aim is to describe the overall scope of the cMDF and explain how social manufacturing can benefit society and economy at a local level.

Key messages for reaching Local Administration

In our communication with Public Authorities, we will focus on the impact of the cMDF, explaining:

- The role of the cMDF at a local level and opportunities for replication.
- Good practices learned from the project that promote greener manufacturing processes.

The next step is to directly communicate with relevant departments through email or phone and invite them to participate in the cMDF activities. While participation in several events will be encouraged, policy events and info days will specifically target representatives of local administration and policy makers.

❖ ***Strategy for engaging consumers and general public***

Finally, consumers and the general public have a substantial role on the societal impact of the cMDF at a local level. As discussed above, previous findings from project activities indicate low to moderate familiarity of the German population with the concepts of collaborative production and the maker movement. Therefore, the first step for their engagement will focus on raising awareness and familiarizing people with the key concepts of the cMDF. The use of clear and direct messages with which people can relate and identify their individual or collective needs is very important.

Finally, special attention is paid to engaging and connecting consumers in areas of high social interest, such as vulnerable communities, female groups, migrants, etc.

Key messages for reaching consumers and general public

In our communication with consumers and the general public, we will use clear and direct messages to explain the benefits of co-creation and open innovation, including:

- Opportunities for learning and developing new skills and capabilities
- New or existing products designed to meet consumers' needs
- Novel ways to share experience and provide feedback for a specific product
- Consumers can contribute to the design and development of better products.

To achieve broad dissemination of the cMDF scope and activities, social media campaigns through both the project and partners' accounts will take place. For these campaigns, local language will be used together with relevant hashtags that can easily convey key messages. Finally, it is important to note that the use of technical and scientific concepts in communication targeted to the general public should be avoided.

4.2.4. Channels

The channels and activities deployed in the German cMDF with the aim to reach the targeted stakeholders are presented below. In particular, we summarize those actions that have been identified as the most suitable based on the specificities of the stakeholders that we intent to reach in the frame of our stakeholders' engagement strategy for the cMDF.

Information letter and proposal for participation (via email)

Targeted stakeholders: Industrial manufacturers

The first step is to raise awareness to industrial manufacturers through an official letter to them. Arousing their interest in the iPRODUCE project will be achieved by offering concrete information on the benefits for those deciding to join the cMDF and, namely, by presenting them the future perspectives for collaboratively designing and developing their products integrating makers' and consumers' feedback.

cMDF visits and personal interactions

Targeted stakeholders: Industrial manufacturers

The second step is to have personal interactions between industrial manufacturers and the cMDF to better understand their needs and expectations. cMDF visits, personal phone calls and emails will help us communicate with the industrial manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Warm-up activities

Targeted stakeholders: All

Warm-up activities are also an effective way to engage local stakeholders. At least 3 warm-up events shall be organized and their purpose is to mobilise people under the banner of social manufacturing and engage them in the collaborative manufacturing processes of the cMDF. A key outcome of these events is also to identify potential early adopters and local maker and consumer champions (lead users), who can act as ambassadors to mobilise and inform local communities on social manufacturing.

Workshops

Targeted stakeholders: All

Workshops will also be organised with the aim to bring together relevant stakeholders and involve them in co-creation activities around the topic of collaborative manufacturing. More specifically, based on the project workplan, the following workshops are foreseen:

- **Maker workshops** will be conducted to find new use of old material or even old industrial items in the context of "T5.5 - Lifecycle Management, Recycling, Repurposing and Reusing".
- **Consultation workshops** (2 per cMDF) will be organised in each site by the local partners with the aims to meet with early adopters from the target communities in order to gather their feedback and insights with regards to both community structures and products, in the context of "T6.3 - Ambassador Programme for Early Adopters".

Other workshops (e.g. for training, co-creation, etc.) may also be organised based on the specific needs of the cMDFs and their local communities.

In scope of an early adaptation of the iPRODUCE action task, during the initial year some action tasks were already implemented. In particular, 5 workshops and warm up events were organized. Their aim was to include SMEs in the iPRODUCE project idea. They were carried out as online-workshops. More detailed information about this activity can be found in Chapter 2 of D5.11.

Press release and articles about iPRODUCE and the German cMDF

Targeted stakeholders: Local administration

Press release and articles will be published in local media aiming to inform about the vision of the iPRODUCE project as well as the scope of the German cMDF.

Mobile app for social media-enabled feedback

Targeted stakeholders: Industrial stakeholders, FabLabs and maker communities, consumers and general public

The mobile application developed under "T6.2 - Mobile App for Social Media-Enabled Consumers & Makers Feedback" is also a key channel for engaging different groups of stakeholders in the collaborative manufacturing activities of the project. In particular, through the functionalities of the app, users will be able to collect feedback about a specific product through polls and interact with other users in real time. In this way, the mobile app is expected to increase interaction and therefore engagement among the local MMC communities of the cMDFs.

4.2.5. Action plan

This section sets the time plan for the deployment of the channels and activities that will be used for each of the targeted stakeholders of the German cMDF. The action plan for the stakeholders' engagement in the region is summarized in Table 5.

Table 5. Stakeholders' engagement action plan for the German cMDF

Targeted stakeholder	Channel/Action	Timing	Location	No. of Actions	Target No. participants
Industrial manufacturers	Information letter and proposal for participation	07/2021-09/2021	Online	30 letters	20
	cMDF visits and personal interactions	10/2021-03/2022	cMDF	20	20
All	Workshops	01/2022-08/2022	cMDF	2	30 total / 15 workshop
Local administration	Press release and articles	10/2021-10/2022	In office	2-5	N/A
Industrial stakeholders, FabLabs and maker communities, consumers and general public	Mobile app for social media-enabled feedback	12/2021 – 12/2022	Online	3-4 products fine-tuned through social media-based feedback	N/A

4.2.6. Time plan of the stakeholders' engagement activities

A detailed timeline of the iPRODUCE stakeholders' engagement strategy and plan for the German cMDF is presented in Figure 4. The implementation time plan accounts for the stakeholders' engagement actions that are foreseen by the end of the project.

Figure 4. Implementation time plan the German cMDF

Activity \ Project month	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
Information Letter																		
Industrial manufacturers																		
cMDF visits and personal interactions																		
Industrial manufacturers																		
Press release and articles																		
Local administration																		
Workshops																		
All targeted stakeholders																		
Mobile app																		
Industrial stakeholders																		
FabLabs and maker communities																		
Consumers and general public																		

4.3. cMDF3 – France

4.3.1. Current situation

The main scope of the French cMDF is to demonstrate the use of co-creation and co-design mainly in the mobility, automotive and robotics sectors. To do so, it is working on making the FabLabs equipment, tools and machines more accessible to potential users or product developers by creating virtual and digital trainings, tutorials and courses. At the same time, the French cMDF aims at supporting entrepreneurs' and SMEs' projects, especially in the mobility and electro-mobility sectors, by introducing and encouraging them to involve social and collaborative manufacturing in their product design and development processes.

The French cMDF is composed of three partners:

Table 6. Composition of French cMDF

Partner	Stakeholder group	Role in the project
Excelcar	Accelerator for industrial innovation	○ Detection of entrepreneurial projects related to micro-mobilities ○ Provision of prototyping equipment for cMDF projects ○ Organisation of open innovation challenges ○ Experimentation of training modules dedicated to the use of prototyping equipment
FabLab Vosges	FabLab	○ Running and organizing product design, co-creation and prototyping workshops. ○ Disseminating the local production and making capabilities through the participation in a set of local projects as well as organizing trainings related to the available equipment ○ Providing prototyping machines and equipment for user project purposes.
Materalia	Competitiveness cluster in materials and processes	○ Identification of new project opportunities ○ Elaboration of a financing strategy ○ Organisation of co-creation and open innovation workshops ○ Detection of partners or end users.

In the context of iPRODUCE pilots, the French cMDF has developed 2 scenario use cases that respond to the current needs of the local ecosystem. The first scenario is about facilitating access to the makerspaces and its machinery through the development of supporting and training material for different kind of users, like makers, consumers and industrial companies. The second scenario focuses on the user-driven development of urban solutions for soft or electric mobility exploiting the digital tools provided by the iPRODUCE platforms.

The iPRODUCE engagement strategy for the French cMDF aims to increase public interest on the use of makerspaces while at the same time boost collaborative manufacturing in the automotive sector. A diverse set of communication channels will be used to achieve these aims and successfully engage local communities in the activities of the French cMDF.

4.3.2. Local ecosystem of stakeholders

Combining existing knowledge with information and findings from the iPRODUCE activities, the following stakeholder groups have been identified as the most significant actors for the French cMDF. These stakeholder groups constitute the local MMC community that we aim to build within iPRODUCE.

1. **Manufacturers and industrial stakeholders**

Manufacturers and industrial stakeholders relevant to the automotive sector are among the most important stakeholder groups of the French MMC community. This group includes consumer-goods manufacturers and manufacturing start-ups with expertise in sensors, IoT devices, microcontrollers but also companies working on prototyping and additive manufacturing with plastics and metal.

The engagement of manufacturers and industrial stakeholders in the French cMDF plays a crucial role for the success of the collaborative manufacturing activities that will take place. Based on their expertise and skills, they can provide substantial support in the design of the products, the development of IoT solutions and the prototyping needs.

One of the main challenges in their engagement process will be to familiarize them with the concept of open innovation and the collaborative approach to manufacturing, compared to the traditional closed processes of manufacturing. Therefore, it is important that they get informed on the IPR management strategies for preserving and managing IPR issues in the collaborative production scenarios that will be also supported through the smart contracts of the digital platform.

2. **FabLabs and maker communities**

FabLabs and maker communities are also among the most important stakeholder groups of the French MMC community. Based on the results of the large scale survey performed in T2.1, the French sample shows a high familiarity with the terms "*FabLabs"* and "*DIY manufacturing"* despite their lack of experience with the maker movement. These outcomes indicate that although makerspaces are relatively popular and people know about maker practices, the access and use of these facilities is still low.

This group consist of makerspaces, FabLabs, hackerspaces, co-working spaces and formal or informal maker communities that are working with technologies of digital fabrication, electronics and programming. The motivation for engaging this group in the French cMDF is to reach a wider audience, facilitating access to machinery of the makerspaces. At the same time, it also stems from their motivation to move from being a maker to being an entrepreneur. In the context of iPRODUCE, individual makers can also act as project ambassadors and consumer champions in order to accelerate the development of the collaborative manufacturing processes of the cMDF.

3. **Consumers and general public**

Consumers and the general public are among the main stakeholder groups to be involved in the cMDF activities. As discussed above, it is likely that the general public is familiar with some of the concepts of iPRODUCE, but there is little experience with the maker culture. The main motivation for consumers and general public to join the French cMDF is to gain access to machinery as well as skills and knowledge on how to prototype their ideas through innovative methods and digital tools. Furthermore, based on the specific scope of the French cMDF, their personal interest on soft mobility or their need for mobility devices adapted to their specific needs can also motivate their participation in collaborative manufacturing.

4. **Business incubators and accelerators**

Base on the overall approach of the French cMDF, business incubators and accelerators can play a key role in maximizing the impact of collaborative manufacturing. As digital fabrication moves from local hobbyists and informal communities to the entrepreneurial realm, business development and accelerator programmes become more relevant. At the same time, the maker culture integrates current and upcoming technologies to address new market opportunities, indicating the cooperation between makers and incubators/accelerators is essential.

The main motivation for incubators and accelerators to join the cMDF activities can be triggered through networking benefits. In other words, through both iPRODUCE marketplace and matchmaking tools, they can have access to different prototyping facilities, especially for the automotive sector, and identify which one better match their specific needs.

5. **Scientific community**

Finally, another important stakeholder group to be considered for the engagement strategy of the French cMDF is the scientific community. This group includes universities, higher education institutions, schools, technical centres and other educational organisations, aiming to support the development of digital and engineering skills and targeting different age groups. As mentioned above, collaborative learning is one of the core concepts of the French cMDF and is promoted through supporting and training material for a wide range of users, such as makers, consumers and industrial companies.

In this context, the engagement of this stakeholder group is driven in two ways. On the one hand, sharing their knowledge and specific on and technologies for digital fabrication methods, like 3D printing and welding can improve the quality of the training material and approach. In turn, they are motivated to join by gaining access to the iPRODUCE marketplace and other digital tools, which allow them identify and support new innovative projects relevant to their interests. On the other hand, they can experiment and evaluate the teaching modules for prototyping equipment, through gaining access to training tools of the digital FabLab kit.

4.3.3. Strategy for stakeholder engagement

To address the diverse needs of the stakeholder groups, a multi-stakeholder strategy has been developed for the French cMDF. On the one hand, this strategy aims to increase the interest of different stakeholder groups to the make use of the makerspaces and its machinery to improve their manufacturing capacity. On the other hand, it aims to enhance collaborative design and manufacturing in the automotive sector, bringing together different stakeholder groups

As described in the previous section, the targeted stakeholder groups for the French cMDF are the following:

- **Manufacturers and industrial stakeholders**
- **FabLabs and maker communities**
- **Consumers and general public**
- **Business incubators and accelerators**
- **Scientific Community**

These stakeholder groups are very different in knowledge, scale and focus. Furthermore, they have different motivations for participating in collaborative manufacturing as well as different incentives and

ways of contribution. Therefore, tailor-made strategies are developed and presented below, in order to better address the specific needs and motivations of different stakeholder groups.

❖ *Strategy for engaging manufacturers and industrial stakeholders*

The motivation of industrial stakeholders for joining the French cMDF can be triggered through both economical aspects and social benefits. The **first step** will be to communicate industrial manufacturers with an **official letter, pointing out the potential of social manufacturing as well as the collaborative design, engineering and manufacturing of consumer goods.**

Key messages for reaching industrial manufacturers

In our interactions with industrial manufacturers, we will communicate specific messages for attracting their interest in the iPRODUCE approach. In particular, we will underline that co-creation and open innovation could further improve processes of product design and development better aligned to consumers' needs and expectations. For instance:

- Identified consumer needs in urban mobility as well as the automotive and robotics sectors
- New business models for manufacturing developed within the scope of iPRODUCE.
- Technical support from FabLabs, makers and manufacturers
- Limited investment in production equipment and high flexibility in production capacity
- New skills in design and prototyping

The letter addressing industrial manufacturers will have a two-fold aim: **(i) offer information about open innovation, co-creation and the iPRODUCE approach** and **(ii) invite them to join the** French **cMDF.** To do so, we will exploit the extensive contact network of both Excelcar, as well as the professional network of Materalia. Based on their interest, the potential contribution of their participation will be analyzed and this process will enable us to identify priority stakeholders relevant to urban mobility, the automotive and robotics sector.

The **second step** is to deepen interaction and information exchange between priority stakeholders and the French cMDF, through cMDF visits, personal phone calls or email. Inviting them to participate in warm-up events can also help us communicate with them and better understand their needs and expectations for collaborative design and manufacturing.

Finally, the **third step** of their engagement process includes their active involvement in user-driven innovation workshops and co-creation activities together with makers and consumers. In these events, they will have the chance to experiment on using methods and tools for open innovation and co-creation, in order to enhance their manufacturing capacity and their innovation potential.

❖ *Strategy for engaging FabLabs and maker communities*

The primary motivation of FabLabs and maker communities for joining in the French cMDF is to broaden their scope and impact in society. On the one hand, they will have the chance to share their knowledge and skills in the context of a specific project collaborating with industrial stakeholders from the mobility and robotics sector. On the other hand, the iPRODUCE platform will facilitate access to their machines and technologies, enabling them to identify alternative sources of revenue for machines and/or personnel that might be underutilized.

The **first step** of communication with FabLabs and maker communities will be to inform them about the overall approach of iPRODUCE as well as the specific scope of the French cMDF via email

communication. To this end, the promotional material of the project and the dissemination channels of the project (website, social media accounts, etc.) will be used.

Key messages for reaching FabLabs and maker communities

In our communication with FabLabs and maker communities, we will use specific messages for attracting their interest in the iPRODUCE approach. In particular, we will explain how they can benefit from participating in collaborative production with industrial stakeholders and consumers. For instance:

- Identified consumer needs in urban mobility as well as the automotive and robotics sectors
- How to create new cMDF and expand existing or upscale makerspaces and infrastructures.
- New methods, strategies and tools to foster co-creation and open innovation, while simultaneously reducing development costs.

FabLab Vosges (partner of iPRODUCE and of the French cMDF) is a FabLab with connections to other FabLabs and maker communities in the area and will exploit the existing network of contacts. This is expected to ease the communication process as well as increase the chances for their active engagement in the cMDF.

The **second step** for the engagement of FabLabs and maker communities will be to invite them to participate in face-to-face activities and workshops that will bring together stakeholders relevant to furniture design and manufacturing. Through these events, potential early adopters and local maker champions can be identified to be contacted for the ambassador programme that will be developed under Task 6.3. These workshops can also be used to collect feedback on the user experience of the iPRODUCE platform. Overall, it is important to keep this stakeholder group regularly updated with the progress and the activities of the cMDF, providing opportunities for exchange of knowledge and skills through webinars and trainings but also through less formal ways of interaction.

❖ *Strategy for engaging consumers and general public*

Next, consumers and the general public have a substantial role on the societal impact of the cMDF at a local level. The first step for their engagement will focus on raising awareness and presenting people with the potential of social manufacturing. They can be motivated to participate in the cMDF activities through personal of collective interests that will be explained through a direct and clear way. In the context of iPRODUCE, the mobile app developed under T6.2 enable interaction among users and feedback collection about specific products through polls. Moreover, special attention is paid to engaging and connecting consumers in areas of high social interest, such as vulnerable communities, female groups, migrants, etc.

Key messages for reaching consumers and general public

In our communication with consumers and the general public, we will use clear and direct messages to explain the benefits of co-creation and open innovation, including:

- Opportunities for learning and developing new skills and capabilities to prototype their ideas
- Participate in an innovative project on the concepts of soft mobility
- Be provided with mobility devices adapted to their specific needs.
- Novel ways to share experience and provide feedback for a specific product
- Consumers can contribute to the design and development of better products.

To achieve broad dissemination of the cMDF scope and activities, social media campaigns through both the project and partners' accounts will take place. For these campaigns, local language will be used together with relevant hashtags that can easily convey key messages. Finally, it is important to note that the use of technical and scientific concepts in communication targeted to the general public should be avoided.

❖ *Strategy for engaging business incubators and scientific community*

The next step of the engagement strategy is to raise awareness across other stakeholder groups that will significantly affect the overall impact of the cMDF. We will try to integrate all the remaining stakeholder groups and namely: (i) business incubators, and (ii) scientific community.

As mentioned above, **business incubators** can play a significant role in supporting the business development of user-driven mobility devices and other projects from the automotive sector. EXCELCAR has already established good contact with an accelerator focused on the mobility sector, so communication and information exchange through face-to-face or online meetings will further ensure their engagement in the cMDF, while contact with other incubators and accelerators is planned.

Key messages for reaching business incubators

In our communication with business incubators, we will explain how the iPRODUCE platform can strengthen the entrepreneurial activity in the automotive and robotics sector. More specifically we will focus on:

- New methods, strategies and tools to foster co-creation and open innovation, while also reducing development costs of new and existing customized furnishing products.
- Access to different prototyping facilities to match specific needs.
- Methods and tools that can be considered for standardization.
- New products that are open for external investment.

The engagement of the **scientific community** is also seen as a vital part of this strategy and their contribution is twofold. First, they can promote co-creation and social innovation as as a way to move towards more efficient processes of manufacturing, convincing people to participate in collaborative production activities. In addition, they can also foster education and training through STEM methodologies to familiarise the general public with the potential and benefits of social manufacturing. Communication can take place either through email or phone and further interaction through invitation to the project policy events is foreseen.

Key messages for reaching scientific community

In our communication with scientific community, we will focus on the impact of the cMDF, explaining:

- New innovative projects relevant to urban mobility and user-driven mobility devices.
- New methods, strategies and tools to foster co-creation and open innovation
- Participative and open models and implications for IPR.
- New methods and tools to reinforce learning and training in digital fabrication.

4.3.4. Channels for reaching the targeted stakeholders

In this section the channels and activities that will be deployed in the cMDF in order to reach the targeted stakeholders are presented. In particular, below we summarize those actions that have been identified as the most suitable based on the specificities of the stakeholders that we intent to reach in the frame of our stakeholders' engagement strategy for the French cMDF.

Information letter and proposal for participation (via email)

Targeted stakeholders: Manufacturers and industrial stakeholders

The first step is to raise awareness to industrial manufacturers through an official letter to them. Arousing their interest in the iPRODUCE project will be achieved by offering concrete information on the benefits for those deciding to join the cMDF and, namely, by presenting them the future perspectives for collaboratively designing and developing their products integrating makers' and consumers' feedback.

cMDF visits and personal interactions

Targeted stakeholders: Manufacturers and industrial stakeholders

The second step is to have personal interactions between industrial manufacturers and the cMDF to better understand their needs and expectations. cMDF visits, personal phone calls and emails will help us communicate with the industrial manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Warm-up activities

Targeted stakeholders: All

Warm-up activities are also an effective way to engage local stakeholders. At least 3 warm-up events shall be organized and their purpose is to mobilise people under the banner of social manufacturing and engage them in the collaborative manufacturing processes of the cMDF. A key outcome of these events is also to identify potential early adopters and local maker and consumer champions (lead users), who can act as ambassadors to mobilise and inform local communities on social manufacturing.

Workshops

Targeted stakeholders: Manufacturers and industrial stakeholders, FabLabs and maker communities, consumers and general public

Workshops will also be organised with the aim to bring together relevant stakeholders and involve them in co-creation activities around the topic of collaborative manufacturing. More specifically, based on the project workplan, the following workshops are foreseen:

- **Maker workshops** will be conducted to find new use of old material or even old industrial items in the context of "T5.5 - Lifecycle Management, Recycling, Repurposing and Reusing".
- **Consultation workshops** (2 per cMDF) will be organised in each site by the local partners with the aims to meet with early adopters from the target communities in order to gather their feedback and insights with regards to both community structures and products, in the context of "T6.3 - Ambassador Programme for Early Adopters".

Other workshops (e.g. for training, co-creation, etc.) may also be organised based on the specific needs of the cMDFs and their local communities.

Mobile app for social media-enabled feedback

Targeted stakeholders: Furniture manufacturers, designers and industrial stakeholders, FabLabs and maker communities, consumers and general public

The mobile application developed under "T6.2 - Mobile App for Social Media-Enabled Consumers & Makers Feedback" is also a key channel for engaging different groups of stakeholders in the collaborative manufacturing activities of the project. In particular, through the functionalities of the app, users will be able to collect feedback about a specific product through polls and interact with other users in real time. In this way, the mobile app is expected to increase interaction and therefore engagement among the local MMC communities of the cMDFs.

4.3.5. Action plan

This section sets the time plan for the deployment of the channels and activities that will be used for each of the targeted stakeholders of the French cMDF. The action plan for the stakeholders' engagement in the region is summarized in Table 7.

Table 7. Stakeholders' engagement action plan for the French cMDF

Targeted stakeholder	Channel/Action	Timing	Location	No. of Actions	Target No. participants
Industrial manufacturers	Information letter and proposal for participation	07/2021-09/2021	Online	30 letters	20
	cMDF visits and personal interactions	10/2021-03/2022	cMDF	20	20
All	Warm-up activities	07/2021-12/2021	cMDF	3	60 total / 20 workshop
Manufacturers and industrial stakeholders, FabLabs and maker communities, consumers and general public	Workshops	01/2022-08/2022	cMDF	2	40 total / 20 workshop
Manufacturers and industrial stakeholders, FabLabs and maker communities, consumers and	Mobile app for social media-enabled feedback	12/2021 – 12/2022	Online	3-4 products fine-tuned through social media-based feedback	N/A

general public					

4.3.6. Time plan of the stakeholders' engagement activities

A detailed timeline of the iPRODUCE stakeholders' engagement strategy and plan for the French cMDF is presented in Figure 5. The implementation time plan accounts for the stakeholders' engagement actions that are foreseen by the end of the project.

Figure 5. Implementation time plan the French cMDF

Project month / Activity	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
Information Letter																		
Industrial manufacturers																		
Warm-up activities																		
All targeted stakeholders																		
cMDF visits and personal interactions																		
Industrial manufacturers																		
Workshops																		
All targeted stakeholders																		
Mobile app																		
Furniture manufacturers, designers and industrial stakeholders																		
FabLabs and maker communities																		
Consumers and general public																		

4.4. cMDF4 – Italy

4.4.1. Current situation

The main scope of the Italian cMDF is to enable collaborative engineering between the mechanics/mechatronics manufacturing companies and the maker/fablab communities, bringing together experts, makers, manufacturing facilities, local start-ups and SMEs. It serves as a partner for companies and professionals, mainly, in the design and realization of mechatronics and microelectronics appliances. More specifically, it supports companies and professionals, especially SMEs, to design and build up components and devices with innovative technologies that are not easily accessible to them.

The Italian cMDF is, at the due date of this deliverable, composed of three partners:

Table 8. Composition of Italian cMDF

Partner	Stakeholder group	Role in the project
ProM Facility FabLab of Trentino Sviluppo (cMDF representative)	Manufacturing Facility of Trentino Sviluppo, a local development and destination marketing agency	○ Facility and manufacturing partner ○ Support in electronics design
Energy@Work	SME on AI and IoT solutions for energy and manufacturing	○ Electronic design ○ Support in the cMDF management ○ Consulting and design support in the use cases
Noitech Makerspace	Makerspace of Noitech Technological and Scientifica Park in Bozen	○ 3D printing ○ Manufacturing of consumer goods

Until now, Noitech Makerspace represents the extension of the initial cMDF core (ProM, Energy@Work). Other industrial makerspaces/fablab/Manufacturing Facilities have been identified, both in the Northern and Southern geographical areas (Puglia region). Surely MUSE Fablab in Trento and FabLab BITZ in Bozen. Negotiation with them and with others is still ongoing; they could be added later on to iPRODUCE, before or also after the pilot, in order to enlarge the national geographical coverage area and competencies.

In the context of the iPRODUCE pilots, the Italian cMDF has developed 2 scenario use cases in order to best meet the needs of their local ecosystem. Both scenarios focus on the collaborative design, development and fabrication of customized mechatronic devices, with the first one focusing on a mechanism automating oscillating movement, and the second one on an automated watering system (IoT).

The iPRODUCE engagement strategy for the Italian cMDF shall help to bring together the industrial expertise of engineers and manufacturers with the creative and innovative ideas of the maker communities and the actual needs of the consumers. The communication strategy can combine face to face communication (e.g. workshops with priority stakeholders, etc.), ad hoc interactions, as well as a widespread flow of information to the public (e.g. through social media, press releases, etc.).

4.4.2. Local ecosystem of stakeholders

Leveraging existing knowledge as well as information and findings from the iPRODUCE activities, the following stakeholder groups have been identified as the most relevant local actors who will constitute the core parts of the Italian MMC community that we aim to build within the iPRODUCE project.

1. **Manufacturers and industrial stakeholders**

Manufacturers and industrial stakeholders relevant to mechatronics and microelectronics appliances are among the most important stakeholder groups of the Italian MMC community. In this context, this stakeholder group includes manufacturing and engineering companies, machine providers, ICT partners and all other companies interested to use the cMDF services.

Clearly, engaging these stakeholders plays a crucial role for the collaborative manufacturing processes of the Italian MMC community. They have a very good knowledge of the industrial processes and the manufacturing technologies and they can provide substantial feedback on different stages of the collaborative design and manufacturing of products. In turn, they can benefit from gaining access to the digital platform of iPRODUCE to further improve their products by extending their features and functionalities through prototyping and testing.

The biggest challenge in their engagement process will be to familiarize them with the concept of open innovation and the collaborative approach to manufacturing, and the differences to the traditional closed processes of manufacturing. Therefore, it is important that they get informed on the IPR management strategies for preserving and managing IPR issues in the collaborative production scenarios that will be also supported through the smart contracts of the digital platform.

2. **FabLabs and maker communities**

FabLabs and maker communities are also among the most important stakeholder groups of the Italian MMC community. Based on the results of the large scale survey performed in T2.1, the Italian sample shows a high familiarity with the terms “FabLabs” and “DIY manufacturing” and a moderate experience with the maker movement. These outcomes indicate that makerspaces are relatively popular and people know about maker practices, while additional efforts to facilitating the access and use of these facilities has to be made.

This group consist of makerspaces, FabLabs, hackerspaces, designers, co-working spaces and formal or informal maker communities that are working with technologies of digital fabrication, electronics and programming. The motivation for engaging this group in the Italian cMDF is their willingness to improve their basic knowledge and skills about design and manufacturing, in order to create their own customized objects for personal use. In the context of iPRODUCE, individual makers can also act as project ambassadors and consumer champions in order to accelerate the development of the collaborative manufacturing processes of the cMDF.

3. **Manufacturers associations**

Another stakeholder group that has been identified to have a very high influence and impact to the Italian cMDF are manufacturers associations. The purpose of these associations is to serve as an advocate and partner for manufacturing and their related businesses and companies, defending their collective and individual interests to the public administration and other institutions. Furthermore, they also provide their associated companies with different services that seek to promote, develop and constantly improve their business activities through trainings, networking events and other activities.

This stakeholder group includes associations of international associations of development agencies, incubators, lobbying organisations and networking institutions for SMEs and large companies. These organisations usually act from a regional to an international level, and thus, their engagement in the Italian cMDF is expected to support the dissemination of the scope and approach of the cMDF. More specifically, through their extensive networks of associated companies, they will play a key role in promoting social manufacturing and utterly contribute to engaging more companies in the collaborative activities of the Italian cMDF.

4. **Research organisations**

Research organisations are another important stakeholder group to be considered for the engagement strategy of the Italian cMDF. This group includes universities, higher education institutions, R&D units in private companies as well as experts and individual researchers, aiming to advance research on a diverse range of scientific fields relevant to digital fabrication and manufacturing.

In this context, the engagement of this stakeholder group is driven mainly by their research interests and their willingness to further enrich their expertise. On the one hand, sharing their knowledge and specific on and technologies for digital fabrication methods, like 3D printing, can improve the quality of the mechatronics prototypes and the final products. In turn, they are motivated to join by gaining access to the iPRODUCE marketplace and other digital tools, which allow them to create synergies for future possible collaborations.

5. **Consumers and general public**

Consumers and the general public are among the main stakeholder groups to be involved in the Italian cMDF activities. After all, promoting new collaboration processes that will ease consumers' participation in the co-production of products will result in the creation of local added value in the local communities. Moreover, engaging consumers and the general public, fully corresponds to the core of the iPRODUCE vision, concept and approach that is to involve consumers in the collaborative manufacturing of consumer goods. Since there are specific use cases for each cMDF, the targeted consumers can be directly linked with the products that will be developed. In this way, it will be easier to identify specific user needs and integrate their feedback into the design and development phase.

6. **Public authorities and EU initiatives**

Finally, another stakeholder group that has an enabling role for the for the Italian cMDF includes public authorities and EU initiatives. More specifically, this group includes local governments, European institutions (e.g. EIT Climate-KIC, EIT Food, EIT RawMaterials, EIT Digital) and other institutions responsible for policy making and funding from the regional to the EU level. In this context, public authorities and EU initiatives can play a crucial role in accelerating the uptake of collaborative engineering and manufacturing at the level of policy but also at the level of investment.

4.4.3. Strategy for stakeholder engagement

Due to the already existing structures and the complexity of the thematic scope, we have developed a multi-stakeholder strategy for the Italian cMDF. On the one hand, we need to stimulate and motivate different stakeholder groups to participate in collaborative manufacturing processes. On the other hand, depending on the type of participation other stakeholders need to be involved as well. Those might be associations, public authorities, consumers, etc.

As described in the previous section, the targeted stakeholder groups for the Italian cMDF are the following:

- **Manufacturers and industrial stakeholders**
- **FabLabs and maker communities**
- **Manufacturers associations**
- **Research organisations**
- **Consumers and general public**
- **Public authorities and EU initiatives**

These stakeholder groups are very different in knowledge, scale and focus. Furthermore, they have different motivations for participating in collaborative manufacturing as well as different incentives and ways of contribution. Therefore, tailor-made strategies are developed and presented below, in order to better address the specific needs and motivations of different stakeholder groups.

❖ *Strategy for engaging manufacturers and industrial stakeholders*

The motivation of manufacturers and industrial stakeholders for joining the Italian cMDF can be triggered through economical aspects as well as through social benefits. The **first step** of communication will address the manufacturers and industrial stakeholders with an **official letter**, **pointing out the potential of social manufacturing as well as the collaborative design, engineering and manufacturing of consumer goods.**

Key messages for reaching manufacturers and industrial stakeholders

In our initial interactions with manufacturers and relevant industrial stakeholders, we will communicate specific messages for attracting their interest in the iPRODUCE approach. In particular, we will underline that social manufacturing offers a variety of benefits that could have direct impact on their product design and development, by offering positive future perspectives for the collaborative production activities integrating makers' and consumers' feedback. For instance:

- Identified consumer needs in microelectronics and mechatronics appliances.
- Development of complex specifications for customized products
- New business models for manufacturing developed within the scope of iPRODUCE.
- Processes through which manufacturers can involve makers and consumers in the manufacturing process through open innovation.
- Intellectual property protection in collaborative environments for open innovation.

The letter that will be sent to the furniture manufacturers and relevant industrial stakeholders will have a two-fold aim: **(i) offer information about social manufacturing and the iPRODUCE approach** and **(ii) invite them to join the Italian cMDF.**

Trentino Svilluppo (TS) is the representative of the Italian cMDF and has an extensive network of industrial companies in several sectors. Therefore, TS will offer a check of the individual conditions to interested manufacturers and will discuss their potential contribution in the foreseen collaborative activities within the context of iPRODUCE. After the initial communication with manufacturers and relevant industrial stakeholders, we will have an overview of manufacturers interested to join the Italian cMDF. Based on their interest, the potential contribution of their participation will be analyzed

and this process will enable us to identify priority stakeholders in the group of furniture and relevant manufacturers.

The **second step** of their engagement process includes interaction and information exchange between them and the cMDF mainly on local level. More specifically, cMDF visits, personal phone calls and warm-up events will help us communicate with the manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Finally, the **third step** of their engagement process includes their participation in user-driven innovation workshops and their involvement in co-creation activities, for the collaborative design and manufacturing of mechatronics goods. The goal is to engage them in developing customized products while taking into account the views of consumers and makers.

- ***Strategy for engaging FabLabs and maker communities***

The motivation of FabLabs and maker communities for participating in the Italian cMDF can be sparked through indicating what they could gain. On the one hand, they will have the chance to participate in the design and manufacturing of actual products collaborating with industrial stakeholders of the mechatronic and mechanical sectors, putting in practice their skills and knowledge. On the other hand, they will gain knowledge on methods and tools for industrial product development which can support the further development of their ideas as well as understand how to create new cMDFs and expand or upscale existing makerspaces.

The **first step** of communication with FabLabs and maker communities will be to inform them about the overall approach of iPRODUCE as well as the specific scope of the Italian cMDF via email communication. To this end, the promotional material of the project and the dissemination channels of the project (website, social media accounts, etc.) can be used.

Key messages for reaching FabLabs and maker communities

In our communication with FabLabs and maker communities, we will use specific messages for attracting their interest in the iPRODUCE approach. In particular, we will explain how they can benefit from participating in collaborative production with industrial stakeholders and consumers. For instance:

- Identified consumer needs in mechatronics based products
- How to create new cMDF and expand existing or upscale makerspaces and infrastructures.
- New methods, strategies and tools to foster co-creation and open innovation, while simultaneously reducing development costs.

The **second step** for the engagement of FabLabs and maker communities will be to invite them to participate in face-to-face activities and workshops that will bring together stakeholders relevant to mechanic and mechatronics design and manufacturing. Through these events, potential early adopters and local maker champions can be identified to be contacted for the ambassador programme that will be developed under Task 6.3. These workshops can also be used to collect feedback on the user experience of the iPRODUCE platform. Overall, it is important to keep this stakeholder group regularly updated with the progress and the activities of the cMDF, providing opportunities for exchange of knowledge and skills through webinars and trainings but also through less formal ways of interaction.

❖ *Strategy for engaging manufacturers associations and research organizations*

The next step of the engagement strategy is to mobilize and raise interest of manufacturers associations and research organisations, which can further encourage other entities to join the Italian cMDF. On the one hand, manufacturers associations can play a significant role in supporting the engagement of industrial manufacturers in the cMDF through their direct contact with associated companies. First, communication and information exchange through face-to-face or online meetings will focus on presenting the overall scope of the cMDF and the scenario use cases that will be developed. Then, further involvement will be pursued through their invitation in info days and policy events, where opportunities for collaboration and synergies will be presented.

Key messages for reaching manufacturers associations

In our communication with manufacturers associations, we will explain how social manufacturing through the iPRODUCE platform can enrich the manufacturing capacity across industrial sectors. More specifically we will focus on:

- New methods, strategies and tools to foster co-creation and open innovation, while also reducing development costs of new and existing customized products.
- Methods and tools that can be considered for standardization.
- New products that are open for external investment.

The engagement of the **research organizations** is also important for the creation of synergies and involvement of researchers and students in the collaborative processes of engineering and manufacturing. First, they can promote co-creation and social innovation as as a way to move towards more efficient processes of manufacturing, convincing people to participate in collaborative production activities. In addition, they can also foster education and training through STEM methodologies to familiarise the general public with the potential and benefits of social manufacturing. Communication can take place either through email or phone and further interaction through invitation to the project workshops and info days is foreseen.

Key messages for reaching research organizations

In our communication with research organizations, we will focus on the impact of the cMDF, explaining:

- New innovative projects relevant to mechatronics and mechanical devices for B2C and B2B.
- New methods, strategies and tools to foster co-creation and open innovation
- Participative and open models and implications for IPR.
- New methods and tools to reinforce learning and training in digital fabrication.

❖ *Strategy for engaging consumers and general public*

Even if they are not the primary clients of the Italian use cases, consumers and the general public can also play an important role on the way social manufacturing will be developed in the future. As digital technologies evolve, novel ways of collecting consumer feedback and integrating it in the design and development stages are developed. In the context of iPRODUCE, the mobile app developed under T6.2 enable interaction among users and feedback collection about specific products through polls.

Special attention will be given to engaging consumers in areas of high social interest, such as vulnerable communities, female groups, migrants, etc.

Key messages for reaching consumers and general public

In our communication with consumers and the general public, we will use clear and direct messages to explain the benefits of social manufacturing, including:

- New customized IoT B2C products to meet consumers' needs
- Novel ways to share experience and provide feedback for a specific product
- Consumers can contribute to the design and development of better products.

To achieve broad dissemination of the cMDF scope and activities, social media campaigns through both the project and partners' accounts will take place. For these campaigns, local language will be used together with relevant hashtags that can easily convey key messages. Finally, it is important to note that the use of technical and scientific concepts in communication targeted to the general public should be avoided.

❖ *Strategy for engaging public authorities and EU initiatives*

Finally, the engagement of public authorities and EU initiatives can significantly support and promote the overall vision of the Italian cMDF for collaborative engineering. Local, regional and national authorities will be informed about the cMDF scope and composition through face-to-face or online meetings and relevant promotional material in the local language (if available) will be shared. For engaging initiatives at the EU level, participation of cMDF partners in external events, like conferences, will take place to identify possible connection and synergies. Further communication through email or phone will focus on presenting the results of the co-creation activities, while their invitation to the project policy events will encourage discussion about relevant policies and investments at local and EU level.

Key messages for reaching public authorities and EU initiatives

In our communication with Public Authorities and EU initiatives, we will focus on the impact of the cMDF, explaining:

- The role of the cMDF at a local level and opportunities for replication at the national and EU level
- The cMDF federation and collaborative engineering across sectors and countries
- Good practices learned from the project that promote greener manufacturing processes.
- Results of the co-creation activities established in the six cMDF.
- New products delivered in the different application areas.
- New role of consumers and makers in the open-innovation manufacturing process.

Further communication through email or phone will focus on presenting the results of the co-creation activities, while their invitation to the project policy events will encourage discussion about relevant policies and investments at local and EU level.

4.4.4. Channels

In this section the channels and activities that will be deployed in the cMDF in order to reach the targeted stakeholders are presented. In particular, below we summarize those actions that have been identified as the most suitable based on the specificities of the stakeholders that we intent to reach in the frame of our stakeholders' engagement strategy for the Italian cMDF.

Information letter and proposal for participation (via email)

Targeted stakeholders: Manufacturers and relevant industrial stakeholders

The first step is to raise awareness to manufacturers and relevant industrial stakeholders through an official letter to them. Arousing their interest in the iPRODUCE project will be achieved by offering concrete information on the benefits for those deciding to join the project and, namely, by presenting them the future perspectives for collaboratively designing and developing their products integrating makers' and consumers' feedback.

cMDF visits and personal interactions

Targeted stakeholders: Manufacturers and industrial stakeholders

The second step is to have personal interactions between them and the cMDF to better understand their needs and expectations. cMDF visits, personal phone calls and emails will help us communicate with the furniture manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Warm-up activities

Targeted stakeholders: All

Warm-up activities are also an effective way to engage local stakeholders. At least 3 warm-up events shall be organized and their purpose is to mobilise people under the banner of social manufacturing and engage them in the collaborative manufacturing processes of the cMDF. A key outcome of these events is also to identify potential early adopters and local maker and consumer champions (lead users), who can act as ambassadors to mobilise and inform local communities on social manufacturing.

Workshops

Targeted stakeholders: All

Workshops will also be organised with the aim to bring together relevant stakeholders and involve them in co-creation activities around the topic of collaborative manufacturing. More specifically, based on the project workplan, the following workshops are foreseen:

- **Maker workshops** will be conducted to find new use of old material or even old industrial items in the context of "T5.5 - Lifecycle Management, Recycling, Repurposing and Reusing".
- **Consultation workshops** (2 per cMDF) will be organised in each site by the local partners with the aims to meet with early adopters from the target communities in order to gather their feedback and insights with regards to both community structures and products, in the context of "T6.3 - Ambassador Programme for Early Adopters".

Other workshops (e.g. for training, co-creation, etc.) may also be organised based on the specific needs of the cMDFs and their local communities.

Press release and articles about iPRODUCE and the Italian cMDF

Targeted stakeholders: Manufacturers associations, public authorities and EU initiatives

Press release and articles will be published in both local and EU media aiming to inform about the vision of the iPRODUCE project as well as the scope of the Italian cMDF.

Mobile app for social media-enabled feedback

Targeted stakeholders: Furniture manufacturers, designers and industrial stakeholders, FabLabs and maker communities, consumers and general public

The mobile application developed under "T6.2 - Mobile App for Social Media-Enabled Consumers & Makers Feedback" is also a key channel for engaging different groups of stakeholders in the collaborative manufacturing activities of the project. In particular, through the functionalities of the app, users will be able to collect feedback about a specific product through polls and interact with other users in real time. In this way, the mobile app is expected to increase interaction and therefore engagement among the local MMC communities of the cMDFs.

Press release and articles about iPRODUCE and the Italian cMDF

Targeted stakeholders: Associations of engineers, designers and manufacturers, Public Authorities

Press release and articles will be published in local media aiming to inform about the vision of the iPRODUCE project as well as the scope of the Italian cMDF.

4.4.5. Action plan

This section sets the time plan for the deployment of the channels and activities that will be used for each of the targeted stakeholders of the Italian cMDF. The action plan for the stakeholders' engagement in the region is summarized in Table 9.

Table 9. Stakeholders' engagement action plan for the Italian cMDF

Targeted stakeholder	Channel/Action	Timing	Location	No. of Actions	Target No. participants
Manufacturers and industrial stakeholders	Information letter and proposal for participation	07/2021-09/2021	Online	30 letters	20
	cMDF visits and personal interactions	10/2021-03/2022	cMDF	20	20
All	Warm-up activities	07/2021-12/2021	cMDF	3	45 total / 15 in each workshop
All	Workshops	01/2022-08/2022	cMDF	2	30 total / 15 in each workshop

Manufacturers associations, public authorities and EU initiatives	Press release and articles	10/2021-06/2022	In office	2-5	N/A
Manufacturers and industrial stakeholders, FabLabs and maker communities, consumers and general public	Mobile app for social media-enabled feedback	12/2021 – 12/2022	Online	3-4 products fine-tuned through social media-based feedback	N/A

4.4.6. Time plan of the stakeholders' engagement activities

A detailed timeline of the iPRODUCE stakeholders' engagement strategy and plan for the Italian cMDF is presented in Figure 6. The implementation time plan accounts for the stakeholders' engagement actions that are foreseen by the end of the project.

Figure 6. Implementation time plan the Italian cMDF

Activity \ Project month	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
Information Letter																		
Manufacturers and industrial stakeholders																		
Warm-up activities																		
All targeted stakeholders																		
cMDF visits and personal interactions																		
Manufacturers and industrial stakeholders																		
Press release and articles																		
Manufacturers associations																		
Public authorities																		
EU initiatives																		
Workshops																		
All targeted stakeholders																		
Mobile app																		
Manufacturers and																		

industrial stakeholders																		
FabLabs and maker communities																		
Consumers and general public																		

4.5. cMDF5 – Denmark

4.5.1. Current situation

The main scope of the Danish cMDF is to democratize 'making' by expanding the knowledge and expertise about the potential of local production through partnerships with different groups of stakeholders, including educational institutions (schools and universities), SMEs and businesses. Among the activities of the cMDF, a mobile lab unit containing a set of machines has been created and equipped to provide a mobile production facility that can be deployed to various locations, linked to specific on-site production workshops and activities.

The Danish cMDF is composed of two partners:

Table 10 Composition of Danish cMDF

Partner	Stakeholder group	Role in the project
BetaFactory (BF) (cMDF representative)	Prototype and production facility	• Responsible for local production on site, equipment and development of the mobile unit • Running workshops • Disseminates local production capabilities through events and partnerships with potential partners from educational institutions (schools and universities), to SMEs and businesses
Copenhagen Business School (CBS)	University	• Supports and co-develops with BetaFactory workshops and project-related activities. • Identifies and develops sustainable business models, based on BF's vision and goals, aligned with market opportunities. • Helps BF to solidify and expand its business towards a healthy and sound development.

In the context of the iPRODUCE pilots, the Danish cMDF has developed 3 scenario use cases to be implemented. The first one refers to the engagement of primary and secondary students in the co-creation and digital fabrication of furniture equipment for their school spaces. The second is about customized bespoke furniture for housing or office purposes, while the third focuses on creating temporary architecture that can be used in festivals, construction sites or other venues.

The iPRODUCE engagement strategy for the Danish cMDF shall help to bring together the industrial expertise of architects, designers, furniture producers and manufacturers with the creative and innovative ideas of the maker communities as well as the needs of the end-users. The communication strategy can combine face to face communication (e.g. workshops with priority stakeholders, etc.), ad hoc interactions, as well as a widespread flow of information to the public (e.g. through social media, press releases, etc.).

4.5.2. Local ecosystem of stakeholders

Leveraging existing knowledge as well as information and findings from the iPRODUCE activities, the following stakeholder groups have been identified as the most relevant local actors who will constitute the core parts of the Danish MMC community that we aim to build within the iPRODUCE project.

1. Furniture manufacturers and industrial stakeholders

Manufacturers and industrial stakeholders relevant to the furniture sector are among the most important stakeholder groups of the Danish MMC community. This stakeholder group includes manufacturing SMEs and start-ups as well as engineers that are directly or indirectly linked with the production of furniture, such as companies with expertise on interior design, metal works, or urban installations. Engaging these stakeholders will play a crucial role for the collaborative manufacturing processes that will take place in the Danish cMDF. Based on their knowledge of the industrial processes and the manufacturing technologies, they can provide substantial feedback on different stages of the collaborative design and manufacturing of products. In turn, they can benefit from gaining access to the digital platform of iPRODUCE to further improve their products by extending their features and functionalities through prototyping and testing.

The biggest challenge in their engagement process will be to familiarize them with the concept of open innovation and the collaborative approach to manufacturing, and the differences to the traditional closed processes of manufacturing. Therefore, it is important that they get informed on the IPR management strategies for preserving and managing IPR issues in the collaborative production scenarios that will be also supported through the smart contracts of the digital platform.

2. Creative communities and makerspaces

Formal and informal creative communities are also among the most important stakeholder groups of the Danish MMC community. This stakeholder group includes artists, designers as well as maker communities and individual makers that combine creative approaches with technologies of digital fabrication. The motivation behind engaging this group in the Danish cMDF is their experience with hands-on activities, including prototyping, through the use of digitally innovative technologies. Moreover, they are familiar with processes of co-creation and co-design which will make it easier for them to understand the iPRODUCE approach.

Overall, they are expected to support the collaborative manufacturing of furniture with creative ideas on how to design and develop customised features and, therefore, contribute to the improvement of the final products. Individual makers can also act as project ambassadors and consumer champions in order to accelerate the development of the collaborative manufacturing processes of the cMDF.

The main challenge for engaging this stakeholder group can be their commitment to the iPRODUCE activities. Since making is usually seen as a hobby or a leisure activity, there might be difficulties in retaining the participants' interest and motivation throughout the project activities. To address this challenge, the engagement strategy for this group will provide a set of incentives that could serve as additional motivation for their participation.

3. Educational institutions

Based on the scope of the Danish cMDF, another important stakeholder group to be considered for the engagement strategy involves educational institutions. More specifically, primary and secondary schools, universities and other educational organisations will play a key role in the collaborative activities of the Danish cMDF. As mentioned above, one of the use cases specifically targets primary and secondary students to be actively involved in the collaborative fabrication of school equipment.

This is expected to be the motivation for schools that will be involved in the cMDF activities, as collaborative learning through hands-on activities can expand the students' skills and knowledge. Furthermore, teachers and educators can experiment and evaluate the teaching modules for prototyping equipment, through gaining access to the training tools of the digital FabLab kit.

4. Consumers and general public

Finally, consumers and the general public are among the stakeholder groups to be involved in the cMDF activities. After all, promoting new collaboration processes that will ease consumers' participation in the co-production of products will result in the creation of local added value in the local communities. Moreover, engaging consumers and the general public, fully corresponds to the core of the iPRODUCE vision, concept and approach that is to involve consumers in the collaborative manufacturing of consumer goods.

4.5.3. Strategy for stakeholder engagement

The strategy for stakeholder engagement in the Danish cMDF adopts a multi-stakeholder approach to meet the specific needs of each involved group. With the aim to motivate and bring together different stakeholder groups to participate in collaborative manufacturing processes, it describes specific incentives and contributions that correspond to each stakeholder group.

As described above, the targeted stakeholder groups for the Danish cMDF are:

- **Furniture manufacturers and industrial stakeholders**
- **Creative communities and makerspaces**
- **Educational institutions**
- **Consumers and general public**

These stakeholder groups are very different in knowledge, scale and focus, while they also have different motivations for participating in collaborative manufacturing Therefore, tailor-made strategies are developed and presented below, in order to better address the specific needs and motivations of different stakeholder groups.

❖ ***Strategy for engaging furniture manufacturers and industrial stakeholders***

The motivation of furniture manufacturers and industrial stakeholders for joining the Danish cMDF can be triggered through economic and social benefits. The **first step** of communication will address the furniture manufacturers and industrial stakeholders with an **official letter**, **pointing out the potential of social manufacturing as well as the collaborative design, engineering and manufacturing of consumer goods.**

Key messages for reaching furniture manufacturers and industrial stakeholders

In our initial interactions with furniture manufacturers and relevant industrial stakeholders, we will communicate specific messages for attracting their interest in the iPRODUCE approach. In particular, we will underline that social manufacturing offers a variety of benefits that could have a direct impact on their product design and development, by offering positive future perspectives for the collaborative production activities integrating makers' and consumers' feedback. For instance:

- Identified consumer needs in customized furnishing
- Development of complex specifications for customized furniture products
- New business models for manufacturing developed within the scope of iPRODUCE.
- Processes through which manufacturers can involve makers and consumers in the manufacturing process through open innovation.

- Intellectual property protection in collaborative environments for open innovation.

The letter that will be sent to the furniture manufacturers and relevant industrial stakeholders will have a two-fold aim: **(i) offer information about social manufacturing and the iPRODUCE approach** and **(ii) invite them to join the Danish cMDF.**

BetaFactory is the representative of the Danish cMDF and has expertise in digital fabrication technologies and an established network of collaborators in the furniture and design sector. As such, BetaFactory will offer a check of the individual conditions to interested manufacturers and will discuss their potential contribution in the foreseen collaborative activities within the context of iPRODUCE. After the first communication with furniture manufacturers and relevant industrial stakeholders, we will have an overview of manufacturers interested to join the Danish cMDF. Based on their interest, the potential contribution of their participation will be analyzed and this process will enable us to identify priority stakeholders in the group of furniture and relevant manufacturers.

The **second step** of their engagement process includes interaction and information exchange between them and the cMDF mainly on local level. More specifically, cMDF visits, personal phone calls and warm-up events will help us communicate with the furniture manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Finally, the **third step** of their engagement process includes their participation in user-driven innovation workshops and their involvement in co-creation activities, for the collaborative design and manufacturing of furniture. The goal is to engage them in developing customized furniture while taking into account the views of consumers and makers.

❖ *Strategy for engaging creative communities and makerspaces*

The motivation of creative communities and makerspaces for participating in the Danish cMDF can be sparked through indicating what they could gain. On the one hand, they will have the chance to participate in the design and manufacturing of actual products collaborating with industrial stakeholders of the furniture sector, putting in practice their skills and knowledge. On the other hand, they will gain knowledge on methods and tools for industrial product development which can support the further development of their ideas. Makerspaces can also gain useful information on how to create new cMDFs and expand or upscale existing facilities.

The **first step** of communication with creative communities and makerspaces will be to inform them about the overall approach of iPRODUCE as well as the specific scope of the Danish cMDF via email communication. To this end, the promotional material of the project and the dissemination channels of the project (website, social media accounts, etc.) can be used.

Key messages for reaching creative communities and makerspaces

In our communication with creative communities and makerspaces, we will use specific messages for attracting their interest in the iPRODUCE approach. In particular, we will explain how they can benefit from participating in collaborative production with industrial stakeholders and consumers. For instance:

- Identified consumer needs in home furnishing
- How to create new cMDF and expand existing or upscale makerspaces and infrastructures.
- New methods, strategies and tools to foster co-creation and open innovation, while simultaneously reducing development costs.

The **second step** for their engagement will be to invite them to participate in face-to-face activities and workshops that will bring together stakeholders relevant to furniture design and manufacturing. Through these events, potential early adopters and local maker champions can be identified to be contacted for the ambassador programme that will be developed under Task 6.3. These workshops can also be used to collect feedback on the user experience of the iPRODUCE platform. Overall, it is important to keep this stakeholder group regularly updated with the progress and the activities of the cMDF, providing opportunities for exchange of knowledge and skills through webinars and trainings but also through less formal ways of interaction.

❖ *Strategy for engaging educational institutions*

The engagement of the **educational institutions** is also a vital part of the strategy for the Danish cMDF and their contribution is twofold. First, they can promote co-creation and social innovation as a way to move towards more efficient processes of manufacturing, increasing the willingness of people to participate in collaborative production activities. In addition, they can foster education and training through STEM methodologies to familiarise the general public with the potential and benefits of digital fabrication. The first step for their engagement is informing them about the learning benefits of digital fabrication through direct and clear messages. Infographics, short videos and animations are very good ways to visualise these messages.

Key messages for reaching educational institutions

In our communication with educational institutions, we will focus on the impact of the cMDF, explaining:

- New methods, strategies and tools to foster co-creation and open innovation
- New methods and tools to reinforce learning-by-doing and training in digital fabrication.

Further engagement will result through the participation of students, teachers and educators in the collaborative manufacturing activities of the Danish cMDF. Teachers and educators can also use the training tools of the digital FabLab kit and provide feedback about their structure and format.

❖ *Strategy for engaging consumers and the general public*

Finally, **consumers and the general public** can considerably affect the way social manufacturing will be developed in the future. As digital technologies evolve, novel ways of collecting consumer feedback and integrating it in the design and development stages are developed. Special attention is paid to engaging and connecting consumers in areas of high social interest, such as vulnerable communities, female groups, migrants, etc.

Key messages for reaching consumers and general public

In our communication with consumers and the general public, we will use clear and direct messages to explain the benefits of social manufacturing, including:

- New customized furniture to meet consumers' needs
- Novel ways to share experience and provide feedback for a specific product
- Consumers can contribute to the design and development of better products.

To achieve broad dissemination of the cMDF scope and activities, social media campaigns through both the project and partners' accounts will take place. For these campaigns, local language will be

used together with relevant hashtags that can easily convey key messages. Finally, it is important to note that the use of technical and scientific concepts in communication targeted to the general public should be avoided.

4.5.4. Channels

In this section the channels and activities that will be deployed in the cMDF in order to reach the targeted stakeholders are presented. In particular, below we summarize those actions that have been identified as the most suitable based on the specificities of the stakeholders that we intend to reach in the frame of our stakeholders' engagement strategy for the Danish cMDF.

Information letter and proposal for participation (via email)

Targeted stakeholders: Furniture manufacturers and relevant industrial stakeholders

The first step is to raise awareness to furniture manufacturers and relevant industrial stakeholders through an official letter to them. Arousing their interest in the iPRODUCE project will be achieved by offering concrete information on the benefits for those deciding to join the project and, namely, by presenting them the future perspectives for collaboratively designing and developing their products integrating makers' and consumers' feedback.

cMDF visits and personal interactions with furniture manufacturers

Targeted stakeholders: Furniture manufacturers and relevant industrial stakeholders

The first step is to raise awareness to furniture manufacturers and relevant industrial stakeholders through an official letter to them. Arousing their interest in the iPRODUCE project will be achieved by offering concrete information on the benefits for those deciding to join the project and, namely, by presenting them the future perspectives for collaboratively designing and developing their products integrating makers' and consumers' feedback.

Warm-up activities

Targeted stakeholders: All

Warm-up activities are also an effective way to engage local stakeholders. At least 3 warm-up events shall be organized, and their purpose is to mobilise people under the banner of social manufacturing and engage them in the collaborative manufacturing processes of the cMDF. A key outcome of these events is also to identify potential early adopters and local maker and consumer champions (lead users), who can act as ambassadors to mobilise and inform local communities on social manufacturing.

During the first year of the project, warm-up events have already taken place, targeting different stakeholder groups. In particular, 3 warm-up events were organised and their aim was to introduce the iPRODUCE project and its goals while also learning from the participants' experiences and wishes, challenges and possibilities to engage and collaborate with fablabs and makerspaces. The first event targeted industrial stakeholders, while the second targeted schools' leaders and teachers and the third targeted women makers.

Workshops

Targeted stakeholders: Furniture manufacturers, Creative and maker communities, consumers and general public

Workshops will also be organised with the aim to bring together relevant stakeholders and involve them in co-creation activities around the topic of collaborative manufacturing. More specifically, based on the project workplan, the following workshops are foreseen:

- **Maker workshops** will be conducted to find new use of old material or even old industrial items in the context of "T5.5 - Lifecycle Management, Recycling, Repurposing and Reusing".
- **Consultation workshops** (2 per cMDF) will be organised in each site by the local partners with the aims to meet with early adopters from the target communities in order to gather their feedback and insights with regards to both community structures and products, in the context of "T6.3 - Ambassador Programme for Early Adopters".

Other workshops (e.g. for training, co-creation, etc.) may also be organised based on the specific needs of the cMDFs and their local communities.

Infographics, short videos and animations

Targeted stakeholders: Educational institutions

Infographics, short videos and animations can be very efficient tools in order to communicate in a clear and direct way concepts and processes that are complex. Since students are targeted, exploiting these tools can facilitate understanding and encourage participation.

Mobile app for social media-enabled feedback

Targeted stakeholders: Furniture manufacturers, designers and industrial stakeholders, FabLabs and maker communities, consumers and general public

The mobile application developed under "T6.2 - Mobile App for Social Media-Enabled Consumers & Makers Feedback" is also a key channel for engaging different groups of stakeholders in the collaborative manufacturing activities of the project. In particular, through the functionalities of the app, users will be able to collect feedback about a specific product through polls and interact with other users in real time. In this way, the mobile app is expected to increase interaction and therefore engagement among the local MMC communities of the cMDFs.

4.5.5. Action plan

This section sets the time plan for the deployment of the channels and activities that will be used for each of the targeted stakeholders of the Danish cMDF. The action plan for the stakeholders' engagement in the region is summarized in Table 11.

Table 11 Stakeholders' engagement action plan for the Danish cMDF

Targeted stakeholder	Channel/Action	Timing	Location	No. of Actions	Target No. participants
Furniture manufacturers and industrial stakeholders	Information letter and proposal for participation	07/2021-09/2021	Online	30 letters	20
	cMDF visits and personal interactions	10/2021-03/2022	cMDF	20	20
All	Workshops	01/2022-08/2022	cMDF	2	40 total / 20 workshop
Educational institutions	Infographics, short videos and animations	10/2021	In office	2-5	N/A

Furniture manufacturers and industrial stakeholders, Creative communities and makerspaces, consumers and general public	Mobile app for social media-enabled feedback	12/2021 – 12/2022	Online	3-4 products fine-tuned through social media-based feedback	N/A

4.5.6. Time plan of the stakeholders' engagement activities

A detailed timeline of the iPRODUCE stakeholders' engagement strategy and plan for the Danish cMDF is presented in Figure 7. The implementation time plan accounts for the stakeholders' engagement actions that are foreseen by the end of the project.

Figure 7. Implementation time plan the Danish cMDF

Activity \ Project month	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
Information Letter																		
Furniture manufacturers and industrial stakeholders																		
cMDF visits and personal interactions																		
Manufacturers and industrial stakeholders																		
Infographics, short videos and animations																		
Educational institutions																		
Co-design workshops																		
All targeted stakeholders																		
1st Info day																		
Furniture manufacturers																		
Creative and maker communities																		
2nd Info day																		
Creative and maker communities																		
Educational institutions																		
General public																		

4.6. cMDF6 – Greece

4.6.1. Current situation

The main scope of the Greek cMDF is to bridge the gap between SMEs and makerspaces, with a focus on medical equipment. More specifically, it aims to leverage expert opinion as well as experiential feedback to feed the design process supported by community makers. In this way, it seeks to produce innovative medical equipment that outperforms existing solutions in terms of comfort and efficiency, offering patients a chance to increase their quality of life. Apart from the medical equipment, the cMDF focuses also on micro-manufacturing and rapid prototyping for other sectors like robotics, agile tools, electronics and consumer lifestyle goods.

The Greek cMDF is composed of three partners:

Table 12 Composition of Greek cMDF

Partner	Stakeholder group	Role in the project
AidPlex (cMDF representative)	Health-tech start-up	○ Research and facility partner ○ Responsible for the methodology to be implemented in the pilots
CERTH	Research center	○ Research and facility partner ○ Technical guidance and access to its equipment and machinery

In the context of the iPRODUCE pilots, the Greek cMDF examines the role of consumer engagement in the development of orthopedic back brace solutions of AidPlex with the aim of higher comfort levels. Through the use of IoT sensors and gamification, AidPlex will bring together a diverse set of people (makers and designers, patients, physicians) to test and provide feedback for the proposed solution. This feedback will be then translated into actionable insights in order to further improve the design of the proposed orthopaedic back brace. More specifically, 6 use case scenarios have been developed, including the design and development of an IoT-based orthopaedic back brace, a children splint for fractures, a pet splint, customized face shields, 3D printed smart luminous artifacts and 3D printed scaffolds.

The iPRODUCE engagement strategy for the Greek cMDF shall help to link the scientific expertise of doctors and physicians and the needs of consumers with the values and principles of designers and engineers. The communication strategy can combine face-to-face communication (e.g. workshops with priority stakeholders, etc.), ad hoc interactions, as well as a widespread flow of information to the public (e.g. through social media, press releases, etc.).

4.6.2. Local ecosystem of stakeholders

Leveraging existing knowledge as well as information and findings from the iPRODUCE activities, the following stakeholder groups have been identified as the most relevant local actors who will constitute the core parts of the Greek MMC community that we aim to build within the iPRODUCE project.

1. **Industrial manufacturers**

Industrial manufacturers are among the most important stakeholder groups of the Greek MMC community. This group includes manufacturing SMEs and start-ups as well as industrial companies that are working on 3D design and 3D printing, as well as on emerging IoT applications for health or other sectors. The main motivation for their engagement in the Greek cMDF is to expand their manufacturing capabilities, experimenting and testing new methods and tools that are used in makerspaces. In other words, they have the chance to use rapid prototyping tools as well as co-creation methods that will make their working processes more efficient and will enable them to more easily integrate user feedback and needs into the design phase.

2. **Maker communities**

Maker communities also play a key role in the Greek MMC community. This group consists of makerspaces, FabLabs, hackerspaces, artists, designers, co-working spaces and formal or informal maker communities that are working with technologies of digital fabrication, electronics and programming. The motivation for engaging this group in the Greek cMDF is supporting them to improve their basic knowledge and skills about design and manufacturing, in order to create their own customized objects. In the context of iPRODUCE, individual makers can also act as project ambassadors and consumer champions in order to accelerate the development of the collaborative manufacturing processes of the cMDF.

3. **Doctors and scientific community**

Another important stakeholder group of the Greek cMDF are doctors and scientists. This group includes people with medical expertise, like doctors, physicians and veterinarians, as well as researchers working on innovative methods and materials for digital fabrication. Their contribution mainly focuses on providing feedback on the design and development of the medical equipment that will be created, in order to ensure the overall quality of the final products. Therefore, the engagement of this stakeholder group is driven mainly by their research interests and their willingness to share and further enrich their knowledge. In turn, they are motivated to join by gaining access to the iPRODUCE marketplace and other digital tools, which will allow them to create synergies for future possible collaborations and identify other projects in which they could contribute.

4. **Health infrastructure**

Based on the specific scope of the Greek cMDF, health infrastructure is also very important for the co-creation and co-design of the medical equipment. More specifically, this group includes public hospitals, veterinarian clinics, as well as orthopaedics clinics, well-being centres and other health structures that serve patients with different health problems. Their main motivation for joining the cMDF activities is to have access to efficient medical equipment that is designed to meet specific needs of patients and medical staff. In turn, they can test and evaluate the medical prototypes, contributing to improving the quality and efficiency of the final products.

5. **Public authorities**

Finally, public authorities at a local or national level are also considered as a key stakeholder group to be engaged in the Greek cMDF. More specifically, this group includes relevant ministries and local authorities that can promote co-creation and social innovation as a way to contribute to more efficient processes of manufacturing. Moreover, public authorities have a significant role in fostering education and training through STEM methodologies and in this way contribute to familiarising the general public with the potential and benefits of social manufacturing.

In this context, considering the role of public authorities in the Greek cMDF, it becomes obvious that engaging this type of stakeholders will probably speed up the process of the other stakeholders' engagement and will, thus, help us to make fast progress in implementing collaborative manufacturing processes.

4.6.3. Strategy for stakeholder engagement

As described above, the following stakeholder groups have been identified as the most relevant local actors who will constitute the Greek MMC community that we aim to build within the iPRODUCE project.

- **Industrial manufacturers**
- **Maker communities**
- **Doctors and scientific community**
- **Health infrastructure**
- **Public authorities**

The strategy for stakeholder engagement in the Greek cMDF follows a multi-stakeholder approach to meet the specific needs of each involved group. With the aim to motivate and bring together different stakeholder groups to participate in collaborative manufacturing processes, it describes specific incentives and contributions that correspond to each stakeholder group.

❖ ***Strategy for engaging industrial manufacturers***

The motivation of industrial manufacturers for joining the Greek cMDF can be triggered through economical aspects as well as through social benefits. The **first step** of communication will address them with an **official letter**, **pointing out the potential of social manufacturing as well as the collaborative design, engineering and manufacturing of medical equipment.**

Key messages for reaching industrial manufacturers

In our initial interactions with industrial manufacturers, we will communicate specific messages for attracting their interest in the iPRODUCE approach. In particular, we will underline that social manufacturing offers a variety of benefits that could have direct impact on their product design and development, by offering positive future perspectives for the collaborative production activities integrating makers' and consumers' feedback. For instance:

- Identified consumer needs in medical equipment.
- Development of complex specifications for customized products
- New business models for manufacturing developed within the scope of iPRODUCE.
- Processes through which manufacturers can involve makers and consumers in the manufacturing process through open innovation.
- Intellectual property protection in collaborative environments for open innovation.

The letter that will be sent to the industrial manufacturers will have a two-fold aim: **(i) offer information about social manufacturing and the iPRODUCE approach** and **(ii) invite them to join the Greek cMDF.** AidPlex is the representative of the Greek cMDF and will exploit its professional network of industrial companies. They will check the individual conditions of interested manufacturers and will discuss their potential contribution in the foreseen collaborative activities within the context of iPRODUCE. After the initial communication with industrial manufacturers, we will have an overview of manufacturers interested to join the Greek cMDF. Based on their interest, the potential contribution of their participation will be analyzed and this process will enable us to identify priority stakeholders in the group of medical devices and relevant manufacturers.

The **second step** of their engagement process includes interaction and information exchange between them and the cMDF mainly at a local level. More specifically, cMDF visits, personal phone calls and warm-up events will help us communicate with the manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Finally, the **third step** of their engagement process includes their participation in user-driven innovation workshops and their involvement in co-creation activities, for the collaborative design and manufacturing of medical equipment. The goal is to engage them in developing customized medical devices while taking into account the views of doctors and makers.

- ***Strategy for engaging maker communities***

The motivation of maker communities for participating in the Greek cMDF can be sparked through indicating what they could gain. On the one hand, they will have the chance to participate in the design and manufacturing of actual products collaborating with industrial stakeholders of the medical sector, putting in practice their skills and knowledge. On the other hand, they will gain knowledge on methods and tools for industrial product development, which can support the further development of their ideas as well as understand how to create new cMDFs and expand or upscale existing makerspaces.

The **first step** of communication with maker communities will be to inform them about the overall approach of iPRODUCE as well as the specific scope of the Greek cMDF via email communication. To this end, the promotional material of the project and the dissemination channels of the project (website, social media accounts, etc.) can be used.

Key messages for reaching maker communities

In our communication with FabLabs and maker communities, we will use specific messages for attracting their interest in the iPRODUCE approach. In particular, we will explain how they can benefit from participating in collaborative production with industrial stakeholders and consumers. For instance:

- Identified consumer needs in medical equipment
- How to create a new cMDF and expand existing or upscale makerspaces and infrastructures.
- New methods, strategies and tools to foster co-creation and open innovation, while simultaneously reducing development costs.

The **second step** for the engagement of maker communities will be to invite them to participate in face-to-face activities and workshops that will bring together stakeholders relevant to furniture design and manufacturing. Through these events, potential early adopters and local maker champions can be identified to be contacted for the ambassador programme that will be developed under Task 6.3.

These workshops can also be used to collect feedback on the user experience of the iPRODUCE platform. Overall, it is important to keep this stakeholder group regularly updated with the progress and the activities of the cMDF, providing opportunities for exchange of knowledge and skills through webinars and training activities but also through less formal ways of interaction.

❖ *Strategy for engaging doctors and scientific community*

The engagement of the doctors and scientific community is also seen as a vital part of this strategy and their contribution is twofold. First, they can promote co-creation and social innovation as a way to move towards more efficient processes of manufacturing, convincing people to participate in collaborative production activities. In addition, they can provide useful feedback based on their expertise to improve the overall quality of the medical equipment. The first step for their engagement is to inform them about iPRODUCE and explain how digital fabrication can support the development of tailormade medical devices.

Key messages for reaching doctors and scientific community

In our communication with scientific community, we will focus on the impact of the cMDF, explaining:

- New innovative projects relevant to customized medical equipment.
- New methods, strategies and tools to foster co-creation and open innovation.
- Participative and open models and implications for IPR.

The second step for their engagement is inviting them to take part in the collaborative design and fabrication of products through workshops and co-creative activities. Proving a clear role for them in the co-creation process can encourage their participation.

❖ *Strategy for engaging health infrastructure and public authorities*

Finally, the engagement of health infrastructure and public authorities is also seen as a crucial element of this strategy. On the one hand, they can raise awareness on how digital fabrication can lead to the design of more efficient medical equipment that match the specific needs of patients and medical staff. On the other hand, they can also foster education and training through STEM methodologies to familiarise the general public with the potential and benefits of social manufacturing. The first step for their engagement is to create awareness about the project and the cMDF, through a press release or an article published at the local media. The aim is to describe the overall scope of the cMDF and explain how social manufacturing can benefit the society and economy at a local level.

Key messages for reaching health infrastructure and public authorities

In our communication with health infrastructure and public authorities, we will focus on the impact of the cMDF, explaining:

- The role of the cMDF at a local level and opportunities for replication.
- Good practices learned from the project that promote greener manufacturing processes.

The next step is to directly communicate with relevant departments through email or phone and invite them to participate in the cMDF activities. While participation in several events will be encouraged, policy events and info days will specifically target representatives of health infrastructure, local administration and policy makers.

4.6.4. Channels

In this section, the channels and activities that will be deployed in the cMDF in order to reach the targeted stakeholders are presented. In particular, below we summarize those actions that have been identified as the most suitable based on the specificities of the stakeholders that we intend to reach in the frame of our stakeholder engagement strategy.

Information letter and proposal for participation (via email)

Targeted stakeholders: Industrial manufacturers

The first step is to raise awareness to medical device manufacturers and relevant industrial stakeholders through an official letter to them. Arousing their interest in the iPRODUCE project will be achieved by offering concrete information on the benefits for those deciding to join the project and, namely, by presenting them the future perspectives for collaboratively designing and developing their products integrating makers' and consumers' feedback.

cMDF visits and personal interactions with industrial manufacturers

Targeted stakeholders: Industrial manufacturers

The second step is to have personal interactions between them and the cMDF to better understand their needs and expectations. cMDF visits, personal phone calls and emails will help communicate with the medical device manufacturers and receive information about their individual needs as well as their feedback on the collaborative manufacturing processes to be followed.

Warm-up activities

Targeted stakeholders: All

At least 3 warm-up actions (events) shall be organized by local partners in the Greek cMDF. The purpose of these events is to mobilize people under the banner of social manufacturing and engage them in the collaborative manufacturing processes of the cMDF. A key outcome of these events is also to identify potential early adopters and local maker and consumer champions (lead users), who can act as ambassadors to mobilise and inform local communities on social manufacturing.

So far, 2 warm-up events have already taken place, introducing the iPRODUCE project to the local stakeholders. Their aim of the first one was to stimulate discussion around Greek social manufacturing, while the second focused on the use of digital technologies in education and culture.

Moreover, two events are already planned for late October 2021:

- Organization of a hackathlon entitled: "*Local Startups meet iProduce vol1*", with OK!Thess by Municipality of Thessaloniki (start-up incubator of Thessaloniki, Greece) and other local stakeholders from industry and health sector in order to raise the awareness of the upcoming iProduce platform.
- Organization of an online workshop entitled: "*Local Startups meet iProduce vol2*", with Venture Garden start-up incubator of Thessaloniki, Greece) and other local stakeholders from industry and health sector in order to raise the awareness of the upcoming iPRODUCE platform.

Workshops

Targeted stakeholders: All

Workshops will also be organised with the aim to bring together relevant stakeholders and involve them in co-creation activities around the topic of collaborative manufacturing. More specifically, based on the project workplan, the following workshops are foreseen:

- **Maker workshops** will be conducted to find new use of old material or even old industrial items in the context of "T5.5 - Lifecycle Management, Recycling, Repurposing and Reusing".
- **Consultation workshops** (2 per cMDF) will be organised in each site by the local partners with the aims to meet with early adopters from the target communities in order to gather their feedback and insights with regards to both community structures and products, in the context of "T6.3 - Ambassador Programme for Early Adopters".

Other workshops (e.g. for training, co-creation, etc.) may also be organised based on the specific needs of the cMDFs and their local communities.

Press release and articles about iPRODUCE and the Greek cMDF

Targeted stakeholders: Health infrastructure and public authorities

Press release and articles will be published in local media aiming to inform about the vision of the iPRODUCE project as well as the scope of the Greek cMDF.

Mobile app for social media-enabled feedback

Targeted stakeholders: Furniture manufacturers, designers and industrial stakeholders, FabLabs and maker communities, consumers and general public

The mobile application developed under "T6.2 - Mobile App for Social Media-Enabled Consumers & Makers Feedback" is also a key channel for engaging different groups of stakeholders in the collaborative manufacturing activities of the project. In particular, through the functionalities of the app, users will be able to collect feedback about a specific product through polls and interact with other users in real time. In this way, the mobile app is expected to increase interaction and therefore engagement among the local MMC communities of the cMDFs.

4.6.5. Action plan

This section sets the time plan for the deployment of the channels and activities that will be used for each of the targeted stakeholders of the Greek cMDF. The action plan for the stakeholders' engagement in the region is summarized in **Table 13**.

Table 13 Stakeholders' engagement action plan for the Greek cMDF

Targeted stakeholder	Channel/Action	Timing	Location	No. of Actions	Target No. participants
Industrial manufacturers	Information letter and proposal for participation	07/2021-09/2021	Online	30 letters	20
	cMDF visits and personal interactions	10/2021-03/2022	cMDF	20	20
All	Warm-up activities	07/2021-12/2021	cMDF	2	20 each activity
All	Workshops	01/2022-	cMDF	2	40 total / 20

		08/2022			workshop
Health infrastructure and public authorities	Press release and articles	10/2021	In office	2-5	N/A
Industrial stakeholders, maker communities	Mobile app for social media-enabled feedback	12/2021 – 12/2022	Online	3-4 products fine-tuned through social media-based feedback	N/A

4.6.6. Time plan of the stakeholders' engagement activities

A detailed timeline of the iPRODUCE stakeholders' engagement strategy and plan for the Greek cMDF is presented in Figure 8. The implementation time plan accounts for the stakeholders' engagement actions that are foreseen by the end of the project.

Figure 8. Implementation time plan the Greek cMDF

Activity \ Project month	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
Information Letter																		
Industrial manufacturers																		
Warm-up activities																		
All targeted stakeholders																		
cMDF visits and personal interactions																		
Industrial manufacturers																		
Workshops																		
All targeted stakeholders																		
Press release and articles																		
Health infrastructure																		
Public authorities																		
Mobile app																		
Industrial stakeholders																		
Maker communities																		

5. Monitoring and evaluation framework

The iPROCUCE stakeholders' engagement approach will be results-driven in order to facilitate the dynamic nature of a stakeholders' engagement strategy. In particular, in close collaboration with the cMDFs, we might need to streamline our process, after identifying issues such as unexpected difficulties during the engagement of stakeholders, identification of new and important key stakeholders, challenges in stakeholders' commitment due to inappropriate selection of channels, etc. To this end, the pilot-based strategies for stakeholder engagement will be closely monitored in order to ensure the optimal deployment as well as the effectiveness of the applied actions.

This monitoring framework will enable the deployment of mitigation actions in case of low engagement levels and will, thus, significantly assist iPROCUCE in meeting the engagement objectives and targets that have been set.

Monitoring and evaluating the stakeholder engagement process will also aim to ensure the sufficient (both in numbers and commitment) engagement of manufacturers, makers and consumers (MMC) and will lead to conclusions on how different stakeholders can be actively engaged and integrated in an open innovation project across different industrial sectors.

As such, a set of simple indicators of successful stakeholder engagement will be monitored, aiming to evaluate the level and approach of the targeted stakeholders' engagement, the validity of our assumptions about the local stakeholders' engagement process as well as the existence of external circumstances that might affect our engagement strategy. Table 14 presents some indicators that will be used.

Table 14. Measures for monitoring the stakeholders' engagement strategies' effectiveness

Activity	Metric	Target
Invitation for participation to manufacturing SMEs	Letters sent	20 per cMDF / 120 in total
Warm-up events	Number of events	3 per cMDF / 18 in total
	Attendance	150 persons (in total)
Early adoption of iPRODUCE solutions	Number of ambassadors	> 10 early adopters (in total)
Mobile app	Products fine-tuned through social media-based feedback	> 20 products (in total)
	Adopters of iPRODUCE solutions engaged through social media driven engagement strategies	> 50 adopters (in total)

In general, in order to meet the iPRODUCE objectives, it is necessary to check whether the minimum indicators of engagement defined in each stakeholder engagement strategy have been met and that the required types of actions and channels were successfully deployed.

More importantly, what needs to be monitored is whether the choices made regarding the stakeholders' engagement strategies and action plans actually assist iPRODUCE to achieve its goal (i.e. to develop active and sustainable MMC communities). In case things are not going as planned, or in case we do not get the expected engagement outcomes, our monitoring process will enable us to detect and adapt the parts of the strategies that need to be revised.

References

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Rosa, P., Ferretti, F., Guimarães Pereira, A., Panella, F., & Wanner, M. (2017). *Overview of the maker movement in the European Union*. Publications Office of the European Union, Luxembourg.

Annexes

Annex 1. iPRODUCE Stakeholder groups identification template

iPRODUCE Stakeholder groups identification template: Guiding Instructions	
Sheet: Step1 (Groups Identification)	*Please examine the existing list of stakeholder groups and subgroups (based on the GA)*
	You are most welcome to identify a new stakeholder group and / or subgroup. In this case, please include your addition(s) in the respective fields.
Sheet: Step2 (Main Template)	*Please provide information for all the stakeholders of the cMDF you are involved in* ***(one row per stakeholder)****. Stakeholders could be organisations, communities, individuals or related project. Please fill in all required fields according to the guidelines provided below:*
iPRODUCE Partner name	The name of your organisation (**drop down menu**)
CMDF involved	The cMDF in which the stakeholder is involved (**drop down menu**)
Stakeholder name	The stakeholder's organisation name or personal name
Stakeholder group	The broader stakeholder group your identified stakehodler belongs to (**drop down menu**)
Stakeholder subgroup	The stakeholder subgroup your identified stakehodler belongs to (**drop down menu**)
Potentially related expertise	Further details on the (potentially related) expertise of the identified stakeholder (e.g. what kind of manufacturer? what kind of maker community? materials being used etc.)
Influence	Influence is the capacity of each stakeholder group to affect the achievement of our project's results. Please rate low - very high (**drop down menu**)
Impact	Impact refers to the effect the project has on each specific group of stakeholders. Please rate low - very high (**drop down menu**)
Current level of engagement	The current level of engagement with the specific stakeholder. Rate from Unaware -> Leading **(drop down menu)**
Desired level of engagement	The desired level of engagement with the specific stakeholder. Rate from Unaware -> Leading **(drop down menu)**
Channel of communication	If already engaged, specify the communication channel(s) that has been used so far (e.g. social media, email, face-to-face meetings). If not engaged, put TBD (to be defined).
Incentives	The potential incentives for the stakeholder to join iPRORDUCE (e.g. participation in an iPRODUCE event, access to certain features of the digital platform, etc.)
Contribution	What the stakeholder could most likely contribute to? What does iPRODUCE need from this stakeholder?
Comments	Add any comment that can be valuable for this stakeholder
Sheet: Categories	*IMPORTANT: Please* ***do not*** *edit this sheet*

Stakeholder Group	Stakeholder Subgroup
Manufacturers - industrial stakeholders	Consumer-good manufacturers
	Material suppliers
	Equipment providers (e.g. 3D printing)
	Manufacturing Startups
	Service providers (e.g. generative design, logistics)
	Data storage companies
	Software companies
Makers and Maker Communities	FabLabs
	DIY communities and maker groups
	Co-working spaces
	Individual makers
	Artists and designers
	Engineers
	Individuals/entrepreneurs
	Business incubators
Consumers - market niches	Individual users
	Gamers
	Doctors
	Children
	[Add new subgroup here]
Scientific Community	Research organisations
	R&D units in private companies
	Experts and indivisdual researchers
Facilitators	EU institutions (European Commision)
	National public authorities
	Engineers and Manufacturers associations
	Environmental associations and companies
	Investors and Business Angels
	Policy making institution
	Funding Institution
Enablers	International policy makers and public authorities
	Regional / national authorities
	Local administration (municipality/county)
	Standardisation bodies
Civil society	General public
	Citizens associations
	Non-Governmental Organisations (NGOs)
	[Add new subgroup here]
	[Add new subgroup here]
	[Add new subgroup here]
Media	International media
	National or local media

iPRODUCE Stakeholder groups identification template

	Drop down menu	*Drop down menu*	*Please fill in*	*Drop down menu* (if menu list appears blank, please scroll up)	*Drop down menu* (if menu list appears blank, please scroll up)	*Please fill in*	*Drop down menu*	*Drop down menu*	*Drop down menu* (if menu list appears blank, please scroll up)	*Drop down menu* (if menu list appears blank, please scroll up)	*Please fill in*	*Please fill in*	*Please fill in*	*If necessary, provide any additional comment*
No.	**iPRODUCE Partner name**	**cMDF involved**	**Stakeholder name**	**Stakeholder group**	**Stakeholder subgroup**	**Potentially related expertise** (if applicable)	**Influence**	**Impact**	**Current level of engagement**	**Desired level of engagement**	**Channel of communication**	**Incentives for engagement**	**Stakeholder's Contribution**	**Comments**
example	*20 - WR*	*1 - cMDF Spain*	*Dimitris Chapizanis*	*Consumers - market niches*	*Gamers*	*web design, user experience design*	*High*	*High*	*Resistant*	*Leading*	*face-to-face meeting*	*Access to advanced features in the digital platform*	*Feedback for testing prototypes, dissemnation*	*Dimitris could be an Ambassador as he is popular in the gamer community through his Youtube channel (aprox 250K subscribers)*
example	*20 - WR*	*6 - cMDF Greece*	*Médecins du Monde Greece*	*Civil society*	*Non-Governmental Organisations (NGOs)*	*medical support to vulnerable groups*	*High*	*Very high*	*Unaware*	*Supportive*	*TBD*	*Participation in events and presentation of their work and mission*	*Feedback for medical equipment*	*We do not have any personal contact with the organisation, but their support would be valuable for the project*
example	*20 - WR*	*7 - N/A*	*Pop-Machina*	*Other*	*Research project*	*Circular economy, maker movement*	*Low*	*High*	*Supportive*	*Supportive*	*email*	*create synergy between projects, dissemination*	*Participation in events, co-organise events*	*There has already been an iPRODUCE event where Pop-Machina has participated*

Annex 2. iPRODUCE Warm-up events guidelines

1. Introduction

1.1. Task Description

According to the Grant Agreement (T6.1 - Ecosystem Establishment and Engagement), a key step for stakeholder engagement involves the organization of warm-up events to introduce the iPRODUCE project in the local communities of the pilot cMDFs. It is indicated that at least **3 warm-up actions (events) shall be organized by local partners in each cMDF.** The purpose of these events is to **mobilize people under the banner of social manufacturing** and engage them in the collaborative manufacturing processes of the cMDFs. A key outcome of these events is also to identify potential early adopters and local maker and consumer champions (lead users), who can act as ambassadors to mobilise and inform local communities on social manufacturing. More details on their role and contribution will be provided under Task 6.3 Ambassador Programme for Early Adopters starting on June 2021 (M18).

In this context, the cMDFs, supported by their national supporting partners, are responsible for organising these events, following the guidelines shared by White Research. Once the event has taken place, the cMDFs are required to fill in the reporting template described in this document. It is expected that these actions will promote the engagement of relevant stakeholders in the collaborative manufacturing processes of the cMDFs while, at the same time, they will be aligned with the foreseen project activities.

1.2. Objectives

These events should be **dynamic and diverse** to fit the various pilot settings of the cMDFs. The main objectives of the warm-up action are to:

- **Inform** and **create awareness** about the local cMDFs structure and operation
- **Mobilize** local communities under the banner of social manufacturing.
- **Engage** a diverse set of stakeholders in the collaborative manufacturing processes of the cMDFs.
- **Identify** key persons to act as ambassadors of the iPRODUCE solutions
- **Share the knowledge** gained during the project implementation and encourage discussion
- Collaboratively **test and train** local communities to use the iPRODUCE digital platform and **collect feedback** for user experience and usability aspects.

It should be clear that these objectives are not expected to be set for each warm-up events. They frame the overarching purpose of these actions and are expected to be clearly defined by the event organizers.

1.3. Action Plan

A brief action plan for the organisation, implementation and reporting of T6.1 warm-up actions is provided below. It is recommended that cMDFs start with planning these actions from May 2021 and align each event's objectives with the overall activities of the project.

Table 15: Event action plan

Action	Who	When

Initial guidelines and template	WR	April 2021
Share event plan and agenda (1 month before each event)	cMDFs	May - June 2021
Event organization and implementation phase	cMDFs	June 2021 – May 2022
Fill out workshop reporting templates and send them to WR	cMDFs	After each event
Analysis of the warm-up actions outcomes	WR	May 2023

It is highly recommendable that the 1st warm-up event is held by the end of July 2021.

2. Before the event

There are several steps that have to be followed in order to organize a warm-up event. Before holding the event, you should:

1. **Define a broad audience:** identify relevant local stakeholders to invite, including citizens, public authorities and local businesses, while special emphasis will be put on vulnerable and economically disadvantaged populations. More information on this is provided in Section 2.1.
2. **Pick a date and a suitable time**: it is better to avoid work hours and local holidays. The event should last a max of 2 hours, especially if held online, to maintain the attendees' interest.
3. **Prepare an online registration form**: the events have to be reported so it is important to know how many people have attended per stakeholder category.
4. **Select digital platform** (if online): choose the software that will be used based on the specific needs of the events. For example, if you want to have brainstorming or co-creation sessions, platforms that support the formation and management of rooms are preferable. More information on this is provided in Section 2.2.
5. **Prepare the event communication text and identify key hashtags**: use simple language and hashtags to be used in the dissemination of the event across social media channels, email, etc.
6. **Send out communication text two weeks before the event**: proper dissemination can result in higher rates of attendance and thus, higher rates of holding a successful event.
7. **Inform the iPRODUCE dissemination and communication manager (F6S) and the consortium:** exploit the existing channels of the project to disseminate your event.
8. **Assign roles of facilitator and support coordinator:** the events need to have one facilitator, who will lead the event, and one support coordinator, who may take notes, support with external programs and collect answers for Q&A (if the event attracts more than 40 attendees, you might need 2 support coordinators).
9. **Prepare slides for presentation:** this might be an introductory presentation of the project[3] and the local cMDF, a brief description regarding the purpose of the event and how this can be beneficial for the stakeholders. Additional information can be provided based on the specific objectives of each event.
10. **Send a reminder the day before the event**: based on the registration information, send a reminder to the potential attendees the day before the event to ensure participation.

2.1. Audience of warm-up events

2.1.1. Identify stakeholders

[3] An introductory presentation is available on the Google Drive repository of the iPRODUCE consortium.

Invited participants, the most important factor for the success of these events, should represent varying types of stakeholders. Based on the stakeholder identification activity conducted as part of Task 6.1, the cMDF ecosystem of iPRODUCE comprises of the following stakeholder groups:

Table 16. Types of potential participants

Stakeholder group	Stakeholder subgroup
MANUFACTURERS & INDUSTRIAL STAKEHOLDERS	Consumer-goods manufacturers
	Manufacturing Startups
	Software companies
	Service providers
	Equipment / Material suppliers
MAKERS AND MAKER COMMUNITIES	FabLabs
	DIY communities and maker groups
	Co-working spaces
	Artists and designers
	Engineers, inventors and relevant experts
	Individual makers
CONSUMERS	Individuals
	Targeted market audience
SCIENTIFIC COMMUNITY	Research organizations
	R&D units in private companies
	Experts and individual researchers
FACILITATORS	Associations of engineers and manufacturers
	Funding agencies / Business incubators
	Policy making institutions
ENABLERS	Local /Regional authorities
	National authorities
	EU networks and initiatives
CIVIL SOCIETY	Citizens
	Civil, social organizations / NGOs
	Public infrastructure (e.g. health, education)

2.1.2. Invitation criteria

Criteria for selecting participants:

- **Motivation:** It is crucial that the stakeholders are interested in participating in our warm-up events. Bored and indifferent participants will not be interested in further being engaged in the project's activities or disseminating the project's results at the local level.
- **Power:** Participants with the power to make decisions and affect the current framework of manufacturing towards
- **Wide range of participants' sample:** representatives of each stakeholder type (see *Table 16*) must be invited, with special emphasis on engaging vulnerable and economically disadvantaged populations.
- **Experience with collaborative manufacturing:** Already existing local DIY communities, maker initiatives and collaborative manufacturing enthusiasts should be invited.

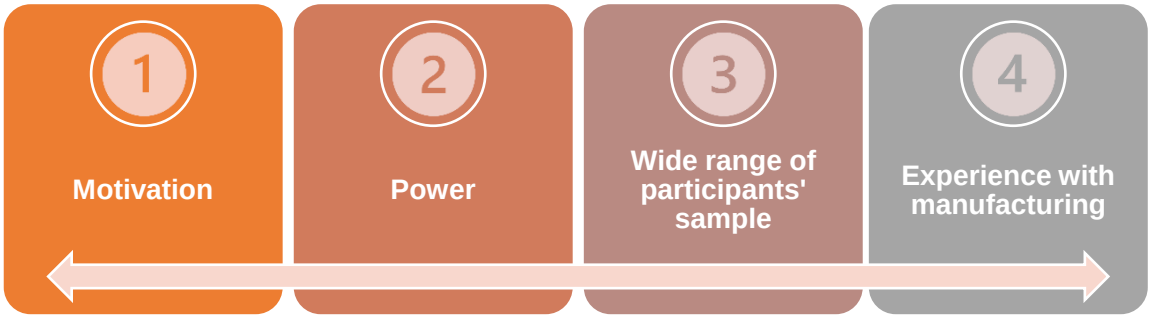

Figure 9. Invitation criteria

2.1.3. Invitation process

At least 3 warm up events should take place in each cMDF, attracting 25-30 attendees per event.

At first, partners have to identify potential participants trough desk research or by consulting their organisation's contacts' network. It is also recommended to further identify stakeholders by disseminating the event trough the involved partners' social media accounts / websites, radio, or posters. We would, of course, also suggest taking maximum advantage of the iPRODUCE online presence in social networks that might have been already established before the project's website launch. The project's dissemination manager (F6S) can give you valuable advice in this regard.

After the initial identification, invitation shall be sent to stakeholders (e.g. email invitations). It is recommended that you also attach an event agenda. It is also **important that participants fill out an Informed Consent From before taking part in your event (see section 5: GDPR – Informed Consent Form).**

2.2. Physical/Virtual Location

Due to the limitations posed by the Covid-19 pandemic, it would arguably be more appropriate for the case of the actions of T6.1 **to organise virtual meetings, instead of physical events**. In this context, online platforms could be used along with e-tools. Indicative suggestions, together with reference links are provided below (*Table 17* and *Table 18*).

Table 17. Suggested Platforms

Platform	Link
Microsoft Teams	*https://www.microsoft.com/en-us/microsoft-365/microsoft-teams/group-chat-software*
Zoom	*https://zoom.us/*
Jitsi.org	*https://jitsi.org/*
Google Hangouts	*https://hangouts.google.com/*
Webex	*https://www.webex.com/*
Bluejeans	*https://www.bluejeans.com/*
Slack	*https://slack.com/intl/en-gr/*

Table 18. Suggested e-tools

E-tools	Description	Link
Miro	Online collaborative whiteboarding, library of templates, integration with web apps, good for brainstorming, sticky notes, freeform pen, shapes, arrows etc.	*https://miro.com/*
Mural	Sticky notes, text, shapes and connectors, icons, frameworks, images, gifs, Drawing	*https://www.mural.co/*
Be-novative	Management and collaboration platform, virtual facilitator, breakout-rooms, brainstorming session.	*https://www.be-novative.com/*
Klaxoon	Visual collaboration, templates, video conferencing, Board, vote, brainstorming	*https://klaxoon.com/*
Google slides or Google docs	Sharing Presentations and documents	*https://workspace.google.com/intl/en_ie/*
Zoom built-in whiteboard	Sharing a whiteboard via Zoom	*https://zoom.us/*

3. Holding the event

The structure of the event will be defined according to its overall scope and objectives. An indicative structure is provided below:

Figure 10. Event structure

Table 5. Indicative agenda

Event structure	Time	Description
Introduction	5’	The facilitator introduces himself and gives and overview the event structure and ask participants to sign online consent:
	10’	The facilitator introduces iPRODUCE and the local cMDF.
Core session Part 1	30-40’	**Keynote presentations:** Invite speakers with expertise relevant to the social manufacturing paradigm. You might also consider inviting people from the iPRODUCE consortium or other relevant projects. Present the use cases that are developed in your cMDF and explain how participants may contribute.

Core session Part 2	35-45'	**Discussion, Q&As, and/or brainstorming activities:** Use brainstorming techniques (see section 3.2) Introduce the collaborative online tool (Miro, Zoom whiteboard, gDraw) and make sure all participants understand how to use it If using zoom, Meet or Teams, there's the possibility of having break out rooms and have people assigned to them automatically or manually. If this tool is being used, you can then divide the group in smaller groups and motivate discussion defining topics or posing specific questions. Present main ideas back to the main conference space (if in breakout rooms)
Closing session	10'	Wrap-up and promote upcoming activities, if applicable.

More information on each section of the event is provided below.

3.1. Introduction

During this stage, the participants get to know the project and warm-up for the next activities. Moderators could start by presenting themselves and, of course, explaining the scope of the day. **A short project presentation will definitely help to familiarise participants with the goals, concepts, and ideas of iPRODUCE and the local cMDF**. After that, the moderators can give an overview of the event structure, briefly explaining the tools and techniques that will be used during the event, if necessary.

Overall, this part aims at establishing a friendly atmosphere among partners, so that they participate with enthusiasm in the activities to follow.

3.2. Core Session

This is the central part of the event and its structure will be based on the specific needs of each event.

- In case there are **keynote presentations**, consider dedicating certain time for discussion with participants. It is important that they feel involved in the discussion and are actively participating with their views, opinions and experiences.
- In case you organize some **co-creation/brainstorming** sessions, you may use simple or sophisticated brainstorming methods/techniques (see Annex), aiming to capturing visions, opinions and behaviours of participants around social manufacturing and makerspaces.

An <u>indicative</u> list of questions that could be posed during this session is provided below:

<u>Indicative</u> questions to be posed during the brainstorming session:
What is your overall experience with DIY making, Fab Labs and the maker movement?
What would be the benefits of participating in a cMDF for you and your community?
Are you familiar with collaborative production? / with the concept of social manufacturing?
What type of activities would you be like to participate in makerspaces and Fablabs?
What do you expect from this event?
Could you think of incentives for motivating participation in a collaborative production project?

Note: *The indicative questions enlisted above only serve as a food for thought to be considered while organising and structuring the content of your warm-up events.*

Lead user identification

As explained in the introduction, another key outcome of these events is to **identify potential early adopters and local maker and consumer champions (lead users),** who can act as ambassadors to mobilise and inform local communities on social manufacturing. Their participation in the project is based on a voluntary basis and their role and contribution will be described in detail in the Ambassador Programme for Early Adopters to be developed under T6.3. This programme will also integrate the use of the iPRODUCE platform and specifically the profiling tool developed under T4.4. Nevertheless, these events may serve as a starting point for the identification of potential lead users.

Each cMDF is responsible for reaching out and selecting the lead users of their community. An indicative yet non-exhaustive list of important attributes to consider when approaching potential lead users is presented below.

The lead user has to be an adult (+18) who is (in order of priority):

- Motivated
- Willing to learn and understand new concepts (self-learning and learning by doing)
- Willing to share and spread knowledge with others
- Available (has time to dedicate)
- Autonomous
- Fairly confident in their use of English (at least reading and listening)
- Able to teach and share learning experiences
- Interested in the Maker Movement and culture of DIY
- Maker skills (desirable): project management, basic knowledge of design, digital fabrication and coding. These are a great asset for the Maker Champions to be easily immersed into the training
- Like-minded and friendly

These are suggestions of what can constitute a lead user, or consumer champion. There is no “one solution” or “one specific person” who is the perfect fit for this role, especially considering that people continuously develop their skills over time. Hence, the core attributes or characteristics of the person are being interested, open and curious. It has to be taken into account that a person’s true characteristics may become obvious later in the project life cycle. In this context, there might be surprise candidates who did not seem suitable for the position at the beginning but turn out to be a good fit, and vice versa. In general, it is recommended to have as many lead users as possible. In this way, there will be room for people to “drop out” if they lose interest or to share the workload.

Note: *Keep in mind to have a list of the participants so that you can contact the potential lead users at a later stage and when the Ambassador Programme officially starts.*

3.3. Closing Session

This is the last stage of the event during which the facilitators will sum up the main findings. This session will continue with a short discussion where organisers will thank participants for their presence in the workshop and will underline the benefits of their involvement in this event as well as in the wider project framework. In the end, the organizers will inform the participants for the upcoming events and

will encourage them to follow the project's social media accounts and subscribe to to always be updated on follow up activities.

4. After the event

After the end of each event, the organisers (cMDFs) should fill in the **event reporting template** (also shared via e-mail and uploaded in the Google Drive repository) and send it to WR. The template requires the information enlisted below:

1. **Event's Aggregate Data** (title, date, place, organisers, audience, duration)
2. **Event's goals, objectives and relevance to iPRODUCE**
3. **Organisation of the event**
4. **Event's promotion**
5. **Structure of the event (short minutes)**
6. **Outcomes of the event**
7. **Evaluation of the event**

Provide also:
The list of participants (if consent to store and share data was given)
The agenda of the event
Photos and/or videos
Presentations (if applicable)
Copies of materials used to promote the event (e.g. links to press releases, videos, posts, leaflets, etc.)

Indicative questions to guide you for each section of reporting are provided in the template.

5. GDPR – Informed Consent Form

Important! During the workshops' implementation, personal data (e.g. contact details, group photos or call screenshots) will be collected. **It is essential that all project activities fully comply with GDPR**.

To this aim, an **informed consent form** should be distributed and **signed by all participants** before the event officially begins.
In the case of physical events, such a form should be signed by each participant.
In the case of virtual events, an online consent form should be prepared by organisers and filled in by participants before the workshop takes place.

For further guidance, please consult the project coordination and the WP11-related material.

After the event participants have agreed to the terms and conditions in our consent form, it will be really useful if you could **take some pictures** (or screenshots in case of virtual meeting) of your white boards, post its or of your participants' brainstorming phase.

Please forward this content to the iPRODUCE Dissemination Manager (F6S) and Project Coordinator (AIDIMME) so that these events are properly highlighted. You could, also, also tweet / post these pictures in your organisations' social media. Once again, it is imperative that you first get the approval/consent of all your event's attendees.

Annex 3. Event reporting template

1. Event's Aggregate Data

Title	
Date	
Venue	
Organisers	
Audience (number and type)	Scientific Community (Higher Education, Research): Industry: Civil Society: General Public: Policy Makers: Media: Investors: Customers: Other:
Duration	

2. Event's goals, objectives and relevance to iPRODUCE

- What were the key objectives of this event/activity? (e.g. to gather ideas, gather data, find new stakeholders, etc)

3. Organisation of the event

- What steps were taken to set up the activity/event?
- What was the physical/virtual location of the event? Was there any particular reason for selecting this location?
- How were the target groups selected?

4. Event promotion

- How was the event/activity promoted and the participants invited?
- Was any project material (e.g. leaflet, poster, video, etc.) used for promotion?

5. Structure of the event

In case you organised the warm-up event in the context of an external event, please report what you did at the event.

- Briefly describe the structure and main parts of the warm-up event?
- Were any specific tools/methods used (e.g. brainstorming techniques)? Why were these selected?

6. Outcomes of the event

- What are the main outcomes of the event? (brief explanations are sufficient)
- Was information or data gathered as part of this activity?
- Were new ideas generated?

- Were there any outcomes relevant to the stakeholder engagement process? (e.g. new people interested in joining the CMDFs; new target groups identified; etc.)

7. Evaluation of the event

- What are the main takeaways from this activity? Are there any specific success factors?
- Did you face any challenges with this event/activity?
- When re-deploying this event/activity would you do it differently? If so, how?
- Did participants give you any feedback?

appendix 1 Attachments

- The list of participants (if consent to store and share data was given)
- The agenda of the event
- Photos and/or videos
- Presentations (if applicable)
- Copies of materials used to promote the event (e.g. links to press releases, videos, posts, leaflets, etc.)

PRODUCE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 870037.