Digital Europe for a more competitive, autonomous and sustainable Europe — Brochure

The Digital Europe programme focuses on building the strategic digital capacities of the EU and on facilitating the wide deployment of digital technologies.

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What is the Digital Europe programme?

- As part of the next long-term EU budget, the Multiannual Financial Framework, the Digital Europe programme **focuses on building the strategic digital capacities of the EU and on facilitating the wide deployment of digital technologies, to be used by citizens and businesses.**
- With a proposed overall budget of €7.58 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, while ensuring a wide use of digital technologies across the economy and society.

What is the budget for 2021-2027?

€7.58 billion for:

- High Performance Computing (€2.2 billion)
- Artificial Intelligence (€2 billion)
- Cybersecurity (€1.6 billion)
- Advanced digital skills (€*577* million)
- Ensuring a wide use of digital technologies across the economy and society (€1 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 respond to 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 increasing the 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

Together with other EU programmes, Digital Europe will contribute to the deployment of high impact projects that aim to build on**Europe's strengths and ensure robust European industrial and technology coverage** of key parts of the **digital supply chain through 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 enhance competitiveness by pooling efforts and resources to achieve common goals.

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.
- Increase 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.

Artificial Intelligence: Working on data, putting data to work

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 make libraries of algorithms easily accessible to all, based on fair, reasonable and non-discriminatory terms.
- Data spaces cover key industrial and societal sectors (e.g. green deal, mobility, manufacturing, agriculture, cultural heritage, health, media and public administrations 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

Cyber-incidents and cyber-attacks cause the loss of billions of euros every year. Cybersecurity, trust and privacy are the foundations of a prosperous European Digital Single Market.

- 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.
    - Strengthening the union’s joint preparedness, situation awareness and response to cyber threats.
- Complete certification schemes and testbeds for 5G and 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.
- Support the implementation of relevant EU legislation and political initiatives: in particular the NIS Directive, the Cyber Security Act, the European Cybersecurity Competence centre and network, the cyber Blueprint and Joint Cyber Unit, the 5G security toolbox.
- 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 specialised education programmes or modules in cutting-edge digital technologies developed together with EU excellence centres in artificial intelligence, cybersecurity and high performance computing. The funding available could fund up to 15 to 25 new Master’s

programmes training 7500 to 12500 digital specialists.
- Support short-term specialised training courses in advanced digital technologies for job seekers and employed people, especially in SMEs by 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.
- Support the digital transformation of the education sector at European level.

Accelerating the best use of technologies

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)

90% of jobs in all sectors of the economy require digital skills.

Almost 9 million people in Europe are ICT specialists . 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 which hurts their businesses.

Only 17% of ICT specialists are women.

Aiming for high impact deployments and widening the best use of digital technologies

- Supporting the European Green Deal through different initiatives (Destination Earth Initiative, climate neutral and smart communities, product passport).
- Accelerating the uptake of Blockchain in Europe
- Addressing public services (digital transformation for better and sustainable health and care, reinforcing the European Digital Government Ecosystem of services, supporting the digitalization of justice, and law enforcement agencies).
- Enhancing the confidence in digital transformation (by protecting children and young people as internet users, and by tackling online disinformation).

Related topics

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