

Telefonica

A Digital Deal to build back better our societies and economies



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Foreword

*By José María Álvarez-Pallete
Chairman & CEO Telefónica S.A.*

In September 2019, I had the opportunity to present in the European Parliament our Manifesto for a New Digital Deal. In this Manifesto we identified a new digitalization and technological disruption wave that we need to be prepared for as society. An unprecedented technological accumulation, at a speed never seen before, was leading us to a new economic-social paradigm determined by connectivity, Edge Computing, Blockchain, the Internet of Things and Artificial Intelligence (AI). In this Manifesto we showed that now was the time to define the foundations of the digital society and to apply ethical principles and humanist values.

I would never have imagined that just a few months later a second wave of an even more radical transformation would come. The COVID-19 pandemic has accelerated the digital transformation of our societies and our economies at a dizzying rate. In just a few weeks of home confinement we have seen digital home working, ecommerce and online education advance as much as they would have over a five year period under normal conditions.

The speed of change is impressive, having actually teleported us from the physical world to the online world: Hundreds of millions of students learning remotely, and millions of employees teleworking, shops and restaurants with online deliveries or AI and Big Data helping us to prevent outbreaks and to diagnose patients.



We are living through an exceptional moment, a unique crisis in our history, which has not yet been resolved and has tested the resilience of our societies and economies. In our networks in Spain we have seen traffic peaks increase by up to 45% in fixed broadband (FBB) and 25% in mobile broadband (MBB), as well as 70% in voice.

The year 2020 will be remembered as the year of the pandemic, but also as the year when our world restart with no turning back. We have difficult times ahead of us where to cope with the economic stagnation and increased inequalities we have lived through in recent months. However, we have also learnings that should inspire us to build a better future.

Keeping communication running has been our first response during this emergency, but not the only one. Once again, our priority has been people, their health and security. We have strived to be useful to all of society and we have deployed extraordinary connectivity where it was needed.

The values of solidarity and cooperation have prevailed in these critical times. In face of the crisis, Telefónica's mission "to make our world more human by connecting lives" has become more relevant than ever. We have learnt that connectivity is crucial for an inclusive digitalization and that with our mission together with our values as our guiding light, this crisis has brought out the best in us.

Inequalities are the biggest challenge we are confronting. We should ensure that the majority of the population has access to technology and the opportunities the new digital world brings.

Now, more than ever, we need a Digital Deal to drive the digital transition even further by putting people in the centre. This Digital Deal will form part of a new dialogue among governments, civil society and businesses, and implies defending our values without disregarding fundamental rights in this era. This is the path to a more sustainable, inclusive and digital society.

This Deal must result into an improvement in people's digital skills. Telefónica now calls for the digital education of workers and students at all levels, and for an update of social and employment legislation in line with the times we are experiencing.

If we want to build sustainable and inclusive connectivity, and in view of the deployment of 5G, we also need to eliminate all policies that produce extra costs in infrastructure investment as well as to foster sharing agreements. Additionally, within the European taxonomy of sustainable finance, telecommunication networks and digital solutions must be considered as green infrastructure. We need to ensure fair competition, with modernized regulatory and fiscal frameworks adapted to the new reality.

Europe accounts for 50% of worldwide social spending and, shortly before the outbreak of the pandemic, launched an ambitious plan for digital and green transition. These three pillars - social, digital and environmental- can enable Europe to lead the way out of this crisis and building better societies and economies. All founded on strong European values, based on an ethical and responsible use of technology. That is why we propose the development of a "Charter of Digital Rights", which will protect dignity and fundamental rights of people in a datadriven society.

At Telefónica we believe that the possibilities opened by this revolution are enormous. We must harness its potential to improve people's quality of life and well-being and to generate wealth. Everything is new, nothing is defined, and this is resulting in uncertainty. We need new rules, based on values, that we will have to write. The key is to review our welfare systems by bringing common European values up to date: Humanism.

In short, we aim to contribute to the definition of this Digital Deal, ensuring that people and societies can benefit from the changes that digitalization is generating so that no one is left behind in this accelerated new technologic world.



A time of opportunities and change

“You never let a serious crisis go to waste. And what I mean by that it’s an opportunity to do things you think you could not do before”

Rahm Emanuel, 2008

2020 will be remembered as the year when the world was closed down and contained. Without much warning we have seen a dramatic restriction of our lives and daily habits.

This year will also be remembered as the year in which we became digital societies: We have digitalized more in 5 weeks than the previous 5 years.

Connectivity and “being connected” was our ally for maintaining our lives and economies, while health-care personnel and scientists were in the front line fighting the devastating COVID-19 virus.

During these difficult times, communication networks have been the backbone of our whole economic and social life. Digital connectivity is the hidden hero of this unprecedented global crisis. It has united families and given relief to isolated patients and people at risk, it has saved many small businesses that switched to online sales

and distribution, whilst also providing hundreds of millions of students worldwide with education. Digital connectivity has underpinned the response of states and public administrations in the fight against the pandemic.

We might never know how many lives have been saved due to connectivity, but we know that what has passed through our networks have not been bytes nor data, it has been our whole life.

Today, no one would doubt that high-capacity communication networks are essential and a key part of the solution for digital and more sustainable societies and economies. The world has changed forever, and this pandemic has transformed us into digital societies.

At Telefónica, we accept our responsibility to fulfil our company mission: “To make our world more human by connecting lives.”

A challenging economic context

The unprecedented shutdown of economies and societies due to the COVID-19 pandemic has led to a unique situation and an unfolding economic and social crisis of historical dimensions.

The lockdown of societies has led the world to the deepest recession in peacetime since the nineteenth century. Real GDP growth is expected to contract during the first half of 2020 around 15% and 11% in advanced and emerging economies respectively and a full economic recovery might not happen before the end of 2021.

Accordingly, global responses from governments and central banks have also been decisive, more than doubling the already ambitious response to the

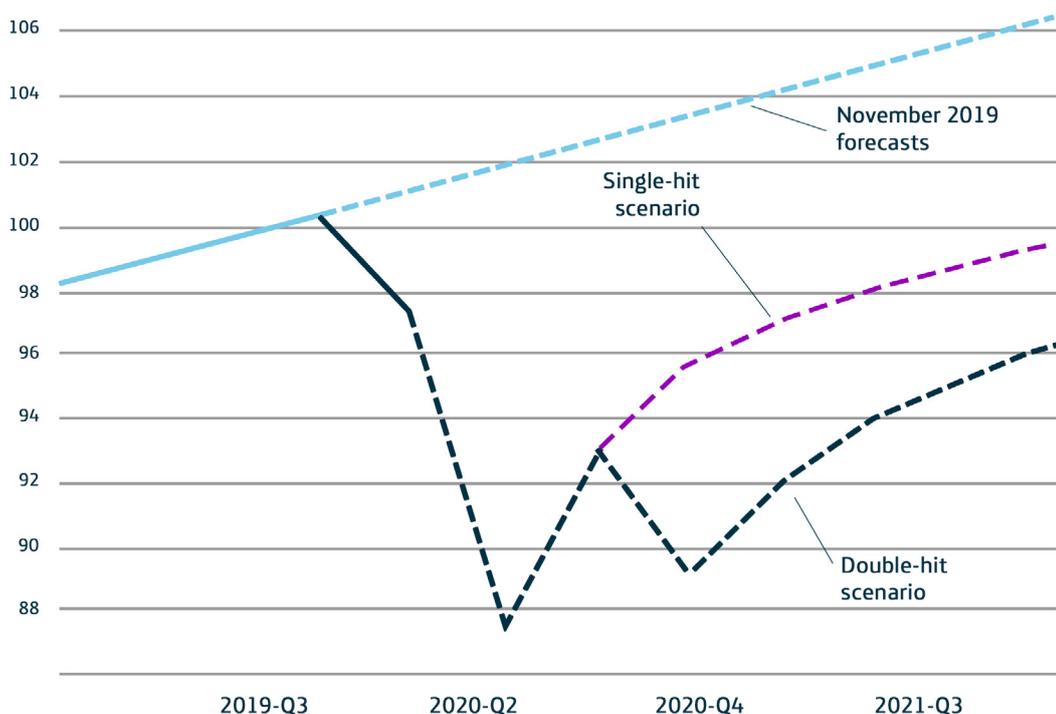
2008 crisis. In the Eurozone, direct fiscal measures put in place reach on average 3% of GDP on top of sizeable state guarantees and other liquidity support worth almost 24% of GDP and around 10% of GDP in the form of asset purchases from the European Central Bank. According to the European Commission, in the absence of this supportive fiscal stimulus, GDP would decrease an additional 5% in 2020. Taking Spain as an example, during the harshest phase of the confinement, 30% of total workers have been protected by public subsidies, a percentage that rises to 50% among the self-employed; more than 660.000 credit operations have been dealt with public guarantees, levels similar with Spain's European peers.

World GDP forecasts for single and double COVID-19 hit scenario

A collapse in output followed by a slow recovery

World GDP, index 2019-Q4=100

In both scenarios, we won't be back at 2019-Q4 level for at least 2 years

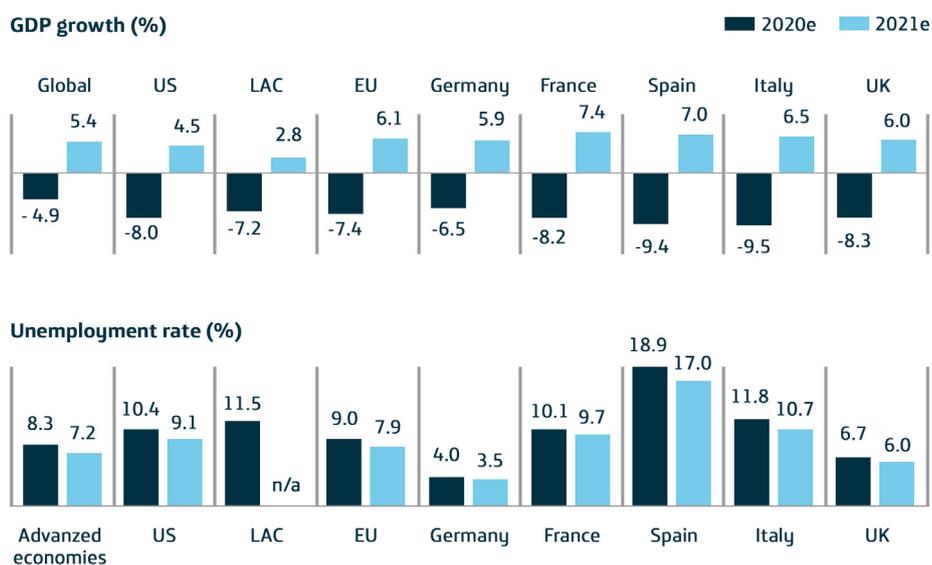


Source: [OECD](#)

In Latin America, the pandemic has impacted later than in Europe and at this moment in time uncertainty about the economic impact is even greater. In addition, the smaller fiscal space has led to a more limited but important fiscal response ($\approx 7\%$ GDP taking into account both direct, guarantee and liquidity measures) and some Central Banks have announced Quantitative Easing programs for the first

time in their history. According to the World Bank, GDP will experience one of the worst economic contractions ever in the region in 2020, with a projected 7.2% drop, creating a very challenging social and economic situation across Latin America. Though most probably more financial aid will be needed, so far more than \$270 billions have been approved for the whole region.

GDP and unemployment forecasts for 2020 and 2021



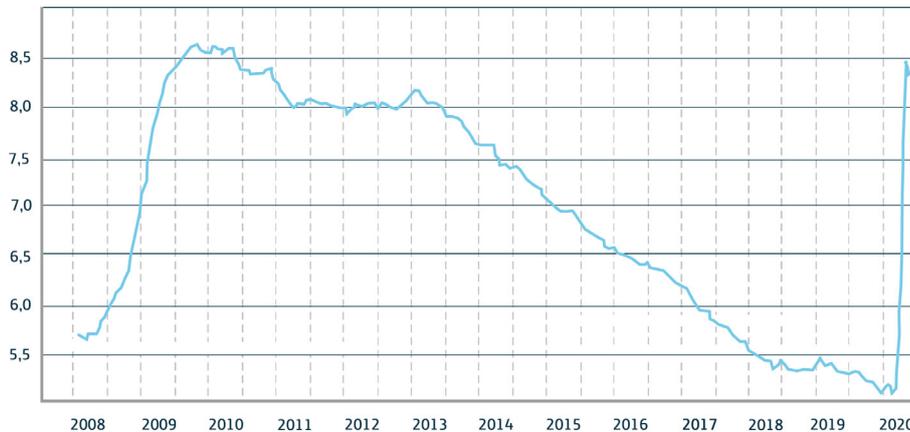
Source: European Commission 2020 (Spring 2020 Economic Forecast); World Bank 2020; [IMF, 2020](#)

Labour markets have seen one of the fastest and greatest in unemployment ever in modern times. For Europe, Eurostat estimates that 14.4 million people in the EU, including 12.1 million in the Euro area, were out of work in May 2020. The Economic Commission for Latin America and the Caribbean, ECLAC, forecasts unemployment is to reach roughly 11.5 per cent in 2020 in Latin America, up from 8.1 per cent the

previous year. Around 18 million people will become unemployed as a consequence of the crisis to reach a total of 44 million people unemployed in the region.

These figures point to a period of severe economic recession with serious social impacts ahead of us.

Unemployment rate. Total % of labour force Jan 2008 – May 2020 OECD countries



Source: [OECD](#)

This crisis has also already worsened inequality, especially in countries where social welfare is less developed, like Latin America. The COVID-19 crisis is widening a gap that was already large before the lockdowns and confinements. According to UN Development, by the end of April, schools were closed nationwide across 189 countries, affecting more than 1.5 billion learners worldwide; World Health Organization reports just in Latin America 125 million learners (which is equivalent to the Mexican population) have had no access at all to education. According to ECLAC, across the region 45 million new people (the size of the population of Argentina) will need to live under the poverty line.

In the first 5 weeks of home confinement we have digitalized our societies and economies more than in the 5 previous years: The use by individuals and companies and possibilities of digital services has increased exponentially, which will have long-term positive effects on national productivity, innovation and well-being. But at the same time, this accelerated digitalization process has highlighted existing digital divides and inequalities,

more acutely in developing countries with lighter social protection systems.

Data traffic increases reported by telecom operators show the massive scale of change: In our networks in Spain we have seen traffic peaks increase by up to 45% in FBB and 25% in MBB, as well as 70% in voice.

Automatization levels are growing fast in production and customer-facing professions, while remote education and teleworking has been done for the first time by hundreds of millions of children and employees.

Working from home has been a key aspect of the pandemic. Videoconferencing has been multiplied 6-fold and the procurement of professional tools for remote collaboration has grown by 80%. However, procurement by bigger companies and the public administration have grown by 140% while SMEs have only done so by 30%, showing relevant difference in the possibilities for adoption of digital tools.



Spain is one of the countries that had historically low levels of teleworking. In 2019, only 8% of employees teleworked at least occasionally, clearly below the 17% European average. During the whole last decade, this indicator has only grown by mere 2p.p.. But in the few weeks of the health crisis, employees that had the option of working from home have multiplied on average 4-fold and in some cases, 95% of the employees were working remotely. This change will have lasting effects on the way we work even when the health crisis ends.

Technology and digitalization have also helped us to fight the spread of the coronavirus:

- The same system that was used during the Zika epidemic, issued the first warnings about the spread of the COVID-19 virus from Wuhan to neighbouring countries based on Big Data and AI.
- In Spain, Sherpa, a leading start-up in this field, has used AI to predict and anticipate the evolution of COVID-19.
- Patients have been diagnosed by lung scanners, without laboratory tests, with a 96% success rate and in only 20 seconds, compared to the 10 minutes that a medical doctor may take.

- AI is also helping greatly in the search for a vaccine or treatment of COVID-19.

Video content and streaming platforms have seen their demand take off. Netflix has gained nearly 16 million new users in the last quarter, and Disney+ has revised its estimates for 2025 from 126 million customers to 202. Online games have grown in users almost 25% during the month of March alone.

3D printing has allowed companies and volunteers to manufacture medical supplies at home, e.g. protective equipment and even medical respirators. An Australian company has developed a fast and inexpensive way to 3D print antimicrobial copper, capable of killing the virus.

Robotics are playing a role in limiting the risks of contagion for people, and drones have helped control the epidemic.

Consumer behaviour has changed, and many changes are here to stay. Usage of e-commerce has skyrocketed, as well as food delivery, online banking and other online services. At the end of April, it had grown for example in Spain by 50% compared to pre-crisis levels. In some sectors, such as the sale of sports equipment for training at home, growth has been 200%.



While levels might drop as quarantines are lifted, many people will continue to use such services in the future as part of their everyday lives.

This is the first pandemic in history that we are fighting with the help of technology, smartphones, Big Data, applications and global cooperation on science and research. We see a boost in the adoption of new technologies that are retroactively feeding each other: AI, Big Data, Blockchain, biotechnology, cognitive systems, Edge Computing, robotics. Everything is happening at the same time and accelerating each other.

COVID-19 has also accelerated the Green transition of economies. Government policies during the COVID-19 pandemic have drastically altered patterns of energy demand around the world. As a result, according to a report by Nature Climate Change, daily global CO₂ emissions decreased by –17% by early April 2020 compared with the mean 2019 levels, just under half from changes in surface transport. Government actions and economic incentives after the crisis will likely influence the global CO₂ emissions path for decades and the objective to halve emissions by 2030.

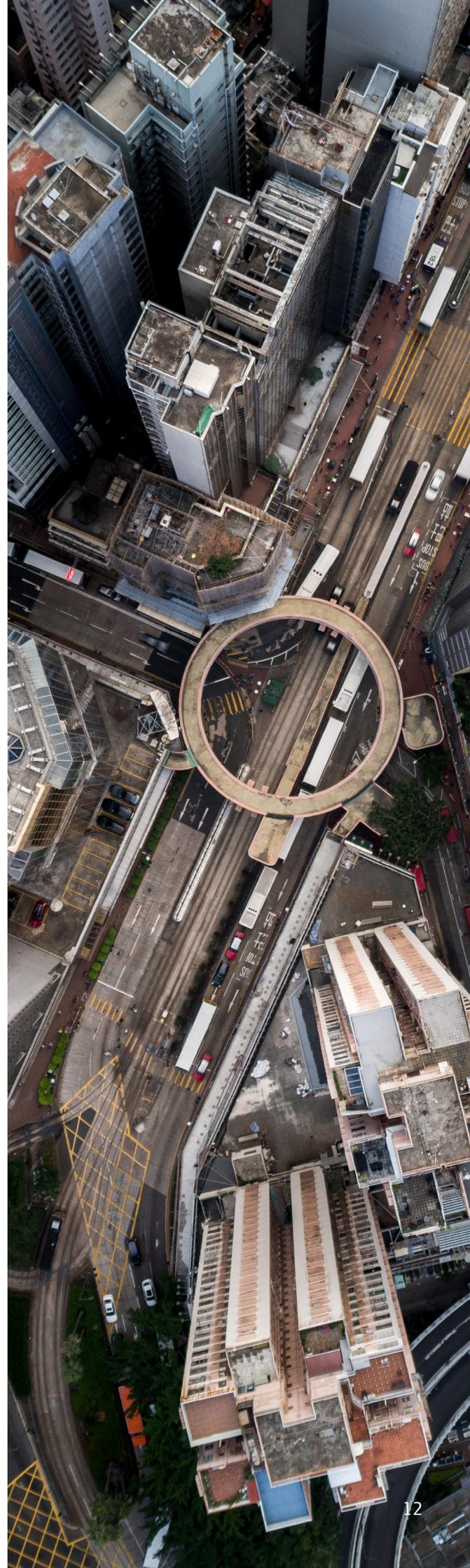
The crucial role of telecommunications

All big crises, including this pandemic, lead to permanent changes. There are some important lessons that we have learnt. First, the crisis has highlighted the essential dimension of connectivity infrastructures. COVID-19 has shown the vital role of digital infrastructure and services for our economies and societies that have prevented an even more severe shutdown of our economies and social lives.

The telecommunications sector has proven to be a reliable partner: Ensuring the continuity of connectivity services adapting network capacity to keep people connected and businesses running, supporting public administrations and health-care systems; mobilizing resources to assist customers, providers, local communities and global societies and taking quick action to safeguard employees.

“When the physical world has had to close down, connectivity has kept the digital world open, becoming the backbone of the economy and society”

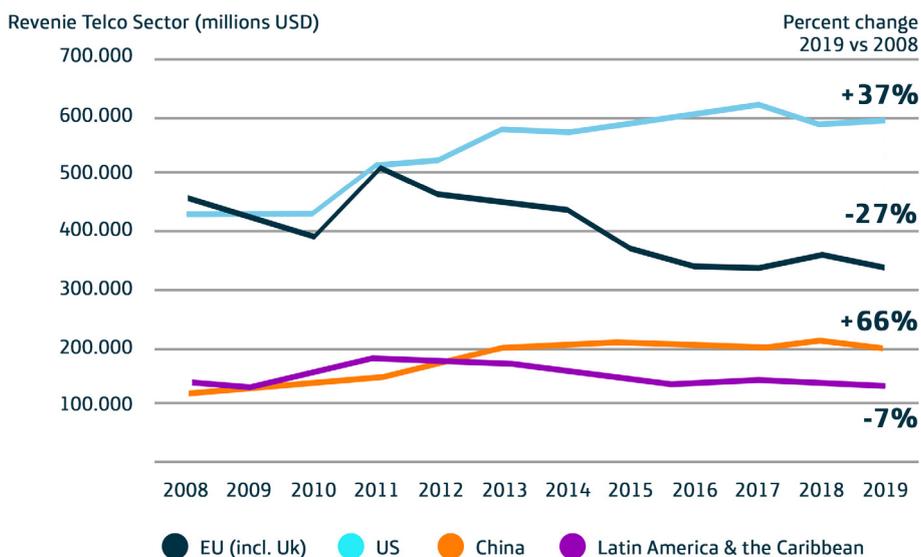
José María Álvarez-Pallete





This is despite the fact that the sector has shown strong deflationary tendencies over the last decade. In Europe, revenues have decreased by 27% and in Latin America by 7% between 2008 and 2019.

Evolution of telecom sector revenues by region

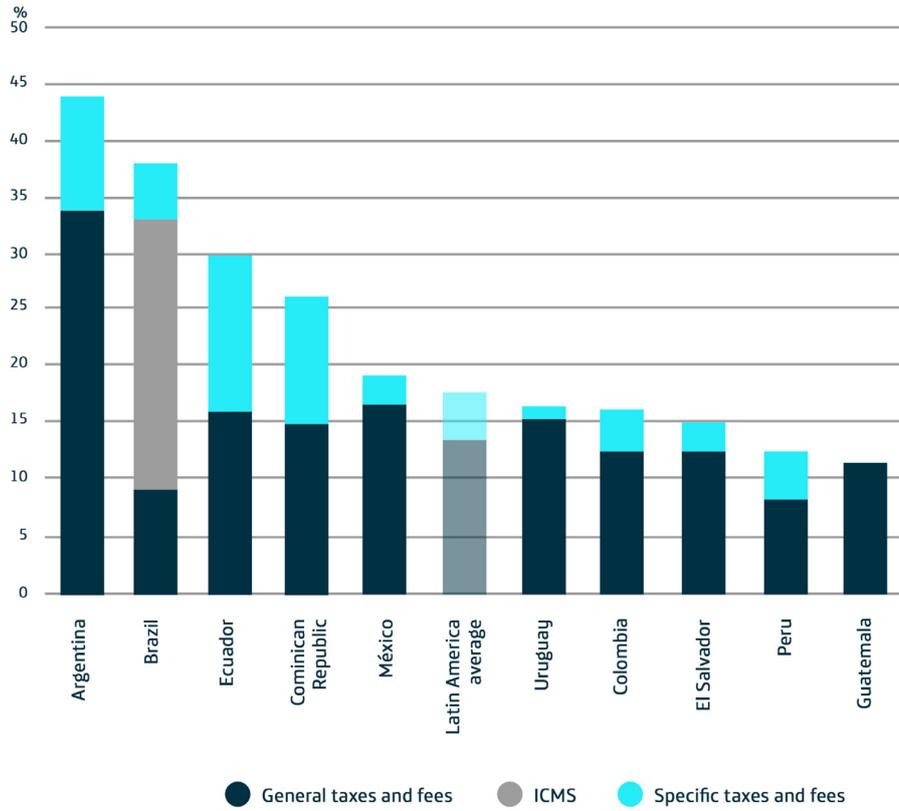


Source: "Communications Provider Revenue & Capex Tracker: 4Q19", OMDIA, 2020.

These decreasing prices have made connectivity available to nearly all people in developed countries, In Latin America, according to the A4AI, a majority of countries rank among the best of the developing world in affordability of broadband services in relation to average income per capita, although there is still work to do in improving availability.

This ubiquitous use of mobile connectivity contrasts sharply with the still widespread habit in Latin America of taxing communication services as luxury goods.

Taxes on communication services in Latin America



Source: OECD based on GSMA Intelligence, 2020.

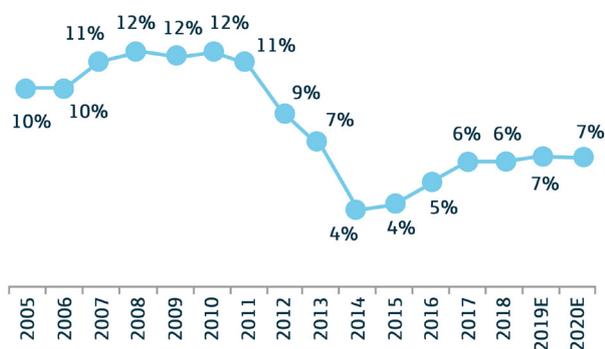


Capital Expenditures and Spectrum investment
European wireless market

	2018	2019
CAPEX/ Revenue	23,6%	22,7%
Spectrum Cost /Revenue	3,0%	3,2%

Source: GSMA internal analysis 2020

Return on capital employed (ROCE)
European wireless ROCE



Source: J.P. Morgan Cazenove, European Telecoms – 2020 Outlook; January 8th, 2020.

The quarter starting April is the first one showing full COVID-19 impact on revenues of telecom operators. The sector is facing negative effects in revenues due to the slowdown of commercial activity, the decline of international roaming revenues as a result of travel restrictions and the diminished purchasing of handsets.

Additionally, the telecommunications sector is suffering other issues impacting revenues and financial sustainability due to regulatory decisions to address the health emergencies.

The most disruptive decision has been the general restrictions to address cases of non-payments, which upon jurisdictions can even get to prohibit targeted approaches like migrating affected customers to a basic service or charging interest for late payments.



A new opportunity for a sustainable development

There are also positive learnings from these weeks of hardship. We have learned that cooperation and solidarity have been key in these difficult times. We have seen multistakeholder cooperation like never before in peace times. Companies have supported societies, while governments have done what they can to support business. People have supported each other and especially the ones in need. Public-private dialogue is an effective way to propose and implement public policies that minimize the impact of the crisis on households and businesses.

We have also seen that being more respectful with the environment increases our own quality of life. The radical reduction of mobility and production has shown that cleaner and quieter cities are better for people and the planet. Any recovery needs to build on that, and stimulus policies should align with long-term sustainability objectives. It has shown us what we can gain if we focus on what is truly important.

This spirit of cooperation needs to be maintained in the fight against an economic depression. Public and private sector will unavoidably need to work together to safeguard our prosperity and way of life. This will also need to include international policy where new ideas and policy initiatives need to change traditional approaches. It is good to see how solidarity is increasingly guiding the response of the European Union and elsewhere.

The United 2030 Agenda for Sustainable Development with its Sustainable Development Goals and the Paris Climate Agreement are still valid guides to ensure a better future for all. However, these goals will not be achieved through incremental improvements to business-as-usual. Progress to date makes clear that business must undergo a radical business-model transformation—one where all stakeholders are taken into account, where equal rights and where freedoms and rights of people come first in any business decision. Business leaders of the future should realize that the key to stable markets is social equality.

The last weeks have shown us that amazing things are possible when we cooperate and work together towards a common goal. We may also look at the COVID-19 crisis as an opportunity to bring new economic and social progress.

Now is the time to lay the foundations for more digital and sustainable societies and economies. We need to define what we call a “Digital Deal”. A new deal between governments, people and business to better rebuild our societies and economies.

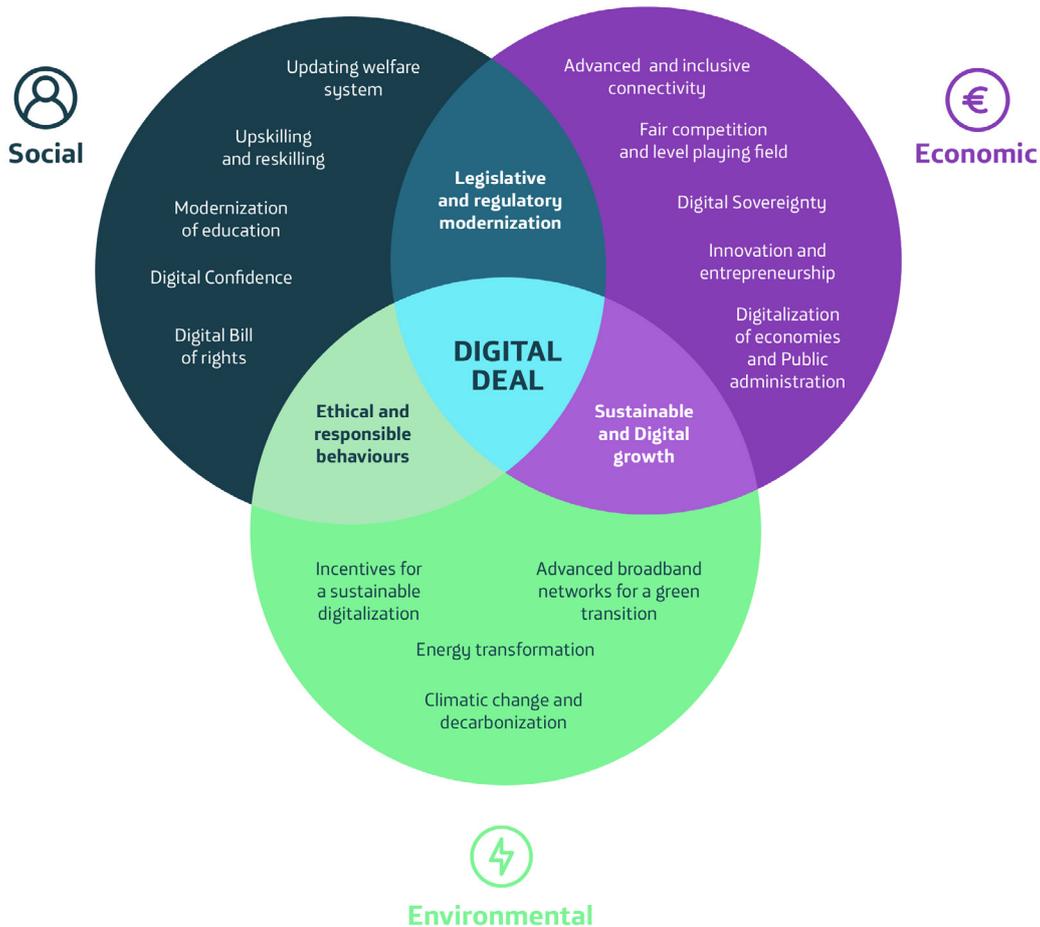
Creating a Digital Deal for a fair and inclusive digital transition

*“Make our world more human by connecting lives”
(Mission of Telefónica)*

Despite the hardships brought by COVID-19 and the economic crisis, there is also a huge opportunity to use this disruption to build a society that is better than the one we had before. The relevance of issues like inequality, climate change and also the digital divides have been heightened by the crisis. What has changed is that we can grasp the moment to actively drive policies that take action to tackle these challenges.

A collaborative approach between the public and private, a Digital Deal, needs to be based on a governance model that is able to combine social, environmental and economic aspects to achieve a long-term sustainable digital transition.

Basis of a sustainable and inclusive digitalization



Building the COVID-19 recovery is arguably the biggest challenge since World War II. The call to action needs to be “Build it back, better!” A transition to a new economic and social model that puts digitalization and sustainability at its heart.

In social terms, we need to restore public trust with a new social contract that assures that no one is left behind. Inequalities are probably the main challenge we have to face after the pandemic. The most vulnerable people of our societies have been the most affected. The health crisis has due to confinements in many countries around the world been followed by into an economic crisis, with probably the fastest rise of unemployment in modern history. This situation is giving way to a social crisis, especially in countries where social safety mechanisms are not existent or well developed.

During times of confinement of people in their homes, telecoms has been one of the three key sectors everyone depended on, next to utilities and essential stores. These essential services have proven to be reliable and resilient and have social and economic life alive in the darkest hours.

Accordingly, closing the digital divide, connecting all and ensure equal access to digital development and technologies is more urgent than ever. To achieve this, we need to understand that the basis for any digital economy is modern broadband infrastructures. Therefore, achieving investments in ultra-fast fibre and 5G networks needs to become a key priority for policymakers and regulators.

In Latin America alone, 100 million people live in unconnected areas. In order to reduce the inequalities and negative economic effects of being unconnected, governments and the private sector need to cooperate better and rethink both public policies linked to universal service and business models. “Internet para Todos” a company established by Telefónica, together with Facebook, CAF and IDB Invest, in Peru, through an innovative approach has resulted in 2.5 million Peruvians and nearly 5,000 local communities getting access to the Internet for the first time.

In economic terms, we need to transition to a more inclusive and fairer digital economy that respects our values and principles and leaves no one behind.

We are convinced that open markets and global trade are still the best model to bring prosperity to people but understand that globalization and digitalization need to benefit more people, and in more places. In other words: It is not good enough that these benefits reach just few, in some places.

This requires a profound review of our taxation systems, better education (reskilling and upskilling), a modernization of our social welfare and protection systems as well as consumer protection.

From an environmental perspective, economic recovery plans for growth need to be directly linked with the green recovery. Digitalization is essential to reduce carbon emissions of all relevant sectors. It will be critical to meet global reduction targets and achieve the maximum 2°C or 1.5°C global warming scenario. This is true for industrial processes, but also for those that involve all citizens: working on the move, virtual meetings, e-commerce or even remote medical consultation can contribute to reduce carbon emissions. Stimulus policies must be economically and socially effective while at the same time being aligned with the essential sustainability and biodiversity policies.



We believe that competitiveness and the environment go hand in hand, because if there is no environmental or social sustainability there is no long-term economic sustainability. Digitalization must be the common denominator for a green transformation of all sectors, from real estate and energy to the drive towards a circular industry, agriculture and prevention of climate change. Ultra-fast fibre and 5G networks are needed to drive the decarbonization of economies while at the same time reducing the emissions of the digital sector. Green and sustainable finance will be relevant in this objective as well as promoting the digitalization of relevant sectors like energy, industry, transport of agriculture.

Our objective should be to seize the moment to start building societies and economies that are comprehensively sustainable: socially fair, environmentally secure, economically prosperous, inclusive and more resilient.

Even before the COVID-19 crisis accelerated digitalization, this transformation had made a modernization of policy frameworks and regulation necessary. The new digital economy and dynamics demand updating rules in many policy areas, from competition to taxation:

- Competition rules must be adapted, and the definition of relevant markets changed to take account of new digital competitors and the role of data.
- The same rules must apply to all, to enable a level playing field where businesses can compete on an equal footing.
- Taxation is not an exception. The rules for digital services and players should not be different from those applying to all others and need to consider better the place where transactions take place and services are used; the digital

infrastructure should also be taxed in the same way as other sectors of the economy.

Indeed, a whole new form of social contract is needed to tackle some of these issues generated by the digital transition and economic crisis due to the pandemic.

Severe erosion of private consumption in services due to confinement, around one third in advanced economies according to OECD, is beginning to severely impact jobs and is creating an increasing rise of social inequalities.

Political decisions are reflecting the exceptionality of the economic and social situation: In Spain, the approval of the minimum living income will help to eradicate extreme poverty and strengthen social inclusion.

At supranational level, the European Reconstruction Fund, amounting to 750 billion euros, which together with the upcoming 2021-2027 pluriannual budget of the EU represents 5% of the 27 EU member states GDP (making it bigger than the impact of the Marshall Plan after the Second World War for many countries), will reinforce the European solidarity project and prepare the continent for the two key challenges that it faces in the near future: deeper steps in the unstoppable process of digitalization and environmental and social sustainability.

From a macro-economic perspective, states and governments have become investors of first resort (and not lenders of last resort) and stimulate private investment in strategic areas, a right step to fight social fragility.

Telefonica believes that in this exceptional situation we have an opportunity for a sustainable and inclusive recovery driven by a new deal to build back better our economies and societies, based on these priorities:

- 1. Making societies and economies more sustainable through digitalization** supporting key sectors, technologies and innovation, accelerating the green transition and digitalization of small and medium enterprises and public administrations.
- 2. Tackling inequalities by investing in digital competences and updating welfare systems,** upskilling and reskilling people, modernizing education and reforming social and labour frameworks.
- 3. Building an inclusive and sustainable connectivity,** reinforcing and investing in the very high capacity networks that have shown to be critical for future competitiveness while betting on green networks deployment. Building better infrastructure means bringing connectivity to those places with no infrastructure at all. We need measures to connect all those people not yet connected.
- 4. Ensuring fair competition,** by modernising the fiscal, regulatory and competition frameworks in all key elements of the digital economy.
- 5. Improving confidence through maximum ethical standards and responsible use of technology,** with respect for privacy, security and other digital rights, as well as adopting a risk-based approach for the use of AI.



1. Making societies and economies more sustainable through digitalization

Digitalization and sustainability go hand in hand: digital technologies and services are key for the decarbonization of other sectors. In particular, modern connectivity and high-capacity networks are important enablers of more efficient and greener economies.

Digital technology can provide solutions for reducing emissions by more than a third over the required 50% reduction by 2030 as stated by the World Economic Forum (WEF). The link between digital and green transitions will help create new businesses models and jobs as well as improve the health and quality of life of people. This positive aspect of digitalization on the environment has been experienced by many people during the times of confinements and has resulted in a broader understanding that an alternative to our traditional economic model is possible.

Accordingly, Europe and Latin America should put the definition of strategic national plans to create local digital

economies on top of their policy priorities. Strategic dependencies need to be reduced and Digital Sovereignty strengthened. This will require ambitious investments in high-capacity broadband infrastructure, improve use of digital technologies and possibilities (esp. by SMEs and public administrations) and reform education for a life-long-learning and digital environment. Promoting demand for new digital services by digitalizing businesses and public administrations would help with the economic recovery and support investments in broadband infrastructure and education that would help closing the digital divide.

The objective of governments should be to build vibrant, sustainable digital economies in their countries. This would ultimately be the best safeguard for both, better digital sovereignty and a successful digital transition.



1.1. Accelerate green transition through digitalization

Digitization is not only a key lever for social progress, it is also necessary for decarbonizing the global economy. Research data published by WEF indicates that digital technologies can help reduce global emissions by 15-35% in the next 10 years. Digitalization can accelerate the green transition and high-capacity, energy-efficient fixed and mobile broadband networks are a key lever.

Whilst the Telecommunication sector and communication networks have seen data

traffic increased tenfold in the last decade, energy consumption has stayed the same. Maybe even more importantly, broadband networks and digital technology can provide solutions across sectors to reduce emissions by more than a third over the next ten years.

It is today broadly accepted that telecommunication is not part of the problem of climate change, but in contrast is part of the solution. It can help other companies to transform themselves digitally and become more sustainable.

TELEFÓNICA IS USING 100% RENEWABLE ENERGY IN EUROPE AND BRAZIL AND IS HELPING ITS CUSTOMERS TO REDUCE THEIR CO₂ FOOTPRINT

- For more than a decade we have been working to have the most efficient telecommunications network on the market in terms of energy and carbon. For example, in Spain the old copper network is being replaced with fibre, which is 85% more efficient in energy consumption.
- In Europe and Brazil, 100% of the energy in our network operations is from renewable sources.
- We have reduced our carbon emissions by almost 50% and reached the targets we had set two years ahead of our schedule.
- Energy consumption per unit of data traffic has been reduced to one third just in the last 3 years.
- We issued the first Green Bond in the sector in early 2019 and launched a second issue of green debt with hybrid bonds, the first such issue of the telco sector worldwide. The funds obtained will finance projects aimed at increasing even more our energy efficiency.
- We avoid 3.2 times the emissions we generate, and the net positive impact of our activity saves 2.2 million tons of CO₂ emissions, as much as around 53 million trees absorb. This happens by helping our customers in their own decarbonization process. Thanks to IoT and Big Data we have multiplied digital solutions that allow companies and cities to save energy and water, improve waste management and reduce pollution. Telework, fleet management services, or solutions such as Smart Agriculture and Smart Lighting contribute positively to curbing CO₂ emissions.

When the world moved to digital during the COVID-19 crisis, people have seen how much digitalization can improve our environment.

Less visible, but even more importantly was that energy consumption and carbon emissions from telecommunication networks have remained virtually unchanged during these weeks, despite huge increases in the usage and network traffic. This shows how over the last decade innovation and investments have led to networks where growth in data traffic is decoupled from energy consumption and carbon emissions, making modern broadband networks an infrastructure that supports the green transition.

Digitalization should be the link that connects public stimulus for growth with the green recovery. The digital transformation of society and economy can link innovation, productivity and environmental sustainability.

TELEFÓNICA SUPPORTS THE CREATION OF A WORLD IN WHICH DIGITAL TECHNOLOGY HELPS PROTECT THE PLANET

During the Climate Summit in Madrid in December 2019, Telefónica redoubled its commitments, aligned with the ambition to limit global warming to 1.5°C. This allowed us to be recognized again as a leading global company against climate change, being part of CDP's "List A" for the 6th consecutive year.

- Reach zero net emissions by 2030 in our main markets and at a global level no later than 2050.
- Reduce CO₂ emissions from our supply chain by 30% per euro by 2025.
- Avoid, thanks to our products and services, 10 tons of CO₂ for every tone we issue in 2025.

Policy recommendations

1. Promote digitalization of strategic sectors, like energy, industry, transport or agriculture by using the differential capabilities of new connectivity infrastructure and fostering innovation (e.g. smart manufacturing to create more efficient and sustainable production and supply chains, connect and automate vehicles to reduce transportation emissions, improve renewable energy networks through smart grids).
2. Provide incentives like tax benefits, fee reductions, preferential regulatory treatment and benefits in public sector tenders and procurement for environmentally efficient ICT solutions.
3. Incentivize policies aligned with sustainability and biodiversity goals that are economically and socially sustainable to reduce barriers to encourage the increase of renewable capacity.

1.2. Foster innovation and the digitalization of SMEs and public administrations

The COVID-19 crisis has also revealed a digital divide between businesses. Smaller and medium sizes businesses are less digitalized than bigger ones and have often struggled to adapt quickly to the changing circumstances, e.g. working from home or online sale and delivery. This is relevant because, small and medium sized businesses constitute more than the 99% of the companies across countries and regions and create two out of three private sector jobs and more than half of the total value added generated by businesses. The economic recovery will depend on their capacity to reactivate their ability to offer their services and products and include innovative ways of doing so.

Clearly, digitalization of SMEs needs to be a cornerstone and policy objective of any economic recovery plan. Adoption of technology and digitalization should become broader and faster across all

businesses. In Europe, newly available public funds and credits should be used for a massive “Marshall Program for digitalization of SMEs”. This will provide positive long-term effects for the productivity of economies, reduce carbon emissions and create new jobs and employment.

In Latin America, several countries have also already adopted measures to minimize the economic impact of the pandemic. In Perú, the government announced US\$ 26 billions. plan to fiscally reactivate the economy. Similarly, in Colombia the government announced a fiscal package equivalent up to 4.7% of GDP for the control of the pandemic, containment and palliative measures.

A second focus of any effort to speed up digitalization need to be public administrations. The lack of e-government and use of digital technologies by public administrations hampers seriously the development of digital societies. We cannot have 21st century economies without modern and efficient, digital public administrations. Big Data, AI, Edge



Ten years ago Telefónica decided to support entrepreneurs from all over the world to promote local innovation ecosystems in different cities in Europe and Latin America. We seek to build equitable collaboration platforms with entrepreneurs that can leverage their growth in our networks and capabilities, bringing innovation to Telefónica, our partners and above all, our customers. Today our seven hubs (in London, Munich, Madrid, Barcelona, Sao Paulo, Buenos Aires and Bogotá) act as an interface between Telefónica and the world's most disruptive technology startups. Since 2011 we have invested continuously in more than one startup per week and today we have a portfolio of 400 active companies. This portfolio of innovative companies supported by Telefónica has attracted investments of 1.9 billion euros from other

investors and generated 9,000 new jobs. During the confinement the startups have adapted to the new context: 59% of Wayra's startups have led actions with positive impact on society in record time and in situations of great volatility and uncertainty.

The startups are going to be the protagonists of change and the answer to great challenges of the immediate future. Their resilience, their quick adaptation and their desire to change the world by providing the latest technology make them great allies in driving the transformation of our societies.

#WeAreWayra

Computing and Blockchain are just some technologies that would especially benefit more efficient public administrations (e.g. Health, Education and Justice) through real-time insights, transparency and data use.

The health crisis created by COVID-19 has shown the need to focus on better and more digital public health systems. Medical staff and health administrations had to develop digital tools for remote assistance and information of the population during the ongoing pandemic. To be better prepared in the future, systems and processes need to be digitalized and updated. Other areas of public administration that lack sometimes even basic digitalization are justice and educational institutions. In all these areas modernization efforts will also need to improve the digital skills and knowledge of public servants and employees by training programs. Finally, it would be essential to encourage innovation and startups by attracting and retaining talent through the creation of vibrant entrepreneurial ecosystems.

DIGITALIZATION, AN OPPORTUNITY FOR SPANISH SMES AND SELF-EMPLOYED AFFECTED BY THE COVID-19 CRISIS

It is estimated that 2 out of every 3 Spanish companies are lagging behind in digitalizing their processes and operations and that only 20% of their revenues stems from digital products and services. This problem mainly affects SMEs and the self-employed who especially in the current challenging economic situation need support to be able to digitally transform. The digitalization of SMEs could have an annual impact equivalent to 1.8% of GDP until 2025, according to Fundación Telefónica's Digital Society Report 2019.

New possibilities like teleworking, e-learning and off-site customer service require digitalization adoption. Now more than ever before SMEs need to embrace new technologies such as Cloud and Edge Computing, process automation and IoT as well as adopting AI and data-based decisions to be more efficient, competitive and flexible.

Telefónica has helped SMEs and the self-employed affected by the COVID-19 crisis, with measures such as debt deferral and advance payment of bills to suppliers.

Policy recommendations

1. Digitalize SMEs and encourage innovation: Create national or regional public funds for the digitalisation of SMEs and the development of startups, and support upskilling programmes for innovators and SMEs as well as the reskilling of their employees.
2. Define national digital transformation strategies and public funding for key sectors like transport & mobility, tourism or agriculture.
3. IFoster digitalization of public administration: Implement e-government, e-invoicing, e-payments and digital identity as well as foster the use of technologies like Big Data, AI and Blockchain by public administrations (especially in health, justice and education).

1.3. Support strategic sectors and technologies to reinforce digital sovereignty

Disruptive technologies like AI, 5G, Blockchain and Quantum Computing and key capacities like cybersecurity expertise will be relevant for any advanced, digital economy. The current global ecosystem of technology is getting fragmented due to geopolitical tensions and governments will need to define the level of sovereignty they want to exercise in the future. Without exercising protectionism and isolating markets and industries, long term industry strategies need to be developed and implemented.

To achieve “Digital Sovereignty” European Governments will need to identify key future technologies and create clusters of excellence across Europe to strengthen research and development as well as expertise. Additionally, strategically relevant industrial ecosystems should

be fostered, building on existing globally leading industries like communication networks and manufacturing. Data-related infrastructures like Cloud Computing and AI but also cybersecurity expertise should get specific attention.

In Latin America, there is an urgent need to transition from a consumer-based digital economy to production-based digital economy. There is room to bring the benefits of implementation of new technologies to the most competitive industries in Latin America such as agriculture, mining or tourism.

Policy recommendations

1. Design national and regional long-term strategic plans to foster the development of local Ecosystems and improve the knowledge transfers between research and business and around new technologies such as AI, 5G, Blockchain and Quantum Computing to achieve digital sovereignty.
2. Support strategic sectors and increase competitiveness by promoting interoperable digital and data infrastructure projects (e.g. European-Edge Cloud, Gaia-X) to shape and influence tomorrow’s global data-driven economy and achieve economies of scale.
3. Ambitious funding for research and development to create clusters of excellence for cutting-edge communication technologies such as 5G, Open RAN, Edge Computing and network security.

2. Tackling inequalities by investing in digital competences and updating welfare systems

Inequality of opportunity and a deepening digital divide are some of the most relevant challenges we face due to the unfolding economic crisis created by COVID-19.

We must ensure that all have access to technology and that everyone can benefit from the opportunities provided by the new digital world.

The Digital Transition is radically and quickly transforming labour markets. Professions that did not exist few years ago are being created and others will disappear by automation.

These dynamics are not new, also previous technical revolutions have resulted in the transformation of many professions and jobs. What is different this time is the speed of change and that broad automation through AI of also more complex, intellectual

activities. This will make basically all professions to include human-machine cooperation. We will have different jobs where people and machines work together.

The use of new technologies will demand experts such as data scientists, engineers, mathematicians. However, complex ethical, legal and moral questions need to be solved to ensure a human-centric and value-based digitalization, making equally necessary digital lawyers, economists or philosophers.

The only constant will be change so a “life-long learning” attitude will be needed by people. Education needs to be reformed and educational systems need to be prepared to upskill and reskill broad parts of the population.

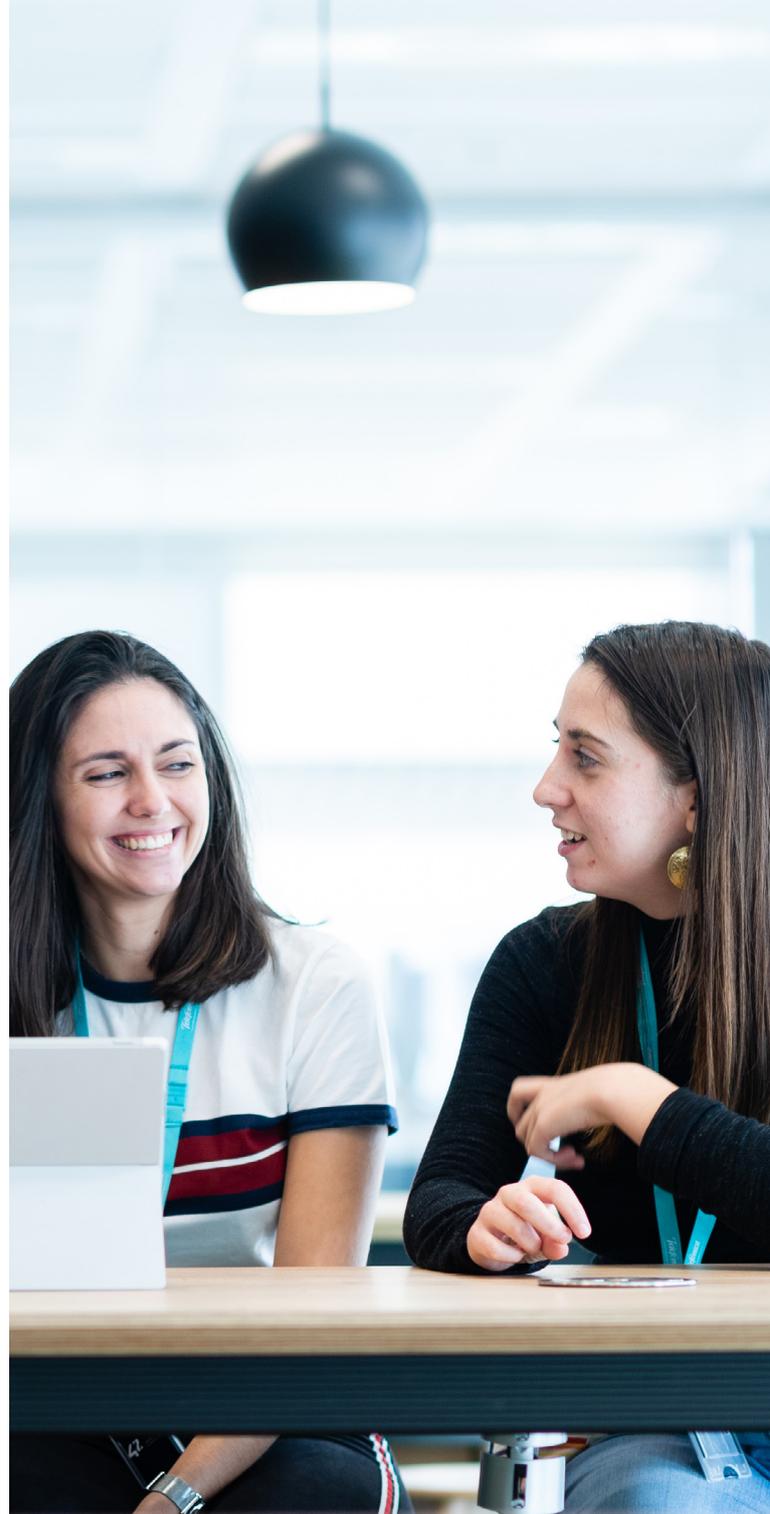


2.1. Reskilling and upskilling of people

Today, there is an imbalance between the supply of education and training and the demands of the labour market. We need to reform training to meet the needs of the labour market: - 85% of the jobs that will exist in 2030 have not yet been invented. According to the World Economic Forum (WEF) by 2022 at least 54% of today's workers will require significant renewal and improvement of their skills.

This crisis is accelerating digitalization and automation that are transforming the way we work. New ways of collaboration between public and private sector will be needed for reskilling and upskilling people and ensure that no one is left behind.

Employers and employees, public and private sectors, SMEs and big corporations need to improve their digital skills and capacities to become more productive, create future-proof employment and boost economic growth in a new data-driven economy. In a life-long learning environment, companies and the private sector will need to step up their efforts and cooperate better with public administration to improve digital education and skills.



Policy recommendations:

1. Identify critical workforce and communities in need of upskilling taking into account existing digital divides by age or gender.
2. Design National Training Workforce plans based on a collaborative effort between public and private sectors to identify faster skill pools in order to match supply and demand side and to cut the costs of reskilling the current workforce.
3. Boost cooperation between public and private sectors to foster knowledge transfer among researchers and businesses (e.g. avant-garde cybersecurity, or AI campuses).

2.2. Education for a new digital era

According to UNESCO, the lockdown of educational institutions due to the pandemic has affected up to 1.6 billion students worldwide in basically all countries and states.

Distant learning was not available to all in the same way, due to lack of connectivity but also a lack of compatible devices like tablets and computers. A major digital divide in education has surfaced: While better off parts of the population switched to online classes, many poorer families could not do that due to lack of connectivity, devices or simply space in their homes.

At the same time, maybe the biggest move to digitalize education system has happened during the closure of schools and education centres. Millions of teachers and students and hundred thousands of school and universities have used e-learning platforms, videoconferencing and other distance learning tools like never before.

More studies will be needed to evaluate the outcomes from this massive use of distance-learning, but best practices and learnings should be included in future educational strategies to provide the best education to all.

TELEFÓNICA HELPS TO CLOSE THE DIGITAL DIVIDE IN EDUCATION

In Spain, the lack of access to a computer is almost 20 times higher in the poorest households and about 100,000 households do not have access to the Internet. The digital divide impacts also in education.

In view of this situation, Telefónica has taken steps to help:

- We have provided 20,000 mobile lines to students with few resources and difficulties to continue their telematic training during the state of alarm.
- We have donated 10,000 tablets through Profuturo so that children in vulnerable situations can access educational resources and continue to learn from home as long as they remain closed the educational centres.
- We have provided free Wi-Fi in public centres for minors and have made Fundación Telefónica's educational platforms available to teachers and students free of charge.



A new educational context

A sustainable digital transition needs to be based on a reformed education, which has to respond to the needs of a constantly changing labour market. It should incorporate digital skills and training for new professions, adding technology and digital tools to the learning process and generate new qualifications to meet the demand for jobs in more digital careers.

Educational institutions will also have to provide young people with the skills and flexibility necessary to be effective and competent in the new digital world. Constant change is going to continue to be a feature of digital transformation and people and students will need to adapt continuously.

Schools will have to move towards an integrated model that combine face-to-face and virtual learning. We need to train teachers, make them comfortable with technology and motivate students to improve digital skills. This change needs to take place at all stages of education, including vocational training.

FUNDACIÓN TELEFÓNICA DISRUPTS DIGITAL EDUCATION WITH 42

42 is a campus with no classes, no professor nor books, no age limit, open 24/7 – and completely for free. An innovative educational model that meets the needs of our times and innovates by using gamification and Peer-to-Peer education.

At 42, each student sets their own learning pace and collaborative work, effort and consistency are rewarded. No previous training or qualifications are required, and no costs are involved, making it accessible to all that pass the online admission test. Telefónica Foundation brought 42 to Spain and Brazil in 2019 and is expanding the concept to other countries.

The concept of Escuela 42 was initiated by the successful French entrepreneur Xavier Niel. It establishes an innovative way of relating to learning and the digital profiles of the future, providing everyone with an opportunity for comprehensive training in the digital skills and competences that are really demanded by the job markets.

The learning process usually lasts 3 years on average and follows a methodology based on projects from the different areas of the programme. 42 is a live campus, where there are currently 250 projects that are constantly growing and being updated. These are organised according to a programming tree with 21 levels, that the students face, as if it were a video game, by passing the different phases and in this journey acquiring skill-based knowledge and social competences.

The 'peer to peer' concept is fundamental in the learning process and within the methodology itself. It is not possible to move on to the next level unless you have worked in a collaborative manner, as students and not teachers evaluate each other. The efficiency of this methodology is evident with a 100% employability rate of students in all countries where 42 is present. In fact, already during their time on the 42 campus, each student receives an average of eight job offers by companies, showing the potential and possibilities to provide opportunities to all when innovation and education meet.



Teachers must be facilitators of learning by seeking to personalize education. Digitalization and use of algorithms that evolve in accordance with each student's progress will help teachers in creating better, more individualized learning journeys. Gamification of learning and Peer-to-Peer education by working in teams can improve motivation and efficiency.

Digitalization of education will also make new learning opportunities possible, based on the universalization and democratization of access to knowledge by the Internet. This will promote equality of opportunity and lay the foundation for a sustained economic growth.

We must take advantage of the potential that technology has to create equal opportunities and reduce inequalities through education.

Vocational Training

Vocational Training has an important role to adapt the educational model to digitalized societies. More than 78% of job offers require vocational training or technical qualifications.

The design of vocational training is closely linked to companies and requires close public-private cooperation. Constant feedback between involved companies and the educational centres reduce the risk to develop "gaps" or deficits in the training and allow for adapting the qualifications. That way, professional training is able to adapt to the changing world of work.

Vocational training especially for more technical qualifications like web designers or IT programmers and for new technologies like Cloud, Edge Computing, IoT, Big Data and Blockchain will be able to provide much needed experts to business and economies.

Policy recommendations:

1. Update educational content (national curricula) to the digital era and revisit learning processes methodologies to seize all opportunities and learnings from the use of distance learning and new technologies (e.g. Augmented Reality and Virtual Reality).
2. Expand vocational training and upskilling and reskilling initiatives to achieve that training of people is continuous and cover all phases of life ("life-long-learning").
3. Drive a faster digitalization of the educational system by create Public-Private ecosystems of learning partners to develop and implement digital content and new methodologies like gamification and Peer-to-Peer learning as well as to exchange best practices.

2.3. Update welfare systems

The current economic crisis has dramatically increased the number of unemployed, creating new inequality and poverty divides. Fifty percent of global social spending comes from the European social welfare model. Europe, with its values and social welfare model, has proved capable of effectively softening the effects of the COVID-19 crisis with robust health and social benefits. The European welfare model must inspire and drive new policies to address inequality in the context of the current economic crisis and the digital and green transition to establish a sustainable, inclusive and fair model of society.

Digitalization is changing labour markets, replacing repetitive and without added value jobs and creating demand for new skills and jobs don't exist yet. During this transition period, relevant workforce segments could end up being displaced from their working positions, requiring social protection until their reskilling and upskilling process fully completed in order to actively re-join employment.

An increasing concentration of productivity in just a few companies, the polarization of the labour market and its fragmentation and flexibilization can lead to greater

inequalities. It is known that the Gig economy is generating new work models, particularly informal employment or platforms jobs, that are not wholly covered by social and labour protection frameworks.

The digitalization of the economy is introducing new productive and labour scenarios that lead to a necessary reform of welfare systems, of its benefits and financing.

Traditional social protection approaches do not cover these new contexts of flexibility and discontinuity in access to and exercise of work by part of the population. Therefore, new public policies must be implemented to address inequalities and poverty. These include, among others, a system of a conditioned minimum income so as not to leave anyone behind.

At the same time, digitalization offers opportunities to improve people's wellbeing. It can generate a high productivity model based on a virtuous circle between social protection, investment in human capital and technological competitiveness.

Digitalization also offers new tools to put people at the centre of social benefits, giving them an enhanced role and control over the development of their working lives.

Policy recommendations:

1. The European social model must inspire new policies at global level to address inequality in the context of the current economic crisis and the digital and green transition in order to establish a sustainable, inclusive and fair model of society.
2. Adapt welfare systems to the digital transition and to new working arrangements in the Gig economy, such as informal employment or platform jobs.
3. Explore new approaches for public-private cooperation in different areas of social protection.
4. Develop national "digital welfare" strategies in areas of social policies, redefining public-private partnerships to foster the launch of digital services that allow providers for a more personalised and flexible treatment, improving the efficiency and effectiveness of social benefits or health care.

3. Building an inclusive and sustainable connectivity

Telefónica is committed to make our world more human by connecting lives. Networks and infrastructure allow communities to grow and progress, improving their quality of life, education and economic prosperity.

Modern communication infrastructures help to reduce emissions and support a circular economy and green transition.

Having no possibility to access the Internet is the most severe form of the digital divide. It means in a digitalized economy: no possibility of progress, growth or education. In Latin America only and despite much progress in the last years due to mobile broadband, today still around 100 million people, 20% of its population, do not yet have access to the Internet. Connecting the unconnected is therefore rightly a global policy objective. The UN Broadband Commission for Sustainable Development targets define that by 2025 entry-level broadband services should be made affordable in developing countries at less than 2% of monthly gross national income per capita.

The current crisis has also shown that the networks in major parts of Europe and Latin America need to improve. Asking content providers to lower the quality of their video streaming to avoid networks to collapse has been a pragmatic short-term fix and allowed European and Latin American network providers without extensive fibre rollouts to cope with the exploding demand. But it has also shown a serious shortcoming: Currently many operators and networks cannot provide sufficient capacity nor are able to manage network traffic for higher demands. This situation is a relevant risk for any future sovereign digital economy and society. The COVID-19 crisis has shown that in general European and Latin America government policies and regulatory frameworks have not been successful in achieving sufficient private investments in high-capacity broadband networks with nationwide coverage to achieve digital inclusion.

Few notable exceptions show the way: Spain was the only country that was severely hit by the pandemic but has not seen any Internet



outages. The reason was its excellent communication infrastructure based on an extensive fibre broadband network that has been built by private providers over the last years based on regulation that incentivized investment in new infrastructure investments. The first driver to achieve economic recovery and digital sovereignty should therefore be to further enhance new generation broadband networks, expanding

its reach and upgrading its quality. This can only be achieved if more private investments are attracted. High-performance, secure and resilient networks enable the adoption of technologies and digitalization, and provide the basis for green and digital, sustainable growth and well-being in the long term. It is time that policymakers and regulators set its priority on achieving investments into modern and inclusive connectivity based on fibre and 5G.

UNIVERSAL FIBRE CONNECTIVITY UNTIL 2025: THE EXAMPLE OF SPAIN

A bit more than a decade ago Spain was a laggard regarding deployment of fibre to the home. Today it has more fibre networks than Germany, France, Italy and the UK combined and is No.3 of all OECD countries, with only Japan and South Korea having more kilometres of fibre to the home deployed.

What has happened? Initial fibre deployment in Spain was started by Telefónica in 2008 when the financial crisis was shaking badly the Spanish economy but there was, in just six years Spain was at the top of the European ranking. A determinant enabling factor for this: A favourable regulatory framework. Obligations set on Telefonica's new infrastructures were limited to speed of up to 30 Mbits/s, the maximum bandwidth at that time on copper-based legacy infrastructure.

At the same time the bottleneck for alternative investments was opened by providing access to Telefónica's civil infrastructure, especially the ducts that were needed to deploy fibre networks. This facilitated all operators to deploy their own fibre networks. This regulatory framework set a fair competition framework, where companies committed to investment had no barriers to deploy their own networks, creating infrastructure-based competition.

The results speak for itself: By mid-2019, 84% of the Spanish population is covered with networks providing access to the Internet with speeds above 100 Mbits/s, with Telefonica alone

connecting with fibre more than 25 million real state units. The speed of this roll-out is shown by the fact that as many as 400.000 units have been connected in a month. And Telefonica's goal is to have for 2025 all residential customers migrated from copper to new fibre networks.

This success story, started during the last major economic crisis in 2008, has permitted the Spanish society and economy to sustain its activities seamlessly during the home confinement: Homes became overnight digital hubs merging offices, schools and entertainment. The Spanish fibre-based broadband networks seamlessly coped with an overnight increase of 40-50% in total traffic during the times of confinement, making it the lifelines of the economy and society.

3.1. Promote investment and reduce deployment costs of networks through regulation

Communication and broadband networks have become the central nervous system of digital societies and are the basis of modern economies are based.

Attracting more investment in infrastructure needs to become a key policy priority of national digital agendas and regulation. Policymakers and regulators will need to move after COVID-19 from 'business as usual' to a new policy and regulatory framework that promotes investment and incentives new forms of cooperation. The success of regulatory intervention should be benchmarked and evaluated against this overarching objective of facilitating ubiquitous deployment of new, secure and ultra-fast broadband networks. Regulatory authorities should be better held accountable by policymakers to achieve this policy priority.

Ambitious connectivity targets will not be reached without a shift in regulation in Europe and Latin America. Best practices from countries like Spain where investments in fibre and 5G networks are happening point to a simple truth: The key is to create adequate economic and financial frameworks for new investments by allowing operators to compete based on sustainable business models that provide for a fair return on the employed capital. That means that regulation should be limited to guarantee replicability of infrastructure deployment to all market players, which in most cases will mean that only the access to infrastructure bottlenecks for network deployment needs regulatory intervention.

Additionally, public authorities should support cheaper roll-out of 5G and fibre networks by making suitable public spaces and property available without costs for



network deployment (e.g. 5G antennas) or tax exemptions for rights of way and matching price of permits to administrative costs. Faster deployment of broadband networks would be achieved by streamlining and unifying construction and installation permits processes or even exempt smaller installations from lengthy permission procedures as long as internationally recognized emission thresholds on electromagnetic fields exposure (EMF) are respected.

Resilience of network infrastructures is paramount. As essential infrastructures, we need to keep networks up and running in any circumstances. This will need a supply chain based on a wide range of competitive and trustworthy vendors. More diversified innovation in connectivity technology is

happening (e.g. Open RAN) and will improve security while also making markets more competitive.

Attracting new investments and transforming communication networks is also necessary to be able to improve the energy efficiency of the sector and contribute to the decarbonization of the whole economy. Modern communication infrastructure like fibre and 5G are much more energy-efficient and are necessary to help other sectors and society to achieve ambitious climate targets. Policy and financial incentives that support the transition towards climate-neutral economy (e.g. EU Taxonomy for Sustainable Finance) need to reflect that important role of broadband infrastructure.

Policy recommendations

1. Policy and regulatory frameworks should be reviewed to incentivize private investments in new broadband infrastructure like fibre and 5G and regulatory authorities should be better held accountable to achieve this policy priority.
2. Regulatory interventions should be focused to opening bottlenecks necessary to replicate infrastructure investments and bring down costs of deployment especially in remote areas as well as allow for faster and cheaper roll-out of networks by improving permission procedures. Foster a diverse, competitive, secure and open vendor supply chain by promoting open equipment interfaces and technical standards and support industrial ecosystems (e.g. for Open RAN solutions) through public funding and policy.
3. Define harmonized and reasonable emission thresholds on electromagnetic fields exposure (EMF), following the international bodies recommendations to foster legal certainty and enable efficient deployments.
4. Modern communication networks should be promoted as green infrastructure in frameworks of sustainable finance (e.g. European Taxonomy on sustainable finance).

3.2. Create possibilities for innovation and support investments in remote areas to bring connectivity to all

In order to close the digital divide between urban and rural areas, it is key to review all levers that are making the business case for rural network deployment unfeasible. Policymakers should reform regulation and define policies with the objective to connect all as part of social cohesion policies. Aspects such as reduced cost of spectrum, taxes and more regulatory flexibility can help in making the business case for network deployment in rural areas viable. Regulation should focus on eliminating all hurdles for more efficient investments in remote and rural areas while Public Policies should support making private investments feasible.

Voluntary network sharing agreements and new forms of cooperation among different players (e.g. public development banks, digital service providers, etc) are a great opportunity to reduce costs allowing for a more efficient network deployment while improving coverage and quality. Policy and regulatory support for new models of alliances, network sharing agreements and possibilities for closer collaboration by communication operators on joint projects would support a stronger sector and more investments.

New rural network business models such as IpT Perú (Internet para Todos) are a good example of such kind of innovative collaboration. In only a bit more than one year IpT has connected more than 1.5 million Peruvians, to approximately 25% of the total population in Peru that has no Internet access. This success has proven the sustainability of this model of collaboration and shows that innovation and a focus on allowing for cooperation and private investments need to be a part of any national strategy to connect the unconnected.

THE CASE OF PERU: HOW "INTERNET PARA TODOS" IS BRINGING CONNECTIVITY TO OVER 30.000 VILLAGES

IpT Peru was created as a new company with the mission to bring connectivity to all remote, rural or underserved areas in Peru. It is developing a mobile network in unserved and underserved areas in an open wholesale model.

Telefónica, Facebook, Inter-American Development Bank (IDB Invest) and Latin American Development Bank (CAF) joined forces and IpT is innovating in various ways how broadband networks are operated, by

1. The development of a new private business model wholesale only, allowing any operator to extend its coverage. IpT offers wholesale access to its rural broadband infrastructure through a revenue sharing model that enables any mobile operator to support rural connectivity and provide communication services to individuals, businesses and other organizations in unserved or underserved areas.
2. The application of cutting-edge technologies such as Open RAN and the virtualization of network technologies that enable radical cost reductions.
3. Experimenting with new network operating models in rural areas, for example, by including community-based networks.

The authorities in Peru supported these developments by adequate regulation. National telecom regulation provided for the possibility to define a Rural Mobile Infrastructure Operator (RMIO) with the following conditions that could deploy base stations in non-covered areas on an exclusive basis and use the spectrum of operators established through voluntary agreements, all in a tax and regulatory neutral scheme.

In a bit over a year into operation, the results of IpT are impressive: Over 1000 new sites for 3G and 4G coverage have been built, providing broadband connectivity to around 5000 local communities and villages with more than 1.5 million people. The objective is to increase that number until the end of 2020 to over 2 million, a third of the unconnected population in Peru.

Policies need to reflect that scalability and size are important elements in digital markets. From the outset, due to more fragmented and smaller markets, European and Latin American operators are in this regard in a weaker position in comparison to US and Chinese operators. Policymakers and regulators should strive for a market structure that better serves the consumer through both, sustainable competition and efficient investments. A relevant part of efficient investments is Network sharing that not only supports better network coverage but also contributes to sustainable development goals by increasing energy efficiency and eliminating network waste. An example of such network sharing is Brazil, where Telecom Italia and Telefonica/Vivo are discussing how to deploy a shared network for mobile connectivity for cities and towns with less than 30,000 inhabitants.

For areas where no private investments are economically feasible (“White spots”), connectivity for all should be supported by public budgets as part of the policy for social cohesion. To achieve that currently

existing Universal Service regulation should be reviewed to make it more effective and to ensure that USO funds are provided by governments and not operators. In any case, it is absolutely essential that governments fully ensure that the Universalization Funds collected (whatever their source) are effectively applied for that purpose and do not become an additional source of revenue for the Public Treasury, increasing the effective tax burden faced by the sector. Public administrations have an important role to improve the business case of private investments but should shy away from building public networks that have proven to be unsustainable and less efficient than privately-operated networks.

Collaboration is key: Governments and also regional organizations should work together with the private sector to make sure that regulation and public policy better support investments and growth of the telecommunication sector.

Policy recommendations:

1. To be able to provide connectivity in unserved rural and remote areas (“White Spots”) governments should, as part of social cohesion policy, allocate public funds to support network roll-out and reform Universal Service Obligation (USO) regimes while regulation should allow for single, shared open networks in rural areas to bundle all available demand, allowing for business-driven sustainable roll-out of networks.
2. Competition authorities and regulators should allow operators to enter into network sharing agreements that make investments more efficient.

3.3. Rethink spectrum policies to eliminate spectrum cost inflation

The fastest way to attract more investments in 5G network would be to profoundly revise current spectrum policies.

European telecommunication operators have paid over 150 billion euros for spectrum usage between 2000 and 2017. This figure is comparable with the 155 billion euros investment gap identified by the EU Commission to realize the connectivity targets of their Gigabit Society vision.

Oversized financial requirements, in Europe and Latin America, have considerably diminished the investment capacity of operators for 3G & 4G access networks and the necessary fibre backhaul capacities to connect the base stations. As they usually go to general national public budgets, payments for spectrum constitute ultimately just an additional hidden tax or levy that ultimately hinders investments in better and wider connectivity.

There are best practices that show that using spectrum auctions to fill finance ministers' coffers is not what policymakers should strive for: In Japan, auction bids are

based on investment, so that the spectrum is finally assigned to the best deployment projects. A similar model is defined by law in Chile, where spectrum is assigned in a process in which network deployment projects are the key element for spectrum assignment. Other best practices are expanding lifetime of existing spectrum licenses without additional cash payments, as already done in France with 2G and 3G spectrum, or including freehold terms in new spectrum award process, as is done in the US and UK. All these policy measures focus on enhancing the investment capacities of operators to achieve faster and broader roll-out.

In times when ensuring universal access to the Internet is a key public policy objective and public concern, governments cannot continue to tax connectivity like a luxury good. Spectrum auctions focused on maximizing revenues need to be replaced by processes focused on maximizing social welfare through accelerating rollouts and guaranteeing that new technologies are made available to more citizens in less attractive areas. Additionally, scarcity of spectrum needs to be avoided. Reducing the amount of spectrum made available to the mobile industry is another way to artificially increase spectrum prices.

Policy recommendations

1. Eliminate spectrum price inflation: Substantially reduce the cost of spectrum for operators to provide financial leeway for 5G investments and fast roll-outs by changing spectrum auction designs across Europe and Latin America following successful best practices, prolonging existing spectrum licenses without time limit and providing sufficient spectrum to avoid spectrum scarcity of operators.
2. Define reasonable coverage and access obligations in spectrum licenses. Ensure efficiency (e.g. defragmentation of spectrum bands) and non-discrimination in order to guarantee a fair level playing field for all market participants.
3. Consider more flexible approaches for the use of spectrum (e.g. secondary market, spectrum pooling and sharing).

4. Ensuring fair competition

Policy and regulatory frameworks have been outpaced by fast-changing technological evolution and have not been adapted fast enough to the new digital market realities.

Such outdated regulation and policies are creating unfair competitive advantages for digital business models. Such is the case for fiscal policies that in many territories maintain a higher tax burden on digital connectivity than the market average, and have not been able to grasp new realities like cross-border provision of digital services and have created an unlevelled-playing-field for local and traditional versus delocalized and digital businesses. Frameworks and markets supervision have also not been able to consider the

changed competition dynamics created by the entrance of new digital players. Regulation and supervision of traditional markets are maintaining often unnecessary restrictions on existing players to safeguard competition and consumer welfare while new digital markets tend to market tipping and dominance due to lack of regulation and supervision.

As policy frameworks were designed solely considering existing business models at that time, they have become outdated as they can't be applied to new ones.

Policy and regulatory frameworks need to be profoundly reviewed and modernized to ensure fair competition, consumer choice and a level-playing-field for all markets participants.



4.1. Promote a level playing field by modernizing competition and regulatory policies

Digitalization has driven a process of convergence among business sectors, leading to the emergence of a new hypersector, the Digital Ecosystem.

Competition rules are struggling to keep up with the speed of development in digital markets. Intervention in markets by competition authorities have proven to be too slow and have not achieved to avoid digital markets to tip to monopoly situations. Accordingly, policy makers in Europe are with the Digital Services Act (DSA) now developing regulatory tools to be able to assure that digital markets dominated by few platforms are open and competitive.

At the same time, also established approaches to communication markets need to be reviewed and take better into account the changed competitive situation due to more digital markets.

Allowing for more in-market consolidation of communication markets can yield positive outcomes for both consumers and markets:

While the approval of US authorities to the T-Mobile and Sprint wireless merger has resulted in a commitment from T-Mobile to roll out 5G to 99% of the US population within 6 years, EU competition authorities have systematically blocked such “4 to 3” mergers or approved them with remedies that did not improve coverage but rather resulted in profitability and thus investment declines.

Competition and regulatory policies must adapt rapidly to the changed competitive dynamics in markets to avoid putting at an unfair disadvantage to existing, regulated market participants players or inhibiting new business models.

Policies should guarantee the sustainability of investment, innovation, fair competition, balanced protection of users' rights and a fair contribution to societies by securing a level playing field that balances the rules throughout the value chain, i.e. for local business, traditional industries or native digital companies and global digital players.

The same services should be governed by the same rules, their providers comply with the same obligations and their users enjoy same level of protection.

Policy recommendations:

1. Competition and regulatory policies need to be modernized to create a level- playing field by ensuring that different layers of the value chain are regulated in equivalent ways regarding taxes, privacy, security, consumer protection.
2. Review applicability of competition law and implement adequate ex-ante regulation for dominant digital platforms and bottlenecks to address market failures and safeguard contestability for other market participants.
3. Change merger policy for communication markets: Competition authorities should allow for more in-market consolidation (including four to three concentration processes) if they result in better coverage and more investments.

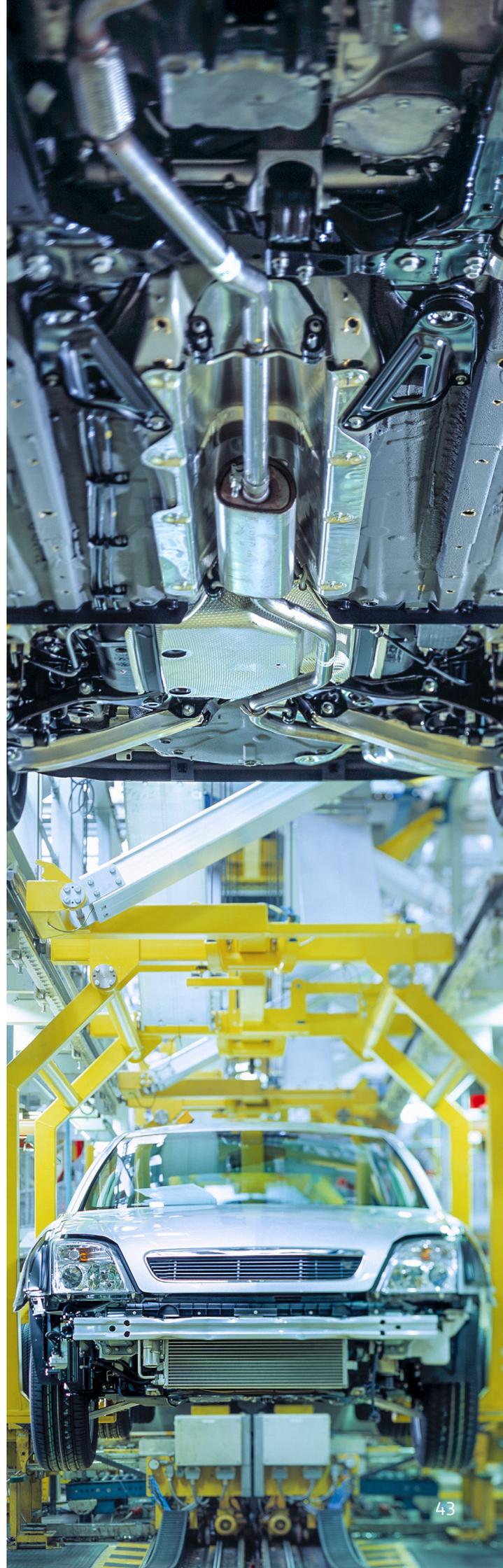
4.2. Fair tax regimes

One of the great challenges in the digital age is achieving fiscal sustainability. Digitalization facilitates the cross-border provision of digital services, which creates unfair competitive advantages for global services over local one due to outdated tax systems and policies. As the G20 and OECD have recognized, a key issue for a fairer globalization and digitalization is therefore to fight aggressive tax planning schemes that create an uneven playing field for companies.

New tax policies should replace the current international tax system that cannot guarantee that income derived from digital activities is not falling unjustly out of the scope of national and international tax rules. The OECD and the EU should provide a coordinated solution that stops targeting just those corporate taxpayers that have physical activities and links to territories.

Additionally, as with spectrum payments, additional fiscal pressure on communication services and companies through special levies and taxes should be eliminated, because they drain financial possibilities for investment with a multiplier effect. These type of telecom sector-specific taxes and fees vary between jurisdictions, but include e.g. urban planning fees, specific import or SIM taxes or also taxes to fund public broadcasters as well as other charges such as universal service fund contributions. The current tax burden is not distributed fairly along the digital value chain and results ultimately in local investments in communication infrastructure disadvantaged over global services by taxing regimes.

A striking example of such taxes are those specifically addressed to mobile services like in Brazil. Here the so-called ICMS tax levied on telecom services vary from 25% to 37% on retail prices, which together with other



sector specific taxes (e.g. FISTEL, FUST, FUNTTEL) and other general taxes increase taxation pressure over communication services to in total more than 40%, one of the highest tax burdens across Latin America. Similarly, in Ecuador, the mobile sector-specific tax burden represents 14% of the total market revenue, which is the largest specific-tax burden in the region. Such outdated taxing policies result that essential communication services that are critical for the digital transformation of our societies, continue to be taxed as luxury goods. This is an obvious contradiction with universalism of connectivity and Internet access that governments and public opinion rightly demand.



Policy recommendations

1. Finalize BEPS reform at OECD and change national tax laws accordingly to create a level-playing-field for all companies and assure that income derived from digital activities does not fall out of the scope of tax laws.
2. Stop taxing communication services like luxury goods by abolishing undue sector specific levies on the telecom sector that drains financial resources for necessary network investments and are a contraction to universal access and usage of connectivity and Internet.
3. Include fiscal incentives for investments in digital connectivity infrastructures as part of national tax regimes.

5. Improving confidence by an ethical and responsible use of technology

One of the prerequisites of a human-centric digital transition is that people have confidence to use digital services. Current shortcomings of a secure, safe and trusted use of digital applications need to be addressed.

During the worst moments of the health crisis, cyber attacks on health systems occurred, showing the increasing need to improve cybersecurity and move to a "security-by-design" approach for all parts of the digital value chain.

Also, the exponential growth of personal data and its use needs control and regulatory guidance. The control of data should be left to people. That means that

people should be able to choose freely about the use of their personal data. New "data ethics" with better transparency, control and choice should be developed and implemented.

Data has economic value and might even be considered in the future as a new factor of production that provides the possibility to create wealth. Today, most of that value is in the hands of few giant digital platforms. Relevant parts of the massive capitalization of these large platforms are related to the use of this data but should really be considered as part of the GDP of the countries where the users live. International transfer, taxation and compensation



mechanisms for such data use should be fair and create value for people.

Telefónica believes that a “Digital Bill of Rights” is necessary to safeguard established fundamental rights and freedom of people. Europe, which is the cradle of values, has the opportunity and even obligation to lead in this regard.

A Human-rights perspective is key in shaping the new digital deal. Human rights put people at the centre-stage of policies and business decisions. Strategies that are shaped by and respect human rights result in better outcomes for all. They ensure that human dignity is preserved and prepare the ground to ensure more equitable and prosperous societies.

Democracy relies on the confidence between representative and represented people, which is closely linked to an adequate, quality process to form public opinion. Unreliable and false information lowers public trust and threatens the confidence that forms the basis of democracy.

If COVID-19 has accelerated digitalization, it has also highlighted the serious risks involved. To tackle and control these risks for security and privacy a new governance and responsible approach by private administrations and business is needed.

A Human-centric digitalization should have building confidence for the use of technology as its guiding light and be based on values and a responsible use of technology by both, public and private sectors.



5.1. Build confidence through ethical and open use of AI and data

Artificial Intelligence (AI) and Big Data haven't proven to play an important role in the response to the COVID-19 crisis by understanding better the evolution of the virus, accelerating research on drugs and treatments, or building models and tools to control and slow down its spread (e.g. through big data analysis of crowd movements).

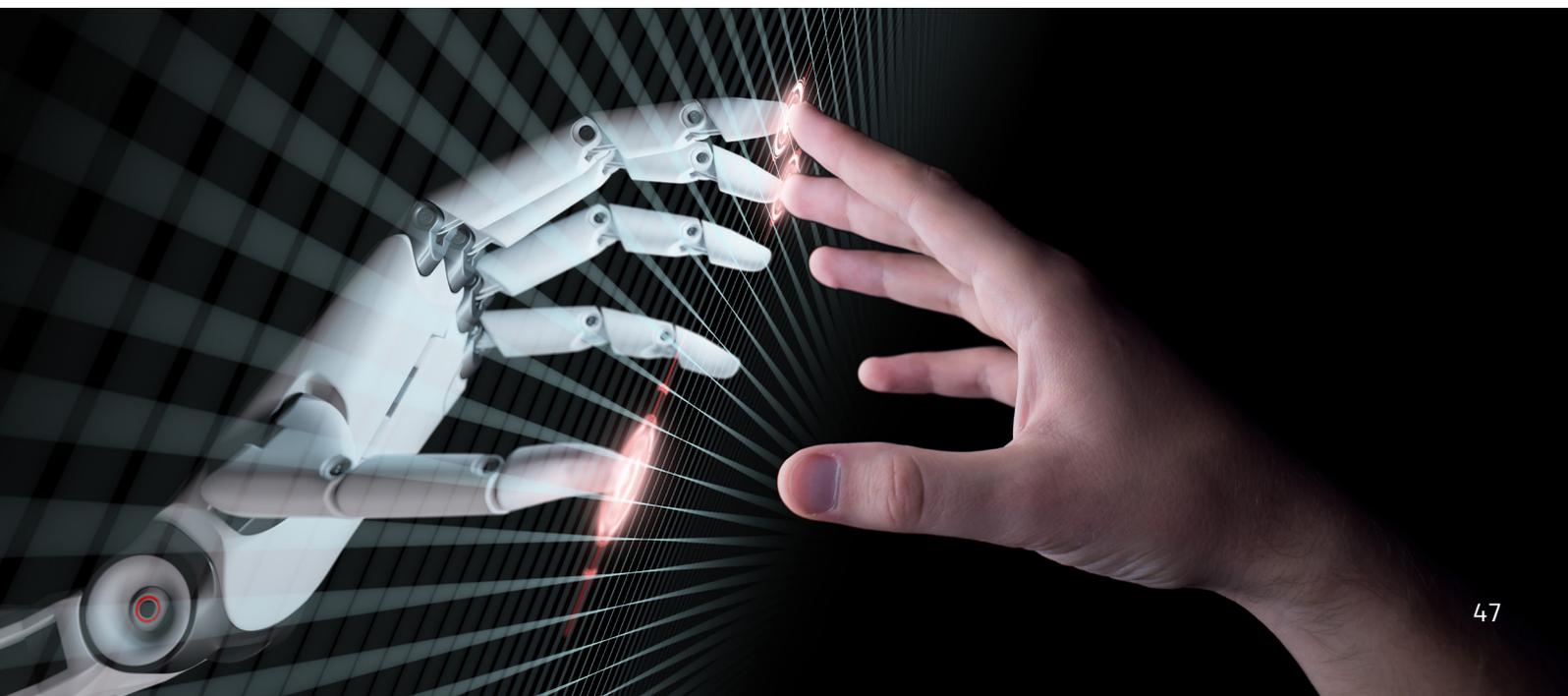
At the same time as technology has played an important role in fighting the pandemic, there has been considerable concerns about its impact on rights of people, especially in relation to privacy. The use of digital technology should go hand-in-hand with respect for privacy or its acceptance by people will suffer. In that regard the example of contact-tracing Apps in Europe is instructive. In countries like Germany that have developed decentralized and privacy-conscious applications the acceptance and uptake by the population has been considerably better than in countries that have used centralized solutions.

Usage of AI and big data should respect human rights and privacy, be transparent and explainable to people, as well as

secure and safe. Public administrations and companies using or developing such services should apply best practices to make its use accountable and build trust and confidence for users. People need to have possibilities to manage data, control their usage and be able to choose. A relationship based on trust will ultimately be the basis for a new model of fair exchange of data and a trusted AI usage in which all involved parts involved benefit. Market concentration and anti-competitive tendencies on some digital markets is emerging as significant barrier for the growth of local digital economies and companies.

Countries and regions need to establish long-term strategies to reinforce their digital capabilities and sovereignty, to be able to shape and influence the future AI and data-driven world. In that regard it will be important to open up "data lakes" that are controlled by few globally dominant digital platforms. This situation limits innovation and growth prospects for smaller, local competitors in key technologies like AI and Big Data.

Establishing a "Digital Bill of Rights" would help to protect fundamental rights in a digital and data-driven society and economy.



HOW TELEFÓNICA IS IMPLEMENTING ITS ETHICAL ARTIFICIAL INTELLIGENCE PRINCIPLES

In 2018 Telefónica was one of the first companies in the world that established AI principles and ethical guidelines for its application. Telefónica's AI Principles^[1] aim to guarantee that AI has a positive impact on society and ethical principles are applicable to the design, development and use of the Company's product and services.

Telefonica's five AI ethical principles

- 1. Fair.** AI technology applications must give fair results, without discriminatory impacts related to race, ethnic origin, religion, gender, sexual orientation, disability, or any other personal condition.
- 2. Transparent and explainable.** The goal is for users to know that they are interacting with an AI system, which of their data is used, and for what. Telefónica will make sure to understand the logic that is behind the decisions of the system.
- 3. Human-Centric AI.** AI must be at the service of society and must generate tangible benefits for people, whose human rights cannot be violated. In addition, the company has committed to helping meet the UN's Sustainable Development Goals (SDGs) with AI.
- 4. Privacy and Security by design.** The Company's Privacy and Security Policies are especially relevant in these Principles for conserving the data both personal and anonymous, and aggregated.
- 5. With partners and third parties.** Telefónica is committed to verifying the logic and data used by the provider.

To assure these AI Principles are correctly adopted within the business and product-development-process, Telefónica has implemented additionally a three-layered **governance model for AI**.

The first level involves **employees working directly with AI**, to assure they are aware of the AI Principles and know how to implement them. To achieve this goal, we have developed an in-house course on ethical use of AI, an assessment list for developers to assure that

their project complies with all requirements and also a set of tools to help them evaluate that their projects comply with criteria to assess e.g. non-discrimination and fairness.

The second level involves a **group of experts** with different profiles (privacy, Human Rights, security, etc.), called "Responsible AI champions" who employees working with AI can consult to solve any doubts about a specific product or issue.

The third level is **Telefónica Responsible Business Office**, entering into play to resolve potential conflicts with Telefónica's AI Guidelines identified by the Responsible AI Champions.

Telefónica has with this governance created a virtuous cycle for AI development and usage that keeps up to date with the constant evolution of the technology and also allows to share experiences with multilateral and multistakeholder organizations that work on an ethical and human-centric approach to AI.



Policy recommendations

Data

1. Develop a “Digital Bill of Rights” to protect peoples’ dignity and rights in a data-driven society and economy.
2. Foster use of data while protecting privacy (e.g. through use of anonymized data) and create a virtuous circle by incentivizing and facilitating data sharing on a voluntary basis between businesses (B2B), and between private and public actors (B2G). Regulate access and portability rights to data when dominant digital platforms act as gatekeeper and competition is foreclosed or unfair.
3. Establish innovation on data governance (such as regulatory sandboxes for AI) to allow for experimentation in controlled, supervised environments.

Artificial Intelligence

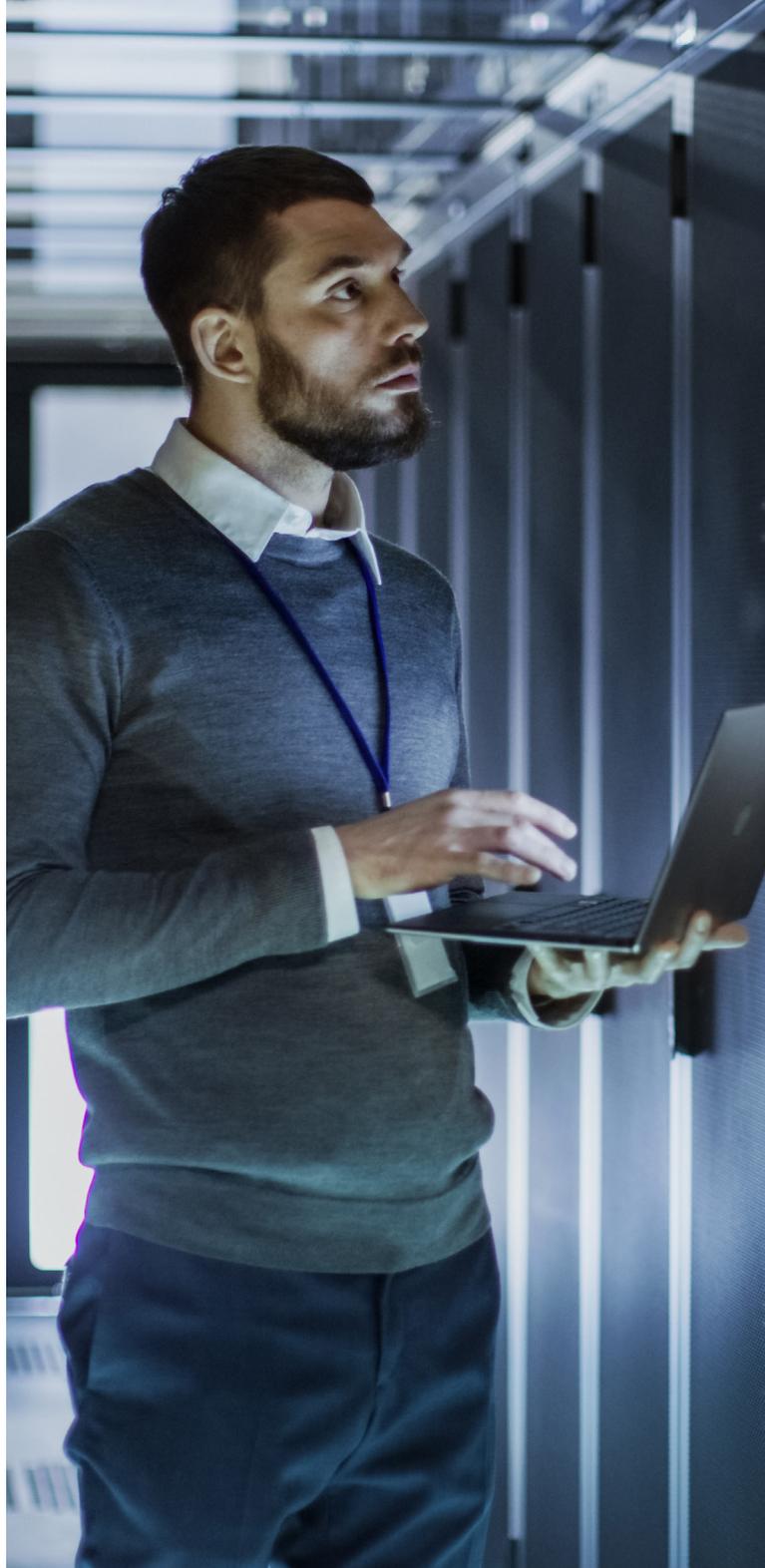
1. Adopt a risk-based approach for AI, defining ex-ante obligations for high risk usage of AI and fostering voluntary labelling schemes for lower risk usage. High-risk AI-systems should be assessed through an adequate process and certification before they are launched on markets.
2. Adapt liability regimes to AI specificities in order to build trust for the adoption of AI while providing legal certainty for developers, producers and deployers.

5.2. Address increasing cybersecurity threats

Cybersecurity risks have been during the pandemic exacerbated by the increased digitalization. Inevitably, the massive use of home office, online education, e-commerce and e-health, has created a significantly increased risk of serious security breaches. Worrying incidents like malign attacks on public health and hospital systems at the climax of the health crisis show that such risks need to be taken very seriously with increasing levels of digitalization.

“Security by design” needs to be implemented for the whole value chain of digital services and devices. According to GSMA Intelligence only in Europe a safe data ecosystem may need about €100 billion of investments over the next five years.

Public administration should cooperate better with digital businesses that can play an important role in reducing exposure to cyberattacks with innovation.



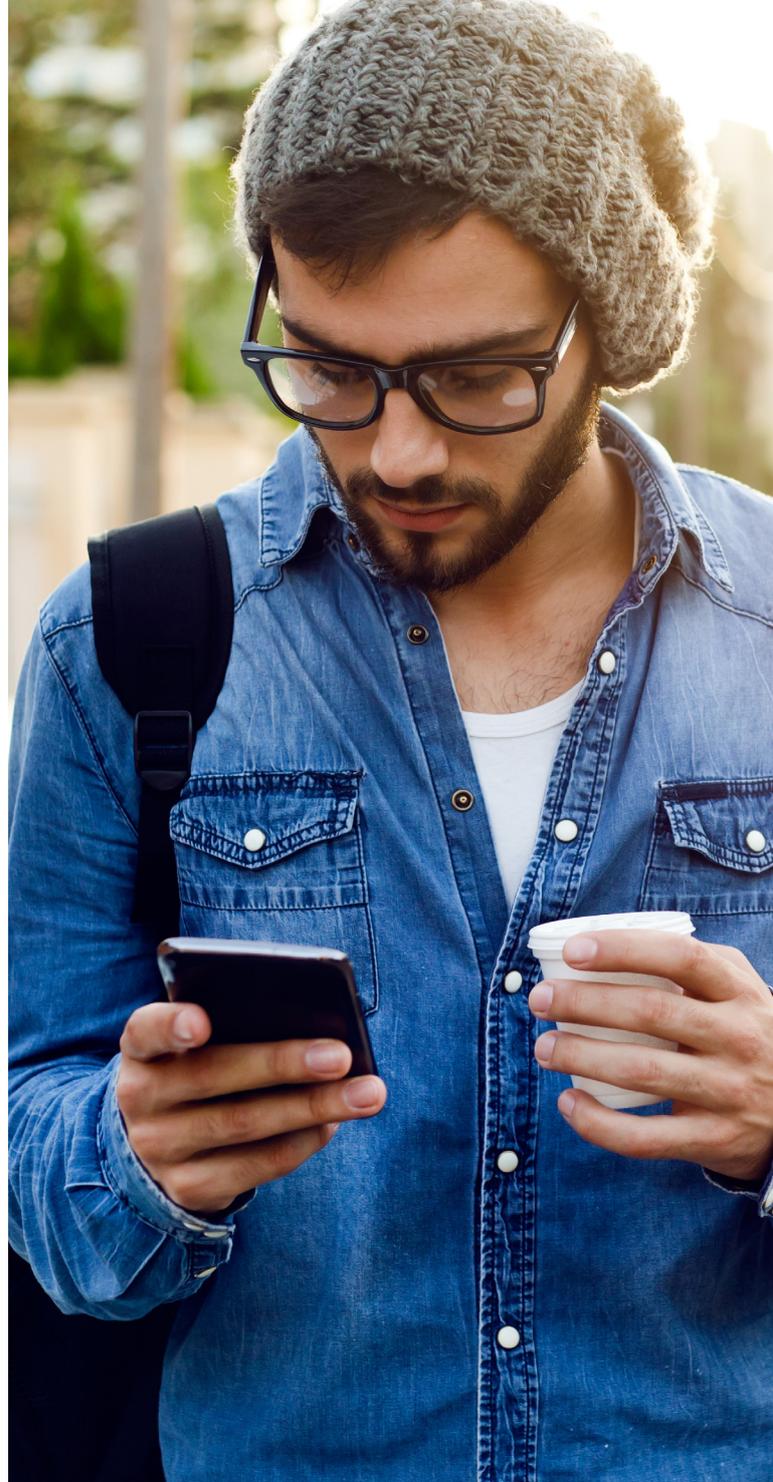
Policy recommendations

1. Security by design: Design software and hardware from the beginning to be secure and implement automated security updates as part of the life cycle process. Define and implement harmonized cybersecurity certification schemes for the whole value chain of digital services and products.
2. Foster a culture of cyber resilience by creating better awareness on cybersecurity by people and business (esp. SMEs) as well as expertise by fostering national centres of excellence through public-private cooperation and public funding.

5.3. Combat disinformation

The COVID-19 crisis has translated into a process of accelerated digital transition with an increased use of digital services and platforms. Unfortunately, it has also contributed to an increase in misinformation on the pandemic, the treatment of the virus and adequate national responses. This development has created distrust and uncertainties, which harm the fight of the pandemic and might even damage the economic recovery and democratic institutions and process.

One of the most bizarre and worrisome of such fake news are the ones that link the COVID-19 virus with 5G technology and have resulted already in physical attacks on antennas and employees of network operators.



Policy recommendations

1. Ensure the liability of intermediaries also for harmful contents while respecting freedom of speech and opinion.
2. Combat 5G disinformation: Tackle disinformation about the health consequences of mobile networks with public campaigns and strengthen educational programs that help improve digital skills and media literacy.

Building blocks of the Digital Deal

Technology and digitalization are our best allies to build back better our societies and economies, but a renewed dialogue and cooperation between governments, society and the business community is needed to guide us through these disruptive times and make the digital transition sustainable.

These five pillars of the Digital Deal should guide the digital transition.

Making societies and economies more sustainable through digitalization

1. **Use digitalization to achieve the green transition:** Digitalization can link the economic recovery plans for growth with the green agenda and be a key driver of decarbonized development.
2. **Foster innovation and accelerate digitalization of companies and public administration:** Create massive public funding programs and financial incentives to support the development of start-ups and the digitalization of business, esp. SMEs. And design and implement digital transformation strategies of public administrations to include the use of technology (e.g. health, education, justice).
3. **Support strategic sectors and technologies to reinforce digital sovereignty:** Design long-term plans to support local digital industries creating clusters of excellence for new technologies (e.g. 5G, AI, Blockchain, Open RAN) and promote interoperable digital and data infrastructure projects (e.g. Edge Computing, Cloud Computing) to achieve economies of scale and strategic capacities.

1. **Upskill and reskill people:** Creating equality of opportunities by boosting public-private partnerships for the upskilling and reskilling of people (current workforce and adult learners), promoting a life-long learning attitude for all.
2. **Modernize education for a digital society:** Drive digitalization of the educational systems by updating educational content to the digital era and create Public-Private ecosystems to implement new methodologies of education that are open and accessible to provide same opportunities to all.
3. **Reform social protection and labour frameworks** to bring obligations and rights in line with realities of a digital and platform-driven economy.

Tackling inequalities by investing in digital competences and updating welfare systems

Building an inclusive and sustainable connectivity

1. **Reform supervision of markets:** Assure contestability and non-discrimination in digital markets dominated by few digital platforms by adequately adopting existing telecom regulation and principles and expand mandates of telecom regulators to supervise such non-competitive markets.
2. **Modernize outdated regulatory and fiscal frameworks:** Create a Level-playing-field for all market participants and services regarding taxes, privacy, security and consumer protection. Modernize international and national tax rules to assure fair contributions to local communities and abolish unjustified sector-specific taxes and privacy rules for communication services.
3. **Update merger policies:** Competition authorities should allow for more in-market consolidation and network sharing by telecom operators.

Improving confidence by an ethical and responsible use of technology

1. **Abolish all policies that inflate spectrum and other costs for infrastructure investment:** Prioritize coverage, expand licence terms at no additional cost, assign abundant spectrum in awards for 5G, and fund Universal Service from public budgets instead of industry contributions to increase operators' financial leeway for network investment.
2. **Support innovative policies and technologies for a fast and efficient roll-out of advanced broadband networks (4G or 5G and fibre):** Facilitate network deployments by streamlining administrative processes for civil works; allow for more network sharing of operators and support roll-out of networks in rural and remote areas with regulatory decisions and public funds as part of national social cohesion policies and foster innovation in network technology (e.g. Open RAN).
3. **Consider modern communication networks as green infrastructure** aligned with climate change objectives in Sustainable Finance Taxonomies.

Ensuring fair competition

1. **Create a human-centric digital economy:** Develop a "Digital Bill of Rights" to protect peoples' dignity and fundamental rights in a data-driven society.
2. **Foster digital confidence and use of data:** Improve cybersecurity and cyber resilience with "security by design" along the whole digital value chain, provide people with better choice and control over their data ("Data Ethics"), and define responsibility of intermediaries to fight illegal and harmful contents.
3. **Adopt a risk-based approach for AI usage and foster data-driven innovation:** Create ex-ante certifications for high-risk AI systems (e.g. facial recognition, self-driving cars) and better transparency for less risky uses through voluntary labelling schemes. Modernize data governance rules by fostering voluntary data sharing and regulated access to data lakes of dominant digital gatekeeper that foreclose competition.

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