GSMA



Brazil 2030: Connectivity, Innovation, and Sovereignty

June 2026

GSMA

The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

We invite you to find out more at gsma.com.

GSMA Latin America and the Caribbean is the GSMA's arm in the region. For more information in English, Spanish and Portuguese, visit https://gsma.at/LAC. Follow GSMA Latin America and the Caribbean on X/Twitter @GSMALAC and LinkedIn GSMA Latin America and the Caribbean.

Brazil 2030: Connectivity, Innovation, and Sovereignty

In recent years, mobile connectivity has established itself as an essential part of the country's infrastructure, enabling digital public services, productivity, social inclusion, and innovation. This became particularly clear after the pandemic, when the national debate shifted to position telecommunications as an essential service and the foundation for the continuity of large-scale economic and social activities, as well as positioning the country strategically as a competitive nation.

The telecommunications sector is among the most capital-intensive segments of the Brazilian economy. It accounts for approximately 2.7% of the country's GDP, invested more than R$ 36.3 billion (approximately US$ 6.6 billion) in infrastructure over the past year, and supports around 1.7 million direct jobs. Unlike other sectors, this level of investment is required on an ongoing basis to maintain, expand, and modernize networks with a long payback period. It is in this context that the conditions set by the government will determine investment capacity and, consequently, the quality and scope of infrastructure in the coming years.

Brazil has surpassed the milestone of 94% of its population being covered by 4G or more advanced networks[1], highlighting significant progress in the development of its mobile infrastructure. **While 68% of Brazilians have full mobile broadband coverage and 6% still live in areas without coverage, 26% live in areas already covered by mobile broadband but do not use the service[2].** This gap is currently the main obstacle to digital inclusion, and the primary reasons for it are: the affordability of devices (especially due to high taxes), a lack of digital literacy or skills, and concerns about security and privacy.

1 Source: Anatel
2 Source: GSMA Intelligence

The public policies adopted over the past decade to narrow the coverage gap have been successful and supported the expansion of 4G and the deployment of 5G, placing the country among the most advanced in Latin America in this transition. Key findings include[3]:

- **4G networks** already cover nearly 100% of the urban population, and in the past year alone, coverage of the rural population shot up from **37% to 48%**.
- Coverage of agricultural areas also increased, from **19% in 2024 to 34% in 2025.**
- **Highways,** which serve as important corridors for the expansion of network coverage into inland areas, also saw progress during the same period, **with 4G coverage rising from 47% to 51%.**

The priority now should be to address inequalities in how people access and use mobile internet. According to data from the Brazilian Institute of Geography and Statistics (IBGE), more than 20 million Brazilians, including both young people and adults, do not own a mobile phone. Among the main reasons for that, more than half (52%) report that they either do not know how to use one or do not feel the need to use it. Another 22% cite cost—particularly of the device itself—as the main barrier, while less than 1% identify lack of network coverage as the primary reason.

Access to essential digital services, such as healthcare, also remains limited. Data from sample surveys indicate that in 2025, only 20% of Brazilians had used any form of digital health service. Others cite a lack of confidence or even a lack of knowledge. In education, only 17% of students use technology for pedagogical purposes, while more than half (58%) make only partial or limited use of the Internet for educational activities. **This reality shows that we are not primarily facing a shortage of connectivity supply, but rather significant barriers that affect demand. And we need to close this gap.**

3 Source: Anatel

Brazil's Digital Landscape: Progress, Gaps, and Challenges

Since 2018[4], GSMA has advocated a consistent policy agenda built around three priorities: regulatory modernization, the reduction of barriers to investment, and policies that enable the expansion of mobile connectivity, translating into social impact and economic development.

In 2022[5], we structured this vision for the 2023–2026 cycle, which has already delivered significant progress. Notable achievements include the recently approved tax reform; the enhancement and operationalization of the Universal Telecommunications Services Fund (FUST); advances in the Digital Government Strategy; the alignment of municipal regulations with the General Antenna Law; the criminalization of theft, robbery, and receiving stolen goods involving telecommunications equipment; and the extension of the incentive framework for the Internet of Things (IoT) in Brazil.

The turning point and opportunity are clear: Brazil has already built much of the necessary framework, but it must now pay closer attention to the digitalization and sustainability of the country's networks. According to the ASIET , a 1% increase in a country's digitalization index leads to productivity gains that translate into economic growth equivalent to 0.3% of GDP. With this in mind, the priority should not be regulatory innovation, but rather the modernization of policies aimed at effective inclusion: (i) reducing gaps in access and usage; (ii) prioritizing robust infrastructure and regulatory predictability to support investment; and (iii) advancing a positive agenda that fosters innovation and encourages technology adoption.

Figure 1

Guiding Principles for Digital Inclusion Policies in Brazil



Source: GSMA

4 O que deve incluir a política pública do próximo presidente para integrar o Brasil à economia digital? GSMA, 2018.
5 O caminho para um Brasil digital: Agenda para 2023-2026. GSMA, 2022.
6 La transformación digital: oportunidad para la cooperación entre Europa y América Latina. ASIET.

The telecommunications services have evolved from the era of voice and text messaging to the era of data and the ubiquitous internet. **It is no longer possible to analyze the sector in isolation, as mobile connectivity, the internet value chain and digital services have expanded, and there is a clear need for investment to sustain the infrastructure and expand the reach of digitalization and meaningful connectivity.**

A robust infrastructure will drive innovative solutions such as artificial intelligence, edge computing, the Internet of Things (IoT), and advanced applications for government services, agribusiness, healthcare, education, public safety, and more.

Without a State policy with clear objectives, coordinated across all sectors, technology will continue to advance, but at the risk of leaving millions of Brazilians behind in this process. Therefore, this policy requires vision and long-term planning, centralized governance of the digital agenda, and effective implementation to achieve the necessary leap forward in the country's digital transformation.

We therefore invite decision-makers to reflect on the opportunities and challenges involved in advancing digitalization in the country, with the aim of taking action to promote a sustainable and competitive digital infrastructure. This is supported by a cutting-edge industry capable of developing and strengthening the foundation needed to move forward on this path, with citizens at the heart of public policy.



The Foundation of Digital Brazil

This section addresses the foundational conditions for Brazil's digital economy, with a focus on legal certainty for investment, regulatory coherence, and the governance of cross-cutting public policies. By integrating these elements, this chapter seeks to contribute to a predictable, efficient, and internationally aligned environment capable of attracting investment, supporting network expansion, and ensuring that Brazil advances in a competitive and resilient manner within the digital landscape[7].

Proposed sector-specific recommendations to advance the agenda for investment promotion and security:

1. Balance in the digital ecosystem[8] [9]

The internet functions as a network of networks, consisting of multiple connections and interconnections that allow data to travel from content servers to each person's cell phone. The Internet value chain has evolved and continues to grow rapidly, driven by services and products that depend on the existence and robustness of this sum of telecommunications infrastructures[10].

In line with the findings of the Internet Value Chain study[11], there is no doubt that network traffic has grown exponentially, driven primarily by the increasing demand for digital services delivered over mobile networks. However, the disparities among the various players in it is becoming increasingly pronounced, including in terms of regulation, taxation, fees and obligations, consumer protection, and other factors.
Between 2016 and 2023, data traffic on mobile networks increased 17-fold in

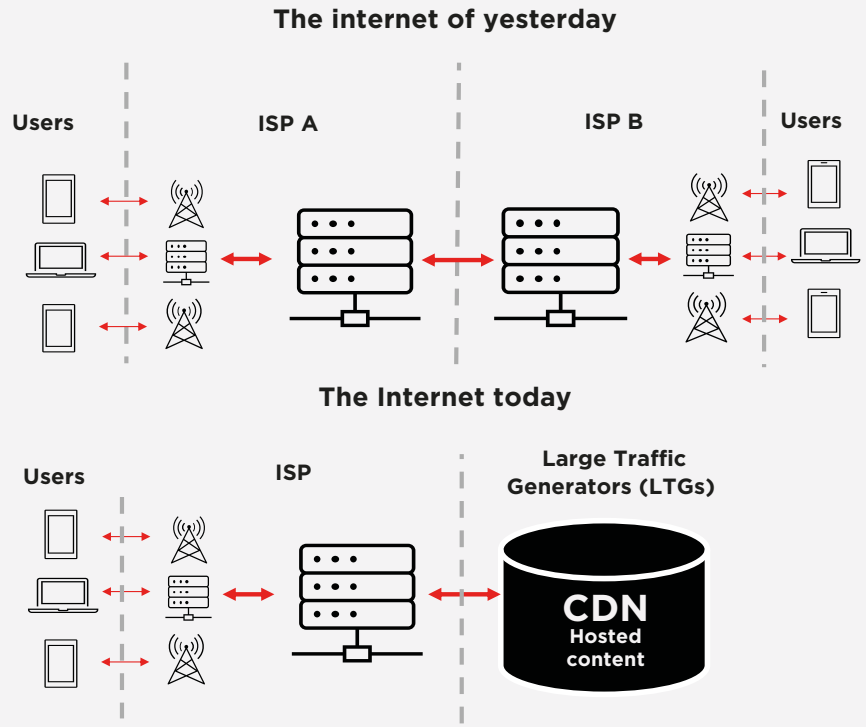
7 Energising Mobile Network Investment. GSMA, 2024.
8 Large traffic generators and network usage: Myths and realities. GSMA, 2024.
9 Mobile network usage in Latin America. GSMA, 2024.
10 Mobile Infrastructure Investment Landscape. GSMA, 2025.
11 The Internet Value Chain. GSMA, 2022.

Latin America, representing a 50% annual growth rate, according to data from GSMA Intelligence. **By 2030, this traffic is expected to triple, driven primarily by high-definition video streaming, artificial intelligence, gaming, and new technologies.** To accommodate the expected growth in internet traffic, an analysis[12] by Nera Consulting showed that Latin American operators would need to invest between $32 billion and $52 billion in expanding their network capacity by 2028.

In this ecosystem, mobile operators account for the bulk of the investments needed to deploy, expand, and maintain the access infrastructure that directly connects citizens. Some large traffic generators—including messaging, video, and streaming services, social media, and other digital platforms—claim to contribute through investments in data centers, undersea cables, or content delivery networks (CDNs). **However, evidence shows that the main cost of connectivity lies in the access network, which accounts for approximately 80% of total infrastructure investment and is financed almost exclusively by telecommunications service providers.**

Figure 2

The Evolution of Internet Architecture



Source: GSMA Intelligence

12 Implicaciones de la concentración del tráfico IP en OTT y las posibilidades de su contribución al desarrollo de redes. Nera Consulting,2023.

It is worth noting that the Broadband Commission for Sustainable Development of the International Telecommunication Union (ITU), in partnership with UNESCO, released a report entitled "The State of Broadband: Digital connectivity, a transformative opportunity"[13]. The report argues for expanding the debate on mechanisms for financing network access infrastructure. One of the alternatives proposed is to increase the number of contributors to share the costs of the internet networks, ensuring the sustainability of investments in infrastructure expansion through the participation of other stakeholders in the chain, particularly entities that participate in and benefit from the digital economy.

It is necessary to balance regulatory responsibilities and obligations among all stakeholders in the digital ecosystem. Public policies must recognize that investment in connectivity infrastructure is essential to reducing the digital divide and promoting high-quality services, with access conditions that are equitable, transparent, and guided by the public interest.

Part of this effort involves promoting mechanisms that enable all stakeholders in the digital ecosystem to contribute to evidence-based decision-making. In addition, it is necessary to establish regulatory conditions that facilitate voluntary negotiations between network providers and major traffic generators and promote the internalization of interconnection between telecommunications networks and content and application providers, benefiting all Brazilian regions and states equally.



Request from industry: Ensure balanced negotiations among stakeholders in the digital ecosystem, with legal certainty and without ex-ante interventions, to support investments in connectivity infrastructure.

13 Available in: https://www.broadbandcommission.org/publication/state-of-broadband-2023interl

2. Digitalization Governance

Digital transformation cuts across multiple economic sectors, service industries, and public policy areas. Therefore, it spans the entire government ecosystem, including health, education, public safety, regional development, agriculture, tourism, and other ministries, regulatory agencies, and public administration bodies.

Digital infrastructure is essential to the country's sustainable socioeconomic development. The GSMA's 2022 paper already emphasized the need for ongoing collaboration between the public and private sectors, as well as for future-proof policies capable of sustaining investment and preventing distortions and regulatory fragmentation that could hinder the expansion of connectivity.

For the period 2027–2030, it is essential that we establish a cross-cutting and permanent governance framework for the digital agenda, making it a State policy capable of bringing together, in a coordinated and continuous manner, the various public and private stakeholders. This model is essential for treating infrastructure, digital services, and inclusion as components of a single strategic objective, with shared goals, clear responsibilities, monitoring tools, and budget predictability, thereby avoiding fragmented or disjointed initiatives—often in related areas. **By institutionalizing this coordination, the country will, in the long term, strengthen the coherence of public policies and ensure their consistent implementation, creating an environment more conducive to innovation and attracting investment, with greater policy complementarity, legal certainty, and regulatory predictability.**

This view is supported by an OECD study[14], which compiles the key practices observed among its member countries and organizes them into a reference guide. The conclusion is that an integrated digital strategy can increase stakeholder engagement and underscores the importance of strategic coordination in the development, monitoring, and implementation of public policies on digitalization. The study also notes that countries that are more advanced in digital transformation have followed consistent patterns of centralized governance, highlighting that a unified policy is an essential prerequisite for promoting digital inclusion in a manner aligned with economic development. Finally, the OECD classifies digitalization governance models into four maturity levels, with supraministerial coordination representing the most advanced stage.

14 Going Digital integrated policy framework. OCDE, 2020.

We must build on the institutional progress already made and establish robust, long-term governance of the digital transformation as a matter of State policy. **The Brazilian experience and international benchmarks show that centralized strategic coordination does not reduce the autonomy of sectoral agencies; on the contrary, it enables policies, programs, and investments that are currently fragmented to work in concert, thereby generating greater economic and social impact.** Initiatives such as expanding connectivity, industrial policies, digital health, connected education, and digital literacy only yield transformative results when they are coordinated around shared goals, clear priorities, and consistent coordination mechanisms.

The main advantage of this model lies in its strategic centralization within a supraministerial body composed of decision-makers; this body is responsible for setting long-term objectives, ensuring consistency among public policies, and guaranteeing institutional predictability, combined with decentralized implementation at the federal and subnational levels.

The establishment of a modern and efficient regulatory framework is essential in the digital environment, as the high level of regulatory complexity in the telecommunications sector often results in disproportionate costs, reduces agility, and diverts resources that could otherwise be directed toward network expansion, innovation, and improving service quality. Therefore, it is key to move forward with a structured agenda for regulatory simplification and improvement, based on principles recognized internationally by the OECD[15], and the ITU[16] as well as at the regional level by CITEL/OAS[17], such as proportionality, consistency, technological neutrality, predictability, and ongoing impact assessment.

The systematic application of best regulatory practice tools—such as regulatory impact analyses, periodic reviews of obligations, coordination among authorities, and a focus on results—results in an approach that fosters investment confidence. This is essential for digital transformation to proceed in an integrated and sustainable manner, aligned with the long-term needs of Brazil's economic and social development.



Request from industry: Recognize connectivity as a cross-cutting national policy and strengthen mechanisms for interministerial coordination of the digital agenda, to ensure alignment among public policies.

15 Regulatory Policy Outlook. OECD, 2025.
16 Marcos políticos y reglamentarios. International Telecommunication Union.
17 Mejores prácticas en mejora regulatoria en beneficio de los usuarios de los servicios de telecomunicaciones. CP/Res. 1288 (2554/25), Organization of American States (OAS).

3. Safety as a pillar of innovation[18] [19] [20]

The rise in cyberattacks is now a direct threat to trust in the digital environment and combating them must be everyone's responsibility. GSMA has emphasized that the prevention of scams and fraud must be treated as a shared priority among industry stakeholders and government authorities[21]. **This requires coordination between operators, the financial sector, digital platforms, and authorities, with effective solutions and intelligence.**

In a pioneering and collaborative manner, the sector has been actively engaged in initiatives such as Legal Cell Phone (Celular Legal), Safe Cell Phone (Celular Seguro), Fake Notification Hub (Notificação Falsa Central), Do Not Disturb (Não Me Perturbe), and Verified Origin (Origem Verificada). When there is room for collaboration and technological development, without being constrained by ex-ante rules, innovative solutions emerge, yielding positive results for society. One example is the launch of new services by mobile operators in the country that allow users to verify their phone numbers and detect SIM card swaps, thereby enhancing security when accessing services such as banking apps and others, and making digital experiences more reliable and secure[22].

Excessively rigid regulatory frameworks can limit the ability to scale innovative technical solutions and continuously adapt. Given the rapid evolution of techniques used by fraudsters, flexible, principles-based, and outcome-oriented regulatory approaches are more effective in encouraging proactive prevention and reducing systemic risks[23].

Finally, consumer education campaigns and digital literacy initiatives play a central role in mitigating fraud by raising awareness of risks and promoting good practices in the digital environment. These efforts should be complemented by simple and accessible incident reporting mechanisms capable of turning user reports into actionable intelligence, thereby strengthening prevention, response, and consumer protection on an ongoing basis within the telecommunications sector.

Request from industry: Promote a coordinated approach to combat digital fraud, combining technological innovation, public private cooperation, and citizen education.

18 Fraud and Scams: Staying Safe in the Mobile World. GSMA, 2025.
19 Safety, privacy and security across the mobile ecosystem. GSMA, 2023.
20 Mobile money fraud: typologies and mitigation strategies. GSMA, 2024.
21 Scams. GSMA, 2026.
22 Indústria móvel brasileira lança três serviços de rede antifraude e torna-se pioneira do GSMA Open Gateway. GSMA, 2023.
23 Global Public-Private Partnership Framework against Fraud. UNODC.



Connect to include

The recommendations presented here indicate that digital inclusion requires coordination among sectoral policies, financing instruments, and economic incentives, with a focus on long-term outcomes. By aligning connectivity, spectrum, and taxation with a government strategy aimed at reducing the digital divide, Brazil will be able to significantly expand access to connectivity, strengthen digital citizenship, and ensure that the benefits of digital transformation reach the entire population.

Proposed sector-specific recommendations to advance the digital inclusion agenda:

4. Meaningful connectivity at the heart of state policy

Connectivity only drives real change when it becomes part of everyday life and creates opportunities. Without coordinated efforts between the public and private sectors, the potential of networks to drive economic development, innovation, and citizenship will remain underutilized.

Official data from the National Telecommunications Agency (Anatel) show that coverage expansion has been a consistent trend in the country over the past decade. **Over four years, from March 2022 to March 2026, the percentage of the population covered increased from 92.52% to 94.57%.** This evolution reflects concentrated investment in more remote areas with lower population density and, therefore, greater economic viability challenges.

The data highlights the scale of the challenge. An econometric study by GSMA[24] shows that the cost per person served increases exponentially as

24 Connectivity Gaps in Latin America. GSMA, 2023.

coverage expands. **This means that expanding coverage from 95% to 96% of the population requires twice as many sites (or towers) as it does to increase coverage from 93% to 95%.** In other words, expanding coverage to the last mile becomes progressively more expensive and less attractive to private investment, and once the economic point of no return has been passed, infrastructure development comes to depend on public policies and mechanisms for promotion, financing, and funding.

Brazil's Universal Service Fund (FUST) is a key tool in this regard, but other equally effective mechanisms can be scaled up to accelerate coverage in towns, on roads, and on highways—to name just a few examples of infrastructure with high demand for connectivity but facing similar challenges regarding economic viability. GSMA's previous agenda already advocated for effective governance, transparency, competitive allocation, and the avoidance of contingency measures, with a focus on high-impact projects and technological neutrality, and over the past four years it has demonstrated progress in these areas.

Expanding connectivity in areas of low economic density—such as highways, rural areas, and agricultural regions—requires a combination of structural public policies, integrated with regulatory obligations, incentives, and intersectoral coordination.

It is important to ensure the continuity and improvement of the FUST, including expanding the use of its resources through non-reimbursable and directly applied funding mechanisms, in a predictable manner and oriented toward reducing persistent digital gaps, as well as preventing the contingency of its resources. These resources are currently directly applied to school connectivity and could be expanded to include healthcare facilities, public sports and leisure infrastructure, and other public-interest facilities. Therefore, we advocate that the next administration consolidates a national digital inclusion policy that addresses, simultaneously, coverage, capacity, affordability, and digital literacy, linking this agenda to education, health, and labor policies.



Request from industry: Consolidate meaningful connectivity as a state policy, ensuring the strategic use of the FUST and other public policies to address, in a coordinated manner, persistent gaps in coverage and usage.

5. Spectrum as a tool for competitiveness and inclusion[25]

The radio spectrum is the oxygen of mobile services and should be treated as a strategic instrument for social inclusion, competitiveness, and service continuity, rather than merely as an immediate revenue-raising mechanism. **An effective spectrum policy requires long-term planning, clear timelines, and transparent and predictable rules, which are essential to ensure the continuity and quality of services used daily by millions of Brazilians.**

Predictability in spectrum license renewal processes is particularly important for widely used coverage bands, such as the 850 MHz band, which plays a critical role in delivering mobile services in both urban and rural areas. The definition of reasonable, proportionate, and legally certain conditions is fundamental to ensuring service continuity and protecting already made investments.

Brazil has made significant strides by adopting, in its 5G auction, a model focused on expanding connectivity and maximizing the value of the spectrum returned to society in the form of investments, moving away from an approach primarily driven by revenue generation[26]. **Maintaining this course, which has made the country an international leader, is essential to sustaining the investment cycle needed to advance digital networks and services.**

Spectrum policy must also be guided by balanced and consistent conditions among the various market players, accompanied by a proper regulatory impact analysis process. Given the fully competitive nature of the Brazilian mobile market, unjustified asymmetries—such as spectrum reservations—that could lead to competitive distortions or reduce the sector's economic efficiency must be eliminated. **A stable, level-playing-field, and predictable regulatory environment strengthens competition, increases the volume of investment, and accelerates the expansion of connectivity, benefiting both consumers and the economy.**

A spectrum policy geared toward socioeconomic development, with realistic prices, obligations, and conditions, is crucial to ensuring the sustainability of networks, keeping pace with the continuous growth in data traffic, and enabling the next phase of Brazil's digital transformation.



Request from industry: Establish a spectrum policy focused on inclusion, innovation, and service continuity, while ensuring legal certainty and avoiding revenue-driven approaches.

25 Spectrum Policy Trends. GSMA, 2026.
26 Spectrum Pricing Latin America, GSMA, 2025.

6. A tax regime that accelerates digital inclusion

Mobile connectivity is no longer a luxury and has become an essential service for social inclusion and access to rights, information, services, education, healthcare, and employment. **Brazil needs a tax policy aligned with the current digital ecosystem, one that recognizes connectivity as an enabler of development rather than merely a short-term source of revenue.**

Despite the progress achieved with the tax reform, particularly the cashback mechanism for telecommunications services, Brazil still stands out negatively due to the high taxes imposed on mobile services, which reach approximately 29% of the final consumer price[27]. This is more than twice the global average, estimated at around 12% in comparable markets.

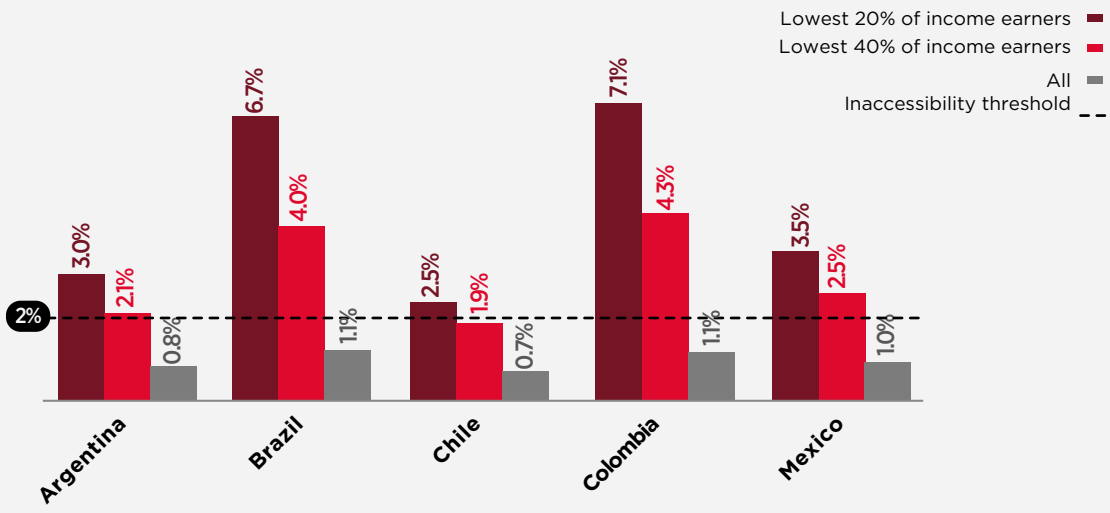
This distortion is largely due to the incidence of specific taxes, contributions, and sectoral funds[28], which add approximately four percentage points[29] to the overall tax burden. **This structure imposes a high cost on connectivity, restricts access for the population—especially low-income groups—and slows the expansion of meaningful use of digital services, in a context where connectivity is an essential element for social inclusion, productivity, and access to public services.**

In addition to reducing operators' financial capacity to invest, taxes on mobile connectivity drive up the prices of devices and services, widening the digital divide. Mobile services are considered affordable when the total cost of mobile ownership (TCMO) does not exceed 2% of users' monthly income. In Latin America in 2023, none of the countries fell below this threshold for the 20% of the population with the lowest income, as shown in the figure below.

27 Agenda Legislativa da Conectividade. Conexis, 2026.
28 According to data from Conexis, revenue from sectoral funds (Fistel, FUST, Funttel, Condecine, and CFRP) exceeded R$260 billion between 2001 and 2024, with only 9.7% being effectively applied to the telecommunications sector.
29 Although recognized as an essential service of critical importance for economic and social development, the sector is burdened by an additional charge that increases the telecommunications tax load by 3.8 percentage points, due to fees and CIDEs (Contribution for Intervention in the Economic Domain) (FUST, FISTEL, FUNTTEL, CRFP, and CONDECINE)." Available at: https://conexis.org.br/regulamentacao-da-reforma-tributaria-erra-ao-abrir-espaco-para-elevar-carga-tributaria-de-telecom/

Figure 3

Total Cost of Ownership for Mobile Devices (TCMO) as a percentage of monthly income in Latin America, 2023



Source: GSMA Intelligence

GSMA's latest 2025 study[30] simulates a scenario involving reductions in specific taxes to measure their effects on digital inclusion and tax revenue. The results show that such a reform could make mobile services accessible to more than 30 million people in the region without negatively affecting tax collection; on the contrary, it would likely increase it.

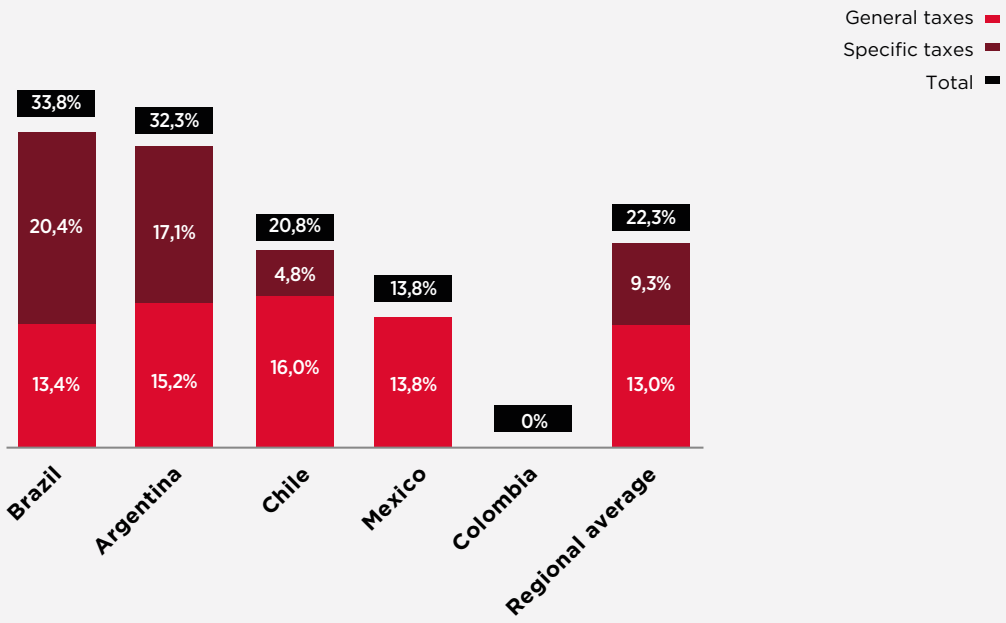
The net effect of a tax reduction would generate gains that exceed the decline in direct tax revenue, with an estimated increase of around US$7.6 billion per year in Brazil's case. This is due to the positive effects of digitalization on the economy in general, and on tax revenue in particular.

The following chart shows that the tax burden on connected devices in Brazil is higher than the regional average, reinforcing the role of taxation as one of the main barriers to digital inclusion.

30 Taxing mobile connectivity in Latin America: Impact on connectivity and tax revenues. GSMA, 2025.

Figure 4

Taxes as a proportion of the cost of a basic mobile device with internet access, 2023



Source: GSMA Intelligence

Finally, high taxation on mobile devices (smartphones) creates a significant barrier to entry into the digital economy and contributes to the expansion of the informal market. **High device prices, with taxes accounting for more than one-third of the product price, stimulate the grey market, with goods originating from smuggling, counterfeiting, and customs evasion.** In addition to reducing the State's potential tax revenue, this illegal trade undermines consumer safety, delays the adoption of more advanced mobile technologies such as 5G, and introduces compatibility and security risks to the digital ecosystem.

Therefore, reducing the tax burden on devices is a strategic measure to expand access, accelerate population-wide digitalization, and enhance the economic and social benefits of connectivity, while also strengthening market formalization and the sustainability of the digital ecosystem.

Request from industry: Review the taxation applied to mobile services and devices, reducing specific taxes and aligning it with international best practices, to promote greater access.

31 Modernização do Parque de Dispositivos Móveis (Smartphones) para a Promoção da Conectividade Significativa e da Eficiência Técnica das Redes Móveis. IPÊ Digital, 2025.



Enabling an innovative ecosystem

This chapter addresses the enabling pillars of an innovative, secure, and sustainable digital ecosystem, which are essential for Brazil to advance its digital transformation in a bold and predictable manner. Considering the growing digitalization of the economy and public services, issues such as cybersecurity, artificial intelligence, digital skills, and sustainability are no longer isolated agendas but have become central to competitiveness policies. By consolidating these pillars in an integrated manner, the country will be able to create the necessary conditions to accelerate innovation, attract long-term investment, and ensure that the benefits of the digital economy are widely shared.

Proposed sector-specific recommendations to stimulate innovation:

7. Strengthen the national cybersecurity strategy[32]

Mobile connectivity is now a central component of modern economies and societies, enabling communication, access to information, public services, and economic participation. As demand for connectivity grows, so do the exposure and risks associated with cyber threats, with impacts that extend beyond individuals and businesses to affect governments and society. **Ensuring secure and resilient mobile networks is therefore in the DNA of mobile operators, as it is essential to building trust in services and the digital environment.**

32 The Impact of Cybersecurity Regulation on Mobile Operators. GSMA, 2025.

In this context, the various stakeholders in the digital ecosystem must work in coordination with the authorities to respond collaboratively and effectively to malicious attacks targeting networks and mobile devices. **Cybersecurity regulations must be applied consistently to all actors in the digital value chain, while maintaining technological and service neutrality.** It is essential to preserve the multi-stakeholder model of Internet governance, allowing it to evolve without compromising innovation or security.

An approach based on public-private collaboration, involving all stakeholders in the digital ecosystem, will be essential to building a resilient and trustworthy digital environment that is equipped to meet the challenges of the digital world. Therefore, it is essential to clarify which parts of the infrastructure are the responsibility of the operators and where the boundaries lie with respect to other services or infrastructure, to ensure that responsibilities are appropriately assigned.

Mobile operators around the world face regulatory challenges in the field of cybersecurity, such as regulatory fragmentation, limited institutional capacity, and overly rigid rules. This situation often leads to disproportionate costs[33] and operational inefficiencies and, in some cases, can even increase cybersecurity risks. These challenges can be mitigated through coordinated, risk-based, and results-oriented public policies.

In addition, it is important that public policy focus on promoting the adoption of secure practices and technologies and increasing investment in cybersecurity. The ability to create a safe and reliable business and operational environment is essential for any company or industry to be competitive on a global scale. This need is particularly urgent for small and medium-sized businesses, which may not have the same level of expertise and technology.

Therefore, it is essential to develop effective programs to promote the adoption of information security mechanisms, systems, and processes. This approach also applies to Public Digital Infrastructure—which consists of government services and data—where the concept of security by design must be an integral part of the fundamental architecture of public administration digitalization.

33 According to the GSMA report "The Impact of Cybersecurity Regulation on Mobile Operators" global mobile operators invest up to $19 billion annually in core cybersecurity activities.

Adopting horizontal frameworks that preserve sectoral flexibility and reinforce coherent and effective national cybersecurity strategies are key to this advancement. It is recommended that Brazil move forward with the development of a national cybersecurity strategy that clearly defines the roles of each stakeholder in the digital ecosystem and adopts mechanisms for public-private coordination.

Request from industry: Move forward with a national cybersecurity strategy by defining the roles of each stakeholder in the digital ecosystem and promote investment in a secure and trustworthy digital environment across all economic sectors and public services.

8. Artificial intelligence focused on infrastructure[34] [35]

Artificial intelligence is emerging as one of the key drivers of innovation in the digital economy, with the potential to boost productivity, modernize public services, and drive new business models. In this process, **the telecommunications sector plays a crucial role as an enabling the digital infrastructure that supports its development and adoption.** Without robust, low-latency mobile networks, the development and adoption of AI at scale are unsustainable.

For this potential to be fully and sustainably realized, it is essential to have coherent and predictable governance that fosters innovation and prevents regulatory fragmentation and overlapping regulations. Furthermore, we must ensure a regulatory framework free of asymmetries that disproportionately burden certain actors in the value chain, inhibit responsible experimentation, or create barriers to investment—especially in the infrastructure sector, which serves as the foundation upon which the entire chain operates.

The implementation of policies that promote a more sustainable and financially viable approach to network investments will enable mobile operators to strengthen the digital infrastructure that underpins the development of artificial intelligence. In practice, this means creating an enabling economic environment that encourages operators to invest, incentivizing other players in the AI ecosystem to also contribute resources, and securing support from the public sector.

Shared governance frameworks, based on internationally agreed principles for responsible artificial intelligence—such as those developed by the OECD[36] and UNESCO[37]—promote regulatory harmonization, facilitating collaboration across sectors and jurisdictions. This approach strikes a balance between risk

34 Telco for AI: Policy recommendations for AI readiness. GSMA, 2026.
35 Mobile Policy Handbook: Artificial Intelligence. GSMA, 2025.
36 Due Diligence Guidance for Responsible AI. OECD, 2026.
37 Ethics of Artificial Intelligence: The recommendation. Unesco.

management and innovation, while ensuring flexibility and the ability to adapt to rapid technological changes.

Consequently, tools such as AI regulatory sandboxes are gaining importance[38]; these function as supervised environments that allow applications to be tested under controlled conditions before they are rolled out at scale. Increasingly adopted by governments and regulators in various jurisdictions, these mechanisms facilitate the early identification of risks, accelerate regulatory learning, and enable the refinement of regulatory requirements based on practical evidence.

Promoting an AI-driven transformation requires ongoing cooperation between the public and private sectors, as well as the adoption of shared ethical principles that ensure transparency, security, and accountability in the use of technology. Aligning this supply chain is what will enable its effective development, maximizing social well-being and other economic opportunities.

Request from industry: Adopt a cross-cutting, flexible, risk-based AI governance framework that fosters responsible innovation and investment.

9. Preparing citizens for a digital Brazil

Digital literacy is currently one of the main barriers to the adoption of mobile internet in Brazil. A recent study on digital skills[39] [40] shows that the challenge of meaningful connectivity is no longer just about access to the internet, but has come to be, above all, about the ability to use technology effectively.

Data from the 2024 PNAD survey by the Brazilian Institute of Geography and Statistics (IBGE) also suggest that more than half of Brazilians who do not use technology cite lack of knowledge or lack of perceived need as the main reasons for doing so. **Naturally, this high rate suggests that a significant portion of the population does not fully understand the potential offered by connectivity, whether in terms of access to information, communication, content, or public services.**

38 Why AI Sandboxes matter for responsible innovation and public trust. OECD.AI, 2026.
39 Habilidades Digitais no Brasil. Anatel, 2026.
40 According to the Anatel study, Basic skills: refer to the fundamental digital abilities needed to perform simple everyday tasks, such as copying or moving files, sending messages with attachments, and transferring information between devices. Intermediate skills: These are digital skills that enable more independent and productive use of technology, including working with spreadsheets and presentations, installing software, and connecting devices. Advanced skills: these refer to specialized digital skills, typically associated with professionals in the field of Information and Communication Technology (ICT), such as programming and the development of applications and systems.

The proportion of Brazilians with basic digital skills rose from 18.3% in 2022 to 21.3% in 2025, according to data compiled by Anatel. **This finding, combined with above-basic proficiency levels, results in only 35% of the population having any level of digital competence.** At the same time, the share of the population with above-basic skills declined from 14.1% to 13.6% over the same period, with a specific contraction in critical areas such as digital security and content creation. The pace of progress is equally concerning: between 2022 and 2023, the growth in intermediate skills was just 0.5 percentage points, whereas the pace needed to reach Anatel's target of 30% by 2027 would require an increase of more than 3 percentage points per year.

Structural inequalities exacerbate the problem. People in the North and Northeast regions, in rural areas, and among the lower-income and less-educated groups have the lowest levels of basic and intermediate digital skills. **The economic impact of this gap is not abstract.** We identify the lack of digital literacy as a significant risk that the country will be unable to fully seize the opportunities enabled by connectivity, while a substantial share of the population does not possess the minimum skills required to use it effectively.

The mobile sector's experience demonstrates that strengthening digital skills is a decisive condition for social inclusion and for increasing economic productivity. Proactive initiatives developed by mobile operators[41] demonstrate the availability of multiple platforms for training the population in a safe, productive, and economically meaningful use of connectivity, focusing on education and professional qualification, support for micro and small businesses, and access to digital services.

Thus, given the scenario on digital skills in Brazil—which reveal a low level of proficiency, insufficient progress toward national goals, and deep regional and socioeconomic inequalities—it is clear that the challenge of meaningful connectivity is no longer limited to internet access, but rather to the actual ability to use technology. **The persistence of low levels of digital literacy, including a decline in critical areas such as digital security and content creation, poses a real risk to national productivity and to the full realization of the economic and social benefits of digitalization.**

In this context, Brazil's preparation for the digital economy requires that digital literacy be systematically integrated into educational policy, starting with basic education. This requires ongoing curriculum updates and adequate teacher training, in line with the demands of the digital economy. Skills such as information security, problem-solving, and the productive use of digital tools should no longer be treated as peripheral but should instead play a central role in students' education.

41 Appendix 3 of the report "Closing the usage gap in Brazil: Key barriers to mobile internet adoption and use". GSMA, 2023.

At the same time, retraining and lifelong learning policies must be strengthened for workers already in the labor market, especially in sectors most exposed to automation and the digitalization of processes, ensuring smoother transitions and reducing inequalities in access to new job opportunities.

Therefore, tripartite cooperation among the government, the private sector, and civil society is essential for scaling up these initiatives. In addition, public programs can benefit from the private sector's accumulated experience in digital training initiatives through partnerships, the use of existing platforms, and hybrid funding models. The prioritization of more vulnerable groups, the promotion of data-driven impact assessment, and the adoption of measurable targets should guide this agenda.

Preparing Brazilians for a digital Brazil is not merely a social policy, but a central economic strategy to enhance the country's competitiveness, expand the innovation base, and ensure that digital transformation contributes to sustainable and inclusive growth.



Request from industry: Treat digital literacy as a state policy to enhance productivity and inclusion, integrating connectivity, education, and employment through public private partnerships.

10. Green and sustainable future[42] [43] [44]

The mobile telecommunications sector is adopting sustainable practices that reinforce its commitment to environmental development and position it as a strategic partner in achieving decarbonization targets. One of its strategic priorities is to increase the use of renewable energy, particularly in remote areas where access to the power grid is limited. Operators have begun incorporating solutions such as solar panels in data centers, efficient cooling systems, and clean energy purchase agreements. These initiatives not only reduce environmental impact but also improve operational efficiency and lower costs.

The results are clear: between 2019 and 2022, emissions from mobile operators in Latin America fell by 30%, while mobile data traffic tripled and the number of connections increased by 8%. During the same period, electricity consumption per connection fell by 4%, and the energy required to transmit one byte of data was reduced by 50%.

42 Mobile Net Zero: State of the Industry on Climate Action. GSMA, 2025.
43 Mobile Net Zero: Latin America Regional Focus on Climate Action. GSMA, 2024.
44 Climate Action Handbook. GSMA, 2023.

Telecommunications infrastructure plays a central role in digitalization and expanding access to essential public services, while also helping to reduce emissions. There can be no effective green transition, therefore, without a robust digital infrastructure to support it.

To achieve the goal of net-zero emissions, it will be crucial for operators, service providers, and governments to work in a coordinated manner, with climate policies that have common goals, sufficient incentives, and regulatory frameworks that encourage investment in networks and clean energy.

It is important for the next administration to take a proactive approach to integrating the climate agenda into the country's digital strategy, creating incentives for public and private investment in digital infrastructure and technological solutions that contribute to climate change mitigation and adaptation. Public policies that encourage the transition to more energy-efficient networks and foster an environment of sound environmental practices in the telecommunications sector are essential for meeting emissions reduction targets.

The use of renewable energy sources in the operation of telecommunications networks, combined with the use of digital technologies for efficient energy consumption management and the adoption of circular economy practices in the equipment supply chain, positions the sector as an active and decisive driver of Brazil's energy transition—not merely as a beneficiary.

Request from industry: Integrate digitalization and the green transition through incentives and policies that facilitate investments in efficient and renewable digital infrastructure.

Turning connectivity into economic development and social inclusion is the challenge for the coming cycle. With vision, coordination, and an investment-friendly environment, Brazil can accelerate the next phase of its digital transformation, and the mobile telecommunications industry is ready to work alongside the country and society to make this a reality.



Policies for a connected, innovative, and sovereign Brazil

1. Ensure balanced negotiations among stakeholders in the digital ecosystem, with legal certainty and without ex-ante interventions, to support investments in connectivity infrastructure.
2. Recognize connectivity as a cross-cutting national policy and strengthen mechanisms for interministerial coordination of the digital agenda, to ensure alignment among public policies.
3. Promote a coordinated approach to combat digital fraud, combining technological innovation, public private cooperation, and citizen education.
4. Consolidate meaningful connectivity as a state policy, ensuring the strategic use of the FUST and other public policies to address, in a coordinated manner, persistent gaps in coverage and usage.
5. Establish a spectrum policy focused on inclusion, innovation, and service continuity, while ensuring legal certainty and avoiding revenue-driven approaches.
6. Review the taxation applied to mobile services and devices, reducing specific taxes and aligning it with international best practices, to promote greater access.
7. Move forward with a national cybersecurity strategy by defining the roles of each stakeholder in the digital ecosystem and promote investment in a secure and trustworthy digital environment across all economic sectors and public services.
8. Adopt a cross-cutting, flexible, risk-based AI governance framework that fosters responsible innovation and investment.
9. Treat digital literacy as a state policy to enhance productivity and inclusion, integrating connectivity, education, and employment through public private partnerships.
10. Integrate digitalization and the green transition through incentives and policies that facilitate investments in efficient and renewable digital infrastructure.

GSMA Head Office
1 Angel Lane,
London,
EC4R 3AB,
United Kingdom

Copyright © 2026 GSM Association