Social Manufacturing
Reference Model and Framework Evolution

The Social Manufacturing Paradigm: co-creating with manufacturers, makerspaces and consumers, 26 November 2020

Dr. Ria Pechlivani
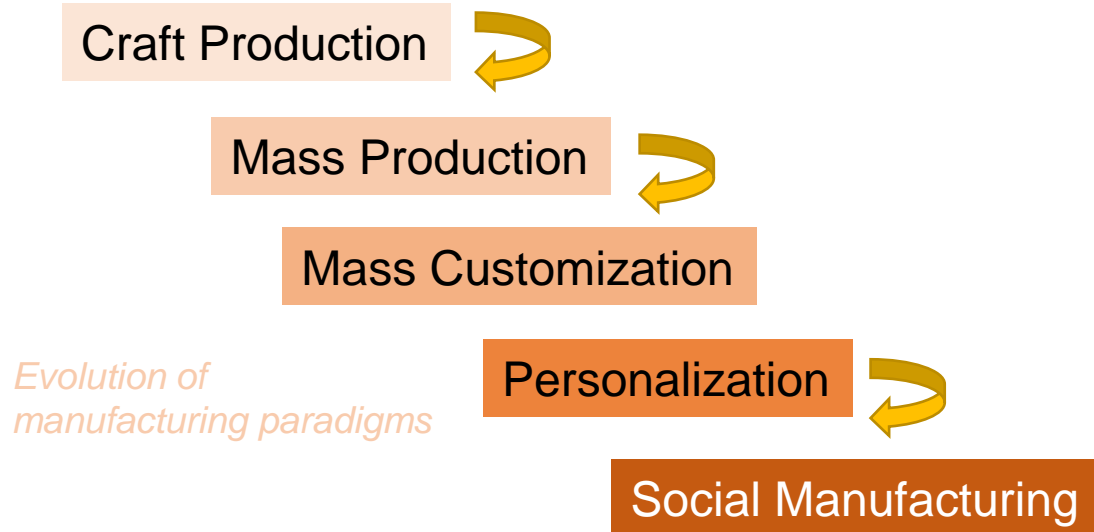**Senior Researcher Grade C, CERTH**
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Social Manufacturing

Social manufacturing is associated with the maker and Do-It-Yourself (DIY) movement

o design and manufacture high personalized goods

o additive manufacturing technologies

Craft Production

Mass Production

Mass Customization

Evolution of manufacturing paradigms

Personalization

Social Manufacturing

Stakeholders under Social Manufacturing

Key stakeholders identified by iPRODUCE:

- ▪ **Manufacturing enterprises**

  mainly SMEs and/or mid-caps

- ▪ **Makers communities**

  DIY, Fablab, makers spaces, start-ups

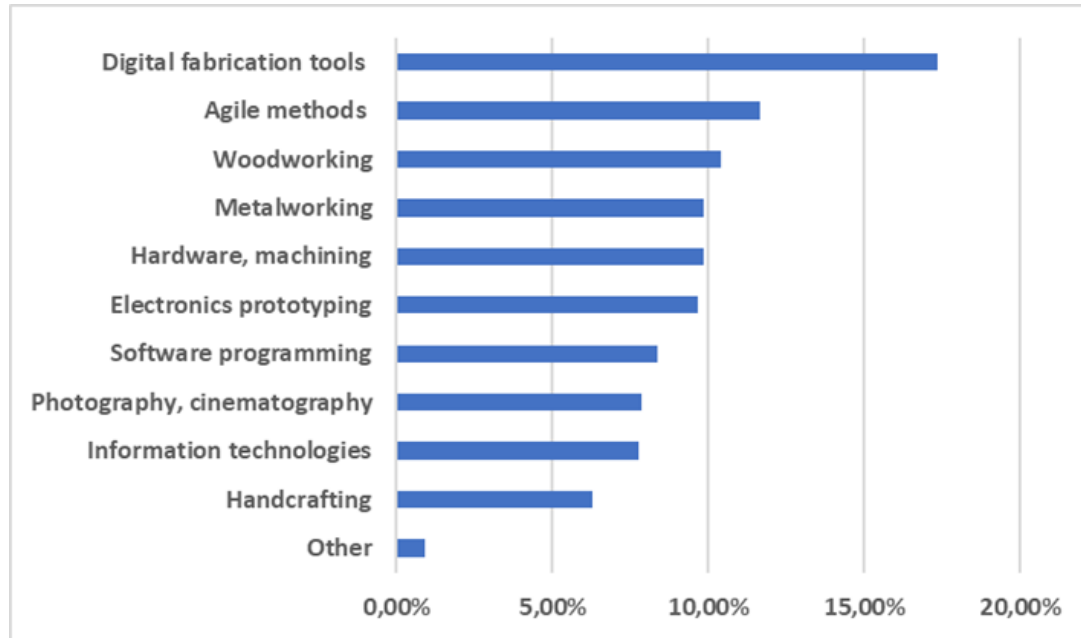- ▪ **Prosumers**

- ▪ **Consumers/Buyers**

- ▪ **Manufacturing & Demonstration facilities**

  Competence Centers, DIHs, Test beds, Research/Technological Centers and Institutes, Associations, Universities

| Type of organisation	Value
Others	2,27
Microenterprise or SME	20,45
Technology centre	4,55
Non-university public institution or public company	9,09
University research group or center	15,91
NGO, not-for-profit foundation or association	11,36
Cooperative or social enterprise	2,27
Users comunity or informal group	9,09
Colegio de primaria o Instituto de enseñanza secundaria	4,55
Occupational training centre or High Institute	2,27
Start-up	2,27
Professional or business Association	15,91

Type of organisations in SM

Stakeholders under Social Manufacturing

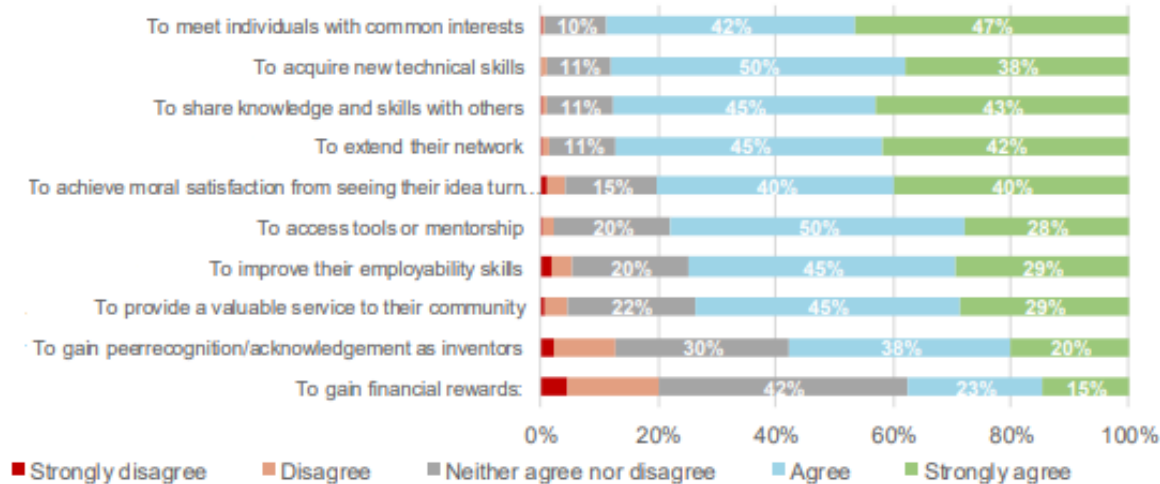**Types of activities that stakeholders are willing to implement through their potential participation in SM**

❖ *D2.3- the survey has been conducted in 6 EU countries*
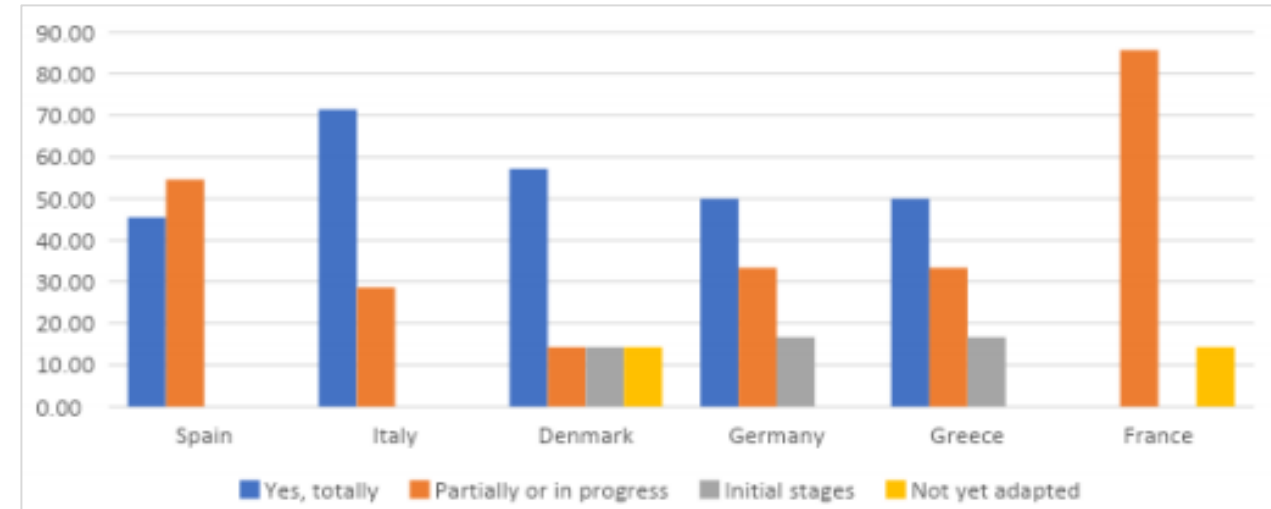
SM spaces which are sufficiently adapted to the needs of users

Stakeholders Main Needs

❖ *D2.1- the survey has been conducted in 6 EU countries*

Drivers for participation in social manufacturing: **consumers/makers**

Driver	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
To meet individuals with common interests			10%	42%	47%
To acquire new technical skills			11%	50%	38%
To share knowledge and skills with others			11%	45%	43%
To extend their network			11%	45%	42%
To achieve moral satisfaction from seeing their idea turn..			15%	40%	40%
To access tools or mentorship			20%	50%	28%
To improve their employability skills			20%	45%	29%
To provide a valuable service to their community			22%	45%	29%
To gain peer recognition/acknowledgement as inventors			30%	38%	20%
To gain financial rewards:			42%	23%	15%

■ Strongly disagree ■ Disagree ■ Neither agree nor disagree ■ Agree ■ Strongly agree

Drivers for participation in social manufacturing: **manufacturing SMEs**

Driver	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
To develop more personalised products			13%	52%	30%
To test new product designs and evaluate the product...			17%	45%	35%
To identify new commercial opportunities			17%	47%	31%
To share vision with customers			20%	45%	30%
To enhance their co-creation culture			21%	43%	30%
To increase efficiency (e.g. meet rapid demands changes)			24%	42%	25%
To optimize resources			30%	37%	22%
To reduce the cost of developing products and services			29%	42%	17%
To become more self-aware on sustainability issues			34%	32%	19%

■ Strongly disagree ■ Disagree ■ Neither agree nor disagree ■ Agree ■ Strongly agree

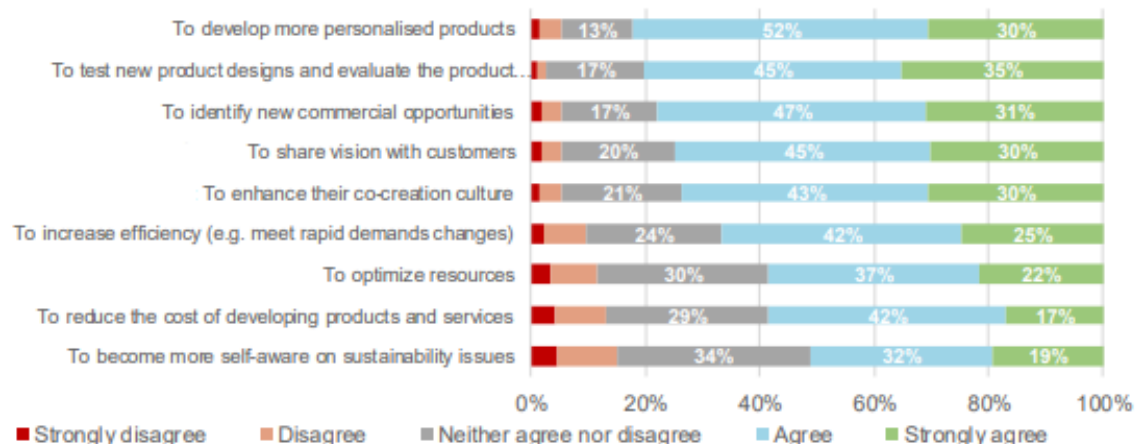The most important drivers towards participating in SM:

For consumer/makers

o acquiring new technical skills
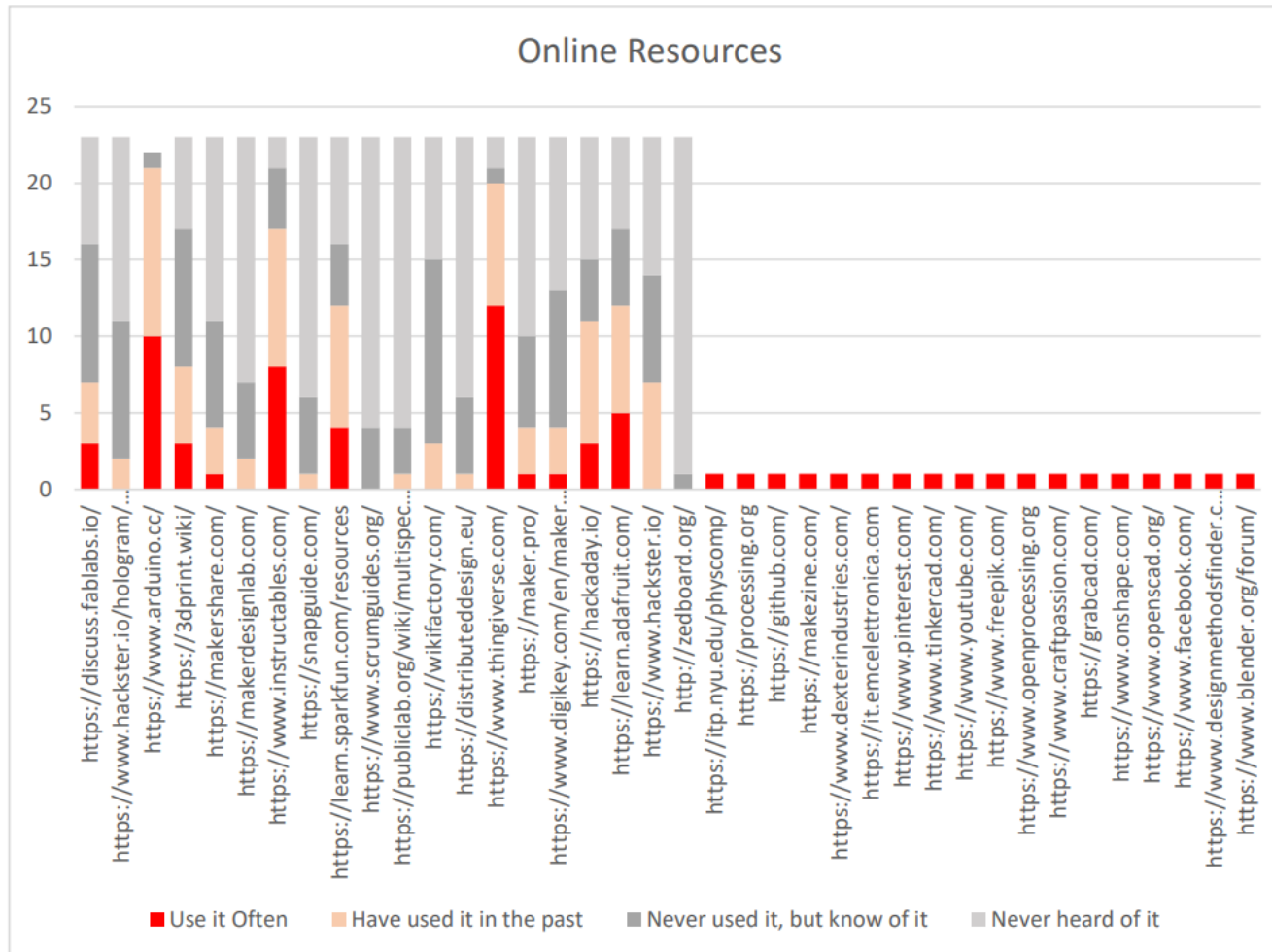
o Access tools or mentorship

For manufacturing SMEs

o developing products that better reflect personal needs

o identifying new commercial opportunities

Over 100 co-creation and co-production tools, resources as well as communication platforms have been identified

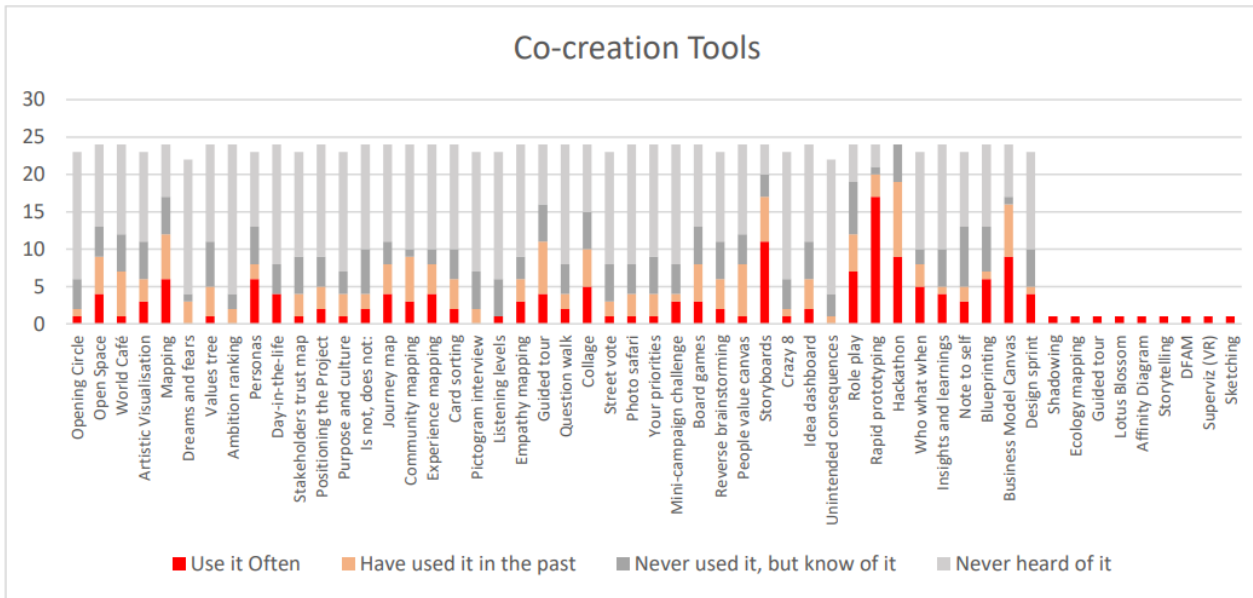❖ *D2.4- the survey has been conducted in EU countries, Brazil, Japan*

Online Resources

Online resources - covering online sites and platforms

Most Popular
o Thingverse
o Arduino
o Ada Fruit
o Sparkfun
o Hackday

6

Methods, Functions, Services & Tools used by Stakeholders

Co-creation Tools

Communication Tools

Co-creation/co-production resources – covering various activities, models and services

Most Popular

- o Low-fidelity prototyping
- o Sketching
- o Storyboards
- o Hackathon
- o Business Model Canvas
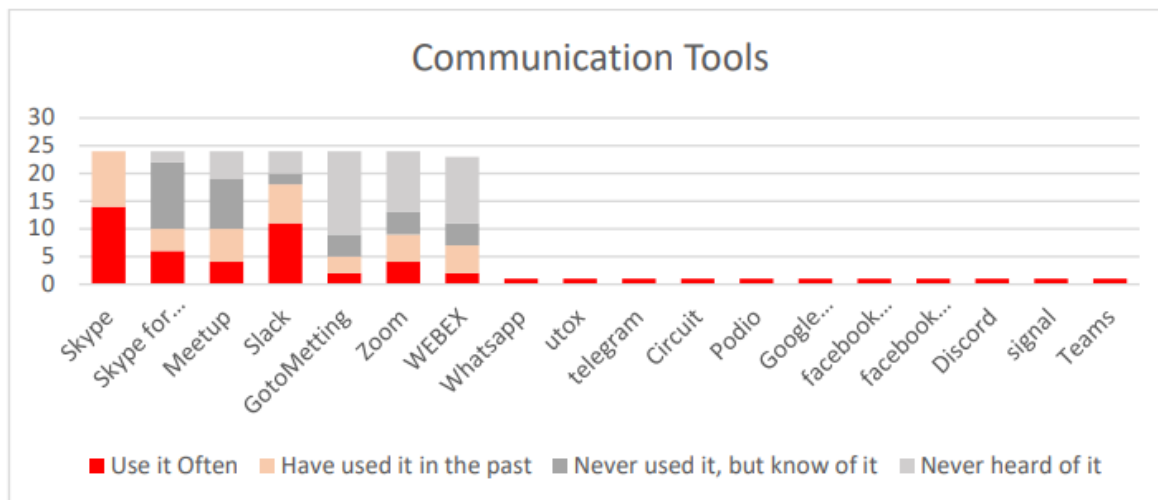
Communication resources – communication platforms and services

Most Popular

- o Skype & Skype for Business
- o Slack
- o Meetup
- o Zoom

7

Stakeholder's Business, Operational & Technical Challenges

Business Challenges

Operational & Technical Challenges

- Funding and sustainability difficulties
- Geographical location or poor access
- Lack of specialization
- Lack of connection with other spaces
- Lack of innovation culture
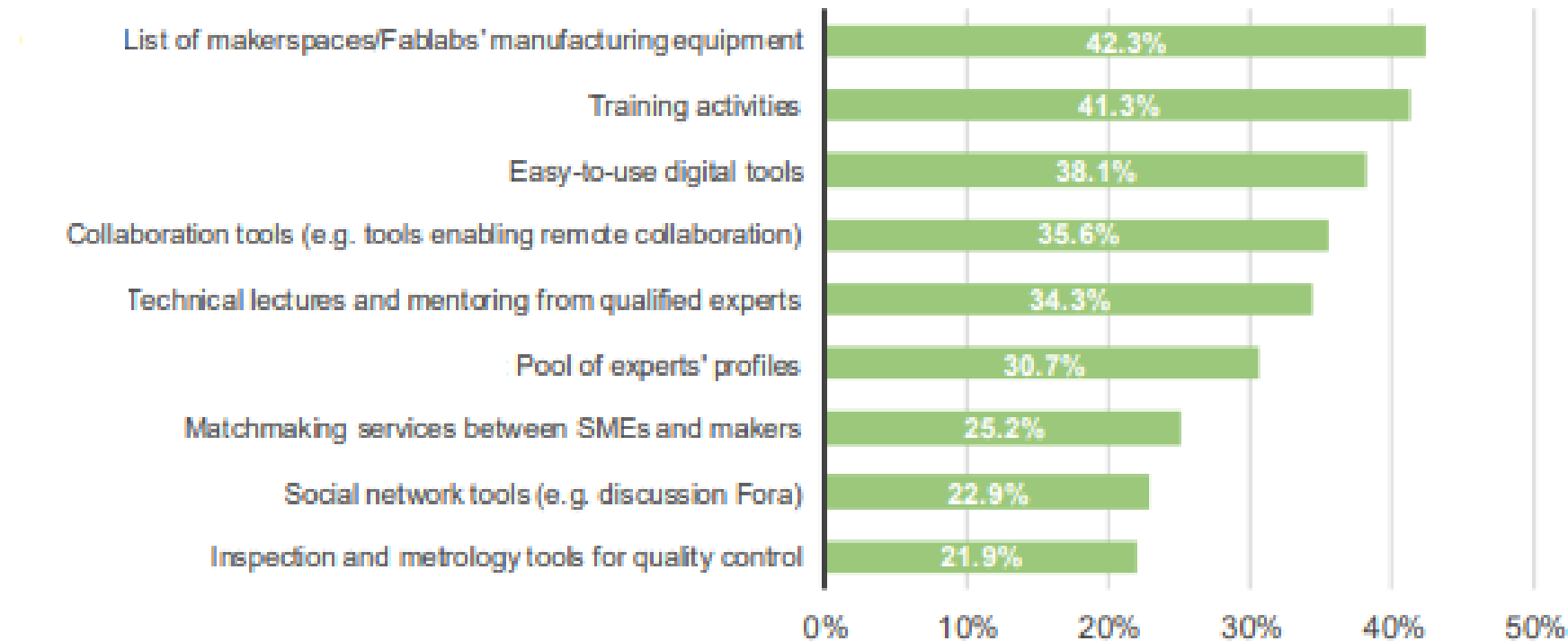- Lack of IPR protection

❖ *D2.3- the survey has been conducted in 6 EU countries*

- Constructing an appropriate ecosystem with open culture
- Lack of persons dedicated to communication
- Lack of digital tools to facilitate innovation
- Lack of appropriate space and infrastructures
- Not specializing or seeking new training niches
- Production of customized and personalized products

Stakeholders Preferations in a Digital Platform for Social Manufacturing

❖ *D2.1- the survey has been conducted in 6 EU countries*

Feature	Percentage
List of makerspaces/Fablabs' manufacturing equipment	42.3%
Training activities	41.3%
Easy-to-use digital tools	38.1%
Collaboration tools (e.g. tools enabling remote collaboration)	35.6%
Technical lectures and mentoring from qualified experts	34.3%
Pool of experts' profiles	30.7%
Matchmaking services between SMEs and makers	25.2%
Social network tools (e.g. discussion Fora)	22.9%
Inspection and metrology tools for quality control	21.9%

Features considered to be extremely crucial in a Digital Platform for Social Manufacturing

iPRODUCE Digital Open Innovation Space (OpIS)

Architecture & Design for Social Manufacturing

Conclusions
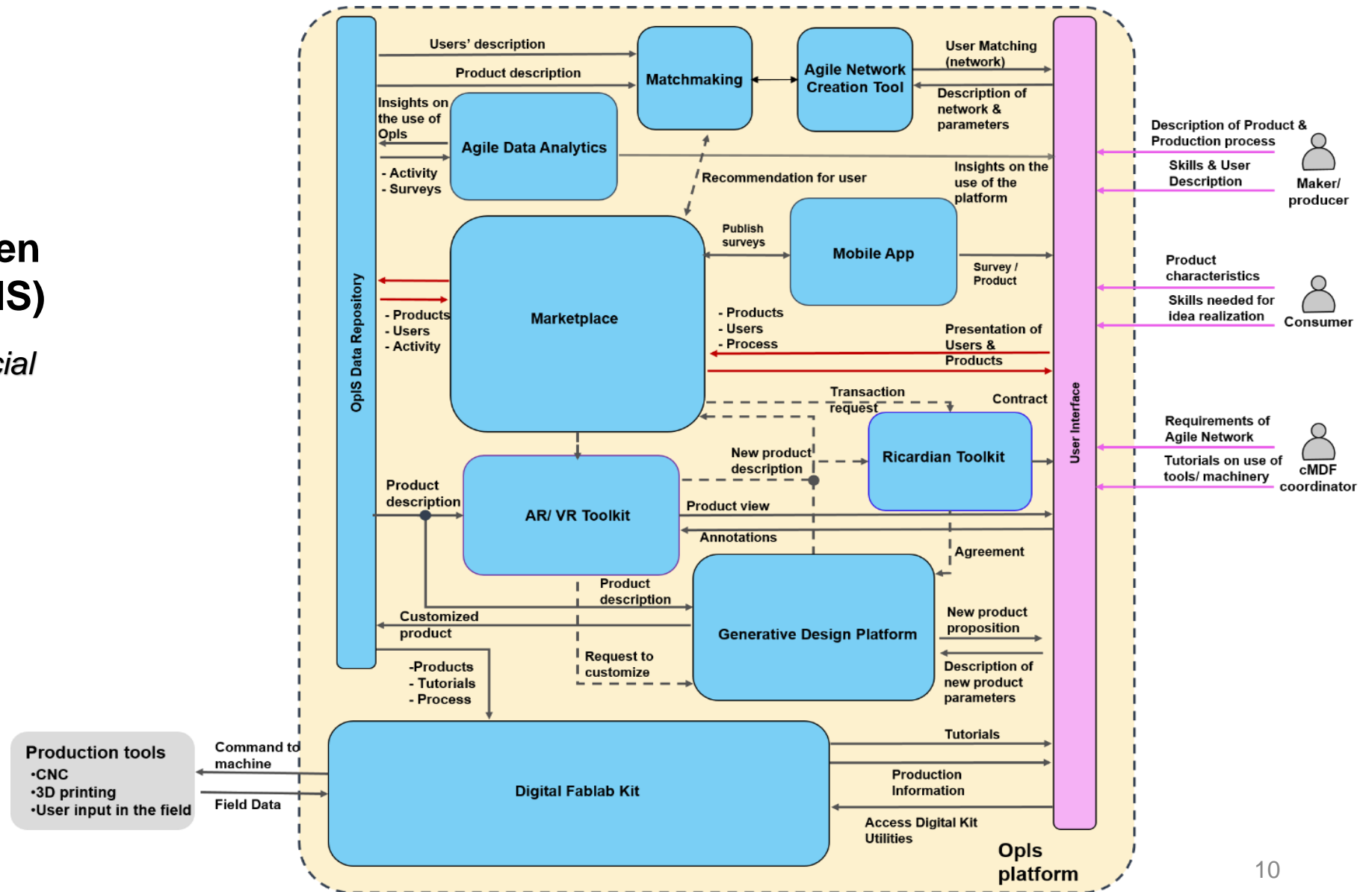
iPRODUCE Digital Platform tackles Social Manufacturing Challenges by

o "Do it Together"

o Connect other Social Manufacturing Spaces through OpIS

o Digitize the Processes to Facilitate Innovation

o Design Thinking, New Ideas, Co-creation & Funding Opportunities

o Digital Training and Increase Users Participation by Digitization

PRODUCE

Thank you

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