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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Europe fit for the digital age:
Towards a truly European digital society**

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Europe fit for the digital age

1. Introduction

We live in times where dreams can be fulfilled and nightmares can come true very quickly. Because of digital technologies, dreams of equal access to top level education and health care, ease of transport and a sustainable planet can become reality. But so can chaos caused by cyber attacks or surveillance systems used by autocratic regimes. Bad things will have to be fought and good things to be worked for. It will all take a gigantic effort.

Digital technologies have profoundly changed our daily life, our way of doing business, the way we communicate and the way we interact with society at large. The transformation is as fundamental as the one of the industrial revolution. 80% of EU citizens regularly use the internet to watch movies, listen to music or gather information.¹

Digital platforms are able to connect sellers and customers more efficiently. Even very small sellers – a small shop, a family-owned hotel, or a young app developer – can all of a sudden offer their products and services well beyond their national boundaries. Consumers have easy and unlimited access to a vast range of offerings that had been beyond their reach in the past. 69 % of internet users in the EU shopped online in 2018².

Digital solutions based on new technologies such as artificial intelligence allow for better and more targeted health diagnosis and treatment. Digital technologies also allow us to fight climate change much more effectively. Today, however, Europe is mostly consuming technology made elsewhere. If we want these solutions to serve European citizens, we must develop and use the technologies in Europe, according to our needs and principles.

New digital opportunities have also brought with them new risks and challenges. Successful digital platforms have reached a size and importance that enables them to play a systemic role in our economies and societies. Citizens no longer feel in control over what happens with their data. Concerns about the spreading of unsafe products, hate speech or disinformation. Democratic systems being exposed to undue foreign influence. Platform workers who feel insufficiently protected. Concerns that large companies do not pay taxes where taxes are due. Small companies, the very backbone of our economies, which find it hard to keep up with the fast pace of digitalisation.

Most of the risks and challenges we see today are not new. However, the internet has accelerated and amplified them – while reducing the time available to respond. We must learn from our past experience, and not repeat previous mistakes. The industrial, technological and social revolutions of the past have often benefited the few to the detriment of the many, at least in their initial phases. Today, we must ensure that the digital transformation works for all. In doing so, we will pursue a European approach to digitalisation that builds on our long and successful history of technology, innovation and ingenuity, vested in European values,

¹ Digital economy and society index, 2019

² Eurostat

projecting them onto the international stage.

This Communication accompanies the White Paper on Artificial Intelligence and the Communication on a European data Strategy. It sets out the Commission's strategy on how to achieve the ambitious objective of maximising digitalisation benefits, while preserving the most valuable assets we have: democracy, fairness, inclusiveness and the European social model. Every citizen, every employee, every business person must have a fair chance to make the most of our increasingly digitised society and be empowered to shape digitalisation.

2. Our vision and goals

We want to build a European Society empowered by digital technologies which are strongly rooted in our common values, and which enrich the lives of all of us: citizens, which must be served, protected and empowered regardless of their age, gender or professional background. Businesses, which need a framework that allows them to start-up, grow, innovate and compete with large digital companies on fair terms – and become the next generation of big tech. And society overall, which deserves nothing less than social and environmental sustainability, and a digital environment that respects privacy, dignity and other rights in full transparency. We want to give people and businesses more control in the digital world.

For the next 5 years, we will build on three pillars that will ensure that Europe develops and pursues its own way of a vibrant, globally competitive, value-based and inclusive digital economy and society. For each pillar we propose clear indicators that will measure the rate of success³.

- **Technology that works for people:** In all digital technology and development of products and services we must promote a human-centric approach, built around trust, privacy, personal data protection and democratic integrity. Everyone should be able to acquire the skills needed to participate actively in the digital economy, irrespective of age, gender or professional background. Traditional media companies must embrace the opportunities offered by digital technology and use them to boost trust in content available online.

By 2025, Europe should have:

- *Increased basic digital skills from the current 57% to 70% of the EU population*
- *Trained up 500 000 digital specialists to halve the current gap, with a particular focus on women participation*
- *Reached the same level of trust in news and online sources as in print media (currently 63% as opposed to 47% for online newspapers).*

³ The Commission will continue to follow the Union's progress in the digital field, the existing gaps and the area where catching-up is needed both within the EU and comparing it to other parts of the world, through the Digital Economy and Society Index (DESI).

- **A fair and competitive digital economy:** Digital markets, currently characterised by the strong market power of a limited number of players, must be open and contestable, and fair competition must be ensured. At the same time, Europe needs to build world-leading cutting-edge digital technologies based on its own, privacy-respecting approach to high-quality data and support our industries to embrace digital solutions to boost productivity and remain competitive.

By 2025, Europe should have:

- *Tripled the share of companies using AI from [X to Y]*
- *Increase the number of companies using big data by [X%]*
- *An internet connectivity of at least 100 Mbps (upgradable to very fast (gigabit) down- and upload speeds) for all European households, rural or urban⁴ and Gigabit internet connectivity with equally fast upload and download speeds for all main socio-economic drivers, such as schools, hospitals, businesses.⁵*

- **A digital and sustainable society:** We need technology that improves the planet and our quality of life – fighting climate change, better healthcare, less traffic congestion, cleaner energy, more sustainable food production, a biodiverse and greener environment, safer communities, and increased societal inclusion. Technologies, such as robots or artificial intelligence, can play a positive role in addressing the effects of demographic change in Europe.

By 2025, Europe should have:

- *Accessible electronic health records for all Europeans*
- *Reached at least a 10% reduction of total CO₂ emissions across all sectors through the application of ICT solutions (one fifth of the 50% reduction needed by 2030 in the European Green Deal)⁶.*
- *Carbon neutral data centres, ICT infrastructures and tech companies*

For each of these pillars, the Commission will make use of all available legislative and non-legislative tools at its disposal to introduce ambitious and innovative measures in the digital sector. All legislative actions proposed will be subject to wide public consultation, accompanied by robust Impact Assessments, in line with the Better Regulation principles.

⁴ This reflects the Commission's expectation that, at the latest from 2026 onwards, households will increasingly need 1 Gbps.

⁵ "Socio-economic drivers" are entities which by their mission, nature or location can directly or indirectly generate important socio-economic benefits in their surrounding territory or area of influence. These include schools, train stations, ports and airports, local authority buildings, universities, research centres, doctors' surgeries, hospitals, stadiums, as well as digitally intensive enterprises.

⁶ Measured via a model built on data acquired through Green Data Spaces

People will continue to benefit immensely from the next stage of digitalisation: safer working conditions, fewer road casualties, faster diagnosis of medical conditions. At the same time, all of these benefit the economy as a whole, with improved welfare and economic growth. This potential, however, can only happen if we work together and plug the **investment gap** that the EU has compared to the US or China. Currently **estimated at 190 billion per year**⁷, addressing this gap will require bold actions and aggregated investment at EU, Member State and private levels. Closing the investment gap and implementing the actions in this Strategy could yield **an additional 1.1% EU GDP growth per year, or more than 14% of additional prosperity by 2030**. Acting quickly (stepping up investments and adopting measures by 2022 rather than by 2025) would bring an additional 3.2% increase in GDP and positive job creation by 2030⁸. With a slowing world economy, this is a socio-economic boost that Europe cannot afford to miss.

Complementing these pillars is a **strong international dimension** that will make Europe a key global digital player. With this comprehensive approach, Europe will lead the global debate on how to ensure a digital transformation that works to the benefit of the people, for the many and not the few.

Digital solutions must empower both citizens and companies to bring real benefits to the overall society. Appropriate digital solutions will help us to become climate-neutral by 2050. Proper governance of the internet will help protect our free democracies and our European way of life. Enabling people to shape and create our digital world will build the trust needed to develop data-driven technological solutions to the wider benefit of our societies.

Fundamental to achieving our vision is **trust** in technology by the citizens, without which the profound process of digital transformation cannot succeed. And trust by the citizen cannot be attained without **transparency, accountability, empowerment and inclusion**.

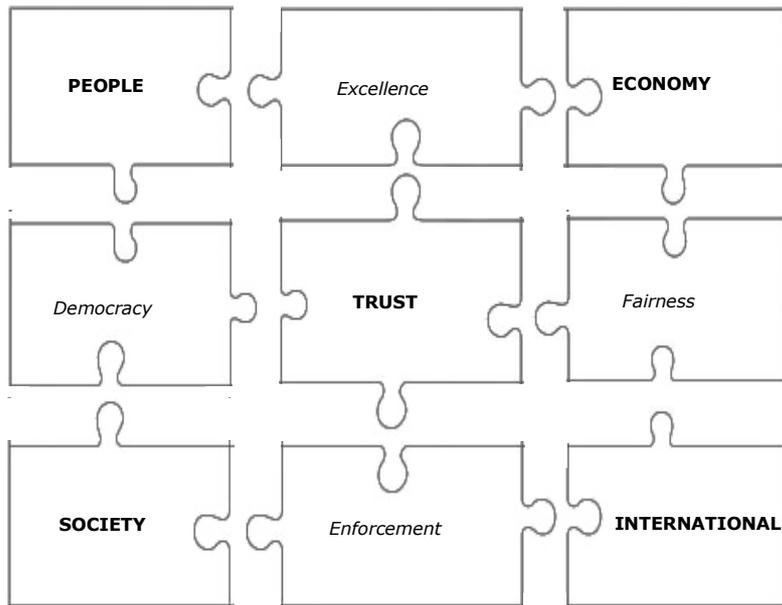
Trust is also dependent on following the rules. **Enforcement of European laws and rules**, including competition law, is essential. Many downsides of the digital transformation process (from the alleged abuse of market power to the proliferation of illegal activities such as the placing on the EU market of large amounts of unsafe products) are not due to a lack of rules in the first place, but to the difficulty of enforcing these in the sometimes opaque digital space. This needs to change. We will rigorously enforce existing rules, and update them where this is necessary to make them fit for the digital age.

All of these dimensions are closely interconnected, like pieces of a puzzle. And the full picture can only be seen once all the pieces have fallen into place.

⁷ Restoring EU competitiveness, EIB, 2016

⁸ [Study for the European Commission on Shaping the digital transformation, McKinsey Global Institute, 2020]

The following sections provide more information on how the Commission intends to put the above digital vision into practice. They describe the challenges for the the three key objectives identified above in greater detail, and outline the direction of travel to address and overcome them.



A. Technology that works for people

Digital technology has changed peoples' lives and will continue to do so in the foreseeable future. The benefits in terms of choice, access to goods and services, health, mobility, and inclusion can be felt not only by individuals, but extend to the economy as a whole. However, technologies can also be disruptive and make people feel uncomfortable, especially when it comes to changes in the labour market or new online threats. To have a positive impact on people's lives, digital technologies and services need to be trusted, accepted, accessible and usable. Above all, technology must be human-centric. It is there to serve people, not the other way around.

As digitalisation permeates our professional and private lives, having at least basic digital skills has become a precondition for participating effectively in today's society⁹. Moreover,

⁹ Over 90% of jobs already require at least basic digital skills, yet 43% of European citizens and over a third of the EU labour force lack them.

European companies need digitally savvy employees to thrive in the global race for technological supremacy. In turn, workers and employees need digital competences to succeed in an increasingly digitised and fast changing labour market. And citizens need digital skills to benefit from the full range of services offered to them, to stay socially connected with their friends and families, and to interact with public administrations that increasingly offer their public services electronically. By 2025, every European citizen should have access to adequate digital education and training, irrespective of age, gender or professional background.

The profound process of digital transformation cannot succeed without people trusting it. Consumers must be able to trust the digital part of the economy as much as they trust the plumber or baker around the corner. For people to trust technology, they have to feel protected. What is illegal offline must also be illegal online. The rules that apply to digital services are outdated, while new services have emerged and problems online have amplified. These new problems extend to the rights and conditions of platform workers, which also must be addressed.

While we cannot predict the future of digital technology, we can influence the way it is used to reflect our European values, building people's trust and confidence.

An important first step should be to strengthen the digital services market in the EU and provide clarity on the role and responsibilities of online platforms to make the internet safer. We cannot tolerate the online sale of illicit and dangerous goods, and the online dissemination of illegal content. We must provide the necessary legal clarity and certainty for online platforms to act responsibly against illegal content, while also protecting the freedom of expression.

We must also ensure that the new rules are appropriately enforced across the EU. Citizens must be equally protected, no matter where they are in the EU and regardless of which national or local authority is competent. Regulatory authorities must cooperate better. In doing this, we will look in particular at reinforcing the role of the existing groups of competent regulators to act as facilitators of such cooperation.

Second, we must protect one of our most cherished values, democracy. It is the citizens that ultimately decide on how our societies are organised. For this to work, they need to understand how, and on what grounds, major decisions affecting their lives are taken. In our digital, platforms-driven world, this is not always the case. In 2018, 83% of Europeans identified online disinformation as a danger to democracy.¹⁰ This has to change: we need to ensure greater transparency and accountability. And we need to ensure that elections, the very basis of democracies, are not manipulated or influenced in undue ways. We must forcefully counter online disinformation. We cannot forget that media is key for democracy. It is also key for cultural diversity, a core component of the European identity. We must strengthen the media sector as a whole, with a particular focus on the audiovisual industries and news media.

¹⁰ Eurobarometer 464 (2018)

But we not only need to protect the integrity of our democratic systems, we also need to give citizens the tools to protect their integrity. Control over the personal data of each one of us is crucial because it determines what type of information (including products, content or advertising) is shown to whom. In spite of the strict and successful European data protection framework, many citizens are worried about the respect of their privacy rights.

Many decisions that strongly affect the lives of citizens and businesses are taken by private gatekeepers, based on their exclusive access to all data generated within their eco-systems. Personal data transfers inside and outside the EU need to respect standards and be enforceable. Clearer rules on transparency and accountability are needed, so that potentially problematic outcomes of such decisions can be contested – by individual citizens or companies as well as by public authorities.

Citizens need to trust online services on the strength of a secure environment for data, including control over the use of their data (e.g. in the context of targeted advertising, algorithms and recommender systems, or disinformation campaigns). Equally, citizens should be able to control their online identity, when authentication is needed to access certain online services. Registering for free Wifi at a European airport should be possible with a public electronic identity (eID), and without having to sign in to a digital platform that is completely unrelated to the service sought.

By 2025, we want to achieve an internet where citizens are in control of their data, and their online identity. But always with the clear understanding what is given away and how their data is protected.

Key actions

- **White Paper on artificial intelligence** setting out options for a legislative framework boosting trust in AI and respecting Europe's fundamental rights and ethics (February 2020)
- **Digital Services Act Package** to strengthen responsibility of online platforms, boost administrative cooperation between competent authorities, including the European Regulators Group for Audiovisual Media Services (ERGA), protect fundamental rights and make it easier to scale up in the Digital Single Market (Q4 2020)¹¹
- **Revision of eIDAS Regulation** to improve its effectiveness and extend its benefits to the private sector (Q4 2020)
- **Media Action Plan** to stimulate the creation of quality content, stimulate media pluralism and journalistic freedom and improve access to content for consumers (Q4 2020)
- **Democracy Action Plan** (timing TBC)
- **Digital Education Action Plan** to modernise education systems and boost excellence in higher education to prepare our young people effectively for the Digital Age and increase the number of graduates with advanced digital skills (Q3 2020)
- Initiative to promote and protect the interests of **platform workers** (timing TBC)

¹¹ The Digital Services Act package will include other elements described in the following section

B. A fair and competitive digital economy

Europe has a long and successful history of technology and creativity. We have the innovators and the means to become world leaders in digital technologies as well. But we need to do this in a European way, developing and using technology in ways that truly add value to the lives of European citizens.

Being at the forefront of technological and regulatory development, Europe will also be able to ensure its technological sovereignty. Recent trade conflicts and growing cyber threats, including interferences in our democratic processes, show that Europe cannot simply be an observer in this digitalisation and technology race. What is at stake is not just the prosperity of the EU's digital sector and the competitiveness of the key sectors, but also the integrity and resilience of our data infrastructures, networks and communications.

As always, Europe is strongest when it acts in a coordinated way. Only if we bundle our investments in research and innovation, only if we share our experiences, and only if we cooperate across countries, can we fully unlock the enormous potential that the various players in all parts of Europe can offer. Recent common efforts on supercomputing and micro-electronics have shown that working together can be highly effective. In supercomputers, the EuroHPC initiative has helped propel Europe back into the top-3 of fastest supercomputers in the world. In micro-electronics, European industry has managed to reverse the downtrend, increasing its global share of production to close to 20%.

Europe must strive for excellence in digital infrastructures, such as powerful 5G networks, super- and quantum computing, blockchain and secure cloud capacities. We need to invest more in strategic capacities that provide us with the means to develop and use digital technologies at scale, in line with European values.

Connectivity is the most fundamental piece of digitalisation. It is what enables data to flow and people to collaborate wherever they are. 3G allowed for better calls and internet on mobile phones. 4G powers social media, content streaming or video calling. 5G will connect objects, allow for automated vehicles or remote operation of devices. Our ambition must be high. Europe must become the best-connected continent in the world, powered by secure fibre and 5G networks. The 2025 Gigabit objectives¹³ underline the need to ensure sustainable investments into networks capable of offering symmetric (i.e. upload and download) Gigabit speeds to cater for the European data economy beyond 2025.

At the same time, leadership in infrastructure requires world-class cybersecurity. Higher cybersecurity standards are important not only for "traditional" critical infrastructures, but also for society and the economy as a whole. Cybersecurity incidents and crisis are not anymore a question of if, they are a matter of when. Increasing cybersecurity resilience requires coordinated action throughout the whole cybersecurity cycle. This means consistent

¹³ 40% of Europeans trust that European companies adhere to high privacy standards, Survey: Europe's view of China and the US-Chinese conflict, BertelsmannStiftung, 2019

Deleted: ¶

rules for companies and stronger mechanisms for proactive information sharing. It also means operational cooperation between Member States and building synergies between “civilian” cyber resilience; law enforcement and defence dimensions of cybersecurity.

Our ambition is not limited to promoting the growth of European technology companies, and ensuring that Europe can reduce dependencies along the digital value chain. As part of our industrial policy, we also need to continue digitising all companies, in particular SMEs, in all sectors of our economy, to increase their competitiveness in a global context. Many SMEs are slow in their uptake of digital technologies. Yet, the digital transition is essential for their survival and growth. A new strategy for SMEs will lay down key actions to support SMEs to make this transition, promote innovation and access to finance.

We will assist European companies to benefit from the highest level of technological capabilities in key areas such as cybersecurity, artificial intelligence, 5G, blockchain, quantum computing, space or defence – in order to guarantee our global competitiveness.

Data is a key driver of the digital economy. The availability of, access to and ability to use data is essential for innovation and growth. Many of the opportunities of digitalisation are still ahead and are complex to unlock. A greater willingness to share data will help address important societal challenges. Europe must seize the vast potential of the exponentially growing amounts of data, particularly in areas where it is strong – industry, public services, high-end engineering, transport – and to maintain leadership in key sectors, such as health, banking, insurance, construction and agriculture. We need a framework that allows European businesses to create, pool and use data to improve their products and compete internationally – above all, in a way that respects citizens and their privacy.¹³

The most successful data-based companies today are online consumer platforms. Online platforms, including collaborative ones, have brought significant economic benefits to people, increasing their access to knowledge, content or products. At the same time, we need to make sure that the platform economy works for people and businesses in Europe. Citizens must be able to enjoy these benefits without having to fear that the products they ordered online compromise their safety because they are counterfeited or do not meet European safety standards. Businesses, small or big, using platforms must have a chance to compete fairly, on the merits of the quality and ingenuity of their offering.

Principles that apply to our traditional industry – from competition and single market rules, to safety and consumer rules, from intellectual property to taxation and workers’ rights – also have to apply to digital industries. Legitimate public policy interests need to be upheld irrespective of the channel through which products or services are provided.

Therefore, existing laws that govern the behaviour of traditional industries need to be adapted to the specific circumstances under which new digital business models operate. This also applies to competition rules. The foundations of EU competition law are as relevant today

¹³ 40% of Europeans trust that European companies adhere to high privacy standards, Survey: Europe’s view of China and the US-Chinese conflict, BertelsmannStiftung, 2019

as they were when the Treaty of Rome was signed more than 60 years ago and a strong enforcement of the competition rules can make markets work for people, and not the other way round. At the same time, it is important that the competition rules are fit for a world that is changing fast and increasingly digital.

With this in mind, the Commission is currently evaluating and reviewing the competition rules to ensure that they remain fit for purpose. The ongoing reviews of the rules governing horizontal and vertical agreements and of the market definition notice, as well as the “fitness” check of various State aid guidelines are part of this exercise. It is just as important to reflect on the effectiveness of the way in which the current rules are applied, for example in relation to remedies. The Commission is also planning to launch a sector inquiry with a strong focus on these new and emerging markets that are shaping our economy and society. Where competition policy alone fails to address some of the more systemic problems of the platform economy, notably where certain platforms have acquired a scale that effectively allows them to act as large private gatekeepers and rule-setters to markets and information, additional ex ante regulatory responses may be needed to ensure contestability and protect the interests of smaller players.

Fair and effective taxation of the digitalised economy also remains a top priority for the EU. Today’s network-driven business models easily cross borders and lead to a situation where the winners are said to “take it all”: a few companies with the largest market share receive the bulk of the revenues on the value that is created in a data economy. Those revenues are often not taxed where they have been generated, thus distorting competition and undermining a societies’ tax base. It is unacceptable that some companies pay their taxes and others do not.

Europe has been pushing for a global solution for digital taxation. Negotiations on this issue are ongoing at OECD level. If these discussions do not bear fruit, the European Union will take action. Companies that want to play in Europe must pay in Europe.

Key actions

- **Communication on a European data strategy** to make Europe a global leader in the data economy (February 2020), announcing a legislative framework for data governance (Q3 2020) and a Data Act that could tackle business-to-government data sharing, more control of personal data, as well as clarifications on B2B data sharing scenarios and intellectual property rights in data sharing (2021)
- **Building and deploying cutting-edge joint digital capacities** in AI, cyber, super- and quantum computing and blockchain, supported by substantive financial support under the next Multiannual Financial Framework, including from the Digital Europe Programme. These will be underpinned by a **Regulation on European Digital Capacity** that will establish an EU legal framework allowing for flexible governance arrangements [Q4 2020].
- **Accelerating Europe’s Gigabit connectivity**, through a revision of the Broadband Cost Reduction Directive, an updated Action Plan on 5G and 6G and a new Spectrum Policy Programme (2021).

- **Launching the process establishing a joint Cyber Unit** [Q1 2020] and a Review of the Security of Network and Information Systems (NIS) Directive to boost the EU's cyber resilience (Q4 2020).
- Evaluation and possible adaptation of the **EU competition rules** [Timing TBC], launch of a sector inquiry [Timing TBC] and assessment of options for an ex ante regulatory framework for gate-keeping platforms with significant network effects as part of the Digital Services Act Package (Q4 2020).
- Focused initiative on the collaborative economy [description to be provided by DG GROW]
- An SME strategy that opens up opportunities for SMEs to become more competitive and innovative, to create jobs, to benefit from digitisation, to adopt sustainable practices and operate freely in the EU Single Market and beyond
- **Digital taxation initiative**, taking into account progress made in the context of the OECD [Timing TBC].

C. A digital and sustainable society

Digitalisation matters for our society. It can support the sustainability transition by advancing the circular economy and reducing more CO2 emissions than it emits. Digitalisation has already improved our lives with better access to quality healthcare, safer and smarter transport, decentralised and decarbonised energy systems, and smart climate-neutral communities. These advancements need further scaling to reach all corners of Europe and, more broadly, reduce inequalities.

Governments can become the driver of innovative applications through green and innovative procurement, support for important projects and setting the right rules. Industries need to accelerate their digital transformation to be able to serve their customer better and to be more competitive. Sector such as healthcare, energy, transport, agriculture need to shift to the digital era if they want to continue being successful over the next decades.

The European Green Deal needs digitalisation as an enabler for decarbonisation of all sectors to reach its ambitions.

It is the Commission's ambition to become the world's first climate-neutral continent by 2050.¹⁴ Reducing greenhouse gas emissions and transitioning to a circular economy should be our overarching goals.

One of the ways technology can contribute most is through the power of data. The Data strategy adopted in parallel to this Communication already announces some important actions in this respect. They will be complemented by other specific actions.

For example, by tracking when and where electricity is most needed, we can increase energy efficiency and burn less oil or coal. Material efficiency can also be increased. With data gathered from devices connected through the Internet of Things, processes in construction and industry can be streamlined to use less resources. Likewise, products can be digitised and transformed into services to cut wasteful overproduction – for example, rather than selling

¹⁴ The European Green Deal, COM(2019) 640 final, 11 Dec. 2019: https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

lightbulbs, a company could sell a subscription that guarantees a building is lit.

By studying sensor and satellite data, we can anticipate and mitigate the damage caused by extreme climate events. Gathering and processing environmental data more efficiently will allow us to radically improve our climate change mitigation and adaptation strategies as well as our crisis management capabilities.

For digitalisation to deliver its benefits, the ICT sector needs to undergo its own green transformation. The environmental footprint of the sector is significant, estimated between 5 to 9% of the world's total electricity use and more than 2% of all emissions.¹⁵ Datacentres and telecommunications will need to become more energy efficient, use more renewable energy sources and become carbon neutral 2030.

How we buy, consume and recycle ICT equipment also matters. Electronic waste (e-waste) in Europe is the fastest growing form of waste, currently estimated to 12 million tonnes per year.¹⁶ E-waste contains significant amounts of scarce resources and precious metals. We recycle only around 35% of electronics¹⁷ and a lot of value is lost when a device cannot be repaired, when a battery cannot be replaced or when the software is no longer supported.¹⁸ More information on what can be replaced or recycled would help address these issues and constitute an important step towards a circular economy. Giving consumers a right to repair and update their electronic devices could extend the life of ICT equipment.¹⁹

Technology can also make the energy sector more efficient and clean. It can give more choice to consumers and keep electricity affordable for Europeans. It can also allow citizens to become energy producers and storers, leading to new and innovative way to meet European energy needs.²⁰ Technology can increase the lifetime, efficiency, storage capacity and utilisation of energy infrastructure and can substantially reduce CO2 emissions.²¹ To this end, the European energy market must be fully integrated, interconnected and digitalised.

In the health sector, electronic medical records provide professionals with timely access to vital information and allow them to focus more on patients and less on administrative work. Secure availability of health data combined with responsible research and innovation, leads to better treatment for major chronic conditions that drain over 70% of health system resources, including cancer (supporting the European Beating Cancer Plan) and rare diseases.

In agriculture, technological applications have led to the emergence of precision farming, where farmers use sensors, automated tractors or drones to produce more food using less pesticides, fertilisares, fuel and water. In turn, this makes farms more environmentally

¹⁵ World Energy Forum: <https://www.enerdata.net/publications/executive-briefing/expected-world-energy-consumption-increase-from-digitalization.html>

¹⁶ UN, ITU Global E-waste Monitor 2017 : <https://www.itu.int/en/ITU-D/Climate-Change/Pages/Global-E-waste-Monitor-2017.aspx>

¹⁷ Countering WEEE Illegal trade summary Report, 2015

¹⁸ 68% of Europeans get a new device because the old one is broken or its performance has significantly deteriorated. Only 14% want a new device because of its new features. Special Eurobarometer 503

¹⁹ 64% of Europeans would like to keep using their current digital devices for 5 to 10 years: Special Eurobarometer 503

²⁰ Digitisation can enable linking multiple individual energy-producing units (e.g. rooftop solar systems) and pieces of consuming equipment – ranging from electric vehicles (EVs) to wind farms

²¹ Production and use of energy account for more than 75% of the EU's emissions, COM (2018) 773 – A Clean Planet for all, in-depth analysis: https://ec.europa.eu/clima/sites/clima/files/docs/pages/com_2018_733_analysis_in_support_en_0.pdf

friendly, while making sure that quality food is put on the table of European citizens. Rural broadband deployment is a necessary pre-requisite for reaping these benefits, but it currently varies widely across the EU, with the EU average for 2018 at only 52%.

Digital solutions are also changing transportation, leading to safer and more efficient mobility. Already today cars have a strong digital component. Soon, they will also be able to interact directly with each other and with the road infrastructure. People must be able to enjoy travelling unhindered, which will require common standards and high-speed 5G connectivity throughout Europe. It will also require a single, clear legislative framework that makes sure automated vehicles are safely put on European roads.

Key actions

Mission Earth initiative bringing together scientific and industrial excellence to develop a high precision digital model of Earth (a “*Digital Twin of the Earth*”) that would radically improve Europe’s environmental prediction and crisis management capabilities (Timing TBC).

to **make data centres carbon-neutral** and more energy-efficient by 2030 [2021].

Transparency measures for telecom operators for more information on their environmental practices and standards. (timing TBC)

- **A Circular device initiative**, including a right to repair to extend the lifecycle of electronic devices [2021].

- **European health records** to improve European citizens secure access to and exchange of health data across the EU (Timing TBC). A European health data space to improve safe and secure accessibility of health data allowing for targeted and faster research, diagnosis and treatment (Timing TBC).

- **5G corridors roll-out for connected and automated mobility** according to a strategic development agenda (2021-2027) and **pilot support for 5G railway corridors** (2021-2023). **Act on self-driving** and connected mobility to ensure an updated legal frameworks that will foster the safe deployment of autonomous vehicles in Europe (Timing TBC).

3. The international dimension – Europe as a global digital player

To achieve a significant impact on people, planet and prosperity, Europe must be ambitious and project its model onto the global stage. One of Europe’s biggest advantages has been its capacity to adopt innovative rules. The European model has proved to be an inspiration for many other partners around the world as they seek to address similar policy challenges. As partners align their legislation with ours, the European approach of an open, inclusive, people-centric Internet spreads across the world, opening global markets and empowering people.

In this context, the Commission should leverage regulatory power, diplomatic strengths and external financial instruments to advance the European approach. This is particularly the case for work done under Association Agreements, and through the cooperation with the private

sector to address the digital needs of emerging regions of the globe – Western Balkans, countries neighbouring our Eastern and Southern borders, South East Asia or Latin America.

The conclusions of the EU-African Union Digital Economy Task Force will underpin the support for the creation of a single African Digital Market as funding becomes available under the EU new financial instrument, aided by a Digital for Development hub that brings together the EU development agencies.

European companies must use these opportunities and be more present on international markets, which are aligning with Europe and which Europe is supporting.

In terms of ICT standards, our trading partners have joined the EU-led process that successfully set global standards for 5G and the Internet of Things. As indicated by Commission President von der Leyen, Europe must now lead the standardisation process of the new generation of technology: blockchain, high-performance computing, quantum computing, algorithms and tools to allow data sharing and data usage.

The European Union is and will continue to remain the most open region for trade in the world, but this not unconditional. We can sustain this openness only if we secure reciprocity of all partners in terms of markets access, R&D and standardisation programmes.

The Commission will continue its work on Foreign Direct Investment screening to identify acquisitions by foreign state-owned/state-supported companies where the level of foreign state aid undermines the level playing field in the market.

Key actions

- **A Global Digital Cooperation Strategy** that will go beyond regulatory cooperation in order to promote use of trusted digital technologies and connectivity that enhance the quality of life of people while respecting fundamental rights (2021).
- **A White Paper on an instrument of foreign subsidies** [TBC].
- **A Digital for Development Hub** that will bring together the EU development agencies in order to foster EU development policy interventions in the area of digital [Timing TBC].
- A specific approach to digital standardisation, which will allow for the deployment of interoperable technologies and promote Europe's approach and ideas on the global stage (Q3 2020).

4. Conclusion

The success of the digital transformation will depend on establishing an effective framework to enhance people's trust and to give businesses the confidence and means to digitise. Coordination of efforts between the EU, Member States and the private sector is key to achieve this and strengthen European digital leadership. Europe must also leverage the potential of the digital transformation as a key enabler for reaching the Green Deal objectives.