

# ideal al

Infrastructure  
for the Development  
of Latin America

---



**IDEAL: Infrastructure for the Development of Latin America**, a series of publications drafted by CAF that analyze the progress made and the main trends in the sector, along with proposals for tackling the present challenges that affect infrastructure in the region. The IDEAL reports are available at: [scioteca.com.com](http://scioteca.com.com)

# 01

---

## The economic context and its impact on infrastructure

In 2015 and 2016, the upward cycle in economic activity in the region slowed dramatically, with a decline in regional GDP of -0.2% and -0.8%, respectively. Starting in 2017, greater dynamism was seen in the world economy, within which Latin America recorded moderate growth levels (1.1%). Global trade levels recovered, with increases in the prices of some relevant raw materials for the region (energy 19%, minerals 16%). The new scenario presents a better outlook for economic growth, but it is not without strong uncertainties, particularly those linked to protectionist trends that could jeopardize the development of international trade, which is key for Latin American economies. Another source of uncertainty is the increase in interest rates, which could make it more difficult to finance infrastructure.

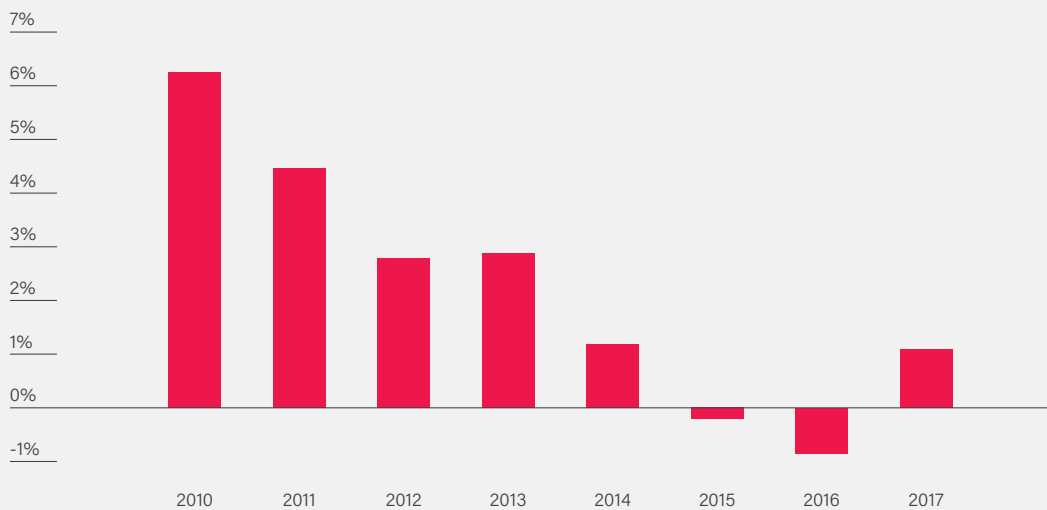
The impact of the economic context on infrastructure is especially reflected in the demand for associated services, present and future alike, and in investment levels. In regard

to demand, sectors have responded differently to the downturn in the economy.

- In the case of electricity, the region's demand remained unchanged in 2016, with levels similar to 2015 (1302 TW). In 2017, there is a slight trend toward recovery. Changes on the supply side included increased development of non-conventional power generation.
- In transport, behavior has been uneven. The sectors with the lowest drop in economic activity were urban and interurban passenger transport (plane, car and public transport systems in cities). One of the sectors affected by the downturn was cargo, especially international freight (port terminals, air cargo).

## Evolution of GDP growth in Latin America

Source: Cepalstat<sup>1</sup>



→ The use of gas corresponds to longer-term trends. There was a slight decline in consumption levels in 2016 (-1.2%) but the sector's growth outlook is robust. International trade of liquefied gas (via pipelines and by ship) has facilitated the use of gas and has promoted intense intraregional trade. In fact, between 1990 and 2016, the share of gas in the regional energy matrix has risen from 18% to 26%.

→ In telecommunications, the penetration of mobile broadband continued to grow, albeit at a lower rate than in previous years (from 40% in 2014 to 12% in 2016). Fixed broadband also continued to grow, surpassing a level of adoption of over 50% in several countries.

In regard to investments, as is to be expected, the impact of a less favorable economic context is not seen immediately, rather it takes place over time. Available data shows that infrastructure investment in the region declined in 2015, reaching 2.75% of GDP (1.5% public and 1.25% private) after reaching a high of 3% of GDP in 2014 (driven by several large private investment projects). In the case of 2016 and

2017—years for which information is not yet available—this downward trend in public and private spheres continues (with exceptions in some countries). In telecommunications, for example, investments fell 3.2% between 2015 and 2016. Restricted fiscal space, which affected the national and sub-national settings, and cases of corruption with a regional impact revealed in 2016 have been factors that contributed to this contraction.

**The impact of the economic context on infrastructure is especially reflected in the demand for associated services, present and future alike, and in investment levels.**

<sup>1</sup> Retrieved on March 23, 2018.



# 02

---

## Key Aspects by sector

---

### Transport

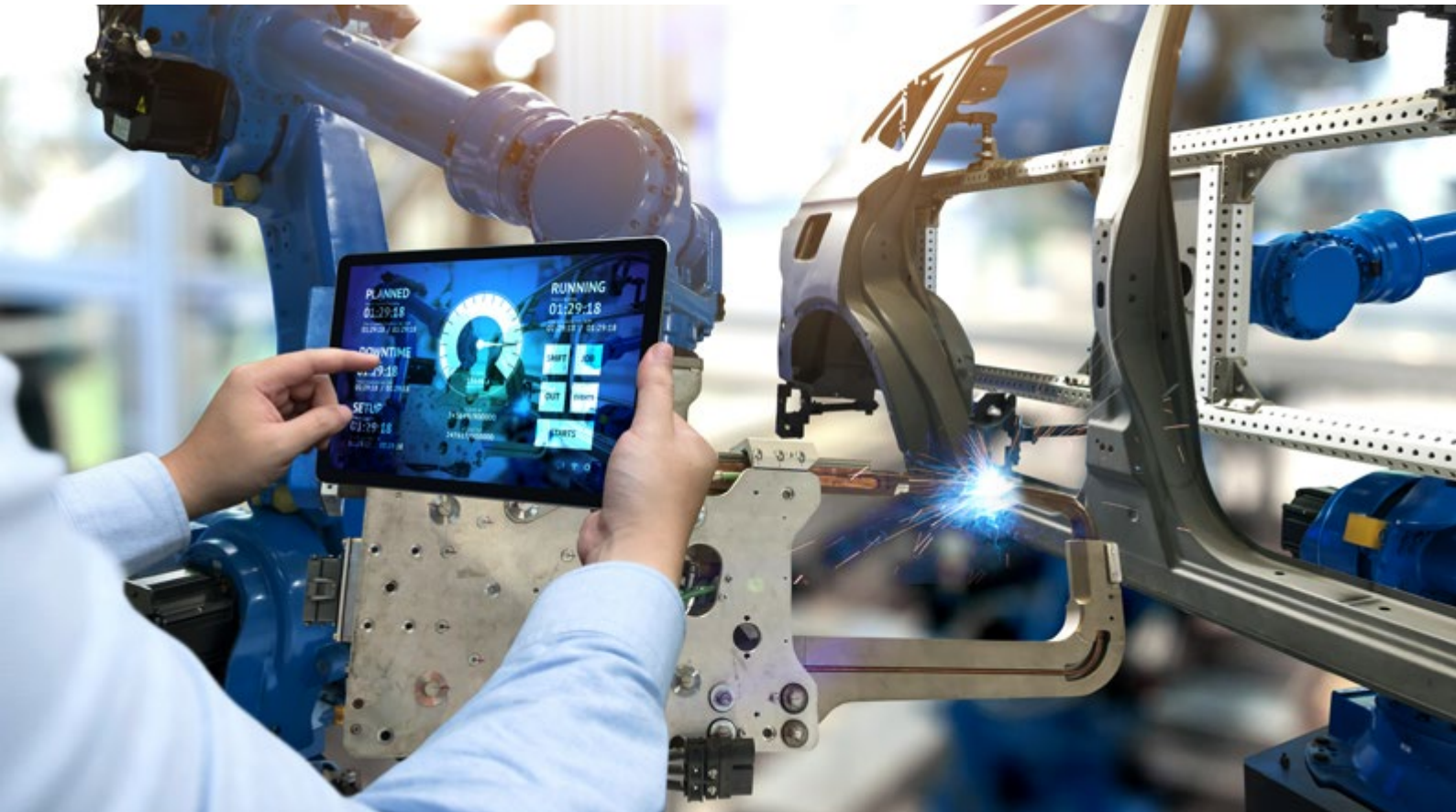
- Container freight experienced a decline in 2016 of around 1% (in spite of the strong drop in marine shipping), driven by the fall in imports to the region (4.2%), especially along the east coast of South America, and fewer trans-shipments in Panama and the Caribbean as a result of the contraction in global trade. This tendency seems to have reverted in 2017.
- In the urban arena, demand for public transport services continued to grow slowly, bolstered by mass transport systems (in Chile and Mexico, for example). Automobile sales fell sharply in 2016 (-10%), a drop from which the sector recovered in 2017.
- Passenger air traffic continued to grow despite the crisis: 6% in 2016 and 8% in 2017. Air cargo was hardly stable, with a decline in intraregional movement.

→ As a result of the delays in infrastructure and service development and bumps along the road toward the digitalization of supply chains, the region has lost competitiveness. In the Logistics Performance Index, the region's score fell from 2.74 in 2010 to 2.66 in 2016, whereas other developing regions made important advances in the ranking.

**Passenger air traffic continued to grow despite the crisis: 6% in 2016 and 8% in 2017.**

### Electricity

- The competitiveness of renewable power generation sector increased in 2017, with price reductions in the order of 20% to 35% in long-term contracts, compared to 2016. This was observed in markets in the region where auctions were held to assign these types of contracts, reaching values ranging from USD 35 to 40 USD per MW/h.



- In terms of facilitating access to electricity, favorable progress established in prior years was consolidated. Lower costs for renewable and conventional sources, combined with the incipient introduction of new technologies of distributed generation and demand management, resulted in greater affordability of electricity rates, which also implies reductions in the negative impact on the environment.
- Climate change is a challenge for the sector given the uncertainty it creates for hydroelectricity generation, which accounts for 50% of electricity generation in the region.

#### Gas transport

- On average, the share of gas in the region's energy matrix is 26%, which will increase as this fuel source replaces liquid hydrocarbons (which today account for 46% of the matrix).

#### The competitiveness of renewable power generation sector increased in 2017.

- This involves an ambitious development of LNG supply and regasification infrastructure (which, in 2018, could process and inject about 180 million metric tons of natural gas per day), and increased interconnection capacity with the construction of supranational pipelines in the region. In 2018, gas transport capacity in the Southern Cone extends along 10,204 kilometers of the interconnection network, with a daily capacity of 149.3 million metric tons.
- The use of gas for electricity generation complements the supply from nonconventional renewable sources, which already account for 9% of electricity generation in the region, but faces several barriers as a result of its intermittence, limited scalability and the still incipient development of battery electricity storage capacity.







## Telecommunications

- Adoption of telecommunications services has grown at an annual rate of 9.15% from 2010 to 2016. This increase is attributable, in part, to price reductions. Mobile telephony has reached a penetration of 67 unique users per 100 inhabitants in the region, with mobile broadband in the hands of 64.3% of the population. Mobile broadband penetration grew 45% per year from 2010 to 2017. Fixed broadband is available in 43.1% of households in the region.
- The rise of powerful digital applications feeds even more the need to build high-capacity mobile and fixed networks. Despite public and private investments already made, current network capacity does not satisfy the region's needs. That is the reason why the gap between Latin American countries (with few exceptions) and developed economies is growing. The average download speed of fixed broadband in the region is 6.43 Mbps, compared to 15.73 Mbps in OECD countries.
- Despite the progress made in connectivity, there is still an important sector of the population without access to the benefits of digitalization (43.6% of the population does not have Internet access). Continued improvements in affordability are unlikely, thus making the main obstacle a structural one, tied to prices and income distribution..

## Water infrastructure

- The expansion of drinking water and sewerage network coverage in the region has not been constrained by the economic context. Private investment has risen significantly, offsetting the fall in public investment in wastewater treatment projects, in Brazil, in particular. Eighty percent of all investments in drinking water and sewerage projects in the region over the period 2011-2015 was funded with fiscal resources, with the private sector financing 20%.

**Depending on the country, 85%-99% of the population has access to improved drinking water sources.**

- This investment translated into higher rates of drinking water and sewerage access. Depending on the country, 85%-99% of the population has access to improved drinking water sources, while 50%-99% of inhabitants has access to better sanitation facilities. However, the national progress reflected in these figures often mask large domestic disparities as coverage levels remain low in some rural and urban areas, particularly in the poorest ones.
- Service quality is precarious for two-thirds of the population. In many cities and in rural areas, the quality of water does not meet the relevant sanitary standards nor is service continuity guaranteed 24/7, while the loss of drinking water in the pipeline grid exceeds 35% for most providers. This critical situation tends to aggravate as a result of climate and hydrologic variability, which endangers the capacity of water sources and worsens the negative impacts of floods and droughts..

# 03

---

## Infrastructure challenges in Latin America

Among the multiple challenges facing infrastructure in Latin America, the following stand out:

---

### Increasing the quantity and quality of investments

The present global economic context is forcing Latin America into a different stage of productive development, based on new growth drivers, such as processed food, biotechnologies, specialized manufacturing, professional and personal services, and tourism, aimed at raising the region's income levels to those in developed countries. This would entail not only closing historical gaps in basic services, but also developing new infrastructure to meet these needs.

Las necesidades insatisfechas y el despliegue Unmet needs and the deployment of networks and services to assure sustainable development across the region call for infrastructure investment

levels around 5% of GDP. In practice, this is a highly difficult target to attain (particularly in larger countries), which suggests that, without decreasing efforts to raise investment levels, investment quality must be improved to obtain the highest possible social benefit from resources allocated to infrastructure construction and operation. Multiple studies have shown that there is ample room "to do more with less," as proposed in the 2013 edition of IDEAL, by improving project selection and prioritization, works contracting and construction processes, and the operation of networks and services. This entails reviewing and improving decision-making institutional processes, ensuring transparency across all stages. Undoubtedly, concepts such as demand management and asset management will make it possible to use resources more efficiently from a social perspective. Private-sector participation in infrastructure projects—an area in which the region is a global leader—can definitely help increase investment levels. Working to achieve this goal requires financial mechanisms that facilitate investor participation and a state that can assure a high social return from its project portfolio.

Unmet needs and the deployment of networks and services to assure sustainable development across the region call for infrastructure investment levels 5% of GDP.



---

### Introducing new technologies and tailoring regulation

Ongoing technological changes, framed by the so-called fourth industrial revolution, largely impact infrastructure and infrastructure services in several ways. The smart grid, the digital transformation of logistics, e-distribution,

smart management of waste and water, shared autonomous vehicles and ultra-fast telecommunications networks are just a few examples. These changes will not only improve the quality and cost of supplied services, but will also bear upon people's habits and corporate processes. Governments, individuals and firms need to get ready to accommodate to this change. The development of these initiatives calls for new regulatory frameworks to tackle aspects such as







cybersecurity, information privacy and ownership, and take care of the impact on employment and the need for a very careful adjustment of human resources and job training settings. Governments are facing the challenging need for regulations that can support these changes across the entire social fabric, improving the quality of life and competitiveness, and mitigating undesired effects. Regulatory schemes developed within the context of a different technological reality may not be flexible enough to attain this goal. In some cases, it will be necessary to attain political and regulatory consensus on a supranational scale (e.g., for energy integration and exchanges).

Regulatory lessons learned in recent years can help strike a balance between the roles of the state (as a manager and guarantor of service provision), the market (in the many settings where private participation is viable and helpful) and civil society (supporting participation and transparency). The vast experience gained in more than two decades of trying out different regulatory models lets us see that a desirable balance can be achieved between public planning and management based on market signals, and the creation of effective mechanisms ensuring access to infrastructure services for the most vulnerable and isolated sectors.

---

### **Taking care of the sustainable development and climate change agenda**

The new Sustainable Development Goals in the 2030 Agenda for Sustainable Development assign a critical importance to infrastructure. Several of their environmental and social objectives will have a prominent impact on the infrastructure agenda, especially vis-à-vis water and sanitation, affordable and clean energy, physical accessibility and the action for climate. One of the most critical aspects is the commitment to a dramatic reduction in greenhouse gas emissions and a transition toward a low-carbon economy. This will have special repercussions on electricity, a sector where decarbonization pathways have already been clearly identified and are ongoing, and transport, where the outlook is more complex and difficult due to the

sharp growth in emissions. The agenda to accommodate changes already taking place with a remarkable impact on infrastructure networks will also call for considerable effort aimed at making these networks sustainable and resilient, particularly in cities, where 80% of the region's population lives.

---

### **Universal access: infrastructure for all**

The provision of infrastructure and infrastructure services should not be restricted solely to closing the gaps reflected in large average figures, but also to recognizing the current social, regional and gender disparities in the countries throughout the region. Latin America is the region with the highest level of inequality in the world; therefore, this perspective should be present in the selection and prioritization of infrastructure projects. Social inclusion and gender equality agendas have become increasingly relevant across the region, unveiling existing disparities and revealing an urgent need for improving public policies in this respect. Infrastructure and infrastructure services, cutting through all dimensions of life in society, are a key instrument for moving forward in this direction. .





