



CSA-Industry4.E

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Coordination & Support action for Lighthouse Initiative Industry4.E

Deliverable 2.6

Support the LIASE to develop a White paper on Industry 4.E vision and mission strategy

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Table of Acronyms:

AI	Artificial Intelligence	IPR	Intellectual Property Rights
AquaTT	AquaTT UETP Ltd	ISO	International Organization for Standardization
BDVA	Big Data Value Association	I4MS	ICT Innovations for Manufacturing SMEs
CF2	ConnectedFactories2	JU	Joint Undertaking
CSA	Coordination and Support Action	KDT	Key Digital Technologies
D	Deliverable	KPI	Key Performance Indicator
DEI	Digitising European Industry	LIASE	Lighthouse Initiative Advisory Service
DEP	Digital Europe Programme	MASP	Multi-Annual Strategic Plan
DIH	Digital Innovation Hub	MGEP	Mondragon Goi Eskola Politeknikoa
DoA	Description of Action	M	Month
DT	Digital Transformation	MCs	Major Challenges
EC	European Commission	MS	Milestone
EDIH	European Digital Innovation Hub	Obj	Objective
EU	European Union	PM	Person Month
FoF	Factories of the Future	PO	Project Officer
FP	Framework Programme	PC	Project Coordinator
GDPR	General Data Protection Rights	PPP	Public Private Partnership
GA	General Assembly	R&I	Research and Innovation
GB	Governing Board	SME	Small- and Medium-Sized Enterprise
HE	Horizon Europe	SoA	State-of-the-Art
H2020	Horizon 2020	S2i	Steinbeis 2i GMBH
IMR	Irish Manufacturing Research Ltd	VTT	Teknologian tutkimuskeskus VTT Oy
I4.E	Industry4.E	WP	Work Packages
ECSEL	Electronic Components and Systems for European Leadership		
ECS-SRIA	Electronic Components and Systems Strategic Research and Innovation Agenda		
EFFRA	European Factories of the Future Research Association		

Table 1: Project acronyms

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History of Changes:

Version	Publication date	Change
V1	15.09.2020	Draft document IMR
V2	25.03.2021	Additional info added to all sections from IMR
V3	22.04.2021	Final harmonisation and peer review IMR

Table 2: History of changes to the report

Author: Lise-Ann Sheahan (IMR).

Project Partners:



IRISH
MANUFACTURING
RESEARCH



Contact Details:

Email: info@industry4e.eu

Website: www.industry4e.eu

Collaboration platform: www.ECSEL-portal.eu

Twitter: [@Industry4E](https://twitter.com/Industry4E) LinkedIn: [Industry4.E](https://www.linkedin.com/company/industry4e) Facebook: [Industry4.E](https://www.facebook.com/Industry4.E) Instagram: [Industry4.E](https://www.instagram.com/Industry4.E)

Contextual information

This deliverable *D2.6 Support the LIASE to develop a White paper on Industry 4.E vision and mission strategy* prepared at M30 by IMR aims to demonstrate the significant and thorough support provided to the Lighthouse Initiative Advisory Service (LIASE) to develop their position paper and associate material from M12 (Sept 2019) to M30 (Mar 2021).

WP5 and *Task 5.3. Secretariat services to LIASE in their engagement with the ECSEL JU governing board* (M1-30) has supported the LIASE white paper through the provision of secretariate support to the LIASE and their interactions with the community, throughout the project. This effort was largely aided by the secretariate support provided by the CSA-Industry4.E (CSA) to the Industry4.E (I4.E) LIASE, as reported in *D5.2 Report about secretariat support provided to the LIASE* prepared at M30 by IMR which demonstrates the significant and thorough secretariate support provided by the CSA to the LIASE which has included a bespoke I4.E *LIASE conversation calendar* designed and delivered for the LIASE in harmony with their participation at key Digital Industry events (under the hashtag #LighthouseKeepers).



Figure 1: Pillar 1-4 - project activities of the CSA-Industry4.E

Related milestones have been achieved in the process, described as follows:

- **MS1:** Working relationship with the LIASE has been established. Note: IMR (via WP5) facilitated the first meeting completed the minutes with action items (at M1); and
- **MS4:** KPIs for the Lighthouse established. Note: IMR (via WP5) used the KPIs for reporting from the LIASE to the ECSEL-JU GB (the presentation of the Industry4.E lighthouse at the GB meeting at M27 was deferred due the prior agenda items being delayed, the presentation is available in *D5.4 Result and analysis of KPIs (M30)* and used for illustration purposed throughout this report.

1. Introduction

This report has been prepared following [Task 2.4: Vision and mission White Paper support \(M12-M30\)](#) led by IMR with contributions from all partners in collaboration with the LIASE.

This task to support the white paper or I4.E LIASE 'position paper' has been the subject of considerable effort from M17 and ongoing at M30. This effort has included the distillation of complex major challenges, high-level objectives, and a suitable roadmap, into a clear concise message endorsed by the community, an innovation ecosystem that is having to rapidly embrace the #TwinTransition to remain competitive. This task has responded to the needs of the I4.E LIASE providing valuable insight and feedback from the community, particularly through the activities of the CSA and ECSEL-JU GB and our regular and impactful interactions.

1.1. *Support the LIASE in establishing the Lighthouse*

The consortium has provided support to the LIASE through all five WPs. The PC has supported the LIASE specifically with reporting to the ECSEL JU GB. In addition, the PC has coordinated the relevant CSA members to react to specific requests from the LIASE for secretariat support. The CSA supported the LIASE preparations for the ECSEL GB Meeting (at M15 and M27) and related meetings as ECSEL-JU transitions into the next FP.

The CSA project is a central building block of the ECSEL-JU Lighthouse Initiative, together with the LIASE (extended in 2020 see Figure. 2) and with the Lighthouse projects (extended in 2020 see Figure.3) the CSA consortium, have embraced the challenge and have worked in tandem with the LIASE and with the Lighthouse projects since the project inception at M1 (Oct 2018) to M30 (Mar 2021). The LIASE was extended in 2020 to increase the capacity and reach of the membership further enhancing the contributions to the paper and increasing the support required from the CSA.



WP5 Project coordination and secretariat services to the LIASE

Highlights:

Lighthouse Initiative Advisory Service (LIASE)
Confirmed in 2019

				
Dr. Andrew Lynch Irish Manufacturing Research (IE) <i>LIASE Chair</i>	Dr. Olli Ventä VTT Technical Research Centre Finland (FI)	Mr. Chris Decubber European Factories of the Future Research Association (BE)	Mr. Knut Hufeld Infineon Technologies AG (DE)	Mr. Eduardo Beltrán de Nanclares Mondragon Corporation (ES)

Added in 2020

		
Prof. Jerker Desling Lulea University of Technology (SE)	Dr. Oscar Lazaro Innovatia Association (ES)	Mr. Sandro D'Elia Technologies & Systems for Digitising Industries (EC)

Figure 2: Extension of the LIASE in 2020

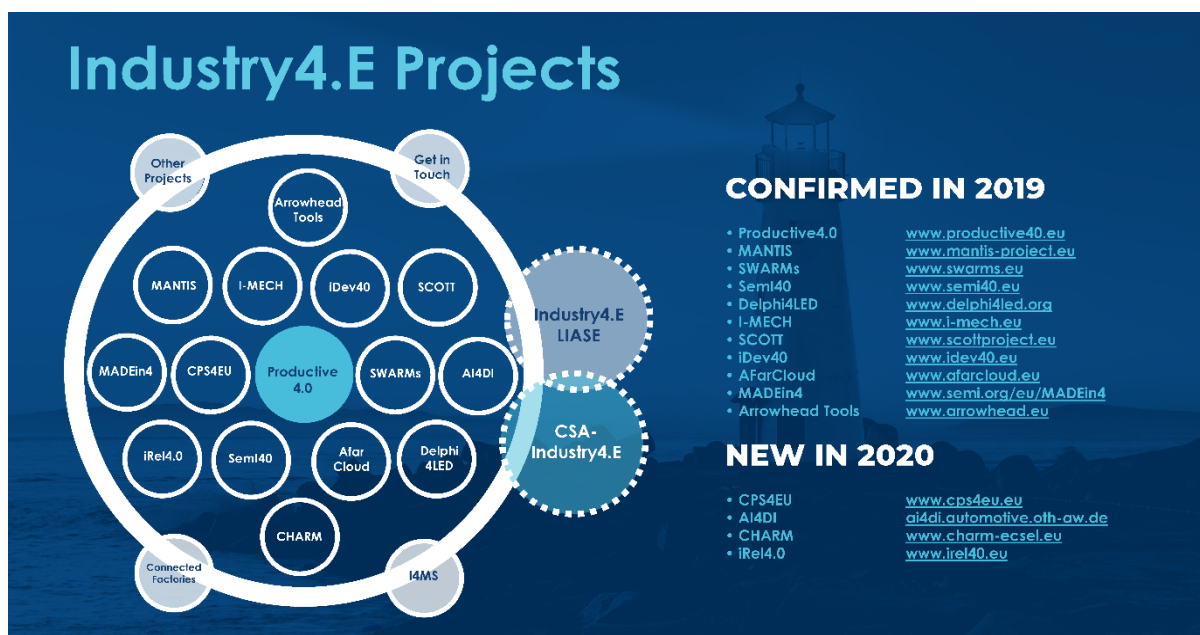


Figure 3: 15 projects participating in I4.E

To enhance the messaging related to the white paper and the community consultation a new brand including a ‘visionary’ presentation has been produced, providing the illustrations throughout this report. Support has been in place for the LIASE from the secretariate to deliver the white paper messaging at key Digital Industry events to enable further insight from the community.

A series of public and private engagements have been fulfilled to ensure a vigorous consultation process and the ultimate adoption of the paper by the community. Increase in the intensity of the engagements was experienced during the project extension and resources through IMR representatives in the CSA and LIASE and is still ongoing.

The result of this effort from the LIASE, supported by the secretariate services from IMR, has included the definition of appropriate KPIs to measure the success of the I4.E Lighthouse Initiative which have supported the LIASE in their efforts to support the community and in their reports to the ECSEL-JU GB, using the defined KPIs defined with the overall aim of delivering an efficient and targeted LIASE that contributes to the digitalisation of the European Industry.

As three members (including the Chairperson) of the LIASE are working for organisations that are partners in the CSA (IMR, VTT, & MGEP) we have *ensured a sustainable transition for the LIASE into the next Framework Programme (FP)*, Horizon Europe (HE) 2021-2027 as detailed in *D 5.5 Report about the bridging provided to the Industry4.E Lighthouse Initiative*.

END OF SECTION 1

2. Framework for collaboration | Mission and Vision

2.1. Skills, Incentives, and Resources

The secretariat support provided to the I4.E LIASE has been enhanced through the delivery of:

- **Skills:** demonstration of digital tools for collaboration and internal 1-to-1 training;
- **Incentives:** keynote speaking opportunities and conversation calendar support; and
- **Resources:** extending the LIASE to increase capacity, SharePoint, and additional Microsoft Team site to support specific working groups, technical writing support, desk-based researchers, graphic design, marketing, and communication support and meeting facilitation for the LIASE and their support network (CSA and ECSEL-JU PO).

This effort was brought together in a single series of four separated yet interconnected meetings (and connected follow up actions for the CSA, LIASE or ECSEL-JU), as follows:

- Industry4.E LIASE meetings;
- CSA-Industry4.E and Industry4.E LIASE meetings;
- CSA-Industry4.E meetings; and
- CSA-Industry4.E Project Officer and Project Coordinator meetings.

This effort is reported in [D5.1 Compile minutes of the project meetings](#) and [D5.2 Report about secretariat support provided to the LIASE](#)

This effort has set the frameworks for collaboration from which the CSA and LIASE have built the public and private engagements necessary for realisation of a paper that reflects the voice of the LIASE and the needs of the community as we move into the next FP as illustrated in the newly defined mission (see Figure. 4) and vision (see Figure. 5) contained within the draft white paper.



Figure 4: Mission of the I4.E Lighthouse



Figure 5: Vision of the I4.E Lighthouse

END OF SECTION 2

3. Objectives and Metrics | Strategy and Synergies

3.1. *Generated results, demonstrating sustainability:*

The compact set of Key Performance Indicators (KPIs) development by the LIASE and CSA encompass the main objectives of the initiative (see Figure. 6), the added-value contributions of the I4.E Lighthouse, the ability to galvanise the community, and facilitating outreach as well as knowledge management.



Figure 6: Objectives of the Industry4.E Lighthouse Initiative

3.2. *Eight indicators of performance, capturing impact:*

The KPIs for the I4.E Lighthouse Initiative were brought about through the thorough secretariate support provided by the CSA to the I4.E LIASE as described in [D5.2 Report about secretariat support provided to the LIASE](#). The evaluation and decision-making process resulted in the following KPIs:

1. N° of contributions to the ECS-SRIA roadmap;
2. N° of projects participating in I4.E / CSA & LIASE;
3. N° of entities involved in I4.E / CSA & LIASE);
4. N° of events with presence of I4.E / CSA & LIASE;
5. N° of events organised by I4.E / CSA & LIASE;
6. N° of concepts mapped in the ECSEL portal;
7. N° of access to social media of I4.E / CSA & LIASE; and
8. No of projects active in the ECSEL portal

The KPIs have been mapped to the initiatives objectives and results and analysis are summarised (see Table. 4)

#	I4.E Objective	I4.E KPI	M1-M30
O1	Support impact through promoting cooperation and collaboration of I4.E twin transition initiatives	2. N° of projects participating in I4.E / CSA & LIASE.	15 (see Figure 2)
		3. N° of entities involved in I4.E / CSA & LIASE.	520 (see Annex 2)
O2	Foster continuous dialogue	5. N° of events organised by I4.E.	16 (see D4.3 and D4.4)
O3	Provide domain-specific guidance towards twin transition	1 N° of contributions to the ECS-SRIA roadmap.	3 (2019, 2020, & 2021)
		6 N° of concepts mapped in the new ECSEL portal.	8 (see Annex 4)
O4	Serve as communication & innovation platform	6: N° of access to social media of I4.E / LIASE & CSA.	1046 (see D4.3 and Annex 1)
O5	Advisory services to guide the way.	4. N° of events with presence of I4.E / LIASE & CSA.	12 (see D4.3)
O6	Share best practice - share results for accelerated impact	8. N° of projects active in the ECSEL portal.	16 (see Annex 3)

Table 3: Industry4.E objectives and indicators

Further detail is provided in [D5.3_Evaluate and decided on proposed KPIs](#) and [D5.4_Result and analysis of KPIs](#)

3.3. Roadmapping and recommendations through consultation

The effort of *WP1 Enabling the execution of the Industrial digitalisation roadmap* and more specifically *Task 1.3 Recommendations for next steps* (M7-21) connected to the effort described in The CSA has worked with the LIASE to identify gaps and new opportunities for possible topics to be included in future ECSEL MASP and ECS-SRIA from 2019 to 2021 and it is this effort that underpins the narrative contained within the white paper in harmony with the voice of the LIASE, develop through their regular interactions facilitated by the CSA. This effort included a series of face-to-face workshops, interviews including a final #DigitalWorkshop as described in D1.3.



Figure 7: Technical and non-technical recommendations

END OF SECTION 3

The community consultation process has evolved from M17 to the present day M30. Opportunities generated by the efforts of the CSA and LIASE have been used to inform the white paper.



Figure 8: Community consultation related to the white paper

The CSA and LIASE efforts carried out in relation to the public consultation for the whitepaper are detailed in [D4.4 Report on the outreach to related initiatives carried out in the project](#) and [D4.3 Report on the public engagement activities carried out in the project](#).

4.1. Generated European industrial leadership in industry digitalisation

The secretariate support to the LIASE has ensured contributions to the [ECS SRIA](#) process throughout the life of the project as described in [D1.3 Report with recommendations on the future of the Industrial digitalisation roadmap](#). A series of interconnected LIASE engagements related to [influencing, networking and events](#) was planned and supported by a detailed [#LighthouseKeepers](#) conversation calendar to further influence and widen participation as we transition to a more digital world.

4.2. Secured involvement and commitment from key stakeholders

In 2020 the LIASE [membership was extended](#) with the support of the CSA and ECSEL-JU to bring extra capacity and influence to the group. Supported by the CSA the LIASE a new series of digital workshops for key stakeholders was co-created, which were heavily oversubscribed as the proliferation of increased [virtual event](#) and presentation opportunities were embraced.

4.3. Increased transnational collaboration between relevant European initiatives

The LIASE through secretariate support from IMR have realised the [ECSEL portal](#) for intel, results and demos supporting longer term collaborations, research impact and the exploitation of innovation and results; the success facilitating online (particularly social media) interactions amongst pertinent initiatives and projects including [EFFRA innovation portal](#).

4.4. *Widened attainment of excellence related to the digitalisation of industry*

The Industry4.E [Bringing Projects Together](#) Workshop facilitated the necessary dialogue and cooperation among stakeholders within the Digital Industry domain ensuring interactions and sharing of research impact while engaging the different research communities, in cross-border, trans-discipline, inclusive collaboration with a focus on new opportunities for exploitation. This workshop was championed by the LIASE through secretariate support from IMR.

4.5. *Increased awareness of European activities in this field*

The [Industry4.E careers toolkit](#) complimented by a (well attended) workshop series implement across the EU; and an [Industry4.E e-book](#) has been published complimented by a series of virtual (well attended) workshops focusing on “success stories” to stimulate discussion and awareness in relation to SoA and key results related to piloting activities of the Industry4.E lighthouse projects and promoted where possible by the LIASE through facilitated dialogue achieved through the secretariate services.

The secretariat support provided to the I4.E LIASE has been informed by the [Outreach, training and workshops](#) activities of the CSA and ECSEL-JU. As three members (including the Chairperson) of the LIASE are working for organisations that are partners in the CSA (IMR, VTT, & MGEP) their participation in these actives has played a vital role in the success of the overall project and the activities associated with delivering useful and impactful action.

4.6. *Increased intensity as we moved to a virtual environment*

The effort in relation to outreach, training and workshops was communicated to the LIASE during the single series of four separated, yet interconnected, meetings where the LIASE were either supported to participate or the LIASE requests for assistance to deliver these activities were facilitated by the CSA, as and when opportunities presented themselves throughout the life of the project. These activities are summarised in [D4.4 Report on the outreach to related initiatives carried out in the](#)

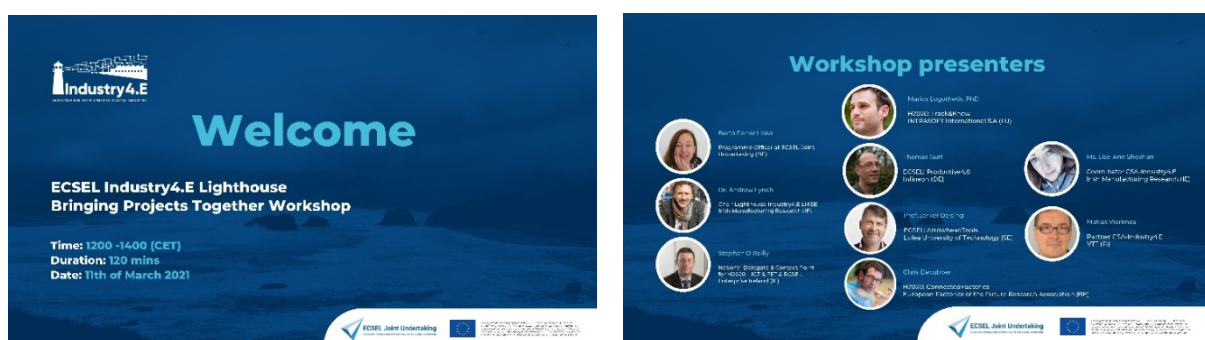


Figure 9: “Bringing Projects Together” Workshop #2, with participation from 3 LIASE members

project. This effort includes (but is not limited to) contributions to the WP2 workshops (see Figure. 9) as reported in *D2.3 Summary reports of the workshop on Lighthouse projects*



Figure 10: Ask the LIASE - digital workshops, discussions, resources, and platforms

Some of the highlights of I4.E current activities include: LIASE participation to digital workshops; ECSEL portal offers means to access results and demos and further collaborate; Altogether 520 organisations involved; position paper has been created for I4.E; growing digital network for LIASE complimented by digital workshops; and the sharing of the e-book for communication, exploitation, and dissemination activities. These activities are summarised in *D4.3: Report on the public engagement activities carried out in the project*. The reach of the CSA partners, in combination with the LIASE (which was extended in 2020), with their collective established trust with the stakeholders in this sphere and close cooperation with external partners has been invaluable in ensuring participation of the wider stakeholder community (see Figure. 10 & 11) illustrating further effort for added research impact.

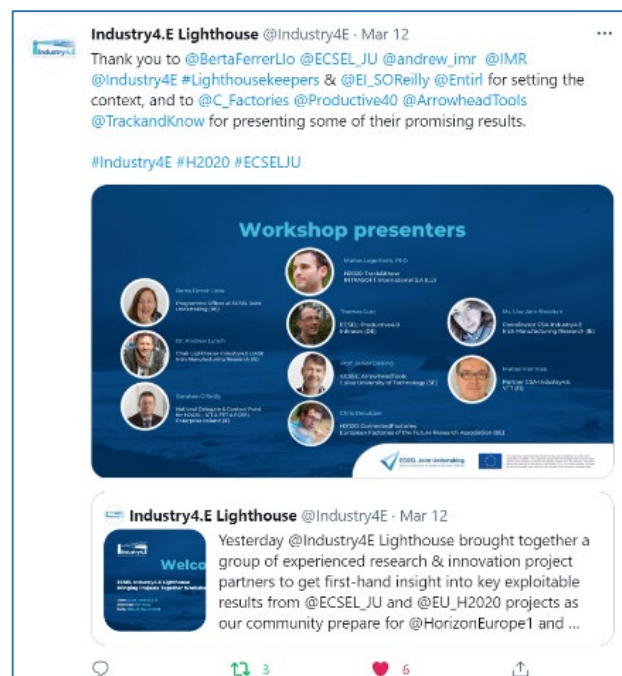


Figure 11: Sharing LIASE contributions with the wider stakeholder community

END OF SECTION 4

5. Conclusion and Recommendations

5.1. Continuing support to a community on transition

The white paper or LIASE 'position paper' has been the subject of considerable effort clearly messaging to our targeted audiences, complimented by a new brand, a 'visionary' presentation, all delivered at key Digital Industry events and through a series of public and private engagements to ensure a vigorous consultation process and realising adoption by the community reported here and in [D5.5: Report about the bridging provided to the Industry 4.E Lighthouse Initiative](#).



Figure 12: Examples of the LIASE/CSA dissemination, communication, and exploitation activities

This 30-month Coordination and Support Action has established a coherent, coordinated, and sustainable approach to supporting the ECSEL-JU Lighthouse I4.E with true ambition (as illustrated in Figure. 15) by implementing a set of coordinated activities, underpinned by the secretariat support provided to the I4.E LIASE.

These collective activities targeted the umbrella group of projects, partnerships, and communities, across the range R&I programmes working towards common goals to enhance European competitiveness in the realisation of the digitalisation of Industry. The project has *improved synergies and maintained a steady build* with related national, regional, and European level initiatives engaging all actors in the supply and value chain through the far-reaching connections of the I4.E LIASE.



Figure 13: I4.E ambition in the new FP

The result of this effort from the LIASE, supported by the secretariate services from IMR, has included the definition of appropriate KPIs to measure the success of the I4.E Lighthouse Initiative which have supported the LIASE in their efforts to prepare the white paper and support the community and in their reports to the ECSEL-JU GB, using the defined KPIs defined with the overall aim of delivering an efficient and targeted LIASE that contributes to the digitalisation of the European Industry.

5.2. Recommendations concerning future work

Several private engagements have been attended to support the community and the ECSEL-JU in its transition to the new FP and recommendations concerning future work. These engagements are ongoing at M30.

Briefings on this process as we transition to the new FP have taken place and dialogue has been facilitated by the CSA, LIASE and ECSEL-JU with the wider community as more information has become



Figure 14: the ECSEL-JU transition to Horizon Europe

available. The information presented at the I4.E Bringing Projects Together workshop at M30 (see Figure. 14) illustrates the type of information disseminated to the community in a timely manner.

The five I4.E recommendations of the LIASE (see Figure 16) captured in the visionary PowerPoint to accompany the white paper aim to capture the complex to address the complex needs and challenges of the community while clearly shining a path forward for continued cooperation to realise the necessary impact for European Industry.



Figure 15: I4.E recommendations as we transition to the next FP

The secretariate services have supported the LIASE with recommendations concerning future work related to the [key programmes and topics](#) facilitated the necessary dialogue and cooperation among stakeholders within the Digital Industry domain ensuring interactions and sharing of research impact while engaging the different research communities, in cross-border, trans-discipline, inclusive collaboration with a focus on new opportunities for exploitation.

END OF SECTION 5