SMARTPHONES: UNLOCKING POTENTIAL AND OVERCOMING CHALLENGES IN LATIN AMERICA AND THE CARIBBEAN

Digital economy

NTT DATA

IDB | Invest

AUTHORS

Guillermo Mulville, head of the Digital Economy team (DIG), IDB Invest; **Andrés Caicedo,** Investment Officer, IDB Invest, **David Brogeras,** Head of Digital Transformation, IDB Invest; **Edgar Cabañas,** Principal Investment Officer, IDB Invest, **Gonzalo Arauz,** Principal Investment Officer; L**uis Olmedo,** Partner, Strategic Value, NTT DATA; **Pablo Valerio,** Associate, NTT DATA and **Andrés Zúñiga,** Consultant, NTT DATA.

ACKNOWLEDGMENTS

We thank **IDB Invest** and **NTT DATA** for their collaboration in developing this work. Brand and design support was provided by **Cindy Franco** at IDB Invest, **Xóchiti Rosas, Karina Barajas, Ernesto Segura, Sandra Tavera** and the NTT DATA **Talent Hub team.**

ABOUT IDB INVEST

IDB Invest, a member of the IDB Group, is a multilateral development bank committed to promoting the economic development of its member countries in Latin America and the Caribbean through the private sector. IDB Invest finances sustainable companies and projects so that they achieve financial results and maximize economic, social, and environmental development in the region. With a portfolio of USD 15.340 billion in assets under management and 375 clients in 25 countries, IDB Invest provides innovative financial solutions and advisory services that respond to the needs of its clients in a variety of sectors.

ABOUT NTT DATA

NTT DATA, part of the NTT Group, is an innovative global IT and business services company headquartered in Tokyo. The company helps clients in their transformation journey through consulting, industry solutions, business process services, digital and IT modernization, and managed services. NTT DATA enables them, as well as society, to confidently move into the digital future. The company demonstrates its commitment to the long-term success of its clients, combining global reach with local attention, to work with them in more than 50 countries around the world through a network of more than 140,000 professionals. To learn more, visit nttdata.com.

CONTENTS

PROLOGUE 5

INTRODUCTION 7

MARKET OVERVIEW 8

SIZING THE IMPACT OF SMARTPHONES IN LAC 9

UNLOCKING THE POWER OF SMARTPHONES 10

SMARTPHONE DIAGNOSIS 20

SMARTPHONE: PRODUCT ANALYSIS & FEATURES 32

SMARTPHONE DEMOCRATIZATION 34

SUPPLY CHAIN 38

CYBERSECURITY & TRAINING 42

SUSTAINABLE PRACTICES: MINIMIZING THE ENVIRONMENTAL FOOTPRINT 44

CIRCULAR ECONOMY: THE WAY TO A MORE SUSTAINABLE INDUSTRY 47

CUSTOMER SUSTAINABILITY MINDFULNESS: DRIVING SUSTAINABLE DEMAND 50

IMPACT IN OTHER INDUSTRIES: THE RIPPLE EFFECT 52

CONCLUSIONS AND IMPLICATIONS 54

PROLOGUE

In the midst of immersion in the digitalization era in Latin America and the Caribbean, we find ourselves facing the convergence of two realities: the tangible, represented by infrastructure and materials; and the intangible, characterized by digital access and connectivity. In this scenario, smartphones emerge as crucial links between these two worlds, unveiling a variety of opportunities for their users and also playing a key role in solving current challenges, such as improving access to high speed internet.

From the Digital Economy department at BID Invest, we are firmly convinced that the influence of smartphones on development is undeniable. Even The Economist highlights that these devices 'can be the most effective development tool that exists.' We know that greater access to data services has a positive impact on economic development; it facilitates job creation, promotes the establishment of businesses, increases productivity, and contributes to per capita growth. According to The Economist, they 'make markets more efficient, compensate for deficient infrastructure in developing countries, and boost growth.' The purpose of this report is to assess the impact of smartphones on the sustainable development of Latin America and the Caribbean, considering their influence in key areas such as financial inclusion, education, health, trade, tourism, among others.

In the realm of financial inclusion, smartphones are breaking down barriers to banking and financial services, especially for those historically excluded from the conventional banking system. In the educational sphere, they are opening new perspectives for students and teachers, offering interactive learning resources and facilitating more flexible and personalized learning. In the health sector, telemedicine has become a vital tool, enabling remote medical care and improving the quality of care at a more competitive cost. Likewise, in terms of mobility and transport, smartphones are generating innovative solutions that optimize efficiency and planning, especially in urban settings.

The use of smartphones is having a profound impact across diverse population segments, from rural communities now accessing critical information for their daily needs to urban entrepreneurs using them to expand their businesses. Each user reflects a story of opportunities unlocked through technology, demonstrating the ability of smartphones to level the playing field and promote greater equity.

However, significant barriers exist in dealing with the dramatic increase in data usage, one of which is the cost of acquiring equipment and technologies that enable end-users to utilize mobile broadband services. It is for this reason that IDB Invest, aiming to overcome this obstacle, has been at the forefront of smartphone financing in the region. This program supports the acquisition of mobile phones sold by various operators, thereby offering their subscribers the option to finance smartphones.

This report aims to be a source of inspiration and a call to action for those involved in digitalization in Latin America and the Caribbean. We are at a pivotal moment, in an era where smartphones go beyond their basic function to become drivers of significant changes, facilitating a better-informed society and a more adaptable economy. This is the time to fully seize the opportunity to improve the lives of millions in our region. This prologue marks the beginning of a dialogue on smartphones, highlighting not only their transformative potential in daily life but also the inherent challenges that accompany their widespread adoption.

Guillermo Mulville

Director Digital Economy

IDB Invest

Andres Caicedo

Oficial de Inversiones Digital Economy

IDB Invest

INTRODUCTION

Internet connectivity is vital as it enables people to communicate, access digital tools, and enhance their daily lives. It also plays a crucial role in driving economic growth by improving productivity, job creation, labor force participation, and mobility.

In Latin America and the Caribbean (LAC) region, 76% of people used the internet in 2021, primarily through mobile broadband due to limited availability of fixed broadband connections. Smartphones are the most accessible means of internet access, with over 90% of households having at least one smartphone.[1]

Smartphones have become the preferred device for internet access in the LAC region, surpassing desktops in web traffic. As of 2022, smartphones accounted for 60% of total web traffic, followed by desktops at 39%, and tablets at only 1%.[2]

Beyond internet access, smartphones offer a wide range of functionalities. Users can make calls, send messages, record videos, take pictures, and access services and information while on the go. Features like biometric sensors have also improved online safety for users.

[1][World Bank – 2022]
[2][Statcounter – 2023]

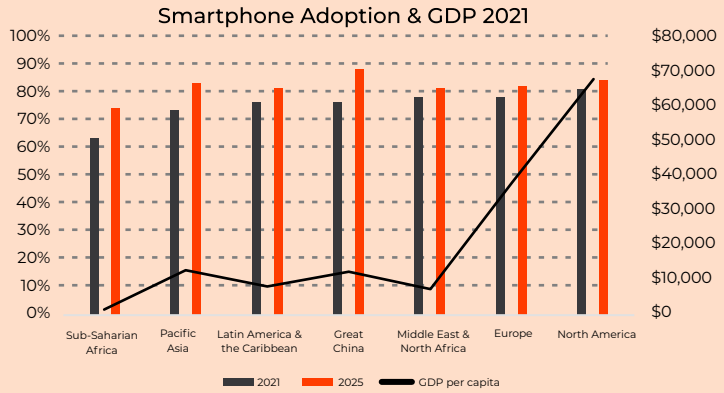
MARKET OVERVIEW

Smartphones, along with digital infrastructure, have facilitated global connectivity, with a projected 72% of the global population having a mobile subscription and 69% owning a smartphone by 2025. This increasing prevalence of mobile devices highlights their role in fostering connectivity.[3],[4]

By 2025, it is estimated that 74% of the LAC population will have a mobile subscription, while 67% will have mobile internet. However, affordability and low digital skills remain obstacles, requiring alternative internet access methods or going without. Among mobile internet subscribers, smartphones are expected to be the primary device for accessing the internet, with 83% of users utilizing these devices.[4],[5]

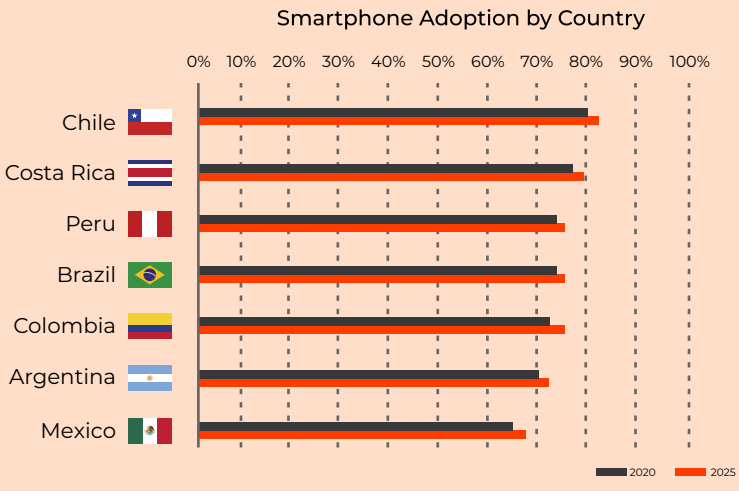
Furthermore, the number of mobile carrier services, measured by SIM connections, is anticipated to reach 750 million in 2025. The prevalence of multiple SIM cards illustrates how users leverage different carriers to accommodate varying network quality for calls and internet. [4],[6]

Interestingly, smartphone adoption does not seem to correlate with income levels, as different regions have experienced similar adoption rates regardless of income. For example, in 2021, the Gross Domestic Product (GDP) per capita in the LAC region was approximately USD 8,327, 64% less than the Asia Pacific region's USD 13,042. Nevertheless, smartphone adoption has remained relatively consistent between these regions. [6]



Source: Authors' own elaboration based on data from GSMA 2022 & World Bank 2023

Diverse levels of smartphone adoption exist within the region, reflecting variations in internet quality, reliability, and cost. Take Mexico as an example, where smartphone adoption rates are relatively low. This coincides with one of the highest shares of 3G connectivity, implying that consumers may perceive lower internet quality and reliability associated with smartphones, thus reducing their incentive to adopt this technology. [7]



Source: Statista 2020

[3] [Statista – 2023]
[4] [World Bank - 2023]
[5] [Inter-American Institute for Cooperation on Agriculture – 2020]
[6,7] [Global System for Mobile Communications - 2022]

SIZING THE IMPACT OF SMARTPHONES IN LAC

Smartphone adoption in the LAC region drives connectivity, education, financial inclusion, health, and transportation, fostering overall development. The telecom industry's contribution to GDP is projected at 7.4% in 2025 (USD 365,000 million), generating over 650,000 direct jobs and 970,000 indirect in 2021.[8]

Moreover, there is a strong correlation between internet connectivity and gains in productivity and job creation, directly influencing economic growth. A 10% increase in mobile internet connections is associated with a 3.2% rise in GDP.[9]

With increased investments in expanding coverage, it is expected that by 2025, approximately 67% of individuals will be connected to mobile internet, and 83% of them will use smartphones for this purpose.[10]

However, there is still room for improvement to fully unlock the potential of digital advancements in the region. This is particularly important considering that smartphones and internet access serve as enablers for various industries and new applications. The widespread adoption of innovative technologies can bring numerous benefits, but their revolutionary impact will be realized only as more individuals and businesses incorporate them into their activities.

[8] [Global System for Mobile Communications – 2022]
[9] [Inter-American Development Bank - 2022]
[10] [World Bank – 2021]

UNLOCKING THE POWER OF SMARTPHONES

Smartphones have sparked a technological revolution, reshaping the way we interact with technology. NTT DATA has identified five key areas where smartphones have the potential to make a substantial impact, bridging the gap for underserved populations and promoting regional development.

Financial Inclusion

Financial inclusion is crucial for accessing financial products and promoting development. While the number of adults with bank accounts in LAC has increased by 18% since 2017 to an estimated 73%, efforts should focus on ensuring actual usage and accessing a broader range of services.[10]

Digital payment adoption has grown in the region, driven by easier access to financial services and the digitalization push due to the pandemic. As of 2021, 66% of individuals over 15 had engaged in digital payments, compared to 44% in 2017. Cash usage for utility bills declined from 72% in 2017 to 46% in 2021. Mobile phones serve as gateways to digital financial products, with a significant increase in individuals using them to access bank accounts. In LAC, 39% accessed their bank account through mobile phones or the internet in 2021. Additionally, 48% of account holders used digital tools for payments and money transfers.[10],[11],[12]

Challenges remain, including inactive bank accounts (6%) due to limited access to physical branches, lack of confidence, and perceptions of unnecessary bank accounts. Women face specific hurdles in accessing and fully benefiting from financial services, with lower rates of digital financial service usage compared to men (70% vs. 77% with bank accounts).[13],[14]

Addressing these barriers requires solutions such as fintech companies offering innovative digital solutions tailored for mobile devices. By leveraging smartphone adoption, these solutions can overcome geographical barriers and meet previously unmet customer needs, ultimately boosting financial inclusion.

[10],[13] [World Bank – 2021]
[11] [Americas Market Intelligence - 2021]
[12] [Statista – 2023]
[14] [Corporacion Andina de Fomento – 2022]

SUCCESS CASE: PIX

The Central Bank of Brazil introduced and oversees the instant mobile payment method called "PIX." The support and regulation provided by the institution have made it mandatory for financial institutions, encouraging its widespread adoption. This solution enables users to make transactions around the clock, without any limitations on minimum or maximum amounts.

pix
powered by Banco Central

Problem addressed

Facilitate the adoption of digital payments to face out cash, the main means of payment in Brazil. On the other hand, reduce the fees related to electronic payments for both recipient and issuer.

Solution

PIX allows users to complete transactions within seconds by scanning a QR code or entering recipient details. It notifies both parties about transaction status and works for individuals, businesses, and government. Other solutions like YAPE and CoDi in other countries exist but haven't matched PIX's impact.

OUTCOME

+145 million
registered users

+500,000
transactions processed per minute

Most used digital payment
method in the country

Education

Education rates in the region have improved, but there is still progress needed for higher education access and completion. Primary education is nearly universal with a 94% completion rate, while secondary completion drops to 63% (66% for women, 59% for men) in 2022. Tertiary enrollment has increased, with 62% of women and 47% of men enrolling. However, access gaps persist, as only 24% of rural residents enrolled in higher education compared to 73% in urban areas.[15],[16]

To ensure continuous skill development, lifelong learning is essential. Unfortunately, as of 2021, only 4% of adults were engaged in education and training programs. Digital tools like online courses, educational apps, and virtual classrooms offer accessibility, eliminating barriers like mobility, cost, and language. Smartphones play a role in accessing educational content, ranking among the top three uses of mobile internet in the region in 2021.[16],[17]

Smartphone use in education improves access to digital resources, benefiting both students and teachers. It fills gaps in the formal education system, spreading knowledge to previously underserved populations. This has the potential to create better opportunities, especially in rural areas.

[15] [United Nations International Children's Emergency Fund – 2023]
[16] [United Nations Educational, Scientific and Cultural Organization – 2020]
[17] [United Nations Educational, Scientific and Cultural Organization – 2020]

SUCCESS CASE: Mujer Financiera

The platform offers financial education for women in Latin America, covering topics such as saving, investing, and personal finance management. Its goal is to empower women with the knowledge and skills to make informed financial decisions and achieve financial independence.

mujer financiera®

Founding

Mujer Financiera has raised capital in 2 founding rounds, backed by investors like 500 Global and Catalyst Fund.

Problem addressed:

The region faces low levels of financial education, with a significant gender gap. Women have lower rates of savings and are underrepresented in the financial system compared to men.

Solution

Through its application, women can access educational content, as well as directly manage their income, savings, and expenses. With the generated information, women can track their financial goals through personalized reports. Subscribers get access to all resources and learning materials.

OUTCOME

+250,000
downloads

+200,000
people

50,000
company employees trained

+6,000
subscribers to its monthly plan

7 out of 10
women started to have savings after using the app

Special campaigns that provide free financial education to

45,000 women

Digital Divide

Despite advancements for bridging the digital divide, the region still has an access, usage, and quality gap. In LAC, 76% of population use the internet, indicating that there are barriers to be addressed to ensure more people benefit from technology.[18]

Access to digital infrastructure remains a significant issue, with 35% of people not utilizing their mobile connections for internet access, despite having coverage available to 97% of the population. Rural areas, in particular, experience lower connectivity by 22% compared to urban areas.[19],[20]

Internet quality is also a concern, with rural residents experiencing 34% lower quality than their urban counterparts. Carrier quality is perceived as low, leading users to switch between providers to leverage better service.

Addressing these gaps is crucial for the region's development, ensuring equal opportunities in the digital era. Providing solutions to connect the disconnected population is essential.[21]

Usage is further impacted by the affordability of mobile devices. Although smartphones remain the primary means of internet access, the overall affordability of these devices has decreased by 2% from 2017 to 2021.

Additionally, limited digital literacy skills contribute to the lower usage rates.[22]

---

[18] [United Nations Development Programme – 2022]
[19] [Global System for Mobile Communications – 2022]
[20] [Statista – 2023]
[21] [Instituto Interamericano de Cooperación para la Agricultura – 2020]

SUCCESS CASE: Bridgefy

Bridgefy is a software that allows its users to use apps without the need of an internet connection.

bridgefy

Founding

Received a total of USD 250,000 in 4 investment rounds, backed by investors like: Alchemist Accelerator and MaC Venture Capital.

Problem addressed:

In response to the 2017 earthquakes in Mexico City and the intermittent mobile service, the app creator developed a solution to ensure uninterrupted connectivity for people. This solution not only helps individuals during network outages but also benefits those without mobile network coverage or facing government suppression, ensuring freedom of communication.

Solution:

The application enables text messaging using Bluetooth on smartphones. It forms a mesh network connecting multiple devices, ensuring encrypted and private message transmission. Internet-connected devices may also be utilized to relay information to nearby users, facilitating the spread of content and keeping users updated. Bridgefy offers its software for developers to integrate its functionality into other applications, potentially enabling features like payments and access to educational content.

OUTCOME

+9 million

downloads

+2 million

active users

World's largest mesh network

to connect users without internet

Health

To address the healthcare challenges in LAC, it is crucial to improve access to healthcare services, particularly primary healthcare. The current insufficiency in primary healthcare leads to inadequate health promotion, vaccinations, screenings, and routine care for chronic diseases. Residents of remote areas face the greatest difficulties in accessing healthcare, resulting in poor health outcomes.[23],[24]

Telemedicine, enabled by digital access to healthcare, has shown promise in enhancing patients' access to care and reducing costs. Through solutions like video calls on smartphones, patients can have regular check-ups, leading to early disease detection and faster recovery. However, the success of telemedicine relies on reliable telecommunications infrastructure.

Digital healthcare solutions can overcome barriers to access, improving health outcomes in the region. Prevention efforts should prioritize accessible services and comprehensive patient information for risk assessment and monitoring. Technology offers opportunities to enhance healthcare outcomes and address inequalities.

[23] [Organization for Economic Co-operation and Development – 2022]
[24] [Pan American Health Organization – 2022]

SUCCESS CASE: Farmalisto

Farmalisto is a digital healthcare platform with a 100% digital pharmacy, medical services home delivered, and services tailored to health industry companies. They also use artificial intelligence and big data to build tailored programs to patients with the aim of controlling and preventing diseases.

Founding:

Farmalisto has received USD 20.5 million from series B round, backed by investors like IDB Invest, HBM Healthcare Investments, and Morgan Rio.

Problem addressed:

Limited access to healthcare services and pharmacies, with the majority of pharmacies being in cities.

Solution:

Through their app and website, users can use their smartphones to access the digital pharmacy catalog and get them delivered to their home, they also promise patients signed up for their subscription service to always keep a stock of that product and deliver it before their medicine is finished. Using the digital platform “CARE24”, the company can provide telemedicine services as well as healthcare services such as therapies, tests, physiotherapy, and nurses scheduled for a home visit.

OUTCOME

+2,500
monthly patients

+16,000
stock keeping units

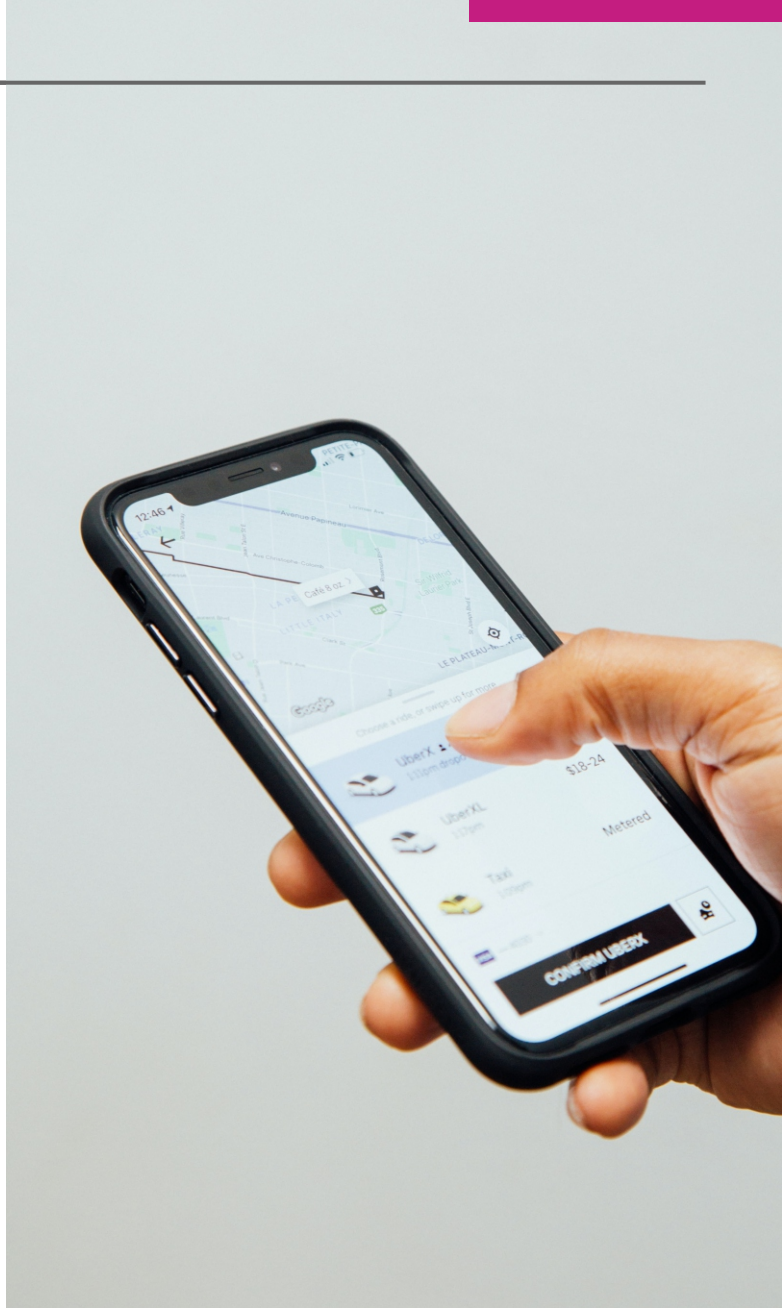
+14
pharmaceutical companies as partners

Coverage in
Colombia, Mexico and Chile

Mobility

The transportation sector in LAC is responsible for 34% of the total carbon dioxide emissions, making it a significant contributor to climate change. With over 85% of freight transportation in the region being done via roads, there is a need for more efficient and sustainable logistics practices. Fortunately, digitalization can help to address these challenges.[25],[26]

By adopting Internet of Things (IoT) sensors and real-time tracking systems, transportation and logistics companies can improve the transparency and security of their supply chains, reduce delivery times, and optimize their routes, leading to reduced fuel consumption and emissions. Additionally, data analytics can provide valuable insights into customer demand patterns, enabling companies to make better decisions about inventory management and reduce waste. Overall, the adoption of digital technologies in the transportation and logistics industry has the potential to improve both the economic and environmental sustainability of the region.



Moreover, smartphones can also provide an easy way to access services that improve people's mobility, reducing the transportation problems of a large scale of individuals. Solutions not only include accessing ride-hailing services that allow people to reach their destination, but it also includes accessing information that allow users to navigate the existing infrastructure in a friendly-way, connecting with other users through ride-sharing platforms.

[25] [Corporacion Andina de Fomento]
[26] [Inter-American Development Bank – 2021]

SUCCESS CASE: frete.com

Frete.com offers digitalized road freight services, automating processes and reducing physical interaction. This minimizes fraud and connects shippers, carriers, and truck drivers to reduce empty return trips and increase efficiency.

frete.com

Founding:

Received a total of USD 390.1 million in 11 investment rounds, backed by investors like: IDB Invest, Goldman Sachs, and Farallon Capital.

Problem addressed:

Environmental pollution driven by operational inefficiencies in the logistics industry.

Solution:

The platform serves as a marketplace where shippers, carriers, and truck drivers are connected to make the most out of the existing capacity of trucks, making use of their excess capacity and reducing empty return trips. Truck drivers, through their smartphones, can see and accept freight offers, giving visibility of the cargo until delivery, suggesting best routes, and even giving up to 80% of the freight value upfront.

OUTCOME

+2,000
companies connected

+400,000
truck drivers

+5,500
cities with coverage

SMARTPHONE DIAGNOSIS

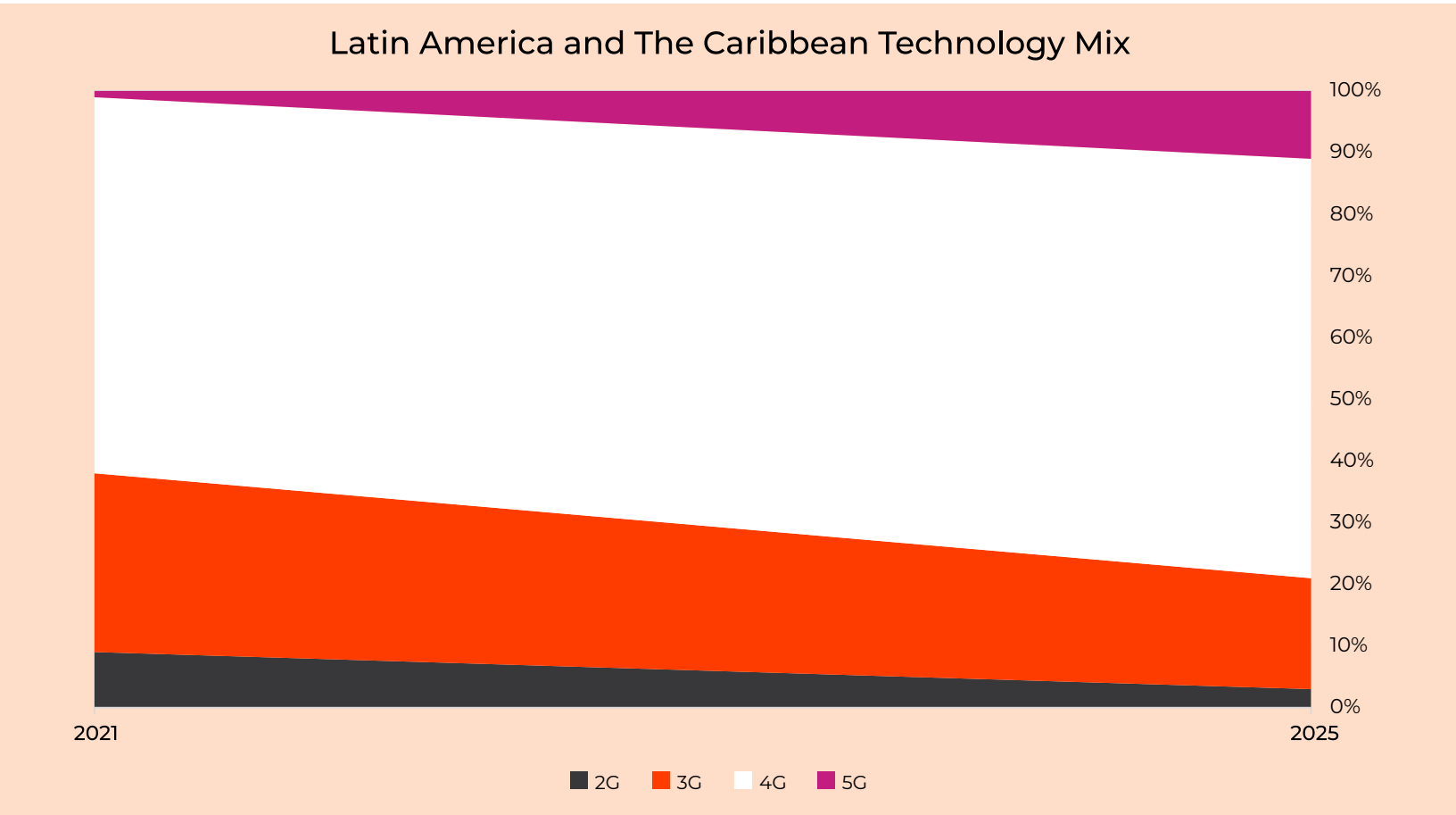
Connectivity and Coverage in LAC

5G technology, the latest mobile network generation, offers significantly faster speeds and near-instant connectivity, revolutionizing communication, and opening doors for innovative solutions across various industries.

[27] [Statista - 2023]
[28] [Ookla – 2023]
[29] [Global System for Mobile Communications – 2022]

Although 4G is projected to remain the predominant technology in LAC, serving 68% mobile subscriptions in LAC in 2025, 5G subscriptions are expected to increase substantially, accounting for 11% of mobile subscriptions by 2025. Efforts to incorporate 5G have already begun in 13 countries and territories (Brazil, Chile, Peru, Puerto Rico, US. Virgin Islands, Mexico, Dominican Republic, Argentina, Suriname, Trinidad and Tobago, Uruguay, Colombia, Guatemala).[27],[28]

On the other hand, there is an expected decline in the presence of 2G and 3G networks by 52% in 2025 as carriers shift towards newer technologies. The prevalence of these networks is primarily attributed to their utilization in machine-to-machine services such as smart meters.[29]



Source: GSMA 2022

In addition, the demand for smartphones with 5G capabilities is rising in countries like Chile, Brazil, Mexico, Colombia, and Peru. In Q1 2022, these devices accounted for an average of 25% of smartphone sales, up from 7% the previous year. Chile leads with 35% of smartphones sold being 5G-enabled, while Peru stands at 18%. This increased demand incentivizes network carriers to invest more in 5G deployment.[30]

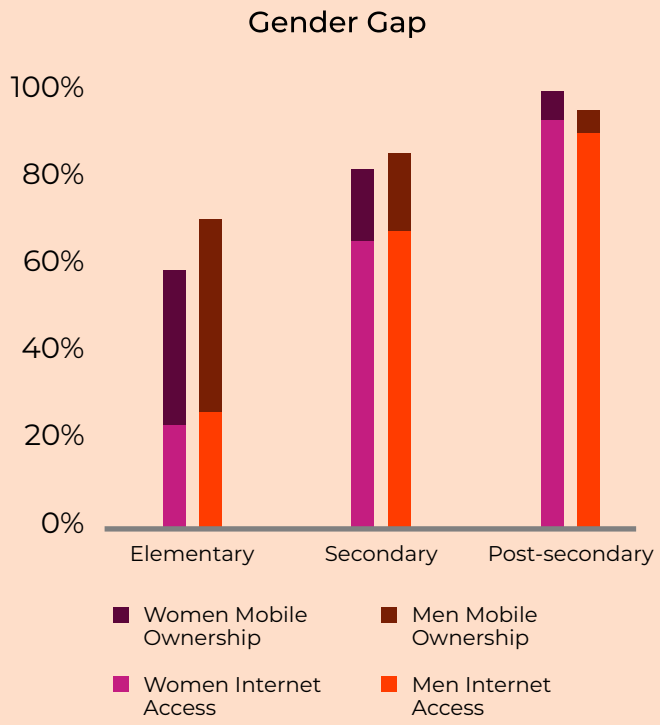
The introduction of 5G brings numerous possibilities and benefits across different sectors. Consumers can expect improved mobile broadband, augmented/virtual reality services, and enhanced connectivity, while businesses can leverage 5G for applications such as smart transport, smart cities, and industrial automation. Additionally, 5G has the potential to drive advancements in healthcare, autonomous vehicles, and smart factories, among other areas.

Fixed wireless access, a 5G application, has the potential to drive home-based internet access, particularly in underserved areas. This technology eliminates the need for dedicated infrastructure and offers a cost-effective solution for connecting households. For example, Verizon in the US made this technology available to 175 million people by 2022. Online gaming, e-commerce, video broadcasting, and social media are expected to drive data traffic, growing 4.3 times from 2021 to 2027, highlighting the need for improved infrastructure in the region.[31],[32],[33],[34]

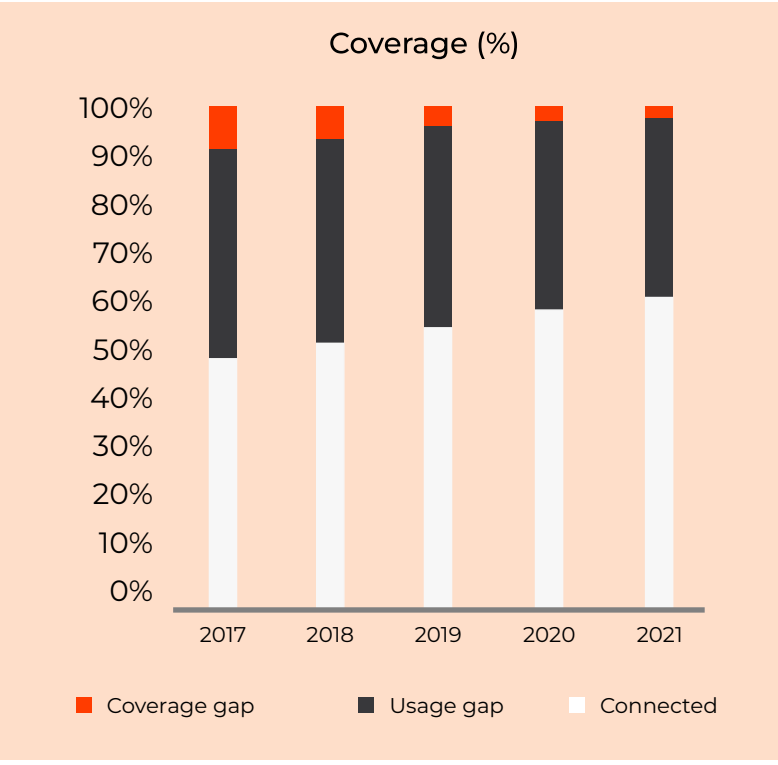
[30] [Canalys – 2022]
[31] [Verizon – 2023]
[32] [Statista – 2022]
[33] [Ericsson – 2022]

Although mobile coverage has improved, there is still a need to enhance mobile connectivity access, particularly in rural areas. While 97% of the population has access to mobile networks, only 62% of users actually utilize mobile internet. Bridging the rural-urban divide and addressing this gap is crucial to ensure equal access to mobile connectivity in the region. It is concerning that the rural-urban gap has remained unchanged, with a 22% difference between the two zones in 2021. [32],[33]

In the LAC region, there is also a significant disparity in the quality of internet connection between rural and urban areas. According to the Significant Connectivity Index, rural areas had an average of 48% lower internet quality compared to urban areas in 2017.



Source: Authors' own elaboration based on data from GSMA 2019



Source: GSMA 2022

This discrepancy poses challenges for rural residents in accessing high-demanding content such as video calls and videos. Addressing this lower quality is essential to ensure equal opportunities for all.[35]

Additionally, women in the region, particularly those with lower education levels, experience less digital connectivity compared to their male counterparts. Women with less than 15 years of education have, on average, 10% lower access to mobile phones and a 10% connectivity gap in terms of internet access. Closing this gender-based connectivity gap is crucial for promoting gender equality and fostering inclusion in the digital age.[36]

[33] [Ericsson – 2022]
[34] [Global System for Mobile Communications – 2022]
[35] [Inter-American Institute for Cooperation on Agriculture – 2020]
[36] [Global System for Mobile Communications – 2022]

Increased Competition

The smartphone market in the LAC region is characterized by competition and innovation, with both new and incumbent providers catering to a diverse audience. This competition has led to a wide range of smartphones being offered at different price points, making them accessible to consumers with varying budgets. In 2021, 135 million smartphones were sold in the LAC region, compared to 1,400 million globally.[37]

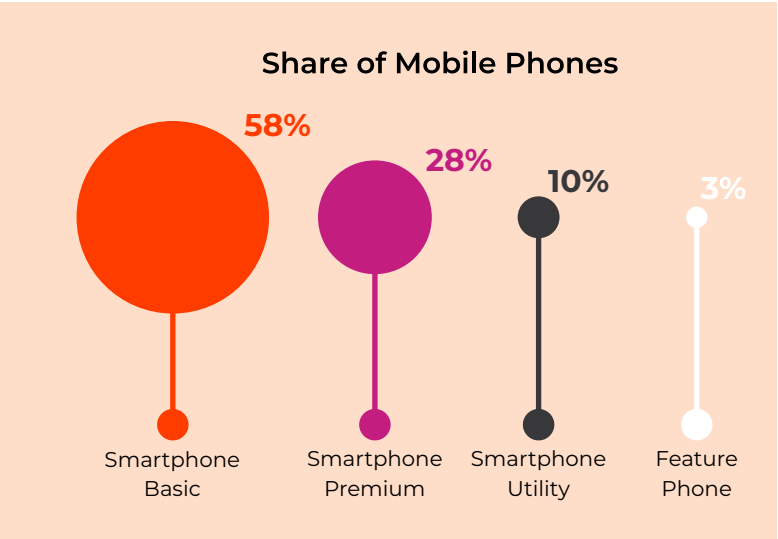
Consumers in the region have shown a preference for "basic" smartphones, which account for 58% of total sales as of Q3 2022. These smartphones, typically priced between USD 120 and 300, have limited specifications and functions but provide a midrange experience. The next most popular category is "premium" smartphones (ASP above USD 300), representing 28% of total sales. These devices offer the latest features and high-performance processors. Only 3% of total mobile phones sold in the region fall into the category of non-smartphones due to their limited features (ASP USD 30 - 80).[38]

Despite the differences in features, smartphones have evolved to provide users with better tools and experiences over the years. Advancements in battery life, storage, processing power, screen quality, and cameras have benefited all segments of smartphones, improving the overall user experience.

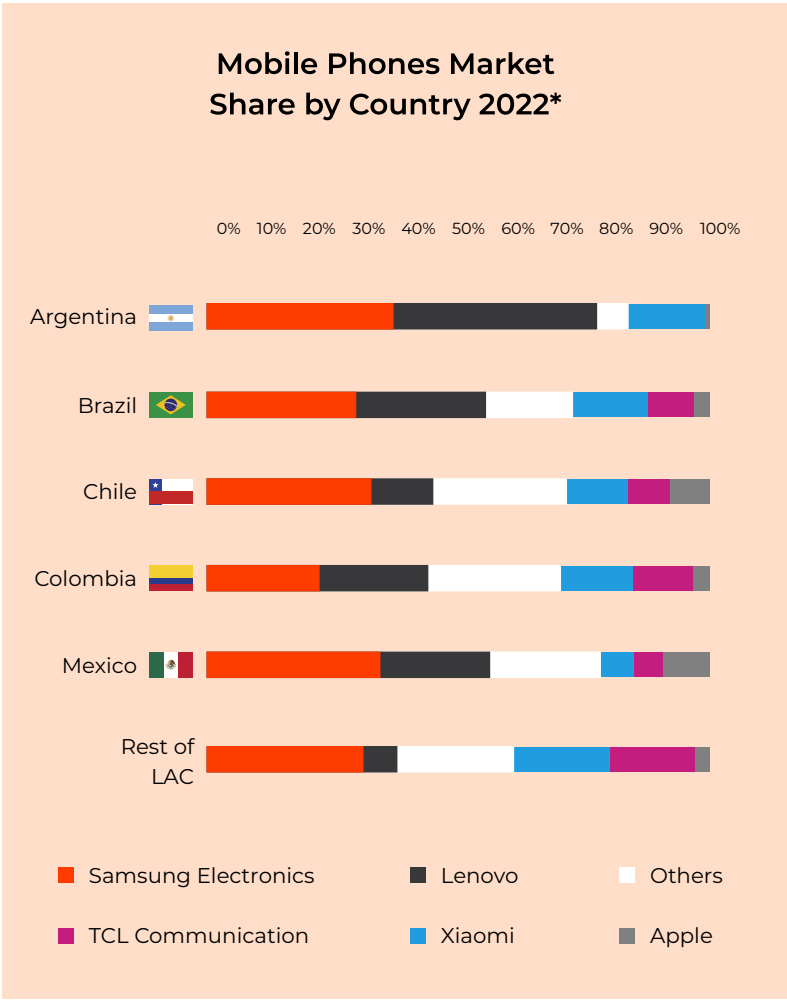
[37] [Statista – 2022]
[38] [Gartner – 2022]

The smartphone market in the region is dynamic, with companies entering to gain market share by offering low-cost and high-quality alternatives. Currently, Samsung, Lenovo, and Xiaomi are the leading players in the region, accounting for 66% of all smartphone sales as of Q3 2022. However, players like TCL Communication have quickly gained market share, doubling their share in the last three years.[39]

Asian manufacturers dominate the market, holding 60% of the market share among the top players. While the smartphone market is highly competitive, a small number of players continue to hold the majority of market share.



Source: Authors' own elaboration based on data from Gartner 2022



*Data up to 3Q 2022

Source: Authors' own elaboration based on data from Gartner 2022

The rise of competition is expected to lower smartphone prices in the near future, making them more affordable, particularly for lower-income segments. Countries like Uruguay, Brazil, and Mexico have already seen this trend with the availability of less expensive entry-level smartphones.

[39] [Gartner – 2022]

Archetypes in LAC

As a result of the cultural and socioeconomic diversity present in LAC, there are distinct behaviors patterns observed among different groups of consumers. To gain a deeper understanding of these variances and their relationship to smartphone usage, seven customer archetypes have been created to represent the common characteristics of individuals in the region.

Rural Users

Motivations

- Connect with family and friends
- Take pictures and record videos

Mobile use

- Phone calls
- Messages
- Videos and photos

Digital perspective

- Aversion for digital tools
- Overwhelmed
- Skeptical

Digital profile

Digital apprentice: First steps in digitalization. Starts to explore advantages of digital tools

Digital interest

Low: Given the low access and quality of connectivity, their devices remain offline. Young population is most concerned to go online and take advantage of digital tools

Rural users in the LAC region are primarily motivated to use digital tools to stay connected with loved ones. However, they encounter infrastructure barriers that impede their full utilization of these tools, facing 48% lower internet quality and 22% less access compared to urban areas. Limited interest in digitalization further compounds these challenges. Overcoming these obstacles requires joint efforts from public and private initiatives to emphasize the benefits of incorporating digital tools and encourage their adoption among rural users. Embracing digitalization in their personal and professional activities can bring significant gains in efficiency and productivity for rural users.[40]

[40] [Inter-American Institute for Cooperation on Agriculture – 2020]

Urban users

Motivations

- Keep on top of the latest tendency
- Consume information

Mobile use

- Social media
- Apps
- Access to services

Digital perspective

- Adopts digital tools
- Technology as an enabler
- Regarded as efficient

Digital profile

Digital solver: Uses technology to solve issues presented. Proactively adapts to technological change and strives to keep up to date

Digital interest

High: Tendency to learn and incorporate new tools to take advantage of the efficiencies brought by digitalization. Stays online most of the time

Urban users, constituting 81% of the regional population, extensively utilize digital tools and maintain constant online presence. This behavior is facilitated by the widespread availability of high-quality internet connections in cities. Their preferences include ride-sharing, micro-mobility, home delivery, and healthcare services. Urban users are avid consumers of social media, regularly accessing substantial information volumes.[41]

[41] [World Bank – 2023]

Male Users

Motivations

- Be up to date with the latest news
- Connect with others

Mobile use

- Social media
- Entertainment
- Financials

Digital perspective

- Technology as an enabler
- Productivity focused
- Knowledge access

Digital profile

Digital contributor: and functions of digital tools. Interacts and collaborates using digital meansUnderstands the characteristics

Digital interest

Middle-high: They tend to use more digital tools such as smartphones to stay online

Men in the region are commonly perceived as the primary economic providers in families, influencing their perception of digital tools and smartphones towards productivity-oriented purposes. Their device usage often revolves around staying updated on current affairs, particularly political news. With approximately 7 out of 10 men being employed in the region, they demonstrate a higher utilization of digital financial tools. In 2021, 70% of men made digital payments, while the figure stood at 62% for women. Furthermore, 7% of men utilized mobile money accounts for savings, in contrast to 4% of women.[42]

[42] [World Bank – 2023]

Female Users

Motivations

- Consume information
- Connect with others

Mobile use

- Social media
- Entertainment
- Access to services

Digital perspective

- Adopts digital tools
- Technology as an enabler
- Regarded as efficient

Digital profile

Digital solver: Uses technology to solve issues presented. Proactively adapts to technological change and strives to keep up to date

Digital interest

Middle-high: Even when they don't have the same access level as men, female users do show an interest in digital tools

Women in the region face various challenges, including limited awareness, digital skills, and security concerns, resulting in 5% less access to mobile devices and the internet compared to men, thereby restricting their connectivity. In terms of employment, only 5 out of 10 women in LAC region work, and they exhibit lower rates of making digital payments through smartphones. Merely 17% of women engage in digital payments, compared to 25% of men. Similarly, while 33% of men use their devices to send money, the figure stands at 24% for women. Women's technology usage patterns are also influenced by their social roles, as they often bear responsibilities for domestic chores and family care. Consequently, their motivations for using technology tend to be more family-oriented. Services like food and grocery delivery are particularly popular among women in the region.[43],[44]

[43] [Global System for Mobile Communications – 2022]
[44] [Gallup – 2023]

Low-income users

Motivations

- Connect with family and friends
- Accessing services and information

Mobile use

- Social media
- Phone calls
- Messages

Digital perspective

- Digital skills as a barrier
- Not easy to access them
- Regarded as efficient

Digital profile

Digital solver: Uses technology to solve issues presented. Proactively adapts to technological change and strives to keep up to date

Digital interest

Middle-high: While they experience a harder time accesing mobile devices and services, they are aware of the efficiencies broughy by them and are eager to adopt

The affordability of smartphones in the region has improved, but there is further scope for enhancement, particularly for individuals in low-income groups who face cost as the primary barrier to accessing mobile services and devices. Consequently, many individuals must rely on alternative sources of internet connectivity due to limited access to mobile services. The prepaid model offers flexibility in service usage and payment, catering to their needs. However, this flexibility comes at a higher cost in the region. Despite the challenges, smartphones are considered a necessity due to their societal relevance. Given the limited access to traditional financial solutions, alternative smartphone financing models are necessary to reduce the high upfront costs associated with smartphones and promote their adoption among low-income users. Notably, low-income users constitute the majority, accounting for 58% of all users in the LAC region.[45]

[45] [Statista – 2023]

Middle-income users

Motivations

- Connect with colleagues, friends and family
- Access leisure content

Mobile use

- Social media
- Apps and games
- Streaming content

Digital perspective

- Infinite amount of content
- Access to productivity tools
- Entertainment

Digital profile

Digital creator: Aware of the digital tools' functionalities and characteristics. Interacts and collaborates with others through digital channels

Digital interest

High: Their higher disposable income allows them to spend more on mobile devices and services, increasing their use

The middle-class segment constitutes a substantial portion of the regional population, accounting for 39%. They prioritize the utility and affordability of the digital tools and mobile devices they utilize. With a higher income level, they enjoy better connectivity and higher-quality connections, enabling them to fully leverage available resources. Consequently, they are willing to invest more in devices and services to achieve the desired level of connectivity.[46],[47]

[46] [United Nations Development Programme – 2022]
[47] [Statista – 2023]

High-income users

Motivations

- Connect with colleagues, friends and family
- Access educational content

Mobile use

- Social media
- Entertainment
- Education

Digital perspective

- Door to access educational content
- Ease of use
- Entertainment and productivity

Digital profile

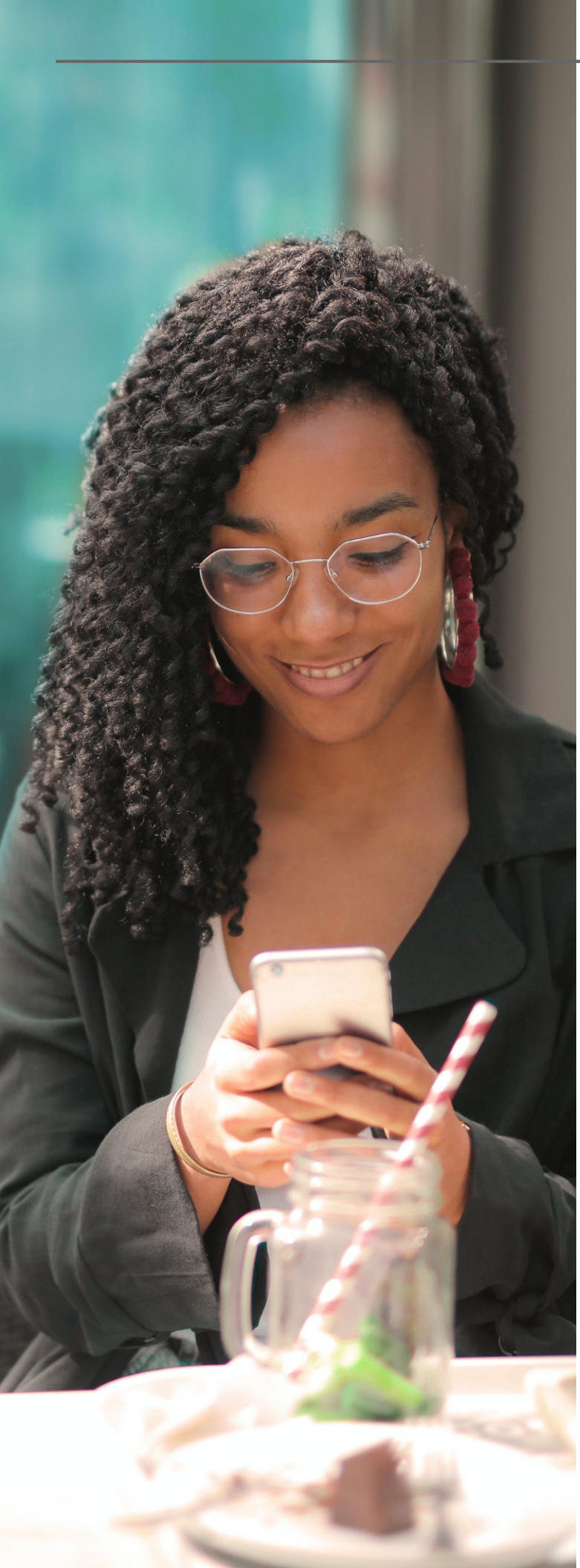
Digital creator: Aware of the digital tools' functionalities and characteristics. Interacts and collaborates with others through digital channels

Digital interest

High: They fully incorporate the efficiencies brought by digital tools and smartphones

Higher-income individuals in the region prioritize technology that offers convenience, lifestyle benefits, and educational content. Their focus on education allows them to leverage advanced digital tools for increased productivity. Smartphones play a crucial role in their daily lives, serving as a means to enhance productivity and provide entertainment. While high-income users constitute a minority, representing only 3% of all users in the LAC region, they represent a significant market for premium products and services.[46],[47]

[46] [United Nations Development Programme – 2022]
[47] [Statista – 2023]



SMARTPHONE: PRODUCT ANALYSIS & FEATURES

Over the past decade, the smartphone industry has undergone a significant transformation driven by technological advancements and shifting consumer preferences. Notably, the stratification of smartphones into different categories based on price and features has become more pronounced. Basic, utility, and premium devices are now the main tiers, with additional subcategories such as ultra-budget, premium mid-range, and ultra-premium flagship.

Smartphone features have also evolved considerably. Basic devices now offer advanced features like larger displays, improved cameras, and longer battery life. Utility devices have gained popularity as they strike a balance between affordability and advanced features such as 5G connectivity and high-refresh-rate displays. Premium devices, on the other hand, offer the best specifications, including high-resolution cameras, ample storage, and powerful processors.

Other notable trends include the increasing screen size, driven by the demand for multimedia consumption and multitasking. Camera quality has seen significant improvements, with multiple cameras, ultra-wide and telephoto lenses, and advanced software features like night mode and AI-powered scene recognition becoming common in premium devices. Biometric authentication methods have also evolved, with fingerprint sensors being commonplace and facial recognition and iris scanning gaining popularity. Virtual assistants have become integrated into smartphones, performing various tasks like setting reminders and controlling smart home devices.

Battery life has improved significantly, with premium devices offering all-day battery life and utility devices featuring even longer-lasting batteries. Durability features like water resistance and ruggedized designs have also become more common.

As smartphones continue to evolve, features that were once exclusive to high-end devices are becoming mainstream. Low-range devices now boast double the processing power and RAM capacity compared to their counterparts five years ago. Camera resolutions have increased by over three times, screen quality has improved, battery capacity has grown by over 60%, and storage capacity has tripled or quadrupled. These advancements provide users with more opportunities to access digital tools and services with fewer limitations.[48]

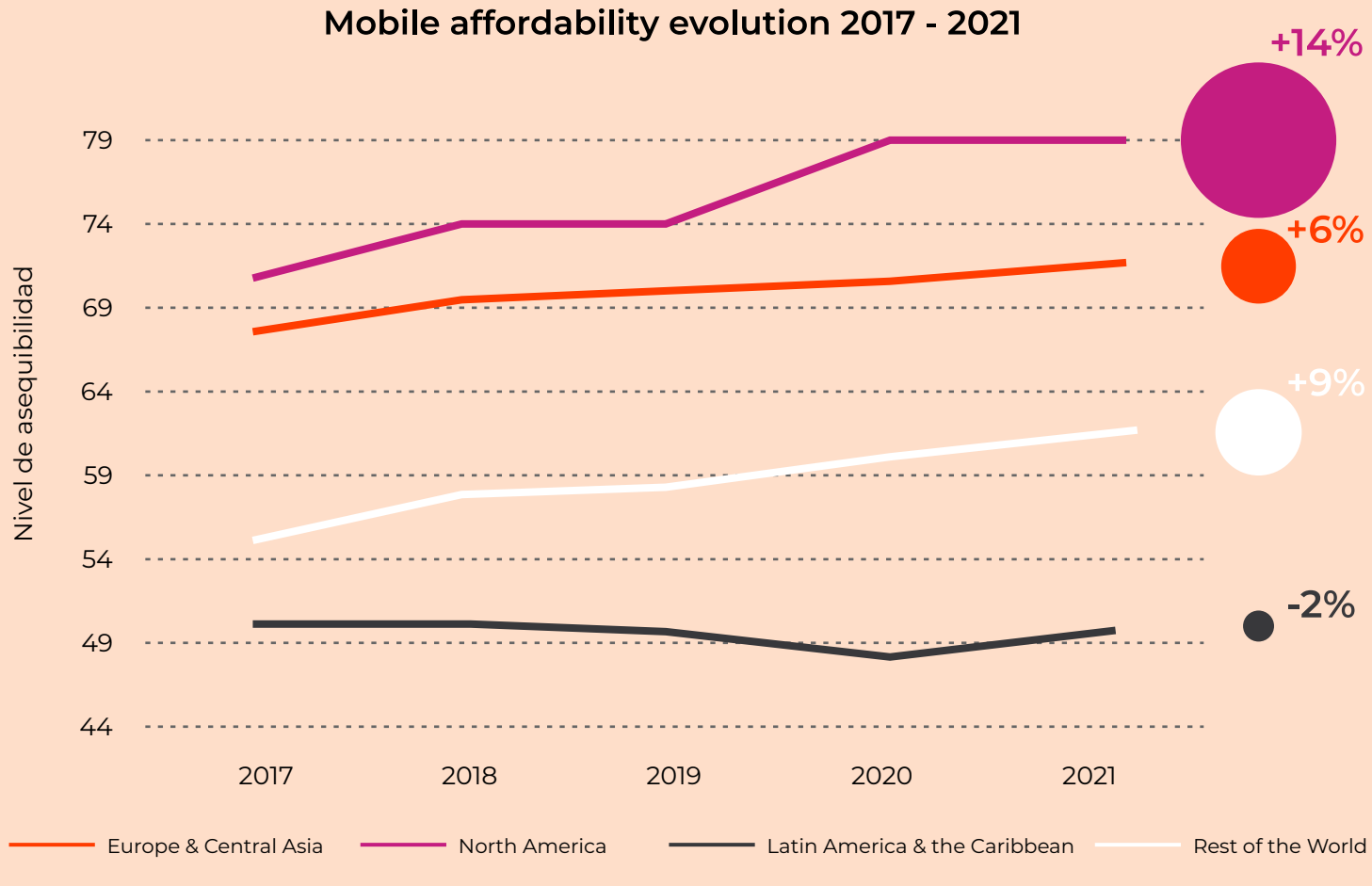
[48] [Kimovil – 2023]

SMARTPHONE DEMOCRATIZATION

The telecommunications sector globally has experienced commoditization due to increased competition, resulting in a decline in service prices. This has played a crucial role in facilitating the digital revolution by expanding internet access to more people. However, in recent years, the progress in terms of affordability in the LAC region has been slow compared to the global trend.[49]

The affordability index, which considers handset prices, taxation, and inequality, indicates that the region has made limited strides in affordability in recent years, but it is slowly returning to previous levels after setbacks in 2018, 2019, and 2020. Between 2018 and 2021, handset prices accounted for 67% of the decrease in affordability, while mobile tariffs represented only 5%.

[49] [Global System for Mobile Communications – 2021]



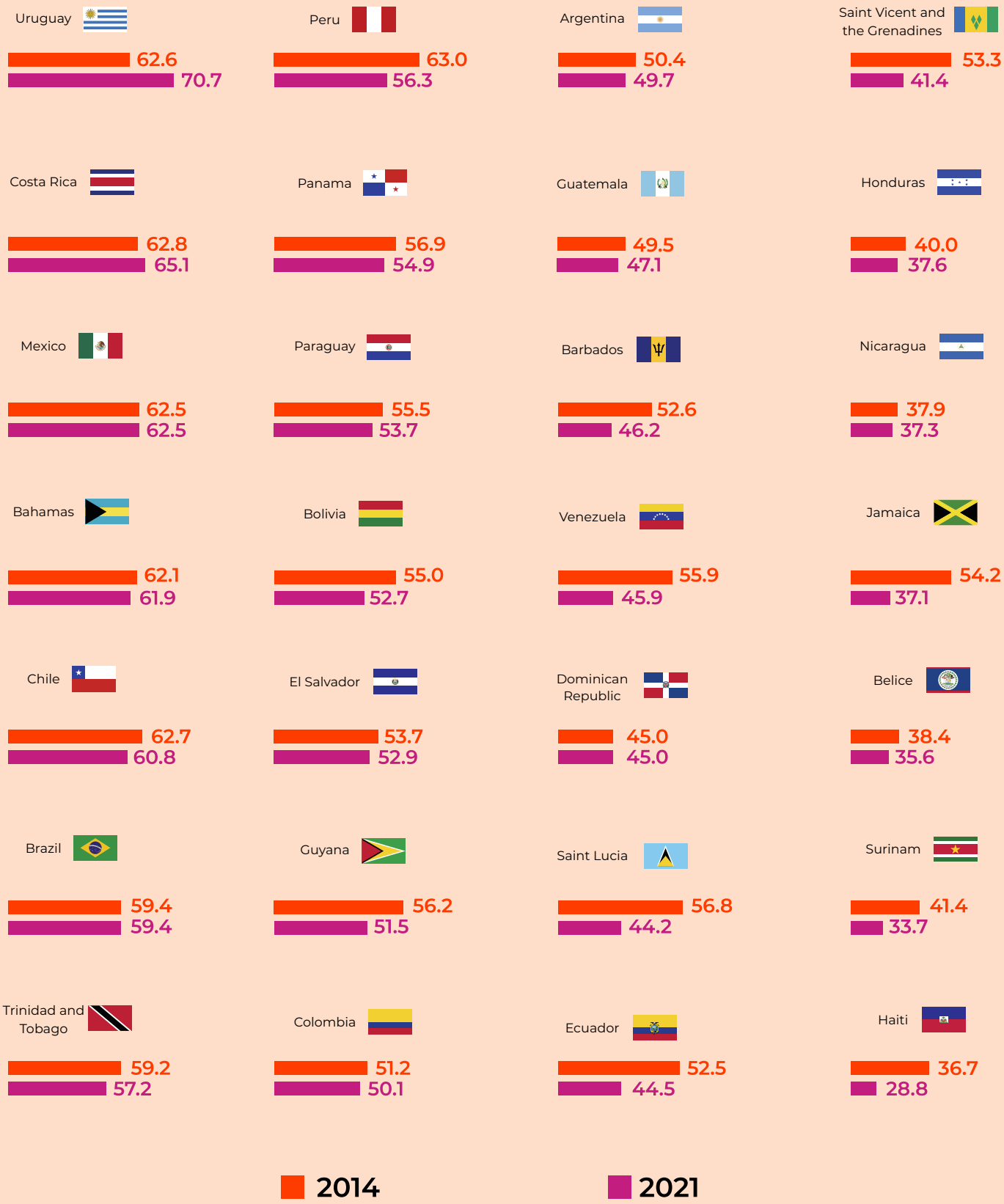
Source: Authors' own elaboration based on data from GSMA 2021

While taxes applicable to mobile ownership have remained relatively stable in the region from 2018 to 2021, there is potential for improved affordability through reduced taxes, as seen in Costa Rica's plan to eliminate all taxes on technology, including communications hardware. Conversely, some countries have imposed higher taxes, such as Argentina, which experienced a 3-percentage point increase in taxes on all electronic devices in 2023, both imported and domestically produced.

Given the diverse nature of the region, different countries exhibited varying affordability trends. Uruguay and Costa Rica were the only countries that experienced positive progress in affordability from 2017 to 2021, while Mexico, Brazil, and the Bahamas remained unchanged. In contrast, most other countries saw a negative trend towards affordability, with Jamaica experiencing a 70% decline in affordability in 2021. [50]

[50] [Global System for Mobile Communications – 2021]

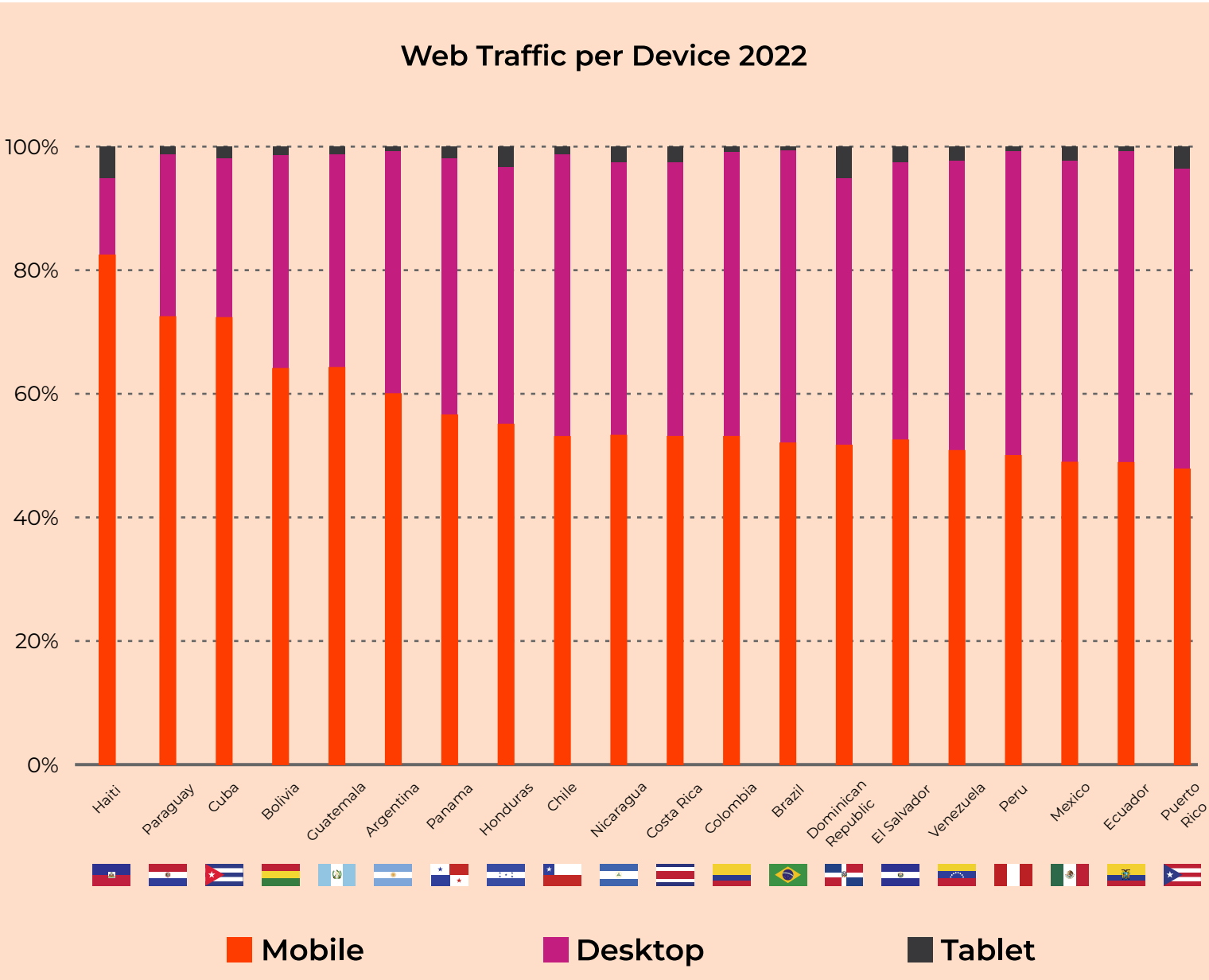
Affordability by Country



Source: Authors' own elaboration based on data from GSMA 2021

Despite the growing affordability challenges in many countries, smartphones remain the primary device for accessing the internet in the LAC region. In 2022, smartphones constituted 60% of the total web traffic in the region, surpassing desktops (39%) and tablets (1%). This highlights the continued reliance on smartphones as the primary means of internet access, regardless of the varying levels of device usage observed in different countries within the region.[51]

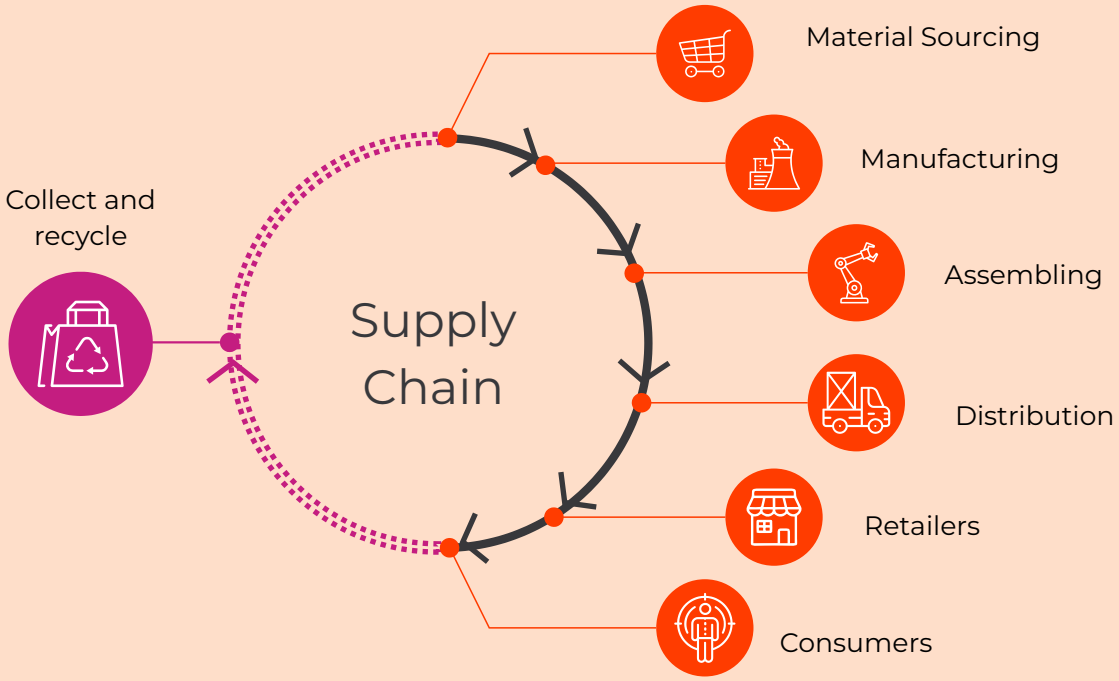
[51] [StatCounter – 2023]



Source: Authors' own elaboration based on data from StatCounter 2023

SUPPLY CHAIN

The smartphone supply chain involves numerous players and intermediaries, with manufacturers sourcing materials from different continents and relying on multiple manufacturers for various components. To better understand how the supply chain works in the smartphone industry, the following stages can be identified:



The material sourcing stage typically involves suppliers of raw materials extracting these materials through mining, as sourcing from existing devices represents only a small fraction of the total materials needed. The LAC region is a significant source of raw materials for electronics manufacturing, particularly minerals like lithium, which is crucial for batteries. Countries such as Bolivia, Argentina, Chile, Mexico, and Peru hold 67% of the world's lithium reserves.[52]

[52] [US Geological Survey – 2021]

During the manufacturing stage, internal components are produced either in-house or outsourced. Once all the components are ready, they are assembled, and the phone is packaged for shipment. The distribution stage involves the dispatch of packaged phones to retailers like wholesalers and mobile network operators for the final sale of devices to customers.

The LAC region is not a significant player in the smartphone manufacturing and assembly industry, as evidenced by the import of around 123 million overall phones from Asia in 2021. China remains a major player, manufacturing almost 1.7 billion phones (all categories) in the same year. However, some smartphone brands, such as Apple, are reducing their reliance on China by seeking suppliers from other countries.[53],[54]

Despite the majority of smartphones being imported from China, some brands are opting to manufacture in the LAC region. For example, Xiaomi is now manufacturing smartphones in Argentina through a local manufacturer (Etercor-Solnik), aiming to establish a stronger presence in the region.

When it comes to purchasing smartphones, consumers have various options, including paying the full price upfront or opting for financing. Traditional banking, such as using credit cards, is one option, but access to credit cards in the region is limited.

[53] [Statista – 2023]
[54] [Apple – 2022]

Among the different financing options for smartphones, we mainly can identify the following in the Latin America and Caribbean

Traditional banking: This involves consumers using financial products such as credit cards to gain access to promotions.

However, adults in the region have low access to credit as only 28% of adults owned a credit card and 23% actually used it in 2021. Among adults, women have limited financial independence and rely more on relatives than financial institutions.[55]

Mobile Network Operators

- **Subsidies:** Customers sign up for mobile communication service and get a device with a reduced upfront price. Carriers relied on this method for driving up demand for their services but is has been progressively been disincentivized given the risks around maintaining cash flow for device subsidies in the short term.
- **Financing:** Cost of devices spread over an agreed period that includes mobile services. Risks involve users defaulting on payments and switching to alternative networks when the contract expires, minimizing carriers potential profits. Device locking technology can reduce credit default and reduce the interest rates. In fact, Trustronic implemented this solution into one of the carriers in the region and they were able to reduce their expired portfolio from 35% to 11%.[56]
- **Leasing:** Customers use smartphones in exchange for agreed periodic payments, eliminating the need for a large upfront cost. At the end of the agreed period, lessor decides to purchase the smartphone at a discounted price or renew the contract for another term. However, this approach has been more geared towards enterprises than consumers.

[55] [World Bank – 2022]
[56] [Trustonic – 2022]

Point-of-sale:

Financing through digital platforms that offer the option of interest-free installment payments has become increasingly popular, providing consumers with the flexibility to make upfront purchases and pay over time without the need for a credit card.

This digital and on-site model is especially attractive to those who do not have a credit card or prefer not to use one. In the region, such solutions are expected to gain more traction, with a projected CAGR of around 26% between 2023 and 2028. One prominent example of this "Buy now, pay later" model is Addi, which has already garnered over 1 milion users in Colombia and Brazil.[57]

Alternatives: Micro lending offered by companies like PayJoy in Mexico.

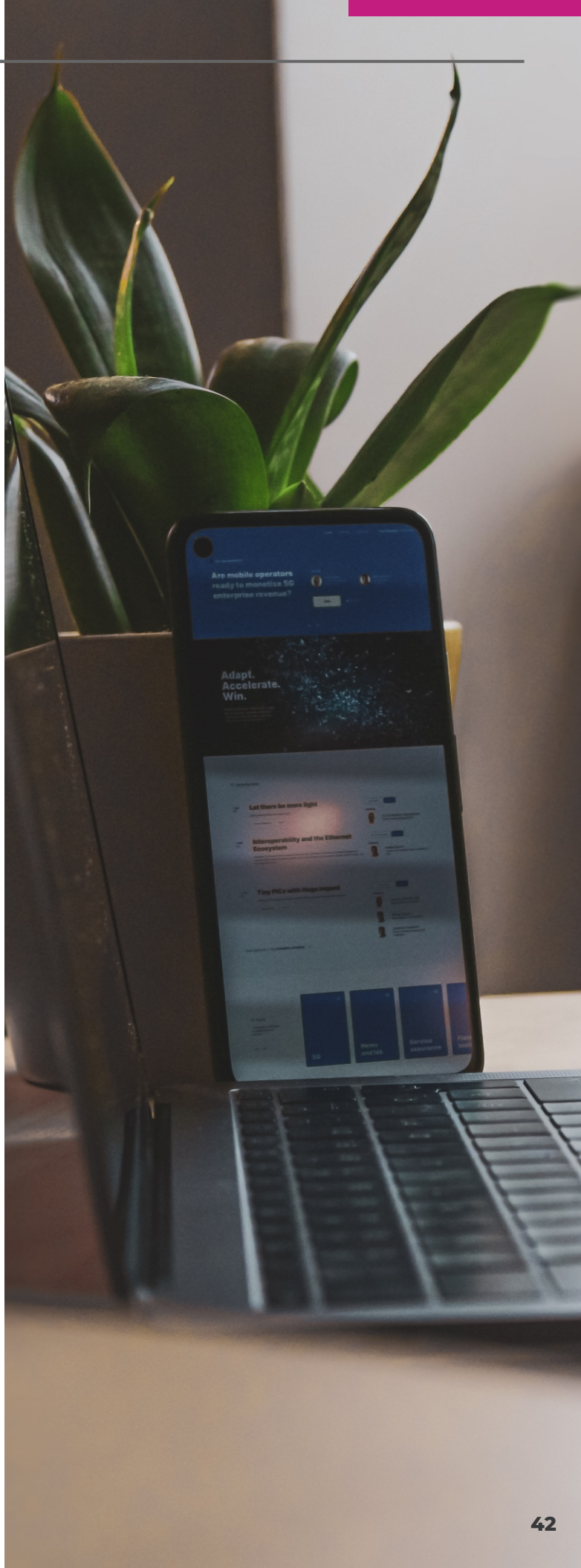
No credit score or history required, but users need to make a 25-30% upfront payment for the device and pay credit in weekly or monthly installments through convenience stores or the company's own stores. Users who fail to pay on time are locked out of the device until payment is received. This also helps bridge the gap for those who lack access to traditional financing methods and also allows users to build a credit score.

[57] [Research and Markets – 2023]

Consumers also play a crucial role in determining the fate of a smartphone after its life cycle. They can choose to store the device for future use, give it away, sell it in the second-hand market, throw it away, get it repaired, or recycle it. Recycling offers the opportunity to incorporate sustainable materials back into the manufacturing process. For example, in Costa Rica, companies like Fortech recycle batteries from electronic devices to produce new ones, contributing to the reduction of electronic waste and the environmental footprint.

CYBERSECURITY & TRAINING

As the use of mobile devices continues to grow, so does the importance of data security. With the increasing amount of information being collected on personal devices like smartphones, new challenges have also emerged to keep data safe. Cybersecurity and its awareness have risen, leading to the development of biometric security features, such as facial and fingerprint recognition. Furthermore, more than two thirds of households in the region are concerned about their privacy and safety when using the internet.[58]



[58] [United Nations Development Programme – 2022]

Online safety has been cited as one of the barriers preventing women from accessing the internet or even owning a mobile phone, as they are more likely to experience cyberstalking and harassment. These factors can be particularly impactful on women's access to digital technology.[59]

The increasing pace of bringing products and services to market often results in a gap between the time required to develop and incorporate all necessary security features. This creates an environment that is attractive to cybercriminals. Moreover, small and medium-sized enterprises are more susceptible to cyberattacks, which poses a significant risk to the digital economy. It is therefore crucial for businesses to prioritize cybersecurity and take proactive measures to protect their digital assets.[60]

Improving cybersecurity in the region requires various efforts to effectively drive cybersecurity awareness and training. This includes educating individuals on how to reduce incidents in private and work-related activities.

[59] [Organization for Economic Co-operation and Development – 2018]
[60] [Inter-American Development Bank – 2020]

SUSTAINABLE PRACTICES: MINIMIZING THE ENVIRONMENTAL FOOTPRINT

Growing environmental and sustainability concerns have prompted the mobile industry and users to take actions to mitigate the impact of technology on the planet. The mobile industry is increasingly contributing to all 17 Sustainable Development Goals (SDGs). In 2020, the sector's average impact score increased to 50, up from 33 in 2015, indicating progress towards achieving the SDG targets.[61]

The mobile industry's contributions to the SDGs are particularly notable in areas such as Industry, Innovation and Infrastructure, Quality Education, Climate Action, Affordable and Clean Energy, Life Below Water, and Life on Land. For example, connected sensors in smart building solutions enable efficient resource management, reducing emissions and promoting safety. Mobile technology also facilitates digital access to agricultural information, empowering farmers with crucial knowledge about weather conditions, diseases, and collaboration with fellow farmers.[61]

[61] [Global System for Mobile Communications – 2021]

The industry's contributions to the SDGs can be viewed from two perspectives. Firstly, companies in the mobile industry play a significant role in sustainable development through their own operations and value chain. Operators worldwide are implementing measures to reduce their climate impact, promote diversity among employees, and adopt anti-bribery and corruption policies. These actions primarily impact SDG 10 (Reduced Inequalities), SDG 11 (Sustainable Cities and Communities), and SDG 16 (Peace, Justice, and Strong Institutions). [61]

Secondly, the mobile industry has the potential to drive progress on the SDGs through the benefits derived from connectivity. Mobile technology enables access to e-health, education, financial services, and other digital tools, positively impacting 11 out of the 17 SDGs. Particularly, it has the potential to contribute significantly to SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities).[61]

[61] [Global System for Mobile Communications – 2021]

This impact is related to the efficiencies enabled by the mobile sector, which can lead to better sustainability across various industries. For instance, remote working, telemedicine, and digital access to financial products reduce the need for physical travel to offices or bank branches, thus reducing carbon emissions. The mobile sector can potentially reduce up to 10 times the total carbon emissions compared to the amount it generates.[62]

To further improve the environmental impact, it is crucial to incorporate a circular economy model into the mobile industry's supply chain at every stage. This model aims to maximize resource utilization and minimize waste. In the mobile industry, this involves reducing material needs, avoiding non-renewable resources, and extending the lifespan of devices.

Incorporating practices such as sourcing materials from existing smartphones can also help bridge the digital divide by reducing costs, making smartphones more affordable. It is estimated that such practices can lead to cost reductions of up to 7% by 2030 and 14% by 2040.[63]

[62] [Telefónica – 2022]
[63] [World Economic Forum – 2019]

CIRCULAR ECONOMY: THE WAY TO A MORE SUSTAINABLE INDUSTRY

E-waste

Smartphones are made up of over 50 different materials, including plastic, ceramics, copper silicon, epoxy, and iron. Manufacturing a smartphone produces most of its emissions (83%), while only a small portion is attributed to daily use of consumers (12%) and transportation (5%).[64]

To reduce the environmental impact of smartphones, it is crucial to focus on improving efficiency during the manufacturing stage, given the energy-intensive and polluting nature of material sourcing for smartphone production.

Recycling metals from smartphones presents a promising solution to significantly reduce the industry's environmental footprint. Recycling metals from electronic devices can be up to ten times more energy-efficient than extracting them from new materials.

For example, mining gold from discarded electronics results in 80% fewer CO2 emissions per unit of gold. Apart from the environmental benefits, there is also a clear economic opportunity as the valuable materials present in e-waste amount to an estimated total value of USD 57 billion.

To assess the recycling opportunity in the region, we need to consider the amount of e-waste generated. Recent trends indicate a slight decrease in waste generated from small IT electronics like mobile phones and printers, from 2% to around 1.5% between 2011 and 2019.

[64] [United Nations Environment Programme – 2019]

However, this decrease may partly be attributed to the manufacturing of smaller and lighter devices, rather than a true reduction in waste generation. In 2019, small IT electronics accounted for 9% of the total electronic waste generated in the region.[65],[66]

On average, about 90% of smartphone components can be reused if they are disposed of correctly. However, despite the clear benefits of proper electronic waste management, the region has a limited recycling collection rate, with only 2.7% of e-waste being collected, compared to the global average of 17%. This gap can be attributed to factors such as limited regulations and enforcement regarding toxic substance management, as well as a lack of awareness among consumers regarding proper waste disposal methods.[67],[68],[69]

Devices longevity

Having smartphones that last longer need to have an eco-design in mind for the industry to become truly circular, allowing ease of repair and enabling devices that keep up to date longer without replacing the entire phone. This is particularly relevant as phone owners change their consuming habits and reduce the rate at which they replace their devices.

[65] [Statista – 2023]
[66] [United Nations Institute for Training and Research – 2022]
[67] [United Nations University - 2020]
[68] [World Economic Forum – 2019]
[69] [Telcel – 2023]

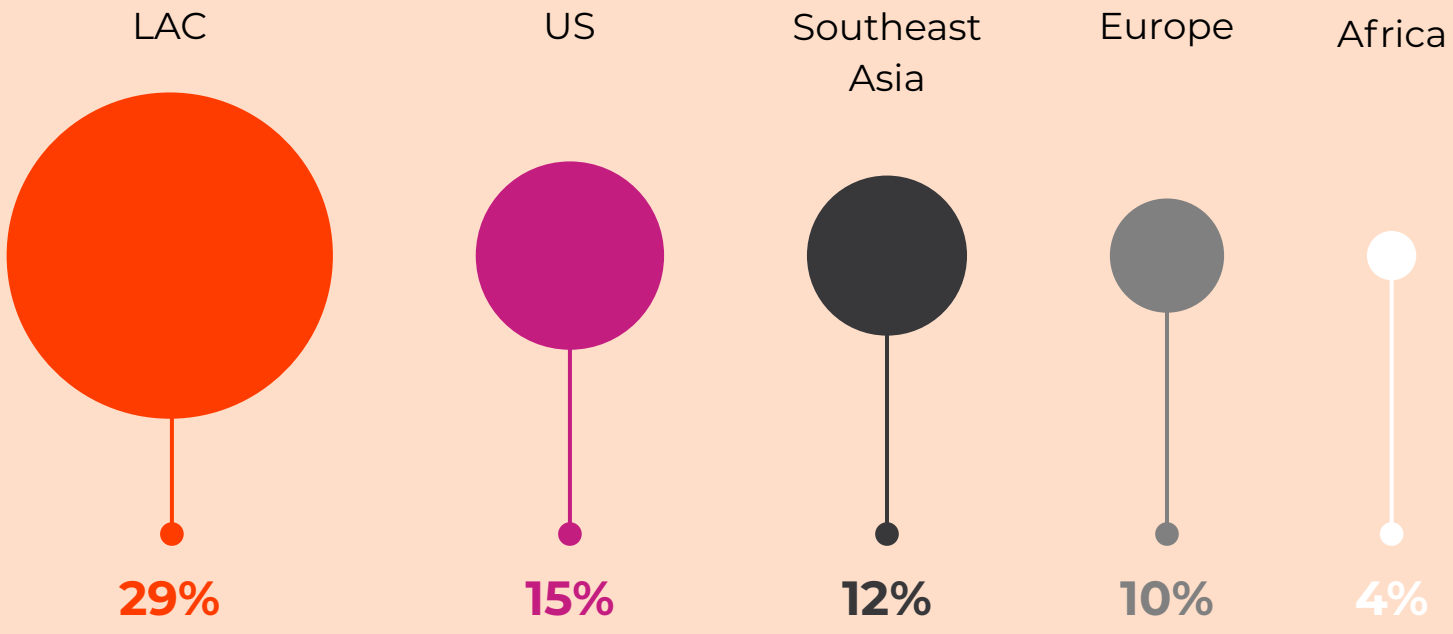
In 2021, users worldwide hold on to their phones for nearly three years (34 months), while the estimated lifetime is around four to seven years. However, in 2022, consumers kept their phones for 9 months longer (away from the forecasted six-month increase). Mexico, by comparison, the replacement cycle length doubled to 24 months in 2022 compared to 12 months in 2014.[70],[71],[72]

A thoughtful design that allows for easier repair, upgrades, and efficient recycling can contribute to a more sustainable approach. Additionally, secondary markets play a role in reducing the need for sourcing new materials by repairing and reusing devices for new users.

In Latin America, the refurbished smartphone market has experienced a growth rate of 29%, indicating a rising interest in purchasing more sustainable and affordable smartphones. Refurbished smartphones cost, on average, about half the price of new ones. This trend is expected to continue, with demand projected to increase three-fold by 2030.[73],[74]

[70 & 74] [Global System for Mobile Communications – 2022]
[71] [The Competitive Intelligence Unit- 2022]
[72] [Gartner – 2023]
[73] [Statista – 2021]

Refurbished Mobile Devices Growth Rate (2020 - 2021)



Source: Authors' own elaboration based on data from Statista 2021

Globally, Apple and Samsung are the leading brands in the refurbished market due to their reputation for providing longer-term support. In LAC, the refurbished market was valued at approximately USD 4.3 billion in 2022 and is expected to double by 2030, reaching USD 8.8 billion. The low-priced range is the most popular segment of the market, accounting for the largest share of sales in the region.[75]

Brazil is the largest market for refurbished devices in the Latin America and Caribbean region, and Trocafone is the biggest player in the country. Since its establishment in 2014, Trocafone has refurbished more than 2.5 million devices and collaborates closely with mobile network operators to manage its trade-in services.[76]

CUSTOMER SUSTAINABILITY MINDFULNESS: DRIVING SUSTAINABLE DEMAND

Growing concerns of sustainability among consumers could also help curb the demand for more environmentally friendly devices. Across countries, it is estimated that 51% believe that the consumer electronics sector could do more to improve their environmental footprint. Meanwhile, 45% reported buying from brands that have circular and sustainable practices.[73]

[75] [Custom Market Insights – 2022]
[76] [Counterpoint – 2022]
[73] [Global System for Mobile Communications – 2021]

In LAC, climate change has emerged as a major concern, ranking as the second most urgent issue in 2022. Nearly half of the region's population is taking steps to reduce their environmental impact. However, convenience and price remain significant barriers that prevent people from making more meaningful contributions to mitigating climate change.[77]

The Eco Rating consortium aims to increase transparency about a smartphone's lifecycle, from production and transportation to disposal. This initiative provides consumers with a single score that incorporates information on 13 different environmental indicators, including product durability, recyclability, repairability, and climate and resource efficiency.
The consortium is evaluating over 250 devices from 17 different vendors worldwide. In the LAC region, the rating is already present in Argentina, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay. This could help accelerate the demand for more sustainable alternatives as consumers incorporate this indicator as part of their decision process when purchasing a smartphone.[78],[79]

IMPACT IN OTHER INDUSTRIES: THE RIPPLE EFFECT

Efficiencies in other industries can be achieved using information and communication technologies and digitalization. Smartphones play a crucial role in this process given its high adoption and relevance in connecting with other digital. They enable optimization of processes and systems by allowing users to visualize and understand their consumption behaviors better.

[77] [Kantar – 2022]
[78] [Eco Rating – 2023]
[79] [Telefónica – 2023]

Additionally, smartphones provide access to services and products, reducing the need for transportation and improving processes. Increased mobile connectivity has positive impacts across sectors and can help reduce environmental impact, making it a key driver of sustainable development.
One industry where smartphones can have a significant impact is logistics. With smartphones, users can access tools to identify optimal routes, track package statuses in real-time, and manage deliveries more efficiently. This reduces the time and resources required to handle packages and contributes to a more streamlined logistics process.

Moreover, smartphones play a vital role in enabling the Internet of Things (IoT) applications through their integration and connectivity, particularly with advancements like 5G. By integrating smartphones with IoT applications, individuals, businesses, and cities can access and control information to optimize decision-making and operations. This leads to increased efficiency and reduced carbon footprints across various sectors.

In agriculture, for example, mobile communications technology allows farmers to access crop data through smartphone apps, enabling better estimates for optimal harvest time and reducing food waste. Similarly, mobile applications and IoT can help mitigate illegal deforestation by targeting and monitoring deforestation activities using technologies like 5G and Artificial Intelligence.

Remote monitoring is another area where smartphones and mobile connectivity make a significant difference. For instance, in Peru, WindAid Institute is building wind turbines that power smartphones, computers, and other devices. Remote access to information about the turbines allows problems to be identified and repaired by community members, reducing the need for specialized technicians to visit the site and maximizing the turbines' operation time. This not only reduces emissions associated with travel but also enables the creation of sustainable micro-grids and potential carbon credits.

The integration of smartphones and mobile connectivity across industries offers opportunities for automatization, remote control, data generation, and utilization. However, it's important to note that the prevalence of basic smartphones and limited 5G penetration in the Latin America and Caribbean region may limit the full potential for efficiencies and environmental gains. Therefore, it is crucial to maximize the current situation and develop solutions that leverage connectivity as it continues to evolve in the region.

CONCLUSIONS AND IMPLICATIONS

Smartphones have revolutionized internet access in Latin America and the Caribbean, empowering users with a plethora of online services and products. These pocket-sized devices have opened doors to information and services that were previously out of reach, spanning health, education, finance, and mobility. However, to fully maximize the benefits of smartphone adoption, several key challenges need to be addressed.

First and foremost, environmental sustainability is crucial. The entire lifecycle of smartphones, from production to disposal, should be managed in a way that reduces waste, promotes recycling, and embraces sustainable design. This will help minimize the environmental footprint of smartphones and contribute to a more eco-conscious approach to technology usage.

Gender and regional disparities in smartphone access must also be tackled. Efforts should be made to bridge these gaps, ensuring that women have equal access to smartphones and related services. This includes implementing digital literacy programs tailored to women and addressing cultural barriers that hinder their technological empowerment. Additionally, extending reliable connectivity to underserved regions will help bridge the digital divide and create opportunities for socioeconomic development.

Innovative financing models are needed to make smartphones more accessible to a broader range of individuals. Collaborations between governments, private sector entities, and financial institutions can lead to inclusive financing solutions that accommodate varying income levels and credit capacities. This will enable marginalized communities to own smartphones and participate in the digital economy.

Investments in mobile and internet infrastructure are essential to ensure widespread smartphone benefits. Governments and telecommunications companies should prioritize expanding coverage, improving connectivity quality, and focusing on underserved areas and remote regions. This will empower more people to leverage the potential of digitalization and fully participate in a connected society.

By addressing these challenges and embracing sustainable practices, bridging gaps, innovative financing, and infrastructure investments, Latin America and the Caribbean can create an inclusive and sustainable digital future. This will foster socioeconomic development, empower individuals, and pave the way for a brighter future in the region.

CONTINUE THE CONVERSATION

IDB | Invest

idbinvest.org

idbinvest.org/linkedin

idbinvest.org/twitter

idbinvest.org/facebook

idbinvest.org/blog