

# The EU digital decade

## A new set of digital targets for 2030

### SUMMARY

As part of its digital decade strategy, the European Commission's March 2021 communication puts forward its vision for new strategic digital objectives for 2030. These should prepare Europe for the roll-out of the next generation of broadband infrastructure with gigabit speeds, including 5G, as well as for the digital transformation of public and private sectors, to enable an array of new innovative services that should transform the manufacturing, energy, vehicle manufacturing, digital government services and health sectors.

Given its importance for European Union (EU) competitiveness, the European Commission is speeding up the digital transformation by co-financing research, development and deployment of innovative technologies in 2021-2027, under the €7.5 billion digital Europe programme, the first EU programme fully dedicated to the EU's digital transformation. Other EU programmes will also play a major role in funding digital infrastructure, including the Connecting Europe Facility and cohesion policy. Furthermore, at least 20 % of the EU Recovery and Resilience Facility funds received by each EU country should be dedicated to the digital transition.

There is some concern that not all consumers and businesses in Europe will benefit from the digital transformation, given the current and future digital divide between urban and rural areas and across EU countries. Given the current climate, the high level of investment needed to achieve the transformation might prove difficult to raise.

To measure progress towards the digital decade, the Commission is working on a digital compass method with indicators, which should be put forward for this task later in 2021. This would enable measurement of four dimensions (or 'cardinal points'): improved digital skills, secure and sustainable digital infrastructures, digital transformation of businesses and of the public sector.



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## Digital decade vision

The European Commission has updated the EU's digital strategy in light of the importance of digital technology for the economy and society, as the coronavirus pandemic has recently highlighted. It builds on the 2020 strategy on [shaping Europe's digital future](#), which remains the overarching framework, while reconsidering the enormous changes brought about by Covid-19. The pandemic has massively accelerated the use of digital tools, demonstrating their opportunities while exposing society's vulnerability to new digital divides. In the post-coronavirus environment, the EU aims to protect and reinforce its digital sovereignty in strategic areas to ensure strategic autonomy in the digital area, while also promoting common EU values and respecting fundamental freedoms, including data protection and privacy, safety and security.

On 9 March 2021, the European Commission presented its vision for Europe's digital transformation by 2030. Its [communication](#) on the '2030 Digital Compass: the European way for the Digital Decade' announced an update of the Commission's overall digital strategy from February 2020 and of its [gigabyte society targets](#), set in 2020 and 2016 respectively. This new strategy has been put forward to address a number of [digital vulnerabilities](#) revealed by the coronavirus crisis, such as dependency on non-European technologies. Europe should fund and support the development of sectors that are crucial to its [digital sovereignty](#), such as [semiconductors and edge computing](#).

The Commission has identified four main areas for action:

- 1 Achieve a digitally-skilled population and highly-skilled digital professionals;
- 2 Implement secure and performant sustainable digital infrastructures;
- 3 Achieve the digital transformation of businesses; and
- 4 Achieve the digitalisation of public services.

## Digital principles and rights

In addition, it is expected that the Commission will also propose a set of digital principles and rights, such as universal access to internet services or net neutrality, which could be adopted by the European Parliament, Commission and the Council in an interinstitutional solemn declaration in 2021. At present, the Commission launched an ongoing public consultation on these digital principles, [running](#) from 12 May until 2 September 2021.

The digital decade strategy is of high importance to EU policy-makers and stakeholders. One illustration of this focus is the [Digital Assembly](#), the largest annual EU level gathering of stakeholders on digital policy issues, which was dedicated to the strategy in 2021. During the 1 June 2021 event, the Portuguese Council Presidency presented the [Lisbon Declaration](#), agreed upon by all Member States, as the Council's input to the ongoing public consultation on digital principles. The declaration addresses a wide range of topics,<sup>1</sup> including internet access, artificial intelligence, privacy and cybersecurity. Anyone from governments, companies, civil society to individual citizens can sign up to the declaration. The Lisbon Declaration builds on previous initiatives, including the [Tallin and the Berlin declarations](#) and aims at contributing to the ongoing public consultation on digital principles.

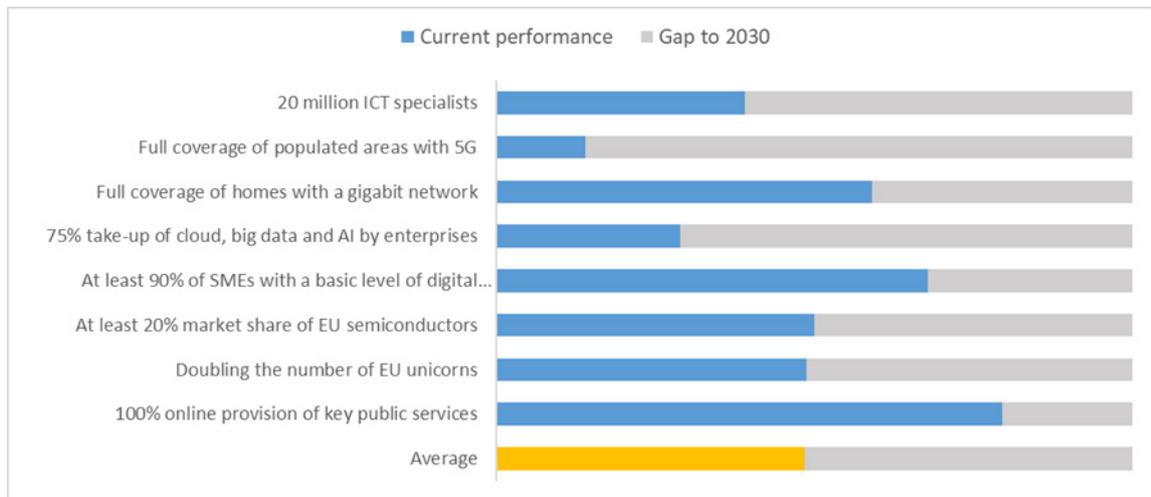
The [Ella submarine cable](#) for fast connection between the EU and Latin America was also launched during the June 2021 event. This transatlantic cable, supported by the EU through the [BELLÀ programme](#) (€25 million provided by the EU under the Horizon 2020 programme, part of a total budget of €40 million), creates a high-speed direct digital connection linking the two sides of the Atlantic, seeking to better support research, innovation and the digital transformation of both regions. Other such cable connections include [the pan-European GÉANT network](#), connecting Europe's researchers, academics and students to each other, and linking them to over half the countries in the world.

## Digital compass tool

The digital compass tool – once proposed by the Commission and if adopted by Parliament and Council – will provide the monitoring and governance mechanism to track the digital decade's four goals, including key performance indicators (KPIs). These 2030 connectivity targets build on the 2020-2025 targets<sup>2</sup> already laid out in the [Gigabit Society](#) and [5G Action Plan](#) communications, both from 2016. In setting the new targets, the Commission argues that, at the current pace of network development, it would be impossible to satisfy increasing user demand. A booming mobile application market and ever-increasing end-user mobile connectivity (whether consumers, businesses or connected devices), requires the expansion of the network bandwidth capacity and speed, as envisaged with the new targets. The aim is to roll out ubiquitous, very high-capacity networks, and more specifically 5G, to boost Europe's global competitiveness and further the digitisation of European industry, which still [lags behind](#), particularly for small and medium-sized enterprises (SMEs). According to [the industry](#), today Europe is being outpaced in many areas of digitalisation. And there is a risk that European companies and citizens will be left behind. If these targets are not accomplished on time.

Much progress remains to be made to achieve some of these targets (see Figure 1).

Figure 1 – EU current level vs digital compass targets for 2030



Source: European Commission, 2021.

Each of the four cardinal points of the digital compass relates to one of the four digital decade goals. They are spelt out in clear objectives and KPIs, which the Commission proposes should be achieved by 2030:

### 1. A digitally skilled population and highly skilled digital professionals:

- At least 80 % of all adults should have basic digital skills by 2030: this indicator follows the [European Pillar of Social Rights action plan](#).
- Reach 20 million employed ICT specialists in the EU, with convergence between women and men, compared to 7.8 million in 2019 (see Figure 1). Currently, [more than 70 %](#) of businesses report a lack of staff with adequate digital skills as an obstacle to investment. There is also a severe [gender imbalance](#), with only one in six information and communication (ICT) specialists and one in three science, technology, engineering, and mathematics (STEM) graduates being women.

### 2. Secure and performant sustainable digital infrastructure:

- By 2030, all European households should be covered by 5G, as well as by a fixed gigabit network. All European households should have gigabit connectivity compared to 59 %

in 2020 and all populated areas covered by 5G, up from 14 % in 2021 (see Figure 1). High performance computing (HPC) will require terabit connections to allow real-time data processing.

- The production of cutting-edge and sustainable semiconductors in Europe, including processors, should represent at least 20 % of world production in value, doubling from 10 % in 2020 (see Figure 1).
- 10 000 climate-neutral highly secure [edge nodes](#) should be deployed in the EU and distributed in a way that guarantees access to data with low latency (i.e. few milliseconds), wherever businesses are located.
- The [quantum revolution](#) in the next decade will be a game-changer in the emergence and use of digital technologies. By 2025, Europe should have its first computer with quantum acceleration, paving the way for Europe to place at the cutting edge of quantum capabilities by 2030.

### 3. Digital transformation of businesses:

- The transformation of businesses will depend on their ability to adopt new digital technologies rapidly and across the board, including in industrial and services ecosystems that are lagging behind. Three out of four companies should use cloud computing services, big data and artificial intelligence by 2030.
- More than 90 % of European SMEs should reach at least a basic level of digital intensity,<sup>3</sup> compared to 61 % in 2019 (see Figure 1).
- Creation of around 250 unicorns<sup>4</sup> (start-ups valued at US\$1 billion) should be supported in the EU, a 100 % increase compared to 2021 (see Figure 1).

### 4. Digitalisation of public services:

- All key public services should be available online (see Figure 1).
- All citizens will have access to their e-medical records.
- 80 % citizens should use a digital identity (ID) solution.

In terms of digitalisation of public services, it is expected that, should the framework for a European Digital Identity be approved (the Commission put forward a legislative proposal on 3 June 2021), 80 % citizens could be using an e-ID solution by 2030. In terms of digitally enabled health solutions, the coronavirus pandemic has seen [an increase](#) in telemedicine, remote care and robotics solutions for protecting medical staff and helping patients remotely cared for at their home, although the use of digital medical records remains low and with many divergences across countries.

Operationally, the Commission intends to propose the digital compass in the form of a digital policy programme, to be considered for adoption by the European Parliament and Council through the ordinary legislative procedure, in a similar procedure to the 2021 agreement on the [radio spectrum policy programme \(RSPP\)](#). This decision created a comprehensive roadmap, set general principles and called for concrete action to meet the objectives of EU policies on radio spectrum use. The digital compass policy programme aims at setting up a mechanism to enable the Commission to engage with Member States through close cooperation and coordination, with the objective of taking joint commitments as well as possible measures at EU and national level and taking account of the implementation of other digital policies and initiatives. In addition, the policy programme should allow the Commission to engage with Member States to launch and shape large scale multi-country projects (see funding section).

## Main challenges

Many challenges lie ahead on the way to achieving the EU digital decade targets. There are industry concerns about whether plans to keep 5G on track will be delivered, given all the complexity involved at technical level and the investment required. Other challenges to overcome include, for

instance, the digital divide and the need to ensure ubiquitous connectivity, security concerns and other potential emerging issues, such as privacy and safety issues and ecological aspects.

## Widening the digital divide

The existing digital divide between urban and rural areas and across Member States could widen still further with the arrival of 5G. Urban areas are better suited to the roll out of high speed infrastructure, whereas rural areas do not have the same infrastructure deployments and expected returns on investment. There has, however, been some improvement in recent years. A recent Eurobarometer survey [showed](#) that a large majority of Europeans, 81 %, were satisfied with the quality of their internet connection's download speed and 82 % with their upload speed. Those who live in rural villages were less satisfied, particularly, 77 % of respondents. This appears as a positive development from the 2017 data, which [reported](#) that over half of Europeans had experienced delays in downloading or uploading content.

## Ubiquitous, resilient connectivity

The 5G approach must be fully convergent across technologies and sectors, as there will be no distinction between fixed and mobile, but simply a seamless infrastructure. Achieving greater capacity, better reliability and increasing reach of coverage will require mobile networks to transform. Enabling ubiquitous connectivity, 5G should allow for the 'internet of things revolution', with the deployment of innovative services, such as remote surgery and personalised medicine, connected cars, smart factories and smart cities, or the detection of faults in energy grids.

To achieve these goals, the Commission recommends a mix of fixed and wireless technologies, as technological neutrality and flexibility are needed. The [European Electronic Communication Code](#) (EECC) that sets the EU telecommunication framework legislation, calls mainly for infrastructure based on optical fibre, complemented by the use of smaller cells for wifi, more spectrum allocation and the use of other technologies, such as satellite. To narrow the digital divide, it is important to consider all possible ways to deliver ubiquitous 5G access, including satellite communications, complemented by a European terrestrial optical fibre network and better allocation and coordination of the spectrum. New time-demanding applications requiring instant reaction (i.e. very low latency in the order of 1 millisecond) cannot be served adequately by today's technology. Improved performance is needed in terms of reduced latency, increased reliability and higher mobility. According to the Commission, 5G time-critical applications, such as connected cars, will in most cases have to combine 5G connectivity with distributed (mobile) cloud technology to meet the required end-to-end response times. The technical complexity and cost involved in reaching the connectivity targets are considerable. In addition to spectrum licensing costs, much of the cost comes from network 'densification', with the roll out of the small cells that will be needed to transmit signals in much higher frequency bands. Nevertheless, this may not suffice. Dense deployment of 5G small cells is possible in urban areas where bandwidth demands are high, but not in rural areas. Other suitable solutions will have to be put in place, although the digital gap might not be overcome in time to reach the targets.

## Addressing privacy, security, energy efficiency, and health and safety aspects

For the development of the digital decade, it will also be important to address issues of data privacy and data transfer, cybersecurity, energy efficiency, and health and safety. Some new innovative applications for transport systems or remote healthcare will need significantly improved safety and security standards. At the same time, the data driven economy brings many challenges, as the EU needs to ensure that non-personal data flows freely across borders and sectors. The Commission has planned measures in this area in the [digital data strategy](#) and has already put forward relevant legislative initiatives, such as the proposal for a [data governance act](#). Some security aspects are already considered within the technical design of the 5G standards and in the [5G security toolbox](#).

In addition, the new [EU cybersecurity strategy](#) for the digital decade and the [European agenda on security](#) provide the overall EU strategic framework for measures against cyber-attacks, since the Commission has identified both cybersecurity and the cross-border free flow of non-personal data as key areas for further EU action.

Another key challenge to overcome is that of making digital technologies more energy efficient, as included in the [European Green Deal plan](#). For instance, with each new generation of mobile technology, the energy consumed by the network has grown significantly, as data traffic has continued to increase. The digital compass could also support the EU in meeting some objectives of the European Green Deal, helping Europe to reach its goal of reducing greenhouse gas emissions by at least 55 % by 2030. Digital technologies may also contribute to significantly reducing the environmental impact of some sectors. For example, the widespread use of videoconferencing plays a part in reducing flight emissions. Digital technologies also have a role in creating a greener approach to agriculture, energy use in buildings, and more sustainable city planning.

In France, meanwhile, a review of wireless radiation carried out by the Agency for Food, Environmental and Occupational Health & Safety (ANSES) has [concluded](#) that there is a need to evaluate all wireless devices for their impact on children's health and recommends only moderate and supervised use by children. This complex issue therefore remains controversial, while further research is also ongoing on the [health impact of 5G technology](#).

## Funding

The digital decade strategy includes plans for several EU programmes, as well as multi-country projects and investments, to scale up solutions more effectively to help the EU to achieve strategic digital autonomy. These multi-country projects will build on the [Recovery and Resilience Facility](#), the [Cohesion Funds](#) and other EU funding. The projects could combine investments from the EU budget, from Member States and the private sector, to address gaps in the identified critical capacities of the EU and support an interconnected, interoperable and secure digital single market.

The digital Europe programme should accelerate the economic recovery and shape the digital transformation of Europe, benefiting citizens and businesses. It should therefore provide funding for projects in five areas: supercomputing, artificial intelligence, cybersecurity, advanced digital skills and wider use of digital technologies across the economy and society.

In order to achieve high levels of connectivity across Europe, the Commission has already put various financial instruments and state aid arrangements in place over the years to support broadband development in rural areas. As part of the gigabit society strategy, and in addition to the other instruments in place, the Commission has launched a dedicated investment platform '[the Connecting Europe Broadband Fund](#)', which is expected to raise over €500 million through commitments from private and public investors (such as the European Investment Bank and the Commission), between 2017 and 2021. Overall, it is expected to unlock additional investments of between €1 and €1.7 billion in broadband deployment in under-served areas, where very high-capacity networks are not yet deployed.

In addition, the new EECC telecom framework is also expected to support the 5G action plan by means of more favourable investment conditions, including for small cell deployment.

## Next steps

The European Commission has announced that it will prepare a yearly 'European state of the digital decade report' for the Council and European Parliament, to report on the progress towards the 2030 vision and compass, with its targets and principles, as well as on the more general state of compliance with these objectives, through a 'traffic light' score. The current Digital Economy and Society Index ([DESI](#)) would be enhanced to keep track of Member States' progress and increase oversight. The report will raise awareness of difficulties in achieving the goals and digital principles and will identify investment gaps. It will also feed into the [European Semester exercise](#), and will be

aligned with the recovery and resilience facility process. It could also include recommendations as regards regulatory implementation or the need for public intervention to foster additional investments in digital technologies and capacities.

In addition, following its public consultation, the Commission will also propose to include a set of digital principles and rights in an interinstitutional solemn declaration which could be adopted between the Commission, European Parliament and the Council later in 2021, based on a proposal from the Commission and building on and complementing the experience of the [European Pillar of Social Rights](#), in particular when assessing the actions to foster jobs and growth.

Moreover, the Commission intends to carry out an annual Eurobarometer exercise specifically dedicated to monitoring Europeans' perception regarding the respect of their rights and values, and to what extent they feel that the digitisation of our society is serving them.

The [European Council on 25 March 2021](#) stressed the need to enhance the EU's digital sovereignty and for the Council to swiftly examine the Commission's communication on the 2030 digital compass in view of preparing the related digital policy programme.

The same day, the Member States, in close cooperation with the Commission, agreed on a [5G Connectivity Toolbox](#), pursuant to the Commission's [Connectivity Recommendation](#) of 18 September 2020. The toolbox consists of a set of best practices considered as most efficient in allowing and encouraging operators to roll out very high capacity networks and 5G.

At the European Parliament, consideration of the Commission's ['2030 Digital Compass: the European way for the Digital Decade'](#) communication has been allocated to the Industry, Research and Energy (ITRE) Committee, on which it is working in its preparatory phase.

On 10 June 2021, the European Parliament adopted a [resolution](#) on the EU's cybersecurity strategy for the digital decade. Parliament called for EU-funded digitisation projects to include cybersecurity requirements. It welcomed support for research and innovation, especially in disruptive technologies (such as quantum computing and quantum cryptography) and called for further research into post-quantum algorithms as a standard for cyber security.

On 1 June 2017, in its [resolution](#) on 'Internet connectivity for growth, competitiveness and cohesion: European gigabit society and 5G', Parliament welcomed the connectivity targets, while calling on the Commission to tackle the digital divide and frame a coherent timetable and 5G financing strategy in line with the EECC. It also called for an investment-friendly regulatory environment, a coherent European spectrum strategy and acceleration of the EU's 5G standardisation efforts. Emphasising the positive impact that 5G could have on European society in terms of education, health, culture, cohesion and employment, Parliament called for the development and improvement of digital skills, and asked the Commission to produce an annual 5G action plan review to report on progress made and make recommendations.

## MAIN REFERENCES

Negreiro M., [Towards a European gigabit society: Connectivity targets and 5G](#), EPRS, European Parliament, 2017.

Szczepański M.; [Digital Europe programme: Funding digital transformation beyond 2020](#); EU Legislation in Progress, EPRS, European Parliament, 2021.

[Towards a more resilient Europe post-coronavirus](#), European Parliamentary Research Service (EPRS) with the Directorates-General for Internal Policies (IPOL) and External Policies (EXPO), European Parliament, 2021.

## ENDNOTES

- <sup>1</sup> It defines common understanding and commitment in three main domains: (1) upholding human rights, ethical values and democratic participation in the context of the digital era, namely by fighting discrimination, disinformation and other malicious online activities, as well as by stating the importance of accessible connectivity and digital skills' training; (2) promoting multi-stakeholder and wider international cooperation in the digital context, in fields such as standards, infrastructure, data flows, R&D and secure and trustworthy online services; (3) recognising the importance of green and digital technologies, as a key element to a new paradigm of economic growth, balancing innovation and competitiveness with social and environmental sustainable development.
- <sup>2</sup> There are three specific connectivity targets for 2025: (1) all socio-economic drivers, such as schools, transport hubs and main providers of public services, as well as digitally intensive enterprises, should have access to internet download/upload speeds of 1 gigabit of data per second (Gbps); (2) all European households, rural or urban, should have access to connectivity offering a download speed of at least 100 megabits per second (Mbps), which can be upgraded to gigabit speed; (3) start-ups using AI and cloud computing should comprise at least 30 % of the total.
- <sup>3</sup> The Digital Intensity Index (DII) measures the use of different digital technologies at enterprise level. The DII score (0-12) of an enterprise is determined by how many of the selected digital technologies it uses. A basic level of digital intensity corresponds to a situation where an enterprise scores four or more.
- <sup>4</sup> By 'unicorns', the Commission understands both: 1) realised unicorns, i.e. companies founded after 1990 that have had an IPO or trade sale above US\$1 billion and 2) unrealised unicorns, i.e. companies that have been valued at or over US\$1 billion in their last private venture funding round (meaning the valuation has not been confirmed in a secondary transaction).

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