



Playbook

Digital Public Policy

2025



We live in an era of unprecedented digital disruption, where the convergence of technology, economy and society requires continuous adaptation and effective action to ensure that technological progress benefits all. The emergence of new technologies shaping a new digital paradigm makes it particularly relevant to reflect on how to foster innovation while protecting citizens' rights and welfare.

In this scenario, public policies play a key role in guiding these changes towards a better future. Given the crucial role of connectivity and new technologies in the progress of societies, it is essential to develop public policies that seize the opportunities and spread the benefits of the digital age widely.

As a key player in the telecommunications sector and a provider of connectivity and digital solutions, Telefónica is committed to contributing its experience and knowledge to the design of effective public policies.

Telefónica therefore presents the [Playbook, a practical and comprehensive guide to our vision of digital and technological public debates](#), providing policy recommendations that contribute to boosting competitiveness, technological innovation, sustainability and inclusion. We hope that this document will be a valuable tool for all those involved in the formulation of public policies, helping to build a better future for all.

Index

Competitiveness

- 01 The European *Single Market* and the Telecommunications Sector
- 02 A 21st Century *Industrial Policy*: Towards a Tech-based European Competitiveness
- 03 Pro-investment *Market Structures* in the Telecommunications Sector
- 04 *Competition*: Review of the European Union's Merger Control Policy
- 05 An Efficient *Spectrum Policy* Adapted to Digital Objectives
- 06 A *Fair Relation* for Network Sustainability

Technological Innovation

- 07 *Connectivity*: The Transformative Power of Telecommunications and its Impact on Innovation
- 08 Governance of the *Artificial Intelligence* for the Future
- 09 *Generative AI*: Competition, Intellectual Property and the Labour Market
- 10 Telecoms Networks and *Virtual Worlds*: A New Internet Era
- 11 *Cybersecurity*: Strengthening Resilience and Trust in a Global Digital World
- 12 *Early Warning Systems*: A Vital Shield Against Natural Disasters

Sustainability and Inclusion

- 13 A *Competitive Sustainability* Driven by Digitalisation
- 14 *European Taxonomy* of Sustainable Activities
- 15 *Digital Inclusion*: From the Coverage Gap to the Usage Gap
- 16 *Digital Inclusion for Prosperity*, Innovation and Sustainable Growth
- 17 *Protection of Minors*: Towards Responsible Design and Use of Technology



Competitiveness

Competitiveness drives progress by fostering innovation in markets, enabling businesses to differentiate and adapt in a global, interconnected and ever-changing environment. In the digital age, achieving scale and addressing the digital and green transition are key strategies for strengthening competitiveness and improving welfare. In this sense, Telefónica and the telecommunications sector, with its connectivity and digital solutions, are essential strategic allies.

- 01 The European *Single Market* and the Telecommunications Sector
- 02 A 21st Century *Industrial Policy*: Towards a Tech-based European Competitiveness
- 03 Pro-investment *Market Structures* in the Telecommunications Sector
- 04 *Competition*: Review of the European Union's Merger Control Policy
- 05 An Efficient *Spectrum Policy* Adapted to Digital Objectives
- 06 A *Fair Relation* for Network Sustainability

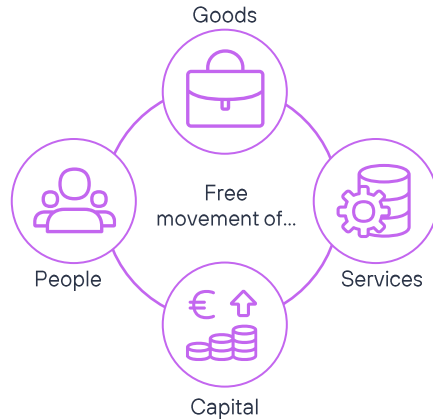
01



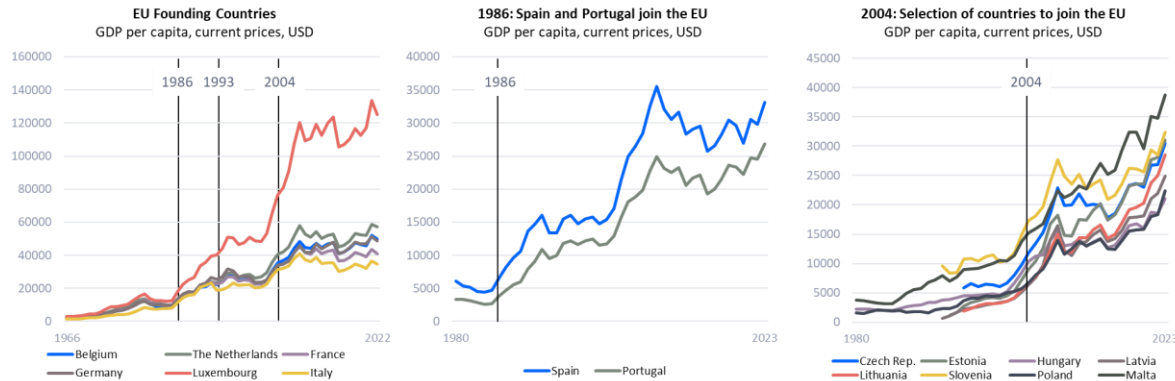
The *European Single Market* and the Telecommunications Sector

Single Market: A Breakthrough for the European Union

A market of about
500 million people
23 million companies
 representing **14%** of world GDP¹,
 and where the four freedoms apply.



Benefits of EU membership are reflected in terms of GDP per capita²



The Digital Single Market aims to maximise the benefits of the digital age, and the telecoms sector and connectivity play a crucial role in facilitating the exercise of the four freedoms for other sectors of the economy.

Challenges to the Digital Single Market

Excessive regulation

86%³ of European Round Table member companies believe that regulation is limiting Europe's competitiveness. Similarly, it highlights that policy and regulatory barriers affect telecoms operators' investment⁴.



86%
 of companies believe
 regulation limits
 competitiveness

The sustainability of the telecommunications investment effort

A regulatory environment that incentivises investment and reduces barriers to the deployment of the connectivity infrastructure is needed to deepen the Single Market. To this end, it is necessary to consider:

The local dimension of network deployment

Operators need a sufficient uptake in the areas where they deploy their fixed and mobile networks to ensure financial viability. This is essential for:



Geographical expansion

Expectations of return on investment, linked to market structures and competitive conditions in each market, are key factors in the decision to expand.

Development of digital services

Network virtualisation enables these services to become pan-European, but their viability relies on high-quality access infrastructure, itself dependent on operators' financial sustainability.





Return to the original vision of the Single Market based on the removal of legal, administrative and political barriers to the free movement of resources, moving from the current vision of a harmonised market

1

Conduct a review of regulations in the EU



Promote the removal of regulatory barriers to investment in networks and basic infrastructure necessary for the creation of a digital single market.

Prevent fragmenting the single market through sector-specific regulation by Member States. In this case, their removal should be encouraged.

2

Design a competition policy that contributes to the strengthening of the telecommunications sector



Ensure that competition decisions do not create exit barriers for market players caused by the imposition of remedies that create artificial competition and unsustainable market structures.

Facilitate in-market consolidation to enable operators to compete and achieve the local scale necessary for viability and growth, thereby strengthening their ability to invest.

3

Establish a regulatory framework that frees up resources to speed up network deployment



Reduce administrative burdens and associated costs, including taxation, and simplify red tape for deployment.

4

Update spectrum policy



Provide certainty of licence renewal on reasonable terms and seek to maximise the value of spectrum for end-users.

5

Promote coordinated action for the prevention and removal of new barriers to "the four freedoms"



Carry out a cost-benefit analysis, in terms of the Single Market, of future rules.

6

Strengthen the sector with the Digital Networks Act



The Digital Networks Act as a key tool to revitalise the Single Market for telecommunications in Europe.

Do you want to know more?

[Read](#) our positioning
[Access](#) related content

A 21st Century
Industrial Policy:
Towards a Tech-based
European Competitiveness



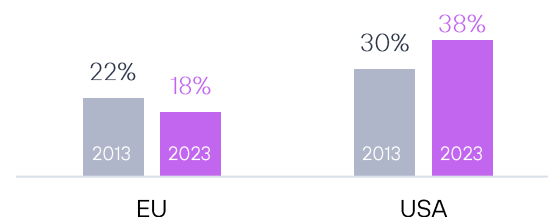
Towards Greater Digital Autonomy to Achieve the EU's Digital Goals

The need to strengthen Europe's technological leadership...

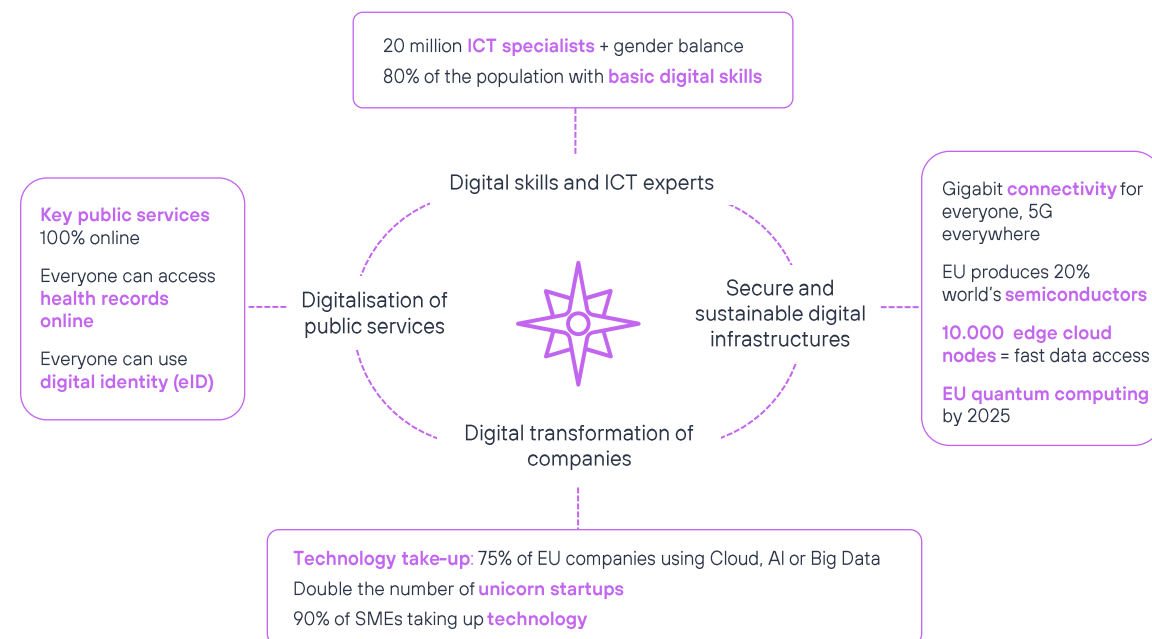
China is the global leader in **37 out of 44** crucial cross-cutting technologies, followed by the US.¹

...promoting Europe's technological capacity and digital autonomy

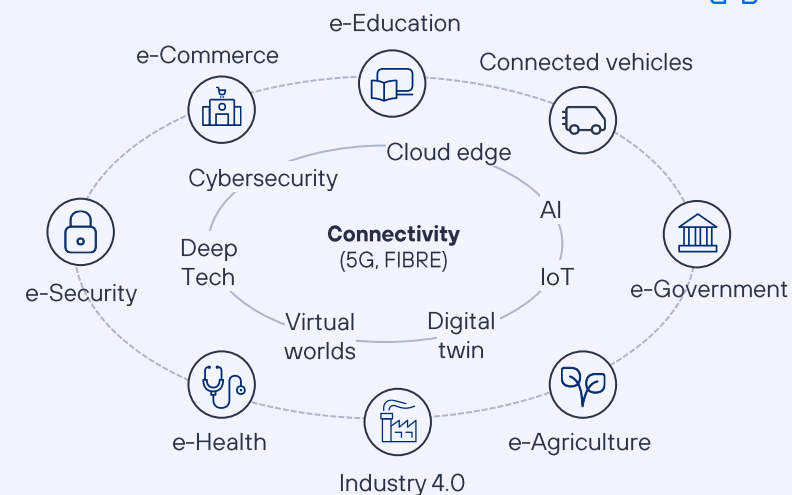
Global ICT revenue share evolution²



Europe's Digital Decade: Digital Goals for 2030^{3,4}

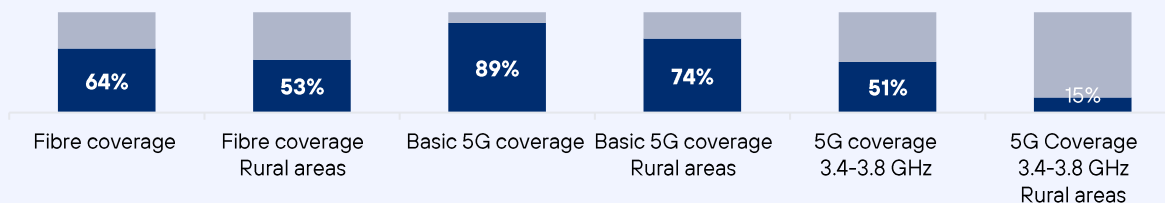


Quality connectivity requires telecommunications infrastructures that are ready to meet the current and future challenges of society and the digital economy, making it essential to increase their capacity, resilience and competitiveness.



The Challenge of EU Telecoms Competitiveness

The current trend in the pace of network roll-out calls into question the 100% coverage target of the Digital Decade 2030 (data 2023).^{5,6}



The need for a favourable investment and profitability environment for the sector⁷

Capex per capita, 2023



Return on investment of the European telco sector (ROCE)

5.9% in 2023
vs. 6.6% in 2017

Investment gap⁸

€ 200 billion





Put investment and innovation at the heart of public policy, ensuring coherence with the objectives of the industrial strategy

1

Promote a framework that incentivises investment



Promote sustainable and less fragmented market structures at national level, encouraging investment and innovation.

Foster an investment-friendly spectrum policy, increasing its supply and certainty about its future availability and ensuring allocation on reasonable terms that maximise value for end-users.

Simplify regulation and reduce administrative burdens and deployment costs.

2

Promote a level playing field for a well-functioning digital ecosystem



Promote horizontal regulatory frameworks covering aspects such as privacy, consumer rights and security, while removing telecoms sector-specific regulation.

Establish the principle of 'same services, same rules' to restore balance in the digital value chain, including promoting the sustainability of the network and its responsible and efficient use by promoting a fair relation between actors in the Internet value chain.

Provide additional guidance on net neutrality to allow for innovative use cases such as those enabled by 5G.

3

Strengthen the role of digitalisation in sustainability



Promote policies that recognise telecoms infrastructure as an enabler of the digital and green transitions, as well as an enabler of efficiencies that drive productivity.

4

Support the capacity and competitiveness of European industry, from R&D to the market



Adapt and align the approach of competition policy, State Aid and regulatory frameworks with industrial policy objectives.

Encourage policies that promote the development and adoption of emerging and cross-cutting networks, technologies and services, digital trust and digital skills to increase productivity, employability and usage.

Strengthen international cooperation for convergent development based on harmonised principles for technologies such as AI or cybersecurity.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

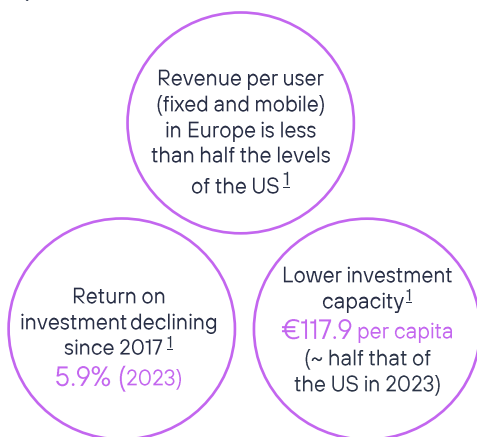
Pro-investment Market Structures in the Telecommunications Sector



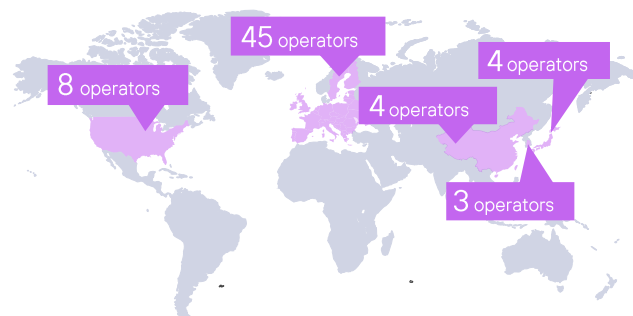


A Fragmented Market Structure

Investors attribute the deflationary outlook for revenues and returns in the European telecoms sector to an artificially competitive and fragmented landscape, which weakens their ability to invest.



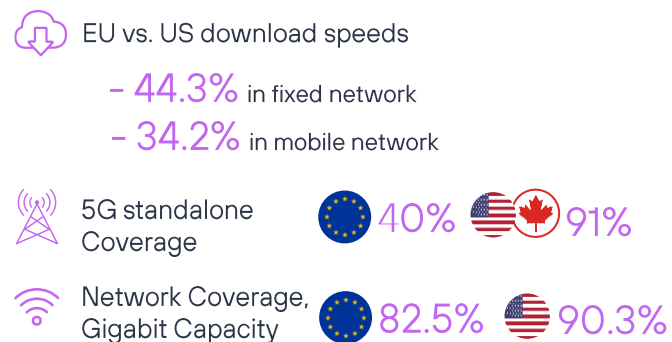
Mobile operators with more than 500,000 customers by 2023¹



The weakening of the telecoms sector is leading...
to a risk of...

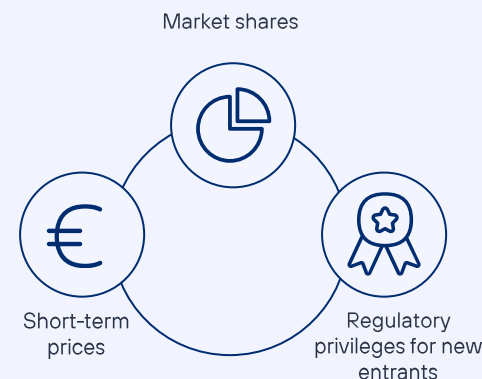
... and to an impact on the quality of service (2024)¹

- ↓ Loss of value, competitiveness, digital leadership, relevance
- ↓ Technological decapitalization, reorientation of investments, vulnerability to takeovers
- ↓ Loss of digital autonomy



Towards a Change of Approach

The EU's approach to competition policy and regulation is not adapted to the new competitive dynamics and requires a holistic perspective to benefit individuals, businesses and society as a whole.



Maintaining the outdated approach has created a high degree of artificial fragmentation in national markets, leading to unsustainable market structures that hinder the achievement of scale, return on investment and digital goals.

To remain competitive in the digital age and to encourage investment and innovation in the sector, Europe needs to evolve:

From:

Policies to encourage market liberalisation and an approach to competition based on number of operators and short-term prices.

To:

Investment and innovation-friendly market structures to benefit society.



Evolve the approach to competition policy to prioritise market structures conducive to investment and innovation

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

1

Promote sustainable market structures in the Member States



Promote more concentrated telecommunications markets at national level would benefit consumers, citizens, businesses and the economy as a whole by fostering sustainable competition and efficient investment in higher quality infrastructure, while facilitating an appropriate return on investment.

2

Align competition policy with sectoral regulation and industrial policy



Ensure that different policies pursue common objectives linked to the industrial strategy.

3

Update the enforcement of competition policy to achieve a holistic perspective



Focus on dynamic efficiencies such as innovation, quality, speed of deployment, value-added services, resilience, environmental or industry sustainability, and long-term investment cycles rather than short-term price and market share expectations at country level.

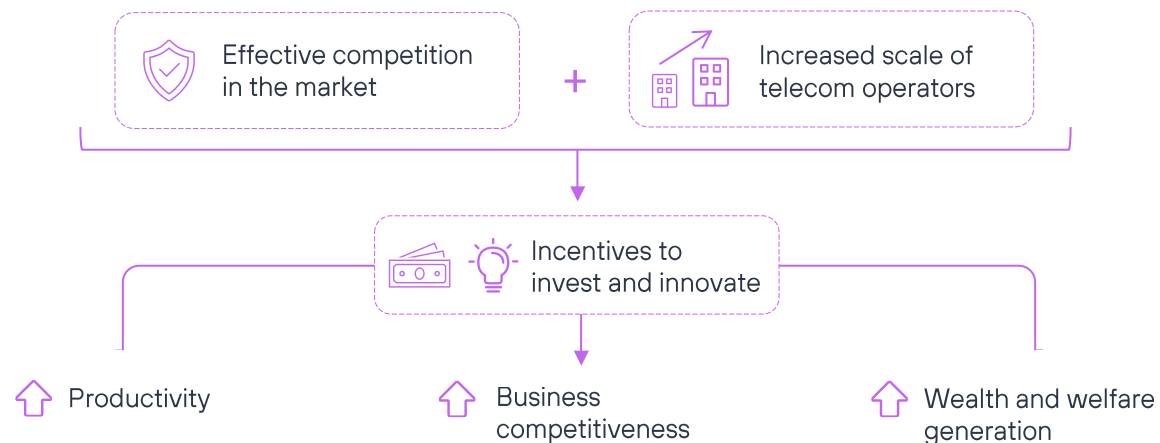
Stop encouraging artificial competition. End artificial and asymmetric support, through regulatory advantages, for new entry after 25 years of competition in today's highly competitive market.

Reduce barriers to in-market consolidation. Enable market-led reorganisation of the sector and adopt a more flexible and reliable approach to horizontal agreements in favour of innovation.

Competition: Review of the European Union's Merger Control Policy



A Merger Control Policy for the Benefit of Competitiveness



Europe is aware of the need to refocus competition policy in the interests of the prosperity of its society.

+20 years
without update



The new European Commission has a mandate to reform the Horizontal Merger Guidelines to ensure that its decisions take account of wider EU objectives.



The review of the Guidelines is welcome, but the reform of the Merger Control Regulation would reinforce this new approach to competition policy that enhances Europe's competitiveness, resilience and strategic autonomy. In order to maintain legal certainty and predictability in merger control, this reform should also provide for a review of the thresholds.

Towards a Holistic, Long-term Approach



A broader view of consumer welfare

The current approach considers price as the main parameter for measuring the effects of competition on consumers. However, quality, choice and innovation are essential welfare parameters.

Other factors such as efficiency, resilience, sustainability, security or investment intensity also need to be considered in the Commission's holistic and long-term analysis.

Review of the Horizontal Merger Guidelines

Considering



Holistic, dynamic and long-term approach



Substantive requirements for defence of efficiencies



Effect of remedies on competitive dynamics



Greater legal certainty in theories of harm

Review of the European Merger Control Regulation

That, in addition to consolidating the reforms of the Guidelines into an instrument with the force of law, it should consider



Thresholds review after 35 years without update



Coherence between regulations (e.g., DMA, FSR)



Need for a geographic nexus test to eliminate unnecessary notifications of extraterritorial cases



Simplification and increased focus on complex cases



Independence between investigative and decision-making bodies; and greater involvement of other Commission Directorates-General.



A holistic and forward-looking approach, broadening the vision of consumer welfare to include long-term considerations such as quality, sustainability, innovation, resilience and investments that support the EU's strategic objectives

1

Review the Horizontal Merger Guidelines



Adopt a broader and more holistic approach, taking into account the EU's competitiveness, sustainability, security, resilience and innovation objectives.

Identify new economic theories that allow for a more dynamic analysis that is closer to business and market realities.

Carry out a more dynamic, forward-looking and long-term analysis.

Promote a more dynamic and long-term analysis of efficiencies, to ensure a real application of this instrument with a standard of proof proportionate to that of the Commission to identify competition problems; also including non-market efficiencies that will facilitate the achievement of other EU objectives.

Encourage the imposition of proportionate remedies, including behavioural remedies, and more controls on their effects, considering also other EU objectives.

Analyse more dynamically the theories of harm and apply a more proportionate standard of proof for so-called gap cases (e.g. criteria to qualify as a Significant Competitive Force or close competitor).

2

Review the EU Merger Control Regulation (EUMR)



Consolidate the reform of the Guidelines and...

Review the turnover thresholds: update the amounts and include a new transaction value threshold.

Establish a local nexus test on all reportable transactions.

Align the EUMR with the Digital Markets Act and the Foreign Subsidies Regulation to ensure greater consistency in thresholds and reporting requirements.

Simplify procedures to focus on complex cases.

Adopt a more balanced and transparent approach to the merger control procedure. Separate the case investigation team from the decision-making body, as in the case of many jurisdictions. Encourage greater involvement of other Directorates-General of the European Commission.

¿Do you want to know more?

[Read](#) our positioning

[Access](#) related content

05

An Efficient *Spectrum Policy* Adapted to Digital Objectives



A Key Factor for Inclusion and Growth

Spectrum: a key resource for meaningful connectivity

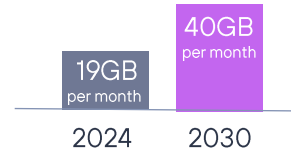


Enabling coverage of hard-to-reach areas.



Enabling the connected transformation of economic sectors.

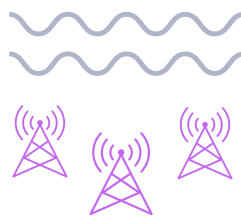
+25,000 million of connected devices by 2027¹



Helping to cope with increased data traffic per user.²

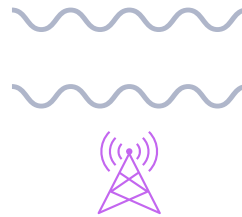
Increasing spectrum capacity is the most efficient option, financially and environmentally

Failure to expand capacity would result in network densification and an increase in the number of sites.



Reduced capacity

VS.



Extended capacity

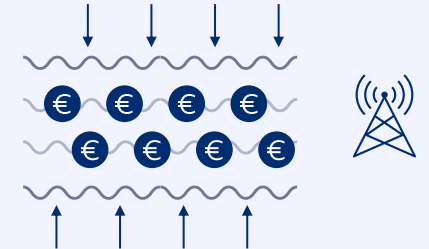
35%-40% of CAPEX

European operators spend on average 7% of their annual revenues (between 35% and 40% of their CAPEX)³ on acquiring radio spectrum usage rights, with large variations between countries.

Towards Efficient Spectrum Allocation

Artificial spectrum scarcity

The current spectrum policy is based on artificial scarcity, increasing its price in auctions and imposing a large investment on operators.



High demand for low and medium bands

The low and medium bands are the most valuable for mobile deployments. However, operators face high uncertainty about the renewal of their licences and pressure from other users to reserve new frequencies coming onto the market for other uses.



Users with spectrum reservations

There are users who enjoy spectrum reservations for uses such as satellite, local area networks, or unlicensed low-power uses. They access spectrum virtually free of charge, creating artificial scarcity for mobile operators.





Create a spectrum regulatory environment that facilitates investment and enables Europe to meet its ambitious connectivity and digitisation goals

1

Ensure sufficient supply



Provide certainty about the future availability of operators' existing usage rights as licences expire, and a reasonable expectation of being able to access new low and medium frequencies in the medium term.

2

Promote a cost-benefit analysis of spectrum reservations for specific uses



Conduct a rigorous and transparent cost-benefit study for low-power local networks (e.g. 3.8-4.2 GHz), unlicensed uses (e.g. 6 GHz) or broadcasting services (e.g. UHF), demonstrating their benefits for society.

3

Ensure reasonable conditions



Prevent administrations from becoming spectrum monopolists and seeking to maximise the revenues they receive from usage rights. Doing so would be detrimental to end-users. To this end:

- Prevent reserve prices in auctions from being higher than the value of spectrum in uses that are excluded from competitive processes because of technical or other conditions imposed in licences.
- Avoid reservations for new entrants or local users which create artificial scarcity and inflation for other users and inefficient use of frequencies.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

A Fair Relation for Network Sustainability



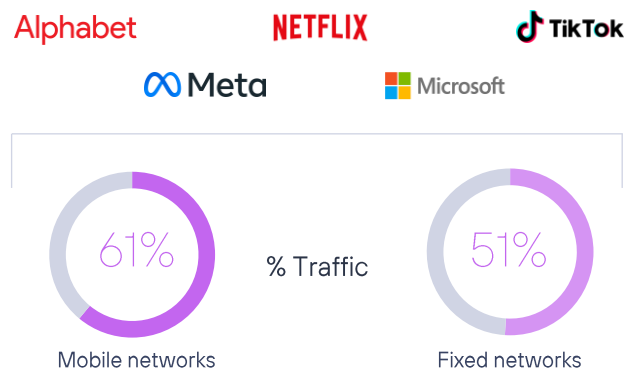
Over the last ten years, IP traffic has increased by 30% per year in both fixed and mobile networks, despite improvements in compression algorithms and services.



Causes and Consequences of Increased Traffic

Large traffic generators derive revenue by relying on digital infrastructure. They also drive demand for higher quality connectivity from users who want to enjoy advanced digital services.

Five platforms¹ generate more than half of the traffic on fixed and mobile networks in 2023.



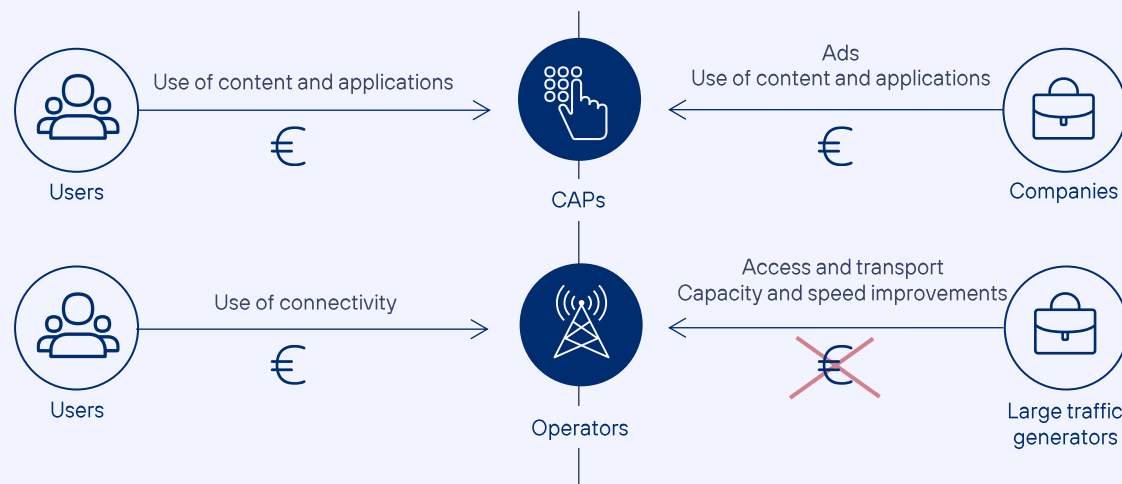
Operators must make significant investments in networks to cope with the increase in traffic

It is estimated that European operators have invested between **36-40 billion euros** to carry the fixed and mobile traffic attributable to the activities of large traffic generators².



Restoring Balance on the Internet

This situation is the result of the evolution of the Internet business model and of regulation that has prevented operators from negotiating on equal terms with digital content and application providers (CAPs) for the traffic transport services they provide.



This model has proven to be unsustainable for two reasons:

1. There is no incentive to make efficient use of networks and traffic.
2. There is no reasonable correlation between the significant growth in data traffic on networks and the revenues of operators, negatively impacting the sustainability of their investments.

Ensuring fair agreements—despite their disparate market power—between operators and large CAPs would lead to a sustainable investment model in networks, as well as more efficient data usage and the consequent reduction in energy consumption and CO2 emissions.



Advance the sustainability of network investments by ensuring balanced service provision agreements between telecommunications operators and major traffic generators, thus also encouraging responsible and efficient network usage

1

Establish a binding dispute resolution mechanism for cases where a voluntary agreement is not reached between companies providing services in the Internet value chain.



Design a mechanism that ensures the conclusion of an agreement with fair terms and conditions in the event that commercial negotiations do not succeed, enabling a balanced negotiation between companies providing services across different segments of the Internet value chain.

2

Establish in a clear manner for the entire EU: 1) a European authority to resolve disputes, 2) the guidelines to which the adjudicating authority will be subject, 3) a short deadline for resolution



Ensure balanced and consistent criteria for the entire EU that accompany the powers to resolve disputes within a short timeframe. The certainty of a fast and effective dispute resolution mechanism will be the greatest incentive for operators and content and application providers (CAPs) to prioritize reaching agreements as a result of commercial negotiations.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

Technological Innovation

Innovation is part of Telefónica's identity. Our innovative vision and entrepreneurial spirit have allowed us to reinvent ourselves throughout our history, bringing new opportunities to people and driving the digital, social and economic transformation of the countries in which we operate.

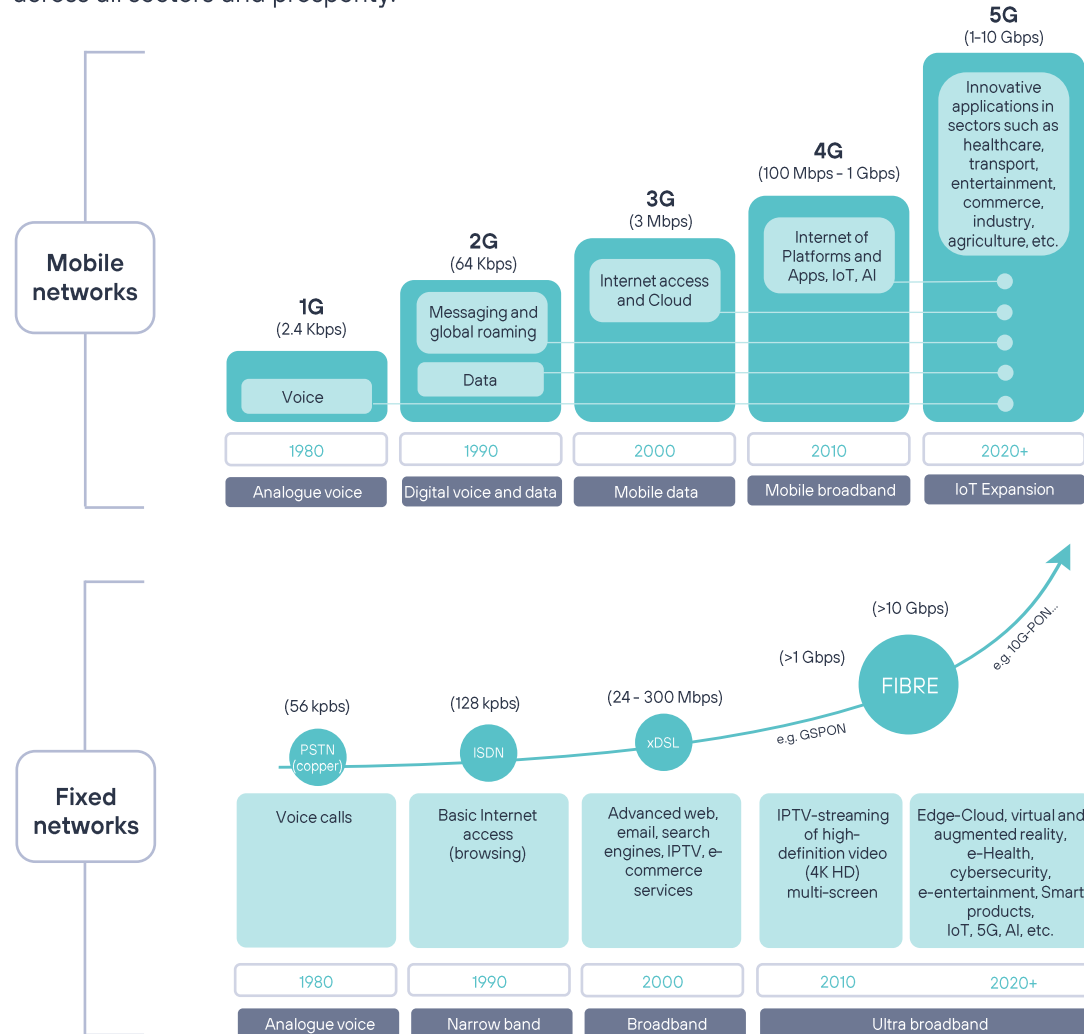
- 07 *Connectivity*: The Transformative Power of Telecommunications and its Impact on Innovation
- 08 Governance of the *Artificial Intelligence* for the Future
- 09 *Generative AI*: Competition, Intellectual Property and the Labour Market
- 10 Telecoms Networks and *Virtual Worlds*: A New Internet Era
- 11 *Cybersecurity*: Strengthening Resilience and Trust in a Global Digital World
- 12 *Early Warning Systems*: A Vital Shield Against Natural Disasters

Connectivity:
The Transformative
Power of Telecommunications
and its Impact on Innovation



The Impact of Connectivity Transformation on Innovation

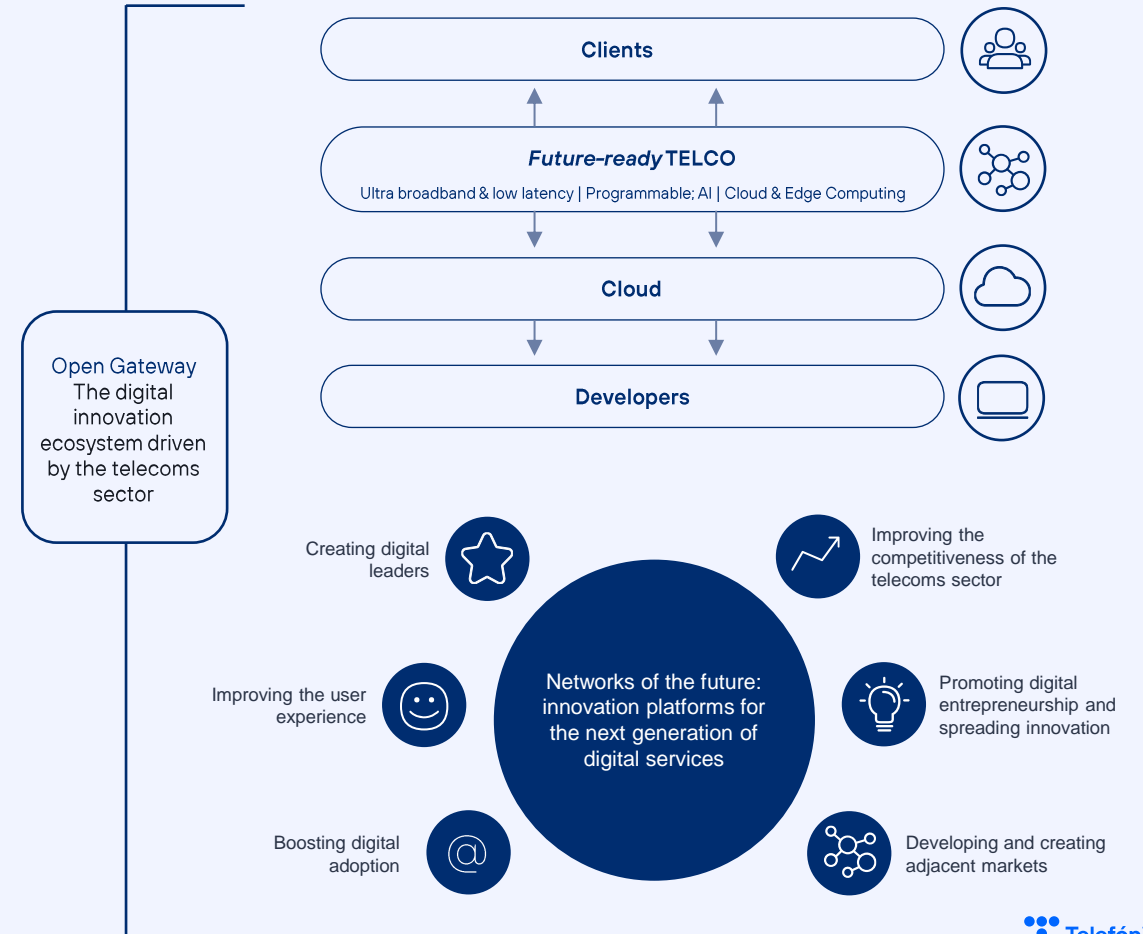
Continued investment in the telecoms sector is driving technological innovation in its networks, enabling advanced digital experiences and new opportunities for technological innovation across all sectors and prosperity.



Towards a New Era of Digital Innovation



Without investment, innovation will stagnate. A favourable investment environment must be fostered to adapt networks to the new digital era.





Evolve towards an enabling investment environment to transform the network and drive digital innovation and a new generation of digital services

1

Promote sustainable market structures



Reduce the fragmentation of telecommunications markets at national level to allow operators to achieve the scale necessary to strengthen the sector's capacity for investment and thus innovation.

2

Establish a regulatory framework to free up resources to speed up the deployment and transformation of networks



Reduce the administrative burden and associated costs, including tax burdens, and simplify bureaucratic procedures for deployment and transformation.

3

Encourage an investment-friendly spectrum policy



Provide certainty for license renewals and increase the harmonized supply of spectrum in the mid and low bands for terrestrial mobile networks and ensure its allocation on reasonable terms, seeking to maximize the value of spectrum for end-users.

4

Evolve the regulatory framework to foster innovation and a level playing field in the digital ecosystem



Address asymmetries with horizontal frameworks covering aspects such as competition, consumer rights, or taxation, eliminating sectoral approaches.

Restore balance to the digital value chain by fostering a fair relation between players.

Provide additional guidance on net neutrality to enable innovative use cases such as those enabled by 5G network slicing or Open Gateway.

5

Recognise the key role of connectivity to boost the green transition



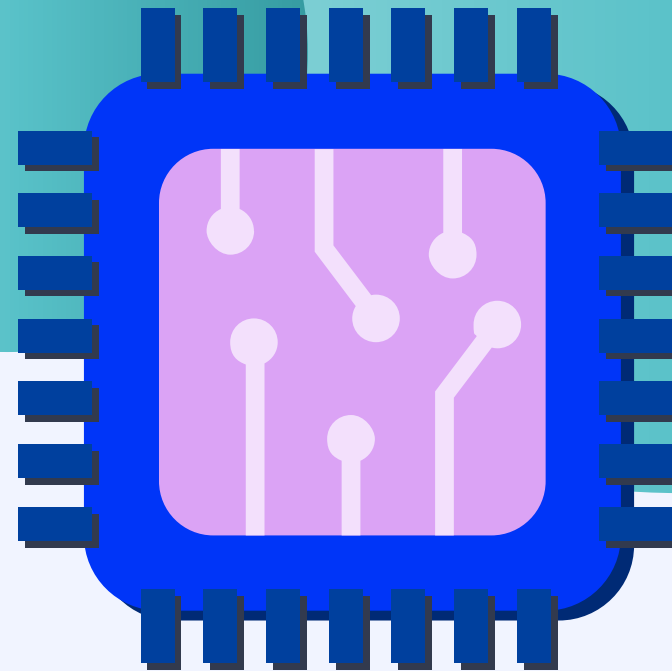
Encourage the redirection of investment flows towards the deployment of more efficient networks, such as fibre and 5G.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

Governance of *Artificial Intelligence* for the Future



AI has the potential to improve people's well-being, digital inclusion, sustainability and preserve cultural heritage, as well as being a key competitive lever in digital economies.



AI as a Factor in Competitiveness

Artificial Intelligence allows...



Customise the experience



Minimise operating costs



Increase productivity



Business competitiveness



Economic growth

Additional Global Economic Activity¹



2030

\$13 Trillion

Additional World GDP growth¹



2030

1.2% annual

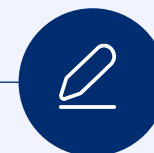
The Challenges of AI Governance

The need for a harmonised governance model

In order to develop and adopt responsible, human-centred and trustworthy Artificial Intelligence, a holistic vision combining international cooperation, self-regulation, the establishment of appropriate public policies and a risk-based regulatory approach is needed.



Global guidelines



Self-regulation



Regulatory framework

Global fragmentation

Global concern about the challenges of AI and the need for a rapid response to ensure responsible design and use has given rise to a complex public policy environment.



Socio-economic gaps

Unequal access to AI, whether at micro or macro level, can aggravate socio-economic gaps as not all individuals or countries will be able to benefit equally from its opportunities.





Develop AI governance that ensures a balance between innovation, economic growth and the responsible use

1

Promote international definition, governance and global cooperation



Adopt an internationally recognised definition of AI, such as that of the OECD, and strengthen international cooperation to establish common principles and avoid regulatory fragmentation. A widely accepted definition of AI would provide legal certainty in the overall regulatory and policy approach, while promoting regulatory convergence.

2

Develop horizontal and risk-based regulation



Develop uniform regulation that covers all sectors and focuses on the use of AI, not just on the technology itself. This regulation should be risk-based, focusing on mitigating high risks while encouraging innovation.

Establish regulatory sandboxes and testbeds to test new technologies and regulations in controlled environments.

3

Foster self-regulation and ethical governance



Promote self-regulation so that companies assume ethical responsibility and transparency from the design of AI systems, supporting initiatives that establish internal standards and oversight processes to ensure responsible development and use.

4

Strengthen institutional governance, legal certainty and regulatory coherence



Define clear governance to avoid legal uncertainties and fragmentation of the application of regulations that could negatively impact the competitiveness of companies and the protection of individuals' rights.

Ensure consistency between AI regulation and others (GDPR, Due Diligence, etc).

5

Maintain a continuous dialogue between the public and private sectors



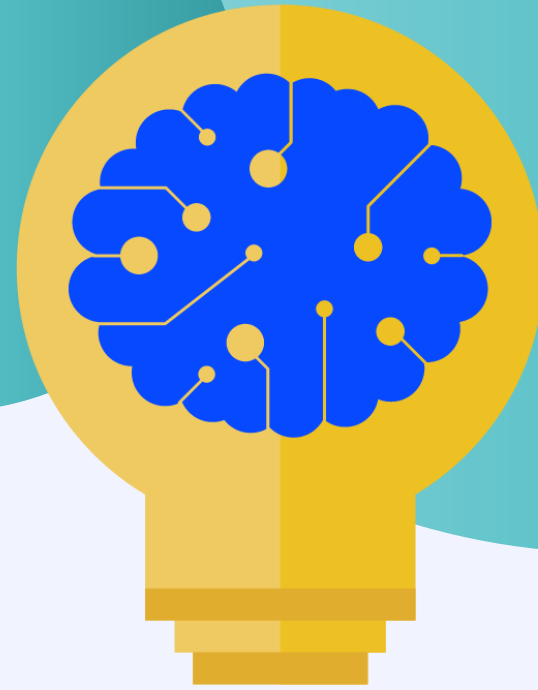
Maintain a continuous dialogue between the public and private sector that fosters continuous innovation while protecting Fundamental Rights, Democracy and the Rule of Law. Strike a balance between innovation and regulation.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

Generative AI: Competition, Intellectual Property and the Labour Market





Artificial Intelligence has the potential to revolutionise the social and economic dynamics of countries, emerging as a key competitive differentiator.

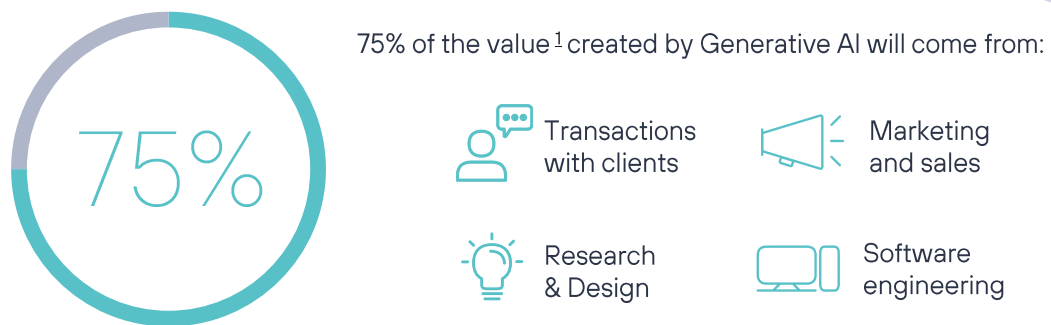
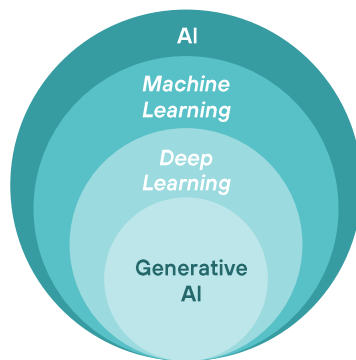


The Advent of Generative Artificial Intelligence

AI drives innovation and productivity, enabling new business opportunities and economic growth for companies and countries.

Generative models are the latest development in the field of Artificial Intelligence. However, we are still in the early stages. We are far from seeing their full potential.

It is estimated that Generative AI has the potential to generate an annual value equivalent to between **\$2.6 and \$4.4 trillion**¹ in global corporate profits.



The Challenges of Generative Artificial Intelligence

Guaranteeing Human Rights and Democratic Values

Irresponsible use of Generative AI could potentially undermine Fundamental Rights and democratic principles on which our societies are based through disinformation, attacks on privacy or mass surveillance, among others.

Fair Market Competition and Competitiveness

With access to resources such as data, computing power, finance and experts concentrated in a few companies, there is a risk of abuse of dominance, limiting innovation.



Big Tech

Start-ups

Industrial property and copyright



Input

Massive AI trainings with pre-existing copyright protected works



Output

Protection and ownership of the work or patent created with AI

Impact on the labour market



Automation of routine and repetitive tasks

+



Retraining to use AI as a tool



Develop policies and regulations that promote a positive impact on intellectual property, fair competition and labour market

1

Establish policies that promote fair competition, foster innovation, and strengthen regional capacities



Ensure compliance with Competition Law to avoid abuses of dominance.

Promote the variety of business models and innovation through support for start-ups.

Strengthen local capacities through training programmes.

Stimulate investment.

2

Foster flexible regulatory environments and promote public-private dialogue in the field of intellectual and industrial property



Understand the challenges related to intellectual and industrial property in the development of Generative AI, promoting flexible and adaptable environments in different regulatory frameworks.

Encourage a continuous dialogue between the public and private sectors to balance and address the challenges arising from the implementation of this technology.

3

Prioritise investment in skills development and establish policies to limit the digital skills gap in the workplace



Focus on education, training and life-long learning programmes to equip the workforce with skills needed for an AI-driven economy.

Developing policies for digital inclusion and retraining programmes to support workers affected by automation, ensuring a transition to new employment opportunities.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

10

Telecoms Networks and *Virtual Worlds*: A New Internet Era



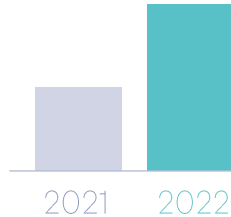
Expectations for Growth of the Metaverse ¹

59% of consumers would move their daily activity (social interaction, gaming, travel, commerce...) to the Metaverse.



2022

Investments in the development of the Metaverse doubled over the previous year, reaching \$120 billion globally



x2

2030

It is estimated that the Metaverse could generate up to \$5 trillion globally in business and consumer applications.

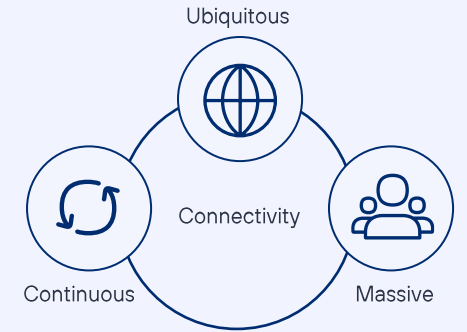


\$5Tn

2030

For Virtual Worlds to reach their full potential, it is necessary to be able to offer a continuous, ubiquitous, and massive experience.

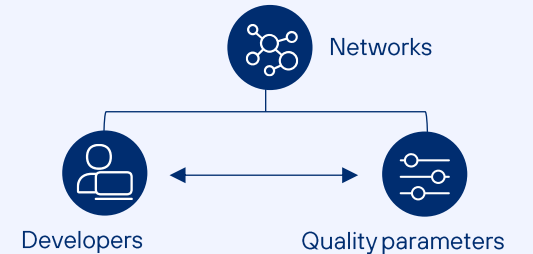
This will require networks to evolve towards a programmable, decentralised, end-user model.



Evolution of Telecommunications Networks

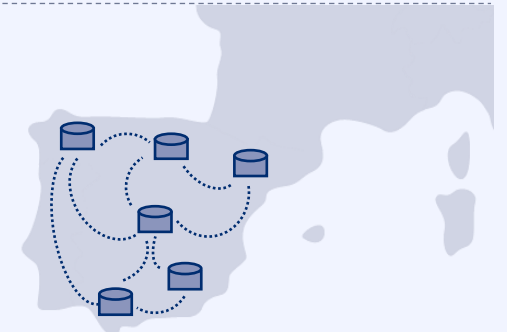
API-fication of networks

Developers of Metaverse applications and services will be able to program and define the quality parameters required for their service through interfaces (APIs).



Content Delivery Networks (CDN) model

CDNs bring content closer to users from various geographical locations, enabling new business models where the CDN provider is compensated for delivering higher-quality content.





Evolve
telecommunications
networks to make the
Metaverse and Virtual
Worlds a reality

1

Avoid the automatic extension of traditional regulation to the new technological paradigm of Virtual Worlds



Design regulation adapted to new technologies, services and business models. Incorrect interpretations, or those influenced by non-technical criteria, could create uncertainty.

2

Promote a level playing field for the harmonious development of Virtual Worlds



Establish a level playing field for all players in the digital value facing similar regulatory situations, enabling the creation of appropriate incentives for everyone involved.

3

Avoid hasty regulatory decisions



Exercise extra caution in regulatory decisions before intervening in this market, considering the impact such interventions may have on the efficiency and effectiveness of resource allocation driven by APIs.

4

Facilitate collaboration between operators in standardisation



Provide homogeneous interfaces from the operators to the developers of Virtual Worlds is a prerequisite for the success of this new era.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

Cybersecurity:
Strengthening Resilience
and Trust in a Global
Digital World





The Importance of Cybersecurity



Cyber-insecurity, one of the top 10 risks¹



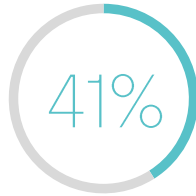
Cyber-attacks doubled since the pandemic²



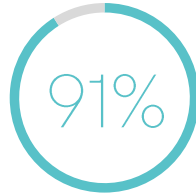
... is the global cost of cyber-attacks in 2024³



... of organisations suffered a cyber-incident in the last year²



... of cyber-incidents originate from the supply chain²



... of managers expect a high impact cyber-incident in next two years²

There is a growing gap between cyber-resilient and non-cyber-resilient organisations

They think they lack the necessary cyber-resilience²

x2 SMEs vs. large companies

They have cyber insurance²

< 25% vs 75%
SMEs large companies



In this new world, cybersecurity plays a key role in protecting businesses and governments against risks.

Obstacles to Achieving a Cyber-safe Environment

The companies with the highest risk exposure are those that:



are in sectors digitised and connected, but without adequate protection



have more interesting assets for attackers



are in countries with higher strategic risk and/or worse cyber-legislation

The benefits of investment in cybersecurity are not being realised

Unlike other investments, and as in the case of R&D, it is not easy to justify the cost-effectiveness of investments in improving the resilience that cyber security offers.

Regulatory frameworks are fragmented and complex

Policy and regulation is now emerging as a fragmented, complex, cross-cutting and constantly evolving framework.

There is a shortage of specialised staff

In 2023, the gap of cybersecurity professionals amounted to approximately 4 million worldwide⁴.

The profession needs to almost double to be at full capacity.





Build cyber resilience and increasing digital trust for inclusive digitisation, through better collaboration, appropriate frameworks, capacity building and incentives

1

Enhance multilateral cooperation against cybercrime



Prevent, identify and contain incidents, from investigation to legal action, by improving international and multilateral coordination against cybercrime and providing necessary resources and capabilities.

2

Promote best practices in cybersecurity



Promote minimum standards including the development of independent cybersecurity agencies with resources, strategies and cybersecurity plans, encouraging private and public use of international security frameworks (e.g. ISO) and recognised certificates to facilitate transparency and harmonisation.

3

Improve harmonisation, coherence and multi-stakeholder coordination



Avoid overlapping or inconsistent regulations and implementations and address coordination between competent authorities and with businesses, consistency in incident reporting systems, as well as cyber-intelligence sharing.

4

Explore new funding mechanisms and tax incentives



Explore new funding mechanisms and incentives, including tax incentives, for investment in cybersecurity, resilience, capacity building and cyber security culture.

5

Define and monitoring new key indicators at the international level



Define and monitor at international level new indicators for investment in cybersecurity and specialised personnel, in the absence of reliable monitoring statistics in the field of cybersecurity.

6

Establish minimum requirements to strengthen the quality of cyber rating agencies



Define requirements for transparency, information, sound methodology to reinforce the quality of cyber rating agencies, with regulation similar to that of credit rating agencies, and establish an official register of authorised cyber rating agencies to give more confidence to the whole ecosystem.

Do you want to know more?

[Read](#) our positioning
[Access](#) related content

Early Warning Systems: A Vital Shield Against Natural Disasters



In 2022, **387 natural hazards and disasters** were recorded worldwide, causing the loss of 30,704 lives and affecting 185 million people.¹



95% of the global population is covered by a mobile network and there are 5.6 billion unique mobile phone subscribers worldwide. This network plays a vital role in disseminating and communicating early warnings of risks.¹

Early Warning Systems with the Mobile Network as a Channel

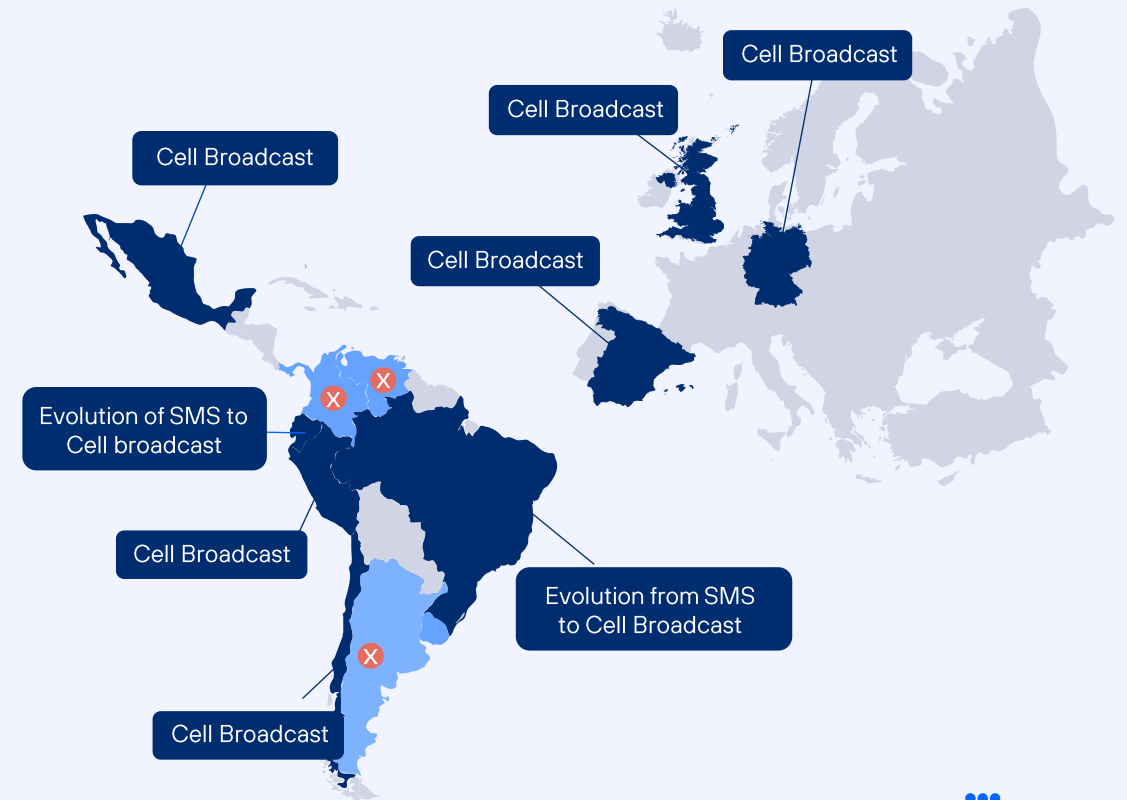
Cell Broadcast: the Most Efficient Technology



The UN's Early Warning for All initiative aims to ensure that by 2027 the world's entire population is covered by an early warning system that provides universal protection against hydro-meteorological, climatological and hazardous environmental events.

Telecoms Operators' Commitment to Early Warning Systems

Cell Broadcast is the most widely used technology in the Telefónica footprint





Accelerate the deployment and effectiveness of early warning systems by integrating mobile networks as a critical and complementary communication channel within a multi-channel approach

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

1

Foster public-private partnerships



Share knowledge and best practices between operators, device manufacturers, software manufacturers, government officials, international organisations, emergency experts and others. In particular, mobile operators provide technical expertise and knowledge and make their equipment available to emergency centres.

2

Establish regulatory frameworks aligned with the financing of these services



Establish a regulatory framework that creates certainty and incentives for the deployment of early warning systems.

Explore innovative financing solutions that are viable in the long term and ensure funding of up-front and ongoing costs.

3

Promote the adoption of the most effective technological solution based on national, regional or local realities



Consider the technologies and range of devices available in each country/area. However, cell broadcast technology should be prioritised for its advantages and integrated into existing contingency plans.

Promote the homologation of devices to ensure their compatibility with the early warning service.

Promote the multi-channel approach for dissemination through different channels and the development of a common protocol to ensure consistency of the alert across channels, thereby increasing its reach.

4

Raise public awareness

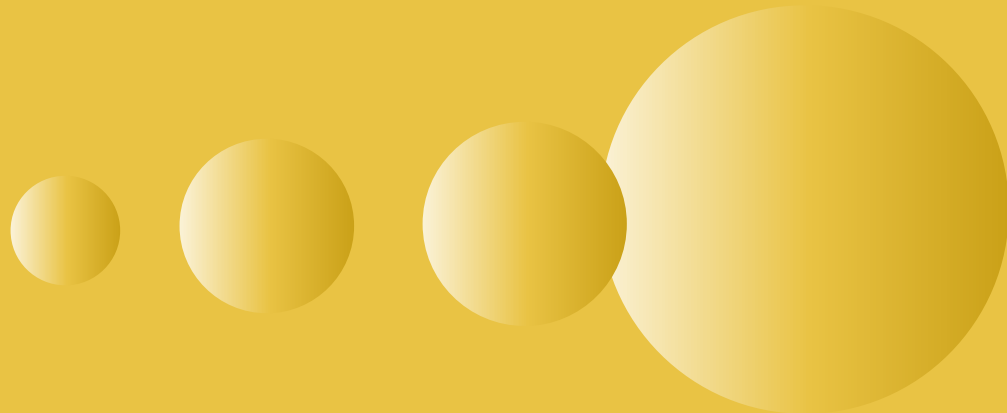


Prepare the population and increase their confidence and familiarity through regular simulations and awareness campaigns. These exercises and campaigns are key to ensuring the effectiveness of the warning service and should be led by the government, as it is a public service, while emphasising the role of operators as an additional channel for disseminating warnings.

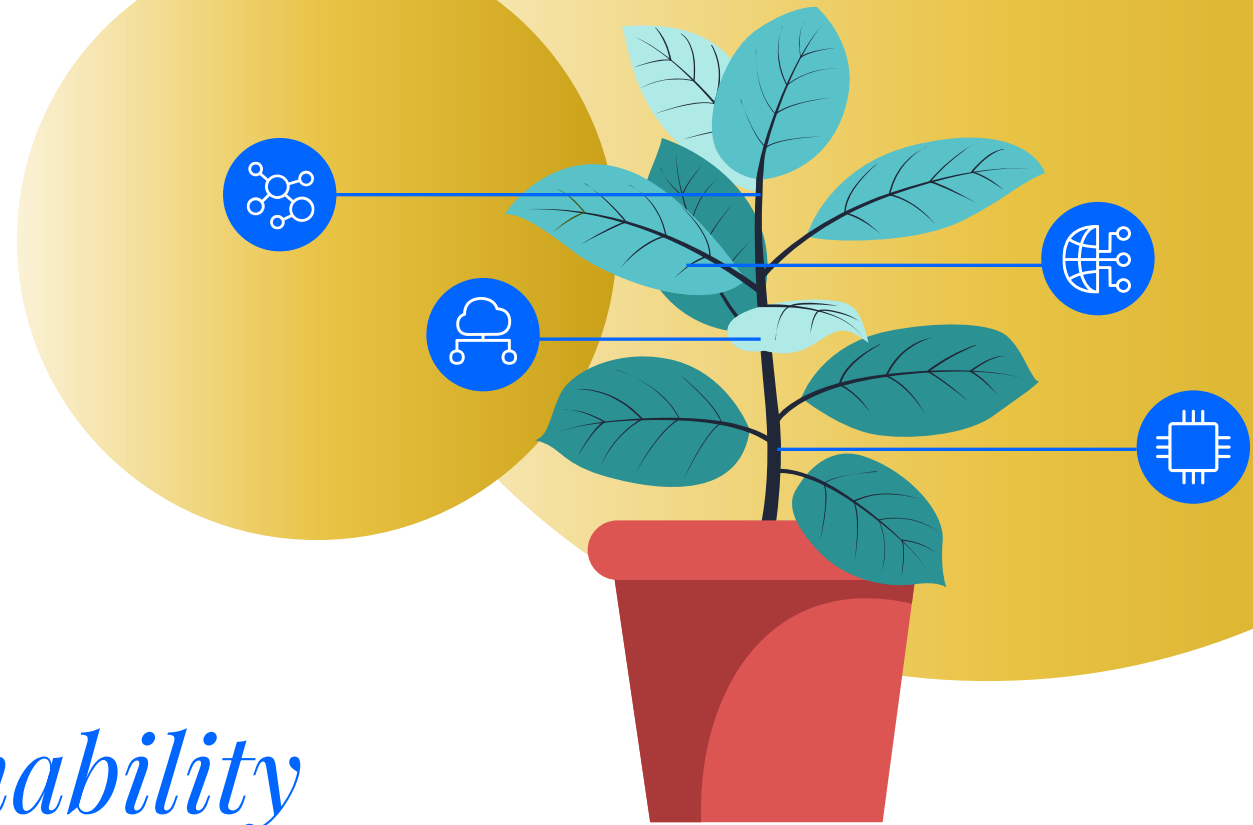
Sustainability and Inclusion

Sustainability and digital inclusion are essential for a resilient and prosperous future for all. Sustainable development and the well-being of people require strategies that address and anticipate challenges without compromising future generations.

At Telefónica, we are firmly committed to this vision and believe that the digital and green transformation of our societies only makes sense when people are put at the centre.



- 13 A *Competitive Sustainability* Driven by Digitalisation
- 14 *European Taxonomy* of Sustainable Activities
- 15 *Digital Inclusion*: From the Coverage Gap to the Usage Gap
- 16 *Digital Inclusion for Prosperity*, Innovation and Sustainable Growth
- 17 *Protection of Minors*: Towards Responsible Design and Use of Technology

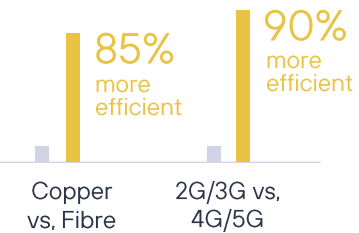


A Competitive Sustainability Driven by Digitalisation

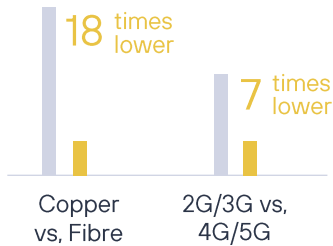
The Role of Networks in Sustainable Development

Sustainability of telecommunications networks

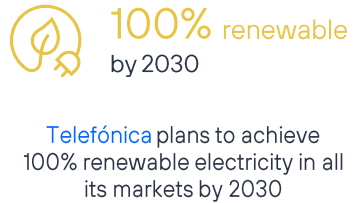
Energy efficiency^{1y2}



Lower environmental impact³



Renewable consumption²



The enabling effect of the telecommunications sector⁴

Water

Enable more efficient use of water and maintenance of infrastructure to avoid leakage

Industry 4.0

Improving supply chain traceability, helping to detect inefficiencies and reduce waste

Energy

Improving the distribution and consumption of renewable energy with Smart Grids

Automotive

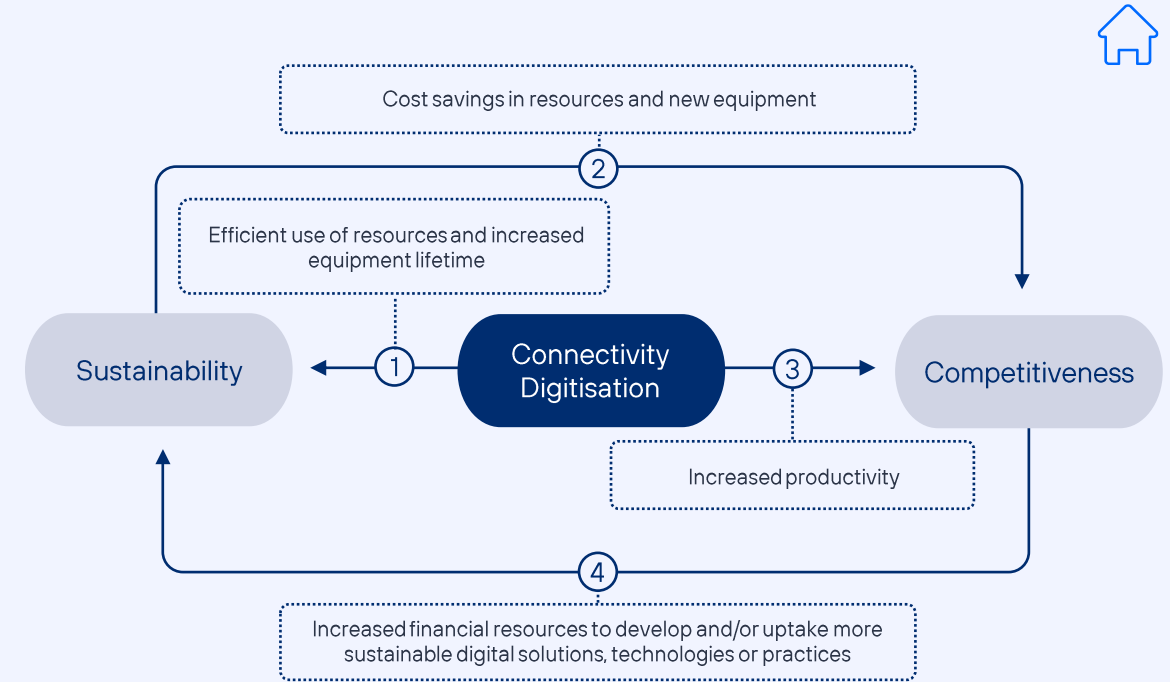
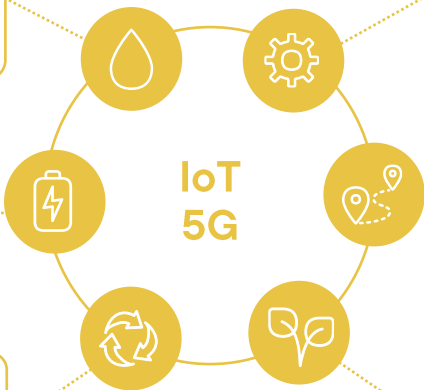
Optimising dynamics and facilitate predictive vehicle maintenance

Circularity

Extending equipment life and limiting electronic waste through predictive maintenance

Agricultura

Enabling precision techniques to optimise irrigation and fertiliser use, improving crop yields



Towards a Sustainable and Competitive Digital Environment

Evolution towards more digital, sustainable and competitive business models



Lack of perception of digitalisation as an enabler of competitive sustainability



Resistance to change



Lack of financial resources

Evolution towards more efficient telecommunications networks



Investment gap for the deployment of more efficient next-generation networks such as fibre and 5G



Difficulties in shutting down legacy networks



Enhance synergies between digital solutions, sustainability and competitiveness, relying on more efficient next-generation networks

1

Incentivise the adoption of digital solutions across all economic sectors



Encourage the adoption of "green digital solutions" by public institutions, businesses and industries to advance their decarbonisation and circularity, for instance, through subsidies or easier financing.

2

Boost the deployment of more efficient next-generation networks through sustainable financing



Consider high-capacity and energy-efficient telecommunications networks as taxonomic investments to accelerate their deployment, thus enhancing the decarbonisation effect of networks.

3

Facilitate legacy networks shutdown



Reduce regulatory pressure on legacy technologies to facilitate migration to energy-efficient next generation networks.

4

Promote Power Purchase Agreements



Promote agreements between a commercial energy consumer, such as a telecom operator, and independent power producer for the purchase of renewable energy.

Do you want to know more?

[Read](#) our positioning

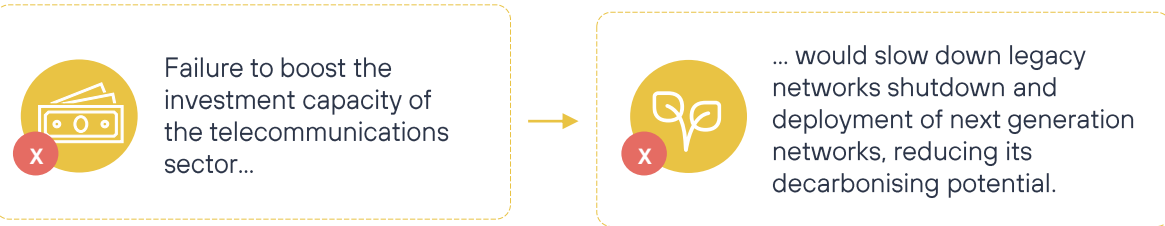
[Access](#) related content

European Taxonomy of Sustainable Activities



Boosting Sustainable Financing

There is an estimated investment gap of between 174 billion and 200 billion euros for the deployment of next generation networks, in line with the objectives of the Digital Decade 2030.¹



To address the investment gap, sustainable financing plays a key role

To promote the redirection of private capital to activities aligned with European green objectives, the European Commission adopted the Taxonomy Regulation. Thus:



Helping the EU to increase sustainable investments



Mitigating market fragmentation



Combating greenwashing

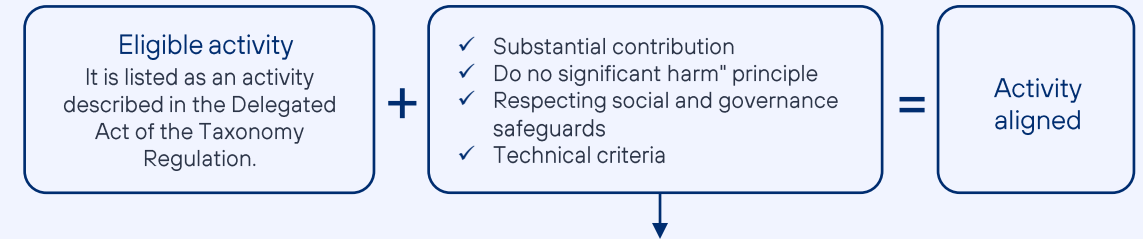


Creating certainty for investors



The EU Taxonomy does not fully reflect the key role of the ICT sector in sustainability, especially as regards telecommunications networks. This makes it difficult to align the sector with the EU's sustainable financing objectives.

From Theory to Practice: The Complexity of Taxonomy



Reporting is highly complex, resource-intensive and the results are unrepresentative.



Ambiguous legal text, giving rise to different interpretations



Lack of concept of financial materiality



Lack of homogeneous reporting criteria



Inability or difficulty in meeting certain technical criteria

Reporting difficulties cause both eligibility and alignment with the Taxonomy to reflect low financial numbers that do not represent the environmental impact of the telecom sector on climate change mitigation. In addition, the reporting results do not adequately reflect the sector's positive environmental impact on climate change mitigation.



Create a new activity
in the Taxonomy for
telecommunication
networks to guide
investments in digital
technologies aligned
with climate objectives

1

Develop a new activity
including telecommunications
networks



Include the proposed new activity in the next revision of the Taxonomy Climate Delegated Act. For this activity, the technical criteria should be based on the key performance indicators to be included in the future Code of Conduct for the sustainability of EU telecommunication networks.

2

Establish a science-based
technical criteria



Adopt a technical criteria that allows for the inclusion of new network activity as a matter of urgency until the role of the future Code of Conduct in the Taxonomy is resolved. The technical criteria proposed by industry should follow the indicators used by industry to demonstrate network efficiency and/or reports such as the one published in 2024 by the Joint Research Centre (JRC) on environmental indicators in telecommunications networks.

3

Boost investment in
green digital solutions



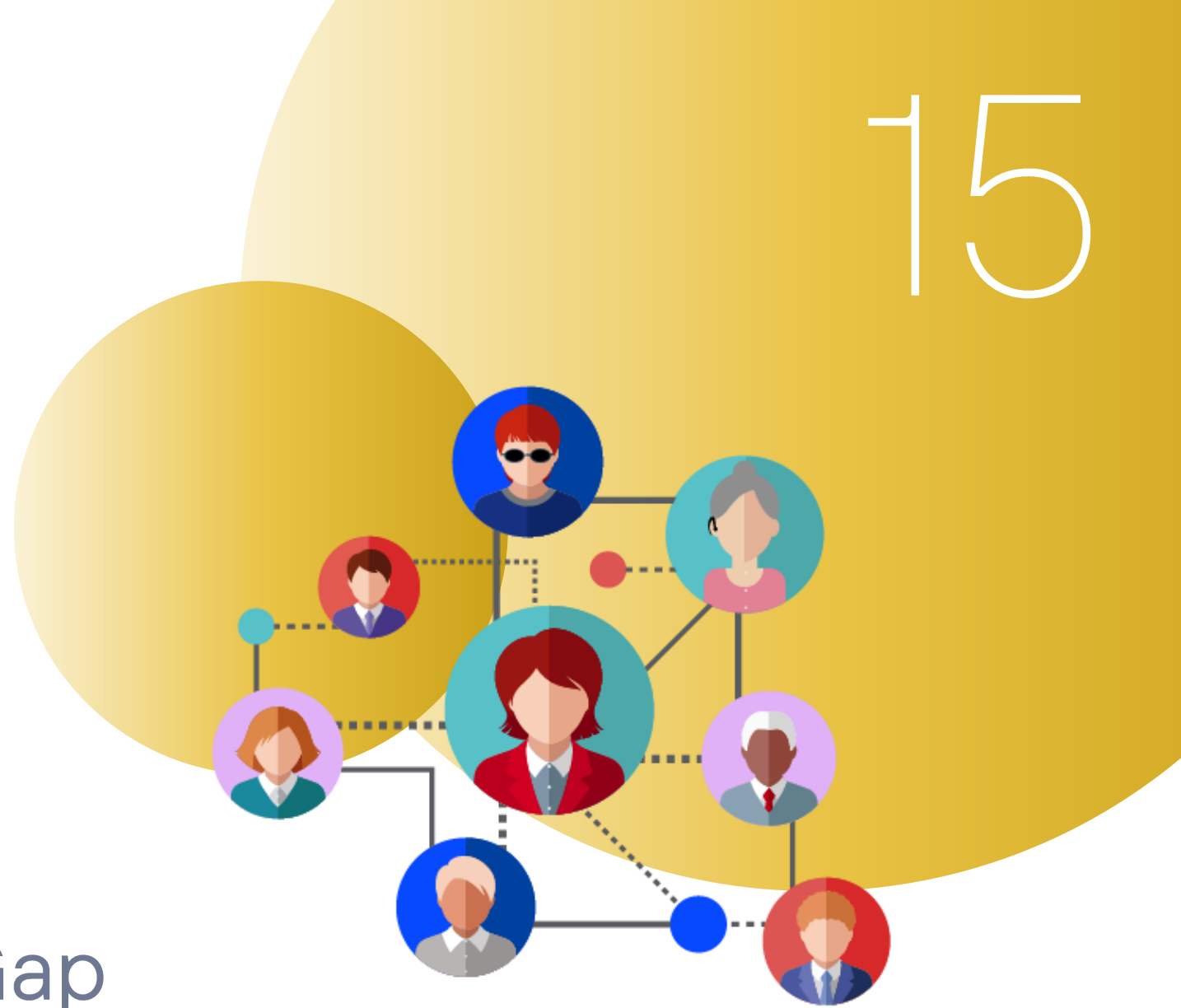
Promote funding lines for the uptake of green digital solutions would leverage the benefits of digitalisation in Europe's decarbonisation and circularity objectives. This would allow the digital and green transformations to be developed and implemented in a unified way and be reflected in European funds or other green finance initiatives. Furthermore, encouraging all types of companies to report their green digitisation activities under activity 8.2 would also allow for the identification of green digitisation investments being made in sectors relevant to the European economy.

Do you want to know more?

[Read](#) our positioning

[Access](#) related content

Digital Inclusion: From the Coverage Gap to the Usage Gap





Connectivity and new technologies have transformed people's lives. However, many still cannot enjoy these benefits.

Therefore, advancing digital inclusion and making it a priority is essential.

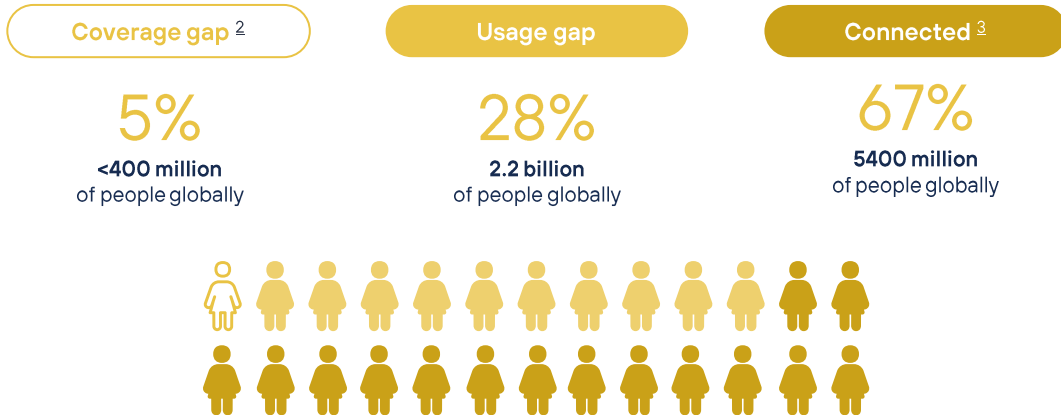


Bridging the Coverage Gap

Traditionally, bridging the digital divide has been seen as a problem of Internet access.¹

Telecommunications operators have invested heavily in extending coverage to the entire population.

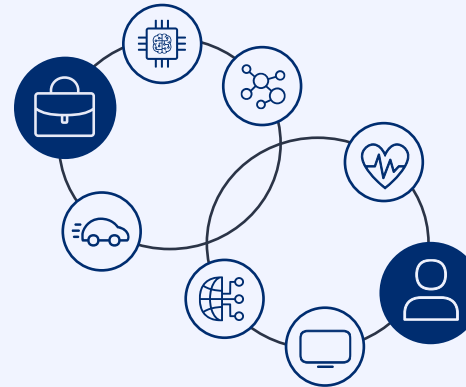
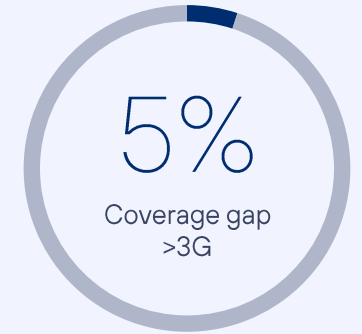
This effort has enabled **95% of the global population**² to be covered by at least one 3G mobile network by 2023.



Today's Challenges of Digital Inclusion

5% of the global population is not covered

Despite great progress in deployment, areas with complicated topology or remote areas with small populations remain a challenge. Therefore, innovative and collaborative approaches are being developed between different actors in the digital ecosystem.

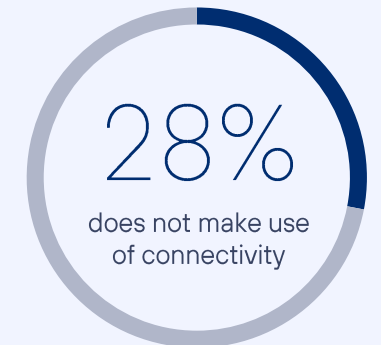


The digital era needs effective connectivity

Rapid technological advances in recent years have led to new digital products and services for the benefit of citizens and businesses. These advances require an effective connectivity.

The usage gap is the main barrier to digital adoption

Progress in closing the coverage gap has brought a new challenge to the forefront; the usage gap. Despite having broadband network coverage, many people do not make use of the Internet.





Refocus public policies and public-private initiatives to address the various barriers hindering the achievement of full digital inclusion

1

Promote models of public-private partnerships and cooperation



Encourage infrastructure sharing agreements and partnerships to accelerate deployment. Also, encourage public-private collaboration to support innovative projects.

2

Innovate network funding mechanisms



Promote innovative financing mechanisms such as green financing, broadening the base of contributors to Universal Service Funds and/or increased public support.

3

Move towards simpler and more flexible regulation



Update current regulation to reduce network deployment costs and remove barriers to infrastructure and spectrum sharing.

4

Promote public-private partnerships for the acquisition of digital skills



Incorporate digital skills into the education system to reduce the usage gap.

5

Ensure affordability of devices and accessibility



Reduce the tax burden on devices, as well as consider direct subsidy mechanisms to promote affordability.

6

Promote the production of relevant content and accessible services



Encourage the creation of content and services adapted to local culture and needs, as well as to people with disabilities.

7

Promote an accountable and reliable governance model

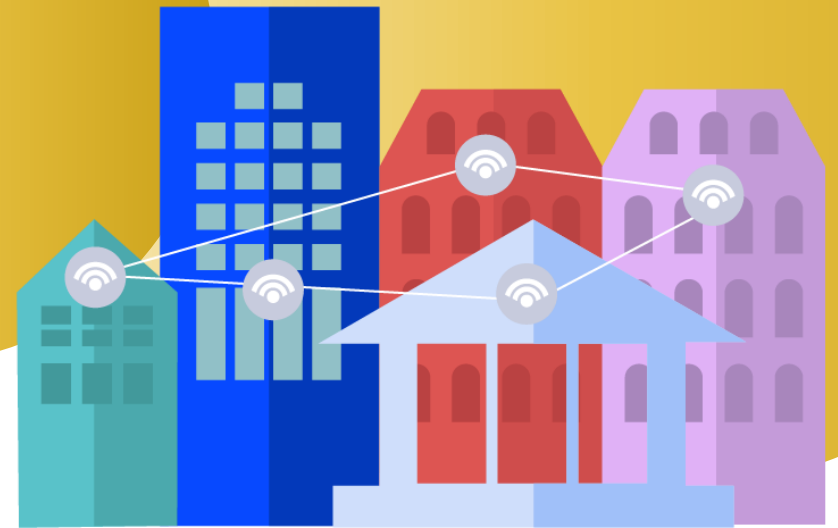


Include fundamental rights, privacy and security of individuals as pillars of this model.

Do you want to know more?

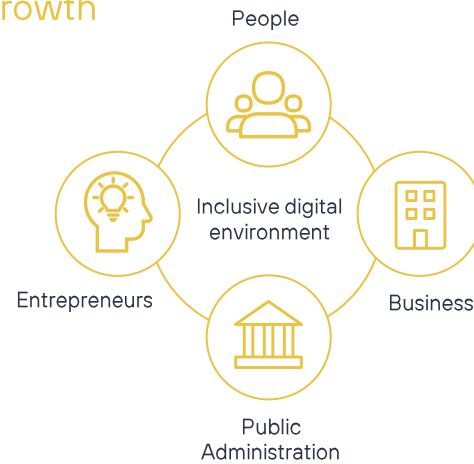
[Read](#) our positioning
[Access](#) related content

Digital Inclusion
for Prosperity, Innovation
and Sustainable Growth

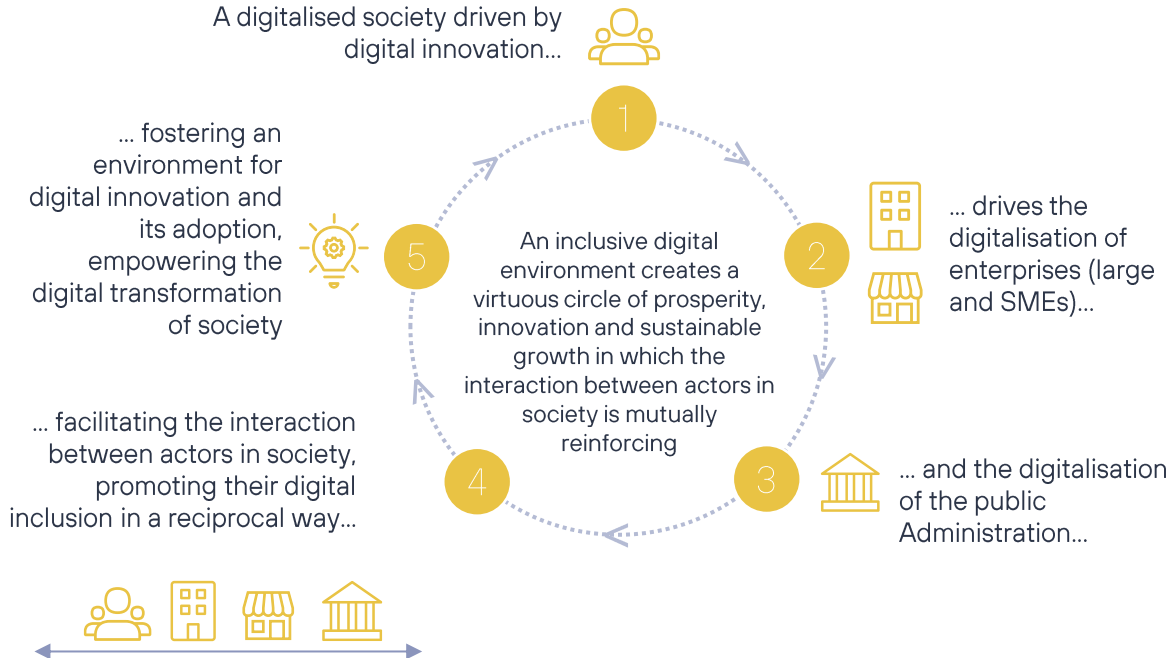


Driver of Prosperity, Innovation and Growth

Effective digital inclusion requires the promotion of an inclusive digital environment that enables individuals, businesses, entrepreneurs and public administrations to take full advantage of the economic and social opportunities of the digital age.



A digitalised society driven by digital innovation...



Towards an Inclusive Digital Environment



Digital progress and adoption are concentrated in large companies and countries with more advanced digital innovation ecosystems, widening the economic and social divides, i.e. the prosperity gap.

Challenges in Promoting an Inclusive Digital Environment



Inclusive digital innovation

Need for favourable environments for digital innovation and access to finance, as well as a culture of entrepreneurship, innovation and collaboration between companies, research institutions and startups.

+



Digital inclusion of enterprises

Difficulties in accessing finance and lack of digital skills. Risk of exclusion from opportunities in regional, national and international markets and potential polarisation of innovation.

+



Digitalisation for an inclusive public Administration

Lack of digital infrastructure, data security, digital skills, interoperability between public entities and/or resistance to change.

+



Skilled human capital in the age of digital innovation

Increasing productivity and competitiveness, as well as promoting social inclusion and resilience in the digital economy, requires a greater focus on the digitalisation of production factors, including the workforce.



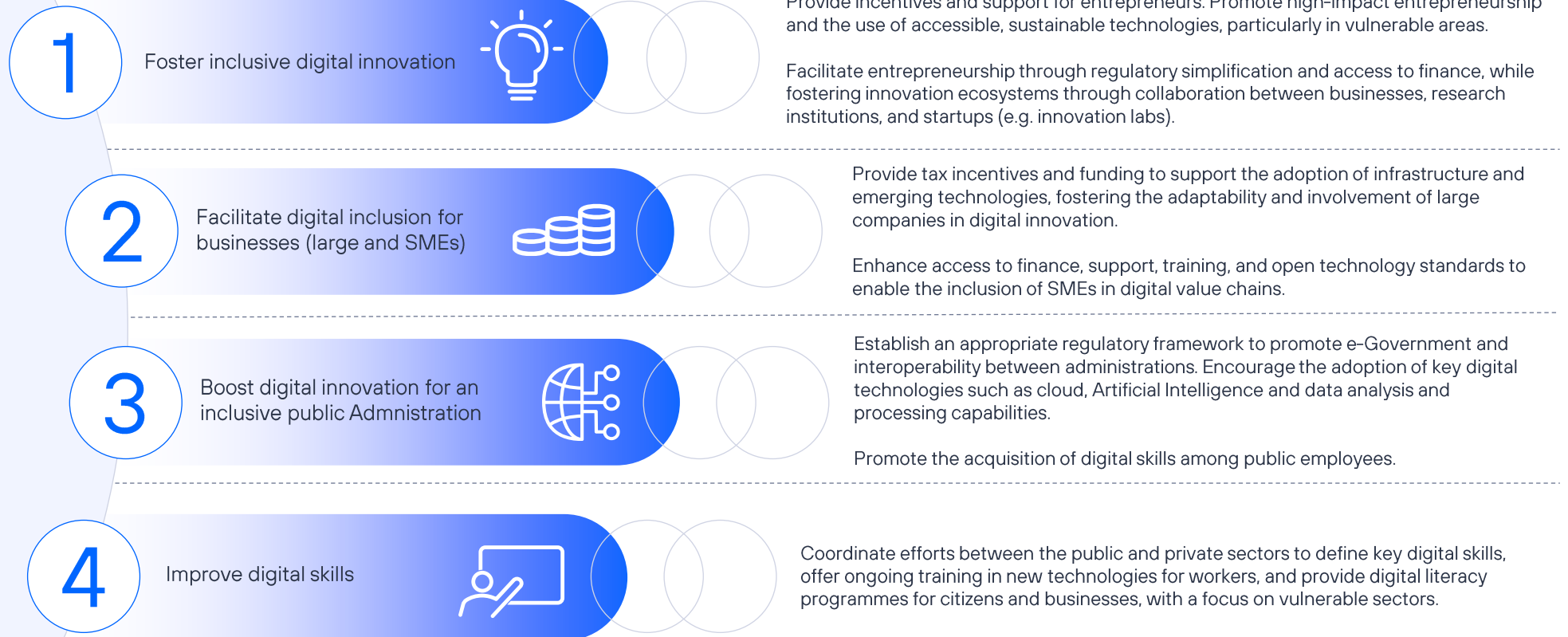


Promote effective digital inclusion through a holistic approach that creates an inclusive digital environment, that enables individuals, businesses, entrepreneurs and public institutions to take full advantage of the economic and social opportunities of the digital age

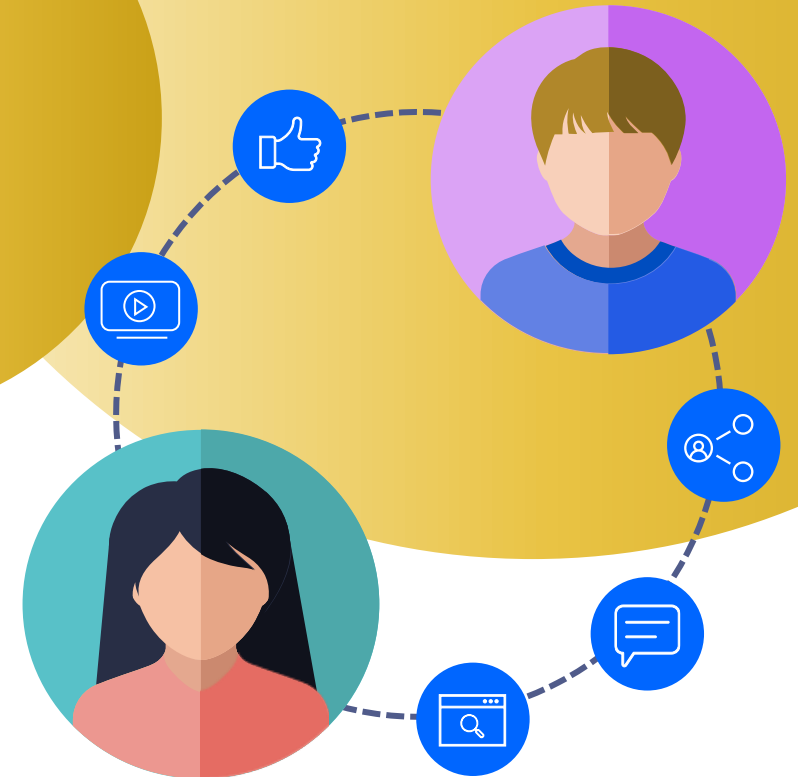
Do you want to know more?

[Read](#) our positioning

[Access](#) related content

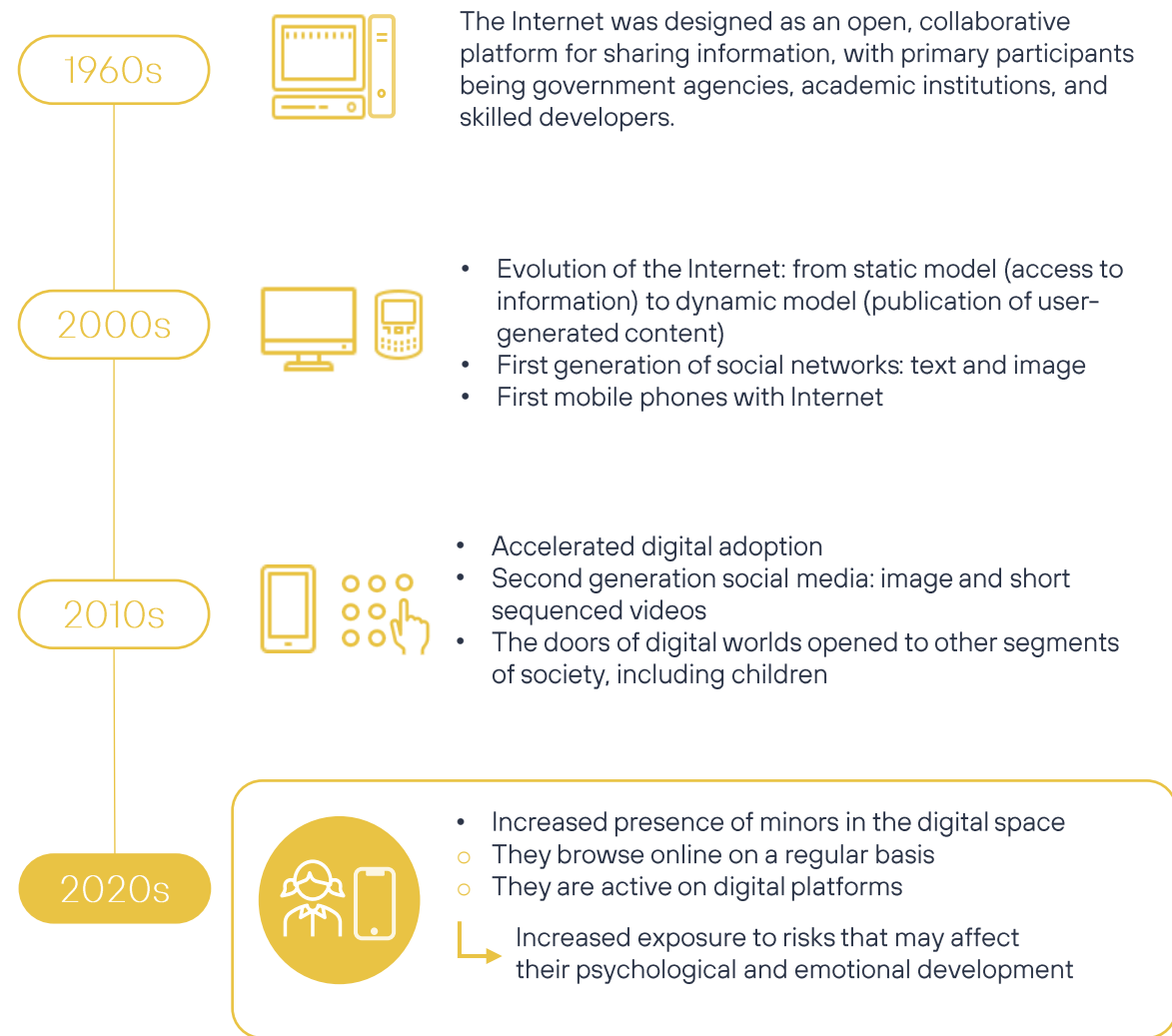


Protection of Minors: Towards Responsible Design and Use

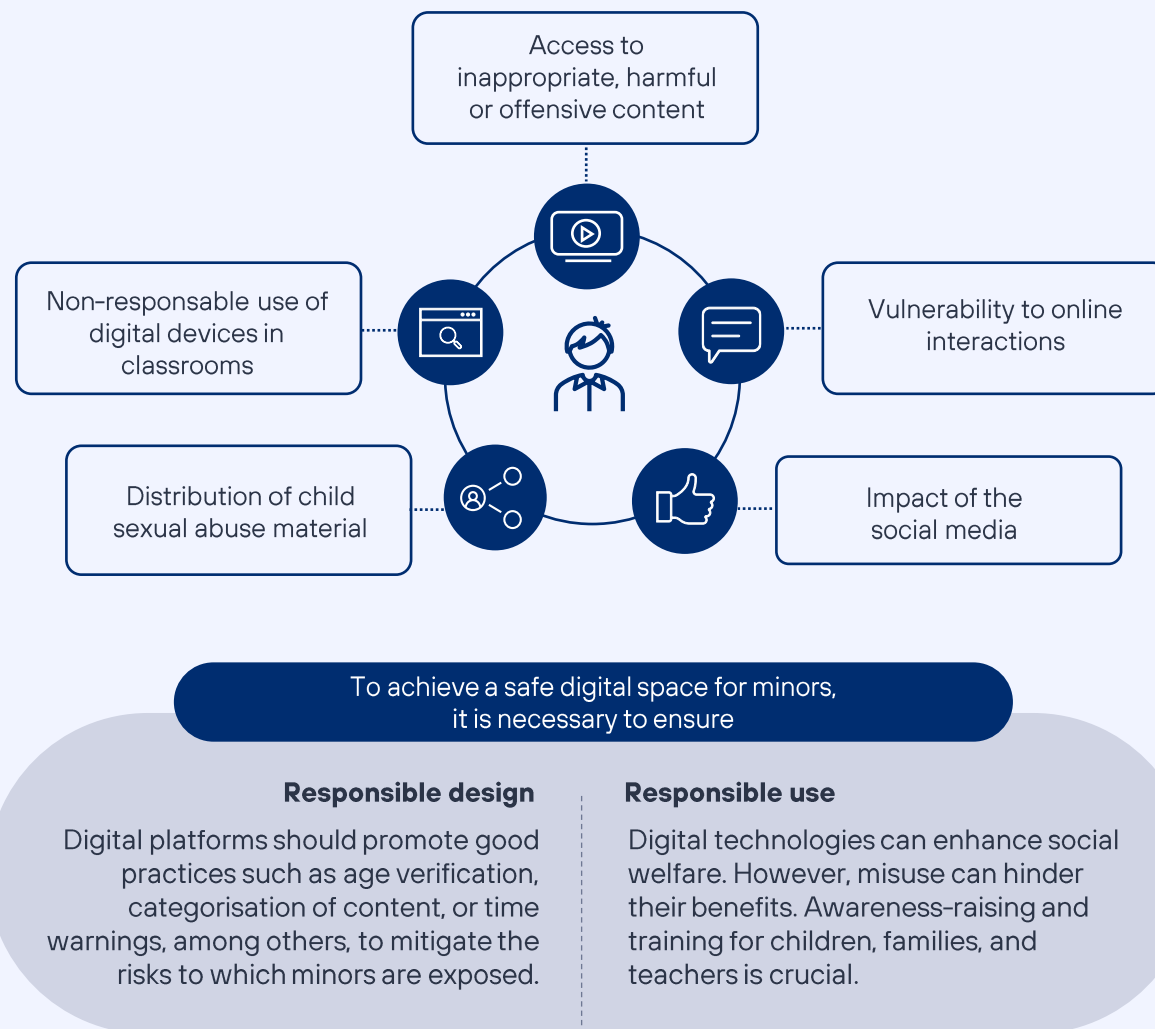




The Digital Environment was not Designed with Minors in mind



Risks Faced by Children in the Digital Environment





Promote a balanced approach between regulation that advocates for responsible design, considering the risks children face in the digital environment, and education that encourages responsible use of technology

1

Ensure that each agent of the digital value chain takes its responsibility



Target obligations to those actors who can make the protection of minors online more effective and efficient. Operators have no control over the content that circulates on their networks. Imposing obligations in this sense would be incompatible with a fair distribution of responsibilities.

2

Avoid further asymmetries between actors in the audiovisual and digital ecosystem



Acknowledge the compliance of operators who also act as content providers with existing regulations. For example, in Europe, this type of operators already adhere to the Audiovisual Media Services Directive and the Digital Services Act. Therefore, imposing additional obligations beyond their current scope would create greater regulatory imbalances among the players in the digital ecosystem.

3

Implement an age verification system



Integrate age verification solutions to prevent minors from accessing inappropriate, offensive or harmful content that is posted and shared across digital platforms.

4

Promote the adoption of a Code of Conduct



Encourage the creation of a voluntary Code of Conduct for digital platforms to enhance their commitment to protecting minors. This Code should include good practices to address risks such as the generation of addictive behaviour, inappropriate contact between adults and minors, and damage to mental health due to comments or content viewed that is unsuitable for minors, among others.

5

Offer awareness-raising campaigns, training and tools for responsible use



Convey the importance of responsible use of digital devices and services to minors, as well as provide the necessary tools to minors, family members and teachers.

Do you want to know more?

[Read](#) our positioning
[Access](#) related content



References | Competitiveness

01 *Single European Market* and the Telecommunications Sector

- (1) Council of the European Union (2024). 30th anniversary of the EU single market. Available at: <https://www.consilium.europa.eu/en/infographics/30-years-of-the-eu-single-market/>
- (2) International Monetary Fund (2024) and World Bank (2024). Available at: <https://www.imf.org/external/datamapper/NGDPDPC@WEO/OEMDC/ADVEC/WEOWORLD>
- (3) European Round Table (2023). CEO confidence withers in Europe as regulation weighs down competitiveness, 2023. Available at: <https://ert.eu/documents/tcb2023-h2/>
- (4) European Round Table (2023). ERT Expert Paper on Connectivity 2023. Available at: <https://ert.eu/wp-content/uploads/2023/11/ERT-Expert-Paper-on-Connectivity-November-2023.pdf>
- (5) Telefónica (2024). The European Single Market and the telecommunications sector. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2024/03/EU-Single-Market-and-the-Telecommunications-Sector.-Position-Paper-2024-1.pdf>
- (6) Letta (2024). Much More than a Market. Available at: <https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf>

02 A 21st Century *Industrial Policy*: Towards Technology-based European Competitiveness

- (1) Australian Strategic Policy Institute (2024). Critical-technology-tracker. Available at: <https://www.aspi.org.au/report/critical-technology-tracker>
- (2) Draghi (2024). The Future of European Competitiveness. Available at: https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20-%20A%20competitiveness%20strategy%20for%20Europe.pdf
- (3) European Commission (2020). Europe's Digital Decade. Available at: <https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade>
- (4) European Commission (2020). Europe's Digital Decade Targets 2030. Available at: [Europe's digital decade: 2030 targets | European Commission](https://ec.europa.eu/commission/presscorner/detail/en/ip_24_3602)
- (5) European Commission (2024). 2024 State of the Digital Decade. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_3602
- (6) European Commission (2024). DESI Indicators. Available at: <https://digital-decade-desi.digital-strategy.ec.europa.eu/datasets/desi/charts>
- (7) Connect Europe (2025). The State of Digital Communications 2025. Available at: <https://connecteurope.org/sites/default/files/2025-01/State of Digital Communications - 2025 edition.pdf>
- (8) European Commission (2024). White Paper How to master Europe's digital infrastructure needs? Available at: <https://ec.europa.eu/newsroom/dae/redirection/document/102533>
- (9) Telefónica (2023). A 21st Century Industrial Policy: Towards a European competitiveness based on technology. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2023/07/Telefonica-positioning-industrial-policy-EN.pdf>
- (10) Telefónica (2024). EU 2024-2029. Boosting competitiveness: Digital by innovation, green by design. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2024/09/EU-2024-2029.-Forging-a-competitive-path.-Position-paper-2024.pdf>
- (11) Telefónica: #Industrial Policy. Available at: <https://www.telefonica.com/en/tag/industrial-policy/>
- (12) Telefónica: #UE2024-2029. Available at: <https://www.telefonica.com/en/tag/eu-2024-2029/>

03 *Pro-investment Market Structures* in the Telecommunications Sector

- (1) Connect Europe (2025). The State of Digital Communications 2025. Available at: <https://connecteurope.org/sites/default/files/2025-01/State of Digital Communications - 2025 edition.pdf>
- (2) Telefónica (2024): Will DGCOMP be ready to face the new challenges of the new Commission? Available at: [Will the new EU Competition Commission's decisions be up to the challenge? - Telefónica](https://www.telefonica.com/en/wp-content/uploads/sites/5/2024/09/Will-the-new-EU-Competition-Commission-s-decisions-be-up-to-the-challenge?-Telefonica)
- (3) Telefónica: #Competition. Available at: <https://www.telefonica.com/en/tag/competition/>

04 An Efficient *Spectrum Policy* Adapted to Digital Objectives

- (1) PWC (2023). Global Telecom Outlook 2023-2027. Available at: <https://www.pwc.es/es/telecomunicaciones/global-telecom-outlook-2023-2027.html>
- (2) Ericsson (November 2024). The Ericsson Mobility Report. Available at: <https://www.ericsson.com/en/reports-and-papers/mobility-report/key-figures>
- (3) Ericsson / Aetha Consulting (2022). Ensuring European spectrum renewals are aligned with Digital Decade targets. Available at: <https://aethaconsulting.com/wp-content/uploads/2022/12/aetha-consulting-european-spectrum-renewals-report.pdf>

05 A *Fair Relation* for Network Sustainability

- (1) Sandvine (2023). 2024 Global Internet Phenomena Report. Disponible en: <https://www.sandvine.com/global-internet-phenomena-report-2024?hsCtaTracking=e7241161-b745-4005-b830-43fefcb12b88%7C844e56d7-0148-471e-aa34-fe9d3e4cd8b1>
- (2) Frontier Economics (2022). Estimating OTT traffic related costs on European telecommunications networks. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2023/02/Estimating-OTT-Traffic-related-costs-on-European-Telecommunications-Networks.pdf>
- (3) Telefónica (2023). A fair contribution to network sustainability. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2023/02/public-policy-Fair-share-for-network-sustainability.pdf>
- (4) Telefónica: #Fair Relation. Available at: <https://www.telefonica.com/en/tag/fair-share/>



References | Technological innovation

07 *Connectivity*: The Transformative Power of Telecommunications and its Impact on Innovation

- (1) Telefónica (2024). The transformative power of telecommunications and its impact on innovation. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2023/12/transformative-power-telecommunications-impact-innovation-positioning-2023.pdf>
- (2) Telefónica: #Connectivity. Available at: [Articles and news Connectivity – Telefónica](#)

08 A Governance of *Artificial Intelligence* for the Future

- (1) McKinsey (2018). Notes from the AI frontier: Modeling the impact of AI on the world economy. Available at: <https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-modeling-the-impact-of-ai-on-the-world-economy>
- (2) McKinsey (2023). AI could increase corporate profits by 4 trillion a year according to new resech. Available at: <https://www.mckinsey.com/mgi/%20overview/in-the-news/ai-could-increase-corporate-profits-by-4-trillion-a-year-according-to-new-research>
- (3) Telefónica (2023). Artificial Intelligence: Innovation, ethics and education. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2023/06/Positioning-Artificial-Intelligence-innovation-ethics-and-regulation.pdf>
- (4) Telefónica: #Artificial Intelligence. Available at: <https://www.telefonica.com/en/tag/artificial-intelligence/>

09 *Generative AI*: Competition, Intellectual Property and the Labour Market

- (1) Telefónica (2024). Artificial Intelligence and Generative AI: governance, competition, intellectual property and labour market. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2024/09/Artificial-Intelligence-and-Generative-AI-Position-paper-2024-3.pdf>

10 Telecommunication Networks and *Virtual Worlds*: A New Internet Era

- (1) McKinsey (2022). Value creation in the Metaverse. Available at: www.mckinsey.com/~media/mckinsey/business%20functions/marketing%20and%20sales/our%20insights/value%20creation%20in%20the%20Metaverse/Value-creation-in-the-Metaverse.pdf
- (2) Telefónica (2023). Telecommunications networks and the Metaverse. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2023/02/Políticas-Públicas-Telecommunication-Networks-and-Metaverse.pdf>

11 *Cybersecurity*: Strengthening Resilience and Trust in a Global Digital World

- (1) World Economic Forum (2024). The Global Risk Report 2024. Available at: https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2024.pdf
- (2) World Economic Forum (2024). The Global Cybersecurity Outlook 2024. Available at: <https://www.weforum.org/publications/global-cybersecurity-outlook-2024/>
- (3) Esentire (2023). 2023 Official Cybercrime Report. Available at: <https://www.esentire.com/resources/library/2023-official-cybercrime-report>
- (4) World Economic Forum (2024). Bridging the cyberskills gap. Available at: <https://initiatives.weforum.org/bridging-the-cyber-skills-gap/home>
- (5) International Monetary Fund (2024). The Last Mile: Financial Vulnerabilities and Risks (Chapt. 3). Available at: <https://www.imf.org/en/Publications/GFSR/Issues/2024/04/16/global-financial-stability-report-april-2024>
- (6) Cisco (2024). Cybersecurity Readiness Index Available at: https://newsroom.cisco.com/c/dam/r/newsroom/en/us/interactive/cybersecurity-readiness-index/documents/Cisco_Cybersecurity_Readiness_Index_FINAL.pdf
- (7) Telefónica (2024). Cybersecurity: building resilience and trust in a digital world. Available at: [Cybersecurity: building resilience and trust in a digital world - Telefónica](#)
- (8) Telefónica. #Cybersecurity. Available at: <https://www.telefonica.com/en/tag/cybersecurity/>

12 *Early Warning Systems*: A Vital Shield Against Natural Disasters

- (1) OECD (2024). Towards disaster-resilient infrastructure in Latin America: financing and governance. Available at: <https://www.oecd-events.org/infrastructure-forum/session/03b28633-64b5-ee11-bea0-000d3a49ee24/breakout-6b-towards-disaster-resilient-infrastructure-in-latin-america-financing-and-governance-000d3a49ee24/breakout-6b-towards-disaster-resilient-infrastructure-in-latin-america-financing-and-governance-000d3a49ee24>
- (2) European Environment Agency (2023). Economic losses from weather- and climate-related extremes in Europe. Available at: <https://www.eea.europa.eu/en/analysis/indicators/economic-losses-from-climate-related>
- (3) GSMA (2023). Cell Broadcast for Early Warning Systems. Available at: https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2023/11/Cell-Broadcast_R.pdf
- (4) Telefónica (2023). Early Warning Systems: a vital shield against natural disasters. Available at: [Early warning systems: A vital shield against natural disasters - Telefónica](#)



References : Sustainability and Inclusion

13 A *Competitive Sustainability* Driven by Digitalisation

- (1) Nokia (2020). Nokia confirms 5G as 90 percent more energy efficient Available at: <https://climate.copernicus.eu/copernicus-2023-hottest-year-record>
- (2) Telefónica (2022). Climate Action Plan. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2022/03/climate-action-plan-telefonica.pdf>
- (3) Telefónica (2022). Connectivity solutions' Life Cycle Assessment. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2022/03/connectivity-solutions-life-cycle-assessment.pdf>
- (4) Telefónica Tech. Environmental commitment: helping to build a more sustainable world. Available at: [Environmental commitment | Telefónica Tech](#)
- (5) Telefónica (2023). The green factor: digitalisation for the green transition. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2023/06/The-green-factor-digitisation-for-the-green-transition-Position-Paper-2023.pdf>
- (6) Telefónica. #sustainability. Available at: <https://www.telefonica.com/en/tag/green-transition/>

14 European *Taxonomy* of Sustainable Activities

- (1) European Commission (2024). White Paper How to master Europe's digital infrastructure needs? Available at: <https://ec.europa.eu/newsroom/dae/redirection/document/102533>
- (2) Telefónica (2024). Green finance as a tool to boost sustainability. Available at: [Green financing as a tool to boost sustainability - Telefónica](#)
- (3) Telefónica (2024). Taxonomy has forgotten (for now) about teleco networks. Available at: [Taxonomy has \(for now\) overlooked telecom networks - Telefónica](#)

15 *Digital Inclusion*: from the Coverage Gap to the Usage Gap

- (1) ITU (2023). Mobile Network Coverage Facts And Figures. Available at: <https://www.itu.int/itu-d/reports/statistics/2023/10/10/ff23-mobile-network-coverage/>
- (2) ITU (2024). Population Coverage by mobile network technology. Available at: <https://datahub.itu.int/data/?c=701&i=100095&s=430> ç
- (3) ITU (2024). Individuals using the Internet. Available at: <https://datahub.itu.int/data/?c=701&i=11624>
- (4) Telefónica (2024). From the coverage gap to the usage gap. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2024/03/public-policies-digital-gap-position-paper-2024.pdf>
- (5) Telefónica (2025). Digital Inclusion as a driver of prosperity: innovation and sustainability growth. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2025/01/Digital-Inclusion-as-a-driver-of-prosperity-Position-Paper-2025.pdf>
- (6) Telefónica. #Digital inclusion. Available at: <https://www.telefonica.com/en/tag/digital-inclusion/>

16 *Digital Inclusion for Prosperity*. Innovation and Sustainable Growth

- (1) Telefónica (2025). Digital Inclusion as a driver of prosperity: innovation and sustainability growth. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2025/01/Digital-Inclusion-as-a-driver-of-prosperity-Position-Paper-2025.pdf>
- (2) Telefónica. #Digital inclusion. Available at: <https://www.telefonica.com/en/tag/digital-inclusion/>

17 *Protection of Minors*: Towards Responsible Design and Use

- (1) Telefónica (2025). Building a safe digital environment for minors. Towards responsible design and use of digital devices and services. Available at: <https://www.telefonica.com/en/wp-content/uploads/sites/5/2025/01/Building-a-safe-digital-environment-for-minors-Position-Paper-2025.pdf>
- (2) Telefónica. #Protection of Minors. Available at: <https://www.telefonica.com/en/tag/protection-minors/>



Follow the conversation...



[Blog](#)



[LinkedIn](#)



[Newsletter](#)

2025

Digital Public Policy,
Regulation and
Competition