

Digital Europe programme

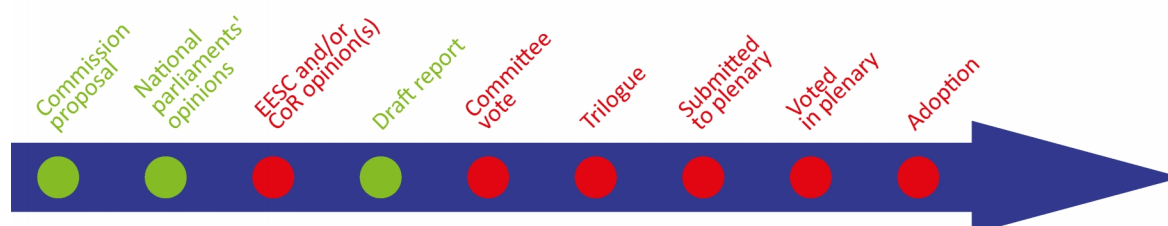
Funding digital transformation beyond 2020

OVERVIEW

In the framework of the next long-term EU budget for 2021-2027, the Commission is proposing a new, €9.2 billion programme to build up digital capacity and infrastructure and support a digital single market. It will operate mainly through coordinated and strategic co-investments with the Member States in the areas of advanced computing and data, artificial intelligence, and cybersecurity, their uptake and optimal use in the private and public sectors and boosting advanced digital skills. According to the Commission, the programme will help European societies and businesses to make the most of the ongoing digital transformation. The Commission sees the potential for efficiency gains in exploring complementarities and synergies with other planned programmes such as Horizon Europe, the Connecting Europe Facility and the European Regional Development and Cohesion Funds.

In the European Parliament, the file has been allocated to the Committee on Industry, Research and Energy (ITRE). The draft report was published on 13 July 2018 and the vote in committee is expected in December.

Proposal for a regulation of the European Parliament and of the Council establishing the Digital Europe programme for the period 2021-2027		
<i>Committee responsible:</i>	Industry, Research and Energy (ITRE)	COM(2018) 434 6.6.2018
<i>Rapporteur:</i>	Angelika Mlinar (ALDE, Austria)	2018/0227 (COD)
<i>Shadow rapporteurs:</i>	Pilar del Castillo Vera (EPP, Spain) Carlos Zorrinho (S&D, Portugal) Ashley Fox (ECR, United Kingdom) Paloma López Bermejo (GUE/NGL, Spain) Reinhard Bütikofer (Greens/EFA, Germany) Dario Tamburrano (EFDD, Italy) Barbara Kappel (ENF, Austria)	Ordinary legislative procedure (COD) (Parliament and Council on equal footing – formerly 'co-decision')
<i>Next steps expected:</i>	Vote in committee	



Introduction

The EU has been making [efforts](#) to establish a genuine digital single market since the mid-1990s. Digital technologies, and the internet in particular, have increasingly been [transforming](#) our world, and the need to move from 28 national digital markets to a single one has never been more important. While the EU has undoubtedly made progress in nurturing a more integrated digital economy and more digitally inclusive society, the work to adapt to new realities continues as technological progress accelerates, creating both new opportunities and new risks.

Digitalisation brings new ways of capturing and generating value and has enormous potential – the World Economic Forum estimates that the [global value](#) of digital transformation to society and industry could be greater than US\$100 trillion by 2025. Furthermore, a [study](#) by the European Parliamentary Research Service (EPRS) shows that the potential gain in gross domestic product (GDP) from a complete digital single market could amount to €415 billion annually, which corresponds to as much as 3 % of EU GDP. Accenture Strategy [estimates](#) that the digitalisation of Europe may bring as much as €4 billion in value per day. However, the extent to which Europeans will benefit from this significant potential and how much economic growth will be created very much depends on making sound policy choices supported by productive investments now.

Deeper integration of digital markets is one of the Juncker Commission's main [priorities](#), pursued mainly through the actions of the [digital single market strategy](#). EPRS [estimates](#) show that, as of September 2018, as many as 92 % of all announced initiatives in this field had been submitted by the Commission to the co-legislators. However, much remains to be done. The Commission has identified crucial enablers of successful digital transformation where state-of-the-art digital capacity must be created: technologies in the fields of advanced computing and data, artificial intelligence (AI) and cybersecurity, and their uptake and optimal use in the private and public sectors, and measures to provide society with the appropriate digital skills to use these technologies.¹

Consequently, the digital single market needs to be supported in the longer term in order to further advance Europe's digital transformation to the benefit of citizens and businesses. The [vision](#) for the policy direction in this respect was agreed by the Heads of State or Government during the Tallinn Digital Summit in 2017. Furthermore, the European Parliament has underlined on numerous occasions the need to secure appropriate [financing](#) for digital policies, particularly for [action](#) to complete the digital single market. Therefore, in order to provide adequate support for the EU's digital transformation beyond 2020, the Commission has proposed a new funding programme called [Digital Europe](#) with a €9.2 billion financial envelope.

Context

The single market programme is part of the 2021-2027 [multiannual financial framework](#) (MFF). The expenditure side of the next long-term EU budget proposed by the Commission totals €1 134 583 million in commitments and €1 104 805 million in payments (in 2018 prices), equivalent to 1.11 %, and 1.08 % of the EU-27's gross national income (GNI) respectively.² There are differences between the structures of the future and the current MFF. The number of headings has changed from five to seven, and some programmes have switched headings. Furthermore, the number of programmes has been reduced from 58 to 37. An EPRS [analysis](#) argues that this demonstrates that the focus has been shifted from the Europe 2020 strategy 'towards other EU priorities, such as the digital economy', research and innovation. The Commission also proposes to change the rules in order to increase flexibility.³

The Digital Europe Programme has been included under heading 1: 'Single Market, innovation and digital', which constitutes almost 15 % of the MFF. Other larger components of the heading are [Horizon Europe](#) (currently Horizon 2020), with €86.6 billion (up by 29 %), the [Connecting Europe Facility](#) with €21.7 billion (up by 19 %), the [European Space programme](#) with a budget of €14.2 billion (up by 26 %) and [InvestEU](#) Fund with €13 billion.

Existing situation

It is worth noting that Digital Europe is the first ever funding programme dedicated solely to supporting digital transformation in the EU. Under the current MFF, digital policies are financed through various programmes and instruments. The biggest source of support (around €13 billion) is the Horizon 2020 programme through its [Excellent Science](#) pillar, particularly under the [future and emerging technologies](#) and [research infrastructures](#) objectives and activities. These focus on 'upstream' research, innovation and investment, all aimed at generating technological breakthroughs with broad benefits for the digitalisation of companies and society, and securing the capacity needed to advance innovation and technological progress. More sector-specific research relating to information and communication technologies (ICT), which can be driven for example by industrial roadmaps, is financed by the [Leadership in enabling and industrial technologies](#) (LEIT) part of Horizon 2020. Funding also comes from the [societal challenges](#) strand, which deploys ICT in order to achieve essential EU policy objectives in the areas of health, ageing, climate, environment, energy, transport, public sector modernisation, and security. The programme operates mainly through public-private partnerships for research and innovation in digital technologies such as photonics, future internet, cybersecurity, high-performance computing (HPC), 5G, electronics components and systems, and factories of the future. Horizon 2020 also supports the integration of businesses, research centres and universities in the digital knowledge and innovation community of the European Institute of Innovation and Technology and funds research into technologies that support teaching and learning.

The implementation of the digital single market and the deepening of its local and regional dimensions are funded by the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the European Agricultural Fund for Rural Development (EAFRD). The ERDF supports the digitalisation of industry as envisaged in the [smart specialisation](#) strategies (including investments in the [digital innovation hubs](#) – DIHs) and deployment of digital solutions in delivering EU priorities.⁴ The ERDF and the EAFRD also make investments in broadband networks. The latter also promotes digital innovation in farming. National and regional authorities can support digital skills development through the ESF. The funds do not have a dedicated digital component, but together they have a financial envelope of over €20 billion under the current MFF. Furthermore, the [Connecting Europe Facility](#) (CEF) promotes investment in trans-European networks and infrastructures in the telecommunications sector. [CEF Telecom](#) is an instrument that facilitates cross-border interaction between public administrations, businesses and citizens, with the use of [digital service infrastructures](#) and broadband networks. It also supports free Wi-Fi connectivity in public spaces through the [WiFi4EU](#) initiative, as well as investments in cybersecurity. Total support for trans-European digital services under the CEF amounts to roughly €1 billion under the current MFF.

Adaptation of the creative sector to digital transformation is financed by the [Media](#) sub-programme of the Creative Europe programme. Media support covers new technologies and platforms that help raise the profile of emerging artists and the testing of new business models that deploy innovative technologies. Total support for digital measures available under the Creative Europe programme totals €1 billion.

In order to facilitate electronic interactions (cross-border or cross-sector) between European public administrations, citizens and businesses, the [ISA2](#) programme supports research into interoperability solutions with a total budget of €131 million.

Furthermore, since 2016, the Commission has announced and in some cases launched a number of policy initiatives to be supported under Digital Europe. These include [high performance computing](#) (HPC) under the Euro HPC initiative, the [FinTech](#) action plan, [artificial intelligence](#), promoting fairness and transparency for business users of [online intermediation services](#), the observatory on the [online platform economy](#), the [European data space](#), [cybersecurity](#) measures, the digital transformation of [health](#) and [education](#), a [renewed industrial policy strategy](#), [the digitalisation of European industry](#) and the [new skills agenda](#) for Europe.

Parliament's starting position

In its [resolution](#) of 14 March 2018 on the post-2020 MFF, Parliament underlined the importance of securing financing for completing the digital single market and stressed that CEF Telecom should continue to support digital services infrastructure and high-speed broadband networks. It also argued that the next long-term budget should 'support digital transformation of the European economy and society and invest in essential technologies such as big data, artificial intelligence or high-performance computing, in infrastructure and in digital skills in order to enhance the EU's competitiveness and improve the quality of life of Europeans'. Parliament considered providing support for digitalisation to be one of the main objectives of the future cohesion policy funds and underlined that the development of digital literacy should remain one of the EU's top priorities.

Council and European Council starting position

The [conclusions](#) of the September 2017 Tallinn Digital Summit presented a vision for digitising Europe until 2025, set out by the Heads of State or Government. It envisages that the EU should invest in key areas such as high performance computing and data, transformation of industry, digital skills, cybersecurity, artificial intelligence, and digitalisation of public sector and government. These conclusions were [endorsed](#) by the subsequent European Council in October 2017, which added that prerequisites for successfully building digital Europe include future-oriented regulatory framework, cutting-edge infrastructure and communications networks, measures against terrorism and online crime, a determined research, development and investment effort, and action to address emerging issues such as blockchain technologies. At the same time, Council called for measures to ensure a high level of data protection, digital rights and ethical standards. Based on previous positions on policy fields covered by the programme, the majority of Member States seem to support more action, aligned strategies and co-investment to advance these high-priority areas.⁵

Preparation of the proposal

The consultation activities, which took place in preparation for the [impact assessment](#), ranged from stakeholder conferences and events, to expert groups, an on-line consultation, workshops, meetings and seminars and analysis of the position papers. The Commission says that the results of the [stakeholder consultations](#) show support for a more efficient, less fragmented approach so as to maximise the benefits of digital transformation for all EU citizens and businesses. The Commission carried out various evaluations of programmes funding the policies fundamental for the digital transformation of the economy and society. It carried out six online public consultations for the MFF proposals clustered by policy area but no dedicated consultation on the programme. The Commission examined the EU's 'support for research, technological development, demonstration, piloting, proof-of-concept, testing and innovation including pre-commercial deployment of innovative digital technologies under Horizon 2020, support for digital infrastructure projects under the CEF – where experience under the current MFF showed that the programme was best suited for physical connectivity – and support for media under the Creative Europe Programme'.⁶ Despite confirming that these are valuable projects that need to be continued in the next MFF, the Commission observed that they are not sufficient because they do not provide a strong enough push for 'the EU as a whole to act as first mover in acquiring common digital capacities in essential areas that underpin growth, jobs and the sustainability of high quality public services'. The impact assessment then examined lessons learned from the current programmes in each policy area.

Regarding computing, issues that impact on the efficiency of existing programmes include the existence of different funding streams, not enough strategic and rational planning of development and procurement, the rigidity of the CEF and the insufficient scope of possible actions under Horizon 2020. In the field of cybersecurity, there is inadequate focus on large-scale deployment and the essential role of public-sector investment in purchasing the latest cybersecurity technology. Furthermore, problems reported in the area of artificial intelligence are the lack of important

capacities essential for developing AI (for example large data sets or facilities integrating the latest technologies into real scale testing and experimentation). Horizon 2020 funding covers development up to the pilot phase but usually not full-scale deployment. Concerning public administration, only the very initial steps towards EU-wide digitalisation are supported. Furthermore, funding available under the CEF and ISA2 covers needs only [partially](#). Similarly, the take-up of and access to the latest digital technologies, particularly through the DIHs, by businesses and particularly small- and medium-sized enterprises (SMEs) across the EU is only at a very early stage.

Initially, the impact assessment received a negative opinion from the regulatory scrutiny board.⁷ Acceptance with reservations was granted after the report was revised and restructured, highlighting links to existing digital policy programmes, particularly Horizon 2020. The revised version also clarified the intervention logic, delivery modes and added value of the programme. The EPRS has carried out an [initial appraisal](#) of the impact assessment.

The changes the proposal would bring

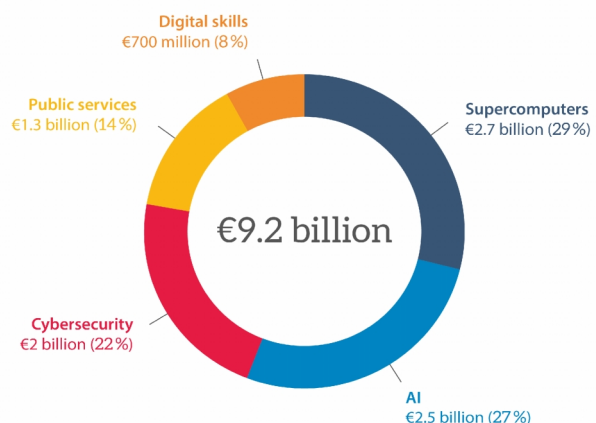
The Commission considers that in order to benefit fully from the digital transformation, the EU needs to build cutting-edge digital capacity in critical areas such as supercomputing and data, artificial intelligence and cybersecurity. In addition, these capacities need to be supported by advanced digital skills and made available and deployed by the private and public sectors, across societies and economies. The financial envelope is €9.194 billion, €8.192 billion in constant prices (see Figure 1).

Regarding supercomputing, the Commission intends to develop and reinforce high-performance computing and data processing capabilities to achieve exascale capabilities by 2022-2023 and post-exascale facilities by 2026 or 2027.⁸ This would be achieved by means of a joint procurement framework, EU-level coordination and pooling of financing, networking of national capacities, creation of competence centres (one per Member State) and deployment of technology when it becomes available. Measures would be implemented via the [EuroHPC joint undertaking](#) with the financial envelope already planned as per the Council [decision](#) on EuroHPC.

Measures supporting AI capacities – such as data resources and repositories of algorithms and their take-up by businesses, public administrators and researchers – would include creation of open common European data spaces, development of open European libraries of algorithms, and co-investment with Member States in sites for experimentation and testing of AI applications in sectors such as health, mobility, security, manufacturing and finance. Grants in this field would be awarded directly by the Commission or through its agencies.

Cybersecurity capacity would be boosted by co-investment with Member States in advanced cybersecurity equipment, infrastructures and knowledge, the scaling-up and networking of existing technological capacities in competence centres in the Member States (at least one per country by 2022) and tailoring them to the needs of the public sector and industry, ensuring wide use of cybersecurity and trust solutions across the Member States, and supporting the development of

Figure 1 – Estimated breakdown of Digital Europe funding in current prices



Data source: [European Commission](#), 2018.

cybersecurity skills. By 2025, encryption techniques would have to be able to resist [quantum computing](#). Most activities would be carried out by a [European cybersecurity research and competence centre](#) and network.

The programme would also fund measures ensuring easy access to advanced digital skills, particularly in supercomputing, AI and cybersecurity, focusing on students, recent graduates, and existing workers. These would include access to on-the-job training, courses in advanced digital technologies, and short-term certified, professional training courses. The DIHs would be involved in the design, implementation and delivery of specific interventions in this policy field. The aim would be to increase specialist employment from 8.2 million in 2016 to at least 12.3 million in 2027 and the annual growth rate in the number of specialists from 3.3 % (2007-2016) to 4.3 % (2016-2027).

Digitalisation of areas of public interest such as administration, healthcare, education, justice, smart cities and culture and education would also be supported by the Digital Europe programme. Measures envisaged would include assisting Member States with implementation of the e-Government principles,⁹ enabling health data to be accessed, shared, used, and managed securely across borders, ensuring access of researchers to data in order to fight disease, improving access to justice and judicial information and cross-border electronic communication in the area of civil and criminal justice, supporting large-scale digital applications in smart cities, and providing the creative industry in Europe with access to the latest digital technologies. To accelerate the uptake of digital technologies, the programme would also help to boost the DIHs by upscaling their infrastructure and technology facilities and making them accessible for both private and public sectors. The goal would be to achieve 270 hubs in the EU, carry out 90 experiments per hub, and reach 42 000 SMEs.

Main links to other EU programmes according to the Commission

The Digital Europe programme (DEP) would build up large-scale digital capacity and infrastructure implemented mainly through coordinated and strategic co-investments with Member States (joint public procurement). It would also support interoperability and standardisation. [Horizon Europe](#) would develop new technologies to be deployed by the DEP, and use capacities created by it. Operating procedures and the strategic programming of both would be aligned. A renewed [Connecting Europe Facility](#) would provide the infrastructure necessary to the success of the DEP, such as high-capacity broadband and 5G corridors, and use the cybersecurity solutions developed through it. The DEP would also provide the capacity and infrastructure necessary for the digital transformation of the economy at regional level as supported by the European Regional Development and Cohesion Funds. It would also complement [European Social Fund+](#) and the [Global Adjustment Fund](#) in developing digital skills and investment in digital transformation under the [InvestEU Fund](#). It is worth noting that the funding proposed for Horizon Europe and CEF2 falls well short of the European Parliament's [demands](#).

Advisory committees

The [European Economic and Social Committee](#) is expected to vote on its opinion during the October 2018 plenary session. The [Committee of the Regions](#) held a preparatory consultation with stakeholders in July and the draft report is scheduled to be discussed in the Commission for Social Policy, Education, Employment, Research and Culture (SEDEC) on [18 October 2018](#).

National parliaments

None of the 12 parliamentary chambers from the 10 Member States that scrutinised the proposal raised [subsidiarity](#) concerns by the deadline of 10 September 2018.

Stakeholders' views¹⁰

[Digital Europe](#), which represents the digital technology industry, welcomed the creation of the Digital Europe programme and asked for the co-legislators to safeguard or increase the proposed amounts in the budget negotiations. [ETNO](#), the association representing Europe's major telecom

operators, welcomed the inclusion of the Digital Europe programme in the MMF and called for the budget dedicated to digitalisation to be doubled as compared with the present MMF.

[EARTO](#), the European Association of Research and Technology Organisations, emphasised that the programme is targeting key issues for Europe's future and that it is the first time that a dedicated programme has funded capacity-building. It asked for the definition of the DIHs to be broadened to include a consortium of legal entities and their role in validating the technologies.

[AIOTI](#), the Alliance for Internet of Things Innovation, welcomed the programme's synergies with Horizon Europe and CEF2. It recommended explicit inclusion of the internet of things in the programme by providing businesses and innovators with open platforms and access to industrial data spaces and by investing in the relevant cybersecurity infrastructure and supporting skills and knowledge.

[Eurosmart](#), representing the cybersecurity industry, welcomed the proposal but regretted that the increase in cybersecurity capacities would be scattered among different initiatives as there was no one master plan to support cybersecurity in Europe. It also called for the possibility to import AI and supercomputing technologies from third countries and extend the dimensions of cybersecurity in the proposal to avoid segmenting the effect of public action. Eurosmart underlined the importance of including advanced digital skills from preschool onwards for new generations. It also called for the links between public-private partnerships, the EU network of competence centres and the DIHs to be strengthened.

The Luxembourg Centre of Systems Biomedicine ([LCSB](#)) highlighted that the creation of parallel structures with Horizon Europe should be avoided and that alignment with this programme needed to be substantiated further. The [CSC](#) - IT Center for Science, a Finnish non-profit company, criticised the process of developing the DEP as being insufficiently transparent and ambitious. It underlined that no dedicated public consultation had been carried out for the programme as a whole. Consultation was for separate parts, with 'no indication of how these parts would be put together as a full programme'.

Legislative process

In Parliament, the lead committee for the [file](#) is the Committee on Industry, Research and Energy (ITRE), while the Committees on Budgets (BUDG), Environment, Public Health and Energy (ENVI), Internal Market and Consumer Protection (IMCO), Transport and Tourism (TRAN), Legal Affairs (JURI), Civil liberties, Justice and Home Affairs (LIBE) and Culture and Education (CULT) have been asked for an opinion. The programme was presented to ITRE committee by Commissioner Mariya Gabriel in June 2018.

On 13 July 2018, the rapporteur (Angelika Mlinar, ALDE, Austria) presented the draft [report](#). It proposes that work programmes for specific areas be drafted under the scrutiny of the Parliament so that the main goal of the programme (capacity building) is not diluted. The rapporteur suggests limiting eligible entities to those established in the EU and questions cooperation with third countries in the specific context of this programme. The report sees the need for a specific mention of respect for ethical requirements (particularly in the case of AI research) and sees the establishment of at least one DIH per region as priority. It considers the financial envelope to be a minimal amount to steer the programme towards success. Realising synergies between the programme and other EU funding instruments will be key to the efficient management of funds. Furthermore, the rapporteur proposes to add 'encouraging open source solutions' to the scope of the programme to improve the sustainability of the projects funded and increase the focus of DIHs on assisting SMEs, start-ups and mid-caps. The report stresses the need to address the gender gap within the ICT sector. The creation of 'European Partnerships' is envisaged, within which the EU, together with private and public partners, will commit jointly to support digital innovation and its deployment. These will be established in cases where achievement of the objectives of the

programme would be more efficient than with EU actions alone. The draft report was discussed in the ITRE committee meeting on 3 September 2018 and the [vote](#) is scheduled for December 2018.

EP SUPPORTING ANALYSIS

Dobrev A., [Multiannual Financial Framework 2021-2027: Commission Proposal - Initial comparison with the current MFF](#), EPRS, European Parliament, May 2018.

Eisele K. [Launching the Digital Europe programme](#), initial appraisal of a European Commission impact assessment, EPRS, European Parliament, October 2018.

Parry M. and Sapała M., [2021-2027 multiannual financial framework and new own resources: Analysis of the Commission's proposal](#), EPRS, European Parliament, July 2018.

OTHER SOURCES

[Digital Europe programme 2021–2027](#), European Parliament, Legislative Observatory (OEIL).

[Digital Europe Programme – legal texts](#), European Commission.

ENDNOTES

- ¹ The 2017 Mid-term Review of the Digital Single Market Strategy also mentions these areas as crucial and adds the role of online platforms, the fight against illegal content and the building up of the European data economy as crucial for the successful digital transformation of businesses and society.
- ² Superficially, this constitutes an increase on the 2014 to 2020 MFF, which amounts to 1.02 % of EU-28 GNI (commitments). However, factors such as the incorporation of the European Development Fund for the first time and the United Kingdom's expected withdrawal from the EU invalidate such simple comparisons. Importantly, the MFF is well below 1.3 % of EU GNI [demanded](#) by the European Parliament in March 2018.
- ³ This is to be achieved principally by creating a Union reserve and increasing the sums budgeted for special instruments.
- ⁴ This concerns areas such as modernisation of public administrations, sustainable transport, improvements to health and care systems, energy transition, the circular economy and education.
- ⁵ For details refer to Section 1.4 of the impact assessment 'Member States engagement', pp. 8-10.
- ⁶ For details refer to Section 1.2 of the impact assessment 'Lessons learned from previous programmes', pp. 5-7.
- ⁷ The RSB's reservations and the Commission's response are discussed in detail in Section 3 of Annex 1 to the impact assessment.
- ⁸ Capable of at least a billion or 10^{18} calculations per second.
- ⁹ As agreed in the 2017 [Tallinn Declaration](#).
- ¹⁰ This section aims to provide a flavour of the debate and is not intended to be an exhaustive account of all different views on the proposal. Additional information can be found in related publications listed under 'EP supporting analysis'.

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