



Deliverable D10.4

Report on Cooperation Activities 2

F6S Network Limited (F6S)

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Abstract	This deliverable is a report on the cooperation activities carried out within iPRODUCE between M3 (January 2021) and M28 (April 2022). It is a follow-up report that has addressed cooperation-focused activities carried out in the first year of the project. The cooperation activities are presented from two perspectives: (1) cooperation between iPRODUCE and other external projects, initiatives and/or activities, and (2) cooperation involving specific iPRODUCE partners and stakeholders.

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Executive Summary

This deliverable is “D10.5 – Report on cooperation activities 2” of the iPRODUCE project, funded by the European Union’s H2020 research and innovation programme.

The objective of this deliverable is to provide a review of the cooperation activities carried out within iPRODUCE from January 2021 to April 2022. Deliverable D10.5 is the second of three reports addressing cooperation activities; it follows the already submitted D10.4 (submitted at M12) and will be followed by D10.6 (to be delivered at M36)

Following the approach established in D10.4, within the framework of this deliverable, the cooperation activities carried out are addressed according to two angles: (1) cooperation between iPRODUCE and other external projects, initiatives and/or activities, and (2) cooperation involving specific iPRODUCE partners and stakeholders.

Cooperation with projects and initiatives

Over the period covered by this report, iPRODUCE has continued to engage with the research and innovation projects it first established contact with at the beginning of the project. These are projects that share common objectives, topics, or target audiences. These projects include iPRODUCE’s sister projects - *DIY4U*, *INEDIT*, and *OPENNEXT* - and two other H2020 projects: *Pop-Machina* and *Reflow*.

Cooperation with iPRODUCE’s sister projects

The sister projects cooperated on the organisation of two joint events.

The first webinar took place on 22 April 2021 and was titled “*Open Innovation for collaborative production engineering*”, which is also the title of the *Horizon 2020 topic* that funded these four projects. The objective of the event was to foster a dynamic discussion on how to cultivate open innovation and to showcase what the projects were doing in this regard.

The second webinar took place on 28 June 2021 and was titled “*Open Innovation Ecosystem for collaborative co-creation*”. The webinar was organised in the framework of the *Open Innovation Congress 2021* that was held on the same dates.

Collaboration sessions

iPRODUCE has assumed a leadership role in the organisation of collaboration sessions that involve the four sister projects. The objective of these sessions is to discuss topics of common interest, promote opportunities for learning, and identify good practices implemented in one or more projects that could be replicated in other projects. To date, the projects have organised two sessions.

The first collaboration session took place on 7 October 2021 and addressed the theme of **open innovation competitions**. Key discussion points were the processes employed, strategy to reach out to stakeholders, prizes, and general engagement from their target audience.

The second session was held on 23 February 2022 and addressed the theme of **Ecosystem engagement: incentives, prescription, and roles**. Key discussion points were participation of complementary agents in their co-creation ventures, and how these complementary actors shape a

community or ecosystem that must be temporarily secured to ensure not only participation, but also implication.

Cooperation with other projects with similar objectives and themes

Continuing the activities started in the first year of the project and already described in deliverable D10.4, iPRODUCE has also maintained regular cooperation with two other H2020-funded projects: POP-Machina and ReFlow. The focus of cooperation with these projects has been related to social media, where iPRODUCE has engaged (e.g., commented, shared) with social media posts from either of the two projects, and with the two projects carrying out a similar activity.

Cooperation and engagement activities within cMDF

In the second half of the project, covering January 2021 to April 2022, the cMDFs have remained active in engaging and cooperating with different stakeholders to provide them with information about iPRODUCE and the cMDF's activities, and to mobilise them as active participants in the cMDF structure. All six cMDFs were active during this period in the organisation or participation of cooperation-focused activities.

Below are provided a list of the activities carried out by each cMDF and a brief description.

France cMDF

The French cMDF carried out several cooperation activities, related to the presentation of the cMDF, warm-up activities with their ecosystem, and promotion of the cMDF competition.

- **Introduction of the iPRODUCE cMDF use cases and set up of the French cMDF** (19 January 2021): introduced the cMDF and activities to the new cMDF partners.
- **1st warm-up event with French cMDF ecosystem** (02 November 2021): informed the ecosystem to iPRODUCE and key project concepts, such as social manufacturing and collaboration.
- **2nd warm-up event with the French cMDF ecosystem** (23 November 2021): continuation of the 1st warm-up event, with a greater focus on discussion of the cMDF use cases.
- **Launch and promotion of the competition “iPRODUCE competition for open and collaborative innovation | iPRODUCE My Mobility”** (08 February 2022): presentation of the French cMDF competition.

Denmark cMDF

The Danish cMDF organised several cooperation activities, including sessions with local schools, women makers' workshops, and other general workshops.

- **Women Maker's workshops** (28 February 2021, 11 April 2021, 30 May 2021): addressed different topics (e.g., prototyping, 3D printing) with a full-female participation.
- **Collaboration in the use case activities** (January to October 2021): organised multiple visits and workshops with the local schools and institutions to carry out the activities foreseen in the three Danish cMDF use cases: (1) Co-Creation in Schools; (2) Distributed Design Market; and (3) Temporary Architecture. Use cases 1 and 3 had already been completed before the closing of partner BetaFactory in October 2021.

Germany cMDF

The German cMDF organised several cooperation activities, involving internal partners and external stakeholders, and with a particular emphasis on training.

- **Online focus group "Design Thinking for Maker"** (20 February 2021): presented to makers the general concept of design thinking and respective phases.
- **Online workshop with Open Edge "Design Thinking in a nutshell"** (23 February 2021): tested a new training session on Design Thinking with makers from the French cMDF.
- **Live Prototyping with SHK Meisterbetrieb Alagöz** (01 July 2021): organised a live-prototyping workshop with SHK Meisterbetrieb Alagöz related to new products to bring to the market.
- **Nerd Testing with shapz.tv** (20 September 2021): organised a nerd testing training session to gather information about the usability and functionality of the "shapz.tv" product.
- **Human Centred Prototyper Training with Open Edge** (21-23 September 2021): organised a training on "human-centred prototyping" with representatives from Open Edge using Miro.
- **Live-Prototyping Workshop with Rossbach-Wojtun** (02/12 November 2021): organised a live-prototyping workshop with the Rossbach-Wojtun SME.

Greece cMDF

The Greek cMDF organised and participated in several activities, many with a research and education value.

- **Additive Manufacturing & 3D Printing Technologies under Greek Social Manufacturing**, online workshop (18 January 2021): presented ongoing work and existing practices in the domain of social manufacturing in Greece.
- **ICT meets the Arts: The digital event that brings the Arts and Technology together**, online workshop (24 February 2021): demonstrated how Additive Manufacturing and 3D Printing technologies could be put at the service of Cultural Heritage & Arts.
- **Digital Technologies in Education and Culture**, online warm-up event (04 June 2021): introduced to educational stakeholders a selection of digital technologies and how they can adopt them in educational/ cultural settings.
- **1821-2021: Through the eyes of the children**, warm-up event (25 September 2021): introduce 3D-based printing activities that promote co-design and co-creation activities.
- **2nd Thessaloniki Design Week**, warm-up event (13-17 October 2021): introduced 3D-based printing activities that promote co-design and co-creation activities and to present the tools being developed in iPRODUCE
- **Participation in the ProDPM'21 Conference** (27-29 October 2021): presented at the conference two use case scenarios: (1) D Printed Smart Luminous Artifacts and (2) 3D Printed (Bio) Scaffolds.

Italy cMDF

The Italian cMDF organised and participated in several cooperation activities with its network of cMDF partners.

- **Kick off meeting of the Italian cMDF** (29 July 2021): presented to newcomers the iPRODUCE project and the use cases implementation.

- **Second meeting of the Italian cMDF** (21 October 2021): promoted technical discussions on the cMDFs use cases.
- **Promotion of iPRODUCE at Digital Automation Lab in Reggio Emilia** (26 November 2021): promoted iPRODUCE to the audience and created links with the owners of the lab for potential collaborations with the Italian cMDF.
- **Warm Up event with Italian cMDF partners and potential new partners** (01 February 2022): introduced newcomers to the established cMDF and discussed novelties about the use-cases experimentation.
- **Presentation of the iPRODUCE Italian cMDF within in webinar on EU Projects** (25 February 2022): promoted the iPRODUCE project activities and preliminary results in Trentino, among SMEs, company associations representatives, and the local research centre.

Spain cMDF

The Spanish cMDF organised several internal sessions and participated in large thematic events.

- **Collaborative design among Spanish cMDF partners regarding the use cases** (January-December 2021): defined the technical and functional specifications of the 3 use cases.
- **Maker Fair Galicia** (05 June 2021): presented iPRODUCE to participants and possibilities of makerspaces joining the Spanish cMDF.
- **Habitat Congress 2021** (21 October 2021): presented iPRODUCE to important stakeholders of the home furnishing sector.
- **Students in Oceano Naranja Fablab** (09 December 2021): discussed use case 3 of the Spanish cMDF and its practical functionalities.
- **Workshop with core Spanish cMDF group** (03 February 2022): introduced new members to the Spanish cMDF, as well as the iPRODUCE objectives and Spanish cMDF use cases.
- **FIMMA-MADERALIA 2022** (29 March - 01 April 2022): presented the iPRODUCE OpIS to possible newcomers to the Marketplace.

Collaboration in the open competitions

To date, two open competitions have been organised within the project, the second currently still ongoing. Both competitions have focused on to fostering stakeholder engagement by allowing for creative ideas and innovative solutions to be explored and implemented within the framework of iPRODUCE.

iPRODUCE Ambassador programme

Another important cooperation mechanism established within iPRODUCE is the ambassador programme, whose main objective is to identify and engage early adopters and local makers and consumers (particularly lead users) of the project's communities (e.g., cMDF networks) to accelerate the development of their collaborative manufacturing processes.

The Ambassador programme is driven by the project's cMDFs, namely through the organisation of events or similar activities.

To date more than 20 project representatives and external stakeholders have joined the Ambassador programme and will contribute to the Ambassador mission over the coming months

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1. Introduction

This deliverable is D10.5 – Report on cooperation activities 2 of the iPRODUCE project, funded by the European Union's Horizon 2020 programme.

The objective of this deliverable is to provide a review of the different cooperation activities carried out within iPRODUCE and by its partners from January 2021 to April 2022 (M28). Deliverable D10.5 is the second of three reports that detail engagement and cooperation activities. A first report - *deliverable D10.4* - was submitted at M12 and covered the period of January 2020 (M1) to December 2020 (M12). A third report, covering the final year of the project will be submitted at M36.

This report is developed in the framework of Task 10.3 - Clustering and cooperation with relevant initiatives. The primary objective of this task is to identify and establish synergies with similar and/or complementary projects. More specifically, it is expected that through this engagement, the project will attract attention and initiate joint activities with makers' communities, consumer product companies and experts on co-creation and particularly user driven innovation. Likewise, given the social nature of the project and related objectives, establishing synergies and cooperation with the project's target stakeholder groups is also important to promote the adoption of the iPRODUCE results.

Therefore, and within the framework of this deliverable, the cooperation activities carried out will be addressed from two perspectives: (1) cooperation between iPRODUCE and other external projects, initiatives and/or activities, and (2) cooperation involving specific iPRODUCE partners and stakeholders (mainly within the framework of the cMDF).

It is considered that over the past 14 months this deliverable covers the number and relevance of the established cooperation activities is noteworthy. On the one hand, iPRODUCE has continued its efforts to engage with its sister projects - OPENNEXT, DIY4U and INEDIT - having led the definition of several collaboration sessions and participated in two online events; on the other, the project's cMDFs are now well established and carrying out different types of activities that, in one way or another, foster engagement, dialogue and cooperation.

This deliverable is structured into the following sections:

1. **Introduction:** the present section.
2. **Cooperation with projects and initiatives:** reviews the engagement and cooperation activities carried out with several H2020 projects that are funded under the same topic as iPRODUCE or share similar themes/ concepts.
3. **Cooperation and engagement activities within cMDFs:** presents a review of the cooperation and engagement activities carried out by the project's cMDFs.
4. **Final considerations:** presents a final reflection on the information presented in this deliverable.

2. Cooperation with projects and initiatives

Over the period covered by this report, iPRODUCE has continued to engage with the research and innovation projects it first established contact with at the beginning of the project. These are projects that share common objectives, topics, or target audiences.

Specifically, it has carried out several cooperation activities with its sister projects - the projects funded under the H2020 topic 'DT-FOF-05-2019 - Open Innovation for collaborative production engineering', as well as two other projects with which it shares common themes.

The objective and relevance of these inter-project cooperation activities is primarily two-fold: (1) to establish activities that can generate results of value and with an impact for one or more of the projects; and (2) to create awareness by leveraging the project's established networks of contacts, whether they be makers' communities, manufacturing companies and professionals in the co-creation domain, start-ups and SMEs, research organisations, or the public.

From this perspective, cooperation activities are intended to include, for example, the organisation of joint dissemination events and other exploitation opportunities with these projects in view of promoting iPRODUCE beyond the scope of the project.

Recalling, the sister projects of iPRODUCE are:

- **DIY4U**: Open Innovation Digital Platform and Fablabs for Collaborative Design and Production of personalised/customised FMCG (Coordinator: SINTEF)
- **INEDIT**: open INnovation Ecosystems for Do It Together process (Coordinator: ENSAM)
- **OPENNEXT**: Company-Community Collaboration for Open Source Development of products and services (Coordinator: TU Berlin)

Furthermore, iPRODUCE has also continued to engage with two other H2020 projects - *Pop-Machina* and *Reflow* - that are of particular relevance because of several partners that are common to iPRODUCE and these projects.

2.1. Cooperation with iPRODUCE's sister projects

The cooperation with iPRODUCE's sister projects has taken shape in two main formats: (1) joint events and (2) collaboration sessions.

2.1.1. Joint events

Webinar: Open Innovation for collaborative production engineering

The sister projects held on 22 April 2021 a joint webinar titled "*Open Innovation for collaborative production engineering*", which is also the title of the *Horizon 2020 topic* that funded these four projects. The objective of the event was to foster a dynamic discussion on how to cultivate open innovation and to showcase what the projects were doing in this regard. The event was jointly organised by the four projects. The webinar was moderated by Katrine Mortensen, an experienced communications specialist, and at the time working with the Danish Design Centre.

The webinar had the privilege of having as a guest speaker Mr. Laszlo Hetey, the European Commission Project Officer of the four projects, who provided an overview of the rationale behind the call topic and highlighted other relevant initiatives addressing similar themes. It was highlighted that

the topic had the objective of engaging actors such as micro-factories, fab labs, maker spaces with the industry to find ways to develop new products and processes, new functionalities, and achieve a shorter time to market. Through collaboration between different actors an open innovation network can be established, which also leads to new business opportunities.

In the session, each project was invited to deliver a 10-minute presentation about their project, with a particular focus on the power of innovation and collaboration in their activities. The iPRODUCE project was represented by Samuel Almeida from F6S.

The four presentations were followed by an interactive Q&A session, where the projects had the opportunity to further discuss relevant issues and answer questions from the audience. Several important ideas that emerged in the discussion are related to the importance of changing the mindset of many stakeholders to enable open innovation and the importance of understanding the role and responsibilities of individual actors in the value chain, among others.

A key takeaway from the event was that there are different approaches to tackle the challenges of open innovation collaboration, whether it be using open hardware, specialised frameworks that promote social collaboration, exploration of fast-moving consumer goods, or development of co-designed sustainable furniture. What can be expected in the future is decentralised, collaborative manufacturing frameworks with global accessibility and environmentally friendly local production.

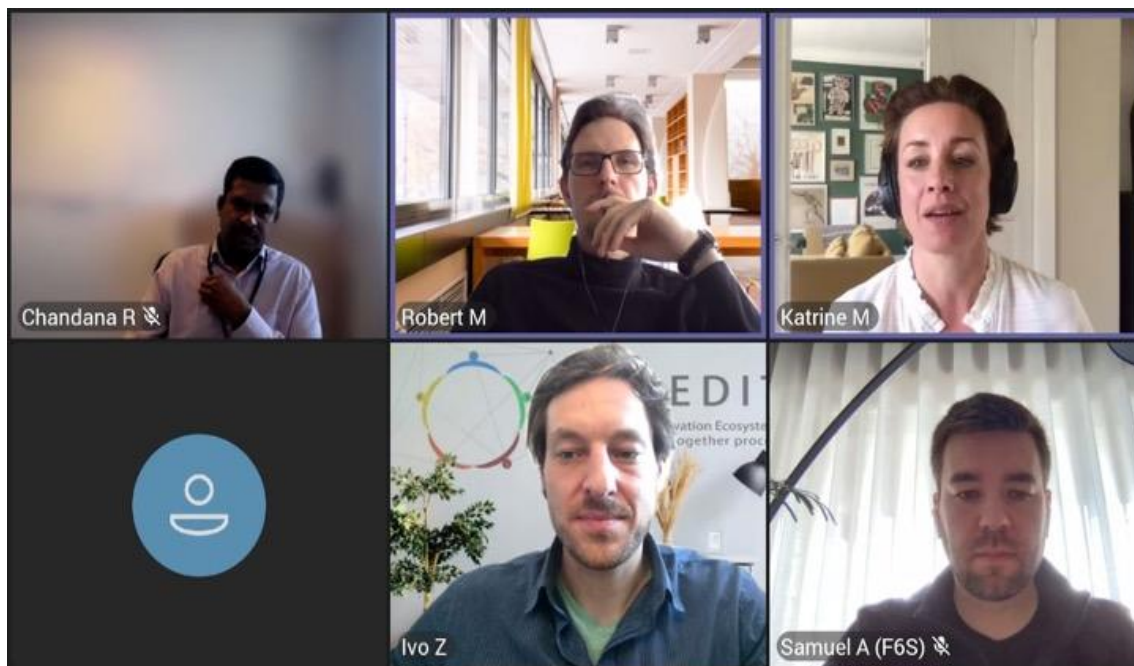


Figure 1. Representatives of the four sister projects at the Open Innovation for collaborative production engineering event

The session had 74 registrations from 15 countries. After the session, a post-event survey was sent to the participants. Overall, participants were satisfied with the event, with the quality of the content, presentation format, and knowledge of presenters all receiving at least a 4 on a 5-point scale.

When questioned about other topics participants would like to know about, some of the most popular answers received include mass-customisation, open source hardware, and open innovation spaces, which are key pillars of the four projects.

Webinar: Open Innovation Ecosystem for collaborative co-creation

Taking advantage of the successful webinar on “Open Innovation for collaborative production engineering”, the four projects organised a second joint session in the framework of the *Open Innovation Congress 2021* last 28 June 2021.

The objective of the Open Innovation Congress was to inform its audience about the experiences and challenges of open innovation, and to provide examples of successful open innovation activities in different areas. The congress was organised by the Baden-Württemberg Ministry of Economics, Labour and Tourism and Steinbeis 2i GmbH / Steinbeis-Europa-Zentrum.

The session titled “*Open Innovation Ecosystem for collaborative co-creation*” focused on providing successful open innovation examples in the framework of the four sister projects and to foster discussions on the application of such examples and how they can be replicated beyond the projects.

In the session, each project was invited to deliver a short presentation about their project. The iPRODUCE project was represented by Manuel Sánchez from AIDIMME (as Project Coordinator).

The Q&A session of the event discussed the possibilities of designing business plans for open innovation projects to ensure their sustainability, as well as relevant advantages and disadvantages, and the main impacts that will play a role in seeking future funding.

A video recording of the session can be found online [here](#).



Figure 2. Representatives of the four sister projects at the Open Innovation Ecosystem for collaborative co-creation event

Workshop at the IEEE ICE - IAMOT Conference 2022

As of the submission of this deliverable, the four sister projects are currently discussing and organising their participation in the *IEEE ICE - IAMOT Conference 2022*, this year themed ‘Technology, Engineering, and Innovation Management Communities as Enablers for Social-Ecological Transitions’.

The projects are organising a full-day participation at the event broken down into a roundtable discussion, workshop, and demonstration activities. In principle, the roundtable workshop will address the theme of communities and ecosystems; the workshop will be divided into several sessions

addressing the themes of technology, business models and communities; and the demonstration session will allow for the sister projects to showcase some of their more tangible results. In the case of iPRODUCE, these are related to the OpIS tools. This full-day event is scheduled to take place on 22 June 2022.

The IEEE ICE - IAMOT Conference 2022 will take place from 19-23 June 2022 in Nancy, France.

2.1.2. Collaboration sessions

At M18, and in the framework of deliverable D10.2, it was discussed an iPRODUCE-led initiative related to the organisation of several collaboration sessions involving the four sister projects. The objective of these sessions (exclusively involving the four projects) is to foster discussions on topics of interest to all projects, to promote opportunities for learning and identifying good practices implemented in one or more projects that could be replicated in other projects.

A list of key topics of common interest was defined, including which projects could take the lead in moderating the session. These topics include:

- Sw architecture and IT structure
- User interaction, roles, prescription and the "Open" view
- Ecosystem engagement. Scalability. From local to global
- Business Models
- IPR management
- Open Manufacturing Demonstration Facilities
- Open innovation competitions and projects

To date, the projects have organised two such sessions, as detailed below, with more being planned for the forthcoming months.

Open Competitions

The first collaboration session involving the four sister projects addressed the topic of open competitions. The session took place on 7 October 2021.

The objective of this session was for the projects that had already organised open innovation competitions, namely iPRODUCE, OPENNEXT and DIY4U, to describe the processes employed, strategy to reach out to stakeholders, prizes and general engagement from their target audience. The result was a 2-hour discussion where all partners actively engaged and were able to take home some key insights for future work.

This was the first of a series of collaboration sessions, with the objective of having the four projects discuss topics that are of mutual interest, exchange ideas and practices, and to identify further collaboration opportunities deriving from these discussions.

Ecosystem engagement. Incentives, prescription, and roles

The second session in this collaboration series took place on 23 February 2022. The four sister projects discussed how they address the participation of complementary agents in their co-creation ventures, and how these complementary actors shape a community or ecosystem which has to be temporarily secured to ensure not only participation, but also implication.

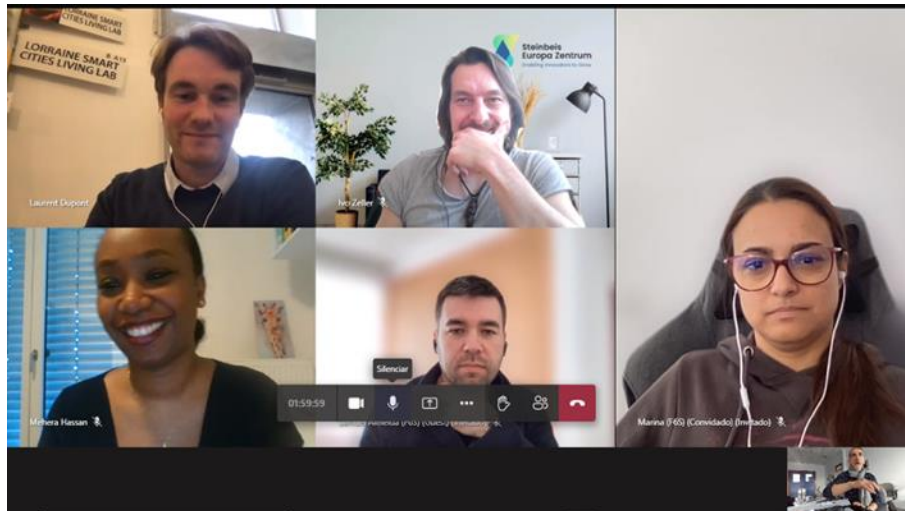


Figure 3. Representatives of the four sister projects at the ‘Ecosystem engagement. Incentives, prescription, and roles’ collaboration session

The different and complementary approaches ranged from the “construction” of a structured ecosystem (iPRODUCE) which required relevant effort to be kept active (a less structured but similar approach in INEDIT), to ad hoc communities getting active with the different co-creation missions launched (OPEN-NEXT) to closed communities of technical agents under very structured collaboration rules on open requirements (DIY4U).

After the session, information was shared (D6.1 from iPRODUCE) and minutes with a summary of the discussions and the conclusions were created by AIDIMME.

The session was also used to introduce the ICE-IAMOT conference (mentioned above) at Nancy in June, where the four projects expressed their willingness to organise a common workshop. At the time of submission, the planning and organisation of the projects’ participation is ongoing.

2.2. Cooperation with other projects with similar objectives and themes

In addition to the collaboration with the sister projects, iPRODUCE has also maintained regular cooperation with two other H2020-funded projects - POP-Machina and ReFlow - a cooperation that was already initiated at the beginning of the project and described in deliverable D10.4.

The main avenue of cooperation with these projects has been related to social media, where iPRODUCE has engaged (e.g., commented, shared) with social media posts from either of the two projects, and with the two projects carrying out a similar activity.

This is an important cooperation mechanism in the sense that it enables those activities and work being reported by one project through social media also reach the communities and networks of the two other projects.

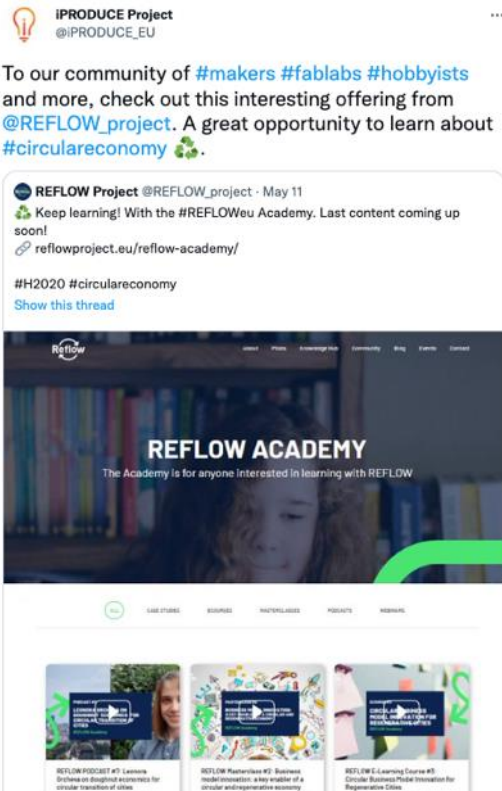


Figure 4. Example of social media interaction with the Re-Flow project

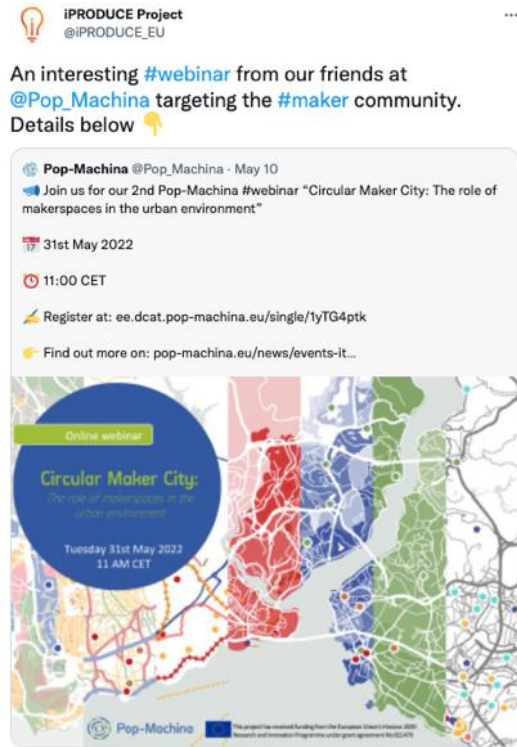


Figure 5. Example of social media interaction with the Pop-Machina project

3. Cooperation and engagement activities within iPRODUCE cMDFs

As discussed in the first version of this report, cooperation and engagement can also be addressed from the perspective of the activities that are carried out by the cMDFs and their respective partners. From January 2021 to April 2022, the cMDFs have remained active in engaging with different stakeholders to provide information about iPRODUCE and the cMDF's activities, and to mobilise them as active participants in the cMDF structure.

In the months covered by this report (January 2021-April 2022), it can be noted that some relief in the social restrictions imposed by the COVID-19 pandemic (that varied from country to country) also enabled an increased number of face-to-face meetings with cMDF members and potential partners. Given the intrinsic social nature of iPRODUCE, this has been an important factor in cultivating a greater feeling of proximity and opportunities for cooperation.

The sections below highlight the cooperation and engagement activities within the six iPRODUCE cMDFs. It can also be mentioned that with the closing of BetaFactory in the autumn of 2021, the number of cMDFs was reduced to five. However, the report still covers the various cooperation activities carried out by the Danish cMDF until that point.

3.1. France cMDF

Throughout the period covered by this report, the French cMDF organised several activities with local stakeholders, as summarised in Table 1.

Table 1. List of the France cMDF cooperation activities

Date	Topic
19 January 2021	Introduction of the iPRODUCE cMDF use cases and set up of the French cMDF
02 November 2021	1st warm-up event with French cMDF ecosystem
23 November 2021	2nd warm-up event with the French cMDF ecosystem
08 February 2022	Launch and promotion of the competition "iPRODUCE competition for open and collaborative innovation iPRODUCE My Mobility"

Introduction of the iPRODUCE cMDF use cases and set up of the French cMDF

One of the first events carried out by the French cMDF over this period was a session that introduced the established use cases to the French cMDF members. The objective of the session was to introduce in detail the iPRODUCE project, discuss in detail key concepts at the core of the project (e.g., social manufacturing and cMDFs), as well as the use cases.

The recording of the event can be found [here](#).

1st and 2nd warm-up events with French cMDF ecosystem

The 1st and 2nd warm-up events shared similar objectives: introduce the iPRODUCE project and its goals to participants, and to inform them about the concept of social manufacturing and how collaboration can take place involving start-ups, fab labs, and makerspaces.

The 1st warm-up event also focused on promoting the French cMDF's services offer, while the 2nd event focused on providing a more specific use case of collaboration between a mobility start-up and a fab lab.

Approximately 20 participants attended each of the events.

The key outcome of the 1st warm-up event was the successful engagement of stakeholders, which showed interest in pursuing further collaboration and participating in project activities. Several of the participants in this event later attended the 2nd warm-up event, which is also a relevant outcome. Furthermore, it can be highlighted that in the 2nd warm-up event participants were introduced to the planned open competition, with the objective of identifying mobility projects for the French cMDF use cases, as well as potential testers for the iPRODUCE tools.

The recording of the 1st warm-up event can be found [here](#); and the 2nd warm-up event [here](#).

Launch and promotion of the competition “iPRODUCE competition for open and collaborative innovation | iPRODUCE My Mobility”

To meet the expectations of the iPRODUCE project in terms of open competitions and to support the French cMDF use-cases, the cMDF launched in early 2022 a competition named "iPRODUCE competition for open and collaborative innovation | iPRODUCE My Mobility". This competition is co-organised by all French members (Materialia, Fablab Vosges and Excelcar) with the support of the French Core Group - namely their various partners iD4CAR, CESI, Quest for change and ID COMPOSITE. This competition aims to give three competition winners with tailored support, including coaching, co-design, access to Fablab prototyping facilities, test sites and testers.

A webinar was prepared to launch and promote the competition, while also presenting the iPRODUCE project, its partners, and objectives. The webinar was also used to raise awareness about the French cMDF's services offer to the participants. More information about the open competitions, such as the objectives of the competition, eligible types of projects, gains and modalities for the winners, eligibility requirements and application process and schedule were shared during the webinar.

About 20 people were registered for the launch webinar, of which about ten participated. The recording of the event can be found [here](#).



Figure 6. French cMDF representatives introducing the French cMDF specific competition

Following this webinar, several personalised exchanges took place between the French partners and some participants interested in the competition, to discuss the projects to be submitted, their eligibility, and to share information about the application file, which was due to be completed by 25 March 2022.

Several applications with good potential were received and were subject to a detailed evaluation by a jury composed of the French cMDF members and their Core Group. **Results** were announced in early May 2022, after which support from the cMDF initiated, and will run until the end of 2022.

3.2. Denmark cMDF

The Danish cMDF, which was composed of CBS and BetaFactory, held various cooperation-focused events in 2021 (meetings and workshops), as summarised in Table 2. The collaboration was well-integrated, where CBS organised and held various co-creation workshops and BetaFactory supplied the digital fabrication expertise and facilities, allowing for tangible results.

Table 2. List of the Denmark cMDF cooperation activities

Date	Topic
11 January 2021	Visit to Duevej skolen to present iPRODUCE project
February 23rd 2021	Visit to Ådalen skolen to present iPRODUCE project
28 February 2021	3rd Women Makers' workshop
3 March 2021	Visit to Køge Lille skolen to present iPRODUCE project
11 April 2021	4th Women Makers' workshop
7th May 2021	Workshop at Helsingør with Helsingør Museum and Municipality
11 May 2021	Visit to Duevej Skole - models showcase
31st May 2021	2nd workshop with Helsingør Museum and Municipality
30 May 2021	5th Women Makers' workshop
August 2021	Visit to Ådalen Skole - models showcase
15 September 2021	Visit to Køge Lille Skole - models showcase
9 October 2021	3rd workshop with Helsingør Museum and Municipality
11-16 October 2021	MBU at Ådalen skolen

A selection of some of the most relevant activities carried out are described in the following:

Women Maker's workshops

On 28 February 2021 the Danish cMDF held its 3rd Women Maker's *workshop*. The event was held online due to the still ongoing pandemic, but participants were still able to proactively engage and organise the prototyping session from home. The event focused on FemTech and started with a thorough presentation by *Vanessa Carpenter* from *Kintsugi Design*, providing an overview of FemTech from a hardware perspective, followed by a discussion and prototyping in pairs in breakout rooms.

The participants tackled widespread topics ranging from smart measuring of household chores division to breastfeeding and personal safety devices.



Figure 7. Participants in the Danish cMDF's 3rd women makers' workshop

On 11 April 2021, the Danish cMDF hosted the 4th Women Makers' *workshop* focusing on 3D printing. On this day, participants had a short presentation and got acquainted with how to 3D print at the BetaFactory 3D machines.



Figure 8. Participants in the Danish cMDF's 4th women makers' workshop

On 30 May 2021, the Danish cMDF hosted the 5th Women Makers' meeting focusing on Light. On this day, participants had a short presentation and got acquainted with how to experiment and work with light as a material. The presentation was given by the light scientist Olga Rodenko, who presented concepts and her own work.



Figure 9. Participants in the Danish cMDF's 5th women makers' workshop

The five women makers' workshops organised to date have been important cooperation activities as they increase the awareness about digital fabrication and social manufacturing, while also expanding the local community of makers. Furthermore, the workshops created a space to discuss diversity and roles in makerspaces and fab labs, creating points of discussion for how to best encourage other groups in society to engage in novel opportunities in social manufacturing. Despite the dissolution of the Danish cMDF, the women makers group continue in close contact and are planning to restart their activities in the Fall 2022.

Beyond fostering the advancement of the prosumer scene within the Danish ecosystem, the aforementioned events offered rich insights into the market and customer needs, wishes and limitations. This knowledge feeds into the design of iPRODUCE and allows for the optimisation of the tools and services offered. One example is the 3D printing workshop, which simulated a true customer need across all cMDFs (i.e. fast prototyping), and allowed for the mapping of the 3D printing user journey from skills development to prototyping.

Collaboration through use case activities

Updates on the collaboration established through the *use cases* are provided in what follows.

Use Case 1 - Co-Creation in Schools

In 2021, the Danish cMDF continued their conversations with schools and developed a *video* in both Danish and English to introduce iPRODUCE and digital fabrication to young students (12-15 years old). The videos served as support material for the teachers to prepare the students into creating prototypes and models for the spaces that were to be remodelled with the help of the BetaFactory mobile unit (BMU). The BMU was deployed in the fall 2021 and executed the selected students' co-created models.

Three schools showed interest and started working on prototypes by hosting internal events, where 12-year-olds redesigned their public learning centre (PLC).



Figure 10. Example of a prototype of the PLC developed by students (Danish cMDF – UC1)

In October 2021, the Danish cMDF ran the first intervention with 6th grade students of the Ådalen school from the Frederikssund municipality. Before the deployment of the Mobile Unit to the school, BetaFactory and CBS together with the schoolteachers helped assess the prototypes developed by the students during an internal competition that was held in September 2021.

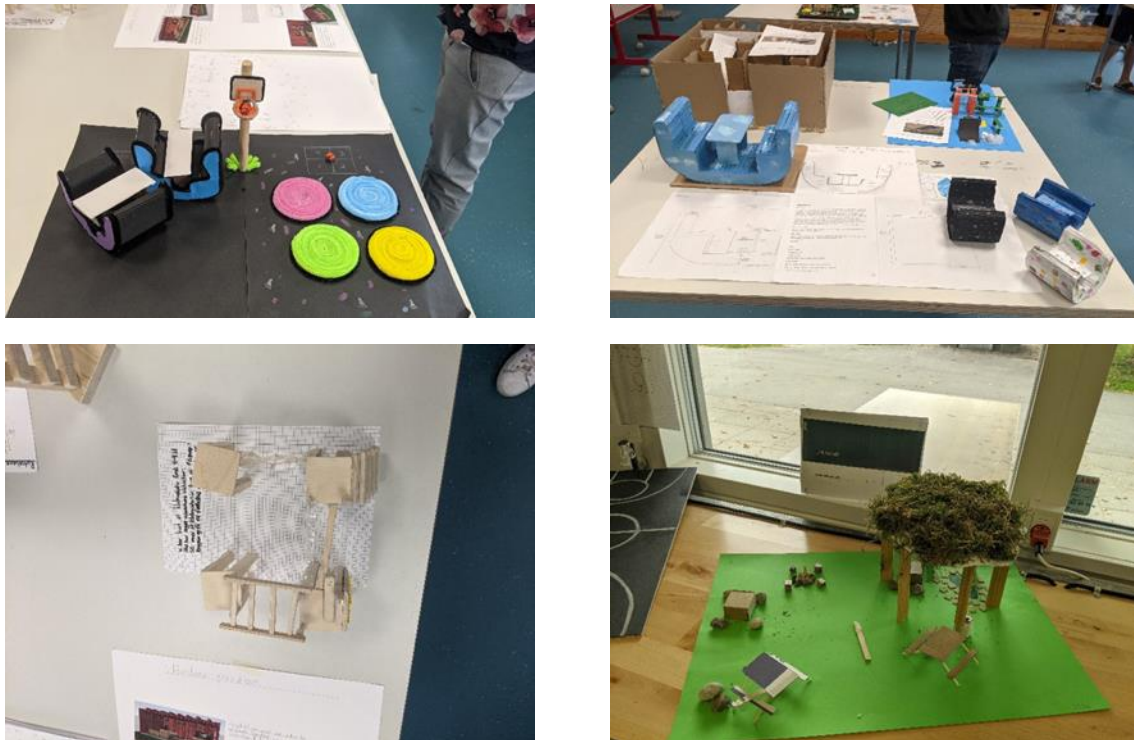


Figure 11. Assessment of the prototypes developed (Danish cMDF – UC1)

During the use case intervention, students learned and applied digital skills fabrication to produce their own designed benches for the school yard. A final *video* documented the process and outcome.



Figure 12. BetaFactory Mobile Unit (Danish cMDF)

Use Case 2 - Distributed Design Market

The Danish cMDF held two co-creation workshops with the IT University, Elsinore municipality, CATCH and their city museum towards exploring possibilities of using AR to help with a future outside exhibition (7 May and 31 May 2021). The objects were to be built with the mobile unit but, before that, it was required to understand the locations and the experiences both the city and the museum wanted to achieve. The workshops provided enough material for informed discussion on the occasions.

On 7 May 2021 the Danish cMDF worked on exploring the space and creating paper prototypes, while also introducing AR possibilities to the participants.



Figure 13. Testing with AR possibilities (Danish cMDF – UC2)

For the workshop on 31 May 2021, the Danish cMDF created physical prototypes of museum pieces, earlier explored through paper prototypes, to bring to the space and explore AR possible interactions with the objects.

Use Case 3 - Temporary Architecture

The third use case kicked-off in February 2021 with a partnership with a local architecture firm – *KHR* – where they were designing for user-centred temporary architecture services for an upcoming large project construction. This is part of a research-led initiative looking into relational architecture and adaptive solutions. The BetaFactory mobile unit (BMU) was to be deployed in the city of Roskilde to support this process to produce prototypes to explore design possibilities for apartments to be co-created by future residents. The final designed apartments will be built in the following according to the planned construction.



Figure 14. Designing and prototyping (Danish cMDF – UC3)

Due to the construction timeframe, after the prototyping phase, KHR chose to produce the modules at BetaFactory which were then transported to the building site to explore spaces with future residents. The third use case was finalised in August 2021 when KHR finalised the workshops on the building site trying the module to experiment and explore spaces with future residents.



Figure 15. Development of the modules after prototyping phase (Danish cMDF – UC3)

All these activities demonstrated unique aspects and assets of digital fabrication and how local production can gain market space if well integrated with various social and consumer needs.

While use case 1 and use case 3 have already been completed, use case 2, whose subsequent activities were to take place in the Spring 2022, was not finalised due to the closing of BetaFactory last October 2021.

3.3. Germany cMDF

Throughout the period covered by this report, the German cMDF organised several activities with local stakeholders, as summarised in Table 3.

Table 3. List of the German cMDF cooperation activities

Date	Topic
20 February 2021	Online - Focus group "Design Thinking for Maker"
23 February 2021	Workshop with Open Edge "Design Thinking in a nutshell - selected methods for maker audiences" (Online Training)
01 July 2021	Live Prototyping with SHK Meisterbetrieb Alagöz
20 September 2021	Nerd Testing with shapz.tv
21-23 September 2021	Human Centred Prototyper Training with Open Edge
02 /12 November 2021	Live-Prototyping Workshop with Rossbach-Wojtun

Online Focus Group "Design Thinking for Makers"

The Fraunhofer FIT members of the German cMDF are keen to train engineers, scientists, students and various industry practitioners in Design Thinking Methods and Mindset. During the iPRODUCE project, the FIT team aimed to understand the Design-Thinking-related interests and needs of the maker community. Thus, a dedicated 4-hour focus group session was organised on 20 February 2021

to introduce to a selected group of makers (5 participants) the concept of Design Thinking in general and its process phases in detail. The participants were asked to discuss which of the Design Thinking Phases is most interesting to them and provide feedback on the phases' perceived potential for the maker community.

Workshop with Open Edge “Design Thinking in a nutshell – selected methods for maker audiences” (Online Training)

In February 2021, the German cMDF designed a new training format for Design Thinking for the maker audiences based on the feedback of the online focus group "Design Thinking for Makers".

The online training session, titled “Introduction to Design Thinking for Makers”, defined to test the new concept was conducted on the 23 March 2021 with makers from the French cMDF’s ecosystem. The *Mural* platform was used as a virtual whiteboard to enable collaborative work on the various exercises.

After a warmup and introduction to the general principles of Design Thinking, the participants worked on the first three phases of Design thinking: Empathise, Define, and Ideate. For each phase, a theoretical part was followed by practical exercises like “Brainwriting” or “Optimist vs. Pessimist”. The aim was to impart the makers with methods to structure and improve their thinking of problems and ideas that would complement their prototyping skills. The training was positively received and gave rise to a dedicated follow-up training focused on the fourth Design Thinking phase: Prototype (Human-Centred Prototyper - see below).



Figure 16. Mural board used in the online session (German cMDF)

Live-Prototyping Workshop with SHK Meisterbetrieb Alagöz

On 1 July 2021 the German cMDF organised a live-prototyping workshop (part of their services catalogue) with Mr. Alagöz from SHK Meisterbetrieb Alagöz. In 2020, Mr Alagöz founded a company that wants to bring products to the market in very broad fields. So far, he has many ideas (for example, a flexible luggage carrier, car accessories and furniture), some of which are already in prototype status. Originally, Mr Alagöz comes from the craft sector, as he had a sanitary company.

Mr. Alagöz and a team of the German cMDF met in the Makerspace in Bonn, where Mr. Alagöz brought some ideas that were then discussed in the team. Afterwards the ideas were prioritised according to customer benefit and effort. A promising idea was selected from the pool of ideas and analysed regarding its feasibility and possible options for implementation.



Figure 17. Prioritisation of different ideas with the method "Innovation Matrix"

Nerd Testing with shapz.tv

On 20 September 2021 the German cMDF organised a nerd testing (part of their services catalogue) with *shapz.tv*.

The objective of the nerd testing session was to gain information and results to further develop the usability and functionality of the "shapz.tv" product. Thereupon, live, and moderated usability tests took place. The participants of the tests were so-called "nerds" from the Makerspace Bonn. The tests were moderated by FIT employees. In the first step, a moderation guideline was developed in consultation with shapz.tv. The live test then took place in the Makerspace Bonn. Finally, the test results were documented and shared with shapz.tv.

Human-Centred Prototyper Training with Open Edge

In September 2021, the German cMDF organised a training on the topic of "Human-Centred Prototyping" with 4 participants from Open Edge. The topic of human-centred prototyping was taught for three half days in an interactive remote workshop. The *Miro* platform was used as a digital whiteboard for the development of exercises in the creation of "service prototypes", "prototypes of digital products" and "prototypes of haptic products". The feedback obtained will be iteratively applied to the improvement of this training.

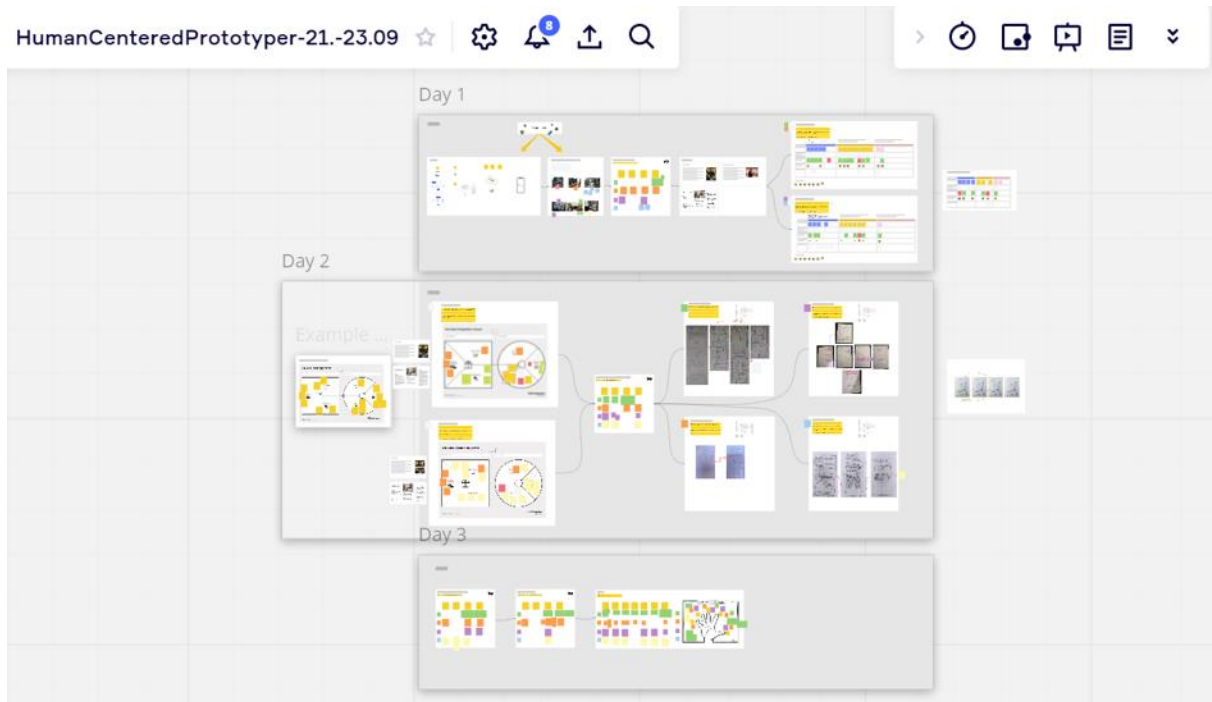


Figure 18. Miro Board (Digital Whiteboard) with prototyping exercises

Live-Prototyping Workshop with Rossbach-Wojtun

On 2 and 12 November 2021, the German cMDF organised a live-prototyping *workshop* (part of their services catalogue) with *Rossbach-Wojtun*, an SME with approximately 10 employees. The Live-Prototyping Service consisted of two in-person meetings.

The first meeting focused on ideation and prioritisation, while the second meeting, held at the premises of MakerSpace Bonn, provided the SME with a deep-dive consultation on 3D-printing technology. The CEO of Rossbach-Wojtun showed interest in further contributing to improving the service offered by the German CMDF. Thus, the company was also invited to the Fraunhofer FIT facilities to further discuss a new vision and new ideas for this Service.

This additional meeting was very beneficial for the iPRODUCE project, as based on its outcomes there was a redefinition of this workshop. There was also an improvement on the communication materials, to better express to the customers what they may expect.

3.4. Greece cMDF

Throughout the period covered by this report, the Greek cMDF organised several activities with local stakeholders, as summarised in Table 4.

Table 4. List of the Greece cMDF cooperation activities

Date	Topic
18 January 2021	Additive Manufacturing & 3D Printing Technologies under Greek Social Manufacturing, online workshop
24 February 2021	ICT meets the Arts: The digital event that brings the Arts and Technology together, online workshop
04 June 2021	Digital Technologies in Education and Culture, online warm-up event

Date	Topic
25 September 2021	1821-2021: Through the eyes of the children, warm-up event
13-17 October 2021	2nd Thessaloniki Design Week, warm-up event
27-29 October 2021	Participation in the ProDPM'21 Conference

Additive Manufacturing & 3D Printing Technologies under Greek Social Manufacturing online workshop

The objective of this online *workshop* was to present ongoing work and existing practices in the domain of social manufacturing in Greece. Specifically, the workshop aimed to demonstrate a selection of co-creation and co-design activities in the Greek ecosystem related to additive manufacturing and 3D printing in different application areas, such as the arts, medical, robotics, among others. Complementary, the workshop also aimed to inform participants about the Greek cMDF (including selected facilities being used in the cMDF) and the iPRODUCE project.

This half-day event brought together approximately 60 people from the scientific community and the industry.

One of the main outcomes of the event includes the generation of new ideas for the Greek cMDF use cases based on participant feedback. Considering the scope of the event, which also brought together representatives from other national projects working in similar fields, a relevant outcome was the possibility of mobilising these representatives into the cMDFs activities and the discussion around possible exploitation opportunities.



Figure 19. Presentation and participation in the Additive Manufacturing & 3D Printing Technologies under Greek Social Manufacturing online workshop (Greek cMDF)

ICT meets the Arts: The digital event that brings the Arts and Technology together, online workshop

The objective of this *workshop* was to demonstrate how Additive Manufacturing and 3D Printing technologies could be put at the service of Cultural Heritage & Arts. It also focused on showcasing the latest 3D printed prototypes related to the use case scenarios of the Greek cMDF developed within the

framework of iPRODUCE. Among them, the iPRODUCE OpIS platform was briefly presented for its future contribution to the creative industry, with emphasis on crucial key points, such as the AR/VR toolkit, the Ricardian Toolkit, etc.

The online workshop brought together more than 140 participants, mainly from Europe and USA.

One of the main outcomes of the workshop was to present the digital tools developed by iPRODUCE project on how they can support educational cultural purposes. Considering the scope of the event, which also brought together representatives from other national projects working in similar fields, a relevant outcome was to create awareness about the local cMDFs structure and operation and engage a diverse set of stakeholders in the collaborative manufacturing processes of the cMDFs activities. Finally, one major outcome was to identify key persons to act as ambassadors of the iPRODUCE solutions.

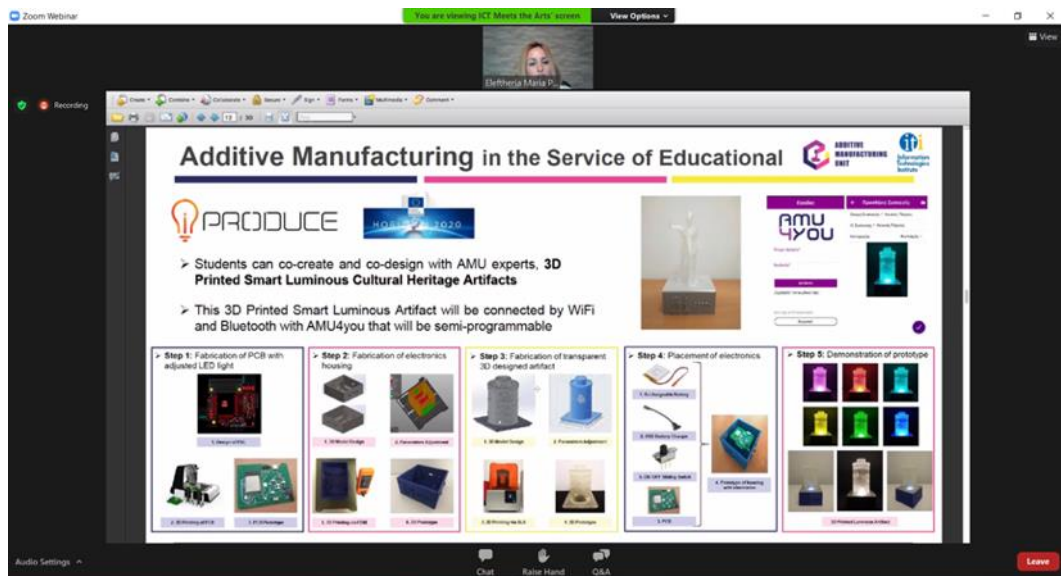


Figure 20. Presentation and participation in the ICT meets the Arts online workshop (Greek cMDF)

Digital Technologies in Education and Culture

The objective of this *workshop* was to introduce stakeholders (i.e., students, teachers, and parents) to a selection of digital technologies and how they can adopt them in real-life settings, present to them the tools being developed in iPRODUCE and how they can support educational and cultural activities, and to provide an online demonstration and training of 3D printing technologies.

The event, with a duration of approximately 3 hours, was attended by 30 participants.

Key outcomes of the event included increased stakeholders' awareness about iPRODUCE and digital tools, digital manufacturing, and co-creation activities, as well as the value and contribution of 3D printing and AR/VR technologies to increase educational and cultural heritage. One additional relevant outcome was the increase of the impact of dissemination activities to promote the achievements of iPRODUCE and to look for additional exploitation opportunities.

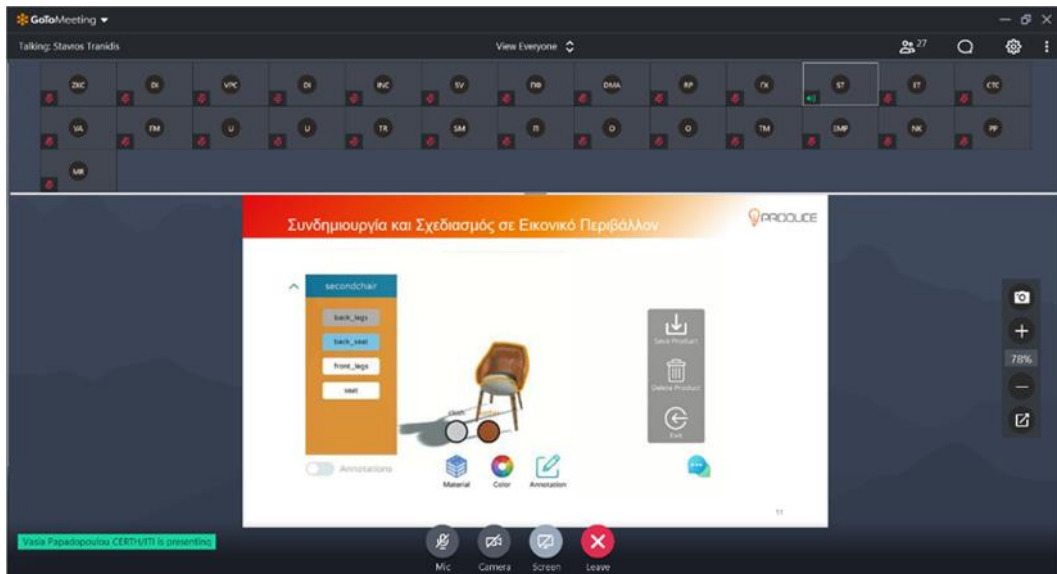


Figure 21. Presentation and participation in the Digital Technologies in Education and Culture event (Greek cMDF)

1821-2021: Through the eyes of the children

The objective of this *event* was to introduce 3D-based printing activities that promote co-design and co-creation activities, such as those being delivered in the Greek cMDF, and to present the tools being developed in the framework of iPRODUCE. Furthermore, additional objectives included highlighting how 3D printing and AR/VR experiences can enhance educational activities (e.g., by allowing students to visualise and ‘touch’ history and culture). Lastly, the event aimed to promote a live demonstration and training on 3D technologies to participants, particularly students, teachers, and parents.

This event, which involved approximately 150 participants, was held in the framework of the celebrations of the 200 years since the Greek Revolution of 1821.

Key outcomes of the event are closely related to the successful achievement of the proposed objectives, with stakeholders having become more informed about the possibilities of co-design and co-creation, as addressed in iPRODUCE, as well as the potential value of 3D printing and AR/VR technologies in different contexts, including for educational purposes. Additionally, some new ideas were generated that could be used as part of the use case scenarios being addressed in the Greek cMDF.



Figure 22. Greece cMDF representatives at the 1821-2021: Through the eyes of the children event

2nd Thessaloniki Design Week

The objective of this *event* was to introduce 3D-based printing activities that promote co-design and co-creation activities and to present the tools being developed in iPRODUCE. The event focused on the innovation, ingenuity and experience of the creative manpower and entrepreneurship of the city of Thessaloniki and Greece in general, in line with international trends, aiming at redefining and developing every aspect of our lives, from economy and production to the environment and health, through the design of large- and small-scale products and services.

Given the nature of the event, the Greek cMDF representatives were able to reach out to a broader audience of approximately 250 people, including attendees from the local and regional ecosystem, such as artists, designers, hobbyists, makers, Fablabs, industries, researchers, and local stakeholders.

Key outcomes of the event were the successful promotion of co-design and co-creation activities of iPRODUCE, and the various digital tools and concepts being developed and addressed in the project. Another important outcome was the generation of new ideas for the use case scenarios being developed by the Greek cMDF.



Figure 23. Greece cMDF participation at the 2nd Thessaloniki Design Week

Participation in the ProDPM'21 Conference

Within the framework of the *ProDPM'21 Conference*, representatives from the Greek cMDF presented two use case scenarios: (1) 3D Printed Smart Luminous Artifacts and (2) 3D Printed (Bio) Scaffolds.

In the former, a robust methodology approach was demonstrated to encourage co-creational Do-It-Yourself activities by implementing low-cost Additive Manufacturing technologies to a systemic innovative design. The methodology approach enables educators and non-professional users to create their own customised smart devices, reinforcing Design Thinking and introducing the concept of Smart Manufacturing under the growing trend of personalization and socialisation.

In the latter, the representatives presented the study that investigated the mechanical behaviour of 3D printed ceramic lattice structures using Stereolithography. Six lattice structures were manufactured using Silica (SiO₂) resin and the resin material was evaluated through nanoindentation testing and Scanning Electron Microscopy (SEM), which revealed that the porosity of the material was high, leading to degradation in basic mechanical properties. In addition, the mechanical response of each lattice structure was extracted, and the scaling law was calculated to express the relation between the mechanical properties and the relative density.

Within the framework of the conference, the Greek cMDF representatives were able to reach out to a broader audience of approximately 125 people, from the scientific community, industry, and public.

Key outcomes of the *event* were the successful promotion of co-design and co-creation activities of the iPRODUCE project, the various digital tools and concepts being developed and addressed via the development of two specific use case scenarios of the Greek cMDF.



Figure 24. Posters presented at the ProDPM'21 Conference

Generally, it can be noted that the engagement of the school community in several events has been successful to the extent that they've been identified as a key target group for the Greek cMDF competition being organised as part of the larger second *iPRODUCE open competition*.

In summary, the general value of these events has been the raised awareness of possible stakeholders on digital tools and digital manufacturing, to promote the holistic concept of co-design and co-creation activities. Additionally, it is worth mentioning that the increase of the impact in these cooperation activities led to the promotion of the achievements of iPRODUCE project and to the definition of the possible ambassadors and users.

3.5. Italy cMDF

Throughout the period covered by this report, the Italian cMDF organised several activities with local stakeholders, as summarised in Table 5.

Table 5. List of the Italy cMDF cooperation activities

Date	Topic
29 July 2021	Kick off meeting of the Italian cMDF
21 October 2021	Second meeting of the Italian cMDF
26 November 2021	Promotion of iPRODUCE at Digital Automation Lab in Reggio Emilia
01 February 2022	Warm Up event with Italian cMDF partners and potential new partners
25 February 2022	Presentation of the iPRODUCE Italian cMDF within in webinar on EU Projects

Kick-off meeting of the Italian cMDF

The 1st meeting of the Italian cMDF was organised in Rovereto on 29 July 2021. The event was run in the phygital mode with 11 participants. Trentino Sviluppo ProM manufacturing facility hosted the

meeting as organiser and the members of a few makerspaces; other members of the cMDF participated virtually from Bolzano and Apulia.



Figure 25. Kick-off meeting of the Italian cMDF in phygital mode

The objective of the event was to present the iPRODUCE project to the participants not belonging to the iPRODUCE consortium and informing the participants of a preliminary scenario of the iPRODUCE pilot and open innovation missions, the presentation of possible use case implementation, and the explanation of technical features of the pilots. A joint discussion followed, where the participants shared ideas on their possible roles in the pilot, discussed open points (e.g., the time framework of the pilot) and expressed their own opinion on the project.

The key outcome of the kick off meeting was the successful engagement of stakeholders and future partners of the Italian cMDF. These belong to different communities and deal with different clients/users: some of them mainly work with students (from the high school and/or the university), some others - like ProM - primarily deal with industry/manufacturing SMEs, others have citizens and DIY as target clients. Moreover, some have a profit business model (their income comes from invoicing companies), others have a non-profit business model (they work on a voluntary basis or funded by the public).

Despite the different business models, all participants showed interest in pursuing further collaboration and participating in project activities.

Second meeting of the Italian cMDF

The second meeting of the Italian cMDF was organised in Trento on 21 October 2021. The event was run in the phygital mode with 12 participants: MUSE FabLab hosted the meeting for the partners from Trentino; other members of the cMDF participated virtually from Bolzano and Apulia.

The objective of the event was to foster technical discussions. In particular, the participants discussed on the canvas of the use case pilots (when, what, who, etc.) and brainstormed on new possible members of the cMDF, with a view of expanding the team and covering a larger geographical area and creating a larger community experimenting iPRODUCE activities and concepts (co-creation, etc.).

The key outcome of the meeting was a better common understanding of the pilot activities, as well as the creation of a shared list of future potential members of the Italian cMDF and of potential *iPRODUCE ambassadors*.

Promotion of iPRODUCE at Digital Automation Lab in Reggio Emilia

On 26 November 2021, Trentino Sviluppo and Hub Innovazione Trentino (iPRODUCE project partners and members of the Italian cMDF) were invited by the Kaizen Institute Italia to the inauguration of the Digital Automation Lab (DAL) in Reggio Emilia (of which Kaizen Institute is a partner). The objective of the session was to disseminate iPRODUCE to the audience and to create links with the owners of the lab for potential collaborations with the Italian cMDF.

DAL is a demonstration laboratory of the Factory of the Future for advanced manufacturing (digital, integrated and connected) technologies that supports manufacturers from the province of Reggio Emilia in improving factory processes. Its principal founders are the industrial association of Reggio Emilia, IREN Smart Solutions (one of the most important energy management companies) and the Chamber of Commerce of Reggio Emilia. The laboratory provides services in line with the context, the activities, and the “philosophy” of iPRODUCE project:

- Coaching and training on processes and technologies.
- Digitalisation and automation projects.
- Tests, simulation, and experimentation with technological solutions for entrepreneurs, plant managers and company process technicians.

Thanks to existing equipment and technology, companies have the chance to both improve their staff’s skills and to experiment with processes, using a “proof-of-concept” (POC) method.



Figure 26. Participation of the Italian cMDF at the Digital Automation Lab in Reggio Emilia

After the presentation of the lab owners and stakeholders, during the visit to the laboratory facilities and the networking phase, Trentino Sviluppo and HIT presented to the professionals, entrepreneurs and lab representatives the iPRODUCE objectives, pilot activities and use cases. The key outcome of the meeting was a list of potential companies/stakeholders to engage in the Italian cMDF pilot.

Warm Up event with Italian cMDF partners and potential new partners

The official warm up event of the Italian (enlarged) cMDF was organised on 1 February 2022. Due to the ongoing pandemic and established safety measures, the event was organised online. 17 participants attended the event.

3.6. Spain cMDF

Throughout the period covered by this report, the Spanish cMDF organised several activities with local stakeholders, as summarised in Table 6.

Table 6. List of the Spain cMDF cooperation activities

Date	Topic
January 2021 – December 2021	Collaborative design among Spanish cMDF partners regarding the use cases
05 June 2021	Maker Fair Galicia
21 October 2021	Habitat Congress 2021
09 December 2021	Students in Oceano Naranja Fablab
03 February 2022	Workshop with core Spanish cMDF group
29 March - 01 April	FIMMA-MADERALIA 2022
January 2021 – September 2021	Use Cases deployment (first prototypes)

Collaborative design among Spanish cMDF partners regarding the use cases

The three partners of the Spanish cMDF have held several online and physical meetings to define the technical and functional specifications of the 3 use cases. Discussions have mainly focussed on the specifications of UC2 (based on interviews with gamers) and UC3, based on ideas from partners LAGRAMA and Oceano Naranja and final approval based on the possibilities of the iPRODUCE tools. Regarding UC2, there was a fruitful discussion reaching a possible innovative gamer chair for normal gamers as consumers, not to reach top gamers.



Figure 28. Discussions on collaborative design in the Spanish cMDF

Maker Fair Galicia

In the framework of the *Maker Fair Galicia*, Dr. Martínez Torán from VLC presented the *iPRODUCE* objectives generating a very interesting discussion on the approach to interact with the project's target audience - makers, manufacturers and consumers - in a collaborative way, creating awareness for being a member once the Marketplace will be up and running. He explained the possibilities the makerspaces will have in joining the Spanish cMDF. The full presentation (in Spanish) is accessible [here](#).



Figure 29. Presentation of iPRODUCE and the Spanish cMDF at the Maker Fair Galicia

Habitat Congress 2021

This sectorial event is one of the most important meetings about strategies in the home furnishing sector (called “Habitat” in Spanish) in Spain. iPRODUCE, through the Spanish cMDF, had an important *participation* in the event. At the main entrance of the congress building, a booth with a television was set up where videos of the iPRODUCE tools were shown, along with the project roll-up. Brochures were distributed to those that visited the booth, and during the long coffee-break, the video of the furniture pilot case was projected on a video wall (and streamed for the online audience). Several contacts interested in the iPRODUCE solutions were made.



Figure 30. Video about the OpIS tools on the video wall of the Habitat Congress 2021

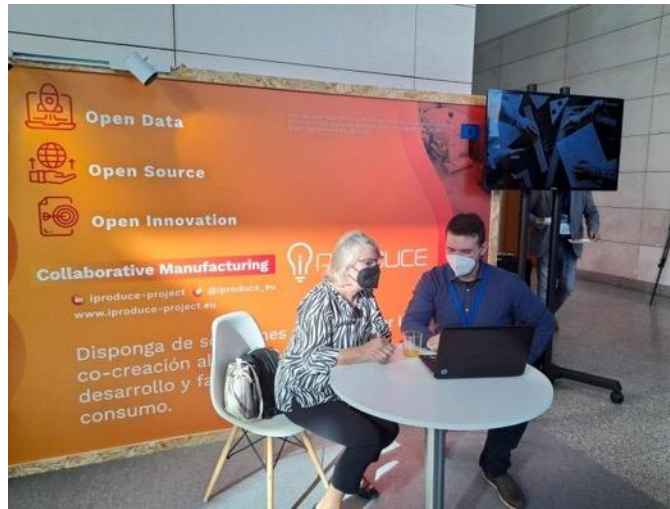


Figure 31. Visitor to the Spanish cMDF booth at the Habitat Congress 2021

Students in Oceano Naranja Fablab

On 9 December 2021, an activity was held with the trainees in Oceanonaranja SL at that time. It was a group of five students of different European nationalities and different studies related to the design and manufacture of digital and manual products.

The aim of the activity was to focus on discussing use case 3 of the Spanish cMDF and its practical functionalities as well as to further elaborate the final design of the 3D joint element. A brief presentation of iPRODUCE and the different cMDF was provided, with a particular focus on use cases of the Spanish cMDF. As mentioned, priority was given to use case 3 due to its simplicity and the production technique, which is affordable in the cMDF partner facilities.

Participants showed interest in the project and ongoing activities, having indicated their intent to be kept informed about the platform once available for testing and joining the community.

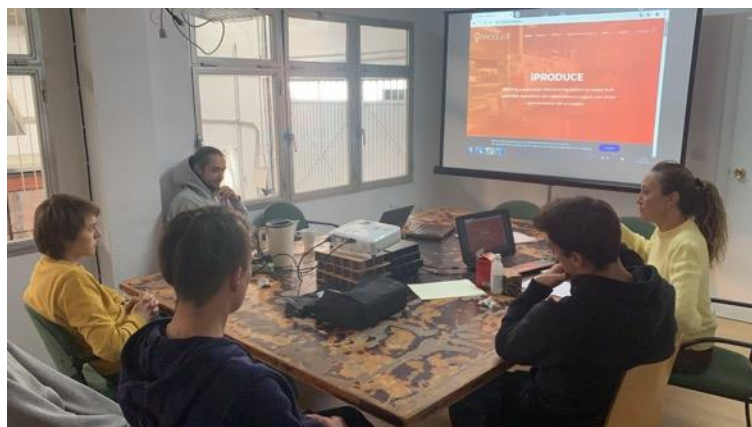


Figure 32. Discussions of the Spanish cMDF use case activities

Workshop with core Spanish cMDF group

The Spanish cMDF organised a *workshop* and cMDF warm-up event on 3 February 2022 that was attended by members of the Spanish core group (including new members), formed by professionals, makers and designers who provided the cMDF with their opinion about the project tools and their usability.

The objective of the event was to introduce new members to iPRODUCE and its objectives, the project's cMDFs (particularly the Spanish cMDF) and use cases, as well as the OpIS platform under development, including the tools already in operation.

A key outcome of the event was the positive reception of the OpIS platform and its functionalities, which was seen as useful for fostering collaboration between the different agents and adding value around design and co-creation. It was agreed that the core group would continue its collaboration towards validating all the tools and identifying potential improvements for them.



Figure 33. Participation in the workshop with the core Spanish cMDF group

A key discussion point was related to the platform's business model and the payment model for members of the platform. The members of the Core Group also suggested adding a local language in the platform, to facilitate the communication with different user groups.

Each of the members of the Core Group explained they would act as ambassadors with their customers once the platform becomes stable. They can offer their use and invite the groups they are involved in, mainly students and designers.

With Valencia being the World Design Capital (WDC) 2022, this event can be an important driver to enhance the platform visibility, because the tools increase the collaboration of the different agents, makers, users, cMDF, among others, and can add value in the design area. The Spanish cMDF is evaluating the possibility of designing a space/event to take advantage of the project results' visibility and repercussions in WDC.

FIMMA-MADERALIA 2022

The 39th edition of FIMMA + MADERALIA: International Fair of Materials, Technology and Components for Furniture, Interior Design and Contract Projects took place from 29 March to 1 April 2022. AIDIMME *participated* in representation of the iPRODUCE and the Spanish cMDF, supported by a booth showcasing iPRODUCE with a big poster, a TV showing video demo tools, and a table for

specific demos with the laptop. The main objective of the participation in the event was to introduce the iPRODUCE OpIS to possible newcomers to the Marketplace.

Throughout each day of the event, several demonstrations were made mainly to furniture manufacturers who are the visitors attending the Fair and showed big interest regarding the iPRODUCE tools. One of the most interesting and attractive points was meeting the international Maker Community, establishing a path of interesting possibilities with them for upcoming project activities.



Figure 34. Participation of the Spanish cMDF at the FIMMA-MADERALIA 2022

Use cases deployment (first prototypes)

Regarding the Spanish cMDF use cases, and with a particular emphasis on collaboration activities, it can be highlighted the work being done within the framework of use case 2 - Gamer Chair (Figure 35). For this use case, the cMDF representatives have engaged with and carried out interviews with non-professional gamers, people who spend many hours playing video games. Through the interviews, the objective was to understand and analyse what deficiencies or improvements may be interesting for current gaming chairs, considering materials and, more importantly, maintaining a reasonable price while keeping the usual design aesthetics. The interaction with the community of gamers has been very interesting and fruitful for this use case.



Figure 35. Gamer chair digital prototype developed in use case 2 (Spanish cMDF)

3.7. Engagement and collaboration via open competitions

A relevant aspect of the open competitions, part of Task 6.4 of the project, is to promote the engagement of iPRODUCE stakeholders. As such, one of the main objectives of the two open competitions organised to date has focused on engaging and mobilising different stakeholders to participate in the project and contribute to the realisation of the iPRODUCE mission.

A *first competition* was *launched* in 2021, titled “**The solutions and services for the prosumer competition**”. Its objective was to “foster stakeholder engagement by allowing for creative ideas and innovative solutions to be explored and implemented within the framework of the iPRODUCE project following the principles of co-design and co-development.” The established *guidelines* allowed for participants to submit their applications to one of the defined challenges, defined with support of the cMDFs, and therefore covering the project’s initial sectors (i.e., furniture, medical, mobility, mechatronics). The awarded applicants would collaborate with one or more of the cMDFs to implement their idea, working remotely and onsite with the cMDF representatives over the course of several months. In the end, the number and quality of the submissions did not allow for the competition to advance as planned, shifting the focus to the second open competition.

Building on the lessons learned from the first competition, a *second competition* was *launched* in 2022, titled “**Open and collaborative innovation competition**”. Its objective, like the first competition, was to “foster stakeholder engagement by allowing for creative ideas and innovative solutions to be explored and implemented within the framework of the iPRODUCE project following the principles of open and collaborative innovation.” While having a similar objective, the approach for the competition, as defined in the *guidelines*, was to structure it into several competitions organised at the local level and managed by the cMDFs.

While a general timeline and *guidelines* were defined for the competition, each cMDF specific competition had its own objective, challenge, prizes and dates. By the end of May 2022, three of the five cMDF competitions had closed and had selected their winners or were in the process of doing so. Through different types of activities, the selected winners in each competition (ranging from individual entrepreneurs to middle school students) will be collaborating with iPRODUCE through the cMDFs.

In the case of the French cMDF competition – “iPRODUCE My Mobility”, which *announced* its results in early May, the winners will get access to coaching on different topics, co-design with the support of the cMDF representatives, specific training on the use of prototyping facilities, among others. These are all relevant collaboration opportunities in the short-term, but also have the potential for other collaboration activities in the future, even after the end of iPRODUCE.

3.8. Cooperation with the support of the Ambassadors

Another important cooperation activity that emerged in the second half of the project (starting at M18) is related to the iPRODUCE Ambassador programme.

The purpose of the programme is to identify and engage early adopters and local makers and consumers (particularly lead users) of the project’s communities (e.g., cMDF networks) to accelerate the development of their collaborative manufacturing processes. The Ambassador Programme has also been designed with the objective of leveraging the outcomes of the social listening techniques that will be developed within iPRODUCE to help the project identify the micro-influencers that could be integrated within the project’s activities.

The Ambassador programme is driven by the project's cMDFs, namely through the organisation of a series of events, including consultation workshops that aim to mobilise early adopters from local communities, and other virtual meetings to ensure regular feedback on the project and results being delivered.

The Ambassador programme has set up a rewards system to ensure there are incentives for the ambassadors to support this process and help attract relevant people and stakeholders into the iPRODUCE communities. Such incentives can include participation in general project meetings or meetings with the iPRODUCE cMDFs.

The Ambassador programme includes more than 20 individuals that are internal to the project (represent one of the project partners) or an external stakeholder. Through the defined identification process, Ambassadors are categorised and defined according to a stakeholder group and sub-group (e.g., makers and maker communities, scientific community); their related expertise; incentives for engagement; and specific contribution to the project.

Currently and as already described, many of the cMDFs are already engaged in identifying their potential Ambassadors that will have a more active role in the project in the coming months as the OpIS tools reach their final versions.

4. Final considerations

This deliverable is D10.5 – Report on cooperation activities 2 of the iPRODUCE project, funded by the European Union’s Horizon 2020 programme. It is the second of three deliverables with a shared objective, namely the provision of a review of the different cooperation activities carried out within iPRODUCE and by its partners from January 2021 (M13) to April 2022 (M28).

Following the approach established for the first report of this nature, deliverable D10.4, this deliverable discusses the cooperation activities carried out from two perspectives: (1) cooperation between iPRODUCE and other external projects, initiatives and/or activities, and (2) cooperation involving specific iPRODUCE partners and stakeholders (mainly within the framework of the cMDF).

It is considered that in the 14 months covered by this deliverable, the number and relevance of the established cooperation activities is noteworthy. On the one hand, iPRODUCE has continued its efforts to engage with its sister projects - OPENNEXT, DIY4U and INEDIT - having led the definition of several collaboration sessions and participated in two online events; on the other, the project’s cMDFs are now well established and carrying out different types of activities that, in one way or another, foster engagement, dialogue and cooperation.

In both cases, the progress achieved has benefited from the establishment of more solid foundations by the project and the respective cMDFs. In the former, this is closely related to the definition and development of the different software and non-software tools and services (i.e., the OpIS and related social manufacturing framework); in the latter, it is related to the clearer definition and progress of the defined use cases and targeted ecosystem. These foundations have enabled the project and its partners to engage in an increasing amount of cooperation activities with value to the project. The cooperation activities have shifted from a promotion-oriented type (despite still being relevant throughout the course of the project) to discussion-oriented, which ultimately can have the biggest impact on the project. It can also be noted that some relief in COVID-19 related restrictions have enabled more face-to-face interaction and events, which have clearly contributed to the social nature and dynamics of the project. As reported in deliverable D10.4, this was a limitation in the extent to which the project could engage with its targeted stakeholders.

As aforementioned, this is the second of three documents that address cooperation activities carried out within the framework of iPRODUCE. The third and final deliverable, to be submitted at the end of the project, will cover the remaining project period.

In the final stretch of the project, with important results emerging in the latter half of 2022 (e.g., OpIS platform, methodologies, and other tools) and discussions on exploitation are increasing in importance, it is expected that cooperation activities continue to take place but now with an additional focus: widening the pool of stakeholders that will use and adopt the iPRODUCE social manufacturing framework, thereby contributing to the project’s long-term sustainability.



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