

Annex 2 Update on MCPs / EDICs

The Digital Decade Policy Programme 2030¹ (hereafter ‘DDPP’) translates the vision of a digitally enabled society into a concrete set of targets driving the deployment of the Union’s strategic digital capacities. Together with the targets, the DDPP also establishes a **governance structure enhancing collaboration between the EU and its Member States to identify weaknesses and propose common solutions. Multi Country Projects (MCPs) are one of the building blocks of this governance structure**, providing a tool to drive the collective investment efforts in high priority areas identified in the Annex of the DDPP and reported below. In line with Article 11 of the DDPP, this Annex of the State of Digital Decade Report presents the progress of MCPs.

Multi-country projects:

- Enable big projects that one single Member State could not develop on its own;
- Pool resources to achieve economies of scale and increase impact;
- Help reduce the digital divide between Member States;
- Support an interconnected, interoperable and secure Digital Single Market;
- Build ecosystems of excellence important enough to attract and retain talent;
- Implement flagship initiatives for which cooperation among Member States is important.

The **MCP areas of activity** as listed in the Annex to the DDPP are: (1) European common data infrastructure and services; (2) Endowing the Union with the next generation of low-power trusted processors; (3) Developing the pan-European deployment of 5G corridors; (4) Acquiring supercomputers and quantum computers, connected with the European high performance computing (EuroHPC); (5) Developing and deploying an ultra-secure quantum and space-based communication infrastructures; (6) Deploying a network of security operations centres; (7) Connected public administration; (8) European blockchain services infrastructure; (9) European digital innovation hubs (EDIHs); (10) High-tech partnerships for digital skills; (11) Skills and training in cybersecurity; (12) Other projects which meet all the requirements set out in Article 11 and which become necessary to the achievement of the general objectives of the Digital Decade Policy Programme 2030 over time due to emerging social, economic or environmental developments.

The above list of areas has remained stable in the past year, allowing Member States and the European Commission to progress on the several large-scale projects that were already advancing the Union’s technological capacities in these sectors.

Article 11 of the DDPP indicates the instruments through which MCPs can be implemented, i.e., Joint Undertakings (JUs), European Research Infrastructure Consortia (ERICs), Union’s agencies, Important Projects of Common European Interest (IPCEIs) and independent actions of the Member States. ***Since the adoption of the DDPP, collaboration between Member***

¹ [Decision \(EU\) 2022/2481](#) of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme, OJ L 323, 19.12.2022, p. 4 (‘Digital Decade Decision’).

States and the Commission has stepped up through the new implementing mechanism introduced by the DDPP, namely the European Digital Infrastructure Consortium (EDIC). This new legal instrument combines the benefits of a rapid set up, flexible geometry and Member States' lead for its set up and operations.

As reflected in this Annex, a series of **successes** have been achieved since last year. In particular,

- Three EDICs have been formally established via Implementing Decision, namely the Alliance for Language Technologies EDIC, Local Digital Twins towards the CitiVERSE EDIC, and the EUROPEUM-EDIC.
- Further EDICs are currently in preparation and more initiatives are under consideration for becoming EDICs;
- In addition to the first IPCEI on Microelectronics and to IPCEIs in areas other than digital², two new IPCEIs in the field of digital technologies – the IPCEI on Next Generation Cloud Infrastructure and Services (IPCEI-CIS) and the IPCEI on Microelectronics and Communication Technologies (IPCEI-ME/CT) have been approved.
- The Chips JU and the EuroHPC JU are progressing well to deliver on their objectives.

1. EXISTING EUROPEAN DIGITAL INFRASTRUCTURE CONSORTIA (EDICS)

1.1. Alliance for Language Technologies (ALT-EDIC)

The **Alliance for Language Technologies EDIC** was officially set up by Commission Implementing Decision (EU) 2024/458 on 7 February 2024. submitted in December 2023 as one of the first EDIC applications. On 7 February 2024, the European.

Hosted by France, the ALT-EDIC counts (to the end of May 2024) sixteen Members States (Bulgaria, Croatia, Czechia, Denmark, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, The Netherlands, Poland, Slovenia, Spain). Six observing Member States are part of the consortium (Austria, Belgium, Estonia, Malta, Romania and Slovakia).

As per their statutes, the role of ALT-EDIC is to implement the MCP: Alliance for language technologies in the European Union – ALTEU. This falls under the area of activity listed in the DDPP Annex named **European common data infrastructure and services**. ALT-EDIC seeks to improve European competitiveness, increase the availability of European language data and uphold Europe's linguistic diversity and cultural richness. This will support the creation of Large Language Models (LLMs), advanced AI models that excel in understanding and generating human-like language. These capabilities, cutting across several applications, are key to the AI transformation. It is therefore important for the Union to ensure that these models embrace the linguistic diversity of the Union, and that initiatives to create and share available datasets for languages contribute to improving the capabilities of AI models in addressing the linguistic needs of the smaller Member States and language communities with limited language data and empowering users to engage with digital content in their native

² Approved IPCEIs are: IPCEI on Batteries (2019), Second IPCEI on Batteries – EuBatin (2021), First hydrogen IPCEI – Hy2Tech (2022), Second hydrogen IPCEI – Hy2Use (2022), Third hydrogen IPCEI – HyInfra (2024). More information at: https://competition-policy.ec.europa.eu/state-aid/ipcei/approved-ipceis_en.

languages. The supply of high-quality language data will be key for Union's model developers.

As part of its efforts to support the **European Data Strategy**, the Commission will make available high-quality language data from European institutions covering all European languages.

Finally, as advanced models can effectively handle multiple types of data simultaneously (text, audio, video, images, code, etc), ALT-EDIC will also open up possibilities for more holistic and comprehensive AI applications across various domains.

In particular, the **ALT-EDIC's action plan** focuses on five thematic areas:

- **Data:** to develop a central platform for European language resources and collect high-quality data sets, building on the Language Data Space. Creating strategic data for low-resource languages will be a particular focus.
- **Existing language models:** to gather open-source models, fine-tune, reduce and optimise them for use in European SMEs, and provide methodologies for their evaluation, certification and normalisation.
- **New language models:** to launch new open-source models (including models with multimodal capabilities), efficiently coordinate access to EuroHPC computers for EU companies and industries and provide support to public and private experts to develop new models.
- **Evaluation, certification, and normalisation:** to provide methodologies to address potential discrimination and bias introduced by natural language processing.
- **Ecosystem:** to develop a start-up incubator for businesses participating in the EDIC, promote links between industry and research, act as a key player of the European coordinated plan on AI, bring together and strengthen the Language Technologies (LT) community, provide dedicated support to institutions for investing in LT, and develop cultural programmes based on AI for language.

Within 2024, the ALT-EDIC will start coordinating their participation in funding mechanism, seek data availability in each participating country, provide guidance to relevant institutions and companies interested in provisioning, deploying and using LLMs-based solutions, as well as seek practical steps to integrate the Language Data Space in their offered services.

1.2. fiLocal Digital Twins towards the CitiVERSE - EDIC

The Local Digital Twins – CitiVERSE EDIC was established on 7 February 2024, with Implementing Decision (EU) 2024/459³.

Spain is the hosting Member State. To the end of May 2024, eleven Member States are members (Belgium, Czechia, Hungary, Estonia, Spain, France, Luxembourg, Latvia, Portugal, Slovenia and Slovakia) and nine additional Member States are finalising membership

³ [Commission Implementing Decision \(EU\) 2024/459](#) of 1 February 2024 on setting up the European Digital Infrastructure Consortium for Networked Local Digital Twins towards the CitiVERSE (LDT CitiVERSE EDIC).

negotiations (Austria, Denmark, Finland, Germany, Italy, Sweden, Poland, The Netherlands). 32 cities are expected to join this EDIC as full members.

The LDT-CitiVERSE-EDIC **delivers on the Commission's priorities concerning the digital and green transition and the New European Bauhaus**. This EDIC will contribute to **European common data infrastructure and services** area of activity, with a focus on the transversal Data Space for Smart Communities. It will ensure an open digital infrastructure environment, foster an industrial ecosystem for digital twins and a market for EU SMEs and industry. It will also perform targeted training activities for digital smart city solutions. Strategic business and policy priorities for the LDT CitiVERSE EDIC concentrate on:

- **Technical developments:** design, development, deployment, and scaling-up of EU infrastructures for digital twins; implement the common EU architecture blueprint for the Smart Communities Data Space; develop Artificial Intelligence-based solutions for Smart Communities; establish sustainable mechanisms for the EU infrastructure; creation and animation of an open-source community for Smart Communities.
- **Cooperation:** determine opportunities for Member States digital transformation with support of LORDIMAS; implement an EU-based data strategy and common governance; define funding schemes and draft joint procurements; develop an active digital strategy; cooperate with other relevant EU initiatives (e.g., EDIHs, Scalable Cities, EU mission 100 climate neutral cities, eGovernment, eID, EU Product passport).
- **Communication and dissemination:** capacity-building and concerted actions; assistance to cities in the process of introducing and implementing Digital Twins; transfer of knowledge in relation to scale-up solutions across Europe; share expertise and coordinate mechanisms for an interoperable EU (including standardization).

The city of Valencia will be the seat of the EDIC and the process for registering the legal entity will be finalised before the end of 2024. With a number of new Member States and tens of cities expected to enrol, this initiative will become truly pan-European common digital infrastructure serving Smart Communities.

The initial roadmap for the LDT-CitiVERSE-EDIC includes 2 action groups: Infrastructure and Projects.

The **Infrastructure group** will develop the initial business plan after an agreement of the main infrastructures relevant to the LDT-CitiVERSE-EDIC. It will collaborate with the ongoing procurements for the EU LDT Toolbox, and focus on synergies with existing official networks of the Commission, the Barcelona Supercomputing Centre ⁴, the European Committee of the Regions (CoR) ⁵, Living-in.EU ⁶ and with other EDICs.

The **Projects group** will be coordinating efforts in projects relevant for the EDIC and prepare joint proposals to calls for proposals, in particular from the Digital Europe Programme (DEP), and ensure an inclusive approach of member cities from the EDIC.

⁴ <https://www.bsc.es/>.

⁵ <https://cor.europa.eu/en>.

⁶ <https://living-in.eu/>.

A formal launch event of the LDT-CitiVERSE-EDIC will be organized in Valencia.

1.3. European Digital Infrastructure Consortium for European Blockchain Partnership and European Blockchain Service Infrastructure (EUROPEUM-EDIC)

The EUROPEUM-EDIC was established on 23 May 2024 with Implementing Decision (EU) 2024/1432⁷.

The seat of the EDIC will be in Belgium. To the end of May 2024, nine Member States are members of the EDIC (Belgium, Cyprus, Croatia, Greece, Italy, Luxembourg, Romania, Portugal, Slovenia). Poland is committed to joining soon. Several other Member States that are part of the European Blockchain Partnership have indicated the intention of applying to become members or observers.

The mission of EUROPEUM-EDIC is to **develop the European Blockchain Services Infrastructure and operate it to deliver EU-wide cross-border services**, in particular public services. The EDIC will thus contribute to **European blockchain services infrastructure** MCP area of activity. EUROPEUM-EDIC will also support **cross-border cooperation between public authorities** on decentralised technologies, **facilitate the interoperability of solutions with other technologies**, including at protocols, smart contracts, and applications level, and **contribute to better conditions for innovation**.

It will provide a sovereign infrastructure for underpinning cross border, national or local services. It will help reinforcing public services and the implementation of policies by providing capacities and new sharing and verifying models for a large range of attestation, certification or credentials, for instance in the areas of education. It will support the creation of new type of registries for businesses or organisations. For instance, EBSI will support in 2024/25 the operational verification of rights associated to brand owners for anticounterfeiting purposes, the model developed can apply to various other applications like the implementation of digital product passports.

2. EUROPEAN DIGITAL INFRASTRUCTURE CONSORTIA (EDICs) IN PREPARATION

2.1. Progress towards setting up the EDIC for Mobility and Logistics Data

To the end of May 2024, ten Member States (Austria, Bulgaria, Germany, Finland, France, Italy, Luxembourg, The Netherlands, Slovakia, Spain) are developing the Statute of the EDIC for **Mobility and Logistics Data EDIC** within an informal Working Group. Belgium, Romania and Sweden have expressed an interest in participating to the discussions. Formal application is expected in Q3 or Q4 of 2024. At this stage The Netherlands is expected to host the EDIC.

The EDIC for Mobility and Logistics Data aims to contribute to the effective implementation of the MCP area of activity on **European common data infrastructure and services, with a focus on the mobility and transport sector**. In line with the objectives of the common European mobility data space, the EDIC aims to **connect the multiple data initiatives in the mobility sector to ensure interoperability and the long-term sustainability of common**

⁷ [Commission Implementing Decision \(EU\) 2024/1432](#) of 21 May 2024 setting up the European Digital Infrastructure Consortium for European Blockchain Partnership and European Blockchain Service Infrastructure (EUROPEUM-EDIC).

infrastructure. The EDIC intends to allow the coordination and alignment on a common technical framework among its members and support large cross-border use cases based on data sharing, in areas such as freight visibility in multimodal logistics chains. In addition, it would support stakeholders in the sector by providing guidance and tools.

2.2. Progress towards setting up the Cybersecurity Skills Academy EDIC

To the end of May 2024, eight Member States (Austria, Cyprus, Croatia, Greece, Italy, The Netherlands, Portugal, Slovenia) are developing the Statute of the **Cybersecurity Skills Academy EDIC** (possibly changing the name of the initiative to Cybersecurity Skills Coalition EDIC) within an informal Working Group. The expected chair for this EDIC is Greece.

The Cybersecurity Skills Academy EDIC intends to contribute towards **addressing cybersecurity skills gap in the Member States**, thereby reinforcing the competitiveness, growth, and resilience of the EU. This commitment is articulated in the Communication of the Commission to the European Parliament and the Council ‘Closing the cybersecurity talent gap to boost the EU’s competitiveness, growth, and resilience (‘The Cybersecurity Skills Academy’)’⁸. The EDIC would be dedicated to **supporting key entities, including the European Commission, ENISA, and the European Cybersecurity Competence Centre (ECCC), in the effective implementation of the Cybersecurity Skills Academy initiative.** The EDIC also aims to undertake proactive actions to promote the upskilling and reskilling of professionals, aligning with the cybersecurity needs and regulatory conformity of European industries and national administrations.

2.3. Progress towards setting up the Genome EDIC

On 31 March 2023 the special group of national representatives in the **1+ Million Genomes initiative** endorsed the principal approach of creating an EDIC to operate the future European Genomic Data Infrastructure (GDI).

To the end of May 2024, nineteen Member States (Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Italy, Lithuania, Luxembourg, The Netherlands, Portugal, Romania, Spain and Sweden) are developing the Statute of the **Genome EDIC** within an informal Working Group

Luxembourg offered provisionally to host the EDIC. The governmental group in Pillar I of the GDI project, gathering representatives from more than 20 Member States, acts as the EDIC informal working group. Besides the reflection on the requirements and features of the future EDIC, the group works on the data governance and legal arrangements for the European Genomic Data Infrastructure and its alignment with the European Health Data Space. In March 2024, a task force within the WG was launched and started to work on the EDIC application with a view to submitting it later this year.

The 1+MG initiative aims to **enable secure access to genomics and the corresponding clinical data across Europe for better research, personalised healthcare and health policy making.** The GDI project co-funded under the Digital Europe Programme (DEP) will

⁸ [Commission Communication](#) ‘Closing the cybersecurity talent gap to boost the EU’s competitiveness, growth and resilience’ (‘The Cybersecurity Skills Academy’), COM/2023/207 final.

establish the **European Genomic Data Infrastructure** by 2026. Already by the end of 2024 at least five countries will achieve technical capability to provide secure access to genomic datasets and linked health data. The proof-of-concept of the data infrastructure was presented in 2023. The future EDIC aims to ensure sustainable operation of the European Genomic Data Infrastructure in accordance with the agreed data governance and a mandate formulated by the Member States in the EDIC statutes. The Genome EDIC should contribute to the MCP area of activity of the European common data infrastructure and services.

2.4. Progress towards setting up the Connected Public Administration EDIC (IMPACTS-EDIC)

To the end of May 2024, ten Member States are developing the Statute of the IMPACTS-EDIC (Austria, Croatia, Greece, Finland, Hungary, Lithuania, Luxembourg, Poland, Romania and Slovakia) within an informal Working Group. Formal application is expected to be submitted by the end of Q2 2024. Greece is expected to be hosting this EDIC.

The IMPACTS-EDIC aims at **connecting Public Administrations for providing advanced Public Services across Europe** – in line with the objective of the Interoperable Europe Act that calls for strengthened collaboration on interoperability in the EU – and **promoting Digital Ready Policy Making**. The IMPACTS-EDIC intends to focus on developing solutions for public administrations that will help implementing EU policies and that can be further disseminated through the future Interoperable Europe governance established by the Interoperable Europe Act⁹. In addition, the IMPACTS-EDIC aims to contribute to the **priorities of the Interoperable Europe Agenda** by providing solutions and implementing actions that will be in line with the agenda. IMPACTS-EDIC contributes to the **Connected Public Administration** MCP area of activity.

Several working streams aim at contributing to the creation of innovative public services and new reusable interoperable solutions exploiting existing European and National initiatives, namely:

- European Trans-border Information Architecture (BOARD-IA)
- Data analytics platform for public administration in the EU
- Platform for Co-creation of cross border public services
- Regulatory Sandbox for Data Exchange among Member States
- Forthcoming eIDAS Regulation topics e.g., European Digital Identity Wallet (EUDIW)
- Secure & interoperable cross-border network for exchange of data.

2.5. The informal working group is advancing in the drafting the Statute for the EDIC. Progress towards setting up the Digital Commons EDIC

To the end of May 2024, eleven Member States (Estonia, France, Germany, The Netherlands, Slovenia as members and Austria, Belgium, Czechia, Denmark, Italy, Poland as observers) are engaging in discussions on the set up of a Digital Commons EDIC within an informal

⁹ [Regulation \(EU\) 2024/903](#) of the European Parliament and of the Council of 13 March 2024 laying down measures for a high level of public sector interoperability across the Union (Interoperable Europe Act) OJ L, 2024/903, 22.3.2024.

Working Group. France and The Netherlands are potential hosts for this EDIC and are currently co-chairing the informal Working Group.

The Digital Commons EDIC aims to pursue overall objectives: (i) **Create a strong public-civic-private partnership**; (ii) **Promote the use and creation of digital commons**; (iii) **Improve the competitiveness of digital commons to enable large-scale adoption**; (iv) **Enhance the public contribution to strategic commons**. The working group is also seeking to identify further missions such as acting as a one-stop shop for the different stakeholders such as the Open-Source communities, developers but also adopters and promote the use of Open-Source digital solutions and become an incubator for the development and maintenance of strategic digital commons.

The Digital Commons EDIC aims to contribute to the following MCP areas of activity: European common data infrastructure and service; Connected public administration; European digital innovation hubs (EDIHs) and possibly also to other areas.

2.6. Progress towards setting up the Cancer Image Europe (EUCAIM) EDIC

To the end of May 2024, eleven Member States (Croatia, Greece, France, Italy, Latvia, Portugal, Spain as members and Germany, The Netherlands, Poland and Sweden as observers) are engaging in discussions on the set up of a EUCAIM EDIC within an informal Working Group. Spain is a candidate host for this EDIC and is currently chairing the informal Working Group.

The EUCAIM EDIC aims to contribute to the MCP area of activity of European common data infrastructure and services. The EUCAIM project co-funded at 50% from the Digital Europe Programme (DEP) aims to establish the **Cancer Image Europe platform**. It will be a cross-border, interoperable, and secure infrastructure which will link and **make available to clinicians, researchers and innovators large amounts of cancer images data and linked clinical information**. Its goal is to **support the development and benchmarking, testing and piloting of innovative AI-based tools for personalised cancer diagnosis and treatment**.

The first version of the Cancer Image Europe infrastructure was delivered in September 2023. A pilot infrastructure with prototype federated learning will be available by the end of 2024, ready for federation of new cancer image databases from additional sites and countries. A final release of the platform is planned for the end of 2025. Establishing an EDIC would ensure sustainable operation of the Cancer Image Europe data infrastructure beyond the EUCAIM project end. This solution would also enable alignment and connection with the forthcoming **European Health Data Space**.

2.7. Progress towards setting up the Agri-Food EDIC

To the end of May 2024, eleven Member States (Austria, Belgium, Croatia, France, Germany, Italy, The Netherlands, Poland, Romania, Spain, Sweden) are progressing on the first draft of the Statute for the Agri-Food EDIC within an informal Working Group. France is the candidate host for this EDIC and is currently chairing the informal Working Group. More countries have expressed interest in joining this EDIC.

The Agri-Food EDIC is foreseen to seize the opportunities of digital and data technologies to **reduce administrative burden in the agri-food sector; strengthen competitiveness and**

sustainability performance of the sector, and to **enhance data availability and sharing**. It is envisaged to capitalise existing and evolving assets, including the forthcoming **Common European Data Space**. The Agri-Food EDIC will contribute to the MCP area of activity of European common data infrastructure and services.

2.8. Possible setting up of the EU Startup Nations Alliance (ESNA) EDIC

The **EU Startup Nations Standard (EU SNS) initiative** was launched in March 2021 by the Commissioner for Internal Market with the aim of mobilising Member States to deliver optimised framework conditions and regulatory environment for startups. Member States take action under their national competencies in eight areas of policy (the so-called 8 “standards of excellence”), as set out in the political declaration for the EU Startup Nations Standard signed by Ministers from 27 countries (all Member States except Hungary, and Iceland) in March 2021¹⁰. To move from its political aspirations to an operational reality a legal entity – the **‘Europe Startup Nations Alliance’ (ESNA)** - was legally established in December 2021 under Portuguese law.

ESNA is a first-of-a-kind Member State-driven approach **addressing the fitness of the regulatory framework for startups**. ESNA has a full-time management board and EUR 8,5 million funding for its first 4 years of operations. To date, 18 of the 27 signatory countries have completed the formal process for joining ESNA. ESNA's 18 member countries now represent 73% of the EU's GDP, 71% of its population and are home to 64% of the Union’s unicorns. The five remaining signatory countries are making good progress towards joining ESNA. Discussions have now been ongoing about a **possible transformation of ESNA into an EDIC**. If set up, the EDIC would be a candidate to contribute to MCP are of other projects, under point (l) of the DDPP Annex.

3. IMPORTANT PROJECTS OF COMMON EUROPEAN INTEREST (IPCEIs)

3.1. IPCEI on Next Generation Cloud Infrastructure and Services (IPCEI-CIS)

In December 2023, the Commission approved the IPCEI on Next Generation Cloud Infrastructure and Services (IPCEI-CIS). This is composed of 12 Member States (Belgium, Germany, Spain, France, Croatia, Hungary, Italy, Luxembourg, Latvia, Netherlands, Poland, Slovenia) and more than a hundred private companies and Research and Technology Organisations (RTOs).

The IPCEI-CIS aims at **setting-up the first-ever cloud-to-edge computing continuum spanning across Europe via the development of interoperable and accessible European data processing technologies**. Such a computing continuum is expected to be open-source, highly secure and energy efficient. The research, development and first industrial deployment phases will run between 2024 and 2031, with timelines varying depending on the project and the companies involved.

The IPCEI-CIS will be a **key initiative for making available the technology that is necessary to achieve in particular two of the Digital Decade’s targets**: 75% of EU companies using Cloud, AI or Big Data; and 10,000 climate-neutral highly secure edge nodes

¹⁰ <https://startupnationsstandard.eu/files/SNS-declaration.pdf>.

deployed across Europe by 2030. It will also realise the ambition of the set-up of a **High Impact Project of the EU Data Strategy in the areas of cloud-edge computing**.

A total amount of about EUR 1.2 billion of public investment, expected to trigger an additional EUR 1.4 billion of private investment in return is invested in the IPCEI-CIS.

3.2. IPCEI in Microelectronics (IPCEI-ME)

The first IPCEI in Microelectronics has been approved in December 2018. It involves 32 participants from the original proposers, Germany, France, Italy and the United Kingdom, plus Austria which joined the IPCEI-ME in July 2019.

The project's overall objective is to **enable research and develop innovative technologies and components** (e.g., chips, integrated circuits, and sensors) **that can be integrated in a large set of downstream applications**. These include consumer devices, like home appliances and automated vehicles, and commercial and industrial devices, for example the management systems for batteries used for electric mobility and energy storage. The project participants focused their work on five different technology areas developing: (1) **new solutions to improve the energy efficiency of chips**; (2) **new technologies of power components**, for smart appliances as well as for electric and hybrid vehicles; (3) **new optical, motion or magnetic field sensors with improved performance and enhanced accuracy**; (4) **advanced optical equipment for future high-end chips**; and (5) **new compound materials beside silicon and devices suitable for more advanced chips**.

The overall State-Aid funding is around EUR 1.9 billion with additional EUR 6.5 billion of private investment. Companies from Germany, France, Austria and the United Kingdom completed the activities of their relevant projects in 2022 and 2023. The last project of this IPCEI is expected to end in December 2024.

A number of Member States and companies that participated in the IPCEI-ME are now involved in the IPCEI-ME/CT.

3.3. IPCEI on Microelectronics and Communication Technologies (IPCEI-ME/CT)

In June 2023, the Commission approved the IPCEI-ME/CT jointly prepared and notified by 14 Member States (Austria, Czechia, Finland, France, Germany, Greece, Ireland, Italy, Malta, the Netherlands, Poland, Romania, Slovakia and Spain). The IPCEI involves 68 projects from 56 companies which will closely cooperate with more than 40 associated companies, also from additional Member States (Belgium, Hungary, Latvia, Portugal, and Slovenia) and Norway, thus summing up to 20 countries involved in Europe. In addition, around 600 indirect partners, companies or organisations, hold collaboration agreements with one or more direct participants of this IPCEI ME/CT and will therefore benefit from its dissemination activities.

The IPCEI ME/CT concerns **research and development projects covering microelectronics and communication technologies across the whole value chain from materials and tools to the chip designs and novel manufacturing processes**. These projects aim at enabling the digital and green transformation by creating innovative microelectronics and communication solutions, and by developing energy-efficient and resource-saving electronics systems and manufacturing methods. **They will contribute to the technological advancement of many sectors, including communications (5G and 6G), autonomous driving, artificial**

intelligence and quantum computing. The first reporting to the Commission of the ongoing activities is due in July 2024.

Member States will provide up to EUR 8.1 billion in public funding, which is expected to unlock additional EUR 13.7 billion in private investments.

4. JOINT UNDERTAKINGS

4.1. Chips Joint Undertaking (JU) (former Key Digital Technologies (KDT) JU)

The Chips JU is a joint undertaking set up under Council Regulation (EU) 2021/2085¹¹ and its amendment Council Regulation (EU) 2023/1782¹². It entered into force at the same time as the **Chips Act** on 21 September 2023. With its entry into force, the former **KDT JU** (which provided extensive support for industrially-driven research, technology development, and innovation in the area of electronic components and systems) was **renamed as the Chips JU and its scope was enlarged in order to implement the main part of the Chips for Europe Initiative** set up under the Chips Act, namely: **setting up a chips Design Platform; enhancing existing and developing new advanced pilot lines; building capacities for accelerating the development of Quantum chips and associated semiconductor technologies; and establishing a network of competence centres across the Union.**

The Chips JU is a tripartite partnership composed of the **Commission** (representing the Union), **participating states** (Member States and countries associated to Horizon Europe (HE) and/or Digital Europe Programme (DEP)) **and private members**, i.e., three industry associations: Aeneas, Inside and European Platform on Smart System Integration (EPoSS). It receives funding from Horizon Europe (up to EUR 2.725 billion) and Digital Europe Programme (up to EUR 1.450 billion). Participating states contribute a commensurate amount while the private members commit to at least EUR 2.5 billion.

Regarding milestones, on 1 December 2023, the Chips JU launched the first call related to the Chips for Europe Initiative with EUR 1.67 billion of EU funding (expected to be matched by funds from participating states to reach EUR 3.3 billion, plus additional private funds). In 2024, further calls (e.g., on the Design Platform, competence centres, etc.) are expected to be launched as well.

The Chips JU's role will be **key to achieve the Chips Act's objectives**, in particular, to **bridge the gap between research, innovation and production, thereby facilitating the commercialisation of innovative ideas.**

4.2. European High Performance Computing Joint Undertaking (EuroHPC)

The EuroHPC JU is the initiative making it possible to realise MCP initiatives in the area of supercomputing and quantum computing, **developing, deploying, extending, and maintaining in the EU a world-leading federated, secure, and hyper-connected supercomputing, quantum computing, service, and data infrastructure. The EuroHPC JU enables Member States to coordinate their supercomputing strategies and pool their**

¹¹ [Council Regulation \(EU\) 2021/2085](#) of 19 November 2021 establishing the Joint Undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014.

¹² [Council Regulation \(EU\) 2023/1782](#) of 25 July 2023 amending Regulation (EU) 2021/2085 establishing the Joint Undertakings under Horizon Europe, as regards the Chips Joint Undertaking.

investments together towards acquiring supercomputers and/or quantum computers, as well as deliver concrete services across Europe to a wide range of academic, industrial, SME and public users with applications that impact both our everyday life and the challenges affecting the planet as a whole. This approach is necessary, as the acquisition and ownership of supercomputers and quantum computers requires **high levels of investments** from both the public and the private sectors. The list below provides an estimation of the identified costs:

- Mid-range supercomputer – level of investment per system: EUR 30 - 50 million.
- High-end supercomputers – level of investment per system: EUR 150 - 500 million.
- Quantum computers (as standalone machines or as accelerators of supercomputers) – level of investment per machine: EUR 50 - 250 million.

In addition, **further investments will be needed to ensure secure and reliable connectivity** with the EuroHPC extreme-bandwidth communication network, to support HPC national competence centres and skills, and to develop advanced applications requiring supercomputing in domains such as large language models, health (cancer diagnosis, new drugs, etc.), disaster prediction and management, engineering, digital twins of the human and its organs and of the Earth, and many more.

The EuroHPC JU has already procured **eight supercomputers**, located across Europe. Six supercomputers are now operational: LUMI in Finland, LEONARDO in Italy, Vega in Slovenia, MeluXina in Luxembourg, Discoverer in Bulgaria, and Karolina in the Czech Republic. Two more supercomputers - MareNostrum 5 in Spain and Deucalion in Portugal – were also inaugurated in 2023.

These projects depend on a high level of multi-country participation: e.g., LUMI in Finland with ten countries and a total investment of EUR 144 million; Leonardo in Italy with six countries and a total investment of EUR 120 million; and Mare Nostrum 5 in Spain with three countries and a total investment of EUR 151 million.

In addition, **seven additional sites for supercomputers** – in Germany, France, Greece, Sweden, Hungary, Ireland, and Poland - **have already been announced by the EuroHPC JU**, with two of them due to become Europe’s first and second exascale supercomputers: JUPITER, which will be hosted in the Jülich Supercomputing Centre in Germany, and the Jules Verne consortium’s supercomputer, to be hosted at the French Alternative Energies and Atomic Energy Commission in France.

In October 2022 the EuroHPC also announced **six sites to host quantum computers** (in Czechia, Germany, Spain, France, and Poland and in Italy) to be integrated with existing supercomputers, with a total co-investment of EUR 100 million, 50% of which comes from 17 participating states. The LUMI-Q Consortium in Czechia is the largest consortium of the six involved, bringing together 14 partners from nine participating states. The public procurement tenders for the Polish and Czech systems were published in the fourth quarter of 2023, and the remainder in the first quarter of 2024.

These EuroHPC supercomputing systems will increase by at least a factor of four the available computing power of the EU that will be available to EU users from academia, industry, and the EU public sector. The Joint Undertaking will deploy a fully hyperconnected and federated advanced computing infrastructure, providing end- to-end

connectivity, performance, security, and resilience which will underpin the development of a federated ecosystem. Additionally, in line with the amendment to the Regulation establishing the Joint Undertaking proposed by the Commission in January 2024⁽¹³⁾, **the EuroHPC JU will support the further development of a highly competitive and innovative AI startup and research ecosystem in Europe**, including the development and uptake of European AI solutions, by establishing and operating AI Factories. The AI Factories will be the basis for further multi-country projects in the area of supercomputing.

The success of these multi-country projects relies on a strong long-term political and financial commitment of public and private partners towards a clear and ambitious pan-European strategy driven by the Union, defining concrete goals and impact in key European policies under one single governance and legal instrument that has the capacity to mobilise and pool the necessary critical mass of investments (national, EU and private) on the whole spectrum of the HPC ecosystem.

Since the launch of the **EuroQCI Declaration** in June 2019, the Commission has been working with the Member States and with the European Space Agency (ESA) towards the **deployment of a secure quantum communication infrastructure - the European Quantum Communication Infrastructure (EuroQCI) initiative** - spanning the whole EU, including its overseas territories. **Developing and deploying an ultra-secure quantum and space-based communication infrastructures** is one of the DDPP areas of activity for MCPs.

The EuroQCI will consist of a **terrestrial component building on new and/or existing fibre communication networks linking strategic sites at national and cross-border level, complemented by a space component to cross-link and cover the whole EU**. Since 2023, EuroQCI has been part of **IRIS², the Union Secure Space-based Connectivity Programme**¹⁴.

26 national projects, supported by the Digital Europe Programme (DEP), have been underway since January 2023, and have the aim of delivering the design and deployment of the national quantum communication networks that will form the basis of the EuroQCI's terrestrial segment. DEP is also funding a coordination and support action,¹⁵ a set of industrial projects to develop and mature the key technological building blocks that the EuroQCI will need, with the broader goal of expanding Europe's quantum communication ecosystem, and the construction and deployment of a testing and evaluation facility for technologies necessary for quantum key distribution, the first service to be offered by the EuroQCI. A total of EUR 170 million from DEP will fund all these projects collectively.

2024 sees a CEF Digital call planned, with a total budget of EUR 90 million, to support projects working on cross-border links between national networks and on interconnections with the EuroQCI's space segment. To make the latter a reality, the Commission is currently working with the ESA on the specification of a **first-generation constellation of EuroQCI satellites**. This will build on the first prototype satellite Eagle-1, developed by ESA and an

¹³ [Proposal for a Council Regulation](#) amending Regulation (EU) 2021/1173 as regards an EuroHPC initiative for start-ups to boost European leadership in trustworthy Artificial Intelligence, COM(2024) 29 final/2.

¹⁴ [Regulation \(EU\) 2023/588](#) of the European Parliament and of the Council of 15 March 2023 establishing the Union Secure Connectivity Programme for the period 2023-2027, OJ L 79, 17.3.2023, p. 1.

¹⁵ <https://petrus-euroqci.eu/>.

industrial consortium and planned to be launched in late 2025 or early 2026. Additional funding for the EuroQCI is provided by Horizon Europe, as well as ESA and national sources. In the future, Commission funding for the EuroQCI will come from the budget of IRIS² and be covered by its work programmes.

Now that EuroQCI is part of IRIS², governance is provided by working groups reporting to the EU Space Programme Committee. Within these groups, Member State representatives advise the Commission on the initiative's development and deployment, ensuring that all stakeholders can shape it and that it continues to make progress as a key element of the **Secure Connectivity Programme**.