



## D4.1 Engagement & Community Report

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Deliverable lead	OpenNebula Systems	Version	1.0
Authors	Alberto P. Martí (OpenNebula Systems), Chiara Zincone (OpenNebula Systems), Antonio Álvarez (OpenNebula Systems), Francesco Panella (Martel), Giacomo Inches (Martel), Tajana Medaković (F6S), Danijel Pavlica (F6S), Enrique Areizaga (Tecnalia).		
Reviewers	Thomas O. Timoudas (RISE)		
Abstract	This document provides detailed information about the community structure implemented by the Project and the definition and execution of the engagement actions involving the European research and industry ecosystem, as well as other relevant initiatives and user communities across different sectors. It is an ongoing deliverable with an initial version in M6 and subsequent, updated versions to be produced in M18 and M30.		
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## Executive summary

Deliverable D4.1 "Engagement & Community Report" provides detailed information about the community structure implemented by the Project and the definition and execution of the engagement actions involving the European research and industry ecosystem, as well as other relevant initiatives and user communities across different sectors, up until the end of M6 (June 2024).

During the reporting period, the Project has launched a series of actions focused on stakeholders' engagement and community building:

- It has set up its basic community building and cross-cooperation structure, defining through the collaborative platform Whaller the Project's specific **Working Groups** (as anticipated, in alignment with the IPCEI-CIS and the *European Alliance for Industrial Data, Edge and Cloud*), identifying the companies that will provide the industry counterpart within the Project's Expert Advisory Group, defining a way in which the Project will engage with the broader EU ecosystem, and how contributions to the Roadmaps will be managed in order to provide relevant feedback to WP2 and WP3.
- It has launched engagement actions targeting the European research and innovation ecosystem, especially through the EUCloudEdgeIoT initiative and other relevant EU-funded initiatives (e.g. the INPACE CSA, among others).
- It has launched engagement actions targeting the European market in its industrial ecosystem, with a special focus on the IPCEI-CIS ecosystem and the members of the *European Alliance for Industrial Data, Edge and Cloud*.
- It has defined the priorities of the Project for working towards a strategic alignment with other relevant initiatives, both inside and outside the EU.

This is an ongoing deliverable with an initial version in M6 (June 2024) and subsequent, updated versions to be produced in M18 (June 2025) and M30 (June 2026).

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## Abbreviations

<b>CSA</b>	Coordination and Support Action
<b>EU</b>	European Union
<b>HE</b>	Horizon Europe
<b>KPI</b>	Key Performance Indicator
<b>IoT</b>	Internet of Things
<b>IPCEI</b>	Important Project of Common European Interest
<b>IPCEI-CIS</b>	IPCEI Next Generation Cloud Infrastructure and Services
<b>RIA</b>	Research and Innovation Action
<b>WP</b>	Work Package

# 1 Introduction

Deliverable D4.1 provides detailed information about the community structure implemented by the Project and the definition and execution of the engagement actions involving the European research and industry ecosystem, as well as other relevant initiatives and user communities across different sectors. It is an ongoing deliverable with an initial version in M6 (June 2024) and subsequent, updated versions to be produced in M18 and M30.

This document follows the structure of the corresponding tasks in the Project's WP4 "Stakeholders' engagement and community building". It is composed on an Introduction (Chapter 1) and five main chapters:

- Chapter 2, describing the community building and cross-cooperation structure set up by the Project up until M6.
- Chapter 3, describing how the Project is engaging with the European research and innovation ecosystem, and its priorities after M6.
- Chapter 4, describing how the Project is engaging with the European market and industry stakeholders, and its priorities after M6.
- Chapter 5, describing how the Project is working towards a strategic alignment with other relevant initiatives.
- Chapter 6, which provides the conclusions and identifies the main next steps.

The document ends with two additional sections:

- Appendix A, with two examples of the public interviews that the Project is going to be carrying out during its execution with EU industry leaders and technology experts.
- Appendix B, with a summary of the feedback received by the Consortium as part of the session led by the Project at the Open Continuum Final Conference (June 2024).

## 2 Community building and cross-cooperation structure

The primary aim of community building and cross-cooperation is to establish and implement a solid and long-lasting community structure for NexusForum.EU that ensures the creation and engagement of a dynamic community around the project. This structure will facilitate effective collaboration with (and among) the EU research and industry ecosystems, integrating relevant strategic initiatives in the development of the European Cognitive Computing Continuum, and actively engaging user communities across various sectors and domains. A key mechanism for achieving this objective is the Consortium's unique ability to align and actively involve EU companies directly participating in the IPCEI-CIS and the *European Alliance for Industrial Data, Edge and Cloud*, as well as those organisations involved in relevant Horizon Europe consortia.

A key component of the project is the establishment of multiple Working Groups, that are both aligned with the main topics of the Research & Innovation Roadmap produced by NexusForum.EU and with similar topics covered by the IPCEI-CIS and the *European Alliance for Industrial Data, Edge and Cloud*. These WGs will create a unique context for transversal collaboration and engagement between EU industry experts and researchers, focusing on specific topics. Each Working Group will be co-led by a top researcher from one of the research partners in the NexusForum.EU consortium plus one representative from a participating EU private company. The co-leaders of all Working Groups, along with representatives of the rest of the NexusForum.EU, will form the Expert Advisory Board of the project. This body will play a key role in producing the consolidated Roadmaps and in channelling the feedback obtained from the EU industry and research community, and from non-EU entities and experts.

By establishing this robust community structure, the CSA aims to foster strong, long-lasting relationships within the Cognitive Computing Continuum ecosystem, driving forward research, industry, and user engagement across Europe and beyond.

### 2.1 Structure of the Working Groups

Working Groups are the core components of the project's engagement strategy towards relevant stakeholders across the cloud-edge-IoT continuum. They have been defined and structured in a way that ensures the alignment with the Roadmap's main sections and with both the IPCEI-CIS and the *European Alliance for Industrial Data, Edge and Cloud*.

Alignment of NexusForum.EU WGs with IPCEI-CIS Workstreams:

- Workstream 1 (Cloud-Edge Continuum Infrastructure) → Telco Cloud-Edge WG
- Workstream 2 (Cloud-Edge Capabilities) → AI for Cloud-Edge WG
- Workstream 3 (Advanced Smart Data Processing) → Cloud-Edge for AI WG
- Workstream 4 (Advanced Applications) → **Cloud-Edge Use Cases WG**

Alignment of NexusForum.EU WGs with original Task Forces from the Cloud-Edge WG at the *European Alliance for Industrial Data, Edge and Cloud*:

- Cybersecurity → **Cybersecurity WG**
- Climate Neutrality & Resource Efficiency → **Sustainability WG**
- Interoperability & Multi-Provider Services → **Interoperability WG**



- Technical Sovereignty for Edge/Cloud + Cloud/Edge Computing Landscape → **Sovereignty & Open Source WG**

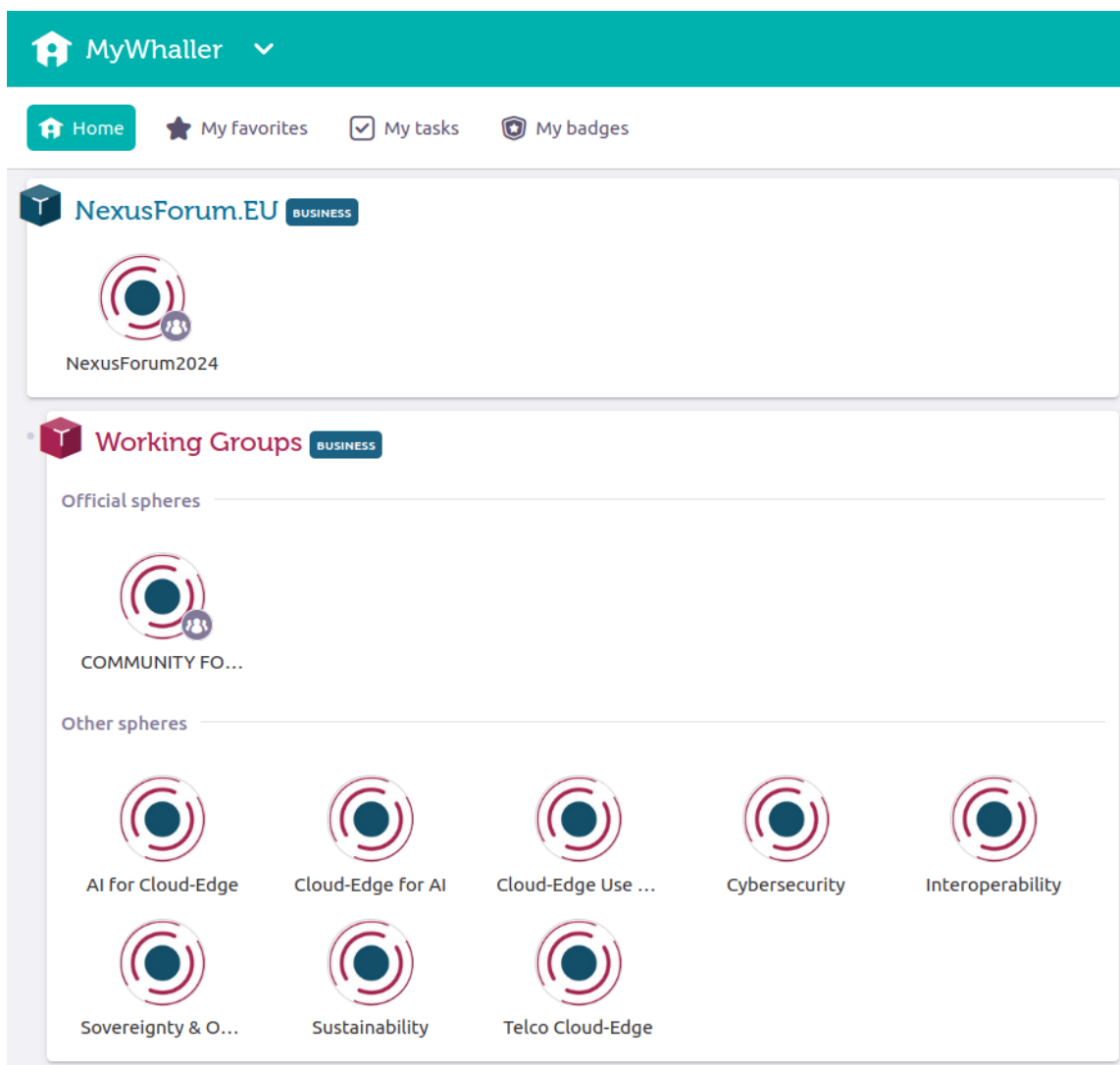


Fig. 1: NexusForum.EU collaborative platform provided by Whaller.

To ensure effective coordination and collaboration, Working Groups as well as a Community Forum open to all participants, will be hosted on Whaller (see Deliverable D5.1 for further details), a secure collaborative and social platform developed and maintained in France. Working Groups will host discussions and community-building actions per each topic, involving relevant EU industry experts and researchers. Each WG has an industry co-leader and a research co-leader, who coordinate the activities carried out by their respective WGs.

MyWhaller

Working Groups

**Spheres**

**Official spheres** 1 sphere

COMMUNITY FORUM

**Other spheres** 8 spheres

 AI for Cloud-Edge	 Cloud-Edge for AI	 Cloud-Edge Use Cases	 Cybersecurity
 Interoperability	 Sovereignty & Open ...	 Sustainability	 Telco Cloud-Edge

Consolidating Research and Policy along the Cognitive Computing Continuum

**Welcome to the NexusForum.EU Community!**

The NexusForum.EU project combines research and policy along the Cognitive Computing Continuum, essential for expanding the ongoing CSAs, particularly EUcloudEdgeIoT. It will generate research roadmaps, foster collaboration, establish links with relevant organisations, promote EU research diversity, identify skill gaps, analyse crucial topics, and engage with research communities outside Europe.

The shift from H2020 to Horizon Europe reflects the convergence of Cloud, Edge, and IoT technologies in the ICT industry, significantly impacting Europe at various levels. Future projects should capitalise on ongoing efforts and consolidate technology priorities outlined by the EU industry. This CSA aims to help the transition of the community of EC-funded projects and related initiatives towards closer collaboration with the European industry.

**i** NexusForum.EU is a Coordination & Support Action co-funded by the **EU** European Union's Horizon Europe research and innovation programme under Grant Agreement [101135632](#) and by the **CH** Swiss State Secretariat for Education, Research, and Innovation (SERI).

Fig. 2: Access to the NexusForum.EU Community Forum and Working Groups.

## 2.2 Expert Advisory Board

At the time of writing, an Expert Advisory Board is being established on the basis of the industry and research co-leaders of the Working Groups. As mentioned in the previous sections, each WG is co-led by an industry and research stakeholder, ensuring smooth collaboration across the duration of the CSA, and contributing towards supporting the European Commission and the European cloud-edge-IoT ecosystem in a holistic way.

The Expert Advisory Board will act as a strategic cooperation and alignment body between the NexusForum.EU project, the IPCEI-CIS, and the *European Alliance for Industrial Data, Edge and Cloud*. It is through the guidance of this Expert Advisory Board that the WGs perform research, analyse, and work (internally and together) towards the definition and continuous improvement of the research and innovation Roadmaps that the project will produce during its execution.

Research co-leaders will be identified from within the RTOs participating in the NexusForum.EU consortium (i.e. RISE and TecNALIA), whereas the following list illustrates which EU private companies have already agreed to contribute to the project with an industry co-leader to act as their counterpart in each of the WGs:

- Telco Cloud-Edge ← **Telefónica** (Coordinator IPCEI-CIS Workstream 1)
- AI for Cloud-Edge ← **OpenNebula Systems** (Coordinator IPCEI-CIS Workstream 2)
- Cloud-Edge for AI ← **E-Group** (Coordinator IPCEI-CIS Workstream 3)
- Cloud-Edge Use Cases ← **Engineering** (Coordinator IPCEI-CIS Workstream 4)
- Cybersecurity ← **Arthur's Legal, Strategies & Systems** (Member of Cloud-Edge WG, EU Cloud Alliance)
- Sustainability ← **Arsys** (Member of Cloud-Edge WG, EU Cloud Alliance)
- Interoperability ← **TBC** (Member of Cloud-Edge WG, EU Cloud Alliance)
- Sovereignty & Open Source ← **OpenNebula Systems** (Co-leader Open Source TF at Cloud-Edge WG, EU Cloud Alliance)

Through the future creation of geographic Working Groups for EU-Japan and EU-South Korea engagement, the Expert Advisory Board is also expected to support the project in fostering international cooperation with those two strategic countries for the EU.

## 2.3 Engagement with the broader EU ecosystem

In the current cloud and edge jurisdictional and geopolitical context, NexusForum.EU acts as an engagement tool, which benefits its joining members in many ways. Indeed, the tensions on the Eastern border of the EU, the rise of cyber criminality, and the ever-growing digital market share held by non-EU hyperscalers have highlighted the crucial role of sovereignty for an interoperable and secure cloud, edge and data infrastructure. The Data Act, the Digital Markets Act and the AI Act are, among others, legal instruments enacted by the European Union in a joint, supranational, effort to leverage market dynamics and sustain competition, as well as supporting innovation in the cloud edge data domain.

It is in this context that the NexusForum.EU project acts as a collaborative umbrella, under which stakeholders can openly exchange best practices, broaden their networks in the cloud edge data field and influence the European ecosystem. Members of the Working Groups will, indeed, have access to a myriad of benefits, such as taking advantage of the NexusForum

collaborative platform, through which they will be able to join a unique network of experts. On a similar note, it will provide a newsfeed tool for participants to be able to stay up to date with the latest news on cloud and edge computing in Europe, as well as with the latest developments on relevant EU regulation.

The NexusForum.EU ties with the IPCEI-CIS also allow stakeholders to meet the industry leaders behind the multibillion project and to have preferential access to the NexusForum Summits, as well as other events which would have a limited quota of joiners. Apart from events, the project will hold a variety of Industry and Research workshops, policy roundtables and discussions, fostering the appropriate circumstances for engaging in impactful discussions. The technological roadmap will be made available for feedback and contributions before it is published and before the global cloud-edge-IoT ecosystem is consulted on its contents. The NexusForum.EU portal on the Whaller Platform, as described in more detail in D5.1, is an opportunity for engaging in the production of the roadmaps as well as participating in the evaluation of the external feedback from other stakeholders.

Lastly, the European research ecosystem will be nurtured via the production of a high-level catalogue of cutting-edge research in this technological field as well as the creation of Special Issues on the same matter. Members of the NexusForum.EU Working Groups will be able to contribute with their own academic publications to such high-level catalogue.

## 2.4 Channelling contributions to the Roadmaps

The NexusForum.EU Working Groups can be classified into two categories. On one hand, the thematic working groups, based on the main sections of the technological roadmap and aligned with the strategic vision of the IPCEI-CIS and the European Alliance for Industrial Data Edge and Cloud, hold as main objective to collect contributions and feedback from relevant EU industry experts and researchers. On the other hand, the geographical working groups aim at fostering links between the EU cloud-edge-IoT ecosystem and the industry and research ecosystems of other strategic non-EU democratic countries. It is indeed through these working groups that international cooperation with Japan and South Korea is envisioned. As shown by the infographic below, Working Groups will play a key role in producing the technological roadmap and in keeping it up to date during the execution of the project, with collected feedback being always evaluated in first instance within each WG.

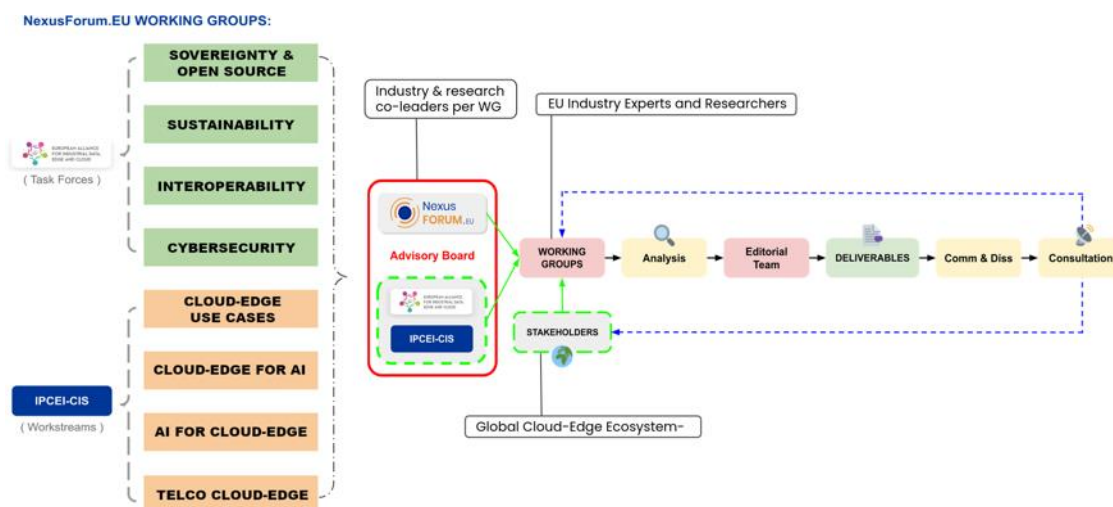


Fig. 3: How WGs fit into the project's approach towards keeping its roadmaps up to date.

Apart from the process of feedback collection described above, focused on the improvement of the research and innovation roadmaps produced by the project, the NexusForum Summits, and other relevant events, will also be leveraged in order will engage companies, scholars, users, and policymakers, focusing on exploring new joint exploitation actions between EU research and industry actors, and on collecting valuable feedback from the EU and non-EU cloud-edge-IoT ecosystem through open consultations and scientific activities.

### 3 Engagement of European research and innovation ecosystem

#### 3.1 Engagement with the RIA ecosystem through the EUCloudEdgeIoT initiative

The NexusForum.EU project aims at creating continuous engagement with ongoing EU-funded Research and Innovation Actions targeting relevant topics on cloud, edge computing, and IoT. In particular, the engagement process with the EUCloudEdgeIoT initiative has already been kick-started. Relevant partners from the NexusForum.EU project have joined the EUCloudEdgeIoT Task Force meetings. In this context, the project has already introduced itself to the RIA ecosystem (e.g. via the Open Continuum final event in June 2024, see Deliverable D5.1 for more details), paving the way for its future coordination role among the actions.

In addition to direct engagement activities, the NexusForum.EU project has prepared a map of relevant RIAs and IAs, and how they relate to the main themes that will be covered by the Research & Innovation Roadmaps that the project is producing. The RIA ecosystem will be engaged, in continuity with the activities of the EUCloudEdgeIoT, through a number of dedicated activities, ranging from thematic webinars and workshops to participation in Task Forces, to the involvement in the annual summits in Europe in September 2024 and in 2025. A more detailed timeline will be provided in the upcoming versions of this deliverable.

EUCloudEdgeIoT is an umbrella initiative that was brought to life by the Open Continuum and the UnlockCEI CSAs to support the European Commission in its efforts to consolidate the research and innovation activities in this field, especially those funded by the H2020 and Horizon Europe programmes, and provide support to the project consortiums implementing those funded actions. The goal of EUCloudEdgeIoT is to unlock the potential of these transformative technologies by understanding the supply and demand value chains in Europe. The NexusForum.EU project, as the new CSA in this field, will complement and expand the activities and support provided through EUCloudEdgeIoT by the current CSAs Open Continuum and UnlockCEI.

In this new phase, the EUCloudEdgeIoT initiative will keep an inclusive vision, supporting actionable recommendations and solutions for researchers, industry, and policymakers. Through effective partnerships, the initiative will keep guiding its stakeholders towards defining an integrated, open ecosystem built around open source, open standards, and the seamless and effective blending of cloud, edge, and IoT as key enabling technologies for several of the main strategic objectives of the EU in the digital world, including its positioning as a global leader in Artificial Intelligence.

The EUCloudEdgeIoT initiative took over and expanded the support towards the initial cloud, IoT and software engineering initiatives that consolidated and supported the research and innovation actions within their communities thereby including in its umbrella of projects those that were / are being implemented under the calls of cloud computing, swarm computing, MetaOS, Next Generation IoT, cognitive cloud, software technologies, and open source for cloud services. The addition of NexusForum.EU to the group of CSAs supporting this initiative will reinforce the focus on the cognitive computing continuum and the relative weight of everything that has to do with the deployment of innovative Artificial Intelligence solutions.



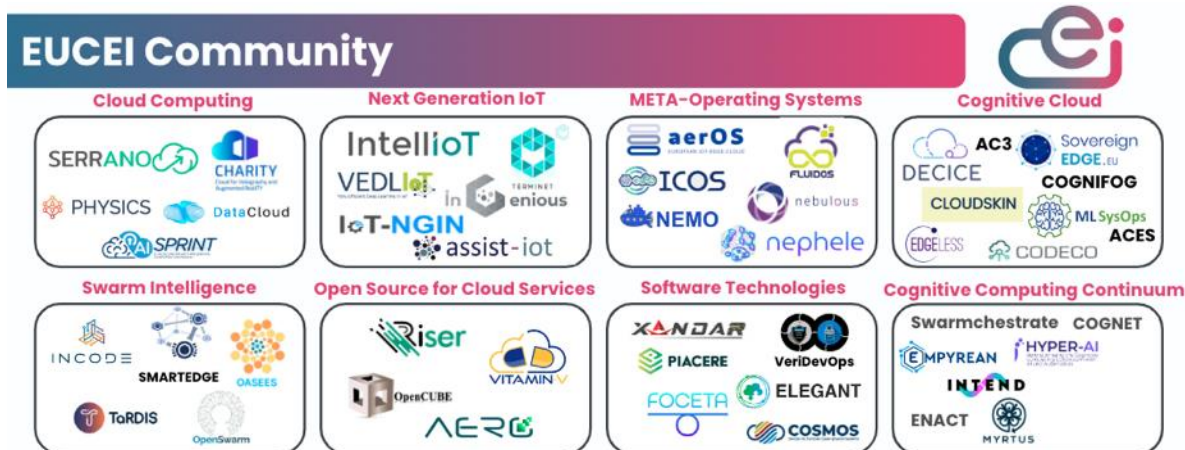


Fig. 4: The EUCloudEdgeIoT ecosystems of EU-funded RIAs.

The NexusForum.EU project, as part of its objective to take over the management of the EUCloudEdgeIoT initiative during the second half of 2024, is already liaising with the main CSAs which are currently behind this initiative. This process will go hand in hand with the transfer of the actual management of the EUCloudEdgeIoT website and other relevant communication channels (see Deliverable 5.1 for more details) with an aim to ensure continuity with the activities carried out so far as part of this initiative, while adjusting the communication to the mandate of the new NexusForum.EU CSA.

### 3.2 Engagement with other relevant EU-funded initiatives

NexusForum.EU is already in contact with other EU-funded initiatives that are relevant in the context of the cloud-edge-IoT continuum. The main objective after M6 (June 2024) is to consolidate the engagement with the several initiatives described below:

#### 5GMEC4EU

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/999999999/project/101133618/program/43251567/details>

5GMEC4EU is a CSA funded by the EU through the Connecting Europe Facility (CEF Digital) led by Detecon International (part of the Deutsche Telekom Group) and Monotch. It seeks to strengthen the European rollout of 5G systems and to push the adoption of multi-access edge computing (MEC) facilities along major transportation routes and within local communities.

The primary aim of this action is to identify and outline practical applications in the realms of CAM and 5G-enabled Smart Communities across diverse sectors. These applications will be driven by an integrated approach to 5G, edge, and cloud infrastructures. The action will also place a special emphasis on ensuring cross-border operability for 5G enabled CAM services, an essential feature for seamless experiences across Europe.

In cooperation with the CEF Digital selected projects, the Coordination and Support Actions: GUIDE project and the 5GSC Support Platform, this action will establish the groundwork for proofs of concept, tests, and pilot scenarios. To achieve its objectives, the action will work alongside various stakeholders, including mobile network operators, infrastructure operators, automotive manufacturers, and others involved in the mobility ecosystem. Furthermore, the

action commits to supporting ongoing projects in the same domain by organizing engagement platforms such as symposiums, workshops, and regular community meetings. The goal is to consolidate efforts around European federated cloud infrastructures and keep stakeholders informed about developments in this arena.

By fostering a collaborative environment and laying down the technical and operational foundations, this action aims to accelerate the development and deployment of advanced 5G enabled CAM services and 5G-powered Smart Communities. The broader implications are: enhanced connectivity, smarter and more efficient mobility solutions, and the creation of a unified European digital space where technologies work seamlessly across borders.

Conversations between the respective consortia as to how to align both CSA's objectives and future activities are already on-going.

## Data Spaces Support Centre (DSSC)

<https://dssc.eu>

- <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/digital-2021-cloud-ai-01-suppcentre>

The Data Spaces Support Centre (DSSC), an initiative funded by the EU through the Digital Europe Programme (DEP), is aimed at the public sector and companies that want to create sovereign data spaces. Its main objective is to contribute to the creation of common data spaces, that collectively create a data sovereign, interoperable and trustworthy data sharing environment, to enable data reuse within and across sectors, fully respecting EU values, and supporting the European economy and society.

Therefore, the DSSC will explore the needs of data space initiatives, define common requirements and establish best practices to accelerate the formation of sovereign data spaces as a crucial element of digital transformation in all areas. With the combined expertise of the 12 consortium partners in the project, plus its many associated and collaboration partners, the DSSC will provide the best possible support to data space initiatives on the requirements related to interoperable data spaces.

The main benefits the DSSC is expected to provide to European businesses and public administrations are:

- Enabling the availability of technologies, processes, legal frameworks, standards, and tools (e.g. Community of Practice, Blueprint) for the deployment of data spaces.
- Fostering the adoption of identified technologies and standards to enable the reuse of data across sectors by different stakeholders with a multidisciplinary approach based on co-creation and interaction.
- Contributing to the generation of sustainable and scalable products and services for the global market leveraging the use of shared data in business model development or in efficient, effective and repeatable policy decision-making.
- Ensuring that more data becomes available for use in the economy and society, while keeping those who generate the data in control.
- Facilitating the sharing of data, hereby creating a positive impact in the daily lives of citizens and giving confidence to businesses and public administrations.

The DSSC (through Fraunhofer ISST) already participated at the NexusForum2023 Summit by coordinating a panel on *Building a European Edge Cloud for Data Spaces*, with participation



from Amadeus, KPN, Mondragón Corporation, and OpenNebula Systems. The NexusForum.EU project will engage in further collaborative efforts with select Communities of Practice within the Data Spaces Support Centre (DSSC) to solicit feedback on cloud and edge computing as key enablers for Data Spaces, and to validate stakeholder support for policy recommendations developed through the CSA. Notably, esteemed partners will be invited to contribute to in-depth interviews and participate at its annual summit. Also, NexusForum.EU intends to participate in the 2025 DSSC Annual Event, further solidifying its link with this key EU-funded initiative.

## EU Edge Observatory

<https://digital-strategy.ec.europa.eu/en/policies/edge-observatory>

The main objective of the EU's Edge Observatory for the Digital Decade is to monitor the evolution of the climate neutral and secure edge node landscape and ecosystem across the EU Member States, mapping the deployment of nodes, investigating the use cases of edge nodes, and assessing the development of the EU edge node market. This initiative is funded by the European Commission (DG CNECT) through the Framework Contract SMART 2019/0024, Lot 1.

So far, the EU Edge Observatory has produced a number of relevant reports, including:

- *Edge Computing Definition and Taxonomy*
  - Published in September 2023
  - Co-authored by RISE, IDC, Technopolis Group, and Fraunhofer ISST.
- *1st Edge Deployment Data Report*
  - Published in September 2023
  - Co-authored by Technopolis Group, RISE, IDC, Fraunhofer ISST.
- *2nd Edge Deployment Data Report*
  - Published in March 2024
  - Co-authored by Technopolis Group, RISE, IDC.
- Country fiches on the Czech Republic, Estonia, France, Germany, Italy, the Netherlands, Poland, Romania, Spain, and Sweden.
- Case Studies:
  - *Multi-access Edge Computing (MEC)*, authored by Technopolis Group.
  - *Production Asset Management*, authored by Fraunhofer ISST.
  - *Edge, virtualisation and the future of telecom networks*, authored by Technopolis Group.

The EU Edge Observatory (through RISE) already participated at the NexusForum2023 Summit by coordinating a panel on *Next-Generation Cloud & Telco Edge Infrastructure*, with participation from IONOS, Deutsche Bahn, Deutsche Telekom, and OpenNebula Systems.

## HiPEAC

<https://www.hipeac.net>

- <https://cordis.europa.eu/project/id/101069836>

High Performance, Edge and Cloud computing (HiPEAC) is the premier focal point for networking, dissemination, training, and collaboration activities in Europe for researchers, industry, and policy related to computing systems. Today, its network, the biggest of its kind in Europe, numbers over 2,000 specialists.

HiPEAC's mission is to advance computer architecture and computing systems research and development as a discipline in Europe. Its objectives are to:

- Secure and strengthen a leading position for Europe in computing systems that support all aspects of modern society by advancing computing systems as a discipline.
- Prepare the next generation of world-class computing systems scientists and engineers in Europe by supporting their academic and professional development.
- Build a dynamic ecosystem for the design and implementation of computing systems in Europe by bringing together European research, industry, SMEs, and policy.
- Align research efforts in computing systems and strengthen research impact in Europe by identifying long-term challenges in computing systems and articulating their impact on modern society.

## INPACE

<https://www.inpacehub.eu>

- <https://cordis.europa.eu/project/id/101135568>

INPACE (*“Indo-Pacific-European Hub for Digital Partnerships: Trusted Digital Technologies for Sustainable Well-Being”*) is a CSA funded by the Horizon Europe programme and designed to contribute to fostering further collaboration between Europe and key partner countries in Asia (namely India, Japan, Republic of Korea, and Singapore) by establishing regular exchanges between leading experts, by supporting the digital policy dialogues on the governmental and institutional level, and by involving a large community of stakeholders in Europe and in the partner countries via online and in-presence events and the INPACE Community Hub.

A key instrument of INPACE is a set of Thematic Working Groups (TWGs) to nurture the exchanges between experts from industry, associations, government institutions and the research communities between the European Union and the Indo-Pacific region. The TWGs are organized in five Clusters that are co-led by organizations from Europe and from the Indo-Pacific region:

- Cluster 1: Digital Dialogues, Policies, and Education
- Cluster 2: Innovation and Entrepreneurship for Sustainable Well-being
- Cluster 3: Digital Technologies: Trustworthy Decision Support
- Cluster 4: Digital Technologies: Chips for the Future
- Cluster 5: Digital Technologies: Future Networks.

Cluster 5 includes a specific Thematic Working Group called “Cloud, Edge, IoT” (TWG 16) which is a natural link with the NexusForum.EU ecosystem, and through which joint activities will be organised and synergies created with actors in Japan and the Republic of Korea, and beyond. This engagement will be led by Martel, which is a partner in both CSAs, NexusForum.EU and INPACE.

## IPCEI-CIS Exploitation Office

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/digital-2023-cloud-ai-04-ipcei-exploit>

In 2023, the European Commission launched a €3M call under the Digital Europe Programme (DEP) to fund the future Exploitation Office of the imminent new IPCEI on Next-Generation Cloud Infrastructure and Services (IPCEI-CIS).

The IPCEI-CIS Exploitation Office is expected to provide at minima:

- Yearly activity management plans for the IPCEI-CIS.
- A dedicated website for dissemination purposes.
- A medium-term sustainability roadmap and governance strategy.
- Key events, meetings and summary reports.
- A dissemination and exploitation strategy.

The project proposal that has been selected by the European Commission for implementing the IPCEI-CIS Exploitation Office is led by a Consortium in which OpenNebula Systems, one of the core partners of the NexusForum.EU CSA, participates; this fact will ensure an active engagement with this initiative during its execution, expected to be launched shortly.

## SIMPL

<https://digital-strategy.ec.europa.eu/en/policies/simpl>

Simpl is an open source, smart and secure middleware platform that supports data access and interoperability among European data spaces. The European Commission is the contracting authority procuring Simpl. This project will produce three technological outputs:

- Simpl-Open: an open-source software stack that powers data spaces and other cloud-to-edge federation initiatives.
- Simpl-Labs: an environment for data spaces to experiment with open-source software and assess their level of interoperability with Simpl. Specifically, sectoral data spaces in their early stages of inception will be able to experiment with the deployment, maintenance, and support of the open-source software stack before deploying it for their own needs.
- Simpl-Live: distinct instances of the Simpl-Open software stack deployed for specific sectoral data spaces where the European Commission itself plays an active role in their management.

Active engagement with the Consortium that leads the implementation of Simpl will guarantee that both the innovation and the tangible technological results of this project are incorporated in a timely and accurate manner into the research and innovation Roadmaps that NexusForum.EU will produce during its execution.

## 4 European market and industry engagement

### 4.1 Engagement with the IPCEI-CIS ecosystem

In December 2023, the European Commission announced its support for an Important project of Common European Interest (IPCEI) on Next-Generation Cloud Infrastructure and Services—the IPCEI-CIS. This approval by the EC meant that seven EU Member States (France, Germany, Hungary, Italy, the Netherlands, Poland and Spain) are now authorised to mobilise up to €1.2 billion in State aid to support research, development and the first industrial deployment of European innovations in cloud and edge technologies, a process that is expected to unlock additional €1.4 billion in private investments.

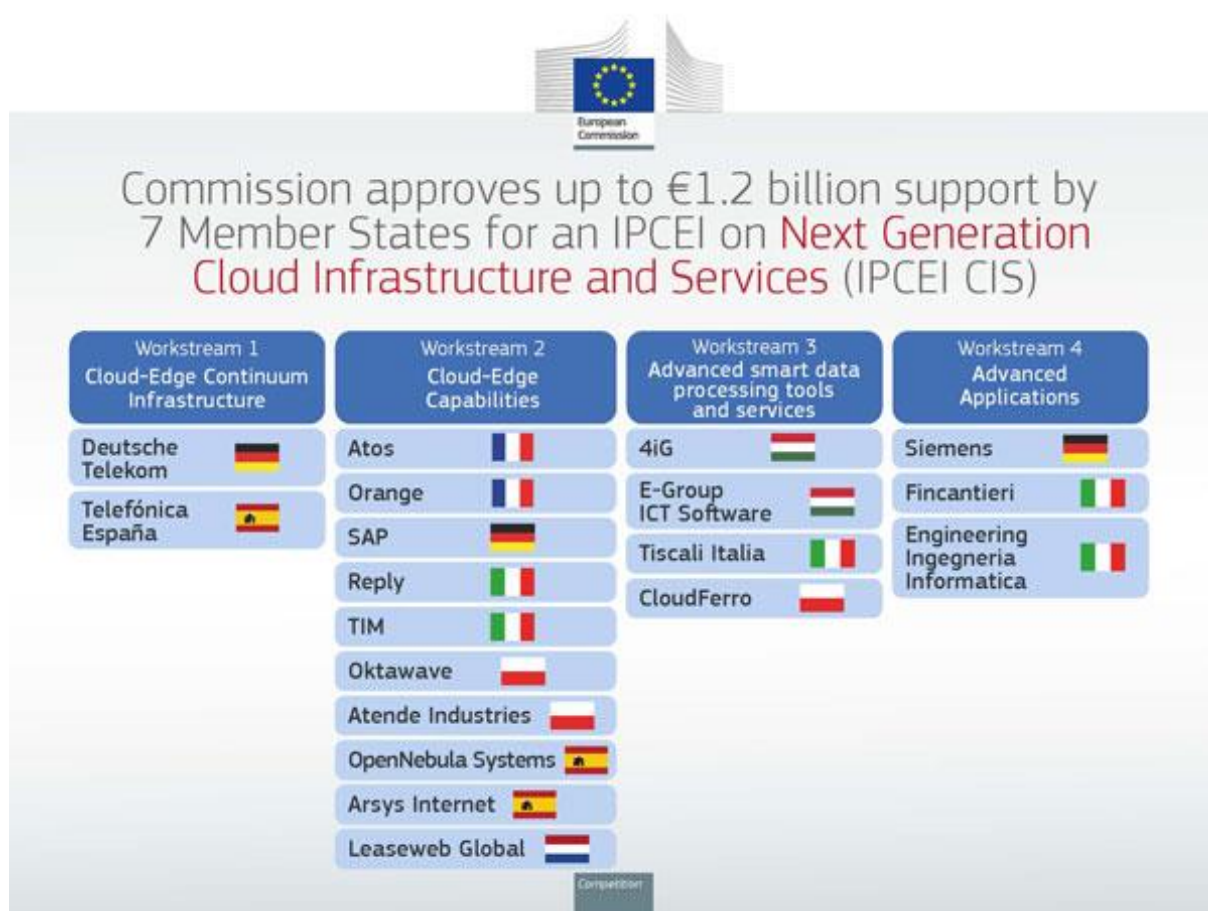


Fig. 5: The initial set of 19 direct participants involved in the IPCEI-CIS, and distribution of their respective projects along so-called Workstreams (Source: [EC](#)).

Since 2018, the European Commission has approved at least one IPCEI each year. IPCEIs are mechanisms by which the EC authorises EU Member States to provide State aid. Their legal basis comes from Article 107(3)(b) of the Treaty on the Functioning of the European Union (TFEU), which states that State aid is compatible with the internal market if it is intended "to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State".

In November 2021, the European Commission adopted a revised Communication on State aid rules for Important Projects of Common European Interest. It set the criteria for the EC to assess Member State support to cross-border IPCEIs that overcome market failures and enable breakthrough innovation in key sectors and technologies and infrastructure investments, with positive spill-over effects for the EU economy at large.

The 19 projects initially authorised by the EC (see Figure above) are part of the wider IPCEI-CIS ecosystem, which involved around 90 indirect partners, including large, medium and small enterprises, start-ups, and research organisations located in five additional EU Member States (Belgium, Croatia, Latvia, Luxembourg, and Slovenia).

*“The IPCEI approved today is crucial to deliver breakthrough innovation on Cloud and Edge technologies that fulfil European requirements for interoperability, data privacy, sustainability and cybersecurity. It will also provide the technologies and solutions to reach our Digital Decade Strategy 2030 objectives: a 75% of cloud uptake by EU enterprises and more than 10.000 edge nodes across Europe. With this IPCEI, Europe will reinforce its innovation leadership in next generation data processing services.”*

—**Commissioner Thierry Breton** (5 December 2023)

On the 18th and 19th March 2024, the first General Assembly of the IPCEI-CIS took place in Brussels. This event confirmed OpenNebula Systems, one of the core partners of the NexusForum.EU project, as Co-coordinators of Workstream 2 and, more importantly, as the chairing company of the whole *Industry Facilitation Group*, which will ensure the active engagement of this CSA with the industrial ecosystem of the IPCEI-CIS.

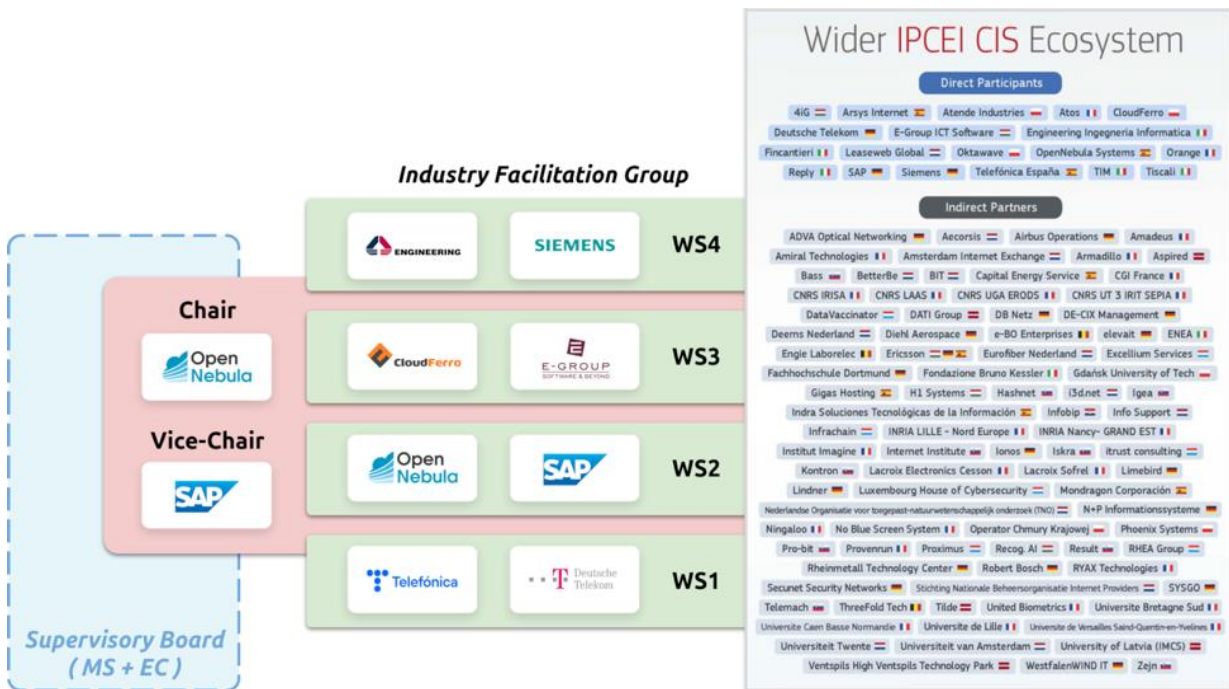


Fig. 6: Governance structure of the IPCEI-CIS (Source: EC & OpenNebula Systems).



## 4.2 Engagement with the European Alliance for Industrial Data, Edge and Cloud

According to the [Declaration of the European Alliance for Industrial Data, Edge and Cloud](#), this initiative—launched in 2021 under the sponsorship of Commissioner Thierry Breton—aims to strengthen the position of EU industry on cloud and edge technologies and capacities. It is expected to do so by answering to the needs of the European industry and public sector in terms of processing sensitive personal or highly sensitive business and public sector data, while addressing the trend towards increasing distribution and decentralisation of innovative data processing capacities. This initiative is expected to support the achievement of the EU’s digital decade targets for 2030, namely the establishment of climate-neutral, highly resource and energy-efficient, sustainable data centres, the deployment of 10,000 climate neutral highly secure edge nodes across the EU, and raising the percentage of EU companies using advanced cloud computing services.

The *European Alliance for Industrial Data, Edge and Cloud*, through its dedicated Working Groups, is expected to produce several specific outputs:

- A platform for leveraging investment synergies by industry in the research, development and deployment of next generation of resource-efficient, interoperable, highly secure and trusted EU cloud and edge technologies that meet the needs of European businesses and public sector dealing with sensitive personal, and highly sensitive business and public sector data (such as military-grade cloud).
- Detailed recommendations (e.g. use cases; strategic technology and investment roadmaps; market analysis and value chain gaps) and serve as matchmaking platform for businesses and public authorities on EU investments in next generation data processing capacities.
- A standing platform for coordination between the Commission and EU Member States on public sector cloud use and cloud public procurement, involving representatives of all EU Member States.
- A stakeholder consultation platform to the European Commission on common technical rules and norms for cloud services operating on the EU market, notably in view of elaborating the EU Cloud Rulebook, and the provision of expertise on common standards and requirements for the public procurement of cloud services, as foreseen in the European Data Strategy, as part of a consultation processes of the Commission open to all stakeholders.
- A platform to create synergies with Common European Data spaces, in particular those hosting sensitive personal, or highly sensitive public sector and business data requiring high security requirements. This coordination platform should gather the technical requirements for cloud/edge infrastructures and services for those Data Spaces, and ensure synergies and interoperability among the different Data Spaces in close coordination with the Support Centre for data sharing and the European Data Innovation Board.



## THEMATIC ROADMAP



Fig. 7: Presentation in Brussels in late June 2024 of the new Thematic Roadmap on Telco Cloud produced by the Cloud-Edge WG of the EU Cloud Alliance (Source: [LinkedIn](#)).

Organizations participating in the *European Alliance for Industrial Data, Edge and Cloud* are currently configured under three Working Groups:

- The Cloud-Edge WG, focused on creating regular industrial roadmaps on strategic cloud and edge technologies, like the one published in July 2023.
- The Aeronautics & Defence WG, focused on looking at the specific needs for cloud technologies in EU industrial sectors with the highest security requirements.
- The MS Cloud Cooperation WG, involving public authorities from EU Members States interested in defining common specifications for the public procurement of cloud services.

Back in mid-2022, and again now in mid-2024, OpenNebula Systems (one of the core partners of the NexusForum.EU project) has been elected as the chairing company of the Cloud-Edge Working Group. This will ensure the active engagement of this CSA with the industrial ecosystem of the EU Cloud Alliance, especially in terms of a possible structural alignment between the roadmaps produced by the Cloud-Edge WG and NexusForum.EU.

### 4.3 Engagement with the broader EU digital industry

One of the main objectives of the NexusForum.EU project will be to ensure a permanent and solid engagement with the broader EU digital industry with interests in the research and innovation actions that are taking place around cloud and edge computing, and to encourage their participation in the consultation processes launched by EU institutions but also their active involvement with CSA through its Working Groups for EU experts and researchers. After M6 (June 2024), the project will focus its efforts on consolidating the effective engagement with the following EU-based industrial entities:

#### CECOP

<https://cecop.coop>

CECOP is the European confederation of industrial and service cooperatives. CECOP represent 27 members in 16 European countries. These are national federations of cooperatives, and organisations that promote cooperatives. CECOP was founded in 1979 in Manchester (UK) by a group of cooperators from 6 countries: France, Italy, The Netherlands, Belgium, the United Kingdom and Denmark. In 1982, it established its first secretariat in Brussels, and in 1992 it became a confederation. Collectively, CECOP gives voice to 40,000 enterprises, employing 1.3 million workers. Over 95% of the cooperatives in its network are small or medium sized enterprises (SMEs). Some of them are part of strong horizontal cooperative groups like the CGMGroup of social cooperatives in Italy and the Mondragon Corporation in the Basque Country (Spain), the country's 7th biggest industrial group, employing over 80,000 workers. CECOP is the European regional organisation of CICOPA, the world sectoral organisation for industry and services, which is in turn part of the International Cooperative Alliance (ICA).

Efforts to engage with CECOP are based on the understanding that European tech cooperatives have one of the highest potentials in terms of becoming early adopters of the cloud and edge computing technologies developed by some of the key strategic initiatives taking place in the EU, including the IPCEI-CIS. Conversations with **Mondragon Corporation**, as a major player in CECOP and presiding company of the larger CICOPA, are already on-going.

#### Cloud Infrastructure Services Providers in Europe (CISPE)

<https://cispe.cloud>

CISPE is a non-profit association with a goal of developing greater understanding and promoting the use of cloud infrastructure services in Europe. CISPE members range from European SMEs to large multinationals (e.g. AWS), based in 14 EU Member States and with customers across the EU. CISPE has developed the first dedicated cloud infrastructure Code of Conduct for Data Protection under the EU's General Data Protection Regulation (GDPR) that would probably be the first of its kind. The code aligns with the strict requirements laid out in the GDPR framework to help providers comply and avoid penalties while helping customers and end users to select cloud providers and trust their services.

CISPE is a big advocate at EU level for a cloud first public procurement policy, sustainable energy-efficient policies, security and privacy, an open and competitive IT environment, a balanced policy framework distinguishing when cloud providers have access to their



customers' data or not, and a coherent and ambitious global trade agenda for the international deployment and use of cloud infrastructure that promotes European values with key trading partners.

## European Cloud Industrial Alliance (EUCLIDIA)

<https://www.euclidia.eu>

EUCLIDIA is an association of small and medium-sized enterprises (SMEs) involved in the cloud computing sector. Its members are European-owned SMEs that develop and supply hardware or software for Infrastructure as a Service (IaaS), Platform as a Service (PaaS), or Software as a Service (SaaS). The mission of EUCLIDIA is to ensure that Europe continues to benefit from the innovation and technological advancements developed within the continent. EUCLIDIA is committed to creating a robust ecosystem and an SME-friendly environment that promotes innovation.

EUCLIDIA's objectives align with the targets of Nexusforum.EU, particularly in promoting R&D among European SMEs. EUCLIDIA encourages collaboration with industry stakeholders, regulators, and other relevant entities to establish an independent European ecosystem for next-generation distributed edge cloud technology. Nexusforum.EU will engage with EUCLIDIA to ensure that relevant SMEs are represented in the Roadmaps produced by the CSA (e.g. by encouraging EUCLIDIA members to join the project's Working Groups for EU experts and researchers), and to collect timely policy recommendations through the public consultations launched by NexusForum.EU.

## European DIGITAL SME Alliance

<https://www.digitalsme.eu>

The European DIGITAL SME Alliance is the largest network of ICT small and medium enterprises in Europe, representing more than 45,000 companies. It is the joint effort of 30 national and regional SME associations from EU Member States and neighbouring countries. Its objectives include carrying out actions at the European level such as training programmes, organising conferences and seminars, and carrying out research, providing information to its members on EU policies, representing the interests of SMEs in the standardisation process and motivate them to get involved in that process, and also promoting the up-skilling and use of digital technologies and supporting the adoption of technologies in SMEs.

*“Digital sovereignty is the foundation for a strong and independent Europe in the digital age. It means that businesses, governments, and society can rely on trustworthy hardware, software, and digital services from European digital companies for their core processes. Only in this way, with technology designed in Europe we can secure the prosperity and technological resilience of Europe as a business location for the future. Digital sovereignty stands for freedom of choice in global competition, not for protectionism and isolation.”*

— **Dr. Oliver Grün** ([President of European DIGITAL SME Alliance](#))

The services that the European DIGITAL SME Alliance provides to its members already include a collection of relevant call under the Horizon Europe research and innovation programme, as well as other EU-funded opportunities. Efforts to engage with this entity are

based on the understanding that European digital SMEs have one of the highest potentials in terms of becoming early adopters of the cloud and edge computing technologies developed by some of the key strategic initiatives taking place in the EU, including the IPCEI-CIS. Conversations with the European DIGITAL SME Alliance are already on-going.

## 4.4 Engagement with relevant non-EU industrial actors

The NexusForum.EU project will also ensure an active engagement with the broader non-EU digital industry with interests in the research and innovation actions that are taking place in Europe around cloud and edge computing. This engagement will be focused on fostering participation in the consultation processes that the CSA will launch as part of the post-publication collection of feedback on its research and innovation Roadmaps. After M6 (June 2024), the project will focus its efforts on consolidating the effective engagement with non-EU industrial actors through the following entities and initiatives:

### EU-Japan Centre for Industrial Cooperation

<https://www.eu-japan.eu>

Joint venture established in 1987 by the European Commission (DG GROW) and the Japanese Government (METI) for promoting all forms of industrial, trade and investment cooperation between the EU and Japan. Its activities include offering support services for EU entities targeting Japan, designing training schemes & sectoral missions in Japan, promoting R&D and innovation, maintaining the National Contact Point in Japan for Horizon Europe, and conducting policy analysis. The NexusForum.EU project is planning to leverage the well-established network and resources it offers in order to identify the Japanese industrial counterparts of those EU tech companies interested in joint R&I activities around cloud and edge computing, so that they both can join the upcoming EU-Japan Working Group that the NexusForum.EU CSA is planning to set up as part of its Community Forum.

### EU Business Hub

<https://eubusinesshub.eu>

The EU Business Hub is a project funded by the European Union in support of EU Small and Medium-sized Enterprises (SMEs) and startups within the green, digital, and healthcare sectors that seek business opportunities and establish partnerships in Japan and the Republic of Korea (RoK). It will organise 10 business missions in Japan and 10 in the Republic of Korea by the end of 2027, each business mission allowing a group of approximately 50 innovative EU companies to benefit from extensive business coaching and B2B matchmaking. The NexusForum.EU project is planning to leverage this initiative in order to identify the Japanese / South Korean industrial counterparts of those participating EU tech companies interested in joint R&I activities on cloud and edge computing, so that they both can join the upcoming EU-Japan and EU-South Korea Working Groups that the NexusForum.EU CSA is planning to set up as part of its Community Forum.

## Japan Business Council in Europe (JBCE)

<https://www.jbce.org>

Created in 1999, the JBCE is a leading European organisation representing the interests of more than 100 multinational companies of Japanese parentage active in Europe. Its members operate across a wide range of sectors, including information and communication technology, electronics, chemicals, automotive, machinery, wholesale trade, precision instruments, pharmaceutical, steel, textiles and glass products. The JBCE has shown a particular interest in a number of EU files related to digital policy and innovation, including the AI Act, the Data Act, the Cyber Resilience Act, and the development of the European Data Health Space and the European Mobility Data Space. The main objective for the NexusForum.EU project after M6 (June 2024) will be to ensure that Japanese tech companies operating in the EU and with a special interest in R&I activities on cloud and edge computing are aware of the CSA, with a special focus on the upcoming EU-Japan Working Group that is going to be set up as part of its Community Forum.

## Korea Business Association Europe (KBA Europe)

<https://kba-europe.com>

Launched in 2013, KBA Europe is a business interest group that represents concerns and advocates the interests of Korean companies operating in Europe. We also seek to strengthen the strategic partnership between Korea and the EU to deal with the common challenges both businesses are facing. The JBCE has shown a particular interest in a number of EU files related to digital policy and innovation, including the GDPR, the DMA, the DSA, the Chips Act, and the Data Act. The main objective for the NexusForum.EU project after M6 (June 2024) will be to ensure that Japanese tech companies operating in the EU and with a special interest in R&I activities on cloud and edge computing are aware of the CSA, with a special focus on the upcoming EU-South Korea Working Group that is going to be set up as part of its Community Forum.

## 5 Strategic alignment with relevant initiatives

### 5.1 Engagement with relevant associations, foundations, and collective initiatives

In 2024, the project will prioritise the engagement with the following entities and initiatives, with others (such as the EuroHPC JU and the Chips JU) being targeted in 2025:

#### 6G Smart Networks & Services Industry Association (6G-IA)

<https://6g-ia.eu>

The 6G-IA is the voice of European Industry and Research for next generation networks and services. Its primary objective is to contribute to Europe's leadership on 5G, 5G evolution and SNS/6G research. The 6G-IA represents the private side in both the 5G Public Private Partnership (5G-PPP) and the Smart Networks and Services Joint Undertaking (SNS JU). In the 5G-PPP and SNS JU, the European Commission represents the public side.

The 6G-IA brings together a global industry community of telecoms & digital actors, such as operators, manufacturers, research institutes, universities, verticals, SMEs and ICT associations. The 6G-IA carries out a wide range of activities in strategic areas including standardization, frequency spectrum, R&D projects, technology skills, collaboration with key vertical industry sectors, notably for the development of trials, and international cooperation.

NexusForum.EU is already engaged in conversations with 6G-IA through its core partner OpenNebula Systems in the context of the current collection of feedback about the future SNS JU calls and their potential alignment with the R&I activities carried out by relevant projects under other Horizon Europe calls and by the recently launched IPCEI-CIS.

#### AI, Data and Robotics Association (ADRA)

<https://adr-association.eu>

ADRA was founded in 2021, by five European organisations: BDVA, CLAIRE, ELLIS, EurAI and euRobotics. ADRA was created as the private side of the European Partnership on AI, Data and Robotics, one of the European Partnerships in Cluster 4 (Digital, Industry, and Space) in Horizon Europe. The Partnership was officially launched when ADRA signed an MoU with the European Commission in June 2021. In July 2022, ADRA contributed to the launch of the CSA Adra-ecosystem (Adra-e), which aims to ensure the success of the Data and Robotics partnership initiated by the European Commission.

The objectives of the Adra-e project align with the goals of NexusForum.EU, particularly in supporting the implementation of the AI, Data and Robotics strategic research, innovation, and deployment agenda. Additionally, Adra-e focuses on mapping the AI, Data and Robotics landscape and infrastructure to deliver services and build connections between structured initiatives. Furthermore, Adra-e provides actionable recommendations for the Strategic Research, Innovation and Deployment Agenda (SRIDA).

NexusForum.EU plans to collaborate with ADRA to identify additional challenges and requirements for the cloud-edge-IoT continuum and evaluate the recommendations already

provided by SRIDA. The ADRA Convergence Summits present a valuable opportunity to facilitate dialogue between both CSAs. Moreover, NexusForum.EU will conduct individual interviews with key ADRA members to further explore areas of cooperation.

## Alliance for IoT and Edge Computing Innovation (AIOTI)

<https://aioti.eu>

The aim of AIOTI is to lead, promote, bridge and collaborate in IoT and Edge Computing and other converging technologies research and innovation, standardisation and ecosystem building, providing IoT and Edge Computing deployment for European businesses creating benefits for European society. It cooperates with other global regions to ensure removal of barriers to development of the IoT and Edge Computing market while preserving European values, including privacy and consumer protection.

Among other activities, AIOTI collaborates with the EU institutions for the implementation and execution of the European framework program for research and innovation; contributes to identifying, and, where possible, attempting to resolve, in part or in whole, market obstacles for IoT and Edge Computing deployment in a digital single market contexts; participates in, among other things, international projects, conferences, publications, publishing expert opinions, policy making and supporting standardisation activities; organises match making events involving, among others, SME's and large companies, academia, governments and end-users in innovation programs; and provides advice and expert input to the European institutions and EU Member States in connection with all structural and regulatory matters important for the creation and maintenance of a favourable climate for IoT and Edge Computing in Europe.

## Big Data Value Association (BDVA)

<https://bdva.eu>

BDVA is a prominent research and innovation organization dedicated to fostering a thriving innovation ecosystem that facilitates the digital transformation of the European economy and society through the adoption of data-driven and AI-enabled technologies. BDVA's primary objectives include advancing and promoting key areas such as Big Data technologies and services, data platforms and data spaces, industrial AI, data-driven value creation, and standardization and skills development

With a diverse membership base of over 240 organizations from across Europe, BDVA brings together a balanced mix of large, small, and medium-sized industries, as well as research institutions and user organizations. This collaborative approach enables the association to drive innovation, facilitate knowledge sharing, and promote the development of data-driven solutions that benefit the European economy and society.

The European Big Data Value Forum is BDVA's flagship event, bringing the whole community and collaboration partners together to share knowledge, collaborate and celebrate achievements. The NexusForum.EU project is targeting EBDVF as a relevant event in which the CSA should probably be present.

## Gaia-X

<https://gaia-x.eu>

Gaia-X has more than 320 members from 25 countries (inside and outside the European Union) including enterprises, research institutions, associations, and public administrations. Its mission is to establish a de facto standard that aligns with EU values by developing a comprehensive framework consisting of policies, rules, specifications, and a verification process. This modern approach to data governance goes beyond mere data points, also encompassing the infrastructure used for data storage and transformation.

The goal of Gaia-X is to define a standard model that enables the seamless connection of data and cloud layers. This model provides a framework for creating interconnected marketplaces and ecosystems for data and infrastructure services, ultimately facilitating the development and operational deployment of digital solutions.

Gaia-X is developing a comprehensive standard comprising three key components: architecture, rulebooks, and the Gaia-X Digital Clearing House (GXDCH). In essence, the Gaia-X standard can be viewed as a fundamental module within the operating system for data spaces, tackling the governance layer and enabling seamless regulatory compliance, semantic interoperability, and organizational interoperability. By facilitating the creation of interoperable Data Spaces that operate on a federated Cloud infrastructure, Gaia-X can enable the future of global data management. Moreover, this foundation will also pave the way for more advanced Artificial Intelligence solutions, aligning with the goals of the AI Act.

NexusForum.EU is actively engaged with Gaia-X through its participation in key Working Groups, such as OSS, and maintains a direct connection with the Strategy and Innovation officers. As part of this collaboration, NexusForum.EU is expected to receive feedback through invitations to its annual summit and personal interviews.

## International Data Spaces Association (IDSA)

<https://internationaldataspaces.org>

IDSA is driving innovation in the future of data exchange in Europe and beyond. With over 140 members, including companies, scientists, and lawmakers, IDSA is working together to shape a new vision for a global, digital Europe and worldwide. The organization's primary goal is to ensure data sovereignty by establishing an open architecture for peer-to-peer networks, enabling usage control of data across all sectors.

IDSA has developed the Data Space Protocol as a strategic enabler for the data-driven economy. This protocol will lay the foundation for trustworthy and sovereign data sharing, unlocking new opportunities for collaboration and innovation across various sectors. In September 2025, the Data Act will come into force, specifying criteria for participants in data spaces to facilitate seamless data flow within these spaces. This legislation will raise the global bar for guaranteeing the rights of individuals and organizations over their data.

However, this creates a timing challenge for Europe, which requires mature and open data space technology, and quickly. IDSA has responded to this call by developing the Data Space Protocol, designed for Europe and beyond. The protocol is expected to be approved by the ISO/IEC/JTC1 and published by the end of 2024. NexusForum.EU engagement with IDSA is related to the impact of this Data Space protocol and how the cloud-edge infrastructure should evolve to enable it. First contact at CEO level has been established.



## 5.2 Engagement with relevant EU institutions and agencies

The NexusForum.EU anticipates engaging with various EU institutions and agencies whose work is relevant to, or might be impacted by, the development of a European cloud-edge-IoT continuum. Preliminary research has identified the following entities to be approached:

### EISMEA

<https://eisma.ec.europa.eu>

The *European Innovation Council and SMEs Executive Agency* is responsible for implementing the European Innovation Council (EIC) and managing other funding programmes supporting innovators, researchers, businesses and consumers. It is aimed at reinforcing the EU's position as a global leader in Research and Innovation, strengthening its Single Market and opening up opportunities for SMEs operating in areas such as edge computing, IoT, and AI technologies.

### ENISA

<https://www.enisa.europa.eu>

The *European Union Agency for Cybersecurity* is the Union's agency dedicated to achieving a high common level of cybersecurity across Europe. ENISA contributes to EU cyber policy, enhances the trustworthiness of ICT products, services and processes with cybersecurity certification schemes (such as EUCS, the European Cybersecurity Certification Scheme for Cloud Services), cooperates with Member States and EU bodies, and helps Europe prepare for the cyber challenges of tomorrow.

### eu-LISA

<https://www.eulisa.europa.eu>

The *European Union Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security, and Justice* was established to provide a long-term solution for the operational management of those large-scale IT systems supporting, among others, the Schengen Information System (SIS) and the Visa Information System (VIS), which it does through its large corporate data-centres in Strasbourg (France) and St. Johann im Pongau (Austria). Recent activities in the area of interest of NexusForum.EU include the recent organisation by eu-LISA of an Industry Roundtable to explore the impact of cloud technologies on the EU Public Sector.

## 5.3 Engagement with the non-EU R&D community

The priority of the NexusForum.EU is to consolidate the connection with Japan and South Korea in everything that has to do with joint research and innovation activities on cloud and edge computing, especially in the context of industry-research collaborations targeting future Horizon Europe topics and/or fostering the adoption of European technologies developed by the IPCEI-CIS and other relevant initiatives.

The CSA is currently working on collecting a comprehensive list of universities, research and development centres, and other institutions in Japan and South Korea, as a previous step before contacting them in order to invite them to join their respective Working Groups as part of the CSA's Community Forum.

In anticipation of the organisation of a NexusForum Workshop in Japan by mid-2025, the project has been focused so far on identifying an initial list of key actors among the Japanese R&D community:

## Japan

- AI Data Consortium: <https://aidata.or.jp/en/>
- Data Society Alliance (DATA-EX): <https://en.data-society-alliance.org>
- National Institute of Advanced Industrial Science and Technology (AIST): [https://www.aist.go.jp/index\\_en.html](https://www.aist.go.jp/index_en.html)
- National Institute of Informatics (NII): <https://www.nii.ac.jp/en/>
- New Energy and Industrial Technology Development Organization: <https://www.nedo.go.jp/english/>
- Robot Revolution and Industrial IoT Initiative: <https://www.jmfrri.gr.jp/english/>



## 6 Conclusions

Apart from reporting the progress in stakeholders' engagement and community building up until M6 (June 2024), this document also identifies the main priorities in coming months in terms of engaging with the research and industry ecosystem behind the emerging computing continuum inside and outside the EU. Some of the next steps to take place after M6 include:

- Consolidation of the Project's Working Groups, in alignment with relevant activities carried out by the IPCEI-CIS and the *European Alliance for Industrial Data, Edge and Cloud*.
- Further engagement with relevant EU-funded initiatives, just as the 5GMEC4EU CSA, the Data Spaces Support Center (DSSC), the EU Edge Observatory, the HiPEAC network, the INPACE CSA, the upcoming IPCEI-CIS Exploitation Office, and the SIMPL project.
- Further engagement with the broader EU digital industry (through initiatives such as CECOP, CISPE, EUCLIDIA and the European DIGITAL SME Alliance) and with relevant non-EU industrial actors, with a special focus on Japan and South Korea (through initiatives such as the EU-Japan Centre for Industrial Cooperation and the new EU Business Hub, and through business interest groups such as JBCE and KBA Europe).
- Further engagement with other relevant initiatives operating across the cloud-edge-IoT continuum (such as the 6G-IA, ADRA, AIOTI, BDVA, Gaia-X, and IDSA) but also with EU institutions and agencies (like EISMEA, ENISA and eu-LISA) and non-EU organisations involved in relevant R&D activities in Japan and South Korea.

Future versions of this report, to be produced in M18 (June 2025) and M30 (June 2026), will offer an update on those activities.

## Appendix A: Listening to the EU industry

As part of its commitment to actively engage with the European market, and by leveraging the resources of [SovereignEdge.EU](https://sovereignedge.eu)—a community initiative coordinated by OpenNebula Systems and focused on bringing together the main EU industrial and research organisations collaborating in the sustainable development of European open source cloud/edge technologies—the NexusForum.EU project has launched a series of public interviews with EU industry leaders and technology experts. These interviews offer valuable information for understanding to what extent the Roadmaps produced by the CSA are aligned with the main technological and digital policy priorities of the EU industry.



### A Sovereign Edge Cloud for the European aerospace industry

An exclusive interview with Catherine Jestin, Executive Vice President Digital, Airbus

Link : <https://sovereignedge.eu/blog/a-sovereign-edge-cloud-for-the-european-aerospace-industry-an-exclusive-interview-with-catherine-jestin-airbus/>

As Executive Vice President and member of the Executive Committee at Airbus, Catherine Jestin supports digital innovation, cybersecurity and the implementation of cutting-edge artificial intelligence in order to shape the company's future and reinforce European technological sovereignty. Passionate about the aerospace industry, Catherine's focal point is to deliver innovative, competitive and robust IT products and services. Before being appointed as EVP in July 2021, her career at Airbus included working as Chief Information Officer (CIO), being responsible for innovating IT systems and solutions, and contributing to the Airbus Helicopters strategy as CIO. Prior to joining Airbus, she held various senior positions in the IT field, both at Rio Tinto in Montreal and at Accenture.

### ***What is the role that Airbus has been playing as part of the main EU research & innovation programmes?***

We at Airbus are very active in the main EU research and innovation programmes. Our involvement is strong in Horizon Europe, Digital Europe and, of course, in the Clean Aviation Joint Undertaking—the European Union's leading research and innovation programme for transforming aviation towards a sustainable future—and in the Single European Sky Joint

Undertaking—focused on accelerating through research and innovation the delivery of an inclusive, resilient and sustainable digital European sky. These strategic JUs are fundamental to our sector’s safety and environmental roadmap.

***How do you understand the concept of Technological Sovereignty from a European perspective, and what role do you expect open source to play in that?***

Our aerospace and defence ecosystem is actively tackling two objectives: deliver an ambitious aviation sustainability roadmap and bring a key contribution to the EU’s peace and security priorities—notably through defence and space activities. This relies deeply upon the increased use of dual digital technologies and solutions, including at the Cloud level. This also requires a resilient and competitive industrial system and supply chain, facing non-European competitors and the support they benefit from.

While being open, we must remain in control of the digital solutions that we adopt. Concretely, this means that we must ensure sufficient protection of our sensitive data and avoid risks of operational disruptions in the operation of the solutions we chose. This is indispensable in order to preserve our unique European know-how through the full life-cycle of Airbus aircrafts, from their initial design to post-sale maintenance.

***How is the participation of Airbus in the European Alliance for Industrial Data, Edge and Cloud contributing to strengthening your connections with the rest of the EU industrial ecosystem?***

EU Alliances are, generally speaking, an excellent instrument to foster cooperation and develop concrete projects within and throughout industrial ecosystems. The European Alliance for Industrial Data, Edge and Cloud, officially launched by the European Commission in 2021, provides a strong means to strengthen our collaboration for multi-country aerospace and defence programmes and consolidate links with the EU industry that can eventually lead to concrete R&D projects. As part of the EU Cloud Alliance, Airbus is involved in the development and deployment of data, computing and industrial ecosystems that support the digital transformation of European industry. We are also participating actively in the EU Alliances for Renewable Low Carbon Fuels (RLCF) and Zero Emission Aviation (AZE).

***How do you expect the new European highly-distributed, multi-provider cloud infrastructure that projects like the IPCEI-CIS is building to help Airbus speed up the adoption of the emerging Edge Computing paradigm?***

It is important for Airbus, as a leading global manufacturer, to have access to low-latency cloud resources near our manufacturing facilities, but making sure that this new edge cloud reduces vendor lock-in and to the competitiveness of the EU industry by facilitating the adoption of next-generation technologies that are actively developed in Europe, thus reducing dependencies on non-EU providers.

Furthermore, having a pan-European cloud service supported by a consistent multi-provider cloud infrastructure is essential for organisations like Airbus, which operates in several countries. This would avoid complexity and cost for local adaption or contractualisation to cope with specific national requirements. Furthermore, such an infrastructure, targeting state-of-art level of security, reliability and availability, can help to ensure business continuity in a context of geopolitical tensions around the world.

Airbus' involvement in the new €3B IPCEI-CIS also relates to use cases such as linking an aircraft (understood as a large IoT/Edge device) with on-the-ground cloud infrastructures. This will contribute to the European Digital Sky by enabling future services for Airbus, and other partners such as Diehl, based on advanced data-driven capabilities. This will improve the passenger experience too.

***Technological challenges aside, what do you think is the main policy aspect related to cloud/edge computing that the EU should address in the short term?***

The European Union Cybersecurity Scheme for Cloud Services (EUCS) is certainly the most pressing piece of legislation related to the EU's cloud policy. Ongoing discussions in this context are mainly concerned with the inclusion of various security criteria. Together with numerous Cloud users—within and beyond the EU aerospace and defence ecosystem—we are strong advocates for the so-called High+ criteria to be included in EUCS. These criteria are the only way to set a voluntary EU-wide reference point, allowing users to know whether the Cloud solution they would adopt is really safe from an extraterritoriality standpoint, especially when it comes to managing their most sensitive data. This concerns both potential leaks of data and risks of operational disruption. This standard would remain voluntary, so it would not be a barrier to entry—this is a “pro-choice” position. We want to be able to work with everyone, but we must be sure that the Cloud platforms we pick for hosting our most sensitive data are indeed robust enough from a legal standpoint. This needs to be done at EU level, for obvious harmonisation reasons and for single market and competitiveness purposes.





## **A Sovereign Cloud for boosting Europe's industrial competitiveness**

An exclusive interview with Michel Iñigo, Senior Innovation & Technology Manager, MONDRAGON Corporation

Link: <https://sovereignedge.eu/blog/a-sovereign-cloud-for-boosting-europes-industrial-competitiveness-an-exclusive-interview-with-michel-inigo-mondragon/>

Michel Iñigo is a Computer Science Engineer, currently working as Senior Innovation & Technology Manager at MONDRAGON Corporation. The focus of his work is on innovative Research & Development projects in collaboration with the European Commission, such as Horizon 2020 and Horizon Europe projects in the fields of digital transformation with advanced technologies such as Cybersecurity, IoT, Artificial Intelligence and Industry 4.0. Prior to joining MONDRAGON, Michel has worked as an IT consultant at the European Software Institute, and he held various positions in the advanced computer sciences field, including developing R&D projects in collaboration with Tecalia and the Virtualware Labs Foundation.

### ***How has MONDRAGON been contributing so far to the main EU research & innovation programmes?***

At MONDRAGON Corporation—a world leader in the cooperative movement with almost 69,000 workers and 81 cooperatives across four business areas (industry, retail, knowledge, and finance)—we are highly active in R&D projects under EU research and innovation programmes. With more than 50 ongoing projects, we submit around 100 proposals per year, leading 15% of them. Our R&D projects involve the manufacturing value chain (e.g. the automotive or machine tool builder divisions) and leverage technological expertise from our eight R&D centres plus the Mondragon University. Among other challenges, these projects address digital and sustainability topics such as AI, edge cloud, IoT, data spaces, Digital Product Passport, recycling, lightweight materials, etc.

### ***How do you understand the concept of “European digital sovereignty”, and what role do you expect open source should play in that?***

At MONDRAGON Corporation we work with the triangle of knowledge involving the industrial value chain, the Mondragon University, and our eight R&D centres. It is through this unique

combination of in-house capabilities that we address advanced technological challenges around Artificial Intelligence, standardisation and hybrid edge-cloud architectures by carrying out the open source developments and integrations that we need. At this point, the inclusion of advanced skills and talent is crucial for us to maintain our digital autonomy as a leading European industrial group, and incorporating open source solutions is essential for our technical teams to produce agile, resilient, and interoperable solutions for a changing market.

### ***How important is it to foster a model of joint technological innovation for strengthening the global competitiveness of the EU industry?***

Global competitiveness in the industry depends on the implementation of standard procedures, technological advancements, interoperability, and collaboration across the industrial value chain and with technology providers to enable agile responses and flexible manufacturing lines. At MONDRAGON Corporation, for example, we are developing standard solutions including the Reference Architectural Model for Industry 4.0 (RAMI 4.0) and its Reference Asset Administration Shell (AAS) standard. The flexibility of the AAS information model supports a wide variety of Industry 4.0 assets such as robots, drilling, boring or milling machines, sensors, 3D printers, CNCs, PLCs, SCADAs, and ERP/MES systems, to name a few. AAS applications can also encompass maintenance, information/data modelling, human-machine interfaces, production, simulation platforms, condition monitoring, troubleshooting, energy management, and safety and security.

Furthermore, collaborative business models are essential. In that sense, pan-European data space initiatives led by industrial actors like CATENA-X—an automotive open data ecosystem mirroring GAIA-X, where MONDRAGON is actively involved—enhance the automotive value chain and contribute to making the European industry more resilient. On the other hand, In EU-funded projects like Flex4Res we are developing an open platform for secure and sovereign data exchange along the supply chain that supports the reconfiguration of production networks. All these efforts are ultimately focused on consolidating our manufacturing capacities in a resilient way, which is crucial for maintaining high-quality production at efficient rates while reducing non-value-added activities.

### ***How do you expect the new European highly-distributed, multi-provider cloud infrastructure that projects like the IPCEI-CIS is building to help your company speed up the adoption of the emerging Edge Computing paradigm?***

It is crucial to implement sovereign and standardised cloud-edge-IoT solutions for the European manufacturing ecosystem, which is right now highly dependent on non-EU technologies and vendors. MONDRAGON Corporation, representing over 30 industry cooperatives within sectors such as automotive, industry components, and machine tool building, led the Advanced Application Workstream of the IPCEI-CIS during the proposal phase. As part of this strategic project, MONDRAGON is planning to deploy innovative Federated Learning services based on Asset Administration Shells (RAMI 4.0) and Artificial Intelligence to advance the European Manufacturing Data Space strategy through a seamless edge-cloud infrastructure.

These solutions will enable our manufacturing cooperatives to enhance and expedite the adoption of Digital Twins interoperability between heterogeneous cyber-physical systems and IoT platforms. Simultaneously, they will facilitate and streamline AI developments in a federated environment across multiple manufacturing locations and lines. This can be achieved by combining standardised data models from industrial devices as Digital Twins and

secure data exchange within the industrial value chain; all that being deployed across the sort of hybrid edge-cloud environments that the IPCEI-CIS is expected to offer.


***Technological challenges aside, what do you think is the main digital policy aspect related to cloud/edge computing that the EU should address in the short-mid term?***

The primary goals for society include economic growth and sustainability, bolstered by technology and innovation, while upholding human rights and democracy. MONDRAGON fosters a cooperative identity, forming a business group with strong local roots that is profitable, competitive, and entrepreneurial. We are Europe's best example of how an industrial cooperative can successfully operate in global markets through democratic methods, inter-cooperation, and social responsibility, merging the advantages of consensus with the unique human dimension of cooperatives to create a resilient and supportive industrial project.

The MONDRAGON Corporation aims to provide employment, facilitate the personal and professional growth of its workers, and contribute to community development, supported by innovation, advanced technical and business education, and social transformation. European digital policies should also be grounded in these principles to enhance productivity and the social commitment of businesses across different sectors. We look forward to further EU investments in AI and cloud-edge infrastructures for supporting the role that industrial cooperatives can play in boosting a socially committed, more resilient, and competitive Digital Europe.

## Appendix B: Open Continuum Final Conference

As part of the programme of the [final event](#) of the Open Continuum CSA (18 June 2024, Brussels), the NexusForum.EU project organised a session in which anonymous feedback was collected from the audience live via the Slido application. This information will be analysed after M6 as part of the continuous improvement of the project’s Research & Innovation Roadmap:

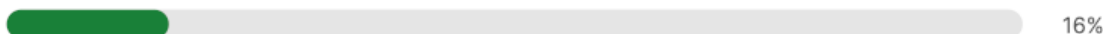
 **Are you interested in exploring potential R&D collaborations with Japanese & South Korean partners in anticipation to their association to HE?**


Multiple Choice Poll  19 votes  19 participants

Yes - 16 votes



No - 3 votes



 **Do you feel that your research ends up having a real impact on the cloud & edge technologies used in the EU?**

Multiple Choice Poll  20 votes  20 participants

Yes - 15 votes



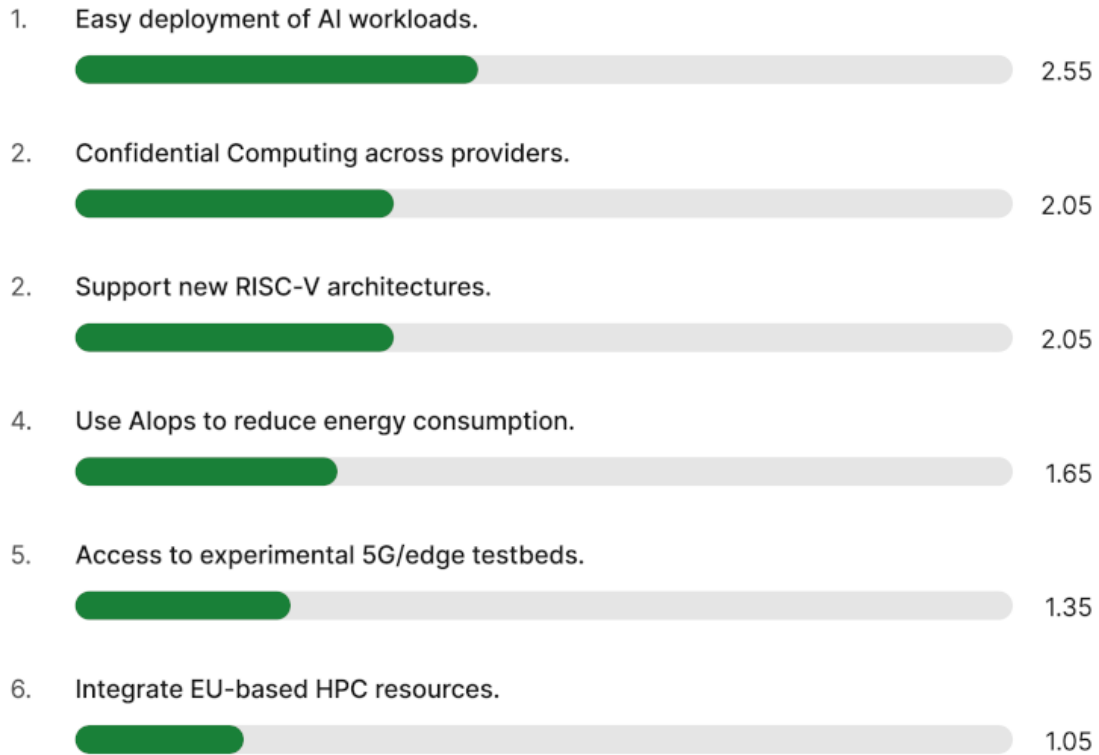
No - 5 votes





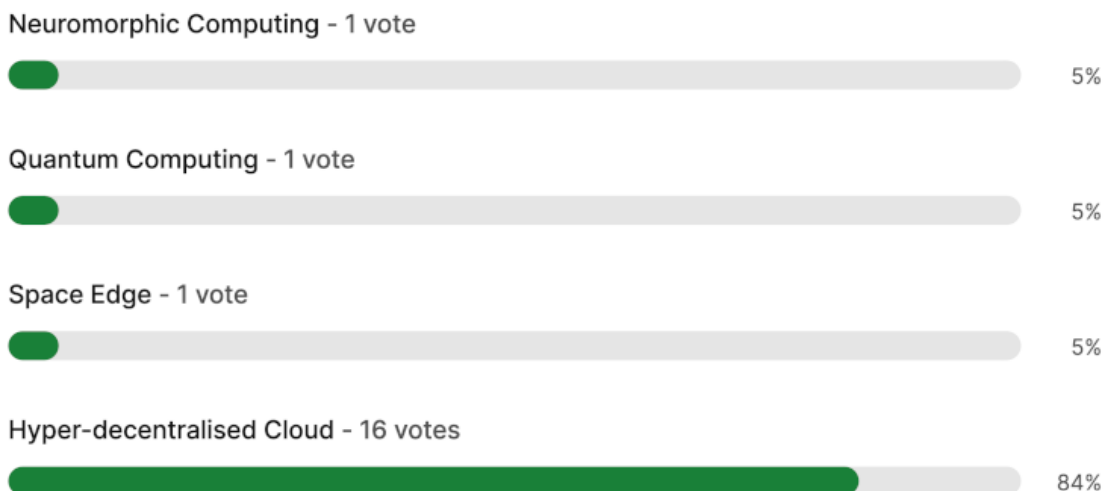
### Which aspects do you think are more critical for building a European sovereign edge cloud?


Ranking Poll 20 votes 20 participants



### In which of these areas do you think Europe is better positioned to become a global leader?

Multiple Choice Poll 19 votes 19 participants



 **Is there any other disruptive technology that you think is going to impact the EU cloud market in the mid/long term?**

Open text poll  19 responses  13 participants

DISRUPTIVE TECHNOLOGY	SUPPORT
Quantum	3
RISC-V	3
Open Source	2
AI	1
AIOps	1
Cloud and service federation	1
Confidential Computing	1
Human-like robots	1
LLMs	1
Open Standards	1
Virtualised energy grid operations	1

*(NOTE: Topics with the same number of mentions have been ordered alphabetically).*