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ANNEX 1

ANNEX

to the

Commission Implementing Decision

on the financing of the Digital Europe Programme and the adoption of the work programme for 2023 - 2024 and amending the Commission Implementing Decision C(2021) 7914 on the adoption of the multiannual work programme for 2021-2022

DIGITAL EUROPE

Work Programme 2023-2024

INTRODUCTION

The second Work Programme (WP) of the Digital Europe Programme 2023-2024 responds to a two-fold challenge. On the one hand, it aims to ensure the continuation, evolution and sustainability of actions that started within the first WP 2021-2022, taking into consideration the overall aim of the Digital Europe Programme of capacity building. On the other hand, it has to be adjusted to new developments. It no longer covers The European Quantum Communication Infrastructure (EuroQCI) Initiative[1] actions that are, with the corresponding budget, moving to the Secure Connectivity initiative[2], while simultaneously introducing actions that follow the priorities and legal obligations of the EU. It also anticipates the impact of the proposed European Chips Act.

The EU's goals in the area of digital transformation are defined in the communication: "2030 Digital Compass: The European way for the Digital Decade"[3] and "Path to the Digital Decade"[4] policy programme that sets up a governance framework and lists digital targets for 2030 based on four cardinal points: digital skills, digital infrastructures, digitalisation of businesses and of public services. The EU is engaged on the pathway towards digital economies and societies with the twin (green and digital) transition accelerating the shift towards digitalisation and the use of digital tools for work and life purposes.

While the COVID-19 crisis highlighted the critical role of digital technologies and infrastructures in our lives and demonstrated how our societies and economies rely on digital solutions, Russia's war of aggression against Ukraine has further exposed the vulnerabilities in our digital supply chains and the importance of investing in cybersecurity and drastically improving EU's digital capacities. The programme aims to encourage a wide participation of small and medium-sized enterprises (SMEs) from all geographical areas, including the EU outermost regions and other economically disadvantaged regions[5] and various work strands serve this purpose. Such is the case of the network of European Digital Innovation Hubs covered in the European Digital Innovation Hubs Work Programme 2021-2023, that will continue to support in the following years the SMEs in their twin transitions. Each hub is close to the local ecosystem of SMEs and small mid-caps, speaks their language and provides a wide range of specialised and targeted digital transformation services adjusted to the needs and strengths of the region where they operate, be it in urban or rural areas. Moreover, the sectorial Testing an Experimentations Facilities (TEFs) deployed through the first WP will support companies developing AI and robotics to bring their innovation to the market, with specific attention to SMEs. The infrastructures and support services provided through the TEFs to all European innovators, will fill an important gap, especially for SMEs, in bringing their technology to the market, namely the capacity to test at scale and in real conditions the technology.

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[1] The European Quantum Communication Infrastructure (EuroQCI) Initiative | Shaping Europe's digital future (europa.eu)

[2] Space: EU initiatives for a satellite-based connectivity system and an EU approach on management of space traffic, https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/space-eu-initiatives-satellite-based-connectivity-system-and-eu-approach-management-space-traffic_en

[3] Europe's Digital Decade: digital targets for 2030, https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

[4] Proposal for a Decision establishing the 2030 Policy Programme "Path to the Digital Decade" https://digital-strategy.ec.europa.eu/en/library/proposal-decision-establishing-2030-policy-programme-path-digital-decade

[5] In line with Recital 14 and 17 of the Regulation (EU) 2021/694

Under the European High Performance Computing Joint Undertaking (EuroHPC JU), national High-Performance Computing (HPC) Competence Centres support SMEs, by providing access to the latest HPC technologies, tools, applications and services, and by offering expertise, skills, training, networking and outreach.

The Digital Europe Programme supports businesses and SMEs also through investments in the area of digital skills. 70% of businesses say that the lack of staff with adequate digital skills is an obstacle to investment. Under this WP, the Digital Europe Programme will continue to invest in upskilling to provide a workforce for advanced digital technologies such as artificial intelligence (AI), advanced computing, as well as in cybersecurity and data infrastructure. In particular, new action is addressing the shortage of potential employees with specific knowledge in semiconductors with a holistic approach to increase the attractiveness of the field while at the same time kick-start new initiatives to attract both technicians and graduates and bridge the gap between education and market demand.

This document sets out the WP for part of the areas foreseen under the Regulation (EU) 2021/694 of the European Parliament and of the Council (Digital Europe Programme Regulation)[6] to be implemented in 2023 and 2024. Separate work programmes cover the remaining areas, namely European Digital Innovation Hubs, Cybersecurity and High Performance Computing managed by EuroHPC JU[7]. It follows consultations with the Member States. It uses as a reference point Annex 1 of Regulation (EU) 2021/694.

For the year 2023, the WP contains descriptions of scope, goals and deliverables for each action. For the year 2024, the objectives and expected results are articulated at the level of the specific objectives, indicating actions with a more general description and an indication of the type of actions (grants, procurements, indirect management). The actions foreseen as of 2024 will require considering lessons learnt from the actions included in the WP 2022. As those actions have not been launched or brought about interim results at the time of the preparation of this WP, the actions of the WP 2024 are not drafted at the same level of detail compared to the actions for 2023. In addition, the aim is to ensure synergies and consistency with other Digital Europe Programme work programmes.

The funding will be available for the EU Member States as well as countries associated with the Digital Europe Programme (unless otherwise specified in the topic description, tender specifications and call for proposals).[8] The application of Article 12(5) or Article 12(6) is mentioned where appropriate and in consistency with the WP 2021-2022.

THE DIGITAL EUROPE PROGRAMME OBJECTIVES

[6] Regulation (EU) 2021/694 of the European Parliament and of the Council of 29 April 2021 establishing the Digital Europe Programme and repealing Decision (EU) 2015/2240, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0694&qid=1623079930214

[7] The DIGITAL Europe Programme – Work Programmes, https://digital-strategy.ec.europa.eu/en/activities/work-programmes-digital

[8] EEA EFTA countries are fully associated to the Digital Europe Programme and benefit from a status equivalent to that of the Member States.

The Digital Europe Programme will reinforce EU's critical digital capacities by focusing on the key areas of artificial intelligence (AI), cybersecurity, advanced computing, data infrastructure, governance and processing, the deployment of these technologies and their best use for critical sectors like energy, climate change and environment, manufacturing, agriculture and health.

The Digital Europe Programme also targets upskilling and reskilling to provide a workforce for these advanced digital technologies. It supports industry, SMEs, and public administration in their digital transformation with a reinforced network of European Digital Innovation Hubs (EDIH).

Actions in this WP will support technologies that are strategically important for Europe's future and in particular will achieve the following objectives.

- Address **climate and environment protection challenges** through supporting, among others, next phase in the evolution of the Destination Earth components, providing additional services to more users and ensuring technical interoperability with new Digital Twins, establishing a green deal data space and a Digital Product Passport that enables the transition to circular economy.

- Ensure the deployment of sectorial **common data spaces**, based on the secure and energy-efficient federated **cloud-to-edge infrastructure** that are accessible to businesses and the public sector across the EU. Furthermore, the Digital Europe Programme will support new high-impact activities such as the establishment of an Exploitation Office to maximize the broad dissemination of results stemming from the pre-notified Cloud IPCEI (forthcoming Important Project of Common European Interest on Next Generation Cloud and Edge Infrastructure and Services) and the development of a cloud-based collaborative platform for the management of industrial programmes in the aeronautics and security sector.

- Continue the work on the sectorial Testing and Experimentation Facilities funded under the WP 2021-2022 in order to develop a strong ecosystem that will enable faster adoption of AI technologies in Europe, in particular its wide usage by companies and SMEs, and building on the smart communities' data infrastructure, expand the capabilities of local digital twins by developing the different layers of VR/AR worlds useful for communities as well as Platform for advanced virtual human twin (VHT) models.

- Strengthen preparedness of the key sectors and response actions across the EU to **cyber threats**.

- Further support the excellence of EU education and training institutions in digital areas to improve the capacity to nurture and attract digital talent through specialised **education programmes in advanced digital technologies**, and, for example, in areas of cybersecurity and semiconductors. The WP will also intervene in earlier cycles of education with the longer-term objective to encourage young student and in particular girls to pursue digital studies and careers.

- Further invest in the uptake of blockchain in Europe and in building of efficient and **interoperable digital public services**, as well as in **building confidence in digital transformation** and developing reference framework addressing urgent needs in **energy consumption.**

GREEN DIGITAL EUROPE

The green and digital twin transition is a core political priority of the European Commission. The digital transformation contributes to the ecological transition and the objectives of the European Green Deal to reach climate neutrality by 2050 and reduce emission by at least 55% by 2030. Digital solutions will lower carbon footprint, for instance, by providing citizens digital access to essential services, removing the need for physical presence, and promoting paperless communication or by integrating AI that can, for instance, enable via smart appliances more efficient energy consumption. At the same time, the energy consumption of digital technologies should not exceed the energy they save. For this reason, activities that do not contribute to climate objectives have to have a neutral impact on climate.

Several actions in this Work Programme are expected to make a concrete contribution to climate mainstreaming based on the methodology for climate mainstreaming, the Climate Mainstreaming Architecture in the 2021-2017 Multiannual Financial Framework[9].

Some actions are expected to contribute directly to climate mitigation (e.g. measures that focus on the causes of climate change and limit the scope of its long-term effects) or climate adaptation (e.g. measures to help ensure preparedness for and find solutions to the adverse effects of climate change, and to prevent or minimise the damage climate change can cause or to take advantage of opportunities that may arise).

Such is the case for the **Destination Earth initiative**, which will develop a very high precision digital model of the Earth to enable visualising, monitoring and forecasting natural and human activity on the planet. This will ensure that we are better prepared to respond to major natural disasters, adapt to climate change and can predict its socioeconomic impact. Destination Earth is a main contributor to the **Green Deal Data Space,** the data ecosystems of the strategies and actions plans for the European Green Deal, which will offer access to a variety of data related to the environment and the EU's climate objectives. This will for example include detailed data on geospatial systems, localised water, soil and air pollution, but also detailed geo-localised systems, energy supply and consumption.

Other actions are also expected to contribute to this horizontal priority, namely the Digital Product Passport, the Large scale pilots for cloud-to-edge based service solutions, the EU Energy Saving Reference Framework, the Agricultural Data Space and the Energy Data Space.

Several actions will pave the way for tools and actions that may support the ecological transformation. The Data Space for Skills, for instance, may provide access to high-quality data related to skills for emerging green digital solutions. Data on cities and communities from different sectors may indicate lines of action to alleviate climate change. Data analytics in manufacturing can contribute to a reduction in energy consumption and a better direct optimisation of the supply chain. The Tourism Data Space may contribute to reduce over-tourism by enhancing crowd management capabilities. AI can enable smart and low-carbon solutions encompassing a range of interconnected technologies, such as smart appliances that can enable demand response in the electricity sector or tools to optimise mobility in cities.

[9] Climate Mainstreaming Architecture in the 2021-2017 Multiannual Financial Framework. (2022): https://commission.europa.eu/system/files/2022-06/swd_2022_225_climate_mainstreaming_architecture_2021-2027.pdf

Many other actions in this Work Programme contribute with positive externalities despite climate not being the main objective. Such is the case for the Data Space for Cultural Heritage, which by digitising cultural heritage assists in 3D allows non-destructive analysis of assets, visualisation of damages and information for restoration and conservation. Actions supporting the digitalisation of justice are expected to contribute to lowering the carbon footprint by fostering paperless communication in civil and cross border proceedings.

The climate dimension is also taken into consideration in the selection of projects for funding. Under the evaluation criterion 'Impact', the extent to which the projects relate to environmental sustainability and the European Green Deal goals will be assessed.

THIRD COUNTRY PARTICIPATION

The conditions for international cooperation with third countries, international organisations and bodies established in third countries, are specified in Article 11 of the Regulation (EU) 2021/694. Cooperation and association agreements may be subject to adequate security, intellectual property (IP) protection and reciprocity guarantees.

Participation in the actions is intended to be open to all eligible third countries according to the association agreement they have signed at the time of signature of the grant agreement, even though the text of the actions only refers to the Member States.

The objectives of the programme can only be achieved by taking into account duly justified security interests of the Union, notably in terms of cybersecurity or protection of data against unauthorised disclosure. In the case of the Digital Europe Programme, this would also cover, inter alia, the security of supply chains, critical infrastructures, public order and the protection of the Union's critical technology.

It needs to be considered that European data can end up in the hands of third country authorities (national intelligence and security agencies in particular) even without the knowledge of the individuals, businesses or public administrations in the EU to which the data relates and without their ability to intervene or to exercise their fundamental rights (e.g., right to respect for private life, right to data protection, right to an effective legal remedy). This is particularly because of the application of national surveillance legislation of third countries and their jurisdiction over the service providers, such as cloud computing providers and other digital operators, established in the specific third country and providing their services in the Union, which may also extend to their subsidiaries established in the Union. While data access requests could also be directed to EU controlled companies established in the Union but falling under the relevant foreign jurisdiction, e.g., when they also have an establishment in the foreign jurisdiction, it is assumed that those companies having their headquarters in the relevant foreign jurisdiction may be subject to a conflict of interest and conflict of jurisdictions (e.g. if the law of the country of establishment of the headquarters requires EU-based subsidiary to engage in transfer or processing data in a manner inconsistent with the EU law). There is also a risk of uncontrolled access to data by foreign intelligence and security agencies, thus exposing the Union to security risks.

For these reasons and in consistency with the WP for 2021-2022, a set of topics in this WP will be subject to the provisions of Article 12(6) of the Regulation (EU) 2021/694. Because of their particular

criticality, all topics in Section 3 on cybersecurity will be subject to the provisions of Article 12(5) of the Regulation (EU) 2021/694. At the same time, the Digital Europe Programme is open for collaboration with third countries. Specific conditions for the association or partial association of third countries to the Programme are laid down in Article 10 of the Regulation (EU) 2021/694.[10]

INDICATIVE BUDGET AND IMPLEMENTATION

The Digital Europe Programme is implemented by means of four multiannual work programmes. There will be three new independent work programmes in 2023-2024, while the fourth one concerning the network of European Digital Innovation Hubs (under direct management by the European Commission) is covering 2021-2023 period.

This WP covers activities related to Destination Earth, Data, AI, Cloud, the Cybersecurity incident response and preparedness support, Advanced Digital skills and Deployment activities for the best use of these technologies. The other two work programmes cover: 1) High Performance Computing (implemented under indirect management by the EuroHPC JU); 2) all the remaining activities in Cybersecurity (implemented, under indirect management by the Cybersecurity Industrial, Technology and Research Competence Centre (ECCC) and in direct management by the Commission on behalf of ECCC). Synergies and complementarities of the activities in the various work programmes will be ensured.

Actions in this WP will be implemented mostly under direct management by the European Commission and a supportive Executive Agency. The exceptions to this are the Investment Platform for Strategic Digital Technologies (see Section 7) which will be implemented by the European Investment Fund in indirect management; the Destination Earth Initiative (see Section 1.1) which will be implemented in indirect management by the European Space Agency (ESA), the European Centre for Medium-Range Weather Forecasts (ECMWF) and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) and the Cybersecurity incident response and preparedness support that will be entrusted for implementation to the European Union Agency for Cybersecurity (ENISA).

The budget for the actions covered by this WP is EUR 909,5 million[11].

392 EUR million for actions in 2023 are allocated as follows:

- EUR 60 million for actions supporting the Destination Earth initiative including the core platform, data lake and related digital twins;
- EUR 113 million for actions supporting the deployment of Common Data Spaces including sectorial data spaces and the supporting Cloud-to-Edge infrastructure and services, as well as further actions in regard to sectorial Testing and Experimentation Facilities for AI;

[10] EEA EFTA countries are fully associated to the Digital Europe Programme and benefit from a status equivalent to that of the Member States.

[11] Subject to the adoption of the budget.

- EUR 20 million for incidence response support and Preparedness of Key sectors in the area of cybersecurity;
- EUR 58 million for actions on advanced digital skills in key capacity areas through specialised education programmes and other actions;
- EUR 86.8 million for actions related to deployment of digital technologies, such as the European Blockchain Services Infrastructure, activities in the area of sectorial IT solutions for justice and consumers, building confidence in digital transformation and deployment of solutions for public services, as well as support to Trans-European Services for Telematics between Administrations (TESTA);
- EUR 21.5 million for supporting Interoperable Europe actions that aim to ensure the development of interoperable trans-European digital public services;
- EUR 10 million for Investment Platform for Strategic Digital Technologies;
- EUR 22.7 million for other actions including programme support actions and support for Digital Services Act and Digital Markets Act IT systems as well as supporting the continuous operation and/or evolution of the IT system of the central gateway for EU Digital COVID Certificate standards and specifications.

The indicative budget for 2024 is EUR 517,5 million and its allocation will be specified with the amendment to this WP.

Table 1: Breakdown of global expenditure per year, budget line and type of action

Year	Budget line	Amounts to be implemented in direct management (in million EUR)		Amounts to be implemented in indirect management (in million EUR)	Total available budget per year (in million EUR)
		Calls for proposals - grants	Calls for tender - procurement		
2023	**Specific Objective 1 (02 04 02 10)**	-	-	-	-
	Specific Objective 2 (02 04 03)	86.1	64.6	60	210.7
	Specific Objective 3 (02 04 01 10 02)		-	27.8	27.8
	Specific Objective 4 (02 04 04)	60.3	6.4	2.2	68.9
	Specific Objective 5 – Deployment (02 04 05 01)	31.7	28.6	-	60.3
	Specific Objective 5 – Interoperability (02 04 05 02)	-	24.5	-	24.5
2024*	**Specific Objective 1 (02 04 02 10)**	-	-	21.1	21.1
	Specific Objective 2 (02 04 03)	150.1	91	62.6	303,7

	Specific Objective 3 (02 04 01 10 02)	-	-	3,7	3,7
	Specific Objective 4 (02 04 04)	53	13.8	-	66.8
	Specific Objective 5 – Deployment (02 04 05 01)	41	55	-	96
	Specific Objective 5 – Interoperability (02 04 05 02)	5	21.2	-	26.2

*The breakdown for 2024 is indicative and subject to amendment.

LINKS TO OTHER PROGRAMMES AND CO-INVESTMENTS

Investments under Digital Europe Programme are complementary to investments under a number of EU funding instruments, either managed directly or under shared management with the Member States. These include for example investments into key digital technologies, including quantum technologies, as part of the second pillar (Global Challenges and European Industrial Competitiveness) of Horizon Europe. Connecting Europe Facility (CEF2) digital investments focus on delivering safe, secure, and sustainable high-performance infrastructure, in particular, Gigabit and 5G networks across the EU. Creative Europe programme investments contribute to the recovery of culture and media, reinforcing their efforts to become more inclusive, more digital. Digital investments under the EU4Health programme will aim at reinforcing health data, digital tools and services, enhance access to healthcare and support its digital transformation. The Justice Programme offers funding opportunities in the e-justice field supporting transnational projects and projects with clear EU dimension that improve the effectiveness of justice systems and improve access to justice. Further, decided at the Member State level are the foreseen investments into digital under Cohesion policy, where their goal is to overcome the digital divide both socially and geographically, e.g. by supporting digitalisation of firms, by improving access to e-government, e-health, and digital skills, so that no one in any EU region, be it rural, urban or outermost, is left behind. Complementarity is also expected between Digital Europe Programme and the Common Agricultural Policy (CAP): Investments into digitalisation in agriculture and rural areas under National CAP Strategic Plans will contribute horizontally to all CAP objectives and aim to – among others modernise sector, increase sustainability and economic performance, and enhance quality of life in rural area, including knowledge and innovation, and investment in broadband infrastructures. Member States' Recovery and Resilience plans should address challenges identified in the European Semester, particularly the country-specific recommendations and advance the green and digital transitions. Private capital is foreseen to be leveraged for investments into digital infrastructures, technologies, and skills under InvestEU as well. Digital Europe Programme complements this mix by funding strategic deployment in support of the EU digital targets for 2030, bringing digital technology to businesses, citizens and public administrations.

Most actions foreseen in the Digital Europe Programme require co-investments from the public and/or private sectors. The modes of these co-investments are described in the relevant parts of the various work programmes.

As far as possible funding support from other EU instruments to actions in this WP is concerned, alternating or cumulative funding may be considered, provided that such funding is in line with the fund-specific regulations of the funding instruments in question, and in line with the objectives of the relevant programmes. Relevant provisions of the Financial Regulation need to be respected[12], in no circumstances the same costs shall be financed twice by the EU budget (prohibition of double funding). Funding from cohesion policy programmes can fall under EU State aid rules when the beneficiaries are undertakings. In such cases, the funding must be compatible with EU State aid rules.

An alternating/sequenced funding occurs when each instrument finances a different part of the operation/action, or finances successive parts. It requires a split of an operation/action in two different parts. Separate grant agreements are required, applying the rules of the funding instruments respectively. Coordination is required to avoid double funding, ensuring separation of parts/activities. Expenditure used for a reimbursement request for one instrument shall not be declared for support from another Fund or Union instrument. Activities financed under separate instruments have to be clearly differentiated.

Cumulative funding means that an action receives support from more than one fund, programme or instrument (including both shared and directly managed funds). Two grant agreements are required, applying the rules of each of the funding instrument respectively. Upfront co-ordination is required to avoid double funding by coordinating the funding rates which in combination cannot go over 100% of the eligible costs. A number of steps starting from preparation, through linking of actions, grant signatures all the way to reporting and payments need to be followed. The Commission Communication on Synergies between Horizon Europe and the ERDF programmes[13] elaborates on new opportunities to maximise synergies between Horizon Europe and the European Regional Development Fund, including on cumulative funding. An example on how such cumulative funding is applied to Digital Europe Programme and cohesion policy funds is outlined in the Annex 2 of the Communication.

In the specific case of cumulative funding between Digital Europe Programme and Recovery and Resilience facility, the Section 3 of the Guidance document to Member States[14] confirms that support from Digital Europe Programme can also be combined with the Recovery and Resilience Facility, provided that such support does not cover the same cost (for example by clearly distinguishing what is to be covered by each funding source). Member States shall ensure the effective and efficient functioning of such synergies, through a consistent and harmonised approach of all involved authorities and close coordination between all public actors is needed.

Below is an outline of actions for which cumulative funding could be considered. However, support from multiple funding sources is in all cases subject to decisions of the authorities managing the funding instruments.

Table 2: First set of calls with a common deadline in 2023

[12] In particular the Article (191) Principle of non-cumulative award and prohibition of double funding.

[13] Synergies between Horizon Europe and ERDF programmes (2022) https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/synergies-guidance-out-2022-07-06_en

[14] Commission staff working document guidance to Member States recovery and resilience plans SWD(2021) 12 final, https://commission.europa.eu/system/files/2021-01/document_travail_service_part1_v2_en.pdf

Area	Topics in the Work Programme	Digital Europe Funding rate
Cloud to edge infrastructure	Highly Secure Collaborative Platform for Aeronautics and Security Industry	50%
Data	Federated European Infrastructure for Intensive Care Units' data	50%
	Genome of Europe	50%
	Digital Product Passport	50%
AI	Developing CitiVerse	50%
Advanced Digital Skills	Reinforcing Skills in semiconductors	50%
	Cybersecurity Skills Academy	50%
Confidence in Digital Transformation	Network of Safer internet Centres (SICs)	50%
	European Digital Media Observatory (EDMO) - national and multinational hubs	75% for SMEs and 50% for all other beneficiaries
Accelerating the Best Use of Technologies	EU Energy Saving Reference Framework	50%

Table 3: Second set of calls with a common deadline in 2023

Area	Topics in the Work Programme	Digital Europe Funding rate
Data	Data Space for Cultural Heritage	50%
	Data Space for Tourism	50%
Advanced Digital Skills	Specialised Education Programmes or Modules in Key Capacity Areas	50%

Topics indicatively included in the list of calls with a common deadline in 2024, are available under Section 8.2.3 Indicative implementation calendar.

MULTI COUNTRY PROJECTS AND THE EUROPEAN DIGITAL INFRASTRUCTURE CONSORTIA

As part of the Path to Digital Decade policy programme[15], the Commission has introduced the concept of Multi-Country Projects (MCPs). MCPs are large-scale deployment and capacity-building projects for the digital transformation of the Union, facilitating the achievement of the Digital Decade objectives and targets[16]. They channel coordinated investments between the EU, Member States and private stakeholders to, i.a. enable digital infrastructure projects that one single Member State could not deploy on its own. They help reinforce the Union's technology excellence and industrial competitiveness in critical technologies, as well as support an interconnected, interoperable and secure Digital Single Market and address strategic vulnerabilities and dependencies of the Union along the digital supply chain. This means that setting up an MCP fits the objectives of the Digital Europe programme and provides additional incentives for Member States and companies to work together to build pan-European digital infrastructures. The initial non-exhaustive list of areas for MCPs as contained in the Decision on Path to the Digital Decade policy programme (DDPP) is listed in the Appendix 4 of this WP.

A number of areas of MCPs, e.g., blockchain, genomics, dataspaces, or Testing and Experimenting Facilities (TEFs) are in the scope of the Digital Europe programme and are receiving funding under the Digital Europe WP 2021-22. These are also included in this WP.

MCPs can be implemented by a number of dedicated mechanisms such as joint undertakings (JU), Important Projects of Common European Interest (IPCEI), or the European Research Infrastructure Consortia (ERIC). Some MCPs rely on implementation as spelled out in the Digital Europe Work Programme, with no dedicated mechanism foreseen.

Table 4: Multi Country Projects relevant for this Work Programme

MCPs relevant for this Work Programme	Topics in this Digital Europe Work Programme
European Common data infrastructure and services	2.1.1 Cloud IPCEI Exploitation Office 2.2.1 Data Spaces 2.2.3 Support for data for EU
Genomics	2.2.1.4.1 Genome of Europe
Processors and semiconductors chips	2.3.1.1 Coordination of AI sectorial Testing and Experimentation Facilities
Connected public administration	5.2.1 European Digital Government Ecosystem 5.2.2 Interoperable Europe - Interoperability for the public sector
European Blockchain Services Infrastructure	5.1 Blockchain

[15] Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030 (Text with EEA relevance), https://eur-lex.europa.eu/eli/dec/2022/2481/oj

[16] Digital Compass: the European way for the Digital Decade: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118

High-tech partnerships for digital skills and specialized education	4. Advanced Digital Skills

In order to facilitate the set-up and enable speedy implementation of MCPs for which a specific set of features is necessary, the Commission proposed, as part of the Path to the Digital Decade policy programme, a new instrument, the European Digital Infrastructure Consortium (EDIC). The legal framework on EDICs is closely modelled on the existing and successful mechanism in the area of research activities, namely the European Research Infrastructure Consortia (ERIC), focusing however beyond research and introducing further limited changes to increase flexibility in the implementation, such as enabling private parties to participate in the EDIC as members, and making sure projects remain open to all interested Member States.

Only the Member States may submit an application to form an EDIC. In order to facilitate EDICs, the Commission addressed the Member States with an initial call for expression of interest in EDICs to understand the MS' plans for MCPs and EDICs. The initial call for expression of interest was conducted in the period of December to February 2023, the analysis of submissions is currently ongoing. The outcomes of the initial call for expression of interest will be discussed with the Member States during the March meeting of the Digital Decade Board, they will also be shared with Digital Europe Programme Committee.

The actual setup of an EDIC, or EDICs, Member States will follow the procedure outlined in the Path to the Digital Decade policy programme, as follows. The Member States applying for the setting-up of an EDIC shall submit an application to the Commission. The Commission shall assess the application, taking into account the general objectives of the DDPP, the goals of the MCPs, and practical considerations related to the implementation of the MCP to be implemented by EDIC. The Commission shall, taking into account the results of the assessment, adopt an implementing act setting up the EDIC, or reject the application.

Where Member States progress sufficiently with their applications for EDICs, this option should be supported to the greatest extent possible, to attract further funding for large-scale MCPs. Once an EDIC is formally established, it may make a proposal in response to a formal Call for proposals (like any other proposer) applying the rules contained in the relevant Call document. Depending on the interest in specific EDICs shown by the Member States, an amendment to this WP could be made to strengthen the link of an EDIC with any specific existing or new action.

CALLS STRUCTURE AND PLANNING

Calls for proposals

The global budgetary envelope reserved for grants under this WP is EUR 427 million out of which EUR 178 million is for 2023.

The topics included in this WP which are implemented by grants will be called according to the following plan:

First set of calls

Table 5: List of topics in the first set of calls with a common deadline in 2023 under this Work Programme

Area	Topics in the Work Programme	Indicative budget in million EUR
Cloud to edge infrastructure	Cloud IPCEI Exploitation Office	25
	Highly Secure Collaborative Platform for Aeronautics and Security Industry	
Data	Federated European Infrastructure for Intensive Care Units' data	31
	Genome of Europe	
	Digital Product Passport	
AI	Coordination of AI Sectorial Testing and Experimentation Facilities	18
	Developing CitiVerse	
Advanced Digital Skills	Reinforcing Skills in semiconductors	26
	Cybersecurity Skills Academy	
	Boosting digital skills of young pupils, in particular girls	
Confidence in Digital Transformation	Network of Safer internet Centres (SICs)	32
	IT System Supporting the Removal of Online Child Sexual Abuse Material	
	European Digital Media Observatory (EDMO) national and multinational hubs	
	EU Energy Saving Reference Framework	
Other activities in support to the programme		2
TOTAL for the first set of calls		134

Second set of calls

Table 6: List of topics in the second set of calls with a common deadline in 2023 under this Work Programme indicatively includes:

Area	Topics in the Work Programme	Indicative budget in
Data	Data Space for Cultural Heritage	12
	Data Space for Tourism	
Advanced Digital Skills	Specialised Education Programmes or Modules in Key Capacity Areas	32
TOTAL for the second set of calls		44

The table with the list of indicative topics for 2024 is included under Section 8.2.3 on Indicative implementation calendar.

Calls for tender

In addition to the calls for proposal, a set of actions will be implemented by procurement either using Framework contracts or open calls for tenders.

The global budgetary envelope reserved for procurement under this WP is 304 million EUR, out of which 124 million EUR is for 2023.

Indirect management

The topics under Destination Earth will be implemented in indirect management, using annual instalments to continue implementation of existing contribution agreements with the European Space Agency (ESA), the European Centre for Medium-Range Weather Forecasts (ECMWF), and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT).

The implementation of the Incident Response Support and Preparedness of Key sectors in the area of cybersecurity will be entrusted to ENISA and complemented by collaboration between the Commission, CERT-EU and ENISA on up-to-date and strategic-level situation analysis, risk scenarios and overviews of the threat landscape.

Moreover, the Investment Platform for Strategic Digital Technologies (see section 7) will also be implemented in indirect management under the InvestEU programme, more specifically, by the European Investment Fund (EIF) under the terms of the Regulation (EU) 2021/523 of the European Parliament and of the Council (InvestEU Regulation)[17] and the InvestEU Guarantee Agreement with the EIB Group.

The global budgetary envelope reserved for indirect management under this WP in 2023 177 million EUR, out of which 90 million EUR is for 2023.

[17] Regulation (EU) 2021/523 of the European Parliament and of the Council of 24 March 2021 establishing the InvestEU Programme and amending Regulation (EU) 2015/1017 (OJ L 107, 26.3.2021, p. 30–89).

Contents

1 High Performance Computing (HPC)

Specific Objective 1 on High Performance Computing will continue to be implemented by the European High-Performance Computing Joint Undertaking (EuroHPC JU) in continuation of their mission as previously described in the first WP.

Namely, the mission of the Joint Undertaking is: to develop, deploy, extend and maintain in the Union a world-leading federated, secure and hyper-connected supercomputing, quantum computing, service and data infrastructure ecosystem; to support the development and uptake of demand-oriented and user-driven innovative and competitive supercomputing systems based on a supply chain that will ensure components, technologies and knowledge limiting the risk of disruptions and the development of a wide range of applications optimised for these systems; and, to widen the use of that supercomputing infrastructure to a large number of public and private users, and support the twin transition and the development of key skills for European science and industry.

Dedicated work programmes for activities are prepared separately from this WP, as specified in the EuroHPC legislation[18] and in Article 4.2 of the Regulation (EU) 2021/694.

Indicative budget

The Digital Europe budget for actions implemented under this WP is indicatively EUR 60 million for 2023.

1.1 Destination Earth

The main components of the Destination Earth (DestinE) system, developed under the WP 2021/22, are:

1. Core Service Platform: a user-friendly entry point for DestinE users. The platform will provide evidence-based decision-making tools, applications and services, based on an open, flexible, and secure cloud-based computing system. It will coordinate data, cloud and HPC infrastructures and provide access to an increasing number of Digital Twins as they become gradually available via related European Commission and/or national efforts. The platform will make available relevant AI tools, extreme-scale data analytics and Earth-system monitoring, simulation and prediction capabilities. At the same time, it will provide dedicated resources to DestinE users, allowing them to customise the platform, integrate their own data and develop their own applications. The procurement of the platform and the associated DestinE service operations is the responsibility of the European Space Agency (ESA).
2. The Data Lake is the consolidation of pre-existing European data holdings from Copernicus, the data holdings of the three DestinE implementing entities (ESA, EUMETSAT and ECMWF) and other sources, like the Internet of Things (IoT) and socio-economic data. It will also integrate the

[18] Joint Undertaking established by Council Regulation (EU) 2021/1173 of 13 July 2021 establishing the European High Performance Computing Joint Undertaking and repealing Regulation (EU) 2018/1488 (OJ L 256, 19.7.2021, p. 3–51).

new data that will originate from the Digital Twins, creating a coherent and self-standing DestinE data space. DestinE is part of the Green Deal data space and as such, part of the overall data spaces constellation, enabling a cross-fertilisation among the various fields and domains for the various data spaces. It will provide access to the data needed for the Digital Twins and the Core Service Platform operations and it will host user data, shared with the DestinE user community while supporting near-data processing to maximize performance and service scalability. The Data Lake will be operated by the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT).

3. The Digital Twins – digital replicas of the highly complex Earth systems – are based on a seamless fusion of real-time observations and high-resolution predictive modelling in the thematic areas, starting from the Weather-induced and Geophysical Extremes and climate change adaptation. The long-term goal is to integrate additional digital twins for a comprehensive digital twin of the Earth. The digital twins of DestinE will provide users with tailored access to high-quality knowledge for user-specific scenario development for decision support. The first two Digital Twins (Climate change adaptation, Extreme Events and Geohazards) are developed by the European Centre for Medium-Range Weather Forecasts (ECMWF).

Under this WP, DestinE initiative will continue being implemented through the Contribution agreements with the three implementing entities (ESA, ECMWF, EUMETSAT). A federated access to the EuroHPC Joint Undertaking infrastructure is planned for the period covered by the WP 2023/24, as the respective EuroHPC JU systems become gradually available.

The description below therefore covers the overall period of the WP 2023/24 despite the fact that given the specific structure of this WP, only the 2023 part of the budget is indicated. The remaining budget for this initiative will be available in 2024.

Objective

The objective is to continue implementing the DestinE initiative in seamless continuity with the work undertaken under the WP 2021/22, as provided for under the Contribution Agreements signed with the implementing entities (ESA, ECMWF and EUMETSAT). The aim under WP 23/24 is to continue the service provision, upgrade the whole system framework, provide additional services to more users, expand into further priority areas and topics of interest as well as start integrating new Digital Twins. In the meantime, any relevant input from the DestinE Strategic Advisory Board will be considered, as appropriate.

Scope

Under the WP 2023/24, the DestinE initiative will be further implemented putting emphasis on the system activity to reinforce all aspects of the deployed solutions, from data flow to integration and federation of external services as well as to the deployment of an additional range of services, tools and applications (new, enhanced, versions of all main components' services). These include:

- Further development and evolution of the Core Platform and its full integration with the Data Lake and the Digital Twins[19]. An additional range of services, tools and applications will become available. The activities for interoperability and technical alignment with new

[19] Destination Earth, https://digital-strategy.ec.europa.eu/en/library/destination-earth

Digital Twins (e.g. the Digital Twin Ocean) will start. Service provision will expand to more user groups.

- Expansion of the Data Lake by including additional data holdings and data sources from new areas and fields and optimisation of the Data Lake Federation, including network and connectivity aspects. A Data Lake service portfolio will be made available to the Digital Twins and the Core Platform.
- Upgrade and consolidation of the first two Digital Twins (weather-induced and geophysical extremes and climate change adaptation) and performance optimisation of the Digital Twin Engine, including the building of interactive elements and transversal features, allowing the service and support of interdisciplinary Digital Twins.
- Piloting the interoperability between DestinE and the Digital Twin Ocean (DTO)[20], a main initiative under the EU Mission Restore our Ocean and Waters by 2030[21], and possible, other, Digital Twins, depending on their level of maturity and DestinE compliance.

The WP 2023/24 continues the focus on the user interactivity aspects and on the user interaction with the Destination Earth simulation capabilities (e.g., on-demand Digital Twin production piloted from the core platform, enhanced analysis capabilities as part of the Digital Twin Engine). In addition, it focuses on user feedback collection, and the definition and implementation of related complementary operational services.

New use cases and user services identification will take place, supported by the respective requirements elicitation and implementation planning.

Additional activities that may be carried out under WP 2023/24 include:

- Piloting activities related to the federation of Member State relevant infrastructures and the integration of Member State initiatives on Digital Twins and development of a selection of international partnerships and synergies (see section 2.2.1.1).
- Application of a jointly agreed Quality Mapping framework (or similar).
- Integration of Destination Earth with SIMPL[22].

Synergies with relevant Horizon Europe areas are already in place, as a number of respective Horizon Europe actions are already running, facilitating the development of new Digital Twins, while new topics are planned for that purpose in the next Horizon Europe Work Programme. Also, there are already well articulated synergies defined with the Copernicus programme and horizontal teams among the respective Commission Services have already been formed for that purpose. The entrusted entities of DestinE and Copernicus, and the respective teams of DG CNECT and DG DEFIS, systematically work together in order to ensure programmatic, technical and operational alignment (notably in terms of service portfolios, data access and integrated data management), as well as to avoid overlaps and double effort as Copernicus will serve as a major data source of DestinE.

[20] EDITO-Infra (HORIZON-MISS-2021-OCEAN-IBA-01)

[21] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/restore-our-ocean-and-waters_en

[22] Simpl: cloud-to-edge federations and data spaces made simple, https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

Finally, the Commission collaborates with ESA, with support from the other implementing entities ECWMF and EUMETSAT, to ensure maximum alignment between the ESA Digital Twin Earth Programme adopted by ESA in November 2022 and DestinE.

Deliverables

Core Platform (ESA):

- Deployment of the Version 2 of the Core Platform Services
- On-demand Digital Twin production from the core platform and integration of Digital Twin commanding interfaces for on-demand and interactive simulations
- Additional range of services, tools and applications to become available

Data Lake (EUMETSAT):

- Deployment of the Version 2 of the Data Lake Services
- Additional data holdings and data sources from new areas and fields to become part of the federation
- Optimisation of the Data Lake federation, including network and connectivity aspects, including the complete entry in operation of optimised file transfers

Digital Twin Engine and the first two Digital Twins (ECMWF):

- Deployment of the Version 2 of the Digital Twin engine and the first Digital Twins' Services:
- Enhanced analysis capabilities as part of the Digital Twin Engine: On-demand and interactive workflows deployment, performance optimisation, near-real time simulations
- DT Engine integrating HPC capabilities and optimizing HPC resource allocation
- Version 2 of the Extremes Digital Twin: The system will start integrating the required capabilities for geophysical hazards (earthquakes, volcanic eruptions and tsunamis, geomagnetic storms) and evolve the initial applications towards longer time scales and an enhanced use of ensemble methods for uncertainty quantification. The supporting software infrastructures will be scaled up and implemented across platforms.
- Version 2 of Climate Change Adaptation Digital Twin: The system will start integrating advanced systems for initialisation (data assimilation), ensemble generation and the definition of short-term forcing (ENSO, volcanic eruptions) at unprecedented resolutions will be implemented, including multi-decadal prediction systems and enhanced operational prediction capabilities.
- The links and synergies to the existing products and services of the Copernicus Emergency Management Service and the Copernicus Climate Change Service will be further explored.
- For both, the weather-induced and the climate change adaptation twin, regions and communities involved in the Mission on Adaptation to Climate Change could provide, in coordination with the three DestinE implementing entities, additional use cases, data and testbeds for the development and implementation of these twins.

Type of action	Contribution Agreement
Indicative budget	EUR 60 million

Indicative time	2024
Indicative duration of the action	Up to 30 months
Type of beneficiaries	The implementing entities (ESA, ECMWF and EUMETSAT).
Implementation	Indirect management with ESA, ECMWF, EUMETSAT
Eligibility criteria	Participation restricted on the basis of Art 18.4 of the Digital Europe Programme Regulation; eligibility criteria apply to candidates for procurement contracts to be concluded by the implementing entities for the implementation of their respective tasks.

The budget dedicated to the implementation of the DestinE initiative under WP 2023/24 would come partly from the 2023 budget (60M), with additional budget in 2024.

2 Cloud, Data and Artificial Intelligence

Specific Objective 2 of the Digital Europe Programme aims to reinforce the EU's core Artificial Intelligence (AI) capacities as a crucial driver for the digital transformation of the public and private sectors. The EU Data Strategy[23] outlined the importance of building a thriving ecosystem of private actors to generate economic and societal value from data, while preserving high privacy, security, safety and ethical standards. It announced that the Commission will invest in a High Impact Project that will fund infrastructures, data-sharing tools, architectures and governance mechanisms for thriving data-sharing, Artificial Intelligence ecosystems and the next generation of cloud and edge services. Specific Objective 2 has three main work strands:

- Continuation of activities in the area of **cloud-to-edge infrastructure and services** with two new topics foreseen for 2023. (Section 2.1)
- The deployment of a Data for EU strand with a focus on deploying sectorial **common data spaces**, based on the above federated cloud-to-edge infrastructure and services that are accessible to businesses and the public sector across the EU that were initiated in the first WP. Alongside the continuation of these actions, this WP foresees further actions in the area of Support for data in the EU, namely Open Data Portal, and new action to reinforce the green agenda such as Digital Product Passport. (Section 2.2)
- The continuation of work on **AI reference testing and experimentation facilities** with a focus on coordination of AI sectorial facilities that were established in the first WP (i.e. health, smart communities, manufacturing, and agriculture). (Section 2.3)

Indicative budget

The budget for the topics included in this chapter is EUR 113 million for 2023, distributed as follows:

- EUR 25 million for topics supporting the deployment of the cloud-to-edge infrastructure and services in 2023;
- EUR 57 million for topics deploying the sectorial data spaces and the related support activities in 2023, including actions on Digital Product Passport;
- EUR 31 million for topics implementing the sectorial Testing and Experimentation Facilities in 2023, developing a VR/AR world for cities and virtual twins in healthcare.

For 2024 an indicative list of topics is added under each of three work strands.

2.1 Cloud-to-edge Infrastructure and Services

[23] Communication from the Commission, A European strategy for data; COM/2020/66 final

The 2021-2022 WP aimed at equipping Europe with world-class interconnected (i.e., federated), trusted, interoperable and sustainable cloud-to-edge capabilities (infrastructures, platforms, marketplaces, services and testing and experimentation facilities for edge AI). These targeted infrastructures and services will also serve common data spaces and enable a swift uptake of emerging technologies such as artificial intelligence, Blockchain, Internet of Things, High Performance Computing and big data. This ambition materialised around three topics: 1- a large-scale modular and interoperable open-source smart European cloud-to-edge middleware platform. 2- large-scale pilot projects aiming at the deployment at scale of innovative, sustainable, secure and cross-border cloud-to-edge based services applied in a set of well-chosen application sectors. 3- deploy and operate an EU online marketplace for cloud and edge services. From the onset, this last topic was intended to launch a financially self-sustainable marketplace and the Commission will therefore not further finance it. Conversely, the first and second topic will be pursued in 2024 (see at the end of this section).

This 2023 WP sees two new topics that will complement the portfolio launched in the 2021-2022 WP.

- First, the Cloud IPCEI Exploitation Office will support the overall exploitation, dissemination, monitoring, sustainability integration and governance of the activities of the pre-notified Important Project of Common European Interest on Next Generation Cloud and Edge Infrastructure and Services (IPCEI-CIS) via a Cloud IPCEI Exploitation Office to the benefits of all interested Member States.
- Second, addressing a narrow but strategic gap in European technological autonomy, the development of a highly secure collaborative platform for the aeronautics and security industry.

Cloud computing service providers fall within the scope of Directive (EU) 2016/1148 of the European Parliament and of the Council concerning measures for a high common level of security of network and information systems across the Union (NIS Directive)[24]. The revised NIS Directive (Directive (EU) 2022/2555 of the European Parliament and of the Council (NIS 2 Directive[25]) of 14 December 2022 includes among others also data centre service providers in the directive's scope. The NIS 2 Directive highlights the necessity for entities in its scope to address the cybersecurity risks stemming from an entity's supply chain and its relationship with its suppliers, given the prevalence of incidents where entities have fallen victim to cyber-attacks compromising the security of their network and information systems by exploiting vulnerabilities affecting third party products and services. Consequently, the participation in these calls is subject to article 12(6) Regulation (EU) 2021/694as further detailed in Appendix 3. This will contribute to mitigating the threats to network and information systems used to provide essential services in key sectors and ensure the continuity of such services when facing cybersecurity incidents, thus contributing to the Union's economy and society to function effectively.

[24] Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union (OJ L 194, 19.7.2016, p. 1–30).

[25] Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive) (OJ L 333, 27.12.2022, p. 80–152).

All eligible entities should include in their proposal on actions subject to article 12(6) evidence on how they will address the underlying security issues, including, wherever relevant, measures to avoid falling under foreign jurisdiction obligations that are in conflict with EU rules, and how they will deal with confidentiality of the information and include evidence of their security expertise. All selected entities implementing such actions shall have the obligation to prevent access by non-eligible third countries or by non-eligible third country entities to classified and non-classified sensitive information. When applicable, the persons involved in the actions subject to article 12(6) will have national security clearance issued by a Member State.

2.1.1 Cloud IPCEI Exploitation Office

Objective

This action will support the overall coordination, monitoring, dissemination and long-term exploitation of the activities within the pre-notified Important Project of Common European Interest on Next Generation Cloud and Edge Infrastructure and Services (IPCEI-CIS) via the set-up of a Cloud IPCEI Exploitation Office.[26] The Office's objective is to disseminate the results of this IPCEI and contribute to the exploitation and re-use of its solutions including by those interested Member States, companies and Research and Technology Organisations (RTOs) that will not be participating in the IPCEI-CIS.

The pre-notified IPCEI-CIS aims at developing and industrially deploying, for the first time, a fundamentally new, innovative, secure and sustainable data processing production process spanning across the European Union. It will develop and deploy breakthrough technological cloud and edge computing capabilities and very high added value data processing industrial services.

Member States envisage to support the IPCEI-CIS with State aid and to this end will notify their individual projects under the IPCEI State-Aid Communication to the Europeans Commission's Directorate General of Competition. The IPCEI Exploitation Office will not interfere with the individual responsibility of the Member States or companies to implement the Commission decision on the IPCEI-CIS but will regularly report on and monitor the progress set out in the Commission's decision on State-aid.

The pre-notified IPCEI-CIS will contribute to existing European initiatives, in particular to the European Green Deal[27], the European Industrial Strategy[28], the Digital Compass[29] and directly to the implementation of the High Impact Project of the European Strategy for Data.[30]

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[26] Action is subject to completion of the notifications process and assessment of the IPCEI compliance with the State Aid rules. Pre-notification by 12 Member States has taken place in April 2022.

[27] A European Green Deal, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

[28] European industrial strategy, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en

[29] Europe's Digital Decade: digital targets for 2030 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

[30] European data strategy, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en

Scope

This action consists in providing at least the following core strategic and support activities via the set-up of a Cloud IPCEI Exploitation Office that will maximize the benefits and exploitation of the developed IPCEI solutions towards all interested Member States, companies and RTOs:

1. Management and Operations Activities:

- Monitoring and reporting. This should include: (i) the IPCEI project deliverables - including the new solutions developed and industrially deployed - their impacts and timing, (ii) the key performance indicators associated to each of the IPCEI-CIS project spill-over activities; (iii) the sustainability performance and security features of the integrated IPCEI project and; (iv) macro-project[31] outcomes.
- Where necessary, risk mitigation activities to guarantee effective and timely delivery and reuse of all the IPCEI-CIS project deliverables.
- The necessary ICT tools to the functioning and use of the pre-notified IPCEI-CIS activities and solutions, notably to (i) allow both IPCEI participants and non-participants to secure and effectively collaborate and; (ii) ensure external communication activities.
- Support the applications process and alignment of the assessment process of potential new participants.

2. Sustainability Activities:

- Support the development of the medium-term sustainability strategy, governance and decision-making process of the pre-notified IPCEI in close collaboration with the governmental Authorities participating in the IPCEI-CIS and the European Commission.
- Develop joint approaches to ensure that project results stemming from the IPCEI-CIS (such as open-source software technologies) will be maintained and regularly updated.

3. Dissemination and Exploitation Activities:

- Support the pre-notified IPCEI-CIS main dissemination and exploitation activities to reach scale beyond the IPCEI participants including in preparatory activities, organization, logistics and content materials for each of its key events and meetings.
- Foster transparency of the pre-notified IPCEI-CIS activities and wide uptake of the new innovative cloud-to-edge solutions to be first industrially deployed by for example preparing IPCEI-CIS communication materials, including social media content, to regularly and at large scale communicate about the status and content of the IPCEI-CIS activities, projects and new deployed solutions that all interested stakeholders have regular access to up to data information.

The consortium could be structured around public or/and private organisations, used to conduct complex and large coordination and management work with public authorities and private organisations, to monitoring of technical deployments (notably security and sustainability aspects),

[31] Macro-projects under the IPCEI-CIS aim to provide a deeper level of European integration to commonly achieve the objectives of the integrated project, by delivering common results, products or services.

and that are capable to demonstrate a good technical and policy understanding of the domain at European level.

Deliverables

The Cloud IPCEI Exploitation Office should provide at minima:

- Yearly activity management plans for the pre-notified IPCEI-CIS, including key project deliverables, milestones, risk mitigation measures and a description of roles and responsibilities in form of a RACI[32] matrix. This should build on targeted and granular data collection among IPCEI individual and macro-projects in the context of the upcoming requirements under the Digital Compass and the Recovery and Resilience Facility.
- A dedicated Cloud IPCEI Exploitation Office website for dissemination purposes with wide reach and a collaborative platform accessible to both IPCEI and non IPCEI participants.
- A medium-term sustainability roadmap and governance strategy for the pre-notified IPCEI.
- Key events, meetings and summary reports of the General Assemblies, Board meetings and industrial sessions to be made accessible in the Cloud IPCEI Exploitation Office website.
- Build a dissemination and exploitation strategy, yearly social media campaigns and the corresponding content to support an active visibility and transparency of the pre-notified IPCEI-CIS activities and technological solutions first industrial deployed and their uptake across all interested stakeholders.

Type of action	Coordination and support action grant
Indicative budget	EUR 3 million
Indicative call planning	First set of calls
Indicative duration of the action	36 months
Implementation	European Commission
Type of beneficiaries	Public or/and private organisations
Security	Call restricted on the basis of article 12(6) of the Regulation (EU) 2021/694

In consistency with WP 21-22, this topic will be subject to article 12(6) Regulation (EU) 2021/694 because the Cloud Exploitation Office will, inter alia, manage security requirements of the new cloud and edge solutions that will be developed under the IPCEI on Next Generation Cloud Infrastructure and Services. Such information constitutes non-public sensitive information about how the deployment of future critical cloud and edge infrastructures and services will be made across the Union from a technical security standpoint, notably in sensitive sectors such as defence, critical infrastructures, or cybersecurity.

[32] RACI stands for Role, Accountability, Consulted and Informed.

2.1.2 Highly Secure Collaborative Platform for Aeronautics and Security Industry

Objective

The objective is to develop a commercially viable highly secure cloud-based collaborative platform for the management of sensitive multi-country industrial initiatives in the aeronautics and security sector, including civil security.

This platform will allow the development of highly sensitive industrial projects, from design to production. In particular, the platform should be able to support the development of products and services financed under future calls of the European Defence Fund.

The need for a new platform derives from the very specific requirements from the aeronautics and security sector. Over the years, the European industry in general has embraced several paradigm changes resulting from new ICT capabilities: collaborative platforms, co-design, concurrent engineering, decentralised and multi-supplier collaboration, the virtualisation of software and hardware, etc. But the aeronautics and security sector has only embraced such changes with caution, if at all. This is due inter alia to different national standards for the classification of data, complex user-access requirements or justified localisation obligations for data infrastructures, typically on the grounds of public security. Such situation has become untenable and seriously undermines the sector's competitiveness against other world's regions, not the least against an international context that implies the multiplication of multi-country and multi-stakeholders' projects.

Scope

The highly secure collaborative platform should:

- Allow the aeronautics and security sector to reach a similar level of decentralised/distributed working along its supply chains as other sectors already enjoy today (e.g. the automotive sector).
- Be cloud-based (i.e. operated from a highly-secure cloud infrastructure), as opposed to require on-premises[33] software deployment.
- Provide for a broad range of secure and user-friendly collaborative tools including general purpose collaboration tools (messaging, wikis, file sharing, videoconferencing, chat) as well as more advanced tools (computer-assisted design, product lifecycle management, data analysis, …).
- Provide for a stack as deep as needed to cater for the specificities of the aeronautics and security sector, including where applicable at IaaS and PaaS levels.
- Cater for state-of-the-art security, interoperability, reversibility, sovereignty and sustainability standards.

[33] On-premise refers to data infrastructures that the user has to operate itself.

- Allow for the concurrent management of different industrial programmes without the need to duplicate the platform (for each programme/country/contractor/etc).
- Be anchored in the security requirements specific to the aeronautics and security sector.
- Cater at minima for the specific needs of information classified at the level of RESTRICTED and equivalents (cf. equivalence table in Council Decision 2013/488/EU and Commission Decision (EU, Euratom) 2015/444), and allow ad-hoc segregation to handle specific national needs or requirements. To the extent possible, the collaborative platform should provide sufficient safeguards so that physical segregation of data is no longer required.
- Incorporate, where appropriate, the outcome of a possible process for defining an EU-level single set of rules and accreditation for data sharing in the aeronautic and security sector.
- Allow for the evolution over-time of the platform, given the very long industrial cycles specific to the aeronautic and security sector (50+ years).
- Allow for multi-cloud tenancy.
- Be tested in quasi-real situations, for example by using it in a real co-design situation which, in reality, does not imply particular confidentiality but where hard user access controls are simulated.

The following items fall outside of the scope:

- the provision of the hardware infrastructure to deploy and operate the platform

The consortium should be structured around private stakeholders (typically: software vendor, data infrastructure providers, aeronautic and security stakeholders, cybersecurity stakeholders). However, to maximise its impact, public authorities, in particular Ministries responsible for national security, home affairs and/or defence, should as well integrate the consortium. Higher education entities, and research and technology organisations with demonstrated cooperation with the above-mentioned public/private stakeholders could also join the consortium where they can make a distinct contribution to the development of the envisaged platform.

Deliverables

- A commercially viable highly-secure cloud-based collaborative platform for the management of industrial programmes in the aeronautics and security sector.
- The governance implications that the operations of such a platform would have on the sector, notably how such platform can operate, be deployed, be accessed, and how projects can be managed through their lifecycle.
- A significant contribution to the discussions for an EU-level single set of rules and accreditation for data sharing in the aeronautic and security sector.

Type of action	Simple grant
Indicative budget	EUR 22 million
Indicative call planning	First set of calls
Indicative duration of the action	36 months

Implementation	European Commission
Type of beneficiaries	Private companies, public authorities, higher education entities and research and technology organisations
Security	Call restricted on the basis of article 12(6) of the Regulation (EU) 2021/694

This topic will be subject to article 12(6) Regulation (EU) 2021/694 because a project in the aeronautics and security sector is intrinsically linked to questions of security.

Actions in 2024

The topics under section 2.1 Cloud-to-edge Infrastructure and services that will be supported in 2024 include:

- **Cloud Federation / Smart Middleware for a European cloud federation and for the European data spaces (Simpl)**[34]

  Building on the work carried in the first WP, the objective will be to expand the depth and breadth of the smart middleware as it was developed and deployed under the first WP. The expected results are to deliver the enhanced open-source large-scale, modular, secure, energy-efficient and interoperable European cloud-to-edge smart middleware platform.
  Indicative type of action: Procurement
  Indicative type of implementation: European Commission
  Type of beneficiaries: Not applicable

- **Large Scale Pilots for cloud-to-edge based service solutions**

  The objective of this action is to launch new large-scale pilots aiming at the deployment at scale of innovative, sustainable, secure and cross-border cloud-to-edge based services in new and expanded environments. The Large scale pilots for cloud-to-edge based service solutions are expected to contribute to climate mitigation by supporting highly secured, low latency local edge services running on green infrastructures that enable federated AI, which will track their environmental performance, with a view to allowing an energy-efficient and sustainable data management**.**
  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: As for similar the similar topic of WP 2021-2022, the consortium should work on sector-specific use-cases (e.g. health, mobility, public administrations, smart cities and

[34] Simpl: cloud-to-edge federations and data spaces made simple https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

communities), provide for a large geographic coverage. It could be structured around a large private organisation or research organisation and include relevant public entities.

- **Reference deployments of European cloud-edge services (industrial IoT Edge and Telco Edge developments)**

  The objective of this action is for these simultaneous deployments in real environments to lead fully interoperable next generation edge computing technologies for adoption in key applications and sectors. One or more pilots could be launched demonstrating (expected results) the seamless integration and seamless interoperability of Industrial IoT Edge with Telco Edge developments into key application areas and sectors.
  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: Private organisations with a proven expertise in Industrial IoT Edge or Telco Edge developments.

2.2 Data for EU

To facilitate the development of the data market and the general capitalisation of data, the Commission is investing in **common European data spaces** in strategic economic areas and areas of public interest, such as health, the Green Deal and transport and security and law enforcement. The data spaces bring together data, data infrastructures and governance structures in order to facilitate secure data pooling and data sharing, a pre-condition for wider availability of data across the economy and society.

Under the WP 2021-2022, the basis was laid for the development of 12 data spaces in line with the European data strategy. The work on the data spaces is accompanied by a review of the policy and legislative framework for data access and use, with Data Governance Act[35] and a proposal for a Data Act adopted on 23 February 2022[36], as well as the Implementing Act on High-value datasets[37] under the Open data directive[38] adopted on 22 December 2022.

To ensure the continuation of the work, this WP will provide funding for:

- further development of individual data spaces**,**
- the development of the common platform for European open data covering datasets from EU, national, local, regional and geo portals,

[35] Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R0868

[36] Data Act: Proposal for a Regulation on harmonised rules on fair access to and use of data, https://digital-strategy.ec.europa.eu/en/library/data-act-proposal-regulation-harmonised-rules-fair-access-and-use-data

[37] https://digital-strategy.ec.europa.eu/en/news/commission-defines-high-value-datasets-be-made-available-re-use https://digital-strategy.ec.europa.eu/en/news/commission-defines-high-value-datasets-be-made-available-re-use

[38] Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information (recast), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L1024

- a new action on Digital Product Passport.

Data Spaces will be subject to the risk of malicious action by individuals, groups or regimes that will attempt to compromise, distort or disclose data in the data infrastructures, thus compromising the availability of the service and the integrity of the information/data used for/within that service. Services based on data available through data spaces will become more and more essential for the proper functioning of critical infrastructures. Any interruptions on the access to data will cause disruptions and affect security or public safety.

Given that the data spaces will also provide a major source of data for AI-based applications and development, their integrity and security is essential also for the secure and proper functioning of systems aiming to process and exploit such data, including data analytics and AI systems.

The addition of unsecure elements by unauthorised users can undermine the security features of other elements. Moreover, data spaces will be combined, aggregated, recomposed and in many cases software-defined working on top of common or overlapping infrastructures. If such data spaces do not provide the same level of reassurance from the outset, the combined data will always lead to the lowest common denominator for security, which will weaken the trust that organisations have in those data spaces. Furthermore, the exploitation and use of the data will often require access to several data spaces, and the interlinking of access infrastructure will make the whole dataspace ecosystem even more reliant on a common high level of security.

In this context, the security risks should not be assessed separately sector by sector (or data space by data space) but at a more general and systemic level. Some Data spaces will be using common infrastructures and tools, which means that security risks for one data space would also affect the others. In addition, the utility that can be extracted from data (but also the risk related to abuse) increases exponentially when data from different sources and sectors are combined.

As a consequence, some of the data spaces will be subject to the provisions of the article 12(6) of the Regulation (EU) 2021/694on the specific grounds of public order and inner stability, protection of data privacy and fight against fraudulent and deceptive practices. The reasoning is twofold:

- First, there is a need to have trustworthy operators developing and running these data spaces so they can be protected from malicious attacks and be trusted by private and public stakeholders to entrust their data.
- Second, these topics will create an ecosystem of trust aiming to facilitate the reuse and take up of the data covered, and thus economic growth. Having different and separate security conditions for the abovementioned data spaces, and/or dividing each thematic data space into more and less sensitive sections, with different operators and levels of interconnection, would damage the ecosystem of trust as well as the desired take up with its positive economic consequences, implying higher transaction and interoperability costs and discourage, in particular, SMEs.

2.2.1. Data spaces

2.2.1.1 Data Space for Cultural Heritage

This action will continue the deployment of an operational data space for cultural heritage. The objective is to make more high-quality content available, particularly in 3D, foster reuse of digitised cultural resources and provide more opportunities for the community to offer enriched services, thanks to the use of advanced technologies.

It will build on the work launched under the previous WP, which consists of two work strands. The first work strand is the deployment of the data space for cultural heritage through procurement, of which the objective is to set up and run the data space, building on the existing Europeana digital service infrastructure platform and, in so far as possible, the smart cloud-to-edge middleware platform Simpl[39]. Its continuation may be addressed under actions in 2024. The second work strand consists of grants supporting cultural heritage institutions in making use of technologies and linking up to the data space. It focuses on seizing the opportunities of advanced technologies for increasing the quality, sustainability, use and reuse of the data, as well as building digital capacity in the cultural sector by collaborating with existing and relevant European, national and regional initiatives and platforms.

Complementarity will be sought with the new European Collaborative Cloud for Cultural Heritage to be developed under the Horizon Europe programme and the EIT Culture and Creativity, by establishing links to actions of these initiatives as appropriate. Additional complementarities may be sought with the actions in the new Work Plan for Culture 2023-2026. Synergies with the New European Bauhaus initiative are also encouraged.

Objective

The awarded projects will increase the offer of 3D and extended reality (XR) content in the common European data space for cultural heritage and will help advance the digital transformation of the cultural heritage institutions, as well as the reuse of such content in other domains, such us tourism or education.

Scope

- Setting or extending the necessary frameworks and tools for the availability of advanced 3D and XR data in the data space for cultural heritage, including know-how references and knowledge sharing;
- Collaborating with existing and relevant European national and regional initiatives and/or platforms for 3D digitisation of museum artefacts, monuments and sites, and XR application in cultural heritage. A particular attention will be given to cultural heritage monuments and objects at risk of war damage, natural disasters, etc.;
- Enriching the offer of 3D and XR data in the data space;
- Offering online experiences for the public based on 3D and XR;

[39] See https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

- Fostering the re-use of cultural heritage XR and 3D data in important domains such as education, social sciences and humanities, tourism and the wider cultural and creative sector.

Deliverables

- Frameworks, tools, technologies, storage and processing capacities for making advanced 3D and XR data available in the data space.
- High quality 3D and XR content and documentation made available in the data space.
- New high-value datasets available for re-use, in particular 3D datasets, including for conducting scientific research, preservation and restoration purposes, re-use by the cultural and creative sector and other domains such as education.
- Training and capacity building for cultural heritage institutions in making use of 3D and XR technologies.

Type of action	Simple grant
Indicative budget	EUR 4 million
Indicative call planning	Second set of calls
Indicative duration of the action	24 months
Implementation	Executive agency HaDEA
Type of beneficiaries	Cultural heritage organisations, 3D and XR technology providers, academic and research partners, stakeholders in creative sectors, education, tourism, interested in re-use

2.2.1.2 Data Space for Tourism

Objective

The objective is to develop a trusted and secure common European data space for tourism, which will provide the ecosystem with access to information, with an impact on productivity, greening and sustainability, innovative business models and upskilling. It will give the possibility of aligning offers to tourists' expectations, adapting service proposals to new tourist groups, predicting a high influx of tourists, and thus allow planning of resources more efficiently, and creating new business opportunities.

The data space for tourism will be closely connected to other sectoral data spaces, such as the data space for cultural heritage. The work will build on the outcome of the two preparatory actions selected in the previous WP.

Scope

Develop and deploy the data space and its infrastructure on the basis of the blueprint elaborated under the preparatory action of the previous WP. Further engage the ecosystem's community and

ensure the interconnection with European, national and local initiatives, in both urban and rural settings, as well as with other sectoral data spaces.

Develop pilot use cases for different data types and fields of activities related to tourism, for example in the area of accommodation supply and demand data, combining data from public and private providers in view of the upcoming Short Term Rental legislative initiative40 on a voluntary basis.

The awarded project(s) will use, in so far as possible, the smart cloud-to-edge middleware platform Simpl[41], and work in partnership with the Data Spaces Support Centre deployed under the first WP[42] in order to ensure alignment with the rest of the ecosystem of data spaces implemented with the support of Digital Europe Programme. The joint work will target the definition of:

- the data space reference architecture, building blocks and common toolboxes;
- the common standards, including semantic standards and interoperability protocols, both domain-specific and cross-cutting;
- The data governance models, business models and strategies for running data spaces.

Deliverables

- Infrastructure for the Tourism Data Space.
- Connections between relevant local and national data ecosystems and initiatives at EU level.
- Establish connections with other sectoral data spaces.
- Guidance/training documents to involve stakeholders in sharing data.
- Exploitation of available data for better interconnection, exchange of information and re-use.
- Once the data space is operational, regular updates on usage data and troubleshooting.

Type of action	Simple grant
Indicative budget	EUR 8 million
Indicative call planning	Second set of calls
Indicative duration of the action	36 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	Public and private entities such as (but not limited to) public administrations and/or governmental bodies, economic actors/SMEs, relevant associations,

[40] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on data collection and sharing relating to short-term accommodation rental services and amending Regulation (EU) 2018/1724 (2022/0358 (COD)) https://single-market-economy.ec.europa.eu/system/files/2022-11/COM_2022_571_1_EN_ACT_part1_v7.pdf

[41] See https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

[42] Project implementing the topic 2.2.2.1 from the Commission Decision C (2021) 7914 final, adopting the Main Digital Europe Work Programme for 2021-2022

	alliances and NGOs, academia/universities/research organisations, etc.).

2.2.1.3 Language Data Space

Objective

Following the initialisation of the Language Data Space (LDS) in the previous WP, which covers the establishment of the institutional Centre of Excellence for Language Technologies (CELT) and the deployment of the LDS platform and marketplace, the objective is now to sustain the development of its ecosystem. This entails (i) collecting, creating, sharing and re-using multilingual and multimodal language data and models, (ii) transferring and integrating the eLangTech portal (previously known as the CEF Automated Translation Core Service Platform or eTranslation portal) into the LDS, and (iii) fostering the creation of AI language technology services which are necessary for the support and promotion of the established ecosystem.

The migration of eLangTech to the LDS will ensure, on the one side, continuation, maintenance and upgrade of the eLangTech tools and services and, on the other, their operational synchronisation, together with higher uptake in the public and private sector and enhanced visibility of the LDS.

Language coverage will focus on the official languages of all EU Member States and affiliated countries, and may extend to other socially and economically relevant languages, to support the European Union's equality, inclusion and accessibility efforts as well as its international market competitiveness and commercial growth.

The objective is also to support the initiative taking into account the potential creation of a European Digital Infrastructure Consortium (EDIC).

Scope

Aligned with the previous WP, support to the Language Data Space will be provided through three work strands.

The first work strand will involve making new language datasets available, with a focus on inter-institutional ones, i.e., data from the Publications Office of the EU, collections of multilingual, aligned and labelled translation memories, and speech transcriptions from public conferences. This will increase the availability of updated European test and training language datasets to foster the creation, evaluation and deployment of multimodal language data models and services.

The second work strand will imply merging the eLangTech portal[43] into the LDS. In addition to the online access, the eLangTech tools and services will be delivered through APIs and containers into the LDS. Similarly, generic and domain-specific eLangTech language models will be made available on the LDS platform. As a result, the eLangTech portal and the catalogue of European language technologies services already integrated within the LDS, will gain visibility and reach a broader users'

[43] Cf. https://language-tools.ec.europa.eu/.

base for wider deployment and re-use, both in the private and public sector throughout EU Member States and Digital Europe Programme-affiliated countries.

The third work strand will focus on enhancing the quality and extending the range of the eLangTech portal, i.e., automated translation and speech technologies, anonymisation and other Natural Language Processing (NLP) tools and use cases, etc., while covering a broader set of socially and economically relevant languages.

The awarded project(s) will use in so far as possible the smart cloud-to-edge middleware platform Simpl[44], and work in partnership with the Data Spaces Support Centre deployed under the first WP[45] in order to ensure alignment with the rest of the ecosystem of data spaces implemented with the support of Digital Europe Programme. The joint work will target the definition of:

- the data space reference architecture, building blocks and common toolboxes;
- the common standards, including semantic standards and interoperability protocols, both domain-specific and crosscutting;
- the data governance models, business models and strategies for running data spaces.

Deliverables

Strand 1:

- Providing a revised list of new datasets to be made available;
- Coordinating the collection, processing (e.g., adjustment of metadata, data formatting and standardisation, etc.), maintenance and legal clearance (data protection by default and by design, licensing schemes, LDS governance scheme, etc.) of the above-identified language datasets;
- Publishing the above-identified language datasets in the LDS in compliance with the LDS technical architecture and infrastructure, including metadata standards, the blueprint, etc.

Strand 2:

- Integrating the eLangTech portal into the LDS through online services, APIs and containers;
- Making eLangTech language models available in the LDS, taking account of both technical (LDS architecture and infrastructure building blocks) and legal aspects (data protection by default and by design, licensing schemes, LDS governance scheme, etc.) necessary for the publication in the LDS;
- Through the LDS, promote and ease the take-up of these language models amongst the Digital Europe Programme stakeholders;

Strand 3:

- Improving the quality of existing tools and services available through the eLangTech portal;

[44] See https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

[45] Project implementing the topic 2.2.2.1 from the Commission Decision C(2021) 7914 final, adopting the Main Digital Europe Work Programme for 2021-2022

- Making new state-of-the-art AI-based language processing tools and services available in the LDS;
- Covering a wider range of socially and economically relevant languages, both the in the tools and services;
- Providing user support for the tools and services of the eLangTech portal via the LDS.

Type of action	Procurement
Indicative budget	EUR 5 million
Indicative time	2023
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	Not applicable

2.2.1.4 Health data space

Actions aim primarily to increase the amount of data related to health available for research, innovation, public health policy and healthcare delivery and establish sustainable cross-border linkage of and access to interoperable health datasets across Europe. The actions will build on and link to the genomics and cancer imaging data infrastructures to be deployed under the health data space topics in the Digital Europe Programme WP2021-22 (topics 2.2.1.7.1 and 2.2.1.7.2).

The first action to be awarded will support the deployment of a federated digital infrastructure for secure cross-border access and distributed analysis of the health data available in the Intensive Care Units for more precise and faster clinical decision-making, diagnostics, treatments and predictive medicine.

The second action to be awarded will support the creation of a high-value reference dataset of genomic data representative of European citizens to be hosted by and accessible via the federated European genomic data infrastructure to be deployed based on the Digital Europe Programme WP 2021-22. Together with the genomic data and cancer imaging data infrastructures, both actions will support the goals of the proposed regulation on the European Health Data Space[46] (EHDS) by making more health data sets more easily available for researchers, innovators, policymakers and healthcare professionals in Europe.

Both actions will build on and complement projects supported under the WP 2021-22, as well as Horizon 2020, Horizon Europe, EU4Health programme, and Recovery and Resilience Facility. The

[46] Proposal for a Regulation of the European Parliament and of the Council on the European Health Data Space. COM(2022)197final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0197

actions should take into account the outcomes developed by relevant research projects under Horizon 2020 and Horizon Europe, and the work of the relevant Research Infrastructures.

These two actions are further described below.

2.2.1.4.1 Federated European Infrastructure for Intensive Care Units' (ICU) data

Objective

The action will establish and deploy a pan-European federated infrastructure for Intensive Care Units' (ICU) data combined with governance mechanisms allowing secure cross-border access to ICU datasets. The infrastructure shall primarily address data from acute care, including data generated from physiological monitors, laboratory investigations, imaging, clinical examination and examination protocols, and therapeutics as well as from emerging omics technologies used during the delivery of care. It shall be used by clinicians, researchers and innovators with the ultimate aim of more precise, faster and more effective clinical decision-making, diagnostics, treatments and predictive medicine. This infrastructure shall allow for both observational and interventional research and innovation to occur at pan-European level, also in preparation for possible future pandemics.

The ICU data infrastructure shall be supported by advanced corresponding IT tools and capacities in terms of data capture, processing, analysis and visualisation, with inherent interoperability and connectivity, enabling secure access to and distributed analysis of datasets, including AI use. In addition, it should support the exchange of best practices with a fast-track approach for addressing emerging need, such as in case of a pandemic. Finally, it shall be supported by a corresponding package for digital skills training and education as fit for the purpose for this scope.

Scope

The awarded action will support the deployment of the infrastructure needed to link and explore fragmented European databases of Intensive Care Units on acute care and telemedicine, complemented by a solid governance and a clear and sustainable business model for gathering data, models and best practice, and its exploitation by public and private organisations towards clear benefits for health communities and society. It will provide a harmonised approach for accessing acute care-related data and linking it with other health data sources enabling data discovery and re-use for researchers, innovators, clinicians, as well as AI and data tool developers. The action should contribute to supporting decision-making and improving patient care in the ICUs, through better short-term prediction and earlier identification of critical clinical status of patients, including for infectious diseases. It will also facilitate chronic and inherent risk factor identification, including for cancer. The action shall also establish a basis for data intensive computational model-based tools for decision support and risk prevention, towards a "virtual twin of an ICU patient".

The action shall address the interoperability requirements so that communication and exchange of data and information within and between ICUs is fully enabled. The proposal shall identify flexible common data models, core sets of standardized data elements and anonymisation strategies, and be in full compliance with the principles of GDPR, patient privacy, as well as accordance with the FAIR

principles[47]. The work shall be based on common data models, interoperability mechanisms, intra- and inter-EU national collaborative exchange of data and knowledge including teleconsultations and synoptic near real-time sharing of clinical data to account for the urgency to treat within this medical discipline. The action shall set up a federated infrastructure of ICU data in Europe which would facilitate the development of short-term predictive models, better decision support tools and model (incl. AI) -based risk prevention tools helping intensivists in their work.

The action is expected to engage with ICU centres and relevant stakeholders in all EU Member States and regions with a view to increasing the representativeness of the ICU data sources vis-à-vis the European population, types of diseases covered, and sufficient quantity and quality of data for research and innovation. The action shall promote the effective implementation and evaluation of data-driven systems in Intensive Care. Implementation should be ICU practitioner-centred and designed according to the needs of users, notably the health workforce providing the care in practical terms and taking into account continuity of care. Incentives for use must be considered and added value demonstrated in terms of process facilitation or innovation and better outcomes.

The resulting data infrastructure should be aligned with the developments under the European Health Data Space (EHDS). It should be inter-operable with other building blocks and components of the EHDS, and the federated European infrastructures for genomics data and for cancer imaging data. The work should build on and bring forward the results accomplished in relevant Horizon 2020 and Horizon Europe projects and the Digital Europe Programme. It shall engage and coordinate with the relevant actions of the health cluster of the Digitizing European Industries (DEI) initiative, the European Reference Networks and the ongoing cooperation of ICU Hubs between Member States and regions with a view to establishing and fostering interoperability, harmonisation and standardisation.

The awarded project(s) will use, in so far as possible, the smart cloud-to-edge middleware platform Simpl[48], and have to work in partnership with the Data Spaces Support Centre deployed under the first WP[49] in order to ensure alignment with the rest of the ecosystem of data spaces implemented with the support of Digital Europe Programme. The joint work will target the definition of:

- the data space reference architecture, building blocks and common toolboxes to be used;
- the common standards, including semantic standards and interoperability protocols, both domain-specific and cross-cutting;
- The data governance models, business models and strategies for running data spaces.

Deliverables

- Deployment of an interoperable and secure federated infrastructure for trusted ICU datasets in the EU, and linked to AI resources, with established interoperable links to

[47] Findable, accessible, interoperable, reusable. https://doi.org/10.1038/sdata.2016.18

[48] See https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

[49] Project implementing the topic 2.2.2.1 from the Commission Decision C(2021) 7914 final, adopting the Main Digital Europe Work Programme for 2021-2022

other federated European data infrastructures, such as on cancer-imaging and genomics.

- Secure and interoperable platform for aggregation of ICU datasets for secondary analysis and development of toolsets on relevant datasets for different treatment types useful for developing clinically relevant AI algorithms for specific use cases, including test and training data sets ("atlas" of anonymized Acute Care cases);
- Computational modelling tools for individual ICU patient patho-physiology simulation and analysis using ICU related clinical information (including decision-support tools), clinical consultation, collaboration and monitoring, that are fully interoperable.
- Platform and mechanisms to exchange best clinical practice and adapted analysis and training datasets, also in case of an emerging health threat event, such as a pandemic.
- User Interface front-end module or system at the workforce level operational in minimum four EU languages. Design development in co-creation with the workforce with demonstrated improvement of provision of care: processes, documentation, quality control including new, adapted or extended ICU data sources including annotation, voice recognition, integrated datasets.
- A sustainable operational coordination and governance structure, open to the involvement of new stakeholders, including capacity building measures necessary to ensure the establishment, sustainable operation and successful uptake of the infrastructure with the ultimate aim to establish an entity under European law.
- A business model including an uptake strategy explaining the motivation and incentives for all stakeholders at the different levels (regional, national, European, global) to support the data infrastructure towards its sustainability, including data controllers, data users, service providers, healthcare workforce, systems and public authorities at large and taking into account the role of SMEs in the deployment and the value chain;
- A training and skills programme supporting the interdisciplinary nature of the subject matter and enabling the sustainable development, integration and use with a strong view to innovation, provision of citizen-centred health and a better quality of life for citizens and society.

Type of action	Simple grant
Indicative budget	EUR 5.1 million
Indicative call planning	First set of calls
Indicative duration of the action	42 months
Implementation	European Commission
Type of beneficiaries	Hospitals, governmental authorities, SMEs, IT solution providers, universities and large research organisations
Security	Call restricted on the basis of article 12(6) of the Regulation (EU) 2021/694

In consistency with WP 21-22, this topic will be subject to article 12(6) of Regulation (EU) 2021/694 because it will cover sensitive personal health data which in conjunction with AI-based applications could potentially reveal sensitive information and impact on medical treatments that can be critical for the EU's security and public health.

2.2.1.4.2 Genome of Europe

Objective

This action will support the implementation of the Genome of Europe (GoE) multi-country project and contribute to achieving the objectives and long-term ambition of the 1+Million Genomes (1+MG) initiative. GoE aims to establish and launch a European reference genome database of genetic variation obtained by whole genome sequencing (WGS) for at least 500,000 citizens based on population-based national reference genome collections, collectively representative of the European population. GoE has the potential to foster break-through advances in research, innovation, disease prevention and healthcare delivery, widely spread across clinical disciplines, beyond current use cases (disease areas). Moreover, creation of a reference database will allow meaningful savings in healthcare systems as it will enable data imputation and enrichment of genotype information. A concerted genome sequencing effort is necessary to achieve a critical mass of WGS data across Europe. By fostering it, this action is expected to bring major efficiencies due to economies of scale and should enable all GoE countries to contribute with WGS data. It will also ensure consistent application of agreed common data requirements and quality measures across all national datasets, enabling the creation of a high-value European reference dataset.

The objective is also to support the initiative taking into account the potential creation of a European Digital Infrastructure Consortium (EDIC).

Scope

The focus of the action is on whole genome sequencing at clinical grade depth necessary for clinical application. This can be achieved by coordinated WGS sequencing expected to enable massive new data collection in all GoE countries. WGS data for the GoE must be generated following the 1+MG Trust Framework that brings together a set of minimal recommendations to enable secure cross-border access to genomic data in Europe, in particular as regards ethical and legal aspects, data standards, data quality and technical inter-operability. To this end, sequencing specifications should follow the available 1+MG guidance and align closely with that initiative.

The biological samples needed to generate the data, i.e., to sequence the genomes, can either originate from existing population-based cohorts and national biobanks, or be collected from participants recruited specifically for the national and European GoE reference databases. The participants will be selected at the national level to be representative of the respective population, including a contribution of relevant minorities. To ensure uniform approach, the exact inclusion and selection principles need to be agreed at the European GoE level.

In parallel to data generating activities (WGS sequencing), the architecture, hardware and software necessary to aggregate national reference databases into a European reference database (The

Genome of Europe) need to be designed, developed and implemented in cooperation with the Genomic Data Infrastructure (GDI) project. As well as newly generated GoE data, this should ensure effective integration of available national population-based WGS collections established before or independently of the GoE. The GoE database must be interoperable with and accessible through the 1+MG data infrastructure and equally aligned with the European Health Data Space (EHDS), in particular the infrastructure for secondary use of health data (HealthData@EU).

For data security reasons, sample transport, all WGS activities and genomic data transfer and storage must take place within the territory of eligible countries.

The GoE project forms an integral part of 1+MG and GoE data will be accessible via the European federated genomics data infrastructure (GDI) deployed under the Digital Europe topic DIGITAL-2021-CLOUD-AI-01-FEI-DS-GENOMICS. Besides Digital Europe's Data Spaces, the topic is also synergetic with the RRF support for the GoE multi-country project as stipulated in the national recovery and resilience plans of several Member States. Cooperation with other relevant European initiatives, and due consideration of other projects and infrastructures, for example those funded under the Horizon 2020 and Horizon Europe research and innovation programmes and the EU4Health Programme (e.g. Genomics for Public Health), will be strongly recommended to build on and bring forward their results as well as to ensure a good use of synergies and complementarities.

The awarded project will use, in so far as possible, the smart cloud-to-edge middleware platform Simpl[50], and have to work in partnership with the Data Spaces Support Centre deployed under the first WP[51] in order to ensure alignment with the rest of the ecosystem of data spaces implemented with the support of Digital Europe Programme. The joint work will target the definition of:

- the data space reference architecture, building blocks and common toolboxes;
- the common standards, including semantic standards and interoperability protocols, both domain-specific and crosscutting;
- The data governance models, business models and strategies for running data spaces.

Deliverables

- Joint or coordinated sequencing (WGS), as described under Scope.
- New WGS data for a large number of representative European citizens, to be further specified in the call document, generated in accordance with the guidance, specifications and standards agreed within 1+MG (1+MG Trust Framework).
- Integration of eligible population-based WGS data generated independently of the GoE and made available to the project.
- The Genome of Europe federated reference database established and accessible through the federated European genomic data infrastructure and the European Health Data Space (EHDS) infrastructure for secondary use of health data (HealthData@EU).

[50] See https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

[51] Project implementing the topic 2.2.2.1 from the Commission Decision C(2021) 7914 final, adopting the Main Digital Europe Work Programme for 2021-2022

Type of action	Simple grant
Indicative budget	EUR 20 million
Indicative call planning	First set of calls
Indicative duration of the action	42 months
Implementation	European Commission
Type of beneficiaries	Public and private entities such as (but not limited to): public administrations (national, regional and local level), hospitals, research institutes, biobanks, research agencies, research infrastructures;
Security	Call restricted on the basis of article 12(6) of the Regulation (EU) 2021/694

This topic will be subject to article 12(6) of Regulation (EU) 2021/694 in consistency with WP 21-22for the reasons already provided in section 2.2. In addition, the data space will cover sensitive personal health data (such as individual sequenced genomes) which in conjunction with AI-based applications could potentially reveal sensitive information and impact on medical treatments that can be critical for the EU's security and public health.

2.2.2 Digital Product Passport

The Digital Product Passport (DPP) is an information system that makes accessible on a need-to-know basis data relevant to product sustainability along their value chains.[52] The DPP is expected to make an important contribution to climate mitigation by aiming to achieve sustainable and circular systems in three key value chains by improving product sustainability, boosting material and energy efficiency, enabling new business models and circular value extraction based on data sharing.

Objective

- To enable sharing of key product related information that are essential for products' sustainability and circularity, including those specified in Annex III of ESPR proposal[53], across all the relevant economic actors. Consequently, to accelerate the transition to circular economy, boosting material and energy efficiency, extending products lifetimes and optimizing products design, manufacturing, use and end of life handling.

[52] In March 2022 the Commission adopted the 'Ecodesign for Sustainable Products Regulation' proposal (ESPR) which establishes DPP. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC COM(2022) 142 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022PC0142

[53] https://environment.ec.europa.eu/system/files/2022-03/COM_2022_142_1_EN_annexe_proposition_part1_v4.pdf

- To provide new business opportunities to economic actors through circular value retention and optimisation (for example product-as-a-service activities, improved repair, servicing, remanufacturing, and recycling) based on improved access to data;
- To help consumers in making sustainable choices; and
- To allow authorities to verify compliance with legal obligations.

Scope

Support one Pilot action that will demonstrate in real setting and at scale DPPs in at least 2 value chains (product categories) with a preference to those with long and complex supply chain and/or challenging repair, refurbishment and recycling. This DPP information system should rely on international or European standards in the following areas: data carriers and unique identifiers, access rights management, Interoperability (technical, semantic, organisation) including data exchange protocols and formats, data storage, data processing (introduction, modification, update), data authentication, reliability, and integrity, data security and privacy. Where possible, this will consist in using the smart cloud-to-edge middleware platform Simpl.[54] The access to information included in the DPP should be role-dependent (i.e., differentiated by stakeholder type). The full interoperability of the same DPP information system among different supply chains should be one of the characteristics tested and proven by the pilot.

The pilot will build on the available results of the Coordination and support action (CIRPASS)[55] as well as other relevant initiatives. It will also consider the appropriateness of the latest tracking and tracing technologies, internet of things systems, distributed ledger technologies, cybersecurity methods and cloud technologies and infrastructures (such as GAIA-X).

A specific contribution is expected on demonstrating at large scale the feasibility of acquiring, managing and securely sharing the data held or generated by operators such as supply chain actors, manufacturers, resellers, repairers, remanufacturers, and recyclers, along these value chains for which an access by other relevant stakeholders would have a major beneficial impact on circularity and sustainability.

The real-life deployment should validate and further improve protocols for secure and tailored access for the relevant stakeholders. It should test in real life setting open digital solutions for identification, tracking, mapping and sharing of product information along its life-cycle, ensuring interoperability across borders and a well-functioning EU Internal Market. This pilot will build on existing open international and European standards[56] with the aim to provide for a consistent operational framework.

Deliverables

- Deployed and validated at scale and real life setting Digital Product Passports in at least two value chains.

[54] See https://digital-strategy.ec.europa.eu/en/news/simpl-cloud-edge-federations-and-data-spaces-made-simple

[55] CIRPASS, https://cirpassproject.eu/

[56] Link to indicative list of standards developed by StandICT project (official deliverable expected in January 2030

- Report on further needs for standardisation and specifications to ensure interoperability, security and acceptance by all the stakeholders.
- Recommendations based on the lessons learnt for the deployments of DPP in other value chains.

Type of action	Simple grants
Indicative budget	EUR 6 million
Indicative call planning	First set of calls
Indicative duration of the action	30 months
Implementation	Executive agency HaDEA
Type of beneficiaries	(Consortia of) public entities, private entities including economic actors / SME, relevant associations and NGO, academia/universities/research organisations…

2.2.3 Support for Data for EU

2.2.3.1 Open Data Portal

Objective

The service data.europa.eu is the common platform for European open data covering datasets from EU, national, local, regional and geo portals. The objective is to build and maintain this platform which gives access to open data from EU, national, regional, local and geo portals. The service data.europa.eu will also continue to offer training courses, courses and support for data providers in making their data available as well as fostering the uptake of data reuse. Support will also be provided for the sustainability of the Big Data Test Infrastructure (BDTI) component. The main focus will be to adapt the functionalities of the portal in order to facilitate discovery and access to data through API.

The objective of this topic is to increase the easy availability, quality and usability of public sector information in compliance with the requirement of the Open Data Directive, in order to boost the re-use and combination of open public data - both from European countries and from EU institutions and bodies - across the EU, for the development of information products and services, including AI applications.

- Developing, maintaining and operating data.europa.eu

  Goal: Development, maintenance, operation, evolution and hosting of an enhanced, merged secure, robust, and user-friendly pan-European portal for the dissemination of the content of the data.europa.eu portal (including open data from Member States public administrations and European Institutions, Bodies and Agencies), and enabling professionals

and members of the general public to find, download, query and visualise datasets of interest and learn and feedback about public data resources; also enabling publishers to test and improve (meta) data quality.

- Fostering uptake on data supply, including through the support to the improvement of the (meta) data quality supply

  Goal: Empowering and guiding Member States to understand re-users' demand and be able to collect and publish good quality fit-for-purpose public data resources complying with appropriate regulatory, technological, and organisational requirements.

- Fostering uptake of data re-use

  Goal is to facilitate an engaged community of re-users in the public and private sector that is aware and knowledgeable of the public data resources potential and recognises and shapes data.europa.eu as a single access point to European public data resources and as a hub for research and learning.

Scope

Service contracts will maintain and further expand the Open Data infrastructure deployed since 2015 under the Connecting Europe Facility programme. Funding will be provided for:

- Consolidation and expansion of the data.europa.eu Data Portal[57] , including the integration with the EU and Member States Open data and INSPIRE geoportals

- Maintenance and further expansion of the Big Data Test Infrastructure (BDTI) Building Block, including the possibility for the public sector to use it for testing Business-to-Government (B2G) data sharing collaborations for the public good.

These tools will contribute to Green deal applications and other common data spaces where relevant, in providing a test platform and tools for accessing multiple sources of data, data which the data.europa.eu Portal, extended to include the High Value Datasets, will provide through a harmonised single-entry point.

Deliverables

- Enhanced version of the data.europa.eu portal, fully integrating the High Value Datasets (HVD) made available by Member States according to the HVD Regulation 2023/138 of 21/12/2022.
- Operational new section on the data.europa.eu portal, including a dedicated catalogue implementing a searchable asset list containing an overview of all available data resources made available by Member States according to the Data Governance Act Regulation 2022/868 of 30/5/2022.
- Improved version of the Big Data Test Infrastructure, making available additional tools for Big Data analysis.

[57] data.europa.eu gives access to open data from European national, regional, and local open data portals, as well as EU institutions, bodies and agencies open data.

Type of action	Procurement
Indicative budget	EUR 6 million
Indicative time	2023
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	Not applicable

2.2.3.2 The European Single Access Point (ESAP) for EU capital markets

Objective

The objective of this action is to build the fundaments of the European Single Access Point (ESAP), an open data portal for sustainability information of companies and for information relevant for capital markets.

Given the objectives of the Green Deal and of the Capital Markets Union Action Plan easy access to information about the sustainability of companies and on their financial position and their performance, is of key importance for investors, civil society and other stakeholders. Moreover, making information about smaller and medium-sized companies easily available will help improve their access to financing.

The Commission proposed at the end of 2021 a package of proposals for the establishment of the ESAP.[58] This open data portal will improve and simplify access to information that financial institutions and other companies already have to make public on the basis of EU legislation. This public information is currently not centrally available in the EU but scattered across the Union and Member States: much of the information is disclosed on the websites of financial institutions and other companies; some of the information is available with supervisors in the Member States or with the European Securities and Markets Authority (ESMA) and some of it in so-called Officially Appointed Mechanisms.

Under the Commission's proposals this public information will become easily accessible at the European Single Access Point, which will be operated by the ESMA.

This action will contribute to the further development of broad and liquid capital markets to finance the European economy, including for smaller and medium-sized companies and strengthen the EU Single market. It will ensure that sustainability information is easily available, thereby supporting the mobilisation of sustainable finance and helping achieve the objectives of the Green Deal. It will also harmonise the regime on the digital use and re-use of this public information. The project will take into account the final outcome of the legislative process, including as regards the scope of application and the functionalities of ESAP.

[58] COM(2021) 723 final, COM(2021) 724 final, and COM(2021) 725 final.

Scope

In close cooperation with ESMA, the Commission will procure the necessary IT service contracts to design and develop the technical infrastructure of the ESAP. In this phase, and based on the outcome of the negotiations of the ESAP package[59], the focus will be on:

- Creating the infrastructure that ensures that the public information can be submitted by the collection bodies under the ESAP Regulation to ESAP;
- The development of the web portal, search engine, download services and other data access services;

Deliverables

Implement services/functionalities relevant for ESAP such as:

- data collection services, allowing, in line with the phasing-in provisions of the ESAP package, the relevant collection bodies to submit data to ESAP;
- data access services for the public as end users (web portal, search engine, download services);
- data processing, data management, data quality processes, monitoring, security services;
- integration with relevant ESMA systems and services such as identity and access management, file transfer, security monitoring;
- advanced features such as e-translation, notification services, or the application programming interface;
- support to collection bodies in the provision of information to ESAP.

Type of action	Procurement
Indicative budget	EUR 3 million
Indicative time	2023
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	Not applicable

Actions in 2024

The topics under section 2.2 Data for EU that will be supported in 2024 include:

[59] The negotiations of the ESAP package are expected to be finalised in the first half of 2023.

- **Continuation of the action on Cultural Heritage (See topic 2.2.1.1)**

  The objective of this action is to extend the data space for the cultural heritage. The development of the data space will include improved, decentralised aggregation; evolution of the licensing, the content (including 3D) and the metadata frameworks; increased multilingualism coverage; integration of requirements and framework from the data spaces common services; and creation or consolidation of links with other data spaces at European, national, or local level. All those aspects will contribute to reach the high-quality data targets for 2025, defined in the Recommendation (EU) 2021/1970.

  Indicative type of action: Procurement
  Indicative type of implementation: European Commission
  Type of beneficiaries: Public and private entities related to cultural heritage and digital transformation.

- **Continuation of the action on Language Data Space (See topic 2.2.1.3)**

  The objective of this action is the development and implementation of new use-cases for the Language Data Space with a focus on European industries and more specifically SMEs. By scaling up the deployment and use of the Language Data Space in the collection, creation, sharing and re-use of language data and models within the industries and SMEs, the goal is to establish a European industrial language data ecosystem.

  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: Public and private entities

- **European Green Deal Data Space**

  The objective of this action is to deploy the infrastructure for the Green Deal data space based on the governance blueprint, the data scope and the implementation roadmap that were defined in the project funded under the previous WP and will build on and be further enabled by supporting a number of initiatives. The expected result is to have a fully operational Green Deal Data Spaces which can connect to the various data spaces and share and reuse its data for/from the private and public sector.

  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: Public and private entities

- **Data Space for Skills**

  The objective is to develop, set-up and implement the secure and trusted data space, following the recommendations of the preparatory action selected in the previous call. The data space will support sharing and accessing skills data for various purposes, from analytical and statistical purposes to policy development or re-use in innovative applications.

Indicative type of action: Simple grant
Indicative type of implementation: European Commission
Type of beneficiaries: Academic and research partners, public administrations and/or governmental bodies, education and training providers, IT developers, private and public actors (particularly in the area of job search and recruitment services as well as data sharing), trade and industry associations and alliances

- **Energy Data Space**

  To achieve EU's ambitious goals in energy sector: increase the use of renewable energy sources, decrease the net energy imports and improve energy efficiency, and to enable vibrant market of energy services and new business models, the energy sector needs increased availability and cross-sector sharing of data, in a customer-centric, secure and trustworthy manner and therefore to ensure the deployment of a Common European energy data space.

  The selected project(s) will put in commercial service the Common European energy data space through the deployment use cases and corresponding data sets in at least half of the member states. This action will contribute to decreasing greenhouse gas emissions by maximising the utilisation of renewable energy, minimising the use of fossil fuel electricity generation capacities, electrification of sectors traditionally relying on fossil fuels, improving energy efficiency and local generation and use of renewable energy.

  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: Public and private entities

- **Data Space for Manufacturing (deployment)**

  The goal of this action is to significantly scale up the deployment and use of the dataspaces in the two use cases supported under the previous WP, while at the same time expanding the use and sustaining the development of a European industrial data ecosystem by reaching a significant critical mass.

  At the same time, it will broaden the scope of the dataspaces by including functionality supporting manufacturing companies to meet the goals of the Green deal and move towards an integrated Industrial Data Space through interoperability and integration with the Smart middleware for the European Cloud Federation,

  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: all entities, with a focus on manufacturing SMEs and mid-caps, machine-tool industry, IT companies and integrators and related industry associations

- **Agricultural Data Space**

  Taking into consideration the work and recommendations of the preparatory action for the data space in agriculture launched under the first WP in 2022, the action will develop and deploy an operational data space for sharing agricultural data. The expected results of this action are to

develop a secure and trusted data space to enable the agriculture sector to transparently share and access data, allowing for an increase in its economic and environmental performance. Production data supplemented by publicly held data will present new opportunities for monitoring and optimising the use of natural resources and will contribute to achieving the objectives of the Green Deal and the Common Agricultural Policy.

Indicative type of action: Simple grant
Indicative type of implementation: European Commission
Type of beneficiaries: Public and private entities such as (but not limited to) public administrations and/or governmental bodies, economic actors (SMEs, large organisations), relevant associations, academia/universities/research organisations, etc

- **Supporting patients' access to their health data in the context of healthcare services for citizens across the EU**

The objective is to foster patients' access to their health data for primary use, thereby contributing to the proposed European Health Data Space. It will build on and scale up actions under the EU4Health Programme and the Digital Europe Programme to support the roll-out of solutions enhancing patients' access to their data, through MyHealth@EU health data infrastructure for primary use.

Indicative type of action: Simple grant
Indicative type of implementation: European Commission
Type of beneficiaries: Public and private entities

- **Data space for public administration**

The objective is to significantly scale up the Public Procurement Data Space that was prototyped under the previous WP, enhance its analytics capabilities and integrate the Smart middleware for the European Cloud Federation. It is expected that additional Member States will connect their procurement data to this data space and that the data space will be connected to other data sources, for example, to better support the Green deal.

Indicative type of action: Procurement
Indicative type of implementation: European Commission
Type of beneficiaries: Not applicable

- **Continuation of the action on the European Single Access Point (See topic 2.2.3.2.)**

The objective of this action is to continue to build and improve the European Single Access Point by completing and improving of the action supported by the DEP WP 2023, expand the scope of information to be accessible via ESAP in line with the phasing in provisions of the ESAP package, expand the services and functionalities to be provided by the ESAP, such as possibly the integration of Qualified Electronic Seals, interfaces for disabled persons, integration of a complete set of metadata, extension of storage capacity, advanced notification services, development of added-value access services and in line with the phasing in provisions of the

ESAP package, expand the scope of collection bodies supplying information to ESAP and providing support to these collection bodies;

Indicative type of action: Procurement
Indicative type of implementation: European Commission
Type of beneficiaries: Not applicable

2.3 Artificial Intelligence

AI can bring many benefits to the economy and society. However, given the nature of AI as a general-purpose technology and the ongoing efforts to address the risks it may pose for specific fundamental rights through the proposed AI Act, it is important to continue to build-up additional capacity towards world-class large-scale reference sites for testing and experimentation of AI-powered solutions that will foster the deployment of trustworthy, secure, transferable and scalable AI in Europe. This will also facilitate the respect of fundamental rights by minimising the risk of erroneous or biased AI-assisted decisions.

Many solutions prototyped or tested in labs have the potential to address the current needs for AI-based solutions. However, they often cannot be deployed due to the lack of testing in real (or representative) environment as opposed to just virtual for proving the capability to efficiently address the needs of the users, or due to the lack of certification against relevant existing standards such as safety. In addition, market and post-market compliance assessment under the upcoming AI Act are basic elements that are not in place yet. The Testing and Experimentation Facilities (TEFs) are expected to address those issues and to play a key role in the implementation of the proposed regulatory framework for AI.

TEFs will have strong connections and use data-spaces as much as possible and will interact with parallel mechanisms as the AI-on-demand platform where relevant. Additionally, TEFs will naturally develop fruitful exchanges with EDIHs, as they are potential both providers and consumers of their services.

On top of the current planned sectorial TEFs (Health, Manufacturing, Agri-Food, Smart Cities and Communities), the current work plan introduces additional more horizontal actions. In particular, a Coordination and support action grant, so a cross-sector perspective can be applied to all existing TEFs; and a future new TEF that will complement the current ones by building upon the experiences of the sectorial TEFs and fill the gaps where a smart investment for the uptake of AI is needed.

Under this section, a separate action building on the smart communities' data infrastructure will expand the capabilities of local digital twins. The projects will introduce AR/VR and metaverse technology to allow citizens and other stakeholders to "navigate and interact" in their urban spaces.

2.3.1 Testing and Experimentation Facilities

2.3.1.1 Coordination of AI sectorial Testing and Experimentation Facilities

Objective

The Coordination and support action grant will support the sectorial Testing and Experimentation Facilities (TEFs) created under the Work Programme 2021-2022 (Health, Manufacturing, Agri-Food, Smart Cities and Communities) and the future new ones to be create under the Digital Europe Programme, to develop complementary cross-TEF activities in providing AI services from a cross-sector perspective, to maximise the overall impact of TEFs in their ambitions of achieving world-class excellence and help the sectorial TEFs to better link with relevant EU projects, initiatives and stakeholders in the AI ecosystem of excellence. By boosting the reinforcing feedback loops, the CSA will also bolster the sectorial TEF's and the ecosystem's sustainability.

Once the sectorial TEFs funded under the 2021 call are established, it is necessary to coordinate the TEFs with other actions launched in the Digital Europe Programme (in particular data spaces, the edge AI TEF, the AI-on-demand platform, relevant cloud and HPC initiatives) and to develop a strong ecosystem around the TEFs enabling a faster and growing adoption of AI technologies in the European market.

Scope

- The CSA will help develop synergies and exchanges between the TEFs, and with other relevant projects, such as the European Digital Innovation Hubs (EDIHs), data spaces, network of excellence research centres, and other actions funded e.g. under DEP and Horizon Europe [60], AI-on-demand platform, and the community at large.

- It will establish strong links with Edge to Cloud and relevant HPC actions funded under strategic objective 1 (EuroHPC JU), using when appropriate the SIMPL platform as a connector, and help TEFs to make the most out of all these resources and services.

- It will support the running projects in allowing economies of scales regarding common activities run by the individual networks (e.g., organization of events, access to common resources, mentoring and exchange mechanisms among TEFs, integration with 3rd party services and other EU funded projects, etc.) and exchanges of best practices to reinforce and optimize cooperation.

- It will support TEFs to help companies using their services to comply with the AI Act. This could be through regulatory sandboxes, standards, certifications, labelling schemes, research methodologies for the explainability of AI systems and collaboration with public authorities, depending on what TEF themselves offer and what additional or complementary support to the companies is needed.

- It will support TEFs in their dissemination activities towards industry, users and public administrations. Special attention should be on coordinating mentoring and twinning programmes for innovators in order to foster fair participation and potential expansion of TEFs activities across Europe to complement and reinforce the on-going TEFs. It should

[60] European Network of AI Excellence Centres, H2020-ICT-48-2020 Networks of AI Excellence Centres

contribute to the visibility of AI & robotics in Europe, building on technologies tested in TEFs and targeting sectorial audiences, with a clear focus on real world applicability.

- Support and coordination with regards to co-funding instruments, helping TEFs in common approaches towards Member States including support and exchange of best practices in the implementation and reporting requirements imposed by state-aid rules, contractual requirements, interpretation of the Grant Agreements etc.
- Act as facilitator for cooperation with the AI-on-demand platform. Foster contribution from TEFs and channelling TEFs needs towards the AI-on-demand platform.
- Facilitate coordination with the edge AI TEF. Solutions developed and tested in the former could be later integrated and tested in the sectorial TEFs.
- The CSA will establish the necessary resources to help and support TEFs in their coordinated go-to-market approach, including but not limited to sustainability plans, sale strategies, price lists, etc.
- Facilitate exchanges with EDIHs and national competence centres, etc. to maximise the opportunities offered e.g., to maximise the outreach to all regions across Europe).
- Support the European Commission in the monitoring of existing TEFs, assessing progress and providing recommendations for their implementation and drawing lessons for policy-making.
- Targeted stakeholders: The consortium should include a relevant representation of all the sectorial TEFs selected from the 1st call of the Digital Europe Programme, to ensure that the selected CSA optimally support their coordination. These organisations will be subject to article 12(6) of Regulation (EU) 2021/694.

Deliverables

- Action plan organised along different domains: technological, business models, skills development, dissemination, legal aspects, outreach, etc, to develop links and synergies with EDIHs, data spaces, edge AI TEF, network of AI research excellence centres, and the AI-on-demand platform.
- A catalogue of common resources and services across the TEFs.
- Joint dissemination and communication plan with TEFs on their activities and services, to be implemented within the project duration.
- A specialised support unit to coordinate co-funding instruments, including regular interactions with Member State's administrations, including with regards to Grant Agreements.
- Technical mechanisms for a seamless exchange of assets with the AI-on-Demand platform. Delivery of individual and targeted sectorial sections within the platform (distributed model).

- A specialised business consultancy unit focussing on business and go-to-market strategy, optimising TEF business sustainability.
- Periodic impact assessment and road-mapping: collection and analysis of the key performance indicators (KPI) defined for the TEFs and sharing of good practices and lessons learnt.

Type of action	Coordination and support action (grant
Indicative budget	EUR 3 million
Indicative call planning	First set of calls
Indicative duration of the action	48 months
Implementation	European Commission
Type of beneficiaries	All entities
Security	Call restricted on the basis of article 12(6) of the Regulation (EU) 2021/694

In consistency with WP 21-22 this topic will be subject to article 12(6) of Regulation (EU) 2021/694for the following reasons: AI and robotics qualify as critical technologies and dual use items under article 2(1) of Council Regulation (EC) No 428/2009 and as factors that may be taken into consideration by Member States or the Commission for screening foreign direct investment under EU foreign investment regulation (EU 2019/452). In particular, the TEFs outputs, validated AI solutions, ready to be deployed, will be made available to any type of users, including public authorities, providing public services, or private sector, including those working in security sensitive areas (energy, mobility, some security sensitive manufacturing sectors), or areas with an impact on public order (e.g. healthcare, food supply chain) therefore the highest level of trust and security of the TEF process and output must be ensured. Therefore, trust is an essential feature of the TEFs: organizations running and coordinating the TEFs will have a big responsibility in validating the AI products and solutions, including their security features and protection of fundamental right and EU values, before their large diffusion. They will also have access to confidential information about the solutions tested in their facilities, some of which are likely to be related to the security or safety aspects of the solutions; therefore they will have to be trusted by third parties, and must ensure highest level of trust and security, which justifies the use of article 12(6). In addition, organisations running and coordinating the TEFs will have access to sensitive public sector and private data, including from the sensitive data spaces subject to the application of article 12(6), as well as to business related data and AI algorithms, before they are eventually deployed to the market.

2.3.2 Developing CitiVerse

Objective

The action will help define what the 'CitiVerse' means for Europe building on the smart communities' data infrastructure that is developed under WP2021-22 and WP23-24. The objective is to bring EU CitiVerse industry, including SMEs, together in developing the different layers of VR/AR worlds useful for local authorities and citizens. The project(s) stemming from this action will take into account potential EDIC in the field.

The action could build on existing local digital twins expanding their capabilities. One or more projects, led by the industry in cooperation with one or more communities, will introduce VR/AR and metaverse technology to allow citizens and other stakeholders to «navigate and interact» in their urban spaces from basic 'default' sensory experiences all the way to digital asset-enhanced AR overlays merging the physical and virtual communities into a hybrid metropolis. This will create a steady and immersive environment for citizens and businesses, a CitiVerse, that can be used for virtual/real spatial planning, management or navigation while also enhancing the social, architectural, green and cultural heritage dimension of living spaces.

Use cases will span from hybrid systems to fully-fledged verses created with data coming from various data sources, notably from the EU data spaces such as the smart cities and communities, but also from other public and private sources. European industry, including the wealth of European SMEs active in technologies relevant for metaverses and in content creation, will contribute to its development, taking the leadership in an area rich of possibilities. The action will contribute to the ecosystem of SMEs and larger companies nurtured through the VR/AR Industrial Coalition[61], and at the same time it can benefit from the mobilising and structuring actions of the Coalition as well as from integrating the values and principles of the New European Bauhaus initiative.[62] The action should also explore links and synergies with the Climate-neutral and smart cities Mission, and in particular to selected Mission cities, when identifying use cases.

Scope

In particular, the action will:

- Start developing the CitiVerse for citizens to offer them interoperable and sustainable services.
- Develop concrete CitiVerse use cases (and combinations of them) in the area of navigating in a community, discovering its assets such as culture, history, tourism and offering innovative services related to tourism, entertainment, shopping, future development and urban planning, etc., infrastructure management and sustainable mobility.
- Encourage EU technology providers to integrate various data sources together to develop and train AI in a new specific CitiVerse context.
- Activate a network of EU industrial partners, including SMEs, in Member States to provide technology capacity for the CitiVerse. This network may be part of, and interact with, the VR/AR Industrial Coalition and/or the New European Bauhaus initiative.
- Identify building visualization solutions and multi-dimensional models to implement CitiVerse prototypes.

[61] The Virtual and Augmented Reality Industrial Coalition, https://digital-strategy.ec.europa.eu/en/policies/virtual-and-augmented-reality-coalition

[62] The New European Bauhaus: beautiful, sustainable, together. (europa.eu)

- Exploit the long tradition of Europe in cultural and media content, involving European content creators, in particular SMEs, in the design of engaging in immersive CitiVerse environments.
- Work towards recommendations for a robust, open and interoperable CitiVerse legal framework compatible with EU values and laws.
- Include security by design and plan how CitiVerse applications and platforms can be used in real-life contexts.

Deliverables

The action will result in one or more projects proposing varied use cases for the CitiVerse. Such project(s) may be focusing on the same pilot areas envisaged by the EU Smart Communities data space project (call 3 [DIGITAL-2022-CLOUD-AI-03-DS-SMART][63]), although focus on other pilot areas is also possible. The concept could also be built on the existing EU data infrastructure and interconnected Local Digital Twins.

The project(s) should also propose a roadmap to expand CitiVerse solutions in Europe using Minimal Interoperability Mechanisms (MIM)-compliant standards and EU technology solutions and make recommendations for interoperable and open CitiVerse platforms in line with EU values and policy landscape.

Type of action	Simple grant
Indicative budget	EUR 15 million
Indicative call planning	First set of calls
Indicative duration of the action	30 months
Implementation	European Commission
Type of beneficiaries	All entities
Security	Call restricted on the basis of article 12(6) of the Regulation (EU) 2021/694

This topic will be subject to article 12(6) of Regulation (EU) 2021/694 for the following reasons: The Citiverse will help operating security and data critical sectors (energy supply and consumption, water management, waste management, traffic information, etc). Furthermore, the tools and technologies involved will have to handle sensitive data (including citizens' data), and should therefore be built including security by design. Moreover, the tools will be used in activities that are closely linked to the functioning of the public sector and its interaction with citizens (they can have a role in local elections, issuing advice to citizens in crisis situations etc).

Using article 12(6) will provide continuity with earlier actions. The actions under this topic will develop VR/AR tools that could further use the data space for smart communities, for which Article 12(6) was used in the previous WP21-22. The tools will also be used to complement the Local Digital

[63] Funding & Tender Opportunities, https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/digital-2022-cloud-ai-03-ds-smart

Twins for which the procurement of a Local Digital Twin toolbox was called for with article 12(6) in the previous WP 21-22.

2.3.3 Platform for advanced virtual human twin (VHT) models

Objective

A virtual human twin (VHT) is a computational model of human patho-physiological processes at different anatomical scales. VHTs hold enormous potential in health and care, namely by delivering on personalised care from targeted prevention to tailored clinical pathways and supporting healthcare professionals in virtual environments (e.g. from medical training to surgical intervention planning) and the metaverse. They can make a significant contribution to achieving the goals of the European Health Union.

The main objective of this action is to develop a distributed platform making available to users (1) a federated repository of VHTs related resources, (2) a combined set of open source software toolkits, and (3) access to computational services, enabling them to develop, test and integrate VHT models. The software toolkits to access the platform repository and services will be deployed and hosted by each user organisation or institution.

The platform will be used by researchers, developers, engineers, practitioners, innovators in the health and care domain, including for professional training and educational purposes. It will provide controlled and secure access to an environment of simulation and visualisation tools open access and proprietary data and model assets for advanced modelling. The platform will be used for developing, testing and integrating existing and new VHT models, based on reference datasets, other research outputs and user resources, and will be fully interoperable with augmented and virtual reality environments. Its use will be based on access to computational services enabled by strategic digital capabilities (e.g. HPC, cloud, edge computing, AI), with links to suitable testing and experimentation facilities (e.g. the healthcare TEF for AI) and other resources becoming available in the context of the European Health Data Space.

Scope

Deliver a user-friendly, open-source, trusted, platform for bringing together VHT resources in healthcare. It should be enterprise-class, secure, fully supported, scalable, making use of extant infrastructure and services, catering for a large user base, and implementing an agreed access rights and IP policy to be elaborated in the action.

The platform will comprise of the following components:

1) the federated repository of data and VHT model assets;
2) an open source reference implementation access federator for building and visualising simulations; and

3) an orchestrator of computational services for running these simulations on shared resources.

The action will, inter alia:

a) ensure the operation and maintenance of the repository, its full and trusted interoperability with the other software and service components developed under this action, and manage its growth of tools and assets;
b) build a trusted access federator open-source software instance enabling simulations using models and data available in the federated repository, including a model and data interoperability bridge and visualisation modules;
c) design and build a trusted open-source orchestrator instance that makes use of compute, storage and network services available for simulations in this federated environment; and
d) deploy visualisation, resource portfolio management, user customisation features and tools.
e) develop a suitable ethical, societal and legal governance framework for future, advanced VHT models
f) support networking and awareness activities, including on ethical and legal issues.

Platform design and implementation will have to address architectural, computational, and other technical VHT model requirements (standards and/or API-based for the interoperability bridge module, other), ensuring the platform's effective utilisation. The platform requirements should, inter alia, also enable linking with and use of existing and future High Performance Computing (HPC), storage, connectivity and other capacities available at EU level.

Outcomes and deliverables

- A trusted distributed platform accessible to a wide range of users providing access to data and model resources, user-friendly software and services linking VHT models and data and enabling use case-based advanced multi-scale simulations of human patho-physiology;
- Open source software and specifications for interoperable VHT models, interfaces, as well as services supporting trusted resource federation, capable of integration and/or use as part future simulation-based products, projects, augmented / virtual reality solutions and the metaverse.

Type of action	Procurement
Indicative global budget	EUR 20 million (13 from 2023 budget)
Indicative call planning	First set of calls
Indicative duration of the action	24-36 months
Implementation	European Commission
Type of beneficiaries	All entities
Security	Call restricted on the basis of article 12(6) of the Regulation (EU) 2021/694

This topic will be subject to article 12(6) of Regulation (EU) 2021/694 for the following reasons; topic relates to security and trust as key requirements for the design, build, operation and use of this infrastructure on the specific grounds of inner stability, fight against fraudulent practices and protection of data privacy. While in the first instance data are expected to comprise of reference, anonymised or pseudonymised datasets, further health-related datasets may feed through this platform at the users' behest. These in conjunction with AI-based software systems could impact on advancements in medicine and healthcare that can be critical for the EU's public health and security, and potentially reveal sensitive patient information.

Actions in 2024

The topics under section 2.3 Artificial Intelligence that will be supported in 2024 include:

- **Support for the AI Act (database)**

  The AI Act foresees the creation of a Europe-wide system for registering stand-alone high-risk AI applications in a public EU-wide database. This registration will enable competent authorities, users and other interested people to verify if the high-risk AI system complies with the requirements laid down in the proposal and to exercise enhanced oversight over those AI systems posing high risks to fundamental rights. To feed this database, AI providers will be obliged to provide meaningful information about their systems and the conformity assessment carried out on those systems.

  Indicative type of action: Procurement
  Indicative type of implementation: European Commission
  Type of beneficiaries: Not applicable

- **AI sectorial Testing and Experimentation Facilities**

  This action will aim to cover horizontal areas not included in the four sectorial TEFs supported under the first WP 2021-2022. It will seek to increase productivity and innovation capacity as well as global competitiveness in these areas through the integration of state-of-the-art AI and robotics technologies.

  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: All Entities

- **AI-on-demand platform**

  The objective of this action is to further strengthen the synergies between the AI Act (ecosystem of trust) and ecosystems of excellence, and in particular the AI-on-demand platform. For this, a further measure reinforcing the AI-on-demand platform may be necessary to ensure continuity of the current projects, and make sure it adapts to the latest development in two main fronts: 1) the Implementation of the AI-Act and 2) the Digital and Green transition by contributing to support decarbonisation.

Indicative type of action: Coordination and support action grant
Indicative type of implementation: European Commission
Type of beneficiaries: All Entities

- **Towards connected Local Digital Twins in the EU**

  Building on both the data space for smart communities and the EU Local Digital Twin Toolbox supported by the WP 2021-22, the objective will be to consolidate actions supported under in 2021-22 and move towards an ecosystem of connected Local Digital Twins across the EU.

  The expected result is to gain a critical mass of data and create links with other EU data space infrastructure, the Local Digital Twin toolbox, deploying and testing the toolbox, adding more complex AI-based services to the toolbox for addressing the needs of the digitally most advanced cities.

  Indicative type of action: Simple grant
  Indicative type of implementation: European Commission
  Type of beneficiaries: The consortium should include signatories of the Living-in.eu declaration, representatives from the public sector at different levels (local, regional, national), industry (mix of global IT service providers and innovative SMEs), academia and civil society and citizens associations.

3 Cybersecurity

Cybersecurity is at the heart of the digital transformation of the European Union. The Digital Europe Programme will continue to strengthen the capabilities of the Union to protect its citizens and organisations aiming –amongst others- to improve the security of digital products and services throughout the whole supply chain.

In accordance with the Annex 1 of the Regulation (EU) 2021/694, the activities funded in 2023 and 2024 will focus on supporting the deployment of cybersecurity infrastructure, strengthen cybersecurity uptake, specifically in sectors affected by the Covid-19 pandemic and the effects of the war in the Ukraine and the ensuing economic crisis and support the implementation of relevant EU legislation and political initiatives.[64]

The Cybersecurity activities are specified in a dedicated WP 2023-2024 which will be implemented by the Cybersecurity Industrial, Technology and Research Competence Centre (ECCC)[65] and the Network of National Coordination Centres (NCCs) as soon as the ECCC is operational, as provided for in the ECCC Regulation and in Article 6.2 of Regulation (EU) 2021/694.

Actions in Cybersecurity WP 2023-2024 will in particular:

- support joint actions in order to create an advanced (state of the art) threat detection and cyber incident analysis ecosystem by building capacities of **Security Operation Centres**,
- contribute to improving the prevention, detection, analysis and the capability to respond to cyber threats and incidents by providing additional means to support preparedness, and response to large-scale cybersecurity incidents via **Cybersecurity Emergency Mechanism,**
- support cybersecurity capacity building at national and, where relevant, regional and local levels through **National Coordination Centres** which will aim at fostering cross-border cooperation and at the preparation of joint actions as defined in the Regulation (EU) 2021/887.

This WP includes activities in the area of cybersecurity that will be implemented by the European Commission and that aim to strengthen preparedness of the key sectors and response actions across the EU through a mechanism that will support the efforts of the Member States to improve the capability to respond to cyber threats and incidents.

Indicative budget envelope

The indicative budget for the topics included in this chapter is EUR 20 million.

The indicative budget to be implemented via the dedicated Cybersecurity WP is EUR 161 million in 2023 and EUR 272 million overall.

[64] In particular The Cybersecurity Strategy, the NIS Directive, and its second revision (NIS 2), the Cybersecurity Act, the Regulation on the European Cybersecurity Competence Centre (ECCC) and the Network of National Coordination Centres, the cybersecurity Blueprint and Joint Cybersecurity Unit Recommendation, the EU toolbox for 5G security and the Proposal for a Regulation on cybersecurity requirements for products with digital elements - Cyber resilience Act.

[65] https://cybersecurity-centre.europa.eu/index_en

3.1 Incident Response Support and Preparedness for Key Sectors

Objective

This mechanism aims to complement and not duplicate efforts by Member States and those at Union level to increase the level of protection and resilience to cyber threats, by assisting Member States in their efforts to improve the capability to respond to cyber threats and incidents by providing them with knowledge and expertise and increase preparedness in key sectors.

Scope

The **support of incident response** (ex-post) shall include the following activities:

Gradual set-up of an EU-level cyber reserve with services from trusted private providers to provide relevant services to mitigate the impact of serious incidents. Such services would support immediate recovery and/or restore the functioning of essential services, as well as identification and preservation of digital evidence. Actions to set up the cyber reserve could include:

- Technical assistance with Incident management.
- Information Security Incident Analysis and Crisis Communications as a retainer type of service.
- Artefact and Forensic Evidence collection and analysis preserving the chain of custody
- Information Security Incident Coordination
- Comprehensive reporting including scope, recommendations, remediation and findings

The provision of **preparedness support services** (ex-ante) shall include activities that complement and reinforce the activities mentioned in 1.2.1, e.g., focussing on EU coordinated actions for penetration testing. For penetration testing services the focus will be on entities in key sectors identified in the Council Recommendation on a Union-wide coordinated approach to strengthen the resilience of critical infrastructure (energy, digital infrastructure, transport and space). Those entities will benefit from ENISA's support in this area.

This support will be complemented by strengthening of capabilities to develop up-to-date and strategic-level situation analysis, risk scenarios and overviews of the threat landscape through ENISA's contribution in the Cyber Analysis and Situation Centre.

Deliverables

- EU-level cyber reserve with services from trusted private providers for incident response
- Penetration tests in key sectors.
- ENISA's contribution to the Cyber Analysis and Situation Centre.

Type of action	Contribution agreement
Indicative Budget	EUR 20 million
Indicative time	2023
Indicative duration of the action	2 years
Implementation	ENISA

Type of Beneficiaries	Not applicable
Security	Action restricted on the basis of article 12(5) of the Regulation (EU) 2021/694.

All actions under this topic aim at services intended specifically for the use of defending against criminal and/or politically motivated cyber threats, including in particular supply-chain attacks. The participation on non-EU entities could lead to highly sensitive information about security risks and incidents being subject to legislation that obliges the non-EU parties to provide this information to non-EU governments. Als non-EU participants could be more susceptible to pressure from non-EU governments to divulge such information.

In order to protect the essential security interests of the Union, the implementation actions under this topic should depend on legal entities (e.g., providers) established or deemed to be established in Member States and controlled by Member States or by nationals of Member States.

Participation to the calls funded under this topic will therefore be subject to the provisions of Article 12.5 of the Regulation (EU) 2021/694. Calls for proposals and calls for tenders shall be restricted to legal entities established or deemed to be established in Member States and controlled by Member States or by nationals of Member States. EEA EFTA countries are fully associated to the Digital Europe Programme and benefit from a status equivalent to that of the Member States.

4 Advanced Digital Skills

The actions under Strategic Objective 4 aim at supporting the excellence of EU education and training institutions in digital areas, including by encouraging their cooperation with research and businesses. The goal is to improve the capacity to nurture and attract digital talent, whilst fostering an ecosystem that will help drive innovation and digital breakthroughs. These actions contribute to reach the Digital decade target of 20 million ICT specialists employed in the economy in 2030, which include promoting the access of women to this field as well as increasing the number of ICT graduates, and are in alignment with the Digital Education Action Plan (2021-2027)[66]. They can also contribute, where applicable, to the Deep Tech Talent Initiative[67], one of the flagship initiatives under the New European Innovation Agenda[68] and complement the two proposals for a Council Recommendation on digital education and skills to be published in April 2023.

Strategic Objective 4 will focus on the following main work strands in this WP:

[66] Digital Education Action Plan (2021-2027) | European Education Area (europa.eu)

[67] The Deep Tech Talent initiative (https://www.eitdeeptechtalent.eu/) is run by the European Institute of Innovation and Technology (EIT). It aims to train 1 million talents in deep tech areas (incl. AI, cybersecurity, Augmented Reality, blockchain) by 2025 and will be implemented both directly by the Knowledge and Innovation Communities (KICs) of the EIT and through pledges from stakeholders.

[68] The Commission adopted a New European Innovation Agenda to position Europe at the forefront of the new wave of deep tech innovation and start-ups. It will help Europe to develop new technologies to address the most pressing societal challenges, and to bring them on the market. The New European Innovation Agenda is designed to position Europe as a leading player on the global innovation scene.

- Building excellent consortia focusing on key emerging technologies, increasing synergies with Erasmus+, European Universities Alliances and the Large Scale Partnerships (LSPs) under the Pact for Skills, in particular the Digital Ecosystem Partnership, as well as their focus on the digital transformation, also by ensuring full interoperability between the participating organisations.
- Actions in 2023 will also boost the number of education and training opportunities for "users of advanced digital technologies", who are professionals in a specific sector, but also proficient users of digital technologies and/ or multipliers, e.g. advisors in a certain sectors. These are for example medical doctors that can use artificial intelligence (AI) in order to improve diagnostics techniques or architects able to harness the potential of extended and virtual reality for their construction projects or enhance their production processes, farm advisors exploiting the potential of precision farming technologies or software experts with specific automotive expertise.
- Developing summer schools, bootcamps and other activities, such as specialised career days to attract a wider audience to digital careers, whereas specific activities for raising awareness targeting pupils from the youngest age onwards will be key. These will need to be delivered in partnerships by higher education institutions, vocational education and training providers or research centres with organisations that are active in promoting digital and coding skills, as well as attracting girls and women to digital careers.

The participation is open to all eligible entities as established by Article 18 of the Digital Europe programme, in particular public sector as well as private sector organizations including SMEs, higher education institutions and NGOs.

The overall budget for the topics included in this chapter is EUR 58 million for 2023.

4.1 Specialised Education Programmes in Key Capacity Areas

Objective

This action aims at contributing to the target of 20 million ICT specialists in the economy by 2030, as set in the Digital Decade Policy Programme. Gains from major EU investment cannot materialise if there are not enough people to develop, deploy and use digital technologies and applications. Evidence from the Structured Dialogue on digital education and skills with Member States shows that, while a number of activities are in place to equip people with general digital skills, only few Member States devote attention to the challenges related to advanced digital skills and ICT specialists. Even in Member States that are digital frontrunners, there is a persistent shortage of people able to develop and deploy key digital technologies. For example, over 70% of enterprises looking for ICT specialists in the Netherlands, Finland and Luxembourg found it extremely difficult to recruit them[69]. There also is a significant increase in the demand for professionals combining sectoral knowledge with digital skills enabling the use of digital solutions for specific business cases. This is for example the case of employees in the manufacturing sector able to use automated reality/virtual reality (AR/VR) tools to repair engines remotely, software developers and engineers

[69] DESI 2022, https://digital-strategy.ec.europa.eu/en/library/digital-economy-and-society-index-desi-202

with specific automotive expertise, or professionals in green transition industries who are increasingly relying on advanced digital technologies in the development of renewable energy or clean and smart mobility solutions. These profiles can be referred to as users of advanced digital technologies and they are crucial to enable the digitalisation of traditional industries from agriculture and finance to manufacturing, automotive and medicine.

Looking at the related education offer, the 2022 JRC report shows that the offer of specialised education programme in AI, cybersecurity, HPC and data science has slightly improved in the EU 27, in particular in AI, where the number of Master's has increased by 20% compared to the previous year. However, it remains lower than in the US. For cybersecurity the UK alone continue to offer as many programmes as the whole EU 27[70].

The actions in the skills pillar aims at tackling this challenge, while triggering a new way of delivering these courses, building partnerships between academia, businesses and research across the EU.

Scope

The first calls for Master's in the Digital Europe programme have supported the development of excellent consortia delivering education programmes and multi-disciplinary courses in some of the key digital technologies addressed by the Digital Europe programme, mainly AI and cybersecurity[71]. They also provided inter-disciplinary opportunities and equipped with advanced digital skills professionals in sectors such as health, agriculture or business. The call in 2023 will build on the experience of the first WP[72]. It will address the latest initiatives to support the development and deployment of key digital skills and capacities in digital technology areas, such as AI, Internet of Things, as other trans- or multi-disciplinary areas, and their applications in strategic sectors (e.g. automotive industry).

Projects financed under this action are encouraged to build synergies with actions on technology deployment supported by other pillars of the programme. This new call will also strengthen synergies with Erasmus+, European Universities Alliances, and with the Deep Tech Talent Initiative, as well as the Large Scale Partnerships under the Pact for Skills. It will boost investment into related digital solutions, equipment and infrastructure, with a special focus on interoperability of ICT systems in higher education to facilitate a seamless joint delivery of opportunities and the attraction of talent (both students and teaching staff).

As for previous calls, the chosen projects should design and deliver a tertiary degree education programme(s) (at ISCED LEVEL 6, 7 or equivalent - hereafter education programmes), in digital areas such as AI, data science, cybersecurity and augmented and virtual reality. Higher education institutions in consortia with relevant competence and excellence centres and industry will receive funding to set up and strengthen excellent programmes and courses. Partners in these consortia will be encouraged to share expertise, facilities, staff and learning materials. Inter-sectorial mobility between Higher Education Institutions and the private sector is also encouraged.

[70] https://publications.jrc.ec.europa.eu/repository/bitstream/JRC128844/JRC128844_01.pdf

[71] Previous calls have addressed for example artificial intelligence, Blockchain, Cloud computing, Cybersecurity, Data, Extended reality, Internet of Things, Microelectronics, Photonics, Quantum, Robotics.

[72] List of projects from previous DIGITAL programme calls can be found on the Funding and Tenders portal (e.g. DIGITAL-2021-SKILLS-01-SPECIALISED and DIGITAL-2022-SKILLS-03-SPECIALISED-EDU).

Deliverables

- Consortiums of higher education institutions, vocational education and training institutions, research organisations and businesses delivering advanced digital technology programmes and multi-disciplinary courses for users of advanced digital technologies.
- At least, supported to equip, 2 fully interoperable higher education institutions per consortium, e.g., transnational (virtual) campuses, shared equipment and libraries of learning content, automatic recognition of ECTS for students.
- At least 500 students supported with scholarships or other financial support measures.
- As a separate deliverable this action entails a coordinated and support action which will provide an analysis of skills need in key digital areas and continue to support the networking among the organisations part of the digital consortia, building a brand of excellence.

Type of action	Lump sum grant
Indicative budget	EUR 30 million
Indicative call planning	Second set of calls
Indicative duration of the action	48 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	Higher education institutions, vocational education and training institutions, research organisations and businesses

Type of action	Coordination and support action grant
Indicative budget	EUR 2 million
Indicative call planning	Second set of calls
Indicative duration of the action	48 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	Higher education institutions, vocational education and training institutions, research organisations and businesses

4.2 Reinforcing Skills in semiconductors

Objective

The share of students choosing ICT and notably semiconductors disciplines is too low to satisfy the demand required by the labour market. It is estimated that the BRIICS countries (including

Indonesia) will produce three-quarters of the global STEM graduates by 2030 while Europe will be lagging well behind with an 8% share[73]. The shortage of potential employees with specific knowledge in semiconductors, and in particular the negligible share of students willing to undertake this field, has many different causes related to the low awareness of the impact of semiconductors in the society and citizens' daily life, and to low expectations in terms of prospective career and employment conditions. The problem is acute, given the gap between the labour market demands and the unavailability of both technicians and high-level graduates, and it is even more exacerbated by a strong gender imbalance.

The image of semiconductors related jobs needs to be improved in this regard with a holistic approach by industry and academia, jointly addressing:

- The low awareness of the public, and particularly the younger generation, of the social importance of semiconductors and its benefits for the whole society, i.e., for the green and digital transition or the targets set by the Chips Act.
- The awareness gap on future work commitments and employment conditions. It is well known that studies are greatly influenced by students' previous experience within the secondary school and in their private lives, which can hardly provide insight into this high-tech sector. Starting from the very first classes in secondary schools is of the greatest importance for targeting students interested to approach these disciplines, with particular focus on female students.
- The obstacles faced by companies, in particular SMEs given their limited means, to get the required talents, by setting up initiatives to attract both technicians and graduates, and bridge the gap between education and their labour demands.
- The need to provide updated academic curricula both in theoretical knowledge and lab experience on cutting edge topics - the high pace of advancements in the semiconductor sector forces upgrades that are difficult to implement by private and public universities, and liaison with industrial stakeholders is essential to access new technologies, launch educational opportunities and increase their attractiveness to students.
- The need of continuing vocational training to enhance employability, supporting personal development and encouraging re- and up-skilling. Technicians must be provided with additional training during their lifelong careers to keep up to date with new technologies and techniques.

Scope

Consortia can apply for one or both the actions described below.

I. Academic network

The proposed project is required to develop a European Semiconductors Skills Academy: a European network of higher education institutions and relevant industries, including start-ups and SMEs in microelectronics, to address the above issues.

[73] "Education Indicators in Focus N°31" by the OECD, 2015.

The Academy must strive for collective actions to increase the visibility and the attractiveness of existing curricula already run by the members of the consortium. In particular, focus should be on increasing the number of enrolled students coming from secondary schools and ensuring the availability, in higher education institutions' curricula, of topics addressing industry's needs as well as cutting-edge topics in the sector, for example Chip Design.

The Academy should address, for example:

- the identification of relevant courses, jointly vetted with the industry partners, starting from existing curricula, or from newly selected cutting-edge topics, which should eventually lead to an automatic recognition of the European Credit Transfer System (ECTS) across universities, facilitating students' and workers' mobility and competence recognition across Member States;
- the upgrade of university laboratories for the delivery of the courses identified;
- cooperation agreements resulting in hands-on experiences in industry and financed by industry as part of the student curricula;
- the involvement of start-ups and SMEs as beneficiaries of students' mobility;
- communication actions and initiatives aimed at the general public as well as specific activities for the promotion of studies in semiconductors in local areas, particularly aimed at secondary school students.

II. Vocational training

The proposed project is requested to define a platform among Vocational and Educational Training (VET) centres, industry, in particular start-ups and SMEs, academia, and social partners to address the need of continuing vocational training to enhance employability. Notably, the platform will support innovative approaches to attract talents and re-/up-skill workforce for start-ups and SMEs, for example, through:

- the identification of relevant training contents, jointly vetted with the industry partners;
- bootcamps on specific semiconductors topics vetted by and including start-ups and SMEs;
- training curricula implying the involvement of SMEs as beneficiaries of technicians' mobility;
- recognition of specific hard and soft semiconductors VET curricula across Europe;
- addressing the gender dimension of employability in the sector;
- apprenticeships in start-ups and SMEs and online training addressing employability for migrants and immigrants.

Deliverables

Concerning the projects addressing the Academic network (point I in scope above)

- Definition of the required curricula using the ECTS system with capacity for around 500 students/year across at least 5 Member States, for BSc and MSc levels.
- A scholarship programme for selected semiconductors students enrolled in the common curriculum at BSc and MSc levels.

- On-the-job experiences for undergraduate students in companies involved in the consortium.
- Upgrade of laboratories used for the teaching activities delivered by the project.
- Communication initiatives toward the public, including social media.
- Local or regional programmes led by the industrial partner(s) to target secondary school students, including for example a Summer/Winter School based on practical learning activities, introductory seminars, visit to facilities etc.

Concerning the projects addressing the Vocational training (point II in scope above)

- Bootcamps, workshops and career days dedicated to semiconductors, addressing start-ups and SMEs needs, at least one of them focusing on diversity and inclusivity.
- Definition of VET curricula in semiconductors and delivery of the relevant training courses with capacity for around 1000 technicians involving at least 20 start-ups and SMEs across at least 5 Member States.

Type of action	Simple grant
Indicative budget	EUR 10 million
Indicative call planning	First set of calls
Indicative duration of the action	48 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	Higher education institutions, vocational education and training institutions, research organisations and businesses

4.3 Cybersecurity Skills Academy

Objective

Cybersecurity has become a growing concern for European citizens, businesses and public authorities. In addition to skilled citizens, the EU needs a bigger pool of cybersecurity specialists to protect businesses and public services in Europe and design the cybersecurity solutions of the future. Currently, around 200,000 cybersecurity experts are missing in Europe. Recent legislative initiatives such as NIS2 and the upcoming Cyber Resilience Act will put even more pressure on companies and public authorities to have access to cybersecurity specialists.

To address these challenges, the European Commission has already deployed many actions, in close collaboration with relevant actors. However, actions and resources are often perceived as scattered and inaccessible. The Cybersecurity Skills Academy would constitute a European umbrella integrating various activities with the objective of increasing their visibility, accessibility and impact.

Those activities would align along common goals, key performance indicators and a joined-up communication strategy to seek greater impact.

Scope

The Cybersecurity Skills Academy; training programmes for SMEs, start-ups and the public sector

Funding will be available for the implementation of new training opportunities or the scale-up of successful ones with a special focus on the needs of SMEs and public administration in the area of cybersecurity. Trainings should take into account businesses' needs and in particular facilitate access to cybersecurity talents for SMEs and start-ups across all sectors. To ensure the high levels of cybersecurity necessary for digital public administration, the Academy should cater for the upskilling, reskilling and interdisciplinary understanding of cybersecurity for civil servants**.**

Consortia of organisations active in the domain of cybersecurity and universities or training providers should devise and deliver the activities of the Academy. Activities should include, among others, the identification of relevant training courses, including bootcamps on specific cybersecurity topics, jointly vetted with industrial partners that would enhance employability of trainees or increase cybersecurity capabilities of public servants, communication actions for promoting the courses, etc. The involvement of the national cybersecurity competence centres could be foreseen to address specific needs at national level, where significant variations exist as to the level of cybersecurity readiness.

Setting-up and operating the Cybersecurity Skills Academy

- Definition of a set of clear KPIs to measure the impact of the different actions considered under the scope of the Academy
- Bringing together relevant players from all Member States for monitoring the cybersecurity skills landscape, following up its evolution and taking action to help Member States develop specialised training programmes, in particular addressing cybersecurity start-ups and SMEs as well as public administrations to address the cybersecurity skills gap
- Exploring, defining and setting up an impactful scheme promoting the standardisation of procedures for cybersecurity competence recognition and professional certification in the European market
- Promoting the development and the use of up-to-date curricula in cybersecurity
- Performing communication around this initiative, to engage stakeholders and to facilitate the interactions between those stakeholders
- Leveraging the Digital Skills & Jobs Platform to support the Academy and integrating the existing best practices that will feed the Academy

Deliverables

- Training courses to address the most in-demand skills such a cyber-forensics, cyber ranges, malware analysis and AI for cybersecurity among others
- On-the-job training courses and traineeships opportunities for start-ups and SMEs and for public administrations in innovative companies in cybersecurity and cybersecurity competence centres
- Online training, user friendly and accessible to everyone in all languages
- Scheme for establishing a cybersecurity competence recognition and professional certification in the European market

- KPIs framework and its monitoring, including through measurable indicators, during the duration of the action

Type of action	Simple grant
Indicative budget	EUR 10 million
Indicative call planning	First set of calls
Indicative duration of the action	36 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	Higher education institutions, vocational education and training institutions, public administration services, research organisations, businesses, and national cybersecurity competence centres

4.4 Boosting digital skills of young people, in particular girls

Objective

Students in digital and ICT disciplines represent a minority, in 2021 they were 4.5% of total graduates[74]. There is also a severe gender balance issue, with only 19% of ICT specialists and one in three science, technology, engineering and/or mathematics (STEM) graduates being women. During the Structured Dialogue for digital education and skills, Member States also report about competition for the few pupils that have suitable profiles and interest in studying STEM disciplines at university level.

In order to fill the significant shortage of sector specialists using advanced digital technologies and ICT specialists, it is necessary to increase the pool of pupils who would be ultimately interested to study STEM and ICT, with a special focus on girls and women who are vastly underrepresented in the digital field. Boosting the development of digital skills from an early age and in a continuous manner is essential for influencing the level of digital skills of the EU population and the number of male and female students that will consider studies and career in the ICT. Moreover, evidence shows that pupils who are involved in the learning of coding or computational thinking from an early age are more likely to continue studying ICT or digital-related fields and this has an impact for example on the number of girls choosing this study-path.[75]

In the bilateral dialogues with Member States as part of the structured dialogue on digital education and skills, many called for innovative approaches to attract young people, and especially girls as of primary school (or even earlier), to digital careers and to encourage a mind-set shift in their perception. This action will therefore include dedicated activities to encourage girls and women to take part in digital studies.

[74] DESI 2022 and data from the digital visualisation tool

[75] Microsoft_girls_in_STEM_final-Whitepaper.pdf

Scope

The aim of this action is to pilot actions to increase the number of students pursuing digital studies and careers, with a special focus on increasing participation of girls. It will support joint actions between leading technical higher education institutions, businesses and schools to promote digital studies, through hands-on activities and challenge-based projects. Another aim of this action is to scale-up the EU Code Week initiative, putting it on stronger and broader footing, thus further increasing its impact beyond the > 4 million people reached every year, among which almost half are young women and girls.

For example, the actions will finance summer schools for high-school students on digital areas, career days for people interested in digital, with a view to encourage more gender diversity and promote exchanges between higher education institutions and primary and secondary schools on digital topics. Digital Europe Programme consortia already awarded under the first WP could also be leveraged, with a view to give the possibilities to younger students to access the state-of-the-art laboratories, experience the campus facilities and follow seminars from the most renowned experts in Quantum computing, Cybersecurity, AI, cloud, among others. Special attention should be given to the role of girls and women in the digital field, with a focus on debunking stereotypes and tackling the self-efficacy and confidence gap.

This action is in line with Action 13 of the Digital Education Action Plan (2021-2027), which aims to enhance girls and women's digital competences through projects like Girls Go Circular and ESTEAM Fests.[76]

Deliverables

- Stronger cooperation between primary, secondary and VET schools and tertiary education and research to increase the number of pupils enrolling in digital studies aiming at gender convergence. This will lead to the development of:
    - Summer schools
    - Specialised information and career days
    - Dissemination and outreach activities, such as EU Code Week

Type of action	Coordination and support action grant
Indicative budget	EUR 6 million
Indicative call planning	First set of calls
Indicative duration of the action	24 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	Technical universities, primary, secondary and vocational education and training organisations and

[76] Digital Education Action Plan – Action 13 https://education.ec.europa.eu/focus-topics/digital-education/action-plan/action-13

	tertiary education and research organisations

Actions in 2024

The topics under chapter 4 Advanced Digital Skills that may be supported in 2024 include:

- **Specialised education programmes in key capacity areas**

  These actions will continue to increase and improve the offer of education programmes and the number of students specialised in key capacity areas. Building on the experience of the previous calls, these actions will address the latest initiatives to support the development and deployment of key digital skills and capacities in digital technology areas, such as AI, Cybersecurity, Extended reality, as in other trans- or multi-disciplinary areas, and their applications in strategic sectors. The actions will support the design and development of excellent consortia delivering education programmes and multi-disciplinary courses, jointly designed by universities from different Member States and associated countries together with excellence centres and businesses active in the domain. They will provide opportunities to attract and retain the best talents worldwide, both students and teaching staff, by providing financial support to students and equipping education institutions with related digital solutions, equipment and infrastructure.

  Indicative type of action: Lump sum grant
  Indicative type of implementation: Executive agency HaDEA
  Type of beneficiaries: Higher education institutions, vocational education and training institutions, research organisations and businesses.

- **Short term trainings courses in key capacity areas**

  Actions will target the digital skills development of people in the workforce, including workforce in the private and public sector, but with a particular focus on SME staff. The EU has a significant and systemic gap between market needs and what is offered in terms of skills related to advanced digital technologies. Considering the massive needs for reskilling and upskilling of the EU workforce, high-quality and affordable opportunities need to be made available in digital areas. The aim of this action is to give the possibility to the current workforce to access trainings reflecting the latest developments in key capacity areas, such as Cybersecurity, AI and other emerging technologies. This action will build on the experience from the first WP and expand the existing offer of short-term training courses for reskilling and upskilling.

  Indicative type of action: SME support action
  Indicative type of implementation: Executive agency HaDEA
  Type of beneficiaries: Public and private entities, research and education institutions.

- **Digital skills and Jobs Platform**

  Digital Skills and Jobs Platform is the main point of information and services on digital skills in Europe. By providing additional funding, the Platform and the connected National Coalitions for

digital skills will be able to further develop and significantly improve the quality of content and services they offer and become more relevant for larger audiences, including for example through interoperability with other relevant EU platforms such as Europass. The goal is to expand the reach of the Platform and the National Coalitions to facilitate the active involvement and contribution of further stakeholders of all relevant sectors at local, regional and national level. The ultimate objective is to increase the level of digital skills across the European population, boost the talent pool of digital experts and thus contribute to the Digital Decade targets.

Indicative type of action: Procurement
Indicative type of implementation: Executive agency HaDEA
Type of beneficiaries: Businesses, research and education institutions

5 Accelerating the Best Use of Technologies

The roll-out and best use of digital capacities will focus on priority areas such as the support the SMEs and public authorities in their digital transformation and will also provide resources to activities started in previous programmes, for which the continuation of funding is essential to avoid disruption.

In 2023 the activities will be organised around five main strands:

- Blockchain
- Deployment of Public Services
- Interoperable Europe
- Justice and consumers
- Confidence in digital transition

In addition, under this chapter the Digital Europe programme will also support the development of consumer application addressing urgent needs in energy consumption.

Participation is open to all eligible entities as established by Article 18 of the Digital Europe programme, in particular public sector as well as private sector organisations, including SMEs, NGOs and international organisations.

The overall budget for the topics included in this chapter is EUR 108.3 million for 2023.

5.1 Blockchain

Objective

The objective is to further develop, reinforce, pilot and deploy the European Blockchain Services Infrastructure (EBSI) and its use cases, in cooperation with the European Blockchain Partnership (EBP)[77] regrouping all Member States, Norway, Liechtenstein and Ukraine and potentially other countries in future steps.

The period corresponds to a phase of expansion where the EBSI will implement at the same time a version in production for full operation and exploitation of use cases; a version in pre-production as a facility for services providers to pilot use cases before their upgrade into production; and an EBSI-lab for testing and preparing the integration of new solutions to reinforce EBSI overtime. This will mobilise a high number of stakeholders and users leveraging the first EBSI production ready version (starting to be exploited in production during the second semester of 2022) and will enrich the initiative with new capacities for more demanding use cases.

[77] The European Blockchain Partnership (EBP) currently regroups all Member States, Norway, Liechtenstein as member, and Ukraine as observer.

The objective is also to support the EBSI initiative, taking into account the potential creation of a European Digital Infrastructure Consortium (EDIC), having the ambition of scaling up the EBSI and the exploitation of its use cases, in synergy with other actions such as the implementation of the European Blockchain regulatory sandbox and support to standardisation.

Scope

The funded activities will cover:

- Support to the EBP and EBSI governance and its possible evolution towards an EDIC. This is provided through the Policy, Technical and other ad-hoc groups of the EBP working with the Commission, taking into account the envisaged creation of an EDIC for EBP-EBSI and the provision of transition measures. Activities will also address support to cooperation with other initiatives (e.g., in the context of international cooperation, of cooperation with INATBA[78], or other relevant initiatives);
- EBSI support services: These will include support to the uptake and operation of EBSI (including helpdesk type activities); support to standardisation activities; communication and dissemination actions; support to acceptance and uptake by stakeholders and end users; and support to any other specific actions like ethics or economic aspects that are related to EBSI development and implementation;
- EBSI Legal & Liability assessment and facilities: This will support the provision of services to ensure that EBSI and its applications are designed and implemented in full compliance with the EU regulatory framework; and that liability aspects are clarified when exploiting EBSI. This work will be done in synergy with the EU regulatory sandbox activities;
- Development and deployment of additional capacities, with potentially new protocols, new nodes to provide for higher performances, meeting high standards in terms of security, privacy and data protection, interoperability and sustainability. This will concern the implementation of different environments for production, pre-production, development and testing, with the contribution of an increasing number of stakeholders in the EBSI ecosystem;
- Support to the development and implementation of more EBSI cross border use cases, in line with EBP priorities, in coordination between EBP countries and the EC, with specific development and deployment activities. These use cases will exploit and require existing and future capacities of EBSI. A particular focus would be to support the scale-up of the EBSI trust model concerning verifiable credentials in multiple areas (education, social security, mobility and others) it would concerns as well track and trace applications in support of EU policies.

Deliverables

Deliverables will include:

[78] International Association for Trusted Blockchain Association (https://inatba.org/)

- Governance actions with the European Blockchain Partnership and the possible creation of a European Digital Infrastructure Consortium (EDIC);
- Updates of specifications, APIs, SW resources, tooling, documentation for EBSI[79] and implementation of maintenance activities;
- Strengthened EBSI support services for EBSI nodes operators and use cases actors;
- Reinforcement of the EBSI ecosystems, with new actors engaged in production and pilot environments of EBSI through the EBSI early adopter programmes. Deliverables also include also regular dedicated webinars, hackathon type of events, as well as promotion & communication campaigns and the mobilisation of stakeholders via multiple channels;
- EBSI exploited as trust service for electronic ledgers.

Type of action	Procurement
Indicative budget	EUR 10 million
Indicative time	2023
Indicative duration of the action	12-36 months
Implementation	European Commission
Type of beneficiaries	Not applicable

Action in 2024

The topic under section 5.1 Blockchain that may be supported in 2024 include continuation of EBSI activities as described above.

- **Continuation of operation and enhancement of EBSI capabilities and related support services**

This will concern the continuation and enhancement of EBSI capabilities and core activities to continue the operation of EBSI networks (for testing, pilot, pre-production and production) and all the related support services, including technical, legal, operational and other services like stakeholders management and communication activities. Deliverables will concern the enhancement of EBSI capabilities for supporting more demanding use cases and the mobilisation of new stakeholders in the EBSI ecosystem.
Indicative type of action: Procurement
Indicative type of implementation: European Commission
Type of beneficiaries: Not applicable

[79] They will be made available through the EBSI website and related repositories: https://ec.europa.eu/digital-building-blocks/wikis/display/EBSI/Home

- **Continuation of projects exploiting EBSI capabilities and further support for use cases**

This will concern a second batch of projects in support of cross border use cases exploiting EBSI capabilities (The first batch is being launched via the Digital Europe's second call for proposals via WP2022). Deliverables will concern the implementation of new use cases, mobilising new stakeholders in the EBSI ecosystem for the benefit of EU enterprises and citizens.
Indicative type of action: Simple grant
Indicative type of implementation: HADEA
Type of beneficiaries: Private and public entities

5.2 Deployment of Public Services

The programme will advance the further digitalization of government and public administrations, focusing on preparing a European Identity and Trust Ecosystem, leveraging public procurement for digitalisation and innovation, enhancing the interoperability of digital public service delivery, as well as the digital transformation of justice.

5.2.1 European Digital Government Ecosystem

5.2.1.1 European Digital Identity and Trust Ecosystem (Standards and Sample Implementation)

Objective

The action aims to support the implementation of the European Digital identity and Trust Ecosystem and manage the transition between the current and future frameworks supplementing or replacing the current digital service infrastructure (eID) by the wallet framework. For this purpose, Member States and other participants to the European Digital identity eco-system shall be enabled to rely on a set of specifications and tools supporting the implementation of the wallet, other identity means and trust services.

Furthermore, in support of the new European Digital Identity and Trust Ecosystem the following digital service infrastructures for trust services in support of European cross border digital transactions will be defined, developed adjusted and maintained in cooperation with Member States where necessary and appropriate for the purpose of supporting digital solutions across policy domains' specific projects, enabling "interoperability by design":

- The European Trust Services Ecosystem allowing companies, citizens and administrations to validate European qualified trust service providers supporting the governance of the eIDAS regulatory system.
- The eID component ensuring legal, organisational, semantic and technical interoperability for digital operations that require cross-border identity recognition as well as future frameworks supplementing or replacing it.

- eDelivery as a standards-based solution for safe and cryptographically secured data exchange over the internet, which underpins much of the data exchange between Member States and/or the Commission and Member States in multiple Domains.
- eSignature maintaining the standards-based approach for safe and cryptographically secured communication of intent in digital transactions. The library for electronic signature is re-used by multiple European trust services leveraging the opportunities created by the eIDAS regulation.
- eArchiving preserving data in an open, interoperable and sustainable way. In addition to supporting actions from the previous WP, during this new period eArchiving will also review its standards with stakeholders, create new specifications following the common data spaces development, develop the curriculum of digital preservation skills to support capacity building, establish an EU cross-border network of digital preservation experts and deploy and promote the new eArchiving certification initiative.

Scope

The action will cover the procurement of services to support the implementation of the digital service infrastructures and their governance for the European Digital identity Ecosystem. This will include advisory, technical and security consultancy services for digital identity and trust services, solution design and implementation, interoperability and conformance tests, hosting and support services as well as ad-hoc services.

Deliverables

For the European Digital Identity and Trust Ecosystem with a focus on eDelivery, eSignature, eID and eArchiving:

- Technical references, standards, components and solutions for the European Digital Identity and Trust Ecosystem;
- Updates of specifications, profiles, documentation and support and updated versions of sample software implementation;
- User manuals and release notes, implementation guidelines, governance and business models;
- Stakeholder and community engagement strategies including communication via web pages and social media for the promotion of the services;

Type of action	Procurement
Indicative budget	EUR 20 million
Indicative time	2023
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	Not applicable

5.2.1.2 Support to the implementation of the Once Only Technical System under the Single Digital Gateway Regulation

Objective

The objective of the topic is to support the implementation and launch of the Once Only Technical System (OOTS) referred to in the **Single Digital Gateway Regulation (EU) 2018/1724**, **SDGR**). The OOTS will enable the cross-border automated exchange of evidence (documents and data) between public administrations in the EU under the control of the user, effectively forming an EU cross-domain and cross-sectorial data space where citizens and businesses will no longer have to supply the same data to public authorities more than once.

The Commission adopted the technical specifications of the OOTS on 5 August 2022. These specifications will have to be implemented by Member States. As a result, the OOTS will be a distributed collection of systems enabling the sharing of information between the Online Portals of Member States with the authentic data sources from all other Member States. As such, supporting Member States in adapting and connecting their portals with the OOTS is integral to the work – in addition to creating the common services required for the mapping of evidence between Member States and the identification of the appropriate data source in each Member State.

It is important to stress that businesses and citizens will continue to use the Online Portals of Member States to launch administrative procedures. To this end, the OOTS will create a general-purpose data space for the public sector in Europe, which will be highly reusable and can be expanded to additional sectors. In this line, the OOTS reuses and is tightly linked to the Building Blocks funded by the Digital Europe Programme, in particular eID, eDelivery and eSignature. The use of these Building Blocks is a specific requirement to the integration of Member States' systems into the OOTS.

Scope

The action will build on the requirements stemming from the SDGR and its Commission Implementing Regulation (EU) 2022/1463. The support will be provided using procurement and will cover a range of activities enabling the development and launch of the OOTS and its core, Commission-provided services, as well as services targeted to support Member States. These different work strands can be described as the following:

Development of OOTS

- Evolution of technical specifications set out in the Commission Implementing Regulation (EU) 2022/1463;
- Creation of the operational framework and operating model of the OOTS as set out in the Commission Implementing Regulation (EU) 2022/1463;
- Creation of the EU-wide security framework of OOTS shared between Member States and the Commission;
- Support to the development effort of Member States up to the go-live date of the OOTS with a helpdesk, training, etc. – special focus on compliance to security and interoperability specifications of OOTS;

- Development and go-live of the OOTS Common Services to be provided by the Commission to the Member States;
- Identification and mapping of relevant evidence in all Member States and moving it to ready for exchange status;
- Organisation of the sub-groups referred to in the Commission Implementing Regulation (EU) 2022/1463 on the OOTS.

Outcome and deliverables

- Refined Technical and Operational Specifications;
- Operational framework and operating model of the OOTS;
- UX Guidelines for eGov Portals and Preview Areas;
- OOTS Security framework;
- OOTS Testing Services;
- OOTS Connectathon;
- OOTS Common Services;
- Mapping of evidence among all Member States.

Type of action	Procurement
Indicative budget 2023	7.5 million
Indicative time	2023
Indicative duration of the action	12 months
Implementation	European Commission
Type of beneficiaries	Not applicable

Support to the implementation of the Once Only Technical System under the Single Digital Gateway Regulation is continued in 2024.

5.2.1.3 eProcurement and eInvoicing

Objective

With 13.6% of the GDP (around €2 trillion per year) in Europe, the procurement power of public administration is unparalleled. Public buyers are therefore key to make purchases more economically, ecologically, innovative and social. This action on digital procurement (eProcurement) is therefore necessary to continue to make procurement and all its phases (planning, procurement, ordering, invoicing and payment) more efficient. This action will:

- Assess and support the implementation of digital public procurement in Member States
- Enhance certain tools and initiatives like eInvoicing, eForms and eCertis.
- Support the overall interoperability in this domain
- Ensure alignment with EU key policies, like the Green Deal

- Monitor the overall development of Digital Procurement in the EU and non-EU countries.

eInvoicing is a very important topic in the domain of digital procurement. The European eInvoicing policy has started in 2014 with the adoption of "Directive 2014/55/EU on electronic invoicing in public procurement". Due to the diversity of national solutions which lead to market fragmentation, the Directive has foreseen the adoption of a common European Standard to allow the consolidation of a Digital Single Market. Since 2014, almost 10 years after, the market situation for eInvoicing changed substantially as eInvoicing is now broadly used in B2B and B2G, in Europe and worldwide. Two major developments changed the landscape: at EU level, the Member states developed fiscal policies based on eInvoicing, in a non-harmonized manner. On the other hand, the European standard has known an international outspread, several governments having adopted a solution based on the European standard with Singapore, Australia, Egypt, Malaysia, and others preparing to do so too. In the light of these changes, the high-level objective at EU level is the harmonization of national policies and technical solutions:

- Support the evolution of the EU eInvoicing standard, aiming to ensure alignment with other European Commission policies on eInvoicing, especially the one developed by DG TAXUD in the legislative proposal on 'VAT in the Digital Age'[80] (conditioned upon its adoption), respectively on tax reporting;

- Push for the harmonization of national policies to stimulate the take-up of eInvoicing in Europe and the deployment of interoperable and harmonized services and solutions in the EU, taking into account the technical solution to be rolled-out for VAT reporting and technology developments in the financial supply chain.

Scope

Two working strands will be supported:

1. For **eProcurement**:

- Bilateral meetings with Member States to assess and support them in the domain of Digital Procurement
- Workshops on topics like eForms and eCertis to enhance collaboration with Member States
- Support the evolutive maintenance of the toolset used in public procurement to achieve better interoperability (like eCertisand eForms).

2. For **eInvoicing**:

- Monitor the evolution and ensure the harmonized update of the European eInvoicing Standard. The European Standard and its updated versions are developed by CEN and are subsequently published by the Commission in the OJEU to form the basis of a European Policy on eInvoicing. Technical updates are needed due to the technological evolution. On

[80] Proposal for a COUNCIL DIRECTIVE amending Directive 2006/112/EC as regards VAT rules for the digital age, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0701

the other hand, alignment with other Commission policies under development is needed, as currently with TAXUD policies

- Support TAXUD with policy and technical expertise in developing a common European eInvoicing solution for VAT reporting in the Member States
- Support the build-up of digital capacities of the Member States for eInvoicing, which, in turn, will help their businesses access international markets, in a context where the European standard or similar solutions are developed in different non-EU countries.

Deliverables

1. For **eProcurement**:

- Updated documentation from all Member States on how Digital Procurement is implemented
- Documentation from Workshops
- Enhanced toolset like eCertis, and eForms that will be more integrated.

2. For **eInvoicing**:

- Publishing an updated European eInvoicing Standard, incorporating changes linked to all recent developments in the domain of eInvoicing.
- Harmonization between EU policies, market (B2B) developments, technical solutions (which will implement the European Standard) and the B2G aspect from the Directive 2014/55/EU on electronic invoicing in public procurement.

Type of action	Procurement
Indicative budget	EUR 3 million
Indicative time	2023-2024
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	Not applicable

Actions in 2024

The topics under section 5.2.1 European Digital Government Ecosystem that may be supported in 2024 include:

- **Further improvement of the European Digital Identity Wallet**

  Objective is to support the implementation of the European Digital identity and Trust Ecosystem and manage the transition between the current and future frameworks supplementing or replacing the current digital service infrastructure (eID) by the wallet framework. Among expected results are technical references, standards, components and solutions for the

European Digital Identity and Trust Ecosystem; updates of specifications, profiles, documentation and support and updated versions of sample software implementation; user manuals and release notes, implementation guidelines, governance and business models and stakeholder and community engagement strategies including communication via web pages and social media for the promotion of the services;

Indicative type of action: Procurement
Indicative type of implementation: European Commission
Type of beneficiaries: Not applicable

- **Continuation of the Large-Scale Pilots and further support for use cases**

Expected outcome is to develop large scale pilots to test the deployment of the European Digital Identity Wallet in priority use cases, deploying the European Digital Identity Wallet in national eID ecosystems by Member States. Successful implementation of the revised eIDAS regulatory framework by public and private sector service providers to exchange digital identity credentials in several Member States.

Indicative type of action: Simple Grant
Indicative type of implementation: European Commission
Type of beneficiaries: Private persons, private companies, public bodies
Objective of this action is to support the implementation of the European Digital identity and Trust Ecosystem and manage the transition between the current and future frameworks supplementing or replacing the current digital service infrastructure (eID) by the wallet framework.

5.2.2 Interoperable Europe - Interoperability for the Public Sector

Europe has set the goal of 100% key digital public services online by 2030 as part of the digitalisation of public services. This is one of the four pillars helping to deliver Europe's Digital Decade for 2030. To reach this goal, the pace of digital transformation and delivery of digital public services needs to increase. Digital public services that are interoperable, open and fair and that foster innovation, in line with EU core values and standards are important instruments for creating the digital single market and ensuring a strengthened digital sovereignty. Interoperability of administrations, processes, services and data plays a central role in this endeavour. It helps build resilient digital public administrations that can deliver public services that span borders and sectors across the EU, allowing to safely share data, stay connected and create innovative services.

The **Interoperable Europe** action aims to establish and support a renewed interoperability strategy that will ensure the development of interoperable trans-European digital public services by strengthening cross-border interoperability of network and information systems and solutions which are used to provide or manage public services in the EU, establishing common rules and a framework for coordination of public sector interoperability. The current topic activities are based

on the recommendations[81] expressed by the Expert Group on Interoperability of European Public Services[82], which paved the way for the proposal for a regulation Interoperable Europe Act[83].

5.2.2.1 Interoperable Europe Policy Support

Under this WP, the European Commission will ensure the set-up of the various elements pointed out in the interoperable Europe policy strategy.

The Interoperable Europe action will continue to deliver on the interoperability projects launched in the first Digital Europe WP 2021-2022 and expand them.

Objective

The following objectives will be pursued:

- Provide European public sector entities with commonly accepted and recommended cross-border and cross-sector interoperability, concepts, frameworks, solutions, services and standards;
- Ensure EU policy-making is digital-ready and interoperable-by-default, facilitating policy implementation, and improving access to and operation of public services;
- Support Public sector policy makers, administrators and IT experts/practitioners with the capacities and training on commonly accepted interoperability principles, concepts and solutions/standards; and,
- Support an effective structured cooperation to drive an interoperable, digital by default approach in public administrations across Europe and support the implementation of the European Interoperability Framework and preparatory actions for the Interoperable Europe Act;

Scope

The Interoperable Europe action will focus on the following areas:

- Interoperable Europe oversight: this work strand will support the governance of the Interoperable Europe action. The current policy framework of non-binding interoperability cooperation, around the voluntary European Interoperability Framework (EIF)[84], is no longer fit for addressing the needs of Member States practitioners and policymakers. Therefore, the innovative framework put forward in the proposal for a regulation - the Interoperable Europe Act - is very much needed to move a gear up in terms of coordination and implementation on the ground. Interoperability activities funded under Digital Europe Programme will:

[81] https://ec.europa.eu/transparency/expert-groups-register/core/api/front/expertGroupAddtitionalInfo/43164/download

[82] Interoperability of European Public Services (E03714) https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupID=3714

[83] Interoperable Europe Act, https://commission.europa.eu/publications/interoperable-europe-act-proposal_en

[84] European Interoperability Framework (EIF)
, https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory/european-interoperability-framework-detail

- Support the structured cooperation mechanism proposed by the Interoperable Europe Act, as well as existing structures (e.g., Interoperability expert group).
- Engage Member States, at all levels of administration. The right mechanisms should be implemented to enable continuous feedback from Member States and to ensure that the solutions delivered rightly address their evolving needs.

- Interoperable Europe Catalogue: Interoperability is an enabler of digital transformation in European public administrations. To do so one needs a catalogue of reusable solutions, technical specifications and standards to assist public administrations with implementation of interoperability on the ground as well as a methodology and guidelines focused on increasing reusability of public sector digital solutions.

- Interoperable Europe Competency Hub: expanding the public-sector-interoperability knowledge base and its various aspects, such as innovation, adoption of open source, capacity-building policy, and modernisation of public services are an essential element to support the practical implementation of the Interoperable Europe policy, through all interoperability layers by conducting studies, assessing R&I results, including from Horizon 2020 and Horizon Europe, identifying best practices, running observatories as well as monitoring activities.

- Semantic interoperability: it is paramount to ensure seamless data flows across domains and borders. New major EU digitalisation policies like the Data Governance and Data Act and the high value datasets will need support to agree on common semantic interoperability specifications to ensure data portability and reusability. The Interoperable Europe action will provide consultancy and expertise to the Data Spaces Support Centre and specific sectorial data spaces to ensure a minimum level of semantic harmonisation across sectors. Member States also need to develop strong data semantic capabilities to implement national and EU digitalisation policies.

- Digital Ready Policy-Making: this work area aims to strengthen links between policy-making and the digital implementation of such policies as well as to promote the needed cultural shift towards multidisciplinary teamwork – thus move ahead Europe's digital transformation. Creation and running of the digital-ready policy making community[85] of stakeholders from the European, national, regional or local administrations as well as from academia, businesses or the general public.

- Space for innovation: emerging digital technologies are transforming society in an unprecedented way and enable further innovation in the shape of new products and services but also in terms of new ways of interaction when it comes to public services. It is essential to better understand and develop knowledge around the challenges posed by these technologies, identify best practices as well as pitfalls. Part of the challenges posed by emerging technologies, interoperability issues are a key challenge which need to be addressed at an early stage to avoid further fragmentation and allow an easy and effective sharing and reuse of solutions.

Deliverables

[85] Digital-ready Policymaking, https://joinup.ec.europa.eu/collection/better-legislation-smoother-implementation/digital-ready-policymaking

- Blueprint revision of the European Interoperability Framework as the main reference instrument for ensuring public sector interoperability;
- An Interoperability assessment methodology, as well as a process to run mandatory Interoperability assessments, as well as updated and improved assessment tools;
- New effective and aligned monitoring method to check interoperability uptake, impact and gaps;
- Further development of monitoring and reporting activities on digital public administration and interoperability (National Interoperability Framework Observatory[86]), factsheets and state of play reports, according to the new policy;
- A catalogue of reusable interoperability solutions aligned with the business needs of the new Interoperable Europe policy;
- Development of tools for the analysis of requirements, design of services, assessment of standards and specifications as well as services for interoperability validation and conformance testing;
- Further development of the Joinup collaborative platform by reinforcing it into a comprehensive catalogue to gather essential information on the existing and future interoperability products, which could be clustered by type of issues occurring at national/local level;
- Further development of the Open Source Observatory Knowledge Centre[87] with new thematic areas;
- Further development of the Interoperable Europe Academy[88] to offer additional training activities;
- Semantic interoperability (SEMIC assets) integration into horizontal actions such as data spaces and high value datasets, Once Only Technical System, EBSI, Europass and the European Learning Model etc. thus making them part of the corresponding infrastructure;
- Reports and studies on how emerging technologies – in conjunction with semantic models – can be used to improve digital service delivery and run proof of concepts (e.g., Artificial intelligence, Natural Language Processing, chatbots);
- Further development of the Observatory of Digital Innovative Public Services[89] (e.g., landscaping activities, exchanging best practices and knowledge, and provide policy recommendations to Member States).

[86] National Interoperability Framework Observatory, https://joinup.ec.europa.eu/collection/nifo-national-interoperability-framework-observatory

[87] Open Source Observatory Knowledge Centre, https://joinup.ec.europa.eu/collection/open-source-observatory-osor/knowledge-centre

[88] Interoperable Europe Academy, https://joinup.ec.europa.eu/collection/digital-skills-public-sector/solution/interoperable-europe-academy

[89] Observatory of Digital Innovative Public Services, https://joinup.ec.europa.eu/collection/innovative-public-services

Type of action	Procurement
Indicative budget	EUR 21.5 million
Indicative time	2023
Indicative duration of the action	18 to 24 months
Implementation	European Commission
Type of beneficiaries	Not applicable

The Interoperable Europe policy support topic is continued in 2024.

Action in 2024

The topics under section 5.2.2 Interoperable Europe that may be supported in 2024 include:

- **Interoperable Europe: GovTech Incubator**

  An EU Framework partnership agreement (FPA) was established to support an EU GovTech Incubator for 4 years. As part of the previous work-programme a first specific Grant Agreement will implement actions during the first two years. The main objective will be to implement the action plan established in the FPA. The expected results would be establishing innovative interoperability solutions and lessons learned from experimentation.

  Indicative type of action: Specific Grant Agreement
  Indicative type of implementation: European Commission
  Type of beneficiaries: All beneficiaries

5.2.3 Trans-European Services for Telematics between Administrations (TESTA)

Objective

This action aims to ensure continuity of the TESTA-ng communication network services until its migration to the next generation, the EU-secured Pan-European backbone network.

Scope

This action covers the delivery of core services, and the core backbone to serve the 27 EU Member States, 2 EFTA Countries and 2 acceding Countries as well all European Institutions and European Agencies and Joint Undertakings.

Deliverables

Secure and reliable communication network services (TESTA-ng) addressed to the 27 EU Member States, 2 EFTA Countries and 2 acceding Countries as well all European Institutions and European Agencies and Joint Undertakings.

Type of action	Procurement
Indicative Budget for 2023	EUR 8 million
Indicative time	2023
Indicative duration of the action	24 months
Implementation	European Commission

Support to TESTA is continued in 2024.

5.2.4 Justice and Consumers

In the area of justice and consumer protection, the activities foreseen for 2023 and 2024 under the Digital Europe Programme will primarily focus on ensuring the continued development, maintenance, operation and overall sustainability of all sectoral IT solutions developed/maintained in the period 2021-2022 or in previous years.

5.2.4.1 Core EU Justice and Consumers IT Systems

Objective

For 2023, the objective under this topic is to continue ensuring the maintenance and evolutive development of the core EU IT systems in the justice and consumers area. In particular, this would cover the maintenance of the e-Evidence Digital Exchange System (eEDES), the European Central Platform (ECP) which includes the Business Registers Interconnection (BRIS)[90] and the Beneficial Ownership Registers Interconnection System (BORIS)[91] IT systems, the ODR system, and the crypto tool used in the context of European elections (actions already financed under WP 2021-2022).

Scope

[90] Directive 2012/17/EU, now codified in Directive 2017/1132, requires the Commission to operate BRIS. The system provides two main functionalities: the exchange of messages between business registers related to cross-border branches and cross-border operations, and the provision of company information through BRIS for the users of the European e-Justice Portal. Directive (EU) 2019/1151 and Directive (EU) 2019/2121 require BRIS to provide additional company information free of charge (e.g., on cross-border operations), and to allow further exchanges of information between registers, e.g. on cross-border conversions and divisions.

[91] Directive (EU) 2015/849, as amended by Directive (EU) 2018/843, requires the Commission, by 10 March 2021 to ensure the EU-wide interconnection of national beneficial ownership registers for corporate and other legal entities; Central registers should be interconnected via the European Central Platform and certain types of information contained therein should be accessible to members of the general public. Due to unforeseeable delays the date for the interconnection of national beneficial ownership registers for corporate and other legal entities has been extended until 31 October 2021.

The eEDES platform would be maintained and supported in 2023 with regard to the use cases it already enables (digital exchange of European Investigation Orders (EIOs) and Mutual Legal Assistance (MLA) requests and documents). Moreover, as the eEDES system will become the de facto user-facing component in the comprehensive digitalisation of 23 cross-border procedures in the area of EU civil, commercial and criminal matters[92] (e.g. the European Arrest Warrant, European Payment Order and other), horizontal requirements and improvements to the system in that context will also fall within the scope of this action. In 2023, the specifications for extending the eEDES platform to new legal instruments in criminal matters should be started.

Secondly, financing from the Digital Europe Programme will ensure the sustainability of the ECP in 2023. In particular, the programme will ensure the operation and evolutive maintenance of the ECP, which includes the BRIS and BORIS IT systems. Among the new functionalities that will be introduced for BRIS, are those required by new Directives, e.g., on Company Law (Directive (EU) 2019/1151[93] and Directive (EU) 2019/2121[94]) and on anti-money laundering (Directive (EU) 2015/849[95]). Funding will also cover the design, development, testing and maintenance of a decentralised payment system for BRIS and further communication and stakeholder engagement activities, where needed.

The ODR digital service infrastructure and ODR functionalities will be maintained to facilitate consumer redress and dispute resolution.

The EP Crypto tool will be maintained and supported in 2023. The tool will be subject to test campaigns and updates in the view of preparation of the release that will be used in the 2024 European Parliament elections.

Deliverables

- Analytical and design activities;
- Operational management, corrective and evolutive maintenance;
- Stakeholder management and outreach activities;
- Software outputs and source code;
- Implementation documentation (e.g. interface specifications, data models, use cases, architectural documents…);
- Other project artefacts;
- End-user documentation and support.

Type of action	Procurement
Indicative budget	EUR 4 million

[92] Cf. sub-topic "Digitalisation of judicial cooperation in civil, commercial and criminal matters".

[93] Directive (EU) 2019/1151 of the European Parliament and of the Council of 20 June 2019 amending Directive (EU) 2017/1132 as regards the use of digital tools and processes in company law (OJ L 186, 11.7.2019, p. 80–104).

[94] Directive (EU) 2019/2121 of the European Parliament and of the Council of 27 November 2019 amending Directive (EU) 2017/1132 as regards cross-border conversions, mergers and divisions (OJ L 321, 12.12.2019, p. 1–44).

[95] Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC (OJ L 141, 5.6.2015, p. 73–117).

Indicative time	2023
Indicative duration of the action	12 months
Implementation	European Commission
Type of beneficiaries	Individuals, businesses (including SMEs), public authorities (including members of the judiciary), legal practitioners, and public and private dispute resolution bodies.

5.2.4.2 *Digitalisation of Service of Documents and Taking of Evidence in Civil and Commercial Matters*

Objective

The objective is to ensure the development of the decentralised IT system established in the context of Service of Documents[96] and Taking of Evidence[97] (recast) regulations (action started under WP 21-22).

Scope

Complete the development of a first version of the system (focussed on critical functionality and main workflows) for the Member States to provide feedback on, and account for the upcoming change requests and system improvements during 2023, with the goal of having a mature system ready by the end of 2024.

Deliverables

- Software outputs and source code;
- Implementation documentation (e.g. interface specifications, data models, use cases, architectural documents…);
- Other project artefacts;
- End-user documentation and support.

Type of action	Procurement
Indicative budget	EUR 1 million
Indicative time	2023
Indicative duration of the action	12 months
Implementation	European Commission
Type of beneficiaries	Individuals, businesses (including SMEs), public

[96] Regulation (EU) 2020/1784 of the European Parliament and of the Council of 25 November 2020 on the service in the Member States of judicial and extrajudicial documents in civil or commercial matters (service of documents) (recast).

[97] Regulation (EU) 2020/1783 of the European Parliament and of the Council of 25 November 2020 on cooperation between the courts of the Member States in the taking of evidence in civil or commercial matters (taking of evidence) (recast).

	authorities (including members of the judiciary), as well as other legal practitioners.

5.2.4.3 *Digitalisation of Judicial Cooperation in Civil, Commercial and Criminal Matters*

Objective

The objective of the 1 December 2021 Commission proposal on the digitalisation of judicial cooperation and access to justice in cross-border civil, commercial and criminal matters[98] is to improve the efficiency of cross-border judicial cooperation and remove barriers to access to justice in a cross-border context. Inter alia, this will be achieved by: 1) mandating the use of digital communication channel between competent national authorities and 2) enabling electronic communication between natural/legal persons and the competent authorities. The digitalisation of judicial cooperation procedures will be implemented progressively, starting with the digitalisation of a first batch of five legal acts in civil, commercial and criminal matters[99]. The Commission will develop a reference implementation software (based on eEDES) for the procedures under these five legal acts, which Member States may choose to deploy instead of developing their own national back-end systems.

Scope

The Commission will adopt the first Implementing act establishing a decentralised IT system for the exchange of communication between competent authorities falling under the scope of the five legal acts mentioned above. In this context, in 2023 the programme will finance the elaboration of stakeholder and technical requirements (including on interoperability), setting up the architectural blueprint of the decentralised IT system (including the reference implementation software) and commence software development activities towards the system's establishment. The planned work will also include the definition of a common interface for the payment of statutory court fees and the necessary adaptations on the European e-Justice Portal, which will serve as an EU-level access point allowing citizens and businesses to file claims and communicate with judicial and other competent authorities.

[98] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the digitalisation of judicial cooperation and access to justice in cross-border civil, commercial and criminal matters, and amending certain acts in the field of judicial cooperation COM(2021) 759 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0759

[99] These concern the digitalisation of the following instruments: Regulation (EC) No 1896/2006 of the European Parliament and of the Council of 12 December 2006 creating a European order for payment procedure, Regulation (EC) No 861/2007 of the European Parliament and of the Council of 11 July 2007 establishing a European Small Claims Procedure, Council Framework Decision 2002/584/JHA of 13 June 2002 on the European arrest warrant and the surrender procedures between Member States, Council Framework Decision 2008/909/JHA of 27 November 2008 on the application of the principle of mutual recognition to judgments in criminal matters imposing custodial sentences or measures involving deprivation of liberty for the purpose of their enforcement in the European Union and Directive 2014/41/EU of the European Parliament and of the Council of 3 April 2014 regarding the European Investigation Order in criminal matters.

Deliverables

- In the context of the preparatory work for the first implementing act, covering the five instruments mentioned above - defined technical requirements and specifications, including information security objectives and standards;
- Reference implementation software supporting the five judicial procedures mentioned above);
- Definition of a common interface for electronic payment of fees in the context of the Small Claims and European order for payment procedures on the European e-Justice Portal.

Type of action	Procurement
Indicative budget	EUR 0.7 million
Indicative time	2023
Indicative duration of the action	12 months
Implementation	European Commission
Type of beneficiaries	Individuals, businesses (including SMEs), public authorities (including members of the judiciary), as well as other legal practitioners.

5.2.4.4 Common Platform for Online Investigations and Law Enforcement (EU eLab)

Objective

Provide for the maintenance of the EU eLab central platform and support activities to consumer protection and product safety market surveillance authorities (action started under WP 21-22).

Scope

The scope of action in 2023 would be on:

a) Ensuring access to eLab of all participating authorities (onboarding started in 2022);

b) Maintenance of the secure, performant and user-friendly infrastructure, allowing detection of malpractices and collection of evidence to the highest level of integrity;

c) Tools (commercial and open source) to streamline the investigative process and AI-support to detecting malpractices online.

Deliverables

- Deployment of licenced commercial tools or open-source tools, customisation outputs and custom development, where appropriate;
- Other project artefacts;
- End-user documentation and support.

Type of action	Procurement
Indicative budget	EUR 0.9 million
Indicative time	2023
Indicative duration of the action	12 months
Implementation	European Commission
Type of beneficiaries	Not applicable

Actions in 2024

The actions under section 5.2.4 Justice and Consumers in 2024 may include:

- Continuation of the work on the activities listed under 5.2.4 Justice and Consumer in the Work Programme for 2023.
- Another objective is to start the development of the Joint Investigation Teams collaboration platform (JITs CP) conditioned upon the adoption of the Commission proposal for a Regulation establishing a collaboration platform to support the functioning of joint investigation teams and amending Regulation (EU) 2018/1726[100]. As this system will be developed by eu-LISA, a contribution agreement with the Agency would be required. The key activities to be carried out in 2024 would concern the analysis and design phases of the project;
- With regard to the EP crypto tool, the aim is that the File Exchange Service be updated to meet the needs of the 2024 EP elections, and support to Member States provided during the electoral period;
- In the field of consumer protection and dispute resolution, one action and objective is the introduction of additional online consumer redress functionalities for consumers, traders and alternative dispute resolution (ADR) entities from 2024 forward, based on a revision of the EU legislative framework with the aim to improve the enforcement of the consumer law (2023 Commission Work Programme[101]).

Indicative type of action: Procurement and contribution agreement with eu-LISA
Indicative type of implementation: European Commission and eu-LISA
Type of beneficiaries: Individuals, businesses (including SMEs), public authorities (including members of the judiciary), legal practitioners, as well as public and private dispute resolution bodies.

[100] Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a collaboration platform to support the functioning of Joint Investigation Teams and amending Regulation (EU) 2018/1726 , COM(2021) 756 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0756&qid=1671103025366

[101] Commission work programme 2023, https://commission.europa.eu/strategy-documents/commission-work-programme/commission-work-programme-2023_en

5.3 Confidence in Digital Transformation

5.3.1 Safer Internet

Making the internet a safer environment for children and young people is a priority of the EU. Since 2012 the Better Internet for Kids (BIK) strategy has played a key role in influencing child online protection and empowerment at European, national and international level. The updated strategy for a better internet for kids (BIK+), adopted in May 2022[102], will ensure that children are protected, respected and empowered online in the new Digital Decade.

The EU co-funded network of Safer Internet Centres (SICs) and the EU-funded portal betterinternetforkids.eu, the hub for child online safety, are key for the implementation of BIK+ in the Member States and at European level.

Children create, play and interact online from an ever-younger age, using digital technologies for education, entertainment, social contact and participation in society.

Besides opportunities, harmful and illegal content, conduct, contacts and consumer risks are frequently present for children online. Digital services, from social media to interactive games, can expose children to risks such as unsuitable content, bullying, grooming, child sexual abuse, radicalisation or privacy violations. The COVID-19 pandemic highlighted the benefits of digital technology but also the crucial need for digital skills and competences including media literacy for all children.

Children can actively use technology to express themselves and influence the world around them. Children should be listened to more and included in the development and evaluation of digital products and services and digital policies.

5.3.1.1 Network of Safer Internet Centres (SICs)

Objective

The objective of the topic is to continue to support national SICs which may be composed of one or more NGOs, government bodies/agencies, private sector organisations in providing online safety information, educational resources, public awareness tools and counselling and reporting services (through dedicated helplines and hotlines) for young people, teachers, and parents. The activities performed by the SICs will help minors to tackle online risks and to become media-literate, resilient, digital citizens, and will allow citizens to anonymously report online child sexual abuse material (CSAM).

To reach all children, the Safer Internet Centres will pay particular attention to children with special or specific needs, including those from disadvantaged and vulnerable backgrounds.

[102] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS A Digital Decade for children and youth: the new European strategy for a better internet for kids (BIK+), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2022:212:FIN

Scope

The funding will ensure the continuation of the well-established European network of national SICs, by enabling the awarded consortia to provide at least:

- A centre for raising awareness among children, parents/carers, teachers and educators as well as other relevant professionals working with children about online opportunities and risks for the under 18s. The focus will be to identify and address:
    - specific and general emerging risks (e.g. new apps and games, but also AI, virtual, augmented and extended reality, the internet of things and other technological changes raising new social and ethical challenges that impact children);
    - issues such as mental and physical health risks related to the use of technologies (e.g. self-harm, cyberbullying, risky online challenges, promotion of eating disorders);
    - risks facing children as young consumers (e.g. nudges to spend money, aggressive marketing strategies, lootboxes) on which specific attention will be paid.
- A helpline to give advice and support to parents and children on issues related to children's use of digital technologies and services; to strengthen support to victims of cyberbullying, closer cooperation with the national Child Helpline 116111 service is required.
- A hotline for tackling CSAM (i.e., receiving, analysing, and processing reports of such material). Closer cooperation with law enforcement and the private sector should be further explored in the context of the EU strategy for a more effective fight against child sexual abuse and the proposed new legislation.
- A youth panel to engage directly with children from different demographic groups, including the organisation of regular youth participation activities, allowing them to express their views and pool their knowledge and experience of using online technologies. Adequate turnover and an open selection of participants is required.

SICs shall strengthen their support to children in vulnerable situations (such as children with disabilities, children from a minority, racial or ethnic background, refugee children, children in care, LGBTQI+ children, as well as children from a disadvantaged socio-economic background, who all may face additional challenges in the digital environment). For example, to address the digital divide, they should offer non-formal education and training to these groups and communities.

In addition, SICs will:

- support the monitoring of the impact of the digital transformation on children's well-being in cooperation with the BIK platform,
- support the implementation of relevant EU strategies,
- promote the distribution of relevant online training modules (MOOCs) for teachers,

- expand the role of BIK Youth Ambassadors and BIK Youth Panels to support peer-to-peer activities at national, regional and local level,

- provide trustworthy resources for and carry out campaigns targeting children, parents, carers and teachers, educators and other relevant contacts working with children (e.g. sports coaches, club leaders). Training on children's rights online should also be included in these initiatives to create a stronger awareness that children's rights online are the same as offline, as stipulated by UN General Comment No. 25 (2021) on children's rights in relation to the digital environment (CRC/C/GC/25).

Deliverables

- National SICs as a one-stop-shop for reliable and age-appropriate information.
- Digital literacy in Member States and associated countries in formal and informal education settings (e.g., youth participation activities, workshops, classroom visits, competitions, peer to peer activities).
- Support to parents, carers, teachers, educators and other professionals working with children to better understand the risks and opportunities of children accessing digital content and services (e.g., information sessions, train the trainers programmes, and online and offline material).
- Timely information to local, national, and European actors on emerging risks through the helpline service.
- Access to resources and services by public authorities, including law enforcement agencies, and exchanges with hotline analysts to develop better preventive measures and to remove online child sexual abuse material (CSAM).
- Increased cooperation of the private sector with the SICs, including those recognised in the future as "trusted flaggers" to assist the public, in particular children, when confronted with harmful and illegal content.

Type of action	Simple grant
Indicative budget	EUR 16,2 million
Indicative call planning	First set of calls
Indicative duration of the action	18 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	All entities

5.3.1.2 IT system supporting the removal of online child sexual abuse material (CSAM)°

Objective

The objective of this topic is to tackle the dissemination of online child sexual abuse material (CSAM) through the maintenance of an IT system that enables the cooperation of the network of INHOPE hotlines, thus contributing to the swift removal of such illegal material.

Scope

The funding will cover the maintenance of the IT tool that supports the back-office reporting functionalities of the hotlines hosted by the SICs. The tool facilitates also the collaboration with law enforcement agencies and relevant private sector stakeholders (e.g., hosting digital services). The tool must enable a secure environment for gathering, checking, and sharing reports of potential CSAM to support the hotlines' capability and capacity to analyse, identify, and remove the illegal online content.

Outcomes and deliverables

The funding will deliver an operational IT tool supporting the INHOPE hotlines to identify, track, and remove CSAM.

Type of action	Coordination and support action grant (100% funding rate) to identified beneficiary according to Financial Regulation article 195 (f). INHOPE is the only organisation in the EU that has the competence to manage the IT tool which is used by the national hotlines (supported by DIGITAL grants) to handle reports of potential online child sexual abuse material (CSAM). Legal name and address: "INHOPE – The International Association of Internet Hotlines", Spuistraat 139F, 1012 SV Amsterdam, The Netherlands
Indicative budget	EUR 0,5 million
Indicative call planning	First set of calls
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	Identified beneficiary INHOPE

Action in 2024

The topics under section 5.3.1 Safer Internet in 2024 may include:

- **Better Internet for Kids (BIK) platform – EU coordination**

  Action will continue to coordinate and support at EU level the national child online safety activities of the Safer Internet Centres (SICs) through a central hub: the Better Internet for Kids platform. The platform will continue to provide access to a set of online tools, resources and services for the general public and for professionals dealing with child online safety.

  Indicative type of action: Procurement
  Indicative type of implementation: European Commission
  Type of beneficiaries: All entities

5.3.2 European Digital Media Observatory

Objective

The European Digital Media Observatory (EDMO) has been created with the aim of supporting an independent multidisciplinary community to tackle the phenomenon of disinformation. EDMO is composed of a central platform and governance which support and coordinate the work of the EDMO national/multinational hubs.

The objective of this topic is to finance the work of independent national /multinational hubs for analysis of digital media ecosystems in order to ensure the coverage of geographical areas covered by the EDMO hubs for which the funding is ending at the end of 2023 and in 2024.

A national/multinational hub involves organisations active in one or several Member State(s), that will provide specific knowledge of local information environments so as to strengthen the detection and analysis of disinformation campaigns, improve public awareness, and design effective responses relevant for national audiences. The activities of the hubs should be independent from any public authority.

These national/multinational centres will focus their activities on emerging digital media vulnerabilities and disinformation campaigns, which are of special relevance within the territory and/or linguistic area in which they will operate. Multinational hubs will cover more than one Member State with similar media ecosystems within an EU region.

Scope

Support will be provided to:

- Support the operations of an independent national or multinational hubs pulling together a national/multinational multidisciplinary community composed of academic researchers, fact-checkers, open-source investigation organisations, media practitioners and other relevant stakeholders in order to create a network capable of quickly detecting and analysing disinformation campaigns, as well as producing content to support national and local media and inform about regarding emerging harmful disinformation campaigns. They will work in cooperation with EDMO and contribute to its activities providing fact-checks, media literacy materials, scientific articles, surveys on disinformation trends, situational analyses and assessments of online platforms' policies to address disinformation-related harms.

- Detect, analyse, and disclose disinformation campaigns at national, multinational and EU level, and their impact on society and democracy. To this end hubs will analyse relevant actors, vectors, tools, methods, dissemination dynamics, and targets of disinformation campaigns in coordination with EDMO. Hubs will monitor the evolution of disinformation-related harms on relevant audiences. Each hub will also support a regular assessment of the impact of relevant disinformation campaigns on society and democratic processes, as

well as the effectiveness of the policies set out by online platforms to counter various disinformation phenomena. In addition, the hubs will actively participate to the EDMO joint activities of fact-checking and research and promptly react to EDMO requests linked to emerging disinformation issues.

- Create tailor-made media literacy campaigns for the covered territory or linguistic area. Hubs will leverage on the exchange of good practices and materials coordinated by EDMO and contribute to the EDMO repositories with newly created educational and training materials.

- Cooperate with national authorities for the monitoring of online platforms' policies and digital media ecosystem in the territory or linguistic area covered by the proposal. In particular, they will provide relevant insights which might help competent national authorities, including the audio-visual regulator(s), monitoring the implementation of the Strengthened Code of Practice on Disinformation by its signatories.

Deliverables

- At the end of the actions, a network of existing and newly established research hubs will be active across the EU under the coordination of EDMO.

- Networks of experts and organisations linked to the hubs will be part of a European multidisciplinary community which will actively detect, analyse and expose disinformation campaigns in Europe.

- Each hub will have produced or contribute to at least 100 fact-checks, 20 investigations and reports on disinformation campaigns and shared them through EDMO.

- Each hub will have established at least 10 tailor-made media literacy programs in Member States and produced reports (at least 1 per year) regarding the implementation and effectiveness of online platforms policies to tackle disinformation.

Type of action	SME support grant (75% co-funding rate for SMEs and 50% for all the other beneficiaries)
Indicative budget	EUR 10 million
Indicative call planning	First set of calls
Indicative duration of the action	30-36 months
Implementation	Executive Agency HaDEA
Type of beneficiaries	European fact-checkers and academic researchers working on disinformation as well as the media practitioners, media literacy experts, IT experts

5.4 EU Energy Saving Reference Framework

Objective

The current context – Russia's invasion of Ukraine and the accompanying high inflation – compels us to accelerate the energy transition and save energy to ensure a sustainable, resilient, and fair economy. This entails making better use of the data that is generated all along the energy supply chain and to exploit the potential of digital technologies to reduce demand, eliminate wastage and reduce energy bills.

Smart meters and smart apps enable consumers to reduce and optimise their energy consumption and cut their energy bills. They provide greater consumer awareness and opportunities to monitor and control in real time the energy consumption of their appliances. Across the European Union, however, the functionality and availability of such meters and apps remain very fragmented.

The Digitalisation of Energy Action Plan adopted on 18 October 2022[103], sets out for the European Commission, working with Member States, to develop a common European reference framework, including an open-source reference implementation, for a consumer application that allows for voluntary reductions in energy consumption and thereby help reduce energy costs.

Scope

The scope of this action is to develop and deploy an EU Energy saving Reference Framework as a key tool to conserve electricity when there is an anticipated shortage of energy supply. Alerts are to be based on energy generation data and real time energy consumption. Clear messages are to guide consumers to adopt the right measures to ensure a good energy supply for all. For example, following an alert, consumers can voluntarily reduce their electricity consumption and thereby contribute to avoiding possible power blackouts.

Deliverables

- An EU Energy saving Reference Framework that should lead to a standardised reference application that will be developed in close collaboration with energy providers and will draw from applications and services already available in the market.
- The deployment of the EU Energy saving Reference Framework across the Union in close collaboration with energy providers.

Type of action	Simple grant
Indicative budget	EUR 5 million
Indicative call planning	First set of calls
Indicative duration of the action	24 months

[103] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Digitalising the energy system - EU action plan, COM/2022/552 final, https://energy.ec.europa.eu/communication-digitalising-energy-system-eu-action-plan-com20225522_en

Implementation	European Commission
Type of beneficiaries	Private entities

6 Programme Support Actions

6.1 Support to Dissemination and Exploitation (D&E)

Objective

Maximise the impact of the Digital Europe Programme and the take up of its results through a Dissemination and Exploitation (D&E) conceptual and operational framework, including the delivery of a number of practical actions.

Scope

The action will address, at least, the following dimensions:

- the overall programme, its Specific Objectives (SO) and areas therein, down to topics and projects where appropriate;
- the capacity building and use strands of Digital Europe Programme;
- the different stakeholders;
- the stages of the project lifecycle and the reporting obligations;
- coordination within EU and beyond when relevant, taking into account the policy priorities and initiatives;
    - between projects of Digital Europe Programmes and other programmes (e.g. Horizon Europe);
    - within Digital Europe Programme itself, identifying and exploiting complementarities of projects among SO and topics;
    - between Digital Europe Programme and EU member states national/regional programmes;
    - of the different programme implementing bodies, e.g. European Commission, Health and Digital Executive Agency (HaDEA), JU and similar bodies.

The action will consider means that can help delivering its objective, including the pertinence of leveraging already existing tools, e.g. of other EU programmes like Horizon Europe. The action will consider innovative approaches to D&E and how to improve the uptake of Digital Europe Programme results beyond the entities directly involved in the projects.

Deliverables

- A conceptual and operational framework for D&E taking into account the elements mentioned under “scope” and offering solid methodological and practical approaches.
- A proposal for a set of actions to be implemented by the different stakeholders and a plan to deliver on the framework, with monitoring and evaluation metrics.
- The implementation of relevant actions aiming at e.g. supporting and complementing individual projects efforts in their D&E activities.

- The analysis of possible means and tools to support the delivery of the framework, including a proposal for the functionalities of the Digital Europe Programme Results Platform (see the Digital Europe Programme Model Grant Agreement Art. 17 and its Annex 5) in the light of the Horizon Europe Results Platform.

Type of action	Coordination and support action grant
Indicative budget	EUR 0.3 million
Indicative call planning	First set of calls
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	All entities

6.2 Supporting the Network of National Contact Points (NCPs)

Objective

This action will support the coordination between different National Contact Points (NCPs) for the Digital Europe Programme, the preparation and execution of actions that maximise awareness and the impact of the programme and the long-term dissemination and exploitation of results.

The selected project will provide support for all specific objectives of Digital Europe Programme.

Scope

Proposals will contribute to the development of a specific NCPs network for Digital Europe Programme.

Proposals should facilitate trans-national co-operation amongst NCPs, encouraging cross-border activities, sharing good practices and raising the general standard of support to programme applicants. The consortium will facilitate participation of new players in the programme.

The selected proposals will provide adapted support for Digital Europe Programme communication (including info days), dissemination and exploitation activities, including, for instance, the preparation of material and organisation of events.

Special attention should be given to enhancing the competence of NCPs, including helping less experienced NCPs rapidly acquire the know-how built up in other countries. Where relevant, synergies should be sought with existing networks to organise matchmaking activities.

Deliverables

The action is expected to contribute to the following outcomes:

- Improved and professionalised NCP services across Europe, supporting access to Digital Europe Programme calls, lowering the entry barriers for newcomers, and raising the average quality of proposals submitted;
- Robust NCP support services across Europe that are adapted to specific objectives of Digital Europe Programme, including;
    - more participation of new players in the programme;
    - matchmaking activities to connect potential participants from widening countries with emerging consortia in this thematic area using a variety of tools;
    - dissemination of information about security and ownership control rules in Digital Europe Programme for applicants.

Type of action	Coordination and support action grant
Indicative Budget	EUR 2 million
Indicative call planning	First set of calls
Indicative duration of the action	24 months
Implementation	European Commission
Type of beneficiaries	All entities

6.3 Information Systems for the Digital Services Act and Digital Markets Act

Objective

The Digital Services Act (DSA) is a recent flagship regulatory initiative of the European Union aimed at providing a coherent regulatory framework for online intermediaries, including online platforms (such as social media sites, search engines, or online marketplaces) operating in the EU, in view of ensuring safe online environment where fundamental rights of users are protected. The Digital Markets Act (DMA) represents the other side of the same coin. The DMA aims to restore and ensure contestability in digital markets by addressing problematic and unfair practices by large digital gatekeepers The objective of this action is the development and operation of an IT system that will support the enforcement of the DSA and DMA.

Scope

An integral part of the DSA enforcement framework is an easy to use, reliable and secure IT system that would support the time-critical, day-to-day cooperation and exchange of information between Digital Services Coordinators (DSCs), the Commission and the Board (composed of all DSCs and chaired by the Commission). In addition, the Commission needs to develop a transparency hub covering online platforms, Case Handling to facilitate investigations by the Commission covering Very Large Online Platforms (VLOPs) and Very Large Online Search Engines (VLOSEs) as well as cooperation and exchange of the information with the DSCs, where relevant, and a Data Science module to gather data and insights.

With regard to DMA, an enforcement framework case handling, supported by the CASE@EC system, to facilitate investigations by the Commission, complemented by a strong registry and a data science

module to gather data and insights, will be crucial to ensure the success of the implementation of the DMA.

Deliverables

The main deliverables of the project are the following modules:

- **Collaboration**: enabling secure communication via messaging, notifications and documents exchange, as well as collaboration between Member States, the Commission and the Board to ensure effective enforcement of the Digital Services Act
- **Transparency hub**: covering reporting obligations for online platforms
- **Case Handling**: facilitating investigations by the Commission covering-for the DSA- Very Large Online Platforms (VLOPs) and Very Large Online Search Engines (VLOSEs) and for the DMA gatekeepers, leveraging the corporate case management solution, CASE@EC.
- **Data Science**: facilitating the gathering, research, and analysis of available data, and supporting monitoring obligations

Type of action	Procurement (for the DSA co-financed with the fee to be leveraged on Very Large Online Platforms)
Indicative budget	EUR 7.8 million
Indicative time	2023 and 2024
Indicative duration of the action	Each procurement less than 12 months
Implementation	European Commission
Type of beneficiaries:	Member States, including Digital Services Coordinators and other competent authorities, national competition authorities, European Commission, European Board for Digital Services and online platforms that operate in the EU

6.4 Other Support Actions

Other programme support actions with indicative budget of EUR 13 million in 2023 are aimed at maximising the impact of the EU intervention and will be implemented through procurement and other means. Horizontal actions will cover costs including preparation, evaluation, monitoring and studies. An amount of funding will be set aside to cover awareness and dissemination as it is crucial to effectively communicate about the value and benefits of the Digital Europe Programme. As an indicative list, other programme support actions funded under this WP may cover:

1. External expertise:

- The use of appointed independent experts for the evaluation of the project proposals and where appropriate, the monitoring of running projects.
- The use of individual independent experts to advise on, or support, the design and implementation of the underpinning policy.

2. Studies, Events and publications

- Events, dissemination of Programme results etc.
- Publications
- Communication e.g., about calls and Digital Europe Programme results
- Studies

3. Other

- Support for the continuous operation of the IT system and/or evolution of the central gateway based on for the EU Digital COVID Certificate standards and specifications.
- Service Level Agreement between the European Commission and CERT EU for their contribution to the Cyber Analysis and Situation centre for up-to-date and strategic-level situation analysis, risk scenarios and overviews of the threat landscape.

7 Financial Instruments

7.1 Investment Platform for Strategic Digital Technologies

The objective is to continue with the implementation of the Investment Platform for Strategic Digital Technologies under the InvestEU program. The Investment Platform will provide improved dedicated financial support to innovative digital start-ups and SMEs at all stages of their development (early stage and scale-up phases) through equity and quasi-equity by combining funding from Digital Europe Programme with InvestEU guarantee. It will provide improved financing for strategic digital technologies, with a special focus on cybersecurity. The platform aims to (i) pool financial resources from the European Commission (through the Digital Europe Programme, InvestEU programme and other EU programmes), International Financial Institutions, including the European Investment Bank, the European Investment Fund, the European Bank for Reconstruction and Development and the Member States through financing from National Promotional Banks, as well as seek synergies, including exchange of good practises, and complementarity with the EIC Fund of the European Innovation Council; (ii) leverage EC funding to enable additional investments from private investors and; (iii) provide efficient risk sharing mechanisms between different investors. The platform will include an Investment Support Programme: (i) to raise awareness among investors about companies and project promoters; (ii) carry out a series of market consultations with a broad range of stakeholders from the strategic digital technology ecosystem, governments and private investors; and (iii) facilitate the match-making between project promoters, innovative SMEs, start-ups and private investors. The Investment Support Programme will build up on the advisory services on strategic digital technologies carried out by the InvestEU Advisory Hub included in the Digital Europe Programme WP 2021-2022.

Type of action	Financial Instrument
Indicative budget	EUR 10 million
Indicative duration of the action	2 years
Implementation	Indirect management with the European Investment Fund

8 Implementation

This Work Programme uses two main implementation modes: direct management (procurement and grants), as well as indirect management (contribution agreement, European investment fund).

The different nature and specificities of the actions indicated in the previous chapters require distinctive implementation measures. Each of these will therefore be achieved through various implementation modes.

Proposers are strongly encouraged to follow green public procurement principles and take account of life cycle costs[104].

The implementation of grants is articulated through different types of actions that are indicated for each topic. More details on each type of action are described in Appendix 2.

8.1 Procurement

Procurement actions will be carried out in compliance with the applicable EU public procurement rules. The procedures will be implemented either through direct calls for tenders or by using existing framework contracts. IT development and procurement activities will be carried out in compliance with European Commission's applicable IT governance rules.

8.2 Grants

8.2.1 Evaluation process

The evaluation of proposals will be based on the principles of transparency and equal treatment. It will be carried out by the Commission services and an Executive Agency with the assistance of independent experts.

Admissibility conditions

Proposals must be submitted before the call deadline and only through the means specified in the call for proposals. The call deadline is a deadline for receipt of proposals.

Proposals must be complete and contain all parts and mandatory annexes and supporting documents specified in the call for proposals. Incomplete proposals may be considered as inadmissible.

Eligibility criteria

Proposals will be eligible if they are submitted by entities and/or consortiums compliant with the requirements set out in this Work Programme and the relevant call for proposals. Only proposals meeting the requirements of the eligibility criteria in the call for proposals will be evaluated further.

Exclusion criteria

Applicants which are subject to EU administrative sanctions (i.e. exclusion or financial penalty decision)[105] might be excluded from participation. Specific exclusion criteria will be listed in the call for proposals.

Financial and operational capacity

[104] http://ec.europa.eu/environment/gpp/index_en.htm

[105] See Article 136 of EU Financial Regulation 2018/1046.

Each individual applicant must have stable and sufficient resources as well as the know-how and qualification to successfully implement the projects and contribute their share. Organisations participating in several projects must have sufficient capacity to implement all these projects. Applicants must demonstrate their financial and operational capacity to carry out the proposed action.

Award criteria

The three sets of criteria are listed in Appendix 1 of this Work Programme. Each of the eligible proposals will be evaluated against the award criteria. Proposals responding to a specific topic as defined in the previous chapters of this Work Programme will be evaluated both individually and comparatively. The comparative assessment of proposals will cover all proposals responding to the same topic.

Proposals that achieve a score greater than or equal to the threshold will be ranked within the objective. These rankings will determine the order of priority for funding. Following evaluation of award criteria, the Commission establishes a Selection Decision taking into account the scores and ranking of the proposals, the programme priorities and the available budget.

The coordinators of all submitted proposals will be informed in writing about the outcome of the evaluation for their proposal(s).

8.2.2 Selection of independent experts for evaluation and reviews

The Commission and the Executive Agency will select independent experts to assist with the evaluation of proposals and with the review of project results as well as for other purposes where specific expertise might be required for implementation of the Programme. Experts are invited to register themselves on the Funding & Tender Portal[106] or update their profile in the database with their expertise in the areas funded by the Digital Europe Programme. Experts will be selected from this list on the basis of their ability to perform the tasks assigned to them, taking into account the thematic requirements of the topic, and with consideration of geographical and gender balance as well as the requirement to prevent and manage (potential) conflicts of interest.

8.2.3 Indicative implementation calendar

The indicative calendar for the implementation of the Digital Europe calls for proposals in 2023 and 2024 is shown in the table below. Three sets of calls with a common deadline are planned to deliver the topics of this Work Programme. Topics are bundled into calls as specified in the respective call document. The table below does not prevent the opening of additional calls if needed. More information about these calls will be available on:

https://ec.europa.eu/info/funding[1]tenders/opportunities/portal/screen/home.

Table 8: Call timeline for topics in this Work Programme

106 http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html

Milestones	First set of calls of WP 2023-2024 with common deadline	Second set of calls WP 2023-2024 with common deadline	Third set of calls of WP 2023-2024 with common deadline
Call Opening [107]	Q2-2023	Q3-2023	Q2-2024
Deadline for submission [108]	Q3- 2023	Q1-2024	Q3- 2024
Evaluation	Q4-2023	Q1-2024	Q4-2024
Information to applicants on the outcome of the call	Q4-2023	Q2-2024	Q4-2024
Signature of contracts	Q1/Q2-2024	Q3/Q4-2024	Q1/Q2-2025

Topics that will be included in the first and the second are listed in tables 5 and 6.

Third set of calls

Table 9: List of topics in the third set of calls with a common deadline in 2024 under this Work Programme indicatively includes:

Area	Topics in the Work Programme
Cloud to edge infrastructure	Large Scale Pilots for Cloud-to-edge Based Service Solutions
	Reference Deployments of European Cloud-edge Services
Data spaces	Green Deal Data Space
	Data Space for Skills
	Language Data Space
	Energy Data Space
	Data Space for Manufacturing (deployment)
	Agricultural Data Space
	Data Space for Public Administration

[107] The Director-General responsible for the call may delay the publication and opening of the call by up to three months.

[108] The Director-General responsible for the call may delay this deadline by up to three months.

	Supporting patients' access to their health data in the context of healthcare services for citizens across the EU
AI	AI sectorial Testing and Experimentation Facilities
	AI-on-demand platform
	Towards connected Local Digital Twins in the EU
Advanced Digital Skills	Short Term Trainings
	Specialised Education Programmes in Key Capacity Area

9 Appendices

9.1 Appendix 1 – Award criteria for the calls for proposals

Proposals are evaluated and scored against award criteria set out for each topic in the call document. The general award criteria for the Digital Europe calls are as follows:

1. Relevance:

- Alignment with the objectives and activities as described in the call for proposals
- Contribution to long-term policy objectives, relevant policies and strategies, and synergies with activities at European and national level
- Extent to which the project would reinforce and secure the digital technology supply chain in the EU*
- Extent to which the project can overcome financial obstacles such as the lack of market finance*

* This might not be applicable to all topics

2. Implementation

- Maturity of the project
- Soundness of the implementation plan and efficient use of resources
- Capacity of the applicants, and when applicable the consortium as a whole, to carry out the proposed work

3. Impact

- Extent to which the project will achieve the expected outcomes and deliverables referred to in the call for proposals and, when relevant, the plans to disseminate and communicate project achievements
- Extent to which the project will strengthen competitiveness and bring important benefits for society
- Extent to which the project addresses environmental sustainability and the European Green Deal goals, in terms of direct effects and/or in awareness of environmental effects*

*This might not be applicable to all topics and in only exceptional occasions and for duly justified reasons may not be evaluated (see specific topic conditions in the call for proposals).

9.2 Appendix 2 – Types of action to be implemented through grants

The descriptions below of the types of actions to be implemented through grants under the Digital Europe Programme is indicative and should help the (potential) applicants to understand the expectation in each type of action. The call for proposal will define the objectives and scope of the action in more detail.

SIMPLE GRANTS

Description: The Simple Grants are used by a large variety of topics and can cover most activities. The consortium will mostly use personnel costs to implement action tasks, activities with third parties (subcontracting, financial support, purchase) are possible but should be limited.
Funding rate: 50% of total eligible costs for all beneficiaries.

SME SUPPORT ACTIONS

Description: Type of action primarily consisting of activities directly aiming at supporting SMEs involved in building up and the deployment of the digital capacities. This type of action can also be used if an SME needs to be in the consortium and make investments to access the digital capacities.
Funding rate: 50% of total eligible costs except for SMEs where a rate of 75% applies.

COORDINATION AND SUPPORT ACTIONS (CSA):

Description: Small grants with the primary goal to promote cooperation and/or provide support to EU policies. Activities can include coordination between different actors for accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure. CSA may also include complementary activities of strategic planning, networking and coordination between programmes in different countries.

Funding rate: 100% of eligible costs.

GRANTS FOR PROCUREMENT

Description: Grants where most of the costs consist of buying goods or services and/or subcontracting tasks. Contrary to the grants for procurement of advanced capacities (PAC grants) (see below), for these there are no specific procurement rules (i.e. usual rules for purchase apply), nor is there a limit to 'contracting authorities/entities'. Personnel costs should be limited in this type of action; they are used to manage the grant, coordinate between the beneficiaries and prepare the procurement.

Funding rate: 50% of total eligible costs for all beneficiaries.

GRANTS FOR PROCUREMENT OF ADVANCED CAPACITIES (PAC)

Description: Grants where awarded only to beneficiaries that are "contracting authorities or contractingentities" as defined in the EU public procurement Directives (Directives 2014/24/EU[109],

[109] Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC (OJ L 94, 28.3.2014, p. 65–242).

2014/25/EU[110] and 2009/81/EC[111]) aiming at buying in innovative digital goods and services (i.e. novel technologies on the way to commercialisation but not yet broadly available).

Funding rate: 50% of total eligible costs.

GRANT FOR FINANCIAL SUPPORT

Description: Grants with a particular focus on providing financial support to third parties. The majority of the grant will be distributed via financial support to third parties with special provisions in the grant agreement, maximum amounts to third parties, multiple pre-financing and reporting obligations.

Annex 5 of the model grant agreements foresees specific rules for this type of action regarding conflict of interest, the principles of transparency, non-discrimination and sound financial management as well as the selection procedure and criteria.

In order to assure the co-financing obligation in the programme, the support to third parties should only cover 50% of third-party costs.

Funding rate: 100% of eligible costs for the consortium, co-financing of 50% of total eligible costs by the supported third party.

FRAMEWORK PARTNERSHIP AGREEMENT (FPA) AND SPECIFIC GRANT AGREEMENT (SGA):

FPAs:

Description: An FPA establishes a long-term cooperation mechanism between the granting authority and the beneficiaries of grants. The FPA specifies the common objectives (action plan), the procedure for awarding specific grants and the rights and obligations of each party under the specific agreements. The specific grants are awarded via identified beneficiary actions (with or without competition).

Funding rate: no funding for FPA.

SGAs:

[110] Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC (OJ L 94, 28.3.2014, p. 243–374); Contracting authorities
1. For the purpose of this Directive 'contracting authorities' means State, regional or local authorities, bodies governed by public law or associations formed by one or more such authorities or one or more such bodies governed by public law.
2. 'Regional authorities' includes all authorities of the administrative units, listed non-exhaustively in NUTS 1 and 2, as referred to in Regulation (EC) No 1059/2003 of the European Parliament and of the Council.
3. Local authorities' includes all authorities of the administrative units falling under NUTS 3 and smaller administrative units, as referred to in Regulation (EC) No 1059/2003.
4. Bodies governed by public law' means bodies that have all of the following characteristics:
(a) they are established for the specific purpose of meeting needs in the general interest, not having an industrial or commercial character;
(b) they have legal personality; and
(c) they are financed, for the most part, by the State, regional or local authorities, or by other bodies governed by public law; or are subject to management supervision by those authorities or bodies; or which have an administrative, managerial or supervisory board, more than half of whose members are appointed by the State, regional or local authorities, or by other bodies governed by public law.

[111] Directive 2009/81/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of procedures for the award of certain works contracts, supply contracts and service contracts by contracting authorities or entities in the fields of defence and security, and amending Directives 2004/17/EC and 2004/18/EC (OJ L 216, 20.8.2009, p. 76–136).

Description: The SGAs are linked to an FPA and implement the action plan or part of the action plan. They are awarded via an invitation to submit a proposal (identified beneficiary action). The coordinator of the FPA has to be the coordinator of each SGA signed under the FPA and will always take to role of interlocutor with the granting authority. All the other partners of the FPA can participate in any SGA. There is no limit to the amount of SGAs signed under one FPA.
Funding rate: 50% of total eligible costs.

LUMP SUM GRANT

Description: Lump Sum Grants reimburse a general lump sum for the entire project and the consortium as a whole. The lump sum is fixed ex-ante (at the latest at grant signature). The granting authority defines a methodology for calculating the amount of the lump sum. There is an overall amount, i.e., the lump sum will cover the beneficiaries' direct and indirect eligible costs. The beneficiaries do not need to report actual costs, they just need to claim the lump sum once the work is done. If the action is not properly implemented only part of the lump sum will be paid.

Funding rate: 50% of total eligible costs.

9.3 Appendix 3 – Implementation of Article 12(5) and 12(6)

As indicated in this document and detailed in the call document, for duly justified security reason, legal entities established in associated countries[112] and legal entities that are established in the Union but are controlled from third countries can be excluded from actions falling under section 3 of this Work Programme or, with respect to actions under section 2 of this Work Programme, may be eligible to participate[113] only if they comply with the requirements/conditions indicated below.

EEA EFTA countries are fully associated to the Digital Europe Programme and benefit from a status equivalent to that of the Member States. Other formally associated countries can participate under conditions described below.

The assessment of the foreign control is part of the eligibility criteria. For this, participants will be requested to fill in a self-assessment questionnaire to determine their control status during proposal submission. They will also be requested to submit supporting documents in order for the Commission to determine that the entities are not controlled from a third country.

Entities controlled from a third country and entities from associated countries can participate in topics where Article 12(6) applies, provided that they comply with certain conditions set out below. Those participants will be asked for guarantees approved by the eligible country in which they are established. The validity of these guarantees will be later assessed by the European Commission.

Conditions for foreign controlled entities

The applicants that are established in the Union but are controlled from third countries and the applicants established in an associated country shall be required to provide information demonstrating that:

(a) control over the applicant's corporate structure and decision-making process is not exercised in a manner that restrains or restricts in any way its ability to perform and complete the action;

(b) the access by non-eligible third countries or by non-eligible third country entities to classified and non-classified sensitive information[114] relating to the action will be prevented;

(c) the persons involved in the action will have national security clearance issued by a Member State where appropriate;

(d) the results of the action shall remain within the beneficiary and shall not be subject to control or restrictions by non-eligible third countries or other non-eligible third country entities during the action and for a specified period after its completion.

[112] *Participation is further limited to associated countries that meet specific conditions. In order to be eligible, a third country must be* formally associated to Digital Europe Programme and meet specific conditions (eligibility depending on the outcome of the assessment of replies to the questionnaire provided by relevant associated countries to meet these specific conditions) at the time of signature of the grant agreement.

[113] See Article 12(5) and 12(6) of the Regulation (EU) 2021/694

[114] Commission Decision 2015/444/EC, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

(e) For the topic data space for security and law enforcement, other entities will also have to prove that they will only perform specific and clearly defined tasks.

(f) For applicants established in the EU and controlled from a third country and established in Associated Countries that they are not subject to export restrictions to EU Member States on results, technologies, services and products developed under the project for at least 4 years after the end of the action, in order to ensure the security of supply.

More information about the procedure, the conditions and the guarantees will be detailed in the call documents and the online manual in the EU Funding & Tenders portal.

Procurement actions will also be subject to these restrictions (Articles 12(5) and 12(6)) and, when applying Article 12(6), will use the same conditions as calls for proposals (a, b, d and e). More information will be published in the Funding and tenders portal and in the procurement-related document.

9.4 Appendix 4 – The initial list of areas of activity for Multi-Country projects, as per Path to the Digital Decade Policy Programme Annex

Non-exhaustive areas of activity:

(a) European common data infrastructure and services;

(b) Endowing the Union with the next generation of low-power trusted processors;

(c) Developing the pan-European deployment of 5G corridors;

(d) Acquiring supercomputers and quantum computers, connected with the EuroHPC;

(e) Developing and deploying an ultra-secure quantum and space-based communication infrastructures;

(f) Deploying a network of security operations centres;

(g) Connected public administration;

(h) European blockchain services infrastructure;

(i) European digital innovation hubs;

(j) High-tech partnerships for digital skills through the Pact for Skills;

(k) Skills and training in cybersecurity;

(l) Other projects which meet all the criteria of Article 12 of this Decision and which become necessary to the achievement of the objectives of the Digital Decade policy programme over time due to emerging social, economic or environmental developments.

9.5 Appendix 5 - Abbreviations and Acronyms

Abbreviation/ Acronym	Definition
1+MG	1+Million Genomes initiative
ADR	Alternative Dispute Resolution
AI	Artificial Intelligence
API	Application Programming Interface
B2G	Business-to-Government
BDTI	Big Data Test Infrastructure
BIK	Better Internet for Kids
BORIS	The Beneficial Ownership Registers Interconnection System
BRIICS	Brazil, Russia, India, Indonesia, China, and South Africa
BRIS	The Business Registers Interconnection
BSc	Bachelor of Science
CAP	The Common Agricultural Policy
CEF	The Connecting Europe Facility
CELT	Centre of Excellence for Language Technologies
CIRPASS	The Ecosystem Digital Product Passport
CSA	Coordination and Support Action grant
CSAM	Online Child Sexual Abuse Material
D&E	Dissemination and Exploitation
DDPP	The Digital Decade Policy Programme
DEI	The Digitizing European Industries initiative
DestinE	Destination Earth
DIGITAL	The Digital Europe Programme
DIGITAL	The Digital Europe Programme
DMA	The Digital Markets Act
DoEAP	The Digitalisation of Energy Action Plan
DPP	Digital Product Passport
DSA	The Digital Services Act
DSCs	Digital Services Coordinators
DTO	Digital Twin Ocean
EBP	The European Blockchain Partnership
EBSI	The European Blockchain Services Infrastructure
ECCC	The European Cybersecurity Competence Centre
ECMWF	The European Centre for Medium-Range Weather Forecasts
ECP	The European Central Platform
ECTS	The European Credit Transfer System
EDIC	The European Digital Infrastructure Consortium
EDIHs	European Digital Innovation Hubs
EDMO	European Digital Media Observatory
EEA EFTA	European Economic Area and the European Free Trade Association countries (Iceland, Liechtenstein, and Norway)
eEDES	e-Evidence Digital Exchange System
EFTA	The European Free Trade Association

EHDS	The European Health Data Space
eID	European Digital identity
eIDAS	Electronic Identification, Authentication and trust Services
EIF	European Interoperability Framework
EIT	European Institute of Innovation & Technology
eLab	Common Platform for Online Investigations and Law Enforcement
ENISA	The European Union Agency for Cybersecurity
ENSO	The El Niño-Southern Oscillation
ERDF	The European Regional Development Fund
ERIC	The European Research Infrastructure Consortia
ESA	The European Space Agency
ESAP	The European Single Access Point
ESAs	European Supervisory Authorities
ESMA	The European Securities and Markets Authority
ESPD	The European single procurement document
ESPR	Ecodesign for Sustainable Products Regulation
ESTEAM	Entrepreneurship, Science, Technology, Engineering, Arts and Mathematics
eu-LISA	The European Union Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security and Justice
EUMETSAT	The European Organisation for the Exploitation of Meteorological Satellites
EuroHPC JU	The European High Performance Computing Joint Undertaking
EuroQCI	The European Quantum Communication Infrastructure
FPA	Framework Partnership Agreement
GDP	Gross Domestic Product
GDPR	The General Data Protection Regulation
GoE	The Genome of Europe
HaDEA	European Health and Digital Executive Agency
HPC	High-Performance Computing
HVD	High Value Datasets
ICT	Information and Communications Technology
ICU	Intensive Care Unit
INHOPE	International Association of Internet Hotlines
IoT	Internet of Things
IP	Intellectual Property
IPCEI	Important Projects of Common European Interest
IPCEI-CIS	Important Project of Common European Interest on Next Generation Cloud and Edge Infrastructure and Services
ISCED	The International Standard Classification of Education
JITs CP	The Joint Investigation Teams Collaboration Platform
JRC	The Joint Research Centre
JU	Joint Undertaking
KPI	Key Performance Indicators
LDS	Language Data Space
LSPs	Large Scale Partnerships
MCPs	Multi-Country Projects
MLA	Mutual Legal Assistance

MOOCs	Massive Open Online Courses
MSc	Master of Science
NCAs	National Competent Authorities
NCCs	The Network of National Coordination Centres
NCPs	National Contact Points
NIS Directive	The Directive on Security of Network and Information Systems
NIS2 Directive	Revised NIS Directive
NLP tools	Natural Language Processing tools
OAM	Officially Appointed Mechanisms
ODR	Online Dispute Resolution
OOTS	Once Only Technical System
RACI	Role, Accountability, Consulted and Informed
RTOs	Research and Technology Organisations
SEMIC	Semantic interoperability community
SIC	Safer Internet Centre
SICs	Network of Safer internet Centres
SIMPL	Smart Middleware for a European cloud federation and for the European data spaces
SLA	Service Level Agreement
SMEs	Small and Medium-sized Enterprises
SOs	Specific Objectives
STEM	Science, Technology, Engineering, and Mathematics
TEFs	Testing and Experimentations Facilities
TESTA	Trans-European Services for Telematics between Administrations
UX	User experience
VAT	Value Added Tax
VET	Vocational and Educational Training
VHT	Virtual Human Twin
VLOPs	Very Large Online Platforms
VLOSEs	Very Large Online Search Engines
VR/AR	Virtual Reality and Augmented Reality
WGS	Whole Genome Sequencing
WP	Work Programme
XR	Extended reality