

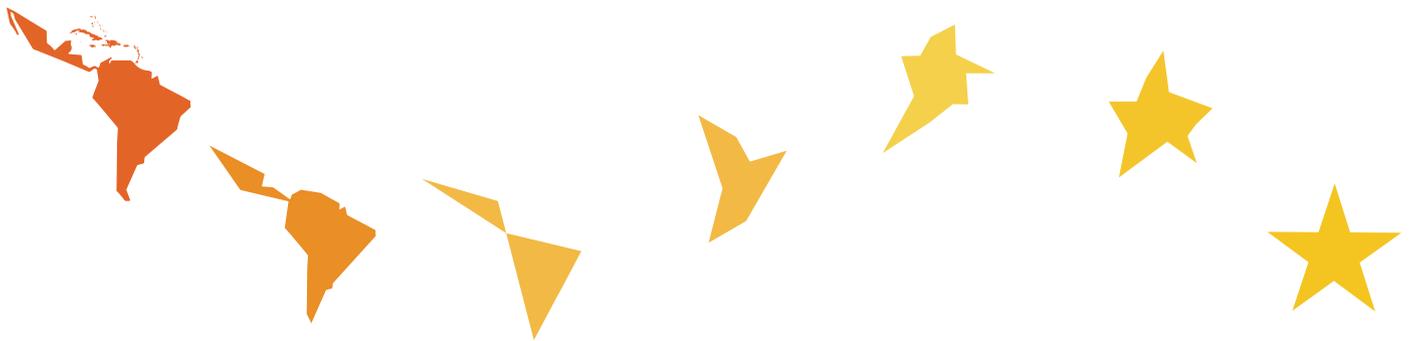
LAC - EUROPE

Global Gateway in
Latin America and the Caribbean:
**innovative paths for investment, cooperation
and a digital partnership with Europe**



LAC-EUROPE

**Global Gateway in
Latin America and the Caribbean:**
innovative paths for investment, cooperation
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LAC-EUROPA Series © CAF 2023

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Editorial Coordination
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Design by GOOD;)
Communication for Sustainable Development.

Sustainable Printing on Ecological Paper Eart
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360° Digital Development Platform in Latin America and the Caribbean and the European Union



This policy paper addresses the challenges and opportunities for digital transformation in Latin America and the Caribbean and identifies the fundamental areas of collaboration and partnership with Europe. To this end, a concise diagnosis of digital progress in Latin America and the Caribbean was performed, and specific technical and financial cooperation actions were identified that could be integrated into the European Global Gateway initiative. These actions address:

- a) **Connectivity to close the urban-rural and coverage gap with 4G, 5G, optical fiber and satellite technologies for remote areas, coordinated with progress in cybersecurity.**
- b) **The digitization of production processes, particularly in small and medium-sized enterprises and traditional and modern sectors with a comparative advantage.**
- c) **Initiatives to move toward agile, connected States and invest in digital skills to prepare the workforce for the future of work.**
- d) **A smart digital regulation, specifically when it comes to data privacy, market competition, responsible artificial intelligence, and digital services taxation. These are all areas where Europe is shaping global standards.**

In addition to these digital transformation actions, there are cross-cutting topics of **environmental sustainability, social inclusion and ethics**, hallmarks of the European identity. The first case addresses how technology can help address climate change, promote decarbonization and preserve biodiversity. The social inclusion dimension focuses on promoting talent both at the base of the social pyramid and for women, seeking to close the gaps in use, financing and leadership. Finally, the ethical dimension advocates integrating humanistic values and social rights into the design of digital developments as of the design stage.

The paper argues that now is the time for the European Union to strengthen, and in some cases regain, influence in these key digital areas by providing innovative technological and financial support and sharing knowledge. This international financial diplomacy exercise will require close collaboration with development banks (particularly the EIB, IDB and CAF), national cooperation agencies, leading international organizations in the digital environment (OECD, SEGIB, UNESCO), and, centrally, with the private sector.

The CAF is a key partner on this path. It is an innovative platform with operational agility, synergy in strategic objectives and the capacity to leverage European cooperation to maximize its impact on integral human development. ■



01 **The digital *Global Gateway* considering the development challenges of Latin America and the Caribbean**

Overcoming economic, social, and institutional dilemmas in Latin America and the Caribbean requires an ambitious agenda for digitization. The partnership with Europe towards inclusive and secure connectivity, Industry 4.0 reindustrialization, and agile states, along with new skills, within a comprehensive strategy of financial diplomacy, presents a unique opportunity.

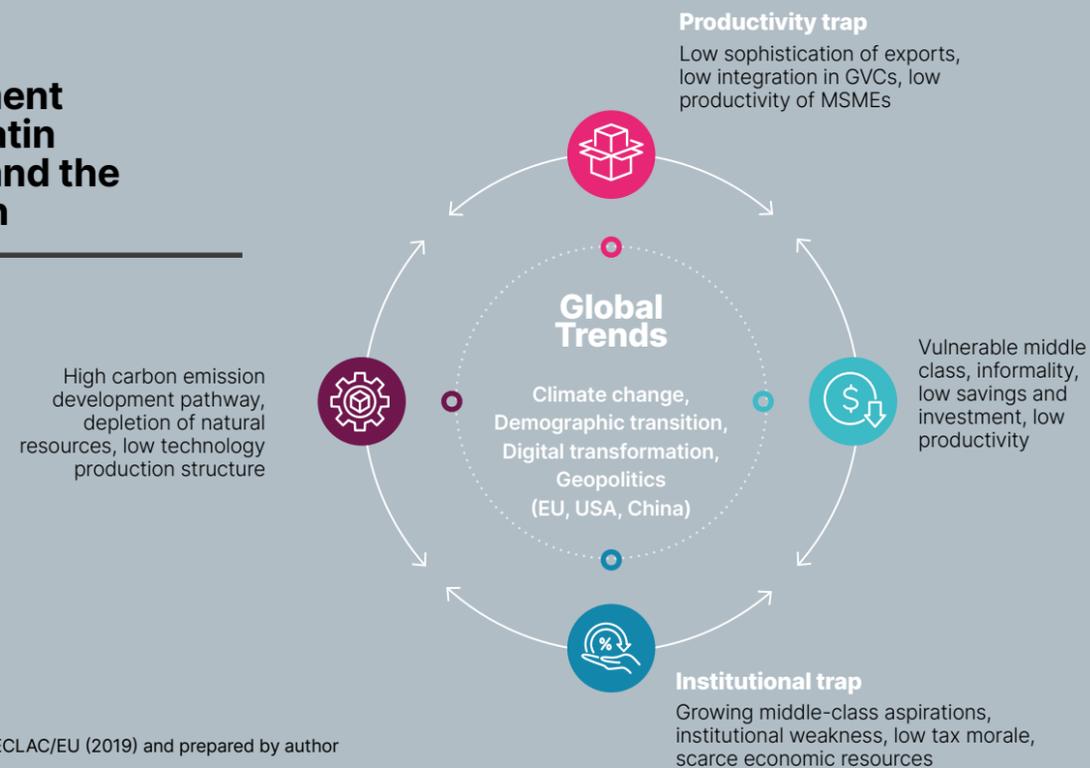


After a favorable economic and social period, Latin America and the Caribbean (LAC) are facing new development challenges. The achievement of higher income levels, the emergence of a demanding and mobilized middle class, and the need to include social and environmental sustainability components in policy agendas have created new development challenges that are increasingly complex but can be transformed into opportunities (OECD, CAF, ECLAC and EU, 2019).

The region must overcome four development traps. To meet the challenges of growth, equity, governance and sustainability, LAC faces a set of constraints that require a persistent and simultaneous approach: (i) *the productivity trap*, as a result of an export structure centered

on the primary and extractive sectors, with low levels of sophistication, high informality and low levels of human capital; (ii) the poverty and vulnerable *middle class trap*, due to low-quality jobs, insufficient social protection and a volatile income that puts them at risk of falling back into poverty; (iii) the *institutional trap*, as a consequence of the greater demands of the middle class, but also due to social exclusion and polarization, which bring about a disconnection between governments, businesses and citizens; and iv) *the environmental trap*, due to the heavy use of material and natural resources, which can lead to unsustainable dynamics from an ecological and economic point of view, without any guarantees for preserving biodiversity, and much less turning it into an driver of growth and development (Figure 1).

Figure 1.
Development traps in Latin America and the Caribbean



Source: CAF/OECD/ECLAC/EU (2019) and prepared by author

The LAC and European Union partnership as a means to build a virtuous cycle, coordinating the digital agendas of both regions through the Global Gateway. The four development challenges feedback negatively on each other but could be transformed into a virtuous cycle with coordinated and simultaneous actions. Overcoming these traps requires an integrated approach to economic, productive, and social policies and public-private collaboration in terms of resources and technical assistance. The transition must be simultaneously digital, green, and just. Europe can aspire to be the strategic partner in these areas, based on its *Global Gateway*. The European Union seeks to use it to address the most pressing global challenges, from fighting climate change to improving health care systems and boosting the competitiveness and security of global supply chains.

The opportunity to leverage funding efforts and knowledge. Between 2021 and 2027, Team Europe, which is to say the EU institutions and EU Member States, will globally mobilize up to EUR 300 billion of investments in the digital area, climate, energy, transportation, health, education and research (European Commission, 2021a). In the case of LAC, *Team Europe* has committed over EUR 45 billion (with primary contributions from the EU itself, Spain and France) to support this strengthened partnership with LAC until 2027. It focuses on connectivity, 5G, cybersecurity and artificial intelligence. Only this determined digital transformation agenda, understood as a combination of closing connectivity gaps, training the workforce, and smart and comprehensive regulation of the digital ecosystem, would allow

LAC to recover and even overcome its pre-pandemic growth trends (AlphaBeta, 2020; Katz and Jung, 2022, IMF, 2023a).

In the last decade, Europe has emerged as a global leader in the formulation of fundamental regulations. These initiatives do not only benefit the member countries of the European Union. They also work as a benchmark for LAC in crucial areas, such as digital transformation, personal data protection, ensuring cybersecurity and regulating digital services and markets. From the adoption of the General Data Protection Regulation (GDPR) in 2018 to the introduction of the Path to the Digital Decade strategy in 2022, the EU has focused on forging a balanced regulatory framework that is capable of driving a secure and thriving digital economy while protecting the rights and freedoms of its citizens. Among the most salient aspects of the regulation is the primacy of human beings within the digital debate. The GDPR for personal data protection. The Digital Services Act (DSA) and Digital Markets Act (DMA). The Artificial Intelligence Act (AI Act) or cybersecurity regulations,

THE TRANSITION MUST BE DIGITAL, GREEN, AND JUST SIMULTANEOUSLY. EUROPE CAN ASPIRE TO BE THE STRATEGIC PARTNER IN THESE AREAS, BASED ON ITS GLOBAL GATEWAY.





which reinforce the EU's leadership in creating a modern regulatory framework, adapted to the digital era, with a global impact (Table 1).

Four main lines of action: inclusive and secure connectivity; industry 4.0; agile States and new skills; and global financial diplomacy. Inspired by the *European Union's digital compass*, four key benchmarks have been proposed for LAC: a) inclusive and secure connectivity, closing access gaps between urban and rural areas and establishing cybersecurity and information protection strategies; b) industry 4.0 as a way to increase productivity and the digitization of strategic sectors in which LAC shows comparative advantages; c) agile States at the service of citizens, fighting corruption and facilitating access to health benefits, education, tax payments, business creation, and general procedures, along with investments in digital talent that closes access gaps, with citizens trained and prepared for the future of work; and d) a *global diplomacy* that promotes actions through digitization, leading to a competitive, inclusive and sustainable digital economy, using regional and global public-private partnerships (Figure 2).

The digital agenda as a great diagonal to accelerate European cooperation and investment in LAC. Food security, energy security, and attention to the Sustainable Development Goals and Paris Agreement commitments require a digital approach to accelerate their achievement. It is key for LAC to be confirmed as a priority for global cooperation and investments of the Global Gateway initiative to be mobilized in the social, environmental and productive areas, which are immersed in the great ongoing digital transformation. The presence of European companies in leading sectors in digitization for

Table 1.
European digital initiatives in the last 5 years

Source: Prepared by author

<p>2016</p> <ul style="list-style-type: none"> General Data protection Regulation (GDPR) 	<p>2020</p> <ul style="list-style-type: none"> Council Conclusions on Digital Diplomacy European Artificial Intelligence Strategy 	<p>2022</p> <ul style="list-style-type: none"> Digital Services Act – DSA Digital Asset Act Digital Market Act Path to the Digital Decade
<p>2018</p> <ul style="list-style-type: none"> Digital Education Action Plan European Cybersecurity Act 	<p>2021</p> <ul style="list-style-type: none"> European Cybersecurity Act European Connectivity Declaration Global Gateway Commission presentation of Europe's Digital Compass 	<p>2023</p> <ul style="list-style-type: none"> Digital Resilience Act – DORA Digital Alliance – AI Act
<p>2019</p> <ul style="list-style-type: none"> European Data Strategy 		



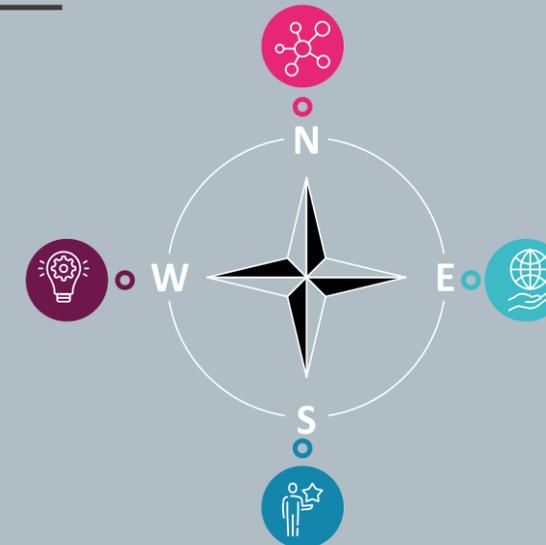
decades (from telecommunications to banking, infrastructure, energy and trade) is reflected in the leadership of European Foreign Direct Investment (FDI) in the region (36% compared to 35% by the U.S.A., according to ECLAC, 2022a). LAC countries would benefit greatly from investments in these areas, increasing their levels of

development and reducing the digital divide. At the same time, European countries would be strengthening their partnerships with States with which they have historical ties and that represent a large market, establishing rules and agreements that generate an institutional framework for current and future relationships. ■

Figure 2.
Axes of the European Union's digital investment and cooperation partnership in LAC

INDUSTRY 4.0:

Value added in additional exports (agriculture, tourism, mining, energy); New service exports (biotechnology, audiovisual); Value chains in the Americas (semiconductors); GreenTech (environmental sustainability, biomimicry).



INCLUSIVE AND SECURE CONNECTIVITY:

Infrastructure (fixed, mobile, fiber, cable and satellite), investments and cybersecurity

GLOBAL FINANCIAL DIPLOMACY:

Gateway to the World - scientific and technological support, financial resources, public-private partnerships and regulatory solutions (cryptoassets and digital currencies, privacy and security, rights and Artificial Intelligence, global taxation) Bonding the digital transition to green and just transitions.

DIGITAL TALENT, INCLUSION AND AN AGILE STATE:

Skills and the future of work
Inclusion and gender
E-Health, E-Education, E-Justice, Fintech

Source. Prepared by author



02 Digital transformation progress and challenges in Latin America and the Caribbean



The new digital agenda in Latin America and the Caribbean can be built upon significant progress in connectivity and complemented with cybersecurity, govtech, talent development, digitalization of traditional industries, and cutting-edge technological advancements such as artificial intelligence and blockchain.



LAC has made notable progress in digital transformation, but internal gaps compared to other emerging economies are significant. Over the last decade, emphasizing the time after the crisis caused by the pandemic, there have been notable improvements in broadband connectivity in homes, 4G coverage, the development of 5G networks, the digitization of government procedures, e-commerce and fintech. For example, it was observed during the pandemic that, while traditional bank lending slowed, fintech lending, digital payments and digital bank transactions continued with significant growth (Bakker et al., 2023). On the other hand, progress in the digitization

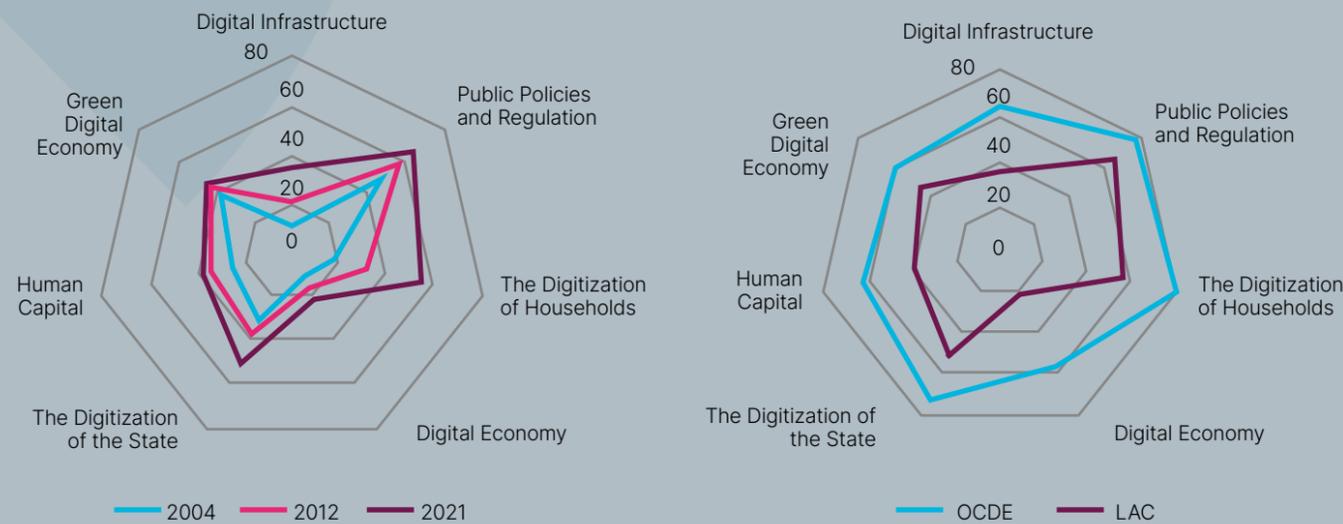
of companies was slower (beyond connectivity and web presence), and the green digital economy (in which modern technology supports climate, environmental sustainability and biodiversity objectives) remained stagnant (Figure 3). In particular, the digital divide between the urban and rural sectors increased, with a notable social impact. While school students in the urban sector with connectivity had access to online courses during the pandemic and patients had access to procedures due to electronic medical records, this was not the case in rural areas. In addition, locations with connectivity often lacked either the digital skills or equipment to access services.

Safe, Inclusive Connectivity

There are highlights and challenges in the progress of digital connectivity in LAC. The Internet has opened up great opportunities for the region's economies to become more productive, expand entrepreneurial possibilities and drive economic growth that integrates different sectors of society (Suominen, 2017). According to data from the International Telecommunication Union (ITU) analyzed at the ECLAC (2022b), the percentage of Latin Americans subscribing to fixed broadband services rose to 62% in 2021, tripling the coverage in 2020, but far from the 100% of North America and

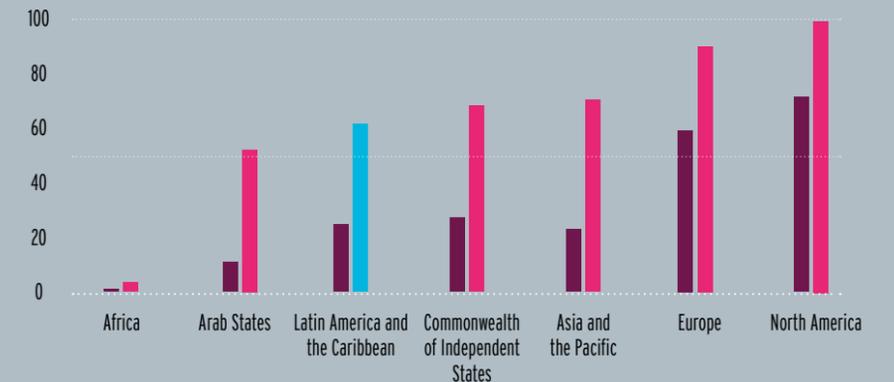
90% of Europe. Mobile broadband subscriptions stood at 78%, once again lower than the 105% in Europe and 150% in North America (Figure 4). Particularly in mobile connectivity, 4G usage reached 65% of the population in 2022, and 5G is expected to reach 11% in 2025, according to GSMA (2023c). Along with the need for adequate speed to perform relevant productive and social activities (such as access to financial, educational or health care services), there are still challenges in terms of latency, as well as the resilience of connectivity infrastructures. (Oookla, 2023).

Figure 3. Progress in the digital economy in LAC and the OECD

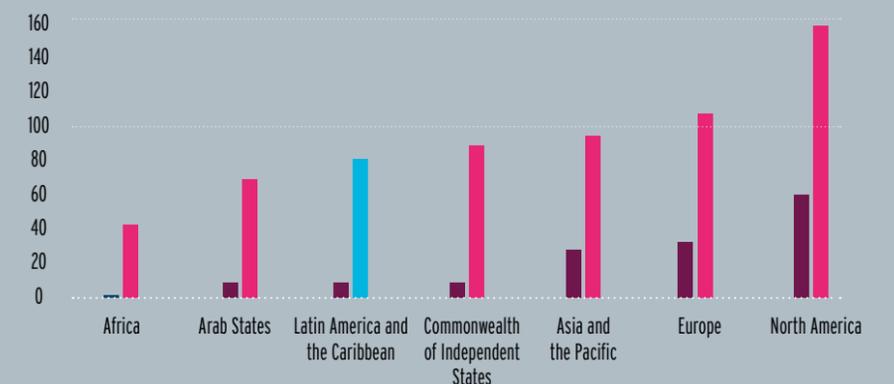


Source. Digitization index prepared by Telecom Advisory Services for the CAF. Maximum = 100. (2022).

Figure 4. Broadband subscribers (In percentages of households)



Mobile broadband subscriptions (As a percentage of the population)



Source. ECLAC (2022b) with ITU data



ONLY 10% OF INNOVATIVE ENTREPRENEURSHIPS SEEKING FINANCING WERE FOUNDED BY WOMEN, AND WHEN THEY DO, THEY RECEIVE 23% LESS FUNDING.

Geography remains central to explaining connectivity gaps. Although progress has been made, there is still a significant digital divide in LAC. Rural areas and low-income communities have low rates of internet connectivity. Around 70 million inhabitants of rural areas in LAC lack access to connectivity services with minimum quality standards (Ziegler et al., 2020).

The gaps in digital connectivity, as well as in leadership and financing innovative ventures, are especially apparent for women. Connectivity for women is lagging behind in practically all dimensions of the digital economy. Internet use among women was almost 12 points lower than among men. In addition, they have less of a presence in ICT sector activities. Only 10% of innovative ventures seeking funding were founded by women, and when they are, they receive 23% less funding. Among G20 economies, women hold barely 10% of patents. Moreover, the outlook is not too favorable, since only one in four graduates in engineering or

telecommunications infrastructure are women, despite more women completing their higher education (OECD, 2018).

The challenge of providing connectivity to the last mile (or 'last kilometer'). Telecommunications operators, arguing the high costs of infrastructure deployment, often focus their efforts on urban and densely populated areas, thus neglecting connectivity in rural areas. This situation has resulted in rural areas that lack connectivity or only have access to 2G and 3G networks. A similar situation occurs with optical fiber. Although it often reaches municipal capitals, it does not extend to the households of the most vulnerable people. A combination of technological innovation is needed to overcome these challenges, including technologies, such as 5G, 4G, optical fiber, LPWAN (Low Power Wide Area Network) and satellite connectivity. Moreover, both public and private investment and inclusive policies that prioritize equity in digital access are essential.

The expansion of broadband connections - a crucial means of fostering social inclusion. Services, such as health care, education and justice, depend on connectivity to provide fast, stable and reliable access to citizens. Connections not only allow communities to overcome geographic and socioeconomic barriers, but also generate development opportunities by boosting entrepreneurship, e-commerce, and teleworking and promote civic participation, strengthening democracy and political inclusion.

A comprehensive intervention beyond infrastructure expansion. Closing the connectivity gap requires an integrated approach, reducing access costs, promoting relevant content and online safety, and investing in digital skills. For example, in mobile connectivity, the *usage gap* is significantly higher than the coverage gap. According to the GSMA mobile operator association's analysis for LAC, while only 3% of citizens in the region live in geographic areas without mobile broadband, 35% of Latin Americans do not use this connectivity service (GSMA, 2022; Dalio et al., 2023).

Despite the fall in relative prices, connectivity costs still represent a high access barrier for lower-income citizens. A challenge of expanding mobile connections is that the region's poorest people cannot afford data plans and internet-enabled devices. On average, the cost of a 1GB data plan represents 2.7% of monthly household income (or between 8% and 10% for the bottom quintile in some countries), which is above the International Telecommunications

Union's 2% affordability threshold. The price of smartphones must also be added to these costs, which represents between 31% and 34% of the average household income in some LAC countries, reaching up to 84% in the most critical case (Drees-Gross and Zhang, 2021). In view of this situation, proposals such as the basic basket consisting of a laptop, smartphone and tablet, are relevant (ECLAC, 2020).

The need for investment in physical infrastructure, demand subsidies and digital skills is a challenge LAC cannot meet without external support. The International Telecommunication Union (ITU, 2020) estimated that the region would require US 51 billion by 2030 to close the digital divide in infrastructure, skills and regulation. On the other hand, Cet.la (2019), the think tank of the Inter-American Association of Telecommunications Operators (ASIT) estimates that LAC needs three times that figure, USD 161 billion, to reach OECD connectivity standards on a nearer horizon, by

IT IS ESSENTIAL TO COMPLEMENT PUBLIC AND PRIVATE INVESTMENT WITH TRAINING AND DEMAND-SUPPORT POLICIES IN DIGITAL ACCESS.





2025. Extending it to 2030, with the deployment of 5G and adding complementary investments in digital, technical and soft skills, the required investment would approach \$300 billion, 3 percent of the regional GDP (Brichetti et al., 2021).

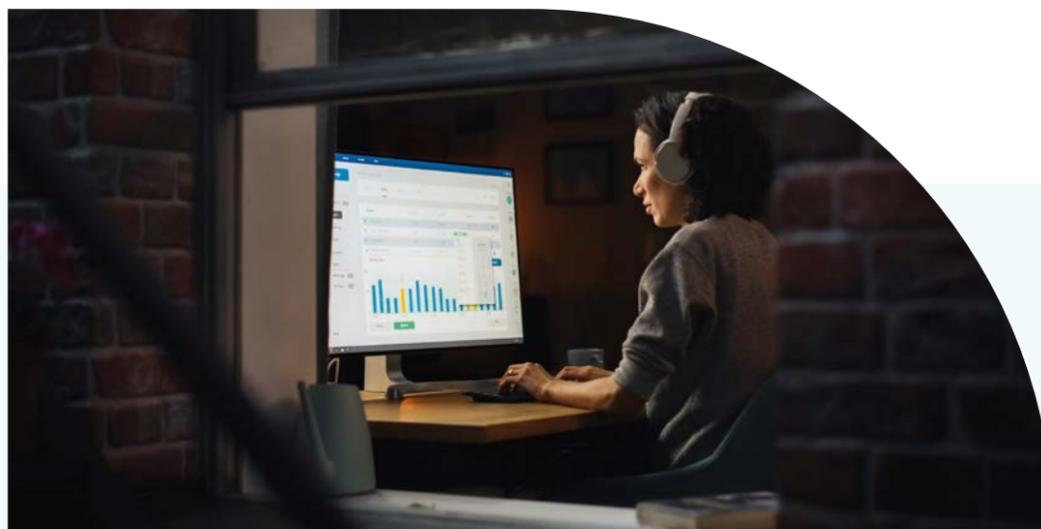
Progress in connectivity must go together with improvements in digital security.

Connectivity with online security is the only sustainable and acceptable agenda in LAC. As dependence on digital technology increases, so does cybercrime. In 2018 and 2022, between 52% and 62% of organizations felt like they received more attacks than the immediately preceding year (ISACA, 2022). Despite the incipient development of national cybersecurity strategies in a third of the countries in the region (Figure 5), the technical capacities of the State and the awareness of public actors are

still insufficient (IDB and OAS, 2020; Handler, 2021; OAS and CISCO, 2022; OAS and GPD, 2022). The lack of interoperability between government platforms and the absence of cyber-industrial data protection legislation are other determining factors in the sector's outlook (International Telecommunication Union, 2023). The cybersecurity market is also an opportunity, with projections for it to reach \$16.56 billion by 2025 (Frost and Sullivan, 2019).

A multidimensional cost-benefit analysis confirms the returns of this inclusive and secure connectivity agenda. Investment in optical fiber, the expansion of 4G and 5G networks, and higher quality and cybersecurity standards can be complex and costly from an economic perspective, since investments in hardware, software, services, training, and support

THE CYBERSECURITY MARKET IS ALSO AN OPPORTUNITY, WITH PROJECTIONS TO REACH \$16.56 BILLION BY 2025.



are required. However, these investments can enhance the quality of life of citizens through access to digital services, enable the digital economy, facilitate digital inclusion, enable social development opportunities with access to health care and education, and support economic growth through trade

and new services. In terms of security, non-investment is costly because of the risks associated with the loss of data, services and information, which leads to a loss of confidence. For every job created in the U.S. wireless industry, 6.5 jobs were created in the overall economy (Bazon and McHenry, 2015). ■

Figure 5. **Cybersecurity strategies in Latin America and the Caribbean, 2020**

Source: IDB and OAS (2020)

- Countries with a National Cybersecurity Strategy
- Countries currently developing a National Cybersecurity Strategy





Digital talent for the future of work

Investing in human development in pre-digital skills is essential to break the transmission of educational inequalities in productive life. Students in LAC show reading, writing, mathematical and logical thinking challenges, according to the OECD's PISA test results. This deficit in human capital in early stages carries over into adulthood (over 60% lack basic skills; OECD, 2020), and is transmitted from parents to children, as reflected in the CAF's analysis of inherited inequalities (2022a). In this way, LAC is the region of the world in which parents' years of education primarily explain children's number of years of schooling (measured by the correlation between the parents' number of years of education and children born).

The deficit of specific digital talent conditions the future of the region. Globally, LAC countries rank in the bottom third for the availability of technology skills (Porrúa et al., 2021). Unfortunately, despite the multiplication of programs, the situation has not changed, with most countries in the region at below 50% (Coursera, 2022). This low availability of technological skills is

reflected in an unmet demand for talent by companies. Thirty-two percent of LAC companies have problems finding skilled workers. This figure is significantly higher than that of the EU and the world average (21%; Worman et al., 2020). A survey conducted by the ECLAC on leading companies in the technology, telecommunications, banking, commerce and media sectors at the end of 2022 highlights the lack of skills as a barrier to greater digital investment, above regulation or connectivity (and second only to the macroeconomic environment, which is volatility and low growth prospects).

Technical skills in different specialized areas and basic and intermediate (soft) skills are required. Specifically, in terms of interpersonal skills, a capacity for teamwork and communication is required; in terms of organizational skills, service orientation and the identification of business opportunities stand out; for personal skills, problem solving and a focus on stand out; and, for technological skills, information management stands out (OECD, Manpower and ANDI, 2018; ECLAC, 2022b).

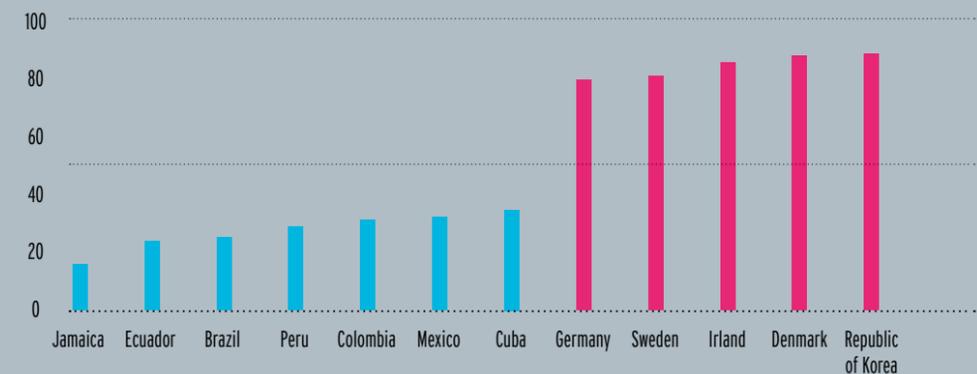
32% OF ALC COMPANIES HAVE TROUBLE FINDING QUALIFIED WORKERS, A FIGURE SIGNIFICANTLY HIGHER THAN THAT OF THE EU AND THE GLOBAL AVERAGE.

Figure 6.

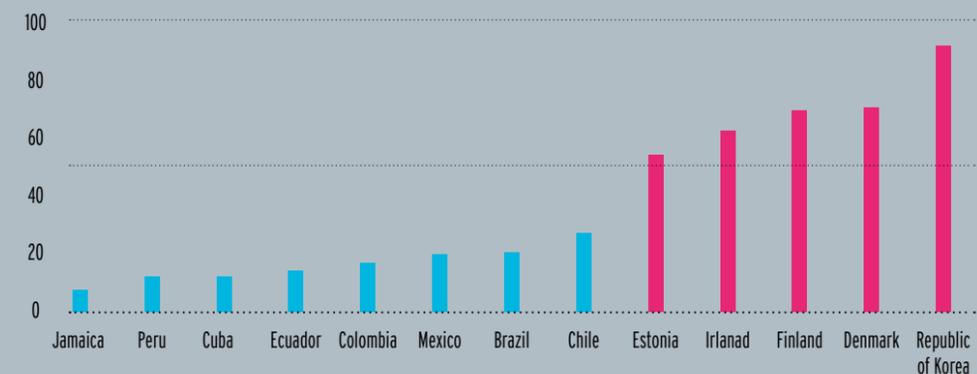
Main digital skills of the population aged 15 and older.

Source: ECLAC (2022b)

A. Basic digital skills



B. Intermediate digital skills

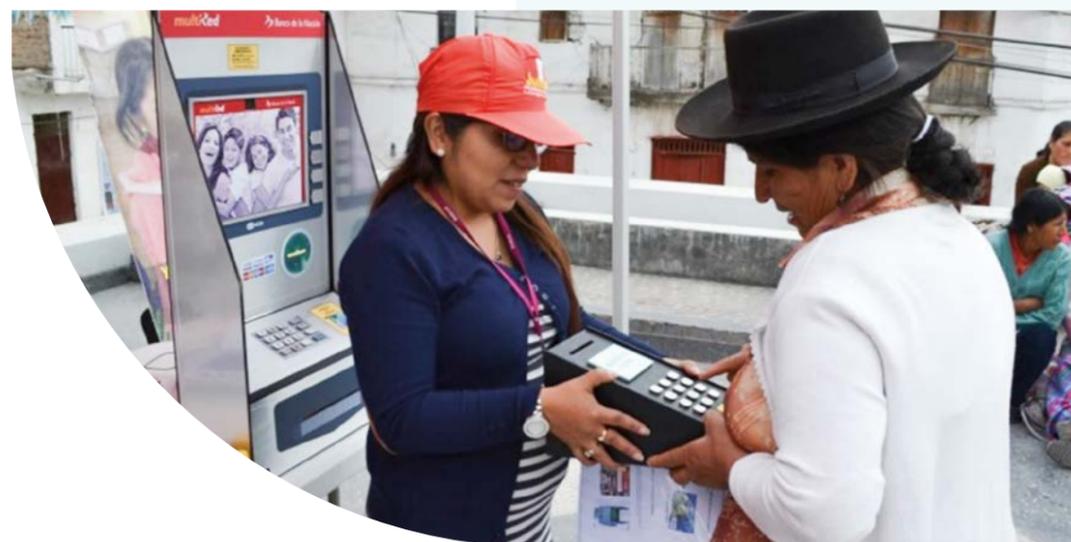




Training and certification are key to tailoring programs and driving the upskilling and reskilling of the existing workforce. It is estimated that the demand for certified and updated IT professionals will multiply by 2030. This is because 70% of Latin American companies are already in their early stages of digital transformation and 59% made investments in cloud infrastructure for 2024. This leads to the need for IT professionals certified in artificial intelligence (AI), the cloud, Internet of Things (IoT) and data science (International Data Corporation, 2020).

In the process of preparing for the future of work, it is essential to implement a comprehensive skills plan as of early stages. This involves engaging younger children in learning

to code, encouraging STEM+A (science, technology, engineering, mathematics, and art) training, and promoting data analytics in schools. Significant investments should be made in non-university technical training, focusing on key areas, such as cybersecurity, *cloud computing*, automation and data analytics, as well as skills related to critical thinking, adaptability, information management and collaborative work. It is essential for this training process to involve both students and teachers to ensure a comprehensive and integrated approach. This will contribute to a more prepared, adaptable society that is able to face the challenges and take advantage of the opportunities that arise in a constantly evolving technological environment (Gruffat et al., 2021). ■



Agile, Connected States

Administrative procedures are a barrier to access to development. Central governments in the region handle between 1,000 and 5,000 different procedures, depending on the country. On average, a Latin American adult carries out at least five procedures per year (Roseth et al, 2018). Among these are those required to apply for a driver's license, immigration procedures and those related to the commercial registry. Half of the administrative procedures require two or more trips to public offices and long waits (Cristia and Vlaicu, 2022). Procedures can be barriers to access to services and reduce public revenues, exacerbate informality, and generate excessive costs. The digitization of procedures provides an effective, low-cost solution that can be implemented in more remote areas.

The digitization of procedures is a means of citizen inclusion. Adopting digital technologies in the provision of public services facilitates access to information, simplifies bureaucratic processes and improves efficiency in government management. For this reason, digitization can also increase transparency and accountability, which strengthens citizens' trust in public institutions (OECD, CAF, ECLAC and EU, 2018). Low-cost digital public services enable more efficient information gathering, processing, and distribution among people. On average, digital public services are 74% faster than their on-

site equivalents and are 95% cheaper for public institutions (Roseth et al., 2018). In addition, they can reduce the risk of corruption by making interactions between citizens and officials in charge of processes less necessary (Cristia and Vlaicu, 2022).

Transforming into a truly proactive, citizen-centric government goes beyond the digitization of procedures. It requires progress in open data, omnichannels, interoperability, cybersecurity, digital identities, electronic signatures, services from the cloud as a principle, online services and digital procedures, citizen participation, transparency and accountability. Critical sectors in an e-government are those in which digitization can have a significant impact on the efficiency, accessibility and quality of public services. Some examples include the Electronic Health Records in Argentina, the *Unique Digital Judicial Record* program in Costa Rica, the *Unique Foreign Trade Website* in Brazil, the *Unique National Transportation Registry* in Colombia, or the Gob.mx platform for accessing all federal government procedures and services in Mexico (Table 2). With these services, the configuration of a govtech ecosystem partnered with startups (under Business to Government [B2G] models), scaleups and digital MSMEs with a public vocation allows access to frontier of innovation while collaborating with dynamic companies and the civil society (CAF, 2020a).

ON AVERAGE, DIGITAL PUBLIC SERVICES ARE 74% FASTER THAN THEIR IN-PERSON EQUIVALENTS AND ARE 95% CHEAPER FOR PUBLIC INSTITUTIONS.



Table 2.
Examples of Public Service Digitalization in Latin America and the Caribbean

Source. Prepared by author



Public Services to be Digitized	● Electronic Court Files	● Electronic Medical Records	● Taxes and Customs	● Electronic Civil Registry	● Identification Systems	● Migrant Information Control
Positive Impact	Improves the efficiency and transparency of the judicial system, reduces paper and facilitates access to information.	Facilitates access to medical records, improves the quality of patient care and reduces medical errors.	Increases efficiency and transparency, reduces tax evasion, and facilitates international trade.	Facilitates access to government resources, improves efficiency and reduces fraud.	Improves the efficiency of government services, facilitates identification and reduces fraud.	Improves the efficiency and security of immigration controls, facilitates access to immigration education, and improves the efficiency and security of immigration controls.
CELAC Countries with Progress	Argentina, Brazil, Chile, Colombia, Mexico	Brazil, Chile, Costa Rica, Guatemala, Uruguay	Argentina, Brazil, Chile, Colombia, Mexico	Mexico, Argentina	Argentina, Brazil, Chile, Colombia, Mexico	Mexico, Costa Rica
Public Services to be Digitized	● Online Education	● Social Security	● Environmental Systems	● Transportation Systems	● Land Registry	● Open Government
Positive Impact	Improves access to education, offers flexible learning opportunities, and reduces costs.	Improves the efficiency of the social security system, facilitates access to benefits and reduces fraud.	Improves environmental management and conservation and facilitates environmental monitoring and research.	Improves transportation efficiency and safety and facilitates access to transportation information.	Improves the management and security of land records and facilitates access to land ownership information.	Improves transparency, citizen participation and accountability within the government.
CELAC Countries with Progress	Brazil, Colombia, Costa Rica, Mexico, Uruguay	Chile, Argentina, Colombia	Costa Rica, Colombia	Mexico, Chile, Colombia	Brazil, Mexico	Argentina, Brazil, Colombia, Costa Rica, Mexico, Panama, Peru, Uruguay



IOT CAN INCREASE THE EFFICIENCY OF PUBLIC SERVICES AND PROMOTE THE DEVELOPMENT OF SMART CITIES AND TERRITORIES. ARTIFICIAL INTELLIGENCE SUPPORTS PROCESS AUTOMATION AND AID IN DECISION-MAKING.

Digitizing these critical sectors can transform the way governments deliver services and engage with citizens. This consequently improves efficiency, transparency and quality of life. As an agile and connected State consolidates, the quality of public management improves while reducing red tape and bureaucracy. Using data analytics, blockchain and artificial intelligence can reduce corruption risks and streamline decision-making (CAF, 2022b). There are many possibilities in this field for growth in the region, since only Argentina, Brazil and Chile are among the top 30 countries in the United Nations *Online Services Index* (Cristia and Vlaicu, 2022).

Data sharing models between the public and private sectors require clear policies, legal frameworks and specific governance mechanisms. Data trusts, data marketplaces, data commons and data collaboratives

allow data to be shared ethically and securely, guaranteeing privacy and promoting innovation, value generation and research. During the pandemic, collaborations were established between public health agencies, research institutions and technology companies to share anonymized mobility and real-time location data. This data allowed understanding the movement patterns of individuals and evaluating the effectiveness of social distancing and quarantine measures.

Artificial Intelligence (AI), Blockchain, the Internet of Things (IoT), the Metaverse, Big Data, Virtual Reality (VR) and Augmented Reality (AR) also offer promising avenues. IoT can increase the efficiency of public services and promote the development of smart cities and territories. Blockchain enables using automated public contracts and ensures the immutability of information. AI supports process

automation and decision-making. The Metaverse opens the door to new forms of teaching and research. Big Data enables deep analysis and pattern detection for formulating more effective policies. VR and AR are tools to improve training, simulation and information visualization for improved decision-making. By adopting these emerging technologies, governments not only become more efficient, but also more inclusive and forward-looking, laying the foundation for the country's growth and competitiveness.

such as sandboxes that provide controlled testing environments in which new technological solutions can be implemented and their impacts can be evaluated prior to expansion. This encourages innovation and makes sure technology is used safely and responsibly for the benefit of society. ■

The expansion of smartphones represents a window of opportunity for LAC. The private sector has used the region's progress in connectivity in recent years to get closer to citizens. It also offers an opportunity for the public sector to deploy more focused digital services that address specific needs and generate value for society. LAC countries are lagging considerably in the supply of digital applications, such as learning platforms, apps for online business registration and electronic tax filing (Cristia and Vlaicu, 2022). These applications have already been implemented and are used by other countries around the world with positive results, reason why it is necessary for the region's countries to join these initiatives.

For all the benefits of 4.0 technologies to become a reality, it is critical for governments to address regulatory challenges. Technology often advances faster than existing regulations, reason why agile regulatory mechanisms are required,





Industry 4.0

LAC's digital markets are increasingly important for the region's development, but the digitization of the economy is still relatively passive instead of mainstream (OECD, CAF, ECLAC and EU, 2020). Companies adopting technology, along with complementary investments in digital skills, organization and other types of intangible capital, can improve

competitiveness and lead to growth in productivity. Although the pandemic accelerated the use of technology, only the use of computers is in the majority among exporting companies in the largest economies, while big data and mobile platforms are at levels of 40%, artificial intelligence at only 35%, and cybersecurity, which is indispensable, is at 29% (Figure 7).



THE ADOPTION OF ARTIFICIAL INTELLIGENCE, IOT, AND CLOUD COMPUTING, COMPLEMENTED BY DIGITAL SKILLS AND AN INTELLIGENT ORGANIZATION, CAN ENHANCE COMPETITIVENESS AND DRIVE PRODUCTIVITY GROWTH.

Figure 7.
Utilization of technologies in Argentina, Brazil, Colombia, and Mexico
(In percentages, n=500)

Source. CEPAL (2022b) based on data from the Inter-American Development Bank (IDB).



Note: n is the number of surveyed companies (100 companies in sectors with the highest export potential - agroindustry; chemicals, petrochemicals and pharmaceuticals; machinery and tools; automotive industry; mining and metallurgy; optical and medical instruments; and knowledge-based services).



OUT OF EVERY TEN STARTUPS, ALMOST NINE ARE BASED ON DIGITAL TECHNOLOGIES OR OPERATE IN THAT SECTOR, WITH A HIGH CONCENTRATION IN BRAZIL AND MEXICO.

Entrepreneurship in technology-intensive sectors can help foster innovation, create new markets and spread the benefits to other sectors. In this way, digital financial services can promote more efficient and convenient payments. This is a cornerstone for developing e-commerce and digitally enabled platform business models, as shown in the World Bank's Digital Economy Initiative for LAC (2023). Accordingly, digital transformation can boost exports, which are projected to represent more than 2% of the GDP in six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico and Uruguay) by 2030 (Bhatia, 2022). The value of the digital industry grew by 14% between 2010 and 2022. Although more modest than the observed global growth (329%), it is significant considering the 29% drop in traditional sectors over the same period. This dynamism in the digital

economy is attributed to the robust growth of e-commerce platforms and internet services, which will increase by 248% and 200%, respectively, between March 2019 and March 2022 (ECLAC, 2022b).

Start-ups based on advanced technology are key drivers of digital development. Of every ten start-ups, almost nine are based on digital technologies or are in that sector. Most digital start-ups are concentrated in Brazil (57%) and Mexico (13%). Regionally, these companies are based on information technologies and software, with solutions supported by artificial intelligence (7%), and financial service technology (fintech), educational technology (edtech) and agricultural technology (agritech). Despite the progress in the last decade, LAC is lagging other regions and countries that are closer to the technological frontier.



A dynamic and competitive digital economy can help create more and better jobs in the region. Digital platforms, such as freelancing marketplaces, trucking or food delivery apps, can reduce transaction costs and facilitate job searching. Moreover, recent studies argue that digital platforms can promote formalization and reduce gender gaps in emerging economies if properly regulated (Azura et al., 2019; Fernandez and Benavides, 2020).

These advances in digital transformation are not the same in all sectors, with some cases lagging significantly. There are significant differences in the degree of digitization, with low levels in agriculture, mining and manufacturing, three of the most important sectors for the region's GDP. For example, the use of digital technologies in sourcing, manufacturing and distribution processes is lagging far behind that of more developed countries. In the wake of the pandemic,

supply chain issues and the need for production scalability have sent companies rushing to adopt advanced digital technologies. For example, cloud computing was the technology used most by companies (55%) in Argentina, Brazil, Chile, Colombia and Mexico in 2020 (Figure 7). The agricultural sector, which accounts for 8% of GDP in Latin America and the Caribbean, has great potential for digitization. The Latin American market for precision farming solutions is expected to grow from USD 1.21 billion to around USD 2.13 billion between 2021 and 2026. Brazil has the largest number and variety of start-ups for improving processes in farms with Industry 4.0 technology. In 2021, there were 1,574 of these start-ups, more than a third of which specialized in farm management solutions, data integration systems, marketing and logistics platforms and traceability. They were increasingly common in other countries in the region, mainly Argentina, followed by Chile, Colombia, Uruguay, Peru and Mexico (ECLAC, 2022b). ■

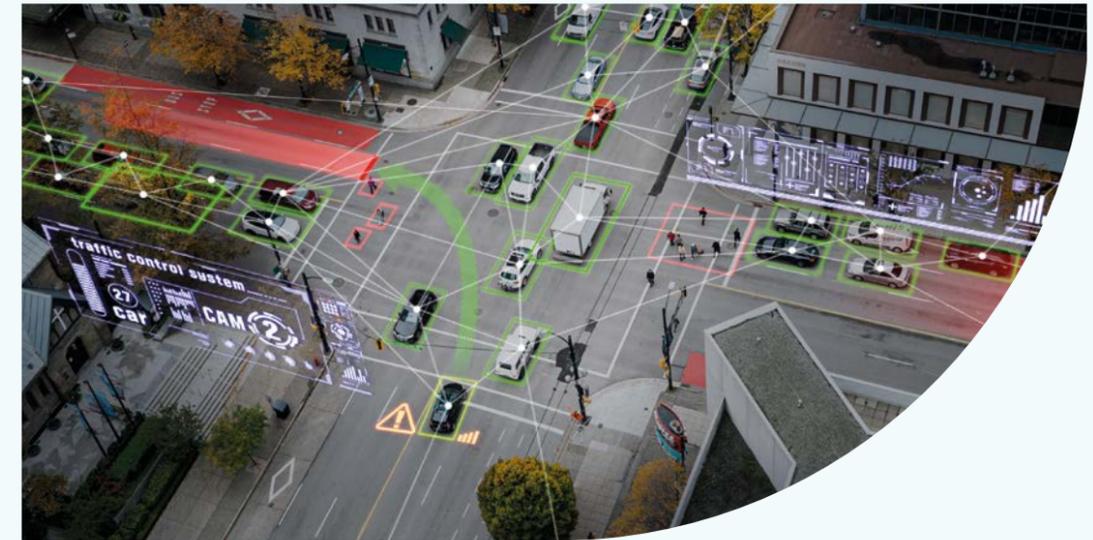
THE LATIN AMERICAN MARKET FOR PRECISION AGRICULTURE SOLUTIONS IS EXPECTED TO NEARLY DOUBLE, REACHING \$2,130 MILLION IN 2026.



The digital agenda of Europe and Latin America and the Caribbean, beyond the Digital Partnership

In conjunction with the digital agenda described above, it is essential to structure policies and regulations in finance, cities and sustainable technology. Adopting and promoting emerging technology in LAC has the potential to generate significant impacts in key areas, such as innovative finance, urban sustainability, the circular economy, and inclusive technologies, particularly in the context of the Fourth Industrial Revolution (4IR).

Fintech innovations, digital payment platforms and more traditional mobile payment platforms promote financial inclusion. Establishing specific regulations for fintech that encourage collaboration between traditional and emerging financial institutions, while protecting consumers and ensuring access to financial services for the most vulnerable populations, is crucial. When it comes to digital payment platforms (such as the popular Pix in Brazil) and new digital assets, a regulatory framework is required through mechanisms, such as sandbox, which are appropriate and flexible. They allow exploring and developing payment systems and central bank digital currencies (CBDC), always in line with each country and international organizations' anti-money laundering and regulatory policies (Appendino et al., 2023). Finally, the high penetration of mobile telephony in LAC represents a solid basis for moving towards greater banking penetration in the region. In this way, recent empirical studies show that mobile wallets (mobile money) contribute positively to basic financial inclusion, bringing people closer to a wide range of financial products (Aracil et al., 2023).



Smart cities and territories represent another strategic area of digital collaboration between Europe and LAC. These approaches seek to use digital technologies to improve quality of life, sustainability and resilience in urban and rural areas (Nam and Pardo, 2011). GreenTech technologies, geolocation, interoperability, and IoT can contribute significantly to building smart cities and territories that improve the quality of life of their inhabitants. Collaboration in this field can include planning and implementing digital infrastructure projects, developing innovative solutions for natural resource and energy management, mobility and transportation, public utilities, and public safety, and promoting citizen participation in decision-making (Angelidou et al., 2017; Melguizo and Muñoz, 2022).

Finally, artificial intelligence (AI) plays a key role in the field of inclusive technologies. Investing in research and development is essential, as well as encouraging collaboration between universities, research institutions and companies in this field. Adopting ethical frameworks and regulatory principles, such as those of the OECD (2019b) and UNESCO (2022), which ensure transparency, the protection of children and adolescents, gender equity and the protection of citizens in general, is crucial. Specific plans must be established to mitigate the security risks that arise, especially in handling information while using this technology. Likewise, training and education programs in AI-related skills should be established to prepare the workforce for the opportunities and challenges of the digital age. ■



03 European investment opportunities in Latin America and the Caribbean with economic and social impacts

Analyzing Europe's potential and LAC's situation and challenges makes it possible to identify a series of opportunities for investment, cooperation and partnership within the four digital axes: connectivity, talent and the agile State, reindustrialization and global financial diplomacy. Their specific areas are described below, as well as the tools and experiences from Europe that should be incorporated into the actions.



Connectivity, trust and digital security

1. Support for public-private connectivity initiatives in rural and remote areas

- Satellite solutions in scattered areas
- Optical fiber in municipalities
- Low-power wireless wide-area networks (LPWAN)

2. Technical support for 5G bids

- Bid structuring
- Obligations to act (infrastructure investments included as non-cash consideration)
- Financing for telecommunications companies in infrastructure deployment

3. Submarine cables

- BELLA, Latin America-Europe cable, and research centers
- Pre-investment studies
- New deployments

4. Cloud infrastructure

- Encouraging the creation and use of scalable and secure cloud infrastructures

5. Good practices and standards

- Cybersecurity and training hubs
- CERT and CSIRT Incident Models



One of the main challenges is to connect the population, both in rural and remote areas, as well as in urban areas and lower-income households. Despite Latin American countries' efforts to update their regulatory frameworks and develop digital policies, implementing large-scale solutions has not been possible due to significant infrastructure investment needs. Common obstacles include limitations in the use of universal access funds, energy and road infrastructure problems, high investment costs, and lower profitability for operating companies in rural areas (GSMA, 2023; Drees-Gross, F. and P. Zhang, 2021; UNCTAD, 2021).

Overcoming these challenges requires investing in multiple infrastructures. This includes 4G and 5G communications networks, optical fiber expansion, LPWAN (Low-Power Wide-Area Network), access to satellite services with public-private partnerships, and general tax incentives that enable private sector scale investments in infrastructure,

literacy and digital skills. Denmark, the Netherlands, and Spain are the leaders in connectivity in Europe - including rural areas - with levels above 95%, according to the *European Commission's Digital Economy and Society Index (2022a)*. In this regard, the UNICO Broadband Program launched by Spain with support from Europe's *NextGenerationEU*, under which aid was granted to telecommunications operators to reach areas where it was not planned for the next three years, could work as inspiration to advance connectivity in remote and rural areas (Government of Spain, 2023).

In terms of cybersecurity, the EU can contribute to strengthening national strategies in LAC.

They can do so by exchanging knowledge, training, generating best practices and standards, and creating cybersecurity agencies and hubs (ENISA, 2021). In addition, investments in network security, data protection, identity and access management, and incident response must be considered. The *Global Cybersecurity Index*, in which countries, such as Estonia and Spain, are leading in Europe, identifies the aspects to be strengthened in each country (ITU, 2023). The European strategy designed by the recent *Cyber Solidarity Act*, which structures and reinforces actions to detect and respond to cybersecurity incidents, with a regional shield and emergency mechanisms that Member States can call upon, may be a good reference point for LAC (European Commission, 2023a). ■



An agile State and talent



1. The digitization of tax and customs services

2. The digitization of health care services, including electronic medical records

3. The digitization of justice services

4. The digitization of domestic and foreign migration services

5. Citizen authentication with blockchain, facial recognition and digital identification

6. Smart cities and territories

7. Open data strategy

8. The interoperability of public and private systems

9. Digital inclusion: digital inclusion strategies to make sure all citizens have access to digital technologies, regardless of age, geographic location, skills, or income.

10. Training for the future (digital training and education). The scalability of public-private initiatives

The digital transformation of public institutions is at the heart of the region's state transformation.

It involves the digitization of government services and processes, such as electronic medical records, tax and customs records, immigration processes, consular services, electronic court records, the creation of citizen data folders, as well as the adoption of appropriate technologies, policies and regulations to ensure the protection of citizens' rights. Collaboration in this area can include sharing good practices and experiences in implementing digital solutions in the public sector, providing support in creating regulatory and policy frameworks that encourage innovation and investment in the digital sector, and training public officials in the digital skills and competencies needed to meet the challenges of digital transformation (OECD, 2019a). In this regard, it is essential to establish synergies between the scientific-technological systems of LAC and the EU in order to generate sustainable and replicable capabilities in other sectors, including the possibility of addressing exponential cutting-edge technologies, such as quantum computing (as in the emerging case of Brazil with France) and the incorporation of semi-conductors in some key links of the value chain (as Costa Rica and Mexico are currently testing with the United States).

A governance model for this transition towards agile and connected States could be based on govtech ecosystems that bring together governments and start-ups. The Europe-LAC partnership is natural in this area, given the good examples of innovation and digital entrepreneurship in Ibero-American cities, such as Barcelona, Bogota, Buenos Aires, Mexico, Madrid and São Paulo. LAC govtech start-ups have achieved a particular dynamism due to the expansion of megacities, which accentuates the challenges of their mayor's offices. However, it simultaneously broadens opportunities due to the availability of talent and creativity, and the investment concentrated in these large cities. In Europe, the GovTech Catalyst programs in the United Kingdom, GovTech in Portugal, GovTech Program in Denmark, GovTech in Poland, and GovTech in Lithuania, Estonia, comprehensively, and, at a subnational and local level, Smart Dublin, CivTech in Scotland and STIR Amsterdam (CAF, 2020^a), stand out on a national level. ■

THE ESTABLISHMENT OF SYNERGIES BETWEEN THE SCIENTIFIC AND TECHNOLOGICAL SYSTEMS OF ALC AND THE EU IS KEY TO GENERATING SUSTAINABLE AND REPLICABLE CAPABILITIES IN OTHER SECTORS, INCLUDING THE POSSIBILITY OF ADDRESSING EXPONENTIAL CUTTING-EDGE TECHNOLOGIES.





Industry 4.0 and sectors

1. Transportation logistics: 5G, IoT in ports

2. Smart factories in critical industrial sectors: automobiles, pharmaceuticals.

3. Semiconductor strategy: nearshoring and friendshoring

4. Incentive for creating companies and supply chains related to electromobility. Lithium, batteries, and materials for electromobility

5. Promoting datacenters and the cloud to boost services

6. The digitization of tourism

7. Closing infrastructure gaps based on the digitization of sectors

8. Solutions for the digitization and sustainable development of MSMEs



Industrial transformation in LAC will be digital or will never happen. Collaboration between Europe and LAC and Europe on industry 4.0 could include developing reindustrialization policies and strategies, transferring technology and knowledge, and training and educating the human capital needed to boost the adoption of 4.0 technologies in the region. This reorientation towards more technology- and knowledge-intensive sectors could focus on renewable energy, pharmaceuticals, medical devices or modern service exports (see CAF, 2021a on trade facilitation using digital media, and ECLAC, 2023 for a broad view of sectors with potential comparative advantages). The methodology developed by the CAF with Deloitte for the approximation, diagnosis of and approach to the industrial internet could serve as a basis for European support in the digitization of production processes (CAF, 2020b).

The 4.0 digitization of tourism represents a remarkable opportunity

for a region with such a rich historical heritage and biodiversity. This sector, one of the pioneers in digitization with online air transportation and hotel management, can make a qualitative leap with smart travel facilitation (visas and registrations), *smart destinations* with strategic tourism flow management using data analytics, and job creation based on training programs (UNTWO, 2023).

Digitization can accelerate closing infrastructure gaps in an all-encompassing way. Digitization applied to electric power supplies, transportation and mobility, water and sanitation, and infrastructure construction and maintenance, based on the experience of large European companies, represents an enormous opportunity. A 5% increase in service efficiency through increased production efficiency (derived from the impact of digitization on loss reduction, energy efficiency and process automation) would result in USD 200 billion in incremental GDP over a decade (Cavallo et al., 2020; Contt et al., 2021). ■

BUSINESS DIGITALIZATION IN TRADITIONAL PRODUCTIVE SECTORS SUCH AS AGRICULTURE AND TOURISM, AS WELL AS IN MODERN SECTORS LIKE ELECTROMOBILITY, PRESENTS AN OUTSTANDING OPPORTUNITY FOR INVESTMENT AND DEVELOPMENT.



Global financial diplomacy. Boosting a competitive, equitable and green digital economy

1.

Support for Artificial Intelligence implementation strategies that consider both ethical and sustainability frameworks (such as Spain's green algorithms strategy).

2.

Regulation: GDPR, DMA, DSA, regulations, and rights (digital rights charters of the EU, Spain, and Ibero-America, and ethical principles)

3.

Taxes on digital services. OECD/G20 Inclusive Framework on BEPS

4.

Cryptoassets. MICA project approval. Tax aspects.

5.

Closing gender gaps: using and developing digital services.

Financing start-ups and women's leadership in digital companies and projects. Training. Venture capital funds with a gender impact.

6.

A green digital transition: Using technology to address climate change, promote decarbonization and preserve biodiversity; Biomimicry (technology inspired by nature).

Technology to fight deforestation (e.g., AI, geolocation). Technology for the energy transition. The efficient use of technology for smart cities and territories (e.g., IoT). Copernicus and GSS Bonds.



The distinctive European seal as an added value in LAC. The European agenda has some distinctive hallmarks recognized in the very launch of the Global Gateway initiative, which can be specified in the digital sphere as competitive rules of the game and a focus on equity, environmental sustainability and ethics and rights. The EU has been leading the regulatory and tax innovation agenda for years to ensure a competitive environment for the digital sector on the continent and worldwide. LAC could continue drawing inspiration not only from regulatory texts, but also from the processes and pilots implemented to move towards data protection standards and the accountability and transparency of large digital platforms, thereby promoting competition, security and fundamental rights in the use of AI.

Furthermore, the OECD's digital service taxation agenda has a **European stamp**. Implementing efficient digital tax systems with taxes adapted to the new digital product and service economy is key, making sure multinational companies pay a fair share of taxes in the countries in which they operate. The OECD/G20 Inclusive Framework on BEPS should be implemented in a coordinated and as expeditious manner as international treaties and national regulations and capacities allow (see OECD, 2023 for state of progress). The urgency is clear, since economies in the region have begun to implement or are in the public or legislative consultation phase of different taxes on income from digital services, especially motivated by income needs (KPMG, 2023).

The gender dimension is key to this partnership. The gender dimension should be added to the social component of digital transformation, which was included in the genesis of the *Global Gateway*. According to the classic McKinsey Global Institute study (2015), the full incorporation of women into the labor market in LAC would contribute USD 2.6 trillion, approximately the GDP of Brazil. The impact would probably be even greater today due to the acceleration of digital trends. The economic and social benefit of an equitable digital transformation contrasts with overly conservative developments. The World Economic Forum (2018) estimated that, at the current pace of progress in gender equity, full closing all gaps will take 108 years on average worldwide. Particularly in the economic and political spheres, the wait would be 202 and 107 years, respectively.



Positive, specific action is required.

In order to correct the gaps in connectivity, financing and job progression, specific programs are needed for women in using and developing of digital services, financing startu-ups and female leadership in digital companies and projects, training, and venture capital funds with a gender impact. In the digital sphere, the *Women TechEU* program could be an example to provide support funding and accelerating women-led businesses (European Commission, 2022b).

The third distinctive dimension of the digitization agenda in Europe is the emphasis on digital rights,

recently illustrated by the Digital Rights Charter (Government of Spain, 2021), the *Declaration on European Digital Rights and Principles for the Digital Decade* (European Commission, European Parliament and Council of Europe, 2022) and the Ibero-American Charter of Online Principles and Rights (SEGIB, 2023). Their implementation within national digital regulations would make it possible to fulfill the aspiration to promote a human-centered digitization with facts. These charters on the ethical principles of artificial intelligence are complemented by the ethical recommendations on artificial intelligence of UNESCO (2022) and the OECD (2019b), and add to the work the CAF has performed in LAC promoting ethical frameworks, governance, data and talent associated with artificial intelligence and establishing methodologies for responsible use in health care, education, justice and



employment, among others (CAF, 2021b). In these projects, the CAF is developing comprehensive talent policies, AI ethics laboratories, AI ethics committees for cities, data trust for exchanging data and regulatory sandboxes on AI and privacy, among others. In addition, a Regional Council on AI and Ethics has been established in the region jointly with UNESCO.

Fourth, the green, digital symbiosis must be strengthened.

From developing better statistics and promoting environmentally friendly information and communication technologies, to actively using them to preserve biodiversity and natural ecosystems (Council of the European Union, 2020). Both their reinforced potentials have been highlighted in *Latin American Economic Outlook 2022* (OECD, CAF, ECLAC and EU, 2022) which calls for a green, digital twin transition. On their part,

development banks are reviewing their portfolios with these priorities in mind. The CAF recently underwent a major recapitalization, with the goal of becoming the green bank of Latin America and the Caribbean. The IDB's private arm, IDB Invest, has been innovating in the field for years with GSS (green, social, sustainable or sustainability-related) bonds, which already account for a third of Latin America's issuance, amounting to USD 18 billion annually. The business sector has also joined on the basis of ESG (*environment, social and governance*) strategies, which despite market swings and some criticism, continues strengthening the sustainability of its operations by adding the digital component (Council of the European Union, 2020, Balmaseda et al., 2023).

The Global Gateway is in a position to leverage digital initiatives with the greatest environmental and sustainability impact.The development

of IoT for urban management, people's mobility, energy use, waste recycling and industrial complex management is one of the safe bets of this combination. Using big data and cloud data to monitor ocean temperatures is also a promising development. Artificial intelligence and 5G have enormous potential for biodiversity protection by capturing information from remote at-risk areas and geo-referencing heavy machinery in real time, helping avoid deforestation. Finally, there is a vast field for biomimicry, which is technological developments inspired by nature (Lebdioui, 2022).

Spain's *national green algorithms program*, launched with the principle of developing AI with environmental sustainability criteria and applied to actions against climate change, is an example that could be assessed in the region (Government of Spain, 2022). Copernicus, the EU's Earth observation initiative, which provides valuable information on the environment and can generate benefits in areas, such as climate change, natural resource management, and natural disaster prevention and response, can complement efforts in industry 4.0, smart cities and territories, and agile and connected States. (European Commission, 2022c). The CAF's Green Govtech approach to drive collaboration between the public sector and digital startups and improve public policies related to climate change and the environment, can work as a foundation (CAF, 2023).

The horizon of a regional digital market. Along with these four components considered to be the identity of European action

TECHNOLOGICAL INNOVATIONS ARE KEY TO DRIVING THE CIRCULAR ECONOMY AND INDUSTRIES SUCH AS ELECTROMOBILITY, GREEN HYDROGEN, AND CLEAN ENERGY SUPPLY CHAINS, AS WELL AS CONTRIBUTING TO SHARED GOALS LIKE BIODIVERSITY PRESERVATION.

ONLY AN ETHICAL DIGITALIZATION, BUILT UPON VALUES AND HUMAN RIGHTS, WILL BE ECONOMICALLY AND SOCIALLY SUSTAINABLE.



- competitive, equitable, ethical and sustainable -, the European cooperation and investment agenda in LAC should prioritize creating a regional digital market, or at least favor a greater integration of connectivity, access to online goods and services, and e-commerce. Actions from the EU have contributed to increasing the integration of markets of goods and services in the region, facilitating flows of people and digital trade. Digital integration in LAC may be less challenging than physical integration, since it does not require infrastructure to overcome geographical barriers. This is also one of the express objectives of the Digital Agenda for LAC - eLAC2024 (ECLAC, 2023b). To this end, the announced establishment of a continuous coordination mechanism between the EU and the Community of Latin American and Caribbean States (CELAC) is essential (European Commission, 2023b).

In summary, the EU Global Gateway represents a unique opportunity for financial, technical, business and regulatory collaboration in Latin America's digital transition, in combination with the green and just transitions. The EU-CELAC Digital Alliance is one of the flagship projects for achieving the objectives of the digital investment strategy (European Commission, 2021a). Financial, technical, business and regulatory collaboration between the EU and LAC in areas, such as industry 4.0, smart cities and territories, and agile

and connected States, can have a significant impact on sustainable development and digital inclusion in the region. These approaches complement and reinforce efforts in connectivity and digital security and offer a unique opportunity to build lasting and effective partnerships to drive digital transformation in Latin America (European Commission, 2021). It is important for projects, such as submarine cables, optical fiber, creating neutral networks, creating cybersecurity hubs and data processing centers for Tier IV private clouds, financing digitization strategies for sectors, such as health care, justice, transportation, migration and taxes, to grow in the region (Box 1). ■

Box 1.

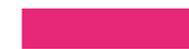
Examples of actions promoted by the European Union and development banks in Latin America and the Caribbean in connectivity and digitization projects.

- **BELLA (Building the Europe Link to Latin America):** Project funded by the European Commission and a consortium of Latin American and European research and education networks to build a direct optical fiber submarine cable between the two regions to support research and education. The project also includes developing high-capacity networks in Latin America to improve connectivity on a national and regional level (European Commission, 2021a).
- **Copernicus:** The European Union's Earth Observation Program, which provides a wealth of global environmental data free of charge. Copernicus data is used in LAC to support environmental research, climate change monitoring and natural disaster management, among other things. In collaboration with local institutions, the EU has also developed training projects in LAC to help researchers and authorities use Copernicus data effectively.
- **Digital Infrastructure:** Connectivity projects that seek to reach the most remote and rural areas, such as ARSAT in Argentina, the National Connectivity Plan in Colombia, the Zero Gap Plan in Chile, and Chile's national connectivity program.
- **Internet For Everyone in Peru:** A project promoted by the Development Bank of Latin America (CAF) and Telefónica to provide internet access to rural and remote areas of Peru with no connectivity.
- **Government digital infrastructure:** Multiple projects that seek to improve citizen services, such as the modernization of the DIAN (taxes) in Colombia or the Telehealth programs in El Salvador, as well as the digitization of cities, such as Salvador Bahia, Jundáí, and Puerto Seguro in Brazil.
- **Digital infrastructure and e-commerce:** Projects with a cross-cutting impact, such as the digitization of SMEs in Colombia, or projects with a regional impact, such as the CAF digital transformation observatory and technology for climate change.
- **ELLIS AI Network:** A Pan-European network to create a multi-center AI research laboratory.





04 The future is now. Towards a 360° EU-LAC Digital Development Platform



The digital realm represents the major axis of productive transformation and the opportunity to accelerate the regional integration process. It requires a comprehensive approach, supported by continuous dialogue to leverage financial and knowledge resources and expedite the identified flagship projects.



THE INITIAL INVESTMENT AGENDA INCLUDES A LIST OF MORE THAN 130 PROJECTS TO MAKE THE ECOLOGICAL, SOCIAL, AND DIGITAL TRANSITION A REALITY.

The digital Global Gateway initiative comes at a key moment for international cooperation in this area.

LAC and Europe can develop an agenda of shared financing, knowledge exchange, strengthening scientific technological systems and establishing quality standards that entail improved well-being for their societies (O'Hara, K and W. Hall, 2018; Hobbs and Torreblanca, 2022; Suominenn, 2022). The EU-LAC Global Gateway Investment Agenda was presented during the recent EU-CELAC Summit in Brussels in July 2023. It revolves around four pillars: a just ecological transition; an inclusive digital transformation; human development and the resilience of health. It was also announced that *Team Europe* has committed over EUR 45 billion (with the main contributions coming from the EU itself, Spain and France) to support the enhanced partnership with LAC up to 2027 (von der Leyen, 2023; Council of the European Union, 2023).

At its launch, the Investment Agenda includes a list of more than 130 projects for making the green and just digital transition a reality on both sides of the Atlantic. It also involves approximately 20 specific digital initiatives, including connectivity projects in Colombia and support for implementing 5G in Costa Rica and El Salvador, cybersecurity in the Dominican Republic and artificial intelligence support in Argentina.

The *EU-LAC Digital Alliance*, which is carrying out digital cooperation activities, such as the extension of the BELLA cable and the creation of two regional Copernicus centers for disaster risk reduction, climate change and land and marine monitoring, is also relevant. (European Commission, 2023c).

The EU-LAC Global Gateway Investment package will be implemented through *Team Europe* initiatives: the EU, its Member States, development finance institutions, and



particularly the European Investment Bank (EIB) and export credit agencies. The partnership with the private sector is key here, starting with the EU-LAC Business Roundtable organized jointly with the Development Bank of Latin America (CAF) and the Inter-American Development Bank. Companies are key partners in defining priorities, structuring projects and providing technical and financial support.

On a diplomatic level, holding Summits every two years was agreed upon,

with the next one scheduled for 2025 in Colombia, as well as creating a consultative coordination body between the EU and CELAC to ensure continuity and follow-up between high-level meetings, prepare and organize the EU-CELAC Foreign Ministers' Meetings, and follow up on the commitments that were made, including investment commitments. On the digital side, the EU-LAC Digital Alliance will review progress annually (Council of the European Union, 2023).

In developing this document, specific sectors with an extensive possibility of scaling up have been identified, which go far beyond the classic and necessary agenda of digitizing public procedures or connectivity.

The forthcoming work path of investment and cooperation is therefore permeated by a paradigm in which they converge:

LATIN AMERICA AND THE CARIBBEAN (ALC) AND EUROPE CAN DEVELOP A SHARED FINANCING AGENDA, EXCHANGE KNOWLEDGE, AND STRENGTHEN SCIENTIFIC AND TECHNOLOGICAL SYSTEMS.



Digital technology as a great diagonal of transformation.

This is assuming that digital technology is now the great diagonal of transformative productive development, both in the public and private sectors, industrial and service sectors, logistics and agriculture, as well as in large, medium and small-sized companies, cities and metropolitan regions, and in rural and decentralized areas. It is not a compartmentalized phenomenon related to IT or algorithmic aspects. Instead, it spreads its incidence to the opportunities for improvement of deeply interrelated productive areas, generating a new culture that involves innovative instances of complementation. The emerging productive paradigm - even with diverse levels of evolution, as expressed in this document - does not imply exchanging mere technological artifacts, but rather the irruption of authentic ecosystems that are exponentially transforming the way we manage and live in our societies.

Digital technology as the key to an integrated approach, beyond silos .

The expansion of the impact of digital technology on the ecological transition and the development of human talent for productive social inclusion are the necessary consequence of an integrated approach within the framework of the Global Gateway and the agenda of LAC development institutions. Technological innovations are key for driving the circular economy and industries, such as electromobility, green hydrogen, solar and wind power production, sustainable transportation and clean energy supply chains, as well as contributing to shared biodiversity preservation objectives (*greentech*), optimizing meteorological studies and promoting innovative solutions that integrate the financial world with ecosystemic services. Europe has leading global business groups in these sectors that can be key partners (renewable energy, finance, mobility, health care). Food security, energy security and health security are, therefore, a tripod that is also profoundly influenced by the digital dimension, in order to achieve its goals.

Digital technology as a hybrid catalyst for development.

This is a physical-virtual hybrid that requires a human-centric approach, made up of *hard* approaches (classic physical infrastructure) and soft approaches (productive and administrative processes and new skills), which are the key to the leap in productivity with social inclusion LAC requires in its renewed development task. Training and education policies to prepare citizens for the future of work and fully activate all female human capital, but also health care services and the production of medicines and vaccines, are just a few examples that demonstrate how the productive innovation that is already underway cannot be understood without integrating structural and human factors into its conception. If, in turn, service delivery systems are modernized with the help of state-of-the-art technological advances, it will contribute to overcoming the existing inequity gaps.

Digital technology as a two-way avenue of deep bi-regional integration

The ongoing technological revolution is reducing distances, permeating borders and opening new windows of opportunity for commercial, social and productive integration. It is an ecosystem that includes learning, exchanges, and potential and strategic partnerships between LAC and the EU, considering how there are valuable experiences, promising initiatives, paradigmatic investments and public-private partnerships on both sides of the Atlantic that are also based on an environment of shared culture and values. The aim is to generate instances of systemic, persistent, associative and cooperative work for the initiatives to be launched with high expectations at the last Summits to develop the appropriate synergies and bear fruit with a high impact. The maturity of the bi-regional relationship and the consolidation of bonds of dialogue and trust are a window of opportunity that offers promising outlooks in this regard. The challenge of timely, effective and creative implementation is then posed as the next step in this transformative itinerary. ■



360° Digital Development Platform in Latin America and the Caribbean and the European Union

Considering the above, the CAF expresses its willingness to set up a permanent work environment to reinforce achieving the goals expressed in recent months by both LAC and EU stakeholders.

The CAF's vocation is to become a key partner of the impact of the Global Gateway, as an innovative institution with operational agility, synergy in strategic objectives and the capacity to leverage European cooperation, credit and investment to maximize its impact on integral human development.

From a 360° Platform of associative and cooperative work, the following actions, among others, can be promoted:

- Strategic policy dialogues that include both public sectors and private companies, as well as philanthropy and civil society organizations with relevant high-impact investments in LAC.
- Documenting emblematic cases of flagship European companies with projection in LAC in the digital sector. Similarly, documenting cases of LAC companies promoting innovation and strategic partnerships in the European Union.
- A dashboard of projects and knowledge in 5 key topics for productive frontier development: AI, blockchain, 5G, quantum computing, digital taxation.
- A radar of opportunities and bank of new project profiles provided in due time and proper form to expedite the operational instances.
- Cross-fertilizing promising public sector actions in both regions, identifying and measuring impacts and providing support for dissemination and replication strategies.



- A Continuous Training Program for young LAC leaders in EU-Digital issues on critical points of the Alliance.
- A strategic co-working space with the European Investment Bank, as a key point to identify lessons learned and relevant results of other European projects that are scalable in LAC, and leverage operations in LAC based on their programming process.
- 360° mapping that captures digital opportunities in the fields of the energy transition, climate change and social inclusion.
- A hub of multidisciplinary CAF experts for leveraging operations with the above criterion, starting with those announced at the EU-CELAC Summit in Brussels in July 2023 and especially considering the role of Spain and Portugal as current extra-regional members of the CAF.
- The CAF will mobilize all its country offices and its team in Europe to make a strategy of synergies with European cooperation available in the field, as of the very programming and operations design stage, offering to catalyze concessional and non-concessional resources, always adapting to the priorities identified by each country.
- The CAF's area of knowledge will also develop a strategy to involve the most relevant research and technology centers in LAC-EU, in order to strengthen the development of frontier knowledge. ■

THE TIME IS NOW; THE FUTURE IS TODAY. THE PATH OF A NEW IMAGINATION AT THE SERVICE OF A BETTER INTEGRATION OF LATIN AMERICA AND THE CARIBBEAN AND THE EUROPEAN UNION IS NOT ONLY POSSIBLE, BUT ALSO PROFOUNDLY NECESSARY.



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