Open Innovation Collaboration Production Engineering

WHAT IS THE MOTIVATION BEHIND THE PROJECT	
INEDIT	Sustainable mass customisation! INEDIT creates an open innovation European DIT ecosystem for sustainable furniture co-creation. It channels the creativity of consumers, shapes it through designers' professional skills, and makes it viable by leveraging on the expertise of production specialists to deliver sustainable, smart, and personalized new products in a shorter time to market.
OPENNEXT	Pioneering companies have been engaging in open-source hardware (OSH) development but there is no theory for it. Open innovation has been so far mainly limited to ideation and design validation. OSH development considers all stages of product design and development and is based on open design processes. This creates new possibilities of how to co-create customer-centric, sustainable, and viable products with customers, citizens and innovative makers. OPENNEXT converges several initiatives towards innovative actions with SMEs who tend to possess the needed flexibility and local connectedness and stand to benefit greatly from the global knowledge sharing involved in OSH.
DIY4U	The ambition of DIY4U is to address the blockers of product customisation, personalisation and small-scale manufacturing and capitalise on the business opportunity by developing an Open Innovation (OI) digital B2B/B2C platform and Fablabs for collaborative design and small-scale production of personalised or customized soft matter FMCG. The OI B2B/B2C digital platform will allow the European FMCG supply chain, including manufacturers, innovation stakeholders (mostly SMEs) and consumers, to seamlessly collaborate on the digital design and digital testing of new personalised or customised powdered/liquid FMCG. The project will enhance the innovation capacity and competitiveness of the European FMCG sector through decentralized customer-centric production approaches, making Europe a leader in the global FMCG industry of the future.
IPRODUCE	One of the key pillars of iPRODUCE is the promotion of DIY manufacturing, commonly found within makerspaces or fab labs, and which is promising for different stakeholders - SMEs, citizens, and society – and for different reasons, in the manufacturing value chain. Despite the existing benefits, there is still much to be done to promote social manufacturing or upscale successful makerspace/ fab lab initiatives. Recognising the need to further promote and upscale these initiatives, iPRODUCE aims to deliver a social manufacturing platform to enable more interaction and collaboration and support user-driven open-innovation and co-creation.
WHICH MARKET SEGMENT(S) THEY WOULD LIKE TO DISRUPT	
INEDIT	(Customised) furniture market
OPENNEXT	The industries in focus include eco-friendly mobility, consumer electronics, and built-to-order furniture.
DIY4U	Primarily, FMCG- Fast moving Consumer Goods- targeting detergents & soap. The concept will also be adopted in paints & coatings, food & beverages, cosmetic, pharmaceuticals, etc.
IPRODUCE	iPRODUCE is to some extent sector/ market agnostic, as can be seen by the different consumer-goods sectors it covers furniture, medical, automotive, electronics. Our objective is to develop open-innovation solutions that are transversal to all markets. That's how we see the disruption taking place. Showing that open innovation can go hand-in-hand with co-design, regardless of the market. The disruption happens with a change in mind set and greater openness for collaboration. IPRODUCE aims to develop tools and solutions that contribute to this change.

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EXPLOITATION – WHERE DO THEY SEE THE CONCEPT AFTER 5 YEARS	
INEDIT	DIT is intended for co-creating, co-designing, and co-producing together with customers, designers, and producers, especially makers and manufacturing SMEs, for delivering a variety of customizable products and conveying higher customer satisfaction, adoption, and retention rates. The DIT design strategy enables a global open design and open manufacturing allowing local production closer to makers, as they, produce and consume the goods they design. Hence, they become active co-creators that could disrupt the current mass production industry from a local level. The DIT methods and tools would enable a new generation of digital open innovation platforms supporting co-creation communities in a form of distributed and reconfigurable value networks of consumers, professionals, and producers. Benefits for customers are among the following ones: (i) higher product customization according to customers' needs and expectations as well as their specific context; (ii) enhanced user engagement in all product development activities including collaborative production; (iii) IPR protection; (iv) environmentally friendly products; (v) cleaner manufacturing processes;(vi) create and secure local jobs.
OPENNEXT	Market uptake of open-source software has gained significant pace in the 2000s. OSH has only emerged at that point and is associated with significantly higher complexity and resource intensity. In five years, disruptions of further industries to DIY 3D printers is expected. However, this is expected to follow a much more gradual and long-term progression. Yet, potential impacts on pressing sociotechnical issues make increased market uptake desirable and could even create a pull.
DIY4U	During the post-project phase, our plan is to spin out a company named 'DIY4U Ltd' to commercialise DIY4U platform and fablab. We aim to achieve a strong DIY4U membership community and to drive significant global formulation and sales of customised FMCG through DIY4U fablabs and platform by 2035. To achieve this, we will continue R&D, dissemination, and marketing activities. We plan to spend considerable amount of revenue generated from the platform on marketing and R&D activities, respectively. We will employ a strong DIY4U branding strategy during marketing.
IPRODUCE	Under the umbrella of the term 'open innovation' (which is, to some extent, a recent concept) or some other similar concept, we believe that practices associated to open innovation will continue to gain interest and flourish. I think we are in a time where there are many actors in different consumer goods sector and competition is high. One success factor – among others – is the extent to which these actors best address evolving consumer needs. There are many ways to do this, pre- and post- manufacturing (e.g., focus groups, tests, surveys, etc.), but I see a window for increased open innovation by involving users and consumers in a more proactive manner along the manufacturing value chain.

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CHALLENGES AND THEIR PLAN TO OVERCOME THOSE CHALLENGES	
INEDIT	The development of a business model for an open-innovation platform intended to design furnishing objects through user integration and open innovation. A dominant challenge with existing open innovation platforms is the participation of the users and the crowd in the commercial profit of the platform. Innovative users will only be attracted in the long term, ensuring the sustainability of the platform, if they receive sufficient incentives for co-operation. A revenue mechanism considering monetary as well as non-monetary rewards is yet to be developed and only a few platforms exist that are profiting from online collaboration.
OPENNEXT	Our target companies are SME producers/manufacturers as follows within the three industries in focus (see above): 1. Established businesses, 2. Start-ups focused on OSH and/or 3. Activist Companies (social entrepreneurship, non-profits, etc.). The OPENNEXT consortium brings in various capabilities into collaborations with pilot projects of target SMEs who engage in OSH development. These pilots are closely supported from start to end by our makerspace partners who also bring in innovative makers from their networks. The pilots receive guidance on business and collaboration aspects, facilitation on tools, and in the case of collaborations with external SMEs, mentoring from our SMEs who have already undergone the journeys themselves. New tools and service offerings by the makerspaces are also developed and demonstrated.
DIY4U	The approach proposed under DIY4U- OI digital platform and fablab services are not known in the market yet. This will be addressed by development and promotion of DIY4U brand via digital marketing and other channels; and by leveraging the strong network of industrial consortium partners to promote DIY4U visibility in the target market. Another side is the resistance to change and the fear of unknown DIY products. Also, the difficulty to certificate customised/personalised products and the lack of rules and regulation that manage and supervise to the DIY sectors are important challenges for this project. The analysis of data in a wrong way can damage the reputation of fablabs. There is a distinct possibility that blockchain-based value transfer will be outlawed or heavily taxed by authorities to protect the banking sector, thus abolishing the opportunity of using this technology for automating international exchange of goods-for-payments. Finally, cyberattacks against participants and the platform remain a serious risk for the stored private data.
IPRODUCE	A key challenge, as in many other contexts, is to show that there are alternative or complementary methodologies/ processes in the manufacturing value chain, even for those companies that are already successful. Sometimes there's hesitation to changing a winning formula. So, the challenge is to bring these other processes, tools, or technologies (some which are being explored in iPRODUCE) to the attention of manufacturing companies, big or small, and to show actual evidence of their value and other benefits. Our plan is to expand from our established collaborative manufacturing demonstration facilities and integrate additional actors to take part in open innovation processes, to let them experience in a real context how open innovation processes work, the roles of different actors in these ecosystems, and to shed a light on the value that they provide. Equally important is the development of digital tools that feed into the processes, which can enrich the value of open innovation in the manufacturing value chain.

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WITH THE PROJECT FOCUSING ON SUCH A SPECIFIC SECTOR SUCH AS FURNITURE MANUFACTURING, WHAT ARE THE MAIN PROJECT OUTPUTS CONSIDERED OF VALUE FOR OTHER SECTORS?	
INEDIT	The project consists of two parts: Co-creation and open manufacturing. The tools for co-creation can be applied to any other kind of item. As parts of the open manufacturing process utilise 3D printing, any other shape can be produced. The project chose the production of furniture as a demonstrative market. The project's solutions to the main challenges addressed, such as virtual co-creation, the logistical organisation of an open manufacturing network, and the environmental and economical sustainability will be valuable in other industries and advance the feasibility of Open Innovation in general.
HOW DOES THE OPEN-O-METER WORK?	
OPEN NEXT	The Open-o-Meter is a simple way of measuring how open a product is. It translates the four freedoms of open-source hardware (to study, to make, to modify, to sell) into eight binary criteria (availability of technical drawings, published under open licenses, sharing of original files, use of versioning control systems, etc.). If all of them are met, a product can be considered as open-source hardware. Yet the Open-o-Meter measures all criteria to reflect the gradual nature of the concept of openness.
HOW DO YOU OFFSET COMPETITIVE PRESSURE INDUCED BY ECONOMIES OF SCALE?	
DIY4U	The DIY4U focusses more on personalisation and customisation of products. Long term plan is to manufacture 'speciality production' with value-added commodities. These features together with 'environmental friendliness' and 'low-waste' characteristics must be highlighted and marketed. With the aim of disrupting traditional 'mass production', we have been focussing on defining new business models considering different user cases for B2C and B2B highlighting the benefits of different stakeholders. On the other hand, modularity, and intelligent design of Fablabs and digital platforms will make it adaptable to large range of products with minimal changes in design. This is how we become more cost effective.
HOW DO YOU PLAN TO ADDRESS IPR ISSUES WITH DIFFERENT STAKEHOLDERS?	
IPRODUCE	Within our project activities, we've been looking at this issue with interest. In fact, in one of our surveys we asked stakeholders what type of protection methods they're most aware of or use in their work. We saw that patents and copyrights are the most common and preferred, but that smart contracts are of interest as well. In iPRODUCE, smart contracts – Ricardian contracts in particular – is something we will be pursuing extensively as part of our open innovation activities. Not only do these contribute to the automation of the relation and rules of engagement between different actors, but they are also characterised as being more robust, efficient and transparent. And it should be highlighted that transparency is a key value in any open innovation activity, reason for which this type of smart contract will be our main approach.

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	WHAT IS THE EC'S OVERALL POSITION ON OPEN INNOVATION/OPEN SOURCE STANDARDS AND REGULATIONS?
EUROPEAN COMMISSION	Our main policy document is the SRIA of Made in Europe, which covers parts: SRIA full chapters For more details see Open Innovation 2.0 The European Commission is in favour of open standards, which are part of the priorities of the single digital market. For more details see Communication ICT standardisation priorities digital single market Excerpt: "The actions identified in this Communication aim to raise the political and strategic importance of ICT standardisation as a crucial element of the Digital Single Market, in response to growing global competition. They aim to improve the focus, agility and efficiency of the standards setting system in ICT. They encourage new approaches in standardisation, such as promoting community building, attracting new sectors, promoting open standards and platforms where needed, strengthening the link between research and standardisation, including testing of the standards, promoting consistent application of standards and their uptake by the market, developing when needed certification schemes."
	HOW IMPORTANT ARE APPROACHES FOR LOCAL PRODUCTION AND DISTRIBUTED MANUFACTURING OF CONSUMER GOODS FOR THE EC?
	Local production and distributed manufacturing are important approaches for several reason: 1. It increases resilience of the supply chain (think of the ventilators/masks that were not reaching Europe); 2. It reduces pollution and material waste as on-the-spot production would reduce transport and avoid the mass production and storage of objects in warehouses.
	HOW DOES THE EUROPEAN COMMISSION SEE THE ROLE OF CITIZENS IN FUTURE PRODUCT CREATION?
	For details on the future of products and involvement of citizens, and the changing work environment due to automation/robots, the EC currently develops the Industry 5.0 approach

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