

# PLAN FOR COLLABORATION WITH OTHER I4MS PROJECTS AND DIHS ON THE ACTIVITIES DONE AND THE PLANS FOR THE NEXT PERIOD D7.8

Circulation:	Public (PU)
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Version:	3.0
Date:	01.11.2021

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#### DOCUMENT HISTORY

Version <sup>1</sup>	Issue Date	Stage	Content and Changes
1	01.09.2021	1.0	First Version
2	28.10.2021	2.0	Inputs from cloudSME
3	01.11.2021	3.0	Version to be submitted to EC

<sup>1</sup> Integers correspond to submitted versions

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## LIST OF ABBREVIATIONS AND DEFINITIONS

<b>AE</b>	<b>Application Experiment</b>
<b>CA</b>	Consortium Agreement
<b>CSA</b>	Coordination and Support Action
<b>DIH</b>	Digital Innovation Hub
<b>DoA</b>	Description of Action
<b>EC</b>	European Commission
<b>FSTP</b>	Financial Support to Third Parties
<b>GA</b>	Grant Agreement
<b>H2020</b>	Horizon 2020
<b>IA</b>	Innovation Action
<b>IAs</b>	Innovation Actions
<b>KPI</b>	Key Performance Indicator
<b>SAE</b>	Smart Anything Everywhere
<b>SME</b>	Small and Medium sized Enterprise

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## 1 INTRODUCTION

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This document has been elaborated by Fraunhofer IGD with the input and support of I4MS4Ts (I4MS Tools and Technologies for Transformation), phase 4 of the I4MS Coordination and Support Action (CSA). During the first three years of CloudiFacturing Innovation Action, from 2017 to 2020, the collaboration with the CSA took place with I4MS-Go (I4MS Going to Market), phase 3 of the I4MS CSA. The cooperation of CloudiFacturing with both phases was characterized by continuous and successful exchange of information and joint activities. The deliverable describes the measures that have led to successful collaboration between the Innovation Actions, Digital Innovation Hubs and SMEs. Each individual measure has been used and implemented differently by the individual IAs. How CloudiFacturing has used these measures for itself will be described in the following chapters. Some of communication activities have been organized by our partner cloudSME and described more in detail in Deliverable 7.4.

I4MS – ICT Innovation for Manufacturing SMEs, is a Coordination and Support Action (CSA) and a European initiative supporting manufacturing Small and Medium sized Enterprises (SMEs) and mid-caps in the widespread use of Information and Communication Technologies (ICT) in their business operations.

The idea of the I4MS CSA initiative is to enable and foster the collaboration of manufacturing SMEs and mid-caps across their value chains through the help of European competence centres/innovation hubs (such as HPC centres, universities, application-oriented research organisations) in cross-border experiments to create a win-win situation for all actors, allowing SMEs to apply to open calls for technological and financial support to conduct experiments testing digital innovations in their businesses.

I4MS4Ts has the aim of improving the performance and the impact of the I4MS initiative, by creating synergies between Phase 3 IAs (AMable, CloudiFacturing, L4MS and MIDIH) and the 8 different projects belonging to I4MS Phase 4: VOJEXT, AI Regio, DIGITbrain, Pulsate, DIHWorld, Better Factory, Change2Twin and KITT4SME. Defining a set of common activities on specific topics will facilitate adding value to the ecosystem offering a consistent message and paving the way to new business opportunities for the IAs.

Now in phase 4, the projects aim at accelerating the uptake of digital technologies in processes across Europe, with the focus on extending the transformative impact to companies, regions and sectors lagging, and supporting personalised and cost-effective small-scale production based on secure digital technologies.

## 2 DELIVERABLE OVERVIEW

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The role of the IAs is key to put the digital transformation closer to SMEs and mid-caps by providing the right combination of digital technologies in five technology areas considered as a priority under I4MS Phase 4 for the digital transformation of companies in the manufacturing sector:

- (i) smart modelling; simulation; optimisation for digital twins;
- (ii) laser-based equipment in advanced and additive manufacturing;
- (iii) innovative artificial intelligence in manufacturing and cognitive autonomous systems;
- (iv) human-robot interaction technologies, to ensure human acceptance and
- (v) Widening Digital Innovation Hubs.

The deliverable describes the methodology to develop a common framework of collaboration with the Innovation Actions, some of the activities proposed to be validated with the I4MS IAs, the actors

involved in its implementation, the main means of communication to run the engagement programme and expected results to be achieved through this collaboration plan.

### 3 JOINT ACTIVITIES BETWEEN IAS AND THE CSA

I4MS4Ts endeavors to reinforce the collaboration and join brand visibility between the IAs funded under the I4MS umbrella by providing several joint activities foreseen to strengthen and ensure the sustainability of the I4MS ecosystem beyond the end of the Coordination and Support Action (CSA).

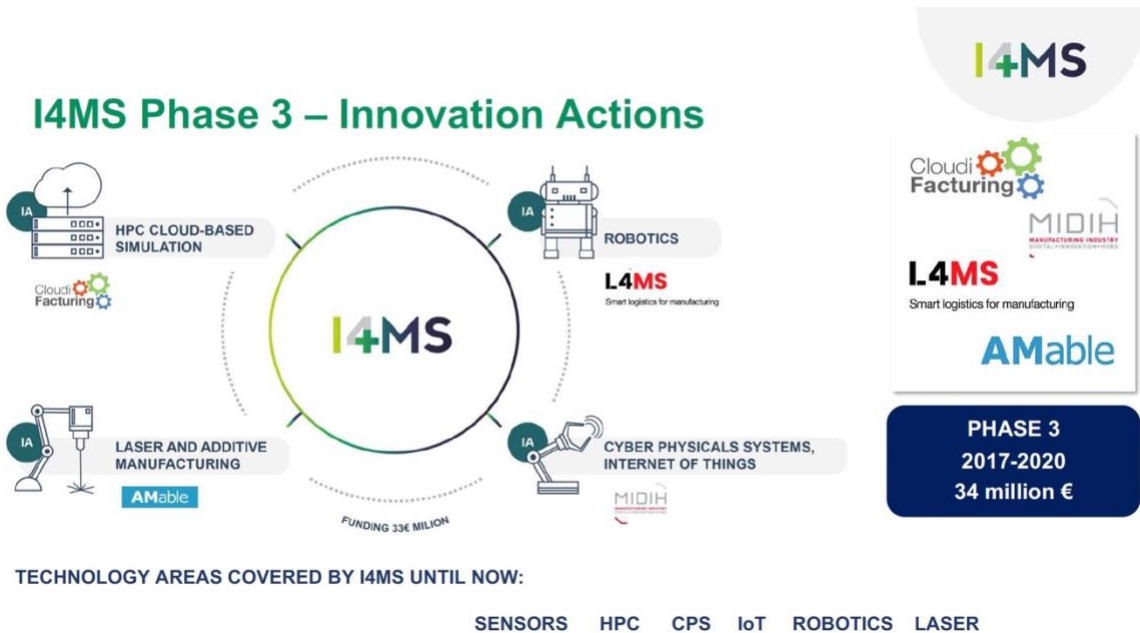


Figure 1: I4MS Phase 3 – Innovation Actions

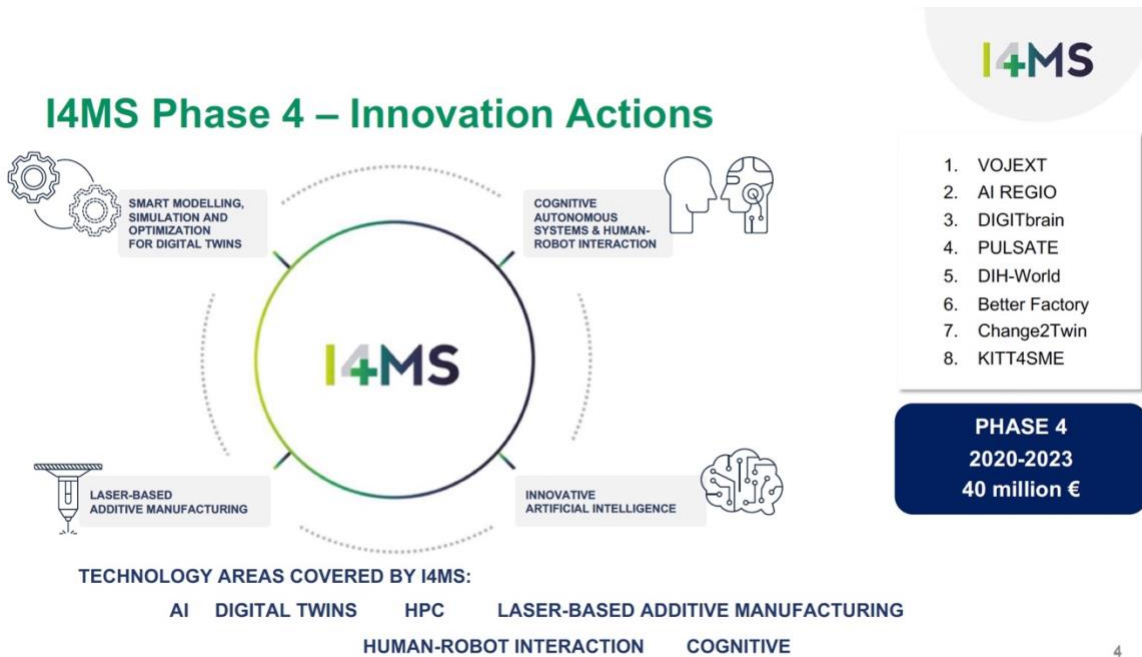


Figure 2: I4MS Phase 4 – Innovation Actions

Based on previous experiences and working towards a common I4MS brand, the focus is on joint activities considering I4MS whole value proposition, including IAs offers and activities (see Figure 3). Therefore I4MS4Ts has developed the first proposal of I4MS joint value proposition that will need to

be validated and adapted with the support of the Innovation Actions. I4MS4Ts has grouped the different activities around the IAs, and CSA offer in order to identify potential synergies, share and join efforts to reach individual project goals and the ones related to the whole I4MS initiative. The focus of this fourth phase is on helping service suppliers (IAs, DIHs and CCs) to provide a business-oriented description of the technological services they offer, complemented with Best Practices identification. Considering the proposed value proposition (see Figure 3), the joint activities are grouped around the following topics:

- a) Business Services
- b) Community and brokering system
- c) Access to new markets
- d) Training
- e) Communication Services
- f) Success stories

The activities included under each of the value proposals have been tentative, based on the work performed during I4MS-Go, phase 3, and need to be completed with the support of the IAs. The proposed activities for joint action are focused on joining efforts and improving I4MS impact.

### 3.1 Business Services

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I4MS focuses on offering support services to manufacturing SMEs. IAs have provided technical support and cascade funding for the implementation of more than 490 Application Experiments, 280 implemented in Phase 1 & 2 [[Source: I4MS Phase 2 Brochure, Sept.17](#)] and 112 in Phase 3 [[Source: I4MS Phase 3 Brochure, Sept.2019](#)] and it is expected this number will reach approximately 700 AEs by the end of Phase 4 (8 projects, average of 30 per project).

I4MS4Ts is assisting and helping the IAs in offering support to SMEs via the brokering system and promotion activities, such as awareness campaigns, events participation, and online activities, such as webinars and Q&A in the online community.

#### 3.1.1 Creation of joint portfolio of services

Another common activity that is promoted by the CSA is to create a joint portfolio of business services that can be offered to the manufacturing SMEs and IT providers via the brokering system. Elaborating a common portfolio of services uniting all I4MS project offers will facilitate the communication and dissemination of CSA activities towards the targeted audiences, increasing the chances to generate deal-flow.

To create a joint portfolio, IAs have been asked to contribute and inform about the activities related to the services they will be offering to manufacturing SMEs and/or to IT providers. This activity will be reinforced by the training organised by the CSA on culture matching. A training developed with the sole purpose of helping IAs and DIHs develop a customer-oriented description of their services specifically matching the needs of manufacturing companies.

#### 3.1.2 Access to funding

I4MS4Ts is in dialogue with other networks and stakeholders, including national or regional innovation support agencies, to raise awareness about the results of the I4MS initiative and contribute to coordination efforts supporting the digital transformation of manufacturing industries.

The quest of additional funding opportunities and alignment with regional and national policies on digital transformation is a common topic in most of EU projects, therefore joining forces in reaching



regional authorities and positioning I4MS in policy-making discussions will contribute to a higher impact and greater interest of regional authorities in I4MS technologies and offer.

An activity related to the topic of access to finance that will be put in place by the CSA is a series of online training sessions targeting the best-in-class experiments. The IAs together with the CSA could also work towards the creation of a joint support programme for the manufacturing SMEs having participated in I4MS Open Calls to leverage Application Experiments' results and facilitate the access to additional funds, allowing a full deployment of the tested technologies.

The winners of the **Disruptors Awards** (see also chapter 8) together with the 5 best performers of each IA will be invited to benefit from the training programme offered by FundingBox Accelerator (FBA) on access to additional public and private funding opportunities. The selection of the best performing SMEs will be done considering the criteria to grant the I4MS and SAE label.

## 3.2 Community and brokering system

The key objective of Phase 4 is to consolidate the collaboration in the pan-European network of DIHs, therefore the CSA has offered the online community and brokering system to the Innovation Actions - a tool to engage with the ecosystem and attract potential applicants to their open calls, websites and services.

All IAs have been invited to have their own communication channel in the I4MS online community and invited to disseminate, organise, and share information among the 1,000 community members that are currently part of the I4MS community.

### 3.2.1 I4MS Online Community

The community is a continuation of the previous I4MS Community set up in phase 3 (I4MS - GO project) on the FundingBox Platform offering a place for all members of the ecosystem to interact, find synergies and get valuable information. The I4MS CSA will invite the IAs to the community to share their own content, engage in cross-regional collaborations and build partnerships, promote technology transfer, and exchange information. Also, a specific space to communicate about their projects will be created upon request to take advantage of the current existing I4MS community.

I4MS Online Community will be offered as an additional tool of communication for the IAs, reinforcing the work under the I4MS brand and bringing all stakeholders together. A webinar on the use of the community, tips to publish content that contributes to members engagement was organised at the beginning of the IAs' calls. From the CSA, a proposal of the content calendar is shared with the IAs interested in having their own space.

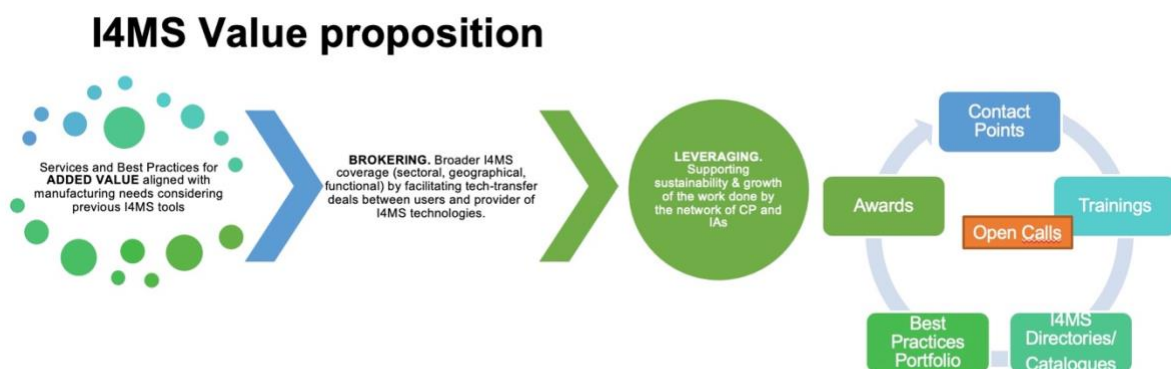


Figure 3: I4MS Value Proposition

To facilitate this, the I4MS Community is structured as depicted above and offers different tools:

- **Spaces:** for sharing content, news, events, funding opportunities and for smooth messaging and networking. The IAs will have their own public space within the I4MS Community.
- **Collections:** This tool helps to find useful information. It is equipped with a search engine that allows all community members to get some specific content in a few seconds. Three I4MS Collections are created within the community:
  - (1) Open Calls – to share all funding opportunities;
  - (2) I4MS Project & Marketplace – to gather I4MS related information in one place;
  - (3) Portfolio of Best Practices - to showcase solutions and success stories from the manufacturing industry.
- **Articles, Events and Questions:** These different collections allow members to publish or read articles, create, or share events and raise any questions related to the topic of I4MS or to the whole manufacturing industry. Moreover, webinars can be organised in FundingBox Meetings, GoToMeetings or GoToWebinar.

One of the main objectives of the CSA is to support IAs in the Open Call dissemination, communication about their project results and generate interest in their projects. Therefore, I4MS with the support of the Innovation Actions has organised Q&A sessions (one every two months) and 2 webinars per quarter on support for the digital transformation of the manufacturing sector, covering topics of interest for our target audiences with a special focus on the Open Call dissemination. 13 webinars and Questions and Answers sessions during the last 18 months of phase 3 (1 Sept 2018 and 31 Jan 2020) were organised jointly by the CSA and IAs. The topics of the Q&A sessions and webinars will be discussed during the IAs calls.

The IAs have been invited to organise other events or activities, such as to disseminate open calls, organise Q&A sessions with potential applicants and other collaboration opportunities they offer in the I4MS online community. Examples of the support offered by the CSA to organise webinars and Q&A sessions about the Open Calls:

- For Webinars, the CSA creates a microsite for the event and a registration page. I4MS CSA also sends detailed information about the webinar before it takes place and sets up the meeting in an online conferencing system tool.

See also the dissemination and communication activities of CloudiFacturing, which are described in detail in deliverable 7.4, section 6 to 9.

#### **4.2.2 Collaboration with related ecosystems**

Dissemination and networking strategies are key to establish cooperation with other initiatives under the umbrella of the Digital Single Market promoted by the European Commission. Collaboration needs to be focused on joining efforts and finding synergies in project execution and positioning I4MS4T strategically to build an ecosystem, reputation, and trust by:

- Widely promoting the I4MS IAs, Digital Innovation Hubs, I4MS training and technologies, with particular attention to underrepresented regions and sectors.
- Coordinating efforts with other CSAs to increase Open Calls application rates and impact of successful Application Experiments.
- Positioning I4MS community and brand in the digital transformation debate and in the dialogue with other Hub CSAs and initiatives such as EFFRA, DIHNET, SAE and PPPs.
- Disseminating projects in the European arena and therefore among Clusters and Associations of the European, National and Regional ecosystems, such as Vanguard, EURADA, S3 platform, ...

I4MS4Ts, together with the IAs, has identified opportunities for collaborating in events, communications and activities organised by other initiatives to look for joint participation and represent the interest of I4MS IAs.



**I4MS Opportunities for the digital transformation of manufacturing SMEs**

25.03.2021, 9:30 – 10:30 (Central European Time)  
Online, [Via Google meets](#)  
**Draft agenda**

I4MS initiative works with top research organisations across Europe to offer funding, easy to access platforms and service for digital transformation to manufacturing SMEs. I4MS projects offer solutions to improve SMEs production processes, products or business models with digital technologies. During this session participants will be informed on the available opportunities and getting practical information on how to benefit from I4MS support.

**9:30 – 9:40 Event presentation and I4MS introduction**

- Maria Roca, Senior Project Manager at FundingBox and I4MS Project Manager

**9:40 – 9:50 AMable: Additive manufacturing services end-to-end**

- Ulrich Thombansen, AMable Project Coordinator, Fraunhofer Institute for Laser Technology ILT

**9:50 – 10:00 I4MS: RAMP – robotics Automation Marketplace**

- Ali Muhammad, I4MS Project Coordinator,

**10:00 – 10:10 CloudiFacturing: EMgora digital workspace for engineering**

- Andreas Ocklenburg, CEO of CloudSMEs

**10:10 – 10:20 MIDIH: Marketplace for supporting CPS/IoT adoption and SME digital transformation**  
Susanne Kühner, MIDIH Project Coordinator.

**10:20 -10:25 Q&A**

**10:25 -10:30 Conclusions & future opportunities**

- Maria Roca, Senior Project Manager at FundingBox and I4MS Project Manager

Figure 4: I4MS and CloudiFacturing at EU Industry Week 2021

### 4.2.3 Brokering system

I4MS' Brokering Tool linked to the I4MS Community is a service that will facilitate access of interested companies to the most appropriate support resources available within the I4MS ecosystem.

Companies interested in Open Calls or any of the services offered by I4MS projects under the initiative will be invited to fill in a brief questionnaire that will generate an electronic ID with company profiling. Later, the CSA will match the company with I4MS Contact Points, being DIHs, IAs or other entities that can support manufacturing SMEs in their queries.

IAs will receive the profile of the companies interested in their services – Open Calls, technology solutions, services...- to offer detailed information and support. It is a tool that allows to track the interest, request services, and monitor the participation of manufacturing SMEs and IT providers in I4MS.

### 3.3 Training

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Previous experiences and being in contact with manufacturing SMEs showed that there is a need for a better understanding of the application and advantages of different technologies in daily business operations, which prevents the 'late majority' of manufacturing companies to initiate the digital transformation process.

To this end, I4MS4Ts, together with the IAs interested in joining this activity, is providing tools, training, and materials, to SMEs and mid-caps to understand the potential of advanced manufacturing technologies. This action will contribute to shifting the mentality that digitalisation is costly and make them more prone to pay for services related to digital transformation or decide to participate in I4MS Open Calls or benefit from other opportunities.

#### 3.3.1 Training activities

The training activities are as follows:

- **Enlarge and improve the current training catalogue** and offer accompanying training measures. This will facilitate the smooth deployment of a specific technology and guarantee its future implementation by the SMEs workers allowing them to adapt their knowledge to the new technology requirements.
- **Culture Matching training** will support DIHs and IAs in providing a clear business value offering descriptions to SMEs. I4MS will organise four culture matching training sessions to help IAs and DIHs to define their portfolio of services in a manner which is clear and attractive to the end users (SMEs, mid-caps), and to efficiently match needs and demands. A training proposal has been accepted by the Innovation Actions which was presented during the I4MS Kick-off event (October 2020).
- In **Open Call management training**, specific attention will be dedicated to the new IAs to help them to organise and elaborate the Open Call documents.

The training activities organised by the DIHs of CloudiFacturing are described in detail in deliverable 7.4, chapter 6.

### 3.4 Communication Services

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Communication and dissemination activities are an important part of all projects. The objective is to maximise the impact of all the IAs and the CSA with the available resources and means of communication. In this line, the CSA has planned different training activities devoted to improving the visibility of the IAs and their communications towards manufacturing SMEs.

The use of the I4MS tools of communication is focused on reaching wider audiences and especially manufacturing SMEs to get acquainted with I4MS available Open Calls, activities and services offered.

#### 3.4.1 Open Calls dissemination

Special communication campaigns are launched to disseminate the information about Open Calls, especially in underrepresented regions. A combination of online (through I4MS online community) and onsite events, together with awareness-raising campaigns and activities to engage key intermediary organisations will contribute to the increase in the number of applicants in I4MS Open Calls.

A starting point of one of the special communication campaigns was a webinar focused on lessons learned, examples of joint collaboration, tips during Open Calls and best practices.

CloudiFacturing was represented by its project coordinator André Stork, who has given an overview about the importance of the Open Call documents.

### 3.4.2 Website

The I4MS website is the main entry point for visitors interested in digitalisation of the manufacturing industry. It is the place to redirect traffic and generate deal flow towards the IAs. All I4MS projects are invited to publish information in the I4MS website about ongoing activities, highlighting the information on the Open Calls, contributing articles about their projects, news, and crosslinking websites.

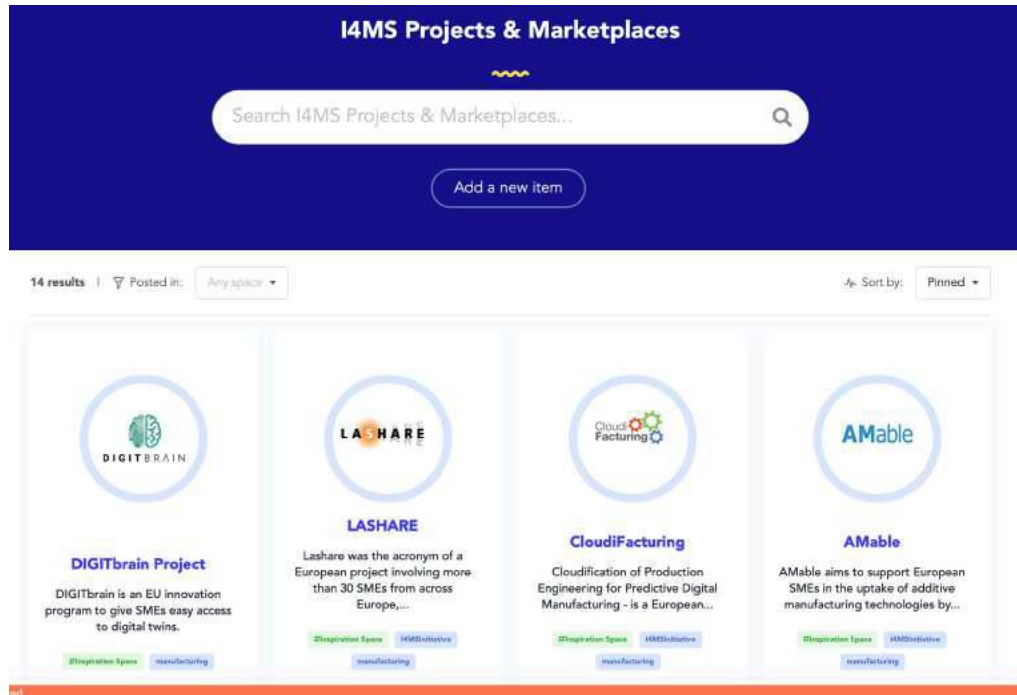


Figure 5: The Innovation Ecosystem of the I4MS Project with CloudiFacturing and DIGITbrain as Innovation Actions

### 3.4.3 Social networks

The CSA has increased I4MS IAs visibility via social networks to foster cross-tweets, likes, mentions between IAs, and take advantage of the potential of social networks in reaching wider audiences. IAs will also be invited to share information about the other projects and share success stories of their funded experiments mentioning I4MS CSA Twitter and LinkedIn accounts.

To strengthen I4MS branding, IAs will be provided with different tools to create banners, posts, and online dissemination materials. A special webinar session has been organised to offer tips for the best way to post in the different social media and the cross-dissemination actions that IAs and the CSA should be following to generate I4MS brand awareness and benefit from the existing network of the CSA.

## 4 I4MS-SAE LABEL FOR APPLICATION EXPERIMENTS

The I4MS and SAE (Smart Anything Everywhere) are initiatives promoted by the European Commission to foster the digital innovation of SMEs in Europe in order to boost their competitiveness. They have joined their effort to select successful Application Experiments (AEs) from both initiatives, providing them with an official recognition of the quality of the AE. The I4MS-SAE label is granted to AEs and consecutively to participating companies which were accepted for funding.

through the financial support for third parties (FSTP) mechanism and that have successfully completed the support programme offered by the Innovation Actions (IAs).

The aim of this label is to allow the SMEs that participated in the labelled experiments to prove the excellence of their experiment when requesting further support to regional governments, but also to national funding bodies and Digital Innovation Hubs (DIHs). The I4MS-SAE Label recognises the value of the AEs and helps other funding bodies to get access to the best innovators who have a connection to the specific region. Ultimately, the goal is to give visibility to strong and well-performed AEs at regional level to inspire other SMEs to start adopting digital transformations.

IAs under I4MS and SAE has been invited to continue using this tool to identify the best performing experiments and invite them to have a special place in the I4MS communication and dissemination activities. Experiments awarded with this label have been showcased as top innovators when contacting regions and contribute to finding additional funding opportunities that can leverage the results obtained by participating in I4MS and SAE experiments.

In this sense, I4MS4Ts is continuing the work initiated during Phase 3 (I4MS-GO) to set up an I4MS/SAE Innovation Label for AEs as a perfect tool to foster cooperation and boost the competitiveness of EU economy. The I4MS-SAE Label recognises the value of the AEs and helps other funding bodies to get access to the best innovators.

The I4MS CSA elaborated a background document shared with the IAs to establish the rationale, the criteria to award the I4MS-SAE label and the next steps. With the feedback of the IAs the criteria under which the label is awarded were selected considering the performance of the AEs and the ambition (all details are included in D 2.6 of the I4MS Engagement Programme).



## CRITERIA OF AWARDING THE LABEL (1)

### 1. Performance-related criteria

- The AE (and consecutively the participating companies) **have received funding** to execute their experiment **through FSTP mechanism** from the Innovation Action participating in the I4MS-SAE joint label initiative
- The AE (and consecutively the participating companies) have **successfully completed the support programme/acceleration programme** offered by the Innovation Action, incl. achieved the mandatory KPIs in the programme
- The AE (and consecutively the participating companies) have a **highly innovative** idea or approach
- The AE (and consecutively the participating companies) have shown a **highly scalable business model** and results of the experiment
- The AE or proposed innovation or technology usage or way of implementation or deployment has a **high impact** on the manufacturing SMEs process, services and products





## CRITERIA OF AWARDING THE LABEL (2)

### 2. Ambition-related criteria

- The AE has a **strong will** to continue with developing the AE after the end of the support programme or company (ies) participating in the experiment have the will to continue with developing or deployment of the AE or underlying innovation after the end of the AE support programme
- The AE or companies behind the AE have a **clear plan to go forward**
- The AE or participating companies have a **complete team** in place covering both technical and business competencies <sup>2</sup>

Figure 6: Criteria proposed by the I4MS CSA to awards the AEs with the label.

### 4.1 I4MS-SAE label identity

The I4MS-SAE label was designed and approved by the IAs and all companies selected by the IAs received a personalised certificate together with a guidelines for SMEs on how to use this label.



Figure 6: I4MS-SAE label and Certificates for SMEs

Until now, the following companies from **CloudiFacturing** Application Experiments have received the label:

- [Hanning Elektro Werke](#), from Nordrhein-Westfalen, Germany, Experiment: “OPTIMIZING DESIGN AND PRODUCTION OF ELECTRIC DRIVES”
- [Linz Center of Mechatronics](#), from Upper Austria, Experiment: “OPTIMIZING DESIGN AND PRODUCTION OF ELECTRIC DRIVES”

- [Endef](#), from Aragon, Spain, Experiment: “OPTIMIZING SOLAR PANEL PRODUCTION”
- [Nabladot](#), from Aragon, Spain, Experiment: “OPTIMIZING SOLAR PANEL PRODUCTION”
- [CloudSigma](#), from Zürich, Switzerland, Experiment: “OPTIMIZING SOLAR PANEL PRODUCTION”
- [i-Deal](#), from Piemonte, Italy, Experiment: “CAPSULE”
- [TroTusTex](#), from Northeast Romania, Experiment: “CAPSULE”

A selection of companies from the third wave of experiments of CloudiFacturing has been invited to apply for the I4MS-SAE 2021 label.

## 5 JOINT ACTIVITIES BETWEEN IAS, THE CSA AND THE DIHS NOT LINKED TO THE IAS

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Since the beginning, the I4MS initiative has pivoted, locally, around Digital Innovation Hubs (DIHs), one of the four pillars of the ‘Digitising European Industry initiative’, as a key instrument to foster local collaboration amongst all relevant actors involved in technology uptake (research technology organisations, system integrators, early adopters, other manufacturing SMEs/mid-caps) as well as to channel the efforts (funding, upskilling programs, etc.) that regional and national governments dedicate to digital transformation locally.

Currently, in JRC’s DIH Catalogue there are around 363 DIHs (fully operational or in preparation) that cover technologies related with I4MS and target manufacturing sectors [Source: JRC’s DIH Catalogue, own analysis July 2020]. This may seem a quite extensive network, but only around 65 DIHs, which represents only 18% of I4MS-related DIHs, are currently active in I4MS community and/or involved in Application Experiments.

The participation of DIHs in the joint collaboration activities will enhance their role as digital transformation agents and contribute to build a pan-European network of DIHs. From one side, DIHs already involved in any of the past I4MS phases will be invited to join new activities, and from the other, extend the current network by reaching DIHs in white spots.

In **CloudiFacturing** each of the 21 application experiment consortia is accompanied by one regional DIH that is working as a cross sectoral and multi-technology one-stop-shop for SMEs, supported at the same time at National and European level.

But there is also the need of moving towards a pan-European network of DIHs where DIHs offer the best possible support for SMEs and midcaps everywhere in Europe regardless of the technological domain and removing any constraints linked to regional capacities.

The DIHNET.EU project will investigate these questions to bring the topic of specialisation to the attention of stakeholders and support the discussion on the topic. By exploring both intra-regional collaboration among individual DIHs, CCs, and other stakeholders as well as trans-regional collaboration, the project will aim to boost collaboration and create a community and commitment among the different stakeholders.

At the first yearly European Digital Innovation Hubs conference in January 2021 Marco Barbagelata from STAM represented both, the **CloudiFacturing** project, and its successor DIGITbrain. He held a talk about best practices about the successful use of HPC. In his presentation he spanned from a brief history of the DIH initiative at European level and how it impacted the CloudiFacturing and



DIGITbrain projects to the analysis of ongoing trends and how they will shape the EDIH initiative and the digital future of Europe.

Additional information about the activities of CloudiFacturing DIHs is described in deliverable 7.4, chapter 5.

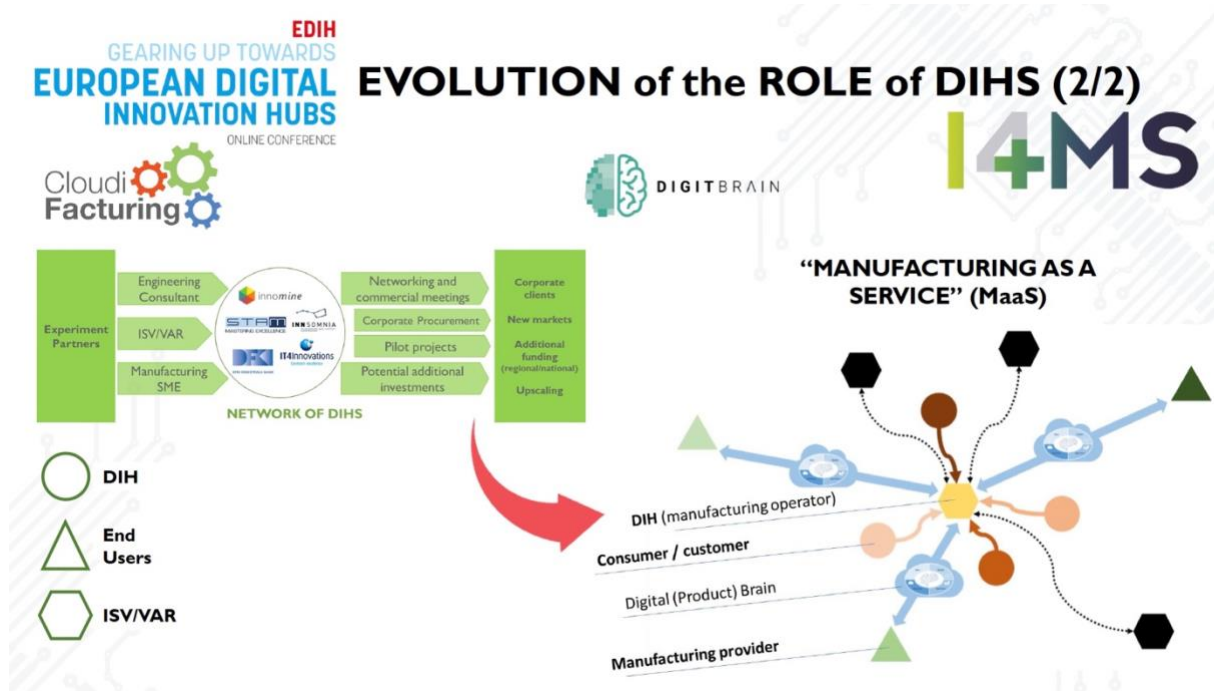


Figure 7: Evolution of the Role of DIHs in CloudiFacturing to DIGITbrain

## 5.1 CloudiFacturing and DIGITbrain has formed synergies amongst their DIHs

The I4MS phase 4 project DIGITbrain is deeply rooted in the innovation ecosystem of the I4MS project CloudiFacturing (I4MS phase 3) and part of the industrial platforms FIWARE and IDS. It builds on these results, by means of extending the CloudiFacturing solution with an augmented digital-twin concept called “Digital Product Brain” and a smart business model called “Manufacturing as a Service”. The DIGITbrain consortium includes 6 DIHs from different European countries, where two of them have already been part of the CloudiFacturing consortium. Ideally, they exploit the synergies between both projects and allowing the creation of new connections with surrounding manufacturing companies and DIH networks. The added value provided by the DIHs from both projects in the DIGITbrain project serves to attract new potential users for the DIGITbrain solution, as well as its expansion both in terms of geographical coverage and multi-sector use.

Further information about joint activities of CloudiFacturing and DIGITbrain project can be found in deliverable 7.4, chapter 3.

## 6 INTERNAL COMMUNICATION

The internal communication tool has been mainly emailing and telephone. Also, the clustering calls have been key to coordinate the work among all the Innovation Actions and the CSA.

The internal communication tools to be used were the bi-monthly calls, emails, and the consultative board. Also, a private space for communicating with key stakeholders of the I4MS initiative, I4MS Contact Points, were put at the IAs disposal to foster collaboration among the CSA and the IAs, the IAs and the DIH, and facilitate cross-sectoral and cross-border partnerships with other actors of the ecosystem.

The Engagement programme was articulated around:

- The bi-monthly web-meets.
- At least two onsite events among representatives of on-going Innovation Actions.
- The Consultative Board.
- I4MS Contact Points private community.

When inviting for the web meeting, the CSA had included a draft agenda asking participants to suggest points which may be missing in order to fit the needs of the participants.

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## 6.1 Bi-monthly calls

The main means of communication with IAs have been the bi-monthly calls, they are the fora to discuss the advancements of the joint engagement plan and define the strategies to be followed and the support needed by the IAs. The dates of the calls were agreed on a six-month period basis via doodle and organised by the CSA via teleconference.

An agenda of the topics to be covered was shared with the participants at least 5 days before the call to add suggestions. The main agreements were distributed by email as well to facilitate the follow-up of the work done.

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## 6.2 Onsite events

At least two on-site events have been organised with the IAs to discuss important topics for the initiative and foster collaboration among different projects. If possible, events have been organised during European events where IAs are participating, as parallel sessions.

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## 6.3 Consultative Committee

I4MS4Ts has established a Consultative Committee whose role is to provide insights on the IAs needs and challenges, give opinions on SME onboarding process, dissemination and communication strategies, comment on tools and documents.

The CSA has sought to include in the Consultative Committee one representative of each I4MS Innovation Action and one representative of SAE Coordination and Support Action. Representatives of active SAE Innovation Actions may be invited to participate, as well as terminated I4MS/SAE Innovation Actions if any of the joint services set up during the project are active.

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## 6.4 I4MS Contact Points private space

I4MS Contact Points private space has offered an opportunity to actively contribute to the community growth by informing about the existing opportunities and services offered to DIHs and intermediary bodies supporting SMEs.

IAs and DIHs have been invited to share information on their projects, services, Open Calls and promote content they consider of relevance; it will also be an excellent opportunity to foster the collaboration among the different stakeholders and give visibility to the most innovative results and project advancements.

## 7 SUCCESS STORIES

Best practices or success stories are from companies that have improved their performance with the help of Innovation Actions under the I4MS initiative.

I4MS4Ts has identified Best Practices in collaboration with IAs and via Disruptor Awards disseminating them through I4MS Community, in events and in publications. In this way, I4MS4Ts wants to make use of these success stories from early adopters to reach the late majority of manufacturing SMEs in order to showcase the expertise and benefits of the use of IAs technologies and encourage the participation in the I4MS initiative Open Calls and activities.

**Linz Center of Mechatronics GmbH (LCM)**  
 Last Friday at 10:42 AM  
 0 Comments - 7 Views  
 Best Practice Cloud Technologies

**I4MS**

“ We got a chance to demonstrate the feasibility and potential of our automated production data generation directly out of the design process ”

**LEM**

**Why did you decide to apply for the CloudiFactory Open Call in the first place?**  
 Lintz Center of Mechatronics (LCM) has been working on the distribution computation for electric drive design for a long time. The participation in the CloudiFacturing Open Call gave us the chance to demonstrate the feasibility and potential of our automated production data generation directly out of the design process.

**Nabladot**  
 10/15/2021 - Edited: 10/15/2021  
 0 Comments - 15 Views  
 Best Practice Smart modeling / Digital twins Cloud Technologies

**I4MS**

“ It was excellent to demonstrate our digital tools to manufacturing SMEs in Europe. ”

**ND**

**We are pleased to present Nabladot, a tech provider with solutions such as Digital Twins dedicated to the manufacturing industry and a champion in CloudiFacturing, an Innovation Action under I4MS-G.**

**Why did you decide to apply for the Disruptor Awards in the first place?**  
 We decided to send a proposal to the Disruptor Awards Open Call because it was an excellent opportunity to demonstrate the benefits that our digital tools such as simulation in the cloud, digital twins, cyber-physical systems can offer to manufacturing SMEs.

Oftentimes, manufacturing companies are reluctant to adopt digital technologies because it is hard for the providers to demonstrate and quantify the benefits of these tools compared to their costs. Participation in projects such as CloudiFacturing is an excellent opportunity to do that. In addition, this type of experiment allows our company, as a tech provider for manufacturing SMEs, to acquire new capabilities and experience in these digital tools. Thanks to this, our company, Nabladot, can offer our clients better quality and price.

Figure 8: Success Stories of CloudiFacturing second wave AEs

I4MS / I4MSMembersarea / Success Stories / Best Practices Portfolio



### FermiCloud – Fermentation production optimisation using cloud manufacturing techniques. An Application Experiment (AE) from @Fermentia, Hungary

@i-deal\_sanzex 05/04/2021 · Edited: 05/04/2021  
0 Comments · 59 Views

- Best Practice
- Robotics
- Data Analytics
- Cloud Technologies
- Sensors
- Best Practice
- Robotics
- Data Analytics
- Cloud Technologies
- Sensors
- Best Practice
- Robotics
- Data Analytics
- Cloud Technologies
- Sensors



**Challenge**

Proteins, which are widely used for industrial and medical applications, are difficult or impossible to be synthesized chemically. Instead, biotechnological processes are used such as recombinant fermentation. Pichia fermentation is a highly flexible, promising method for industrial use. Despite its advances, the production remains expensive, the yields low and the risk of losing a batch is high. Fermentia is a contract manufacturer of proteins as a final product by recombinant fermentation technology. Within this experiment the specific type of proteins production process, Pichia fermentation, was meant to be optimized. Before the FermiCloud experiment, end-user - Fermentia used manual sample analysis and corrective actions, including reagent addition, based on the results ('As-Is' solution). However, time dependent analysis process frequently led to low product yield or serious product loss. FermiCloud proposes a new way for bioprocess optimization via automatization as well as processing and understanding past process data.

**Solution**

Provided by CloudiFacturing project resources allowed the experiment partners to build cloud based services and perform fermentation process control and optimization. The project managed to integrate heterogeneous elements of the system including: SCADA, cloud services, hardware control software (SpinStudio) and flow chemistry system. During three days of trial fermentation cloud based machine learning algorithm of random forest successfully, without human intervention, performed a phase switch between the first two fermentation phases. The constant, real-time data flow between all the integrated parts of the system was kept using Apache Spark data streaming. Newly installed in Fermentia optical density sensor - ODCube governed the change between second and the third phase and gave information about health of the fermentation broth. Cloud based Manufacturing Execution System was successfully guiding the fermentation process including appropriate reagent addition and methanol level control.

### CAPSULE

@i-deal\_sanzex 10/01/2021

0 Comments · 4 Views

- Best Practice
- 3D Printing
- Data Analytics
- High Performance Computing



@ i-Deal S.R.L., CAPSULE- Cloudification of image analysis for human measure collection for Personalised Safety protection clothing engineering and production (AE) from Italy, has been implemented within CloudiFacturing Innovation Action (IA), second wave.

@ CAPSULE (AE) proposes HPC access granted by CloudiFacturing to enhance machine learning simulation process, core of human measure collection by mobile image analysis, provided by i-Deal (IT). The end user of the AE is TroTusTex (RO). The technological provider are University of Westminster (UK), the German Research Center for ArtificialIntelligence (DE), CloudBroker and SINTEF (NO). The DIHs: STAM Mastering Excellence (IT)

**Challenge**

Processing CFG HPC resources to overcome bottlenecks limiting the precision of the measurements, especially related to the definition of the worker's size and/or measure collection for made-to-measure production. Reduce the manual input of human measures, which will be collected by the SizeYou app and directly sent to the CAD tool for manufacturing. This solution will open the market of worker protection clothing and, in the future, it can also be extended to sportswear.

**Solution**

The experiment aims at exploiting HPC access granted by CloudiFacturing to enhance machine learning simulation process, core of human measure collection by mobile image analysis, provided by I-Deal (IT). The measures will be uploaded into clothing CAD system of the industrial end user TroTusTex (RU) to produce safety protection apparel. The process must fulfil UNI EN ISO 13688 apparel measure precision to grant safety protection requirements.

**Results**

On i-Deal side the experiment is expected to enhance the success rate of the measure collection process of 70% by increasing the capacity of the app to extract precise measures in not controlled conditions.

**Impact**

User experience is expected to reach a >50% conversion rate at first measure collection attempt. The self learning algorithm training is expected to reduce of 95% the timing of update by the access to Cloud/HPC resources. The successful implementation of the experiment will impact on worker comfort, precision of production, reduction of wasted resources due to imprecise human anthropometric data collection, with positive environmental and economic benefit.

#best-practice #3d-printing #data-analytics-2 #high-performance-computing

Figure 9: Success Stories of CloudiFacturing second wave AEs

CloudiFacturing was successful in its three waves of application experiments helping companies to improve their performance and/or technologies. The complete success stories and testimonials from the companies CEOs are published on the CloudiFacturing webpage:

<https://www.cloudifacturing.eu/experiment-17-fermicloud-fermentation-production-optimisation-using-cloud-manufacturing-techniques/?cookie-state-change=1635340455437>

## 8 I4MS DISRUPTORS AWARD

The CSA will launch two Disruptors Awards Calls to select a total of 6 I4MS Flagship Experiments illustrating a company's ability to innovate and implement ICT technologies. Innovation Actions' beneficiaries will be invited to participate. A first call has been launched around Spring 2021 and second call will be launched during Summer 2022.



The I4MS Disruptors Awards will recognise excellence in supporting SMEs and mid-caps in the uptake of key enabling technologies by providing opportunities for public recognition around the achievements of SMEs, DIHs, Competence Centres and more.

The awarded initiatives will be granted with the widest visibility on the I4MS website and community as well as off-line visibility, namely through the participation in World Class Events where they will be put in contact with other partners, stakeholders, founders and investors.

Innovation Actions will invite their beneficiaries to participate in the call of the Disruptors Awards and accompany them during the Awarding Ceremony if possible. This Award is also to promote the use of specific technologies and show how companies were able to implement the technologies into their daily operations.

Also, another activity that will be proposed is to create a joint prize package, by offering to the winners of the contest some perks that can help them in leveraging AEs results. IAs can offer training on IPR, business models or the participation in a specific event to attract investors, etc.

Tools and Technologies for Transformation: accelerate digital uptake by manufacturing companies

I4MS

## I4MS Best Practices Portfolio

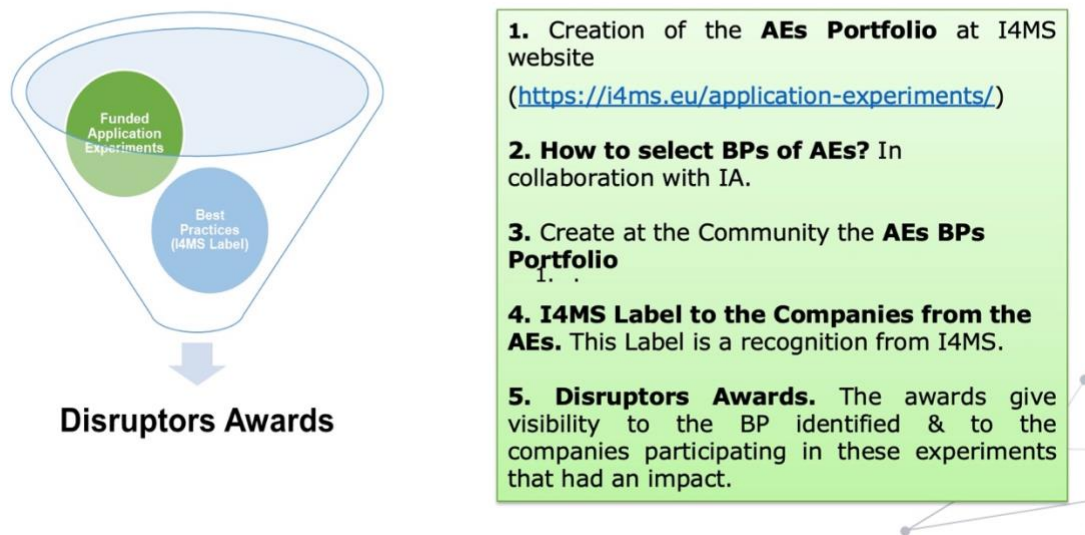


Figure 10: Mechanism to apply for the I4MS Disrupter Award

## 8.1 Visibility campaign for CloudiFacturing experiments with I4MS label

I4MS initiative has started a campaign to give visibility to the SMEs that received the I4MS label. Their objective is to increase the interest of other SMEs in applying for I4MS funding and get information on the use of the technologies.

How I4MS is going to give visibility to the selected company?

- Publish their experiment results in the I4MS online community with more than 1.500 members.
- Promote their experiment results in social media (LinkedIn and Twitter) using quotes.
- Add their experiment results in the I4MS Newsletter and Monthly Digest with more than 800 subscribers.

The two selected companies that have been selected for the visibility campaign so far are Nablado from Spain and LCM from Austria. They have also been the consortium leaders of the experiments. The companies have been asked to summarize their experience running an application experiment and to highlight the most important outcomes by answering the following questions:

- Why did you decide to apply for the Open Call in the first place?

Nablado, Antonio Gomez:

*“We decided to send a proposal to the Open Call because it was an excellent opportunity to demonstrate the benefits that digital tools (simulation in the cloud, digital twins, cyber-physical systems) developed by our company, Nablado, can contribute to manufacturing SMEs. In many cases, one of the barriers for manufacturing companies to adopt digital technologies is demonstrating and quantifying the benefits of these tools compared to their cost. Participation in projects such as CloudiFacturing is an excellent opportunity for this purpose. In addition, this type of experiment allows our company to acquire new capabilities and experience in these digital tools. Thanks to this, our company, Nablado, can offer our clients better quality and price services.”*

LCM, Hubert Mitterhofer:

*„LCM has been working on the distribution computation for electric drive design for a long time. The participation in the CloudiFacturing Open Call gave us the chance to demonstrate the feasibility and potential of our automated production data generation directly out of the design process.”*

- What was the impact of the experiment on your enterprise?

Nablado, Antonio Gomez:

*“In terms of innovation, this experiment was one of our first experiences in combining numerical simulation and optimization algorithms to build a simulation model calculated in real-time. This type of model is highly demanded to build digital twins or cyber-physical systems that must operate in real-time. As a result of this project, we have continued working on this line of business (real-time calculation models). Thus, we have achieved several innovation projects in the last years to continue working and improving our skills in this field.*

*In this way, we have hired a person in Nablado, and in the coming years we expect to employ another person more dedicated to this new line of business. In the coming years, we hope to increase the number of projects associated with this line of business (real-time simulation models for digital twins or cyber-physical systems).”*

LCM, Hubert Mitterhofer:

*“We have realized a new SyMSpace Module for exporting the production data out of the existing motor simulation. The cloud-based simulation allowed joint access by the designer (LCM) and the end user (Hanning). With this shortcut, Hanning was enabled to drastically cut down on the prototype manufacturing times. “*

- What are your future ambitions for the digital transformation of your enterprise?

Nablado, Antonio Gomez:

*“Our ambition is that Nablado becomes a reference in Spain in developing simulation models (based on CFD techniques) that are calculated in real-time for its implementation in digital twins or cyber-physical systems. With the expected growth in the coming years of the demand for digital twins and cyber-physical systems, we expect an increasing demand for this type of simulation model. We aspire to develop these models for multiple sectors and processes that are scarcely digitized currently.”*

LCM, Hubert Mitterhofer:

*„LCM is strongly committed to push cloud-based and platform-oriented simulation and design, especially in the field of electric motors. The SyMSpace development will hopefully soon allow users and model providers to work on the same online platform. “*

## 9 CONCLUSION

I4MS4Ts collaborates intensively with the IAs of phase 3, like CloudiFacturing and phase 4, DIGITbrain. It has succeeded to establish synergies between the DIHs of both projects and to contribute to a more efficient, collaborative, and clustered ecosystem structure and will make use of best practises from early adopters to reach the late majority of manufacturing SMEs.

The opportunities of international networking, such as the EDIHs Annual Event and the Mobile World Congress in 2021, as well as the visibility given to success stories through videos and interviews, contributed to make SMEs and mid-caps active members of the I4MS ecosystem, and highlighted the benefits of using I4MS technologies to tackle real industrial challenges. Participation in regional and local events are key to reach manufacturing SMEs and mid-caps, while world-class events are a good opportunity to increase visibility, but chances of reaching a critical mass of visitors and foster business opportunities is often blurred by the presence of big companies and their power of attraction.

The CSA has put together I4MS offerings (IA/DIHs demonstrators, tech & business services, training) and is sharing it under an evidence-based approach (impact on competitiveness, best practices). It has maintained and enlarged an engaged community and provided a strong communication and dissemination platform under a joint brand.



Figure 11: emGORA – The Digital Marketplace of CloudiFacturing and for DIGITbrain