DIGITAL EUROPE
for a more competitive, autonomous and sustainable Europe

#EUBudget #FutureofEurope
(Disclaimer: the content of this brochure is based on the Digital Europe draft Orientations paper published along with the online consultation on the EU Survey web site. The purpose of the draft Orientations is to reach a shared understanding of the Digital Europe programme’s scope for 2021-2022 and to guide the preparation of the work programmes for this period. The draft Orientations are based on the Digital Europe Regulation currently under negotiation).
WHAT IS THE DIGITAL EUROPE PROGRAMME?

As part of the next long-term EU budget, the Multiannual Financial Framework, the Commission has proposed the Digital Europe programme, the EU’s programme focused on building the strategic digital capacities of the EU and on facilitating the wide deployment of digital technologies, to be used by Europe’s citizens and businesses.

With a proposed overall budget of €9.2 billion, it will shape and support the digital transformation of Europe’s society and economy.

The programme will boost investments in supercomputing, artificial intelligence, cybersecurity, advanced digital skills, and ensuring a wide use of digital technologies across the economy and society.

WHAT IS THE PROPOSED BUDGET FOR 2021-2027?

€9.2 billion for:

- **High Performance Computing** (€2.7 billion)
- **Artificial Intelligence** (€2.5 billion)
- **Cybersecurity** (€2 billion)
- **Advanced digital skills** (€700 million)
- **Ensuring a wide use of digital technologies across the economy and society** (€1.3 billion)
WHY DO WE NEED A DIGITAL EUROPE PROGRAMME?

- To compete globally. Other regions in the world invest huge amounts of public capital in advanced digital capacities in order to boost their competitiveness, modernise their public sector and protect their society and economy. For example, the US and China spend €10-20 billion annually on artificial intelligence alone.

- To achieve scale through collective co-investment. Given the risks involved, the size of investments needed and the scale required to create lucrative user markets, Europe needs to work together.

- To regain control over Europe’s value chains and ensure Europe’s strategic autonomy.

- To better address Europe’s economic and societal challenges (e.g. climate, health, mobility, public services) by providing the necessary digital infrastructure and services.

- To ensure broad take up of digital technologies across all regions of Europe, especially where demand is greatest.

HOW TO ACHIEVE OUR GOALS?

- By building strategic digital capacity.

- By widening diffusion and uptake of digital technologies in the private sector and in areas of public interest.

- By boosting investment in high performance computing, artificial intelligence, cybersecurity and advanced digital skills.

- By strengthening the network of European Digital Innovation Hubs to ensure wide use of digital technologies in all regions across Europe.
SUPPORT FOR EUROPEAN HIGH IMPACT PROJECTS

High impact projects aim to build on Europe’s strengths and ensure robust European industrial and technology coverage of key parts of the digital supply chain through collective public and private effort.

Examples of High impact projects include:

- World-leading computing and data processing capacities: HPC and Quantum
- European low-power microprocessor initiative
- Artificial intelligence
- Cybersecurity shield: Quantum communication infrastructure (EuroQCI)
- 5G and beyond: towards smart high-speed cross-border connectivity networks
- European Blockchain Services Infrastructure
- Linking international and national environmental data to fight climate change
- Digital Innovation Hubs: Enabling SMEs to benefit from the digital transformation

Depending on the targets, beneficiaries and deliverables, financing will come from a combination of relevant EU programmes, national and regional budgets, including Digital Europe, the digital part of Horizon Europe, European Regional and Development Fund, Invest EU, Member States and the private sector.

Successful initiatives in areas such as microelectronics and advanced computing have shown that it is possible to achieve a step change in competitiveness by pooling efforts and resources to achieve common goals.

Reversing the trend: revenues of main EU semiconductor companies, billion €
DIGITAL EUROPE ACTIVITIES IN THE FIRST TWO YEARS

Building Essential Digital Capacities

High Performance Computing: World-leading computing and data handling capacities

WHAT IS HIGH PERFORMANCE COMPUTING?
High Performance Computing (HPC) is the ability to process data and perform complex calculations at high speeds. A so-called “petascale” supercomputer can perform at least 1 million billion calculations per second, while “exascale” supercomputers can perform a billion billion calculations per second, arguably the same as a human brain.

WHY DO WE NEED HIGH PERFORMANCE COMPUTING?
HPC is crucial for solving highly complex problems, advancing knowledge and improving performance. It is used in a wide variety of fields such as weather forecasting (climate), molecular modelling (health) and physical simulations (mobility).

- Acquire exascale and new petascale machines while upgrading existing supercomputers.
- Develop European access to supercomputers and federate European HPC and data resources.
- Widen the use of supercomputers and improve access in areas of public interest such as health, environment and security, and in industry, including small and medium-sized enterprises.
WHAT IS ARTIFICIAL INTELLIGENCE?

Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals. Many AI approaches critically depend on the availability of data to achieve their results, or use learning methods to perform optimally or improve over time.

WHY DO WE NEED ARTIFICIAL INTELLIGENCE?

AI applications are boundless. They include helping, with repetitive or dangerous tasks, the diagnosis and treatment of diseases, finding structured patterns in vast amounts of data and predicting climate change. AI applications can boost productivity by bringing economic gains, societal progress and environmental sustainability.

Establish EU-wide common data spaces building on public and private sector data sets.

Develop large-scale reference testing and experimentation facilities and scale up the European Artificial Intelligence On-Demand Platform.

Data spaces cover key industrial and societal sectors (e.g. health, climate, environmental, manufacturing, agriculture, energy, financial and mobility data) and high value datasets from the public sector (including space, geospatial and earth observation/environment data).

WHAT DOES A DATA SPACE INCLUDE?

- IT systems (digital industrial and personal data platforms);
- domain-specific data governance frameworks putting into effect an overall technical governance framework;
- standards, including semantic standards and interoperability protocols – both domain-specific and cross-cutting;
- competitive and seamless access to and use of cloud infrastructures.
Cybersecurity and Trust: Creating a cyber-shield for Europe

- **Build a cybersecurity shield** by deploying a quantum-secured public communication infrastructure
  - Deploy Quantum Key Distribution, an ultra-secure form of encryption, in large-scale networks.
  - Develop a European cyber threat information network.

- Complete **certification schemes and testbeds** for 5G
  - Extend it to IoT tool providers, SMEs and hospitals.

- Support **faster validation and market take-up** of innovative cybersecurity solutions by businesses and public buyers.

- Strengthen capacity-building and cross-border cooperation on cybersecurity
  - among Member State bodies and industry stakeholders, including Information Sharing and Analysis Centres (ISACs).

Advanced Digital Skills: Equipping today’s citizens for tomorrow’s challenges

- **Support Master’s programmes in cutting-edge digital technologies** developed together with EU excellence centres in artificial intelligence, cybersecurity and high performance computing.
  - offering 160 new Master’s programmes training 80,000 digital specialists.

- **Support short-term specialised training courses in advanced digital technologies** for around 150,000 job seekers and employed people, especially in SMEs.
  - equipping them with the competences that will enable the deployment of advanced digital technologies across all sectors of the economy.

- **Support job placements** in companies and research centres where advanced digital technologies are developed or used
  - giving people the opportunity to learn specialist skills working with the latest available technologies.
90% OF JOBS IN ALL SECTORS OF THE ECONOMY REQUIRE DIGITAL SKILLS.

Almost **9 million people are employed as ICT specialists** in Europe. **More than half of them work outside the ICT sector** in areas such as banking, manufacturing, healthcare and pharmaceuticals.

**53% of companies looking for ICT specialists report difficulties in recruiting them** and consequently cannot expand their businesses.

Only **17% of ICT specialists are women**.

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**European Digital Innovation Hubs**

- Set up a network of European Digital Innovation Hubs covering all regions of the EU.

The European Digital Innovation Hubs (EDIH) will provide:

- access to technology testing (including awareness raising, digital maturity assessment, knowledge and technology transfer)
- financing advice (including supporting the preparation of business models, access to financial institutions and investors)
- information about advanced digital skills training and education opportunities
- networking opportunities (including technology scouting and brokering between end-users and potential suppliers of technological solutions)
Networking, Transfer of expertise

HPC Competence Centres

Cybersecurity Competence Centre Network

AI Testing and Experimentation Facilities

Train the trainer

Request specialised support

Advanced Digital Skills

European DIH X Region A Specialisation 1

European DIH Y Region B Specialisation 2

European DIH Z Region C Specialisation 3

Public administrations

SMEs/Midcaps

Aiming for High Impact Deployments

- Actions addressing **climate and environment** (digital for a clean planet, sustainable and smart communities and mobility, agri-food).
- Actions addressing **public services** (digital transformation for better and sustainable health and care, citizen-centric digital public services, justice, security, digital culture heritage).
- Technologies supporting **digital services** (blockchain, cloud federation as a service).

Widening the best use of digital technologies

- Building **trust for the digital transformation**
- **Language technologies**
- **Digital transformation of learning and education**
TIMELINE

- **6 June 2018**
  Commission presents the proposal for the Digital Europe programme

- **Spring 2019**
  Agreement on the proposal confirmed by the European Parliament and the Council, excluding budget-related issues

- **Summer 2019**
  Targeted stakeholder consultation on Digital Europe orientations begins

- **Autumn 2019**
  Full inter-institutional agreement expected on the Digital Europe programme

- **1 January 2021**
  Beginning of the Digital Europe programme
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