



UIC LATIN AMERICA REGION
The Vision 2050
for Latin America Railways

May 2026



INTERNATIONAL UNION
OF RAILWAYS

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1

Introduction



Figure 1: Bimodal central train station in Santa Cruz. Source: Gota del Chaco, 2015

- 1.1. Background**
- 1.2. Vision 2050 Objective**
- 1.3. Scope of Vision 2050**

1.1. Background

The Vision 2050 for Latin American Railways is presented as a **strategic guide** to steer the sustainable development of railway transport in the region. Its preparation responds to the call of the **International Union of Railways (UIC)** to capitalise on railway assets as a condition to survive, grow and thrive. Sponsored by UIC, this document lays the foundation for implementing strategies that enhance business performance and increase investment in railway transport, while aligning with global objectives to promote a more coherent railway system worldwide – that is, technically harmonised, strategically articulated and capable of effectively integrating different regions through common standards, interoperability and a shared focus on sustainability and efficiency.

The evolution of railways in the region has been shaped by cycles of growth and long periods of decline, making it essential to adopt a renewed approach for their modernisation and consolidation within a sustainable mobility framework. As the global professional association for the railway sector, UIC leads innovative initiatives to strengthen railway competitiveness and efficiency. This document therefore serves as a key tool for planning and managing projects in non-commercial areas, including research, development and technical efficiency – critical aspects for the sector’s adaptation to future challenges. In particular, the integration of clean technologies and the development of climate-resilient infrastructure are fundamental components of future railway planning.

The report begins by setting out a contextual framework on the current state of railways in Latin America, highlighting their importance for the sustainable future of both regional and global mobility. This not only describes the current context but also defines clear goals that guide the document’s development in line with UIC directives.

Moving towards a deeper understanding, the analysis explores how the historical trajectory of railway development and global trends in sustainable mobility are relevant for the region. It demonstrates the need to adopt and adapt global practices to the specific realities of Latin America, in order to strengthen its railway system and align it with worldwide coherence.

The study then examines the current state of railways in Latin America, preparing the ground for strategic interventions that can improve business performance and boost investment in the sector. This chapter not only identifies opportunities for improvement but also highlights the specific challenges the region faces – crucial for any future planning that seeks efficiency and sustainability.

Subsequent chapters present strategies for modernisation and expansion, as well as the policies and regulatory frameworks required to support such developments. They also provide case studies that showcase practical examples and lessons learned. Each section is designed to align local actions with global objectives, thereby maximising the potential of railway transport in Latin America.

Looking ahead, the document projects different scenarios and strategies for 2050, identifies challenges and opportunities that could affect the implementation of this long-term vision, and provides a roadmap with detailed recommendations. This structure not only synthesises the insights gained from earlier analyses but also establishes a concrete action plan that aligns all initiatives with the long-term objectives of sustainable railway development – supporting UIC’s vision for a globally coherent and highly efficient railway sector.

1.2. Vision 2050 objective

Vision 2050 for the railway sector in Latin America seeks to consolidate railways as the backbone of the region's economic, social and environmental development. It does so by defining clear objectives and measurable targets based on an analysis of the current situation and the integration potential of railway networks. Its central purpose is to create a **modern, efficient, safe and environmentally sustainable railway system**, capable of responding both to international decarbonisation commitments and to the region's integration requirements.

This document is conceived as a **strategic and public policy tool**, designed to guide decision-making by governments, multilateral organisations, the private sector and civil society. It articulates investments, regulations and technologies that ensure continuity and long-term development. In this perspective, **railways are projected not only as a mode of transport, but also as an instrument of territorial cohesion, inequality reduction and global competitiveness.**

Vision 2050 also aims to serve as a platform to attract public-private investment and foster innovation through the incorporation of new technologies that improve efficiency and sustainability in the railway sector. In this sense, **the digitalisation of transport, the application of artificial intelligence to railway operations (supported by telecommunications systems such as 5G (and beyond) or the Future Railway Mobile Communication System), and the use of renewable energy** are seen as key pillars for modernisation in the region.

By 2050, railways are projected to play a **central role in Latin American mobility**, becoming the backbone of both passenger and freight transport. As in other regions of the world, railways are expected to strengthen their role as a key instrument for economic development and regional integration – **offering an efficient, safe and sustainable transport system** – while greater cross-border interconnection will drive the region's competitiveness in global markets.

Vision 2050 is structured into four complementary blocks that build a narrative of railway transformation:

1. **Starting point** – an analysis of the state of railways in Latin America, their capacities, challenges and opportunities.
2. **Regional and global trends** – identification of the forces of change – technological, environmental, social and economic – that will shape the future of the sector.
3. **Vision 2050** – the strategic declaration, core pillars and SMART targets towards mid-century.
4. **Strategies and actions** – a framework for operationalisation through key initiatives, roadmaps, resources and stakeholders.

In short, **Vision 2050 seeks to position railways as the backbone of Latin America's sustainable, competitive and integrated development**, promoting cooperation between countries and maximising the sector's potential to transform mobility, logistics and territorial cohesion across the region.

1.3. Scope of Vision 2050



Figure 2: Map of Latin America.
Source: Google Earth, 2025

The **International Union of Railways (UIC)** has established six regions, aiming to leverage the technical expertise of each area, facilitate railway interoperability and promote regional cooperation in transport. Among these is the **Latin American Regional Assembly (LARA)**, which represents the railway interests and objectives of Latin American countries.

Mexico is part of the **North American Regional Assembly (NARA)** due to its geographic location and its historic railway connection with the United States – a link that has been decisive for the development and integration of its railway infrastructure. However, although it is geographically part of North America, it has been incorporated into the regional analysis in this document because of its **deep historical, cultural and linguistic ties with Latin America**. This dual affiliation justifies its inclusion within the framework of **Vision 2050 for Latin American railways**.

For the purposes of this Vision 2050, the document covers **Mexico, as well as those countries of Central America, South America and the Caribbean** that either operate railway systems or are considering, in their short- and medium-term national plans, the reactivation, modernisation or development of the railway mode.

The territorial scope of this vision is illustrated in **Figure 2**, while **Table 1** identifies the countries with active railway systems or projects under planning. This selection does not imply a definitive exclusion of other countries, but rather reflects **current relevance and the availability of updated technical information**.

Table 1

Region	Countries
North America*	Mexico
Central America	Guatemala, El Salvador, Honduras, Costa Rica, Panama
South America	Colombia, Venezuela, Brazil, Ecuador, Peru, Bolivia, Chile, Paraguay, Uruguay, Argentina
Caribbean	Cuba, Dominican Republic

Beyond the geographic scope, Vision 2050 incorporates an **integrated perspective that recognises the institutional, technical and operational diversity** of the railway sector in the region. Despite differing levels of development across countries, **common challenges can be addressed through shared strategies**. Therefore, this Vision 2050 proposes a **flexible and adaptable roadmap tailored to national contexts, yet guided by a convergent goal: building a modern, interconnected, resilient and sustainable Latin American railway system**.

2

The starting point: Challenges and opportunities for railways in Latin America



Figure 3: PeruRail departing from Aguas Calientes to Cusco. Source: H. Llewelyn, 2007

2.1. International agenda

2.2. Railways in Latin America – Current situation

2.3. Railway corridors in Latin America

2.4. Challenges and opportunities for rail transport towards 2050

2.1. International agenda

The International Agenda of the Vision 2050 for Latin American Railways is framed within a global legal context that recognises railway transport as a strategic pillar for achieving sustainable development, climate action and regional integration. This framework connects Vision 2050 with the multilateral commitments adopted by Latin American countries, such as the 2030 Agenda for Sustainable Development, the Paris Agreement on Climate Change and the declarations of the International Transport Forum (ITF/OECD). In this context, railways emerge as a key mode of transport to advance towards cleaner, more resilient and more inclusive mobility systems.

This agenda is also aligned with regional integration legal instruments, such as the Montevideo Treaty of ALADI, and draws inspiration from international regulatory frameworks for the railway sector, such as those developed by UIC and OTIF. These references not only provide legitimacy and technical guidance, but also open up concrete opportunities for regulatory harmonisation, technical cooperation and access to international financing directed towards clean and resilient transport. The following sections briefly outline the main global multilateral commitments to which this document responds.

2.1.1. Multilateral global commitments

In the context of growing global interdependence and shared challenges – such as climate change, accelerated urbanisation and territorial inequality – the multilateral commitments adopted by Latin American states provide an essential strategic framework for guiding the development of railway transport. Vision 2050 aligns with these international commitments both as a tool for modernising the railway system, and as a vehicle for achieving global goals in sustainability, resilience and regional inclusion. Linking railway strategies with agreements such as the 2030 Agenda, the Paris Agreement or the Leipzig Declaration strengthens the legitimacy of railways as a driver of territorial transformation and as a priority component in future public policies.

2.1.1.1. 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDG)

The **2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDG)**, adopted by all United Nations Member States in 2015, sets out a global framework to eradicate poverty, protect the planet and ensure prosperity for all. Within this framework, railway transport – thanks to its **energy efficiency, low environmental impact and ability to connect territories** – is established as an essential means to achieve several SDGs. According to UIC, the railway sector and its potential are directly linked to **seven key SDGs** (see Figure 4).



Figure 4: SDGs related to railway activity. Source: UIC, 2023

- **SDG 5 (Gender Equality):** Promoting inclusion and diversity in a sector historically dominated by men by increasing women's participation at all levels.
- **SDG 7 (Affordable and Clean Energy):** Driving the transition towards renewable energy sources such as electrification and fostering technological innovation to reduce energy consumption, directly contributing to the fight against climate change.
- **SDG 8 (Decent Work and Economic Growth):** UIC emphasises the importance of investing in infrastructure and technology, which not only creates jobs in construction and operations but also stimulates economic activity in the regions it serves. In addition, the sector promotes safe and decent working conditions, fair wages and opportunities for professional development.
- **SDG 9 (Industry, Innovation and Infrastructure):** The development of modern and resilient railway infrastructure strengthens regional connectivity, enhances logistics and fosters technological innovation in transport. UIC encourages investment in high-speed lines, advanced signalling systems and efficient freight trains. These improvements facilitate trade and passenger mobility while stimulating the growth of related industries and the adoption of clean technologies.
- **SDG 11 (Sustainable Cities and Communities):** Railways contribute to more accessible, safer and environmentally friendly urban mobility systems, supporting more inclusive and sustainable cities. They also reduce congestion and pollution in urban areas.
- **SDG 12 (Responsible Consumption and Production):** Optimising resource use and promoting more sustainable management throughout the entire value chain. UIC encourages its members to reduce waste generation, recycle infrastructure and rolling stock materials, and implement maintenance practices that extend equipment lifespans. This strategy not only minimises environmental impact but also improves the sector's operational efficiency.
- **SDG 13 (Climate Action):** As a low-emission mode of transport, railways serve as a concrete tool for mitigating climate change and advancing towards low-carbon transport models.

The integration of these objectives into the railway strategies of Latin American countries is **key to achieving balanced territorial development, improving quality of life and strengthening international cooperation around sustainable mobility.**

2.1.1.2. The Paris Agreement and climate action in the railway sector



The **Paris Agreement**, adopted in 2015 under the **United Nations Framework Convention on Climate Change (UNFCCC)**, establishes a binding global target to limit the increase in average global temperature to **well below 2°C above pre-industrial levels**, while pursuing additional efforts to keep it below 1.5°C. This agreement represents the **main international legal framework for climate action**, and its commitments are implemented through **Nationally Determined Contributions (NDC)**¹.

Although the **Paris Agreement** does not explicitly mandate specific sectors, it recognises that states must transform their **energy, transport, industry and urban systems** in order to meet their targets. In this context, **railway transport emerges as a strategic instrument for climate mitigation**, as it is one of the most efficient modes in terms of emissions per tonne-kilometre or passenger-kilometre. The progressive **electrification of railway networks**, use of renewable energy sources, modernisation of traction technologies, and the **modal shift from more polluting modes towards rail** are all measures consistent with the principles of the Agreement.

The transport sector represents one of the **main challenges for climate action in Latin America**, accounting for approximately **35% of final energy consumption and up to 25% of CO₂ emissions related to energy**. Within this sector, road transport is the largest emitter, while railways – due to their limited coverage, electrification and modal share – generate only a marginal proportion of these emissions. This current low incidence, however, highlights a significant **potential to position railways as a climate-friendly alternative**, particularly if their expansion is prioritised over more carbon-intensive modes.

¹ NDCs are Nationally Determined Contributions. They are the instrument of the Paris Agreement through which each country establishes its own commitments to combat climate change.

Despite this potential, only a few Latin American countries have explicitly included railways in their **NDCs**. For the 2025 update, only **Brazil, Uruguay and Ecuador** submitted their new climate commitments towards 2035 on time, revealing a low level of railway integration in mitigation strategies. The rest of the countries – including major emitters such as **Mexico, Argentina, Colombia and Chile** – have yet to formalise their new NDCs or are still in the consultation process. This lag represents a **critical opportunity to more decisively integrate rail transport into future national climate updates**, particularly in the context of **COP30, to be held in Belém do Pará (Brazil)**, where Latin America could strengthen its climate leadership with **homegrown, viable solutions** (Koop, 2025).

The **Vision 2050 for Latin American Railways** specifically seeks to support countries in the region in **including railways in their national mitigation and adaptation strategies**, promoting actions such as electrification, the use of renewable energy sources, energy efficiency and sustainable territorial planning. It also emphasises the role of railways as **resilient infrastructure against extreme climate events**, such as floods or extreme heat, positioning them as a key tool for adaptation. Aligning the railway sector with national climate commitments could also facilitate access to **international climate finance mechanisms**, such as the **Green Climate Fund, the Adaptation Fund or green bond instruments**, which are fundamental in a region facing structural budget constraints.

In short, the **expansion of railways under sustainability criteria represents a strategic opportunity** to advance simultaneously in transport decarbonisation, territorial cohesion, equitable mobility and the fulfilment of Paris Agreement commitments, in a context where the region has yet to fully realise its climate and structural potential.

Given the region's **structural dependence on road transport** – characterised by high emissions, elevated operating costs and inequalities in access to mobility – railways offer a **unique window of opportunity** for reactivation, modernisation and expansion. With their smaller carbon footprint, their ability to move large volumes with high energy efficiency, and their electrification potential through renewable sources, railway systems can become the **backbone of low-carbon mobility**. Integrating **digitalisation, climate resilience and territorial connectivity** criteria will not only reduce transport sector emissions but also contribute to broader goals such as equitable access, improved logistics performance and sustainable regional development.

Vision 2050 calls upon governments, multilateral organisations, financial institutions and transport stakeholders to ensure that climate action explicitly incorporates the railway mode into:

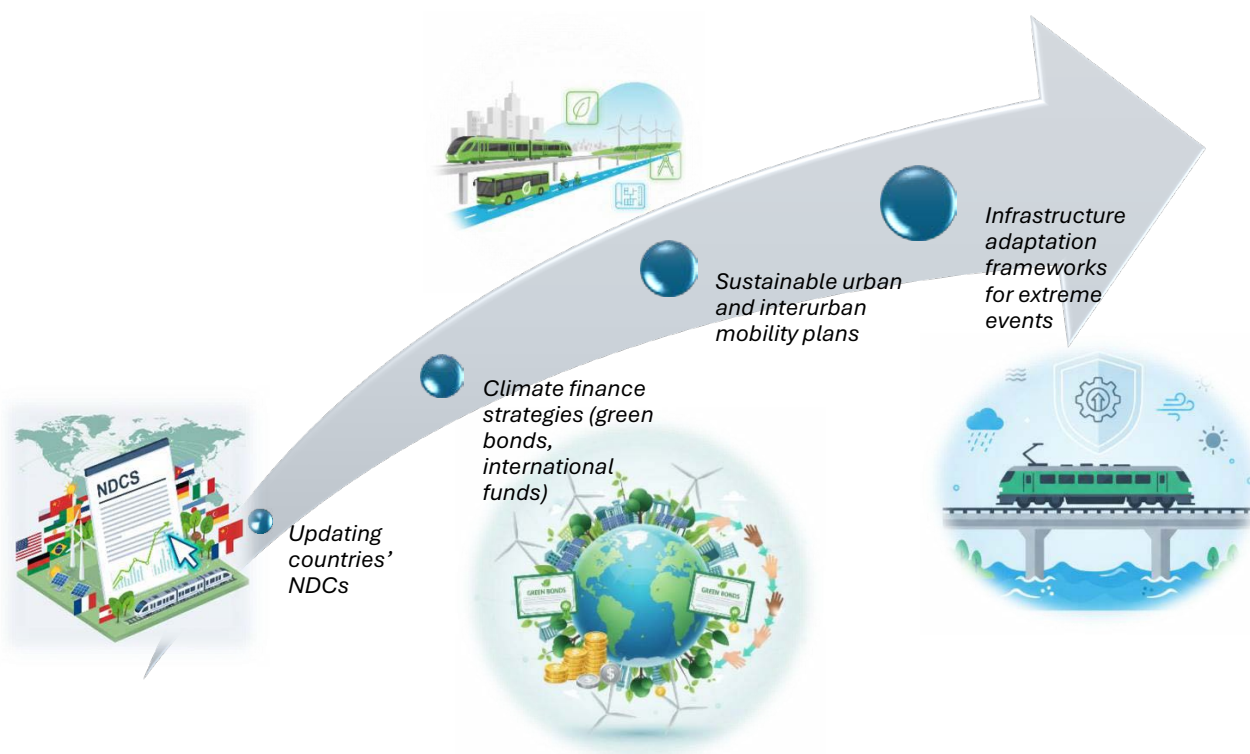


Figure 5: Proposal for Vision 2050 to regional authorities. Source: UIC, 2025

Vision 2050 has been built based on **technical work, regional dialogue and cooperation between multiple railway stakeholders**, both public and private, with the support of UIC. Throughout this process, **high-level meetings and regional gatherings** have been held, enabling the alignment of priorities, the sharing of experiences and the consolidation of a common vision for the future of railways in Latin America. In this context, **railways must no longer be seen as relics of the past but rather as the infrastructure of the future, essential for ensuring sustainable, inclusive and resilient mobility** across the region. The upcoming **COP30, to be hosted in Latin America, represents a strategic opportunity** to present this vision to the international community and position railways as a **central pillar of regional climate action**.

2.1.1.3. International Transport Forum (ITF/OECD)



The **International Transport Forum (ITF)** is an intergovernmental organisation under the OECD that brings together transport ministers from more than 60 countries to discuss public policies on sustainable, safe, efficient and accessible mobility. Since 2008, its annual high-level

summits in Leipzig, Germany, have consolidated a **common agenda on the future of transport**, resulting in joint declarations that strengthen international consensus on critical issues such as **decarbonisation, multimodal planning, digitalisation and territorial equity**.

In particular, the **Leipzig Declaration** has repeatedly reaffirmed the **strategic role of transport** in achieving climate goals, improving territorial connectivity and supporting social equity. The most recent editions have emphasised the need to transition towards **low-emission transport systems, prioritising investment in sustainable modes such as rail and fostering regional and international cooperation** to overcome structural gaps.

In 2024, **Chile assumed the presidency of the International Transport Forum (ITF) for the first time**, becoming the first South American country to lead this organisation. This presidency, highlighted by the Minister of Transport and Telecommunications, Juan Carlos Muñoz, represents **recognition of Chile's mobility policies** and marks a milestone for the region in terms of international visibility. In addition to advancing issues such as road safety, Chile has sought to position strategic topics for Latin America, **promoting the exchange of experiences and strengthening dialogue between member and non-member countries**.

Although some Latin American countries actively participate individually – such as **Chile, Mexico and Argentina** (all members of UIC) – the region still lacks permanent or coordinated representation within the ITF. Even so, the guidelines set forth in **Leipzig provide a roadmap convergent with the Vision 2050 for Latin American Railways**, particularly in areas such as climate resilience, energy efficiency, transport electrification and the promotion of sustainable modes such as rail. Its collaborative approach and its role as a generator of **non-binding norms (soft law)** constitute key technical and political support to strengthen the regional railway agenda from a global perspective.

The **ITF Transport Outlook 2023** analyses different scenarios up to 2050 to evaluate the impact of public policies on transport demand and CO₂ emissions. One of its most relevant findings is that, even with ambitious policies, **the growth in transport demand will require profound transformations in infrastructure and transport modes to avoid failing to meet the Paris Agreement objectives**. In this context, **rail emerges as one of the modes with the greatest potential for modal growth**, especially in freight and intercity passenger transport, due to its ability to operate with low emissions.

The report also stresses that **public transport and mass modes, including rail, offer key opportunities for advancing decarbonisation, particularly in dense urban areas**. By contrast, long-distance and international modes such as aviation and maritime transport present greater challenges, reinforcing the need to promote **alternative modes with a lower carbon footprint**.

The link between **investment policies, clean technologies and modal choice is central**: rail can only expand as a sustainable solution if it is accompanied by substantial investments, coherent carbon pricing and regulatory conditions that favour modal shift. This reinforces the foundation of **Vision 2050, in which rail is positioned as the backbone of a more equitable, resilient and environmentally responsible multimodal system for Latin America**.

2.1.2. Regional integration frameworks and Latin American legal instruments

In addition to the global multilateral framework, Latin America has various legal instruments and regional integration mechanisms that can facilitate railway coordination, both in regulatory and operational terms. Although most of these frameworks were originally conceived with a commercial or political focus, they contain provisions and institutional spaces that can be leveraged to strengthen railway interoperability, foster binational or multinational projects, and promote the harmonisation of technical, logistical and environmental standards.

The following sections present the supranational organisations that embody these regional integration frameworks:

2.1.2.1. Latin American Integration Association (ALADI)

The **Treaty of Montevideo of 1980**, which gave rise to the Latin American Integration Association (ALADI) establishes principles of **economic convergence, reduction of non-tariff barriers and transport facilitation** as conditions for integration. Although its original focus was commercial, the treaty and its institutional structure have evolved to incorporate key issues related to **regional infrastructure and logistics**, creating favourable conditions for bilateral or multilateral agreements in land transport, including rail.



Within this framework, ALADI has incorporated into its agenda the **development of bioceanic corridors as a permanent objective of physical and economic regional integration**. During the **Second Meeting of Bioceanic Corridors in 2024**, the importance of these corridors – particularly rail corridors – was reaffirmed, as they represent strategic axes to **reduce logistics costs and times** compared to current maritime options. It was highlighted that rail can provide a **faster, more predictable and less polluting alternative** to connect the Atlantic and Pacific Oceans in South America, enhancing territorial connectivity and generating opportunities for both intra- and extra-regional trade.

It was also emphasised that for these corridors to be **viable and competitive, it is necessary to strengthen the capacity of multimodal transport companies**, providing them with the conditions to compete effectively in both domestic and international markets. In this regard, it was recognised that the main challenges are not only technical or financial, but also **deeply political and institutional in nature**. Timely investment, policy coordination between countries, regulatory simplification and sustained political will were identified as **key elements to avoid the risk of irrelevance**, a real threat in the dynamic and competitive context of global trade.

2.1.2.2. Central American Integration System (SICA), COMITRAN and the 2035 Regional Master Plan for Mobility and Logistics



The **Central American Integration System (SICA)**, through its **Economic Integration Subsystem**, has promoted regional policies aimed at strengthening connectivity and competitiveness across the isthmus. Among its most relevant instruments is the **Protocol to the General Treaty on Central American Economic Integration (Guatemala Protocol)**, which lays the

foundations for economic cooperation, intraregional trade and improvements in transport infrastructure. While this instrument does not make explicit reference to the railway mode, its integrative vision has opened the door for various regional bodies to promote mobility strategies in which rail is recognised as part of a **modern and resilient logistics system**.

In this context, the role of the **Council of Central American Ministers of Transport (COMITRAN)** is particularly important, as it is responsible for coordinating regional infrastructure and mobility policies. With the technical support of the **Secretariat for Central American Economic Integration (SIECA)**, COMITRAN has led the formulation of the **Regional Master Plan for Mobility and Logistics 2035: Strategy for Connectivity**, conceived as a comprehensive roadmap to increase the efficiency, sustainability and resilience of the Central American logistics system.



This plan explicitly includes the modernisation of **11 priority regional corridors, incorporating key railway components** to ensure smoother integration between member countries and greater competitive participation in international markets.

The inclusion of rail in this regional strategy responds both to structural needs – such as reducing logistics costs and improving efficiency in freight and passenger transport – and to global sustainability commitments. The shared vision is to advance towards a **multimodal system that leverages the advantages of railway transport, integrates innovative solutions and ensures equitable access to economic opportunities**. Within this framework, railway development ceases to be an isolated aspiration and becomes a **coordinated regional policy, backed by institutional support and a long-term perspective**.

2.1.2.3. Andean Community



The **Andean Community (CAN)**, composed of Bolivia, Colombia, Ecuador and Peru, has made progress in creating a **common regulatory framework for international land transport**, primarily through the **Agreement on International Land Transport (ATIT)**, a legal instrument that regulates the transit of passengers and freight by road between member countries. Although this agreement has traditionally focused on road transport, its principles of **technical harmonisation, mutual recognition of documents and cross-border cooperation** represent a legal foundation that could be leveraged and adapted for the development of an **interoperable Andean railway system**.

The existence of technical bodies within CAN, such as the **Andean Committee of Land Transport Authorities**, provides an opportunity to promote a common railway agenda, particularly in the context of **binational railway infrastructure projects – such as those proposed between Bolivia and Peru, or between Colombia and Ecuador**. While CAN has not yet developed specific regulations for the railway mode, its legal structure and mechanisms for resolving disputes between member countries provide a valuable **institutional framework to advance the standardisation and regulation of international railway operations in the Andean region**.

Moreover, the **Andean Community acquis** establishes obligations in the areas of **physical integration and regional logistics development**, which gives member countries a legitimate basis to explore coordination mechanisms for the financing, construction and operation of **cross-border railway networks**.

2.1.2.4. Political and technical platforms for regional rail coordination

In the Latin American context, there are various **technical and political platforms** that have contributed – or could contribute – to regional railway integration. Some remain active with current institutional capacity, while others, though presently inactive, represent **strategic spaces that could be reactivated or leveraged as a basis for future actions**.

Among the most relevant actors is the **Economic Commission for Latin America and the Caribbean (ECLAC)**, the United Nations regional body, which has played a key role in promoting **sustainable, equitable and resilient transport** in the region. Through its analysis of logistics chains, urban-regional mobility and infrastructure investment, ECLAC has supported governments and multilateral organisations in the design of **structural public policies**, where the railway mode has begun to acquire greater prominence.

Also noteworthy is **MERCOSUR**, the economic bloc comprising Argentina, Brazil, Paraguay and Uruguay, which has promoted railway interconnection projects between its member states. Although progress has been uneven, MERCOSUR has developed institutional frameworks for technical cooperation, such as the **Infrastructure Working Group**, which could be reactivated to give greater impetus to **railway interoperability and regulatory harmonisation** between operators and regulators.



On the other hand, although **UNASUR and its South American Infrastructure and Planning Council (COSIPLAN)** are currently politically inactive, their technical legacy – including the **cartographic base of multimodal corridors developed under the Initiative for the Integration of Regional Infrastructure in South America (IIRSA)** – remains a valuable reference source for South American countries. The studies, maps and diagnostics produced by these organisations continue to highlight strategic logistics nodes and potential transnational railway routes, making their technical use still feasible.

Finally, the **Community of Latin American and Caribbean States (CELAC)**, although without an active agenda specifically on railway transport, holds political potential to serve as a platform for regional coordination on sustainable infrastructure issues. In a context where broad consensus is required to promote **continent-wide investments and advance energy transition**, **CELAC could serve as a high-level forum to advance a shared railway agenda for Latin America and the Caribbean.**

2.1.2.5. Latin American Railway Association (ALAF)



The **Latin American Railway Association (ALAF)**, founded in 1964, is the leading regional organisation bringing together state-owned and private railway companies in Latin America, with the purpose of strengthening the sector's **technical, operational**

and institutional development. Recognised by the United Nations as a non-governmental organisation and an active member of the **International Union of Railways (UIC)**, ALAF plays a **strategic role in projecting Latin American railways internationally.** Its Secretary General serves as the President of UIC for the Latin American Region, consolidating the Association as a **privileged interlocutor between regional railway systems and major international forums.**

In its role as a technical forum and channel for regional cooperation, ALAF promotes railway integration through the exchange of experiences, human resource training and the standardisation of technical criteria. In a context marked by institutional fragmentation and weak regulations in several countries, the Association has maintained a shared vision of rail as a tool for territorial cohesion and sustainable development. Its contribution is reflected in the formulation of public policy proposals, comparative studies, and collaborations with multilateral organisations, positioning it as a technical and strategic reference for the future of railways in Latin America.

2.1.3. International railway reference frameworks

The strengthening of the railway system in Latin America requires not only physical investment but also the adoption of technical, regulatory and legal frameworks that promote interoperability, operational efficiency, and regional and international integration. Although the region does not yet have its own supranational railway treaty, there are international references that can be adapted or used as inspiration for future regulatory harmonisation. In this context, three key reference frameworks stand out: the technical standards of UIC, the legal conventions of OTIF, and the regulatory standards promoted by UNECE.

2.1.3.1. International Union of Railways (UIC)

The **International Union of Railways (UIC)** is the most important global technical and coordinating body of the railway sector. Through its **working groups, technical standards, best-practice guidelines and cooperation forums**, UIC promotes a global railway vision based on **process standardisation, technological innovation and sustainability.**



UIC has developed a wide repertoire of **technical specifications, operational standards and methodological guidelines** that are recognised as *soft law* at the global level. Although not legally binding, its standards are widely adopted by railway operators, administrations and manufacturers worldwide. These cover areas such as technical interoperability, infrastructure and rolling stock, climate resilience, railway digitalisation, operational safety, and performance indicators.

Beyond its normative and technical role, UIC also fulfils a **strategic mission of promoting railways as a cornerstone of sustainable mobility and global economic development.** To this end, it drives an international narrative that emphasises the paradigm shift towards public and rail-centred mobility, the financing of resilient railway infrastructure, and cost reduction through global standardisation. This narrative is advanced through international platforms, specialised forums and events that reinforce the positioning of railways in public policies.

At present, UIC has more than 220 members in 83 countries, supported by a network of over 2,000 experts working across 131 technical groups, 70 strategic partnerships and multiple thematic platforms. This structure enables it to address challenges in innovation, digitalisation, interoperability, safety and resilience.

Latin America participates in this network through the **Regional Assembly (LARA)**, which makes it possible to incorporate international experience and adapt solutions to national contexts. UIC members have begun to use these tools as a basis for **modernising their networks, facilitating technical training and promoting a shared vision**. The progressive adoption of these standards would enable greater technical compatibility between countries in the region, paving the way for future **interoperability agreements and cross-border cooperation**.

UIC also stands out in its role as a **catalyst for international cooperation and knowledge transfer** between railway systems at different stages of development. Through its global membership network, UIC enables the **structured exchange of experiences, technical solutions and lessons learned**, thereby fostering collective learning processes. This collaborative approach is particularly valuable **for emerging regions such as Latin America**, which can benefit from tested models in other continents and adapt them to their institutional, operational and territorial realities. Integration into this global technical community also strengthens the **negotiating capacity and international positioning of Latin American countries** in multilateral transport and sustainability forums.

In this context, the methodological developments and technical cooperation tools of UIC not only facilitate international railway integration but also serve as a key reference for Latin American countries seeking to align their projects with international standards and foster cross-border collaboration on the road to 2050.

POSITIONING AND ACTIONS OF UIC IN LATIN AMERICA

Since its creation, the **UIC Latin American Regional Assembly (UIC-LARA)** has established itself as a technical and strategic platform for promoting railway modernisation in the region. Its current permanent members are **Brazil, Colombia, Argentina and Chile**, which actively participate in both regional and global forums.

UIC-LARA operates through **specialised working groups** that address key issues for the development of Latin American railway companies, with a focus on:

- Operational safety (Safety Task Force)
- Maintenance and infrastructure
- Traction and energy efficiency
- Digitalisation and resilience (such as the RERA CYBER project)

Each regional meeting is enriched by the participation of **international experts invited by UIC**, from entities such as **ADIF and RENFE**, which enables the direct transfer of European technical expertise into the Latin American context.

The **institutional visibility of UIC-LARA** is reflected in its annual calendar of activities – such as seminars on metal theft or high-speed rail – and in partnerships with industry leaders. This approach strengthens **inter-company cooperation, legitimises the adoption of global standards, and provides a solid foundation for Vision 2050 to advance the regional railway agenda**.

2.1.3.2. Intergovernmental Organisation for International Carriage by Rail (OTIF)



The **Intergovernmental Organisation for International Carriage by Rail (OTIF)**, based in Bern, Switzerland, is an international organisation that **facilitates and regulates** the international railway transport of goods and passengers through a uniform legal framework. Its main legal instrument is the **Convention concerning International Carriage by Rail (COTIF)**, which establishes a harmonised set of rules applicable to cross-border railway transport. COTIF covers aspects such as **carrier liability, vehicle use, technical interoperability, combined transport and customs procedures**, among other things. Although Latin America is not a member of OTIF, the model of legal cooperation it represents is highly useful as a reference for promoting future regional regulatory harmonisation.

The adoption of principles similar to those of COTIF could be particularly relevant for Latin America in the context of efforts to **develop bioceanic railway corridors, cross-border transport services and shared technical standards**. The absence of a common regulatory framework has been a major barrier to regional railway integration. Therefore, OTIF's instruments serve as a **technical and legal guide** for creating a system of railway governance that would improve interoperability, enhance legal certainty in operations, and facilitate the attraction of foreign direct investment in infrastructure projects.

Vision 2050 underscores the need to advance towards regional agreements that replicate some of OTIF's provisions, adapted to the institutional specificities of Latin America. This could be achieved through the development of **multilateral treaties or agreements under the umbrella of existing regional organisations, such as ALADI or CELAC**. Including explicit references to frameworks such as COTIF would help establish a **long-term technical and legal horizon**, offering countries in the region a solid foundation on which to build interoperability and regional railway integration.

2.1.3.3. United Nations Economic Commission for Europe (UNECE)

The **United Nations Economic Commission for Europe (UNECE)**, through its Inland Transport Committee (ITC), plays a central role in the **formulation of international standards, conventions and legal frameworks for land transport**, including railways. While its original focus has been on the pan-European and Eurasian regions, its impact has transcended borders thanks to the high technical quality of its instruments and the possibility of accession by non-member countries. Currently, UNECE administers over 59 multilateral conventions, including regulations on combined transport, interoperability, safety, document harmonisation and customs facilitation, all of which are key aspects of modern railway transport.

One of its most relevant instruments is the **European Agreement on Main International Railway Lines (AGC)**, which establishes a reference pan-European railway network with technical infrastructure standards and strategic nodes for international transport. Although Latin America is not part of this network, it can regard this as a **planning model for its own regional or bioceanic corridors**. Similarly, the TIR system, traditionally applied to road transport, offers a customs and logistics framework adaptable to rail, which could facilitate cross-border freight operations in the Americas.

In addition, the ITC acts as the secretariat of the World Forum for Harmonisation of Vehicle Regulations (WP.29), providing technical and regulatory expertise on vehicle inspection and harmonised standards, also applicable to railway rolling stock. Taken together, the work of **ITC-UNECE constitutes a global benchmark in technical governance, offering tools that Latin America can voluntarily adopt or use as a foundation for its own regional agreements**. Technical cooperation, transport digitalisation, climate-resilient infrastructure and harmonised railway safety regulations are areas where Latin American institutions could establish strategic partnerships with UNECE within the framework of their national and regional railway modernisation plans.

2.2. Current situation of railways in Latin America

Railways in Latin America have evolved unevenly: while some countries have **modernised and expanded their networks**, others have experienced a decline in favour of road transport, which has shaped regional mobility, logistics competitiveness and transport sustainability. However, in the past decade, **road congestion, the environmental impact of motorised transport and shifts in international trade** have renewed interest in rail.

The current state of railways in Latin America demands **strong political and governmental support** to drive investments in priority projects. Most railway systems in the region have been operating for more than **150 years**, and although their positive impact on development has been undeniable, the **lack of investment in railway infrastructure remains one of the main barriers** to modernisation and expansion.

At the regional level, railway challenges have been extensively analysed by multilateral organisations such as **CAF**, which, in its role as a development bank, has emphasised the need to strengthen railway infrastructure as an **efficient and sustainable alternative**. According to the study *Analysis of Investments in the Latin American Interurban Land Transport Sector to 2040* (AC&A & Cenit, 2020), the Latin American railway network – once reaching 130,000 operational kilometres at its peak – has been reduced to approximately **76,000 kilometres**, reflecting decades of disinvestment and competition with road transport. **Brazil, Mexico and Panama** stand out with railways accounting for more than **20% of freight transport**, while in countries such as **Argentina, Chile and Uruguay**, this share is below **10%**, despite their strong railway traditions.

In terms of infrastructure quality, the region lags behind, with **indices even lower than those of Sub-Saharan Africa**, underscoring the urgent need for increased investment. **Figure 6**, drawn from the aforementioned study, illustrates this reality.

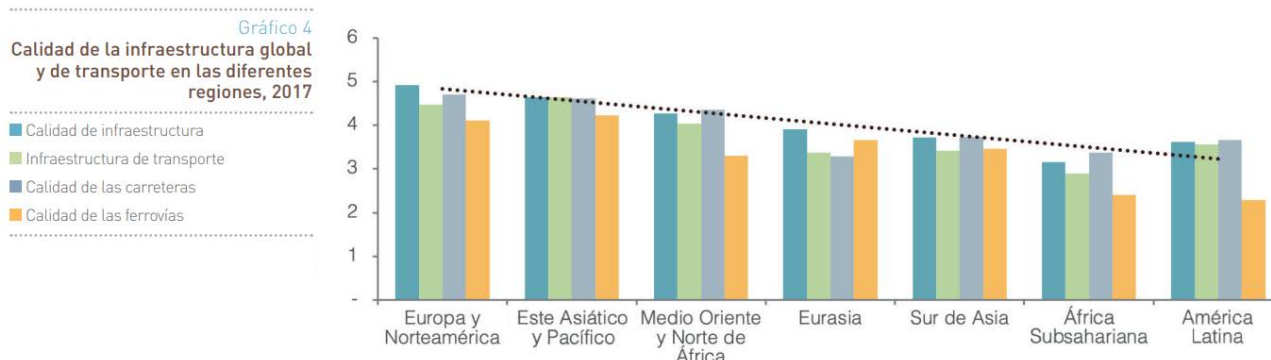


Figure 6: Quality of overall infrastructure and transportation in different regions, 2017.
Source: AC&A & Cenit, 2020

On the other hand, **Latin America invests only 0.25% of its GDP per capita in railways**, a level insufficient to ensure the sector’s maintenance and modernisation. To reach global standards, it would be necessary to **triple current investment**, increasing from **USD 5-6 billion annually to approximately USD 20 billion (Figure 7)**. This scenario underscores the **urgency of adopting strategies** that not only reverse the deterioration of the railway system, but also position it as a **key driver of regional integration and competitiveness**.

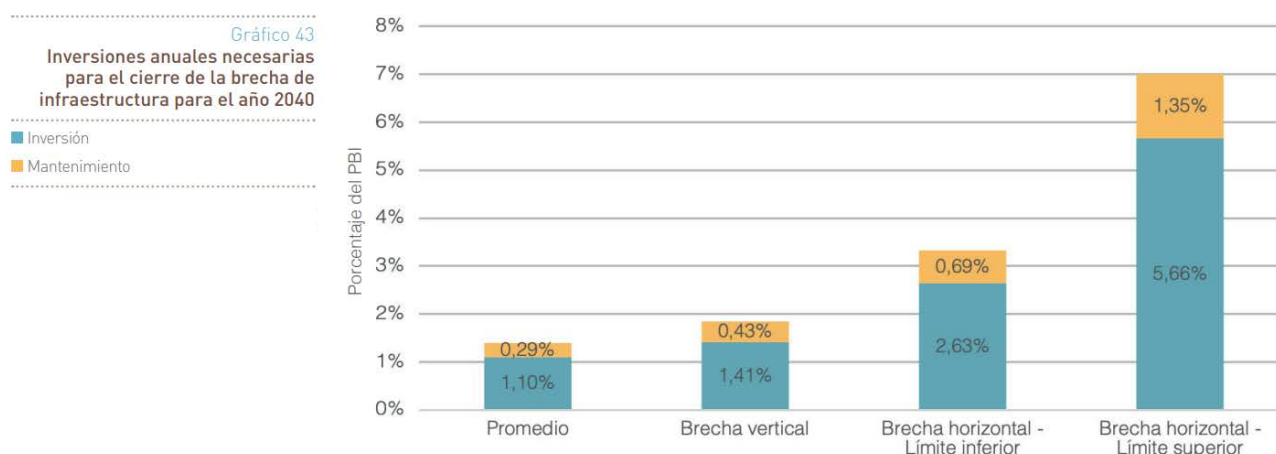


Figure 7: Annual investments needed to close the infrastructure gap by 2040.
Source: AC&A & Cenit, 2020

This general overview makes it possible to understand the **current position of railways in Latin America** and the **structural conditions that have shaped their uneven development**. Building on this foundation, the following analysis delves deeper into their place within public priorities, their contribution to **regional connectivity and sustainable development**, as well as the progress achieved by some countries that are beginning to emerge as benchmarks, highlighting the most promising experiences and key trends shaping the future evolution of the railway sector.

2.2.1. Railway vision in National Development Plans in Latin America

The role of infrastructure in economic development has been widely recognised. Since 2005, the **World Economic Forum’s Global Competitiveness Index** has highlighted infrastructure as a key pillar within the Basic Requirements sub-index, underlining the need for **clear and transparent planning**. However, according to this index, the **quality of railway lines in Latin America continues to lag behind other emerging economies**, reflecting the lack of investment and maintenance in the sector.

In this context, some countries in the region have begun to adopt more structured approaches to infrastructure planning. For example, Peru’s **National Infrastructure Plan for Competitiveness** emphasises the importance of strengthening physical structures through **consensual and transparent guidelines**. These elements are essential to ensure **sustainable economic development** and to improve the competitiveness of strategic sectors such as railways, which facilitate freight mobility, optimise operating costs and enhance logistics (Government of Peru, 2023).

Despite the **growing inclusion of railways in National Development Plans**, railway infrastructure in Latin America still faces significant challenges in **investment, operations and competitiveness**. In this sense, the **prioritisation of railway projects** is key to improving connectivity between production, distribution and consumption centres, thereby reducing costs and increasing operational efficiency (Wilmsmeier, 2007).

Nevertheless, strengthening railways in the region requires more than political will; it demands a **genuine commitment to modernisation and network expansion**. Appendix B presents a country-by-country descriptive table of National Development Plans and their degree of railway transport integration, showing the impact on each country's railway sector and reflecting the commitment of some governments to infrastructure modernisation and logistical efficiency. This information serves as the basis for the regional analysis described below. From this analysis, **key findings emerge regarding the current positioning of the railway mode in Latin America**, which are graphically illustrated in the following image:

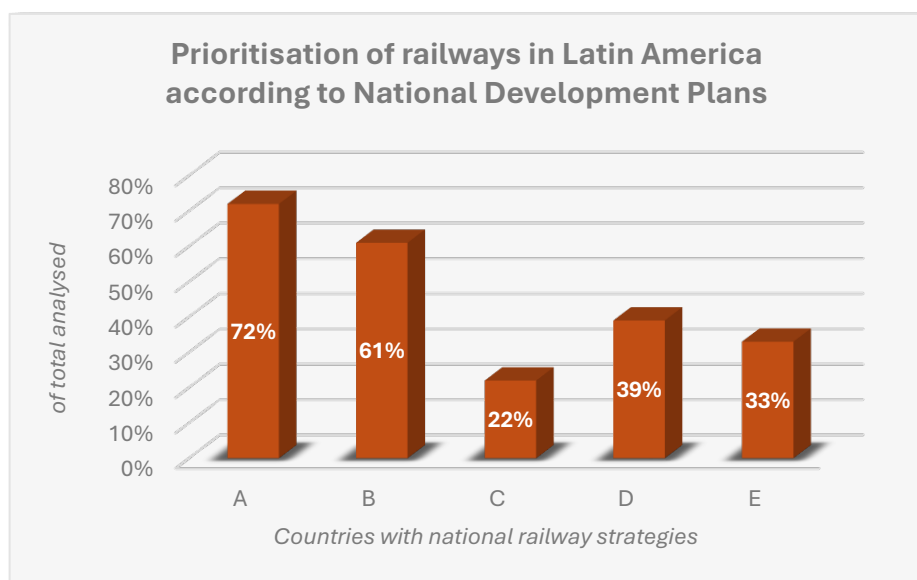


Figure 8: Prioritisation of railways in Latin America, according to National Development Plans. Source: UIC, 2025

The above graph shows:

- A. Countries that explicitly include railways in their National Development Plans
- B. Countries with a specific National or Master Plan for Railway Development
- C. Countries with a clear absence of structured railway plans (they have only announced isolated, tourist-oriented or non-continuous initiatives)
- D. Countries that have incorporated aspects of regional integration or international connections into their railway plans
- E. Countries that link railway development with climate, urban or social inclusion goals

The regional analysis shows that **more than 70% of Latin American countries have incorporated railways into their National Development Plans**, and nearly **60% have a technical or master railway plan** guiding their investments and long-term goals. However, a quarter of the countries still lack a structured railway strategy, which limits their ability to **attract investment, reduce transport sector emissions and improve logistics competitiveness**. At the subregional level, only one third of the countries explicitly address the role of railways in **regional integration or urban and climate sustainability**, underscoring the need to strengthen the alignment of these projects with national strategic agendas and multilateral commitments.

Among the countries analysed, **Mexico, Peru, Chile, Argentina** and **Colombia** stand out as those showing the **highest level of compliance with strategic criteria for railway development**:

- **Mexico** has demonstrated comprehensive commitment by including railways in its National Development Plan 2025-2030, approving a National Railway Programme in 2022, and reforming its Constitution to prioritise passenger rail transport. In addition, it has aligned its plans with decarbonisation and territorial justice goals, driving projects for both domestic and regional logistics integration.
- **Peru** has incorporated the railway system into its National Strategic Development Plan to 2050 and has an active National Railway Development Plan, which is directly linked to sustainability and competitiveness objectives.
- **Chile** demonstrates a robust approach; including railways in its government programme and developing a National Railway Plan 2022-2026 with an emphasis on urban mobility, inclusion and cross-border connections.
- **Argentina** is consolidating a federal strategy with significant investments across multiple provinces, integrating railways into both the *Plan Argentina Productiva 2030* (Productive Argentina Plan 2030) and a specific modernisation plan for freight and passenger services.
- **Colombia** has made advances since 2020 with a National Railway Master Plan, supported by multilateral organisations such as the IDB, within a railway reactivation framework aimed at fostering intermodality, logistics competitiveness and regional integration.

These countries exemplify a comprehensive vision of railways as a strategic component of development, sustainability and inclusion.

In contrast, nations such as **Ecuador, the Dominican Republic** and **some Central American countries** lack consolidated railway plans, with projects limited to **tourism initiatives or preliminary studies** without a defined long-term investment and development structure. The absence of a comprehensive railway strategy in these countries underscores the persistence of a **mobility model dominated by road transport**, which limits the competitiveness and sustainability of their transport systems. This heterogeneity in national approaches confirms the need to move towards a **coordinated regional vision**.

2.2.2. Current railway capacities in Latin America

Recent research on the railway network of each Latin American country reveals that the network barely exceeds 76,000 kilometres of track. This figure includes both currently operating lines (under varying conditions) and abandoned lines that could potentially be reactivated in the medium term. Despite widespread lag, some countries have begun incipient processes of railway reactivation and modernisation, making it possible to identify emerging national experiences that reveal a renewed interest in positioning rail as a strategic driver of development.

To characterise the current capacities of railways in Latin America, the following aspects describe the region's operational situation in greater detail. This analysis also draws on **Appendix C: Technical data sheets of the main Latin American railway networks**.

2.2.2.1. Network coverage and capacity

The geographic coverage of railways in Latin America reveals a fragmented landscape, in which extensive, integrated networks coexist with others that are limited, discontinuous or even inactive. This diversity is the result of both historical factors and the political and economic priorities of each country, with direct implications for domestic and regional transport connectivity.

To better understand the current state of railways in Latin America, the following section provides a technical characterisation of countries that maintain active railway networks with significant levels of operation, territorial coverage and recent modernisation efforts.

Among the countries with the largest railway coverage are Brazil, Mexico and Argentina, which contain the most extensive and active networks in the region.

The following section provides a brief overview of the existing railway networks in the region, contextualising the current situation of the sector:



Brazil has a railway network that covers over 30,000 km and is focused mainly on freight transport. It has a strong presence in the southeast and south regions, where the country's main industrial and production centres are located. However, railway coverage in the north and centre-west is scarce, limiting its role as a national integrator.



Mexico has a network covering more than 27,000 km, linking the country's main logistics corridors, including the industrial centre, the border areas with the United States and the main ports on the Pacific and Gulf coasts. Its freight system is highly operational, but passenger services are restricted to suburban and tourist corridors, resulting in uneven territorial coverage for passenger mobility.



Argentina has a railway network that extends over more than 17,800 km for freight, covering 17 of the 23 provinces. This represents a strategic territorial grid connecting the productive inland regions with the main Atlantic ports. In terms of passenger transport, coverage is also significant thanks to the metropolitan network in the Buenos Aires Metropolitan Area (AMBA), long-distance and regional services reaching provinces in the north, centre and south of the country, as well as tourist routes and international connections such as the Posadas–Encarnación train with Paraguay.



Chile has a total of 5,334 km of operational railway lines, distributed as follows: EFE Trenes de Chile – 2,311 km; FERRONOR – 2,300 km; FCAB – 720 km; and CODELCO – approx. 3 km. Although the network is geographically concentrated, it plays a key structural role in internal mobility.



Peru has a limited and fragmented railway network. Its nearly 1,900 km of track are distributed across independent corridors – mainly towards the central highlands and southern Andes – without forming an integrated national system.



Bolivia's network is divided into two unconnected systems – the Andean (western) network and the eastern network, which restricts its territorial potential.



Colombia, despite having about 1,800 km of railway network divided into three zones (Atlantic, Central and Pacific), has interrupted geographic coverage, partly due to topographic conditions and the historical prioritisation of road transport. The current network is used mainly for freight services, particularly minerals and derivatives.



Uruguay maintains 1,174 km of operational track, forming a limited but defined network along the central axis and towards the borders with Brazil and Argentina, with infrastructure under rehabilitation such as the **Central Railway**.



Cuba, although its railway network reaches **8,000 km** and covers much of the national territory, faces serious operational limitations due to deteriorated infrastructure, long delays and poorly maintained stations. While modernisation projects exist with support from **Russia, China and France**, the system still faces structural challenges that constrain its functionality and reliability. Coverage remains broad, but with operational performance well below its potential.



Venezuela, after launching an ambitious railway plan in 2006, has a network barely exceeding **1,000 km** in operation, with only two sections in regular service and some mining corridors. Many projects remain unfinished or abandoned, reflecting a deep institutional and economic crisis, as well as legal restrictions that prevent Public-Private Partnerships. In practice, the country's railway coverage is **marginal and fragmented**, and far from meeting territorial needs.



Panama has symbolic yet strategic coverage: the **Panama Canal Railway**, just **77 km long**, connects the Pacific and Atlantic across the isthmus, providing a relevant logistics service, though without internal expansion.



In contrast, countries such as **Costa Rica, Honduras, Guatemala** and the **Dominican Republic** have **fragmented, deteriorated or inactive railway networks**. In Costa Rica, the **Interurban Train** connects key cities of the Central Valley but faces limitations in speed and operations. In Honduras and Guatemala, railway infrastructure has been abandoned or dismantled, with only tourist or experimental sections in use. The Dominican Republic retains railway lines mainly tied to the sugar industry, without a functional national system.

In summary, **railway coverage in Latin America ranges from consolidated national networks to marginal or non-existent systems**. This geographical asymmetry limits the railway's capacity to act as a territorial integrator in several countries, while also opening opportunities to design **territorial integration policies** through priority railway corridors.

2.2.2.2. Annual freight and passenger traffic (2024)

Rail transport in Latin America is heavily **specialised in freight movement**, with the largest cargo volumes concentrated in a few countries, while **passenger transport remains incipient or limited to specific areas**. This trend reflects both the historical development priorities and the operational models adopted in each country.

Brazil leads freight volumes by a wide margin, with more than **540 million tonnes annually**, thanks to a network focused on **minerals, agricultural products and containerised cargo**, particularly moving from the southeast and centre-west regions towards Atlantic ports. It is followed by **Mexico, with 132.7 million tonnes** of mainly industrial goods, fuels and agricultural products moved along corridors connecting industrial zones, borders and ports. **Argentina**, though with a smaller volume (**21.6 million tonnes**), maintains an active freight network that links productive regions to South Atlantic ports and strategic border crossings.

In **Chile and Cuba**, freight volumes are moderate – **8.6 and 8.5 million tonnes, respectively** – with mining, forestry and sugar industries playing significant roles. In **Peru and Bolivia**, freight centres on minerals and agro-industrial products, with fragmented yet functional networks in strategic areas. In contrast, **Colombia** directs **95% of its rail freight to heavy cargo such as coal, coke and cement**, while countries such as **Uruguay and Paraguay** register limited or no operations, the latter having no rail freight services at all.

Regarding passengers, **Argentina** stands out as the most active system, with more than **330 million users annually**, concentrated mainly in the **Buenos Aires Metropolitan Area (AMBA)**, one of the few large-scale urban railway systems in the region. It is followed by **Chile (61.7 million passengers)**, driven by urban, suburban and regional services, and **Mexico (51.5 million)**, of which nearly 90% corresponds to the **Suburban Train of the Valley of Mexico**. Despite deficiencies, **Cuba** transports around **18 million passengers annually** through national routes spanning the island.

Brazil, excluding metro systems, moves about **2.5 billion passenger-kilometres**, with services distributed in cities such as Rio de Janeiro, São Paulo and northeastern capitals. In **Peru**, the main passenger service is the **Cusco–Machu Picchu tourist line**, while countries like **Colombia, Uruguay, Honduras, Guatemala and Paraguay** have suspended or non-existent passenger rail services.

In sum, **rail freight volumes in Latin America are heavily concentrated in a handful of countries**, while **passenger transport has yet to achieve broad coverage or functional national integration**, with only a few exceptions. This disparity reflects the **structural challenges** to consolidating a balanced, multimodal railway network that serves both logistics development and everyday mobility.

2.2.2.3. Operating model and governance

The **railway operation model in Latin America** is characterised by a predominantly **mixed configuration**, in which infrastructure remains under **state ownership** while service operations are managed by both **public and private companies**, often through **concession schemes**. This approach seeks to balance state leadership with private sector efficiency, although its implementation has been uneven and faces significant challenges related to **coordination, technical standardisation and financial sustainability**.

Mexico, Brazil and Argentina represent paradigmatic examples of this model. In **Mexico**, the freight railway system is based on **long-term private concessions** granted since 1995, under the supervision of the **Railway Transport Regulatory Agency (ARTF)**. Passenger transport operates under various arrangements (state management, private concessions or partnerships) depending on the service type (suburban, interurban or tourist). In **Brazil**, freight infrastructure is also concessioned to private companies that manage over **90% of the network**, while passenger transport follows a **mixed model**, with a strong state presence in the northeast and private operators in the southeast. In **Argentina**, although much of the network was concessioned in the 1990s, in recent years the **state has resumed control of several corridors**, consolidating a **hybrid model** where private and public operators coexist under the supervision of **Trenes Argentinos and ADIFSE**.

In **Chile**, the **State Railways Company (EFE)** acts as the administrator of the national railway infrastructure, directly operating some passenger services through its subsidiaries and granting **freight concessions** to private companies such as **FEPASA** and **TRANSAP**. In the northern network, private companies like **FERRONOR** and **FCAB** operate mainly to serve the **mining industry**, alongside divisions of **CODELCO**, which maintain small, high-volume internal railway networks. Likewise, private companies such as the **CAP Railway** in the **Coquimbo Region** and other railway concessions are subject to the **General Railway Law**, administered by the **Ministry of Transport and Telecommunications**.

This **unified operational model** under the state entity **EFE** has enabled **coherent and gradual planning** for service expansion, although **interoperability** still faces technical limitations and modernisation challenges.

In **Peru**, the system operates under differentiated regional concessions. **Ferrovías Central Andina** and **Ferrocarril Transandino** manage key sections in the Andean and southern regions, while smaller and tourist routes are run by private firms. In **Colombia**, although the state retains infrastructure ownership, operations have been transferred to private entities under contracts for freight transport. However, the system has not reached sufficient scale to consolidate an efficient or articulated model.

Cuba and **Venezuela** rely entirely on **state-operated models**, though with contrasting trajectories. In **Cuba**, the **Union of Cuban Railways (UFC)** operates all freight and passenger services amid structural limitations, low investment and reliance on international agreements for modernisation. In **Venezuela**, the **State Railways Institute (IFE)** manages the few active services, with a legal framework that prohibits private participation – hindering sector development despite previously ambitious plans.

In **Uruguay** and **Bolivia**, the model is also predominantly public, though in Uruguay private logistics operators participate in freight, while in Bolivia **Ferrovía Andina** and **Ferrovía Oriental** manage concessioned corridors without national interconnection. In **Paraguay**, **Guatemala** and **Honduras**, railway systems are suspended or deactivated; where reactivation projects have been proposed, they consider concession models or foreign participation.

At the regional level, the main governance challenges include the lack of coordination between operators, the absence of common technical standards, and difficulties in structuring stable financing schemes for network maintenance and expansion. Although the mixed model has enabled investment while preserving state oversight, its consolidation requires stronger regulatory frameworks, enhanced institutional capacity and effective public-private coordination mechanisms.

2.2.2.4. Track gauge and interoperability

One of the main **structural obstacles** to developing an **integrated regional railway network** in **Latin America** is the diversity of **track gauges** both between and within countries. This technical heterogeneity – stemming from historically uncoordinated decisions – represents a significant barrier to **national and international interoperability**, limiting service continuity and increasing **logistical costs**.

The region currently operates with at least **four main gauges**: **standard gauge (1,435 mm)**, **broad gauge (1,676 mm)**, **metre gauge (1,000 mm)** and several intermediate variants, such as **1,067 mm**, **1,060 mm** and even specific narrow gauges like **750 mm** on certain branch lines. This coexistence within the same country – as in **Argentina**, **Chile** or **Brazil** – complicates smooth connections between sections and requires transshipments or costly technical solutions (bogie exchange, third rail, etc.).

Argentina has one of the most **fragmented networks** in terms of gauge, with broad-gauge lines (1,676 mm), metre gauge (1,000 mm), standard gauge (1,435 mm) and even narrow gauge (750 mm in tourist services), creating a constant challenge for internal interoperability. **Brazil**, meanwhile, operates with metre, standard, broad and 1,600 mm gauges, preventing continuous operation across its territory and towards neighbouring countries. **Chile** combines broad gauge (predominant in the central-southern regions) with metre gauge in the north (the entire northern network uses metre gauge). **Bolivia** primarily operate on metre gauge, and the exception in the north is Peru such as the corridor **Arica–Tacna (1,435 mm)**. In contrast, **Mexico** predominantly uses **standard gauge** across its entire network, facilitating interoperability with the **United States**, its main railway trading partner.

Cuba, Uruguay, Venezuela and Paraguay have adopted **standard gauge** as the foundation for their national systems, providing an advantage for future integration initiatives. However, the lack of operational connectivity in these countries – or the low level of railway activity – currently limits the potential benefits of this technical advantage. In **Guatemala and Honduras**, historical networks used narrow gauges (914 mm and 1,060 mm, respectively), although **railway reactivation plans** include migration to standard gauge to facilitate regional integration, especially with **Mexico** and the **Interoceanic Corridor of the Isthmus of Tehuantepec**.

At the level of **international connections**, challenges are even greater. The **gauge differences** between **Argentina** and its neighbours (**Bolivia, Brazil, Paraguay and Uruguay**) make direct **cross-border railway operations** unfeasible without logistical adaptations. A similar situation occurs in Brazil's connections with **Bolivia, Uruguay and Argentina**, where gauge changes and the absence of technical agreements hinder the creation of integrated corridors. Only a few **specific binational sections**, such as **Posadas–Encarnación (Argentina–Paraguay)** and **Arica–La Paz (Chile–Bolivia)**, maintain limited operations, though with constraints in frequency and coordination.

The **lack of technical standardisation** and **binational governance** also affects the interoperability of signalling systems, control mechanisms, operational protocols and load capacities. This prevents the consolidation of genuine **regional railway logistics corridors** and contrasts with examples such as **Europe**, where interoperability has been one of the pillars for strengthening the railway mode.

Looking ahead, advancing towards **regional interoperability** will require a **dual strategy**: on the one hand, promoting the **progressive technical standardisation** of new projects – prioritising the adoption of **standard gauge** and compatible systems – and, on the other, designing **operational and regulatory mechanisms** that allow the coexistence of different gauges in **binational corridors**, through **efficient interchange points** and **integrated logistical coordination**.

2.2.2.5. Regional integration and interoperability

Regional railway integration in **Latin America** faces structural challenges that have limited the development of efficient **cross-border corridors**. Despite having railway networks in several countries and historical precedents of binational connections, **effective interoperability** remains marginal, fragmented and with limited operational continuity.

Some countries have managed to maintain or rehabilitate specific railway connections with their neighbours. This is the case for **Argentina**, which maintains active rail links with **Chile**, where the track gauge does not pose a limitation for integration, as well as with **Bolivia, Paraguay, Brazil and Uruguay**. However, some of these face serious technical and operational limitations, mainly due to differences in track gauge, poor border infrastructure and lack of coordination between operators. A functional but limited example is the **passenger train between Posadas (Argentina) and Encarnación (Paraguay)**. Both represent cases of operational interoperability, although not free from logistical constraints.

Brazil also maintains railway connections with **Argentina, Bolivia and Uruguay**, particularly for freight transport. Nevertheless, these operations are conditioned by the diversity of track gauges and the absence of shared technical agreements. The **Corumbá–Santa Cruz** (with Bolivia) and **Uruguaiana–Paso de los Libres** (with Argentina) corridors illustrate the need for greater investment in border infrastructure and improved institutional coordination mechanisms. Despite its participation in initiatives such as the **Bioceanic Railway Integration Corridor**, cross-border coordination remains weak.

Chile maintains **several active international railway connections**, including the Arica–La Paz Railway, operated by the EFE Arica–La Paz subsidiary and dedicated to freight transport; the Antofagasta–Bolivia Railway (FCAB), primarily focused on mineral traffic; and the Socompa Pass connection with Argentina, operated by FERRONOR, which enables cross-border freight interconnection in the northern region of the country. Additionally, the Tacna–Arica Railway, managed by the Regional Government of Tacna (Peru), remains operational and provides passenger services exclusively.

In **Bolivia**, the eastern and western networks remain unconnected, and their international access depends on bilateral logistical agreements. The absence of a unified national railway network limits Bolivia's potential role as an integrator within bioceanic corridors and undermines regional logistical competitiveness.

In **Mexico**, international interoperability is clearly focused on rail trade with the **United States**, where seamless freight operations exist thanks to the shared standard gauge, compatible technical protocols and well-defined institutional frameworks. In contrast, there is still no operational rail connection with **Central America**, although southern projects – such as the **Interoceanic Corridor of the Isthmus of Tehuantepec** – offer an opportunity for future integration with **Guatemala**, where no binding agreements or functional shared infrastructure currently exist.

Uruguay has historically maintained railway connections with **Brazil**, using a **third-rail system** to overcome gauge differences. However, current exchanges are limited, and construction segments such as the **Central Railway** have yet to consolidate an active binational corridor. In the case of **Paraguay**, no international railway operations are currently active, although projects have been proposed to connect with **Brazil** and **Argentina** as part of regional logistics initiatives.

Peru, Colombia and **Venezuela** currently lack operational international railway connections. In **Venezuela**, the discontinuity of the **National Railway Plan** and the absence of operational binational agreements have hindered progress towards integration, despite potential connections with **Colombia** or **Brazil**. In **Colombia**, railway planning remains internally focused, with no active projects for cross-border connectivity at this time.

At the regional level, the **lack of technical interoperability** (gauges, signalling, regulations) and **institutional weakness** in border areas are the main obstacles to advancing towards a truly integrated railway system. The absence of common regulatory frameworks, coordinated operators and a shared vision has left the region lagging behind other parts of the world that have advanced in developing **interoperable multinational railway corridors**.

Nevertheless, there are **opportunities for coordination** through initiatives such as **COSIPLAN/IIRSA, bioceanic projects**, emerging **bilateral agreements** and the renewed **interest in promoting railways as a priority mode of sustainable transport**. Advancing regional integration will require not only infrastructure investment but also **political will, harmonised technical standards and shared governance frameworks**.

2.2.2.6. Sectoral instruments and current railway policies

In addition to the **physical and operational capacities** of the railway network, the **institutional framework** surrounding sectoral planning represents an essential component of the current railway capabilities in **Latin America**. Several countries have developed specific railway programmes, reformed legal frameworks, created specialised entities, or launched flagship projects that transcend National Development Plans. This subsection examines the main existing sectoral instruments, highlighting the degree of institutional coordination that enables the transformation of strategic vision into concrete actions.

Mexico has successfully consolidated a **national railway policy** through several key instruments. Among them, the **National Railway Programme 2022** stands out, setting specific objectives for passenger transport expansion, line modernisation and intermodality. Additionally, the **constitutional reform of Article 28 (2024)** declared passenger railway transport a **priority area for the state**, granting it the authority to directly operate on concessioned tracks. These instruments are complemented by major projects such as the **Maya Train** and the **Interoceanic Corridor of the Isthmus of Tehuantepec**, which integrate regional development, sustainability and territorial cohesion.

In **Brazil**, railway projects are structured around three strategic pillars: the **National Logistics Plan (PNL)**, the **Growth Acceleration Programme (PAC)** and the **Investment Partnerships Programme (PPI)**. In the field of **urban passenger transport**, the **National Bank for Economic and Social Development (BNDES)** is currently conducting the **National Urban Mobility Study (ENMU)**, aimed at expanding **medium- and high-capacity public transport networks (TPC-MAC)** in 21 metropolitan regions of the country with over one million inhabitants. The goal of this study is to identify and promote an investment portfolio for the development of studies, projects, concessions and Public-Private Partnerships that foster **sustainable mobility** in Brazil's main cities.

These instruments also prioritise **national-scale structural corridors**, such as the **West-East Integration Railway (FIOL)** and **North-South Railway**, promoting the participation of private operators under concession schemes. Likewise, the enactment of the **new railway legal framework (Law 14.273/2021)** has been decisive in enabling **private-sector-driven railway authorisations**, boosting the construction of new lines through **decentralised initiatives** that complement the concessioned system.

Argentina has a **Transport Modernisation Plan** that has allowed the state to retake control of previously concessioned lines, strengthen the public company **Trenes Argentinos**, and carry out investments in infrastructure, signalling, logistics nodes and rolling stock. This plan is aligned with the recovery of the railway system as a state policy and **is complemented by specific initiatives for freight and passenger transport across multiple provinces**.

Chile, through the state-owned company **EFE Trenes de Chile (EFE)**, has structured its railway policy around the **Trains for Chile Plan (2022-2026)**, which **promotes the expansion of passenger services** such as Santiago–Melipilla, Alameda–Chillán and Batuco, while strengthening the institutional and financial capacity of EFE as an integrated operator. These projects are embedded within policies on sustainable mobility, territorial planning and emissions reduction.

Other countries have initiated more recent or partial processes. **Peru** has a **National Railway Development Plan**, linked to the **National Strategic Development Plan to 2050**, with a clear focus on logistics competitiveness. In **Colombia**, the **National Railway Master Plan**, approved in 2020, lays the foundation for sector reactivation with IDB support, prioritising intermodal corridors and integration strategies. **Uruguay**, in turn, has promoted the modernisation of the **Central Railway**, combining public-private financing with regulatory reforms.

In contrast, countries such as **Venezuela**, despite having formulated the **National Railway Plan 2006-2030**, have been unable to achieve its objectives due to institutional, economic and legal constraints. Lack of implementation and halted works have turned many projects into white elephants, highlighting the urgency of redefining goals under a more realistic and participatory vision. **Cuba**, though operating under a fully state-run model, has drafted the **Railway Modernisation Plan to 2030**, with support from Russia, China and France, focused on rehabilitating rolling stock, workshops and trunk lines, though its implementation is progressing slowly.

In countries where railway systems are inactive or in reactivation phases – such as **Guatemala, Honduras and Paraguay** – sectoral frameworks are under construction or lack consolidated institutions. Nonetheless, agreements such as the one signed between **Guatemala and Mexico** to rehabilitate part of the railway network could lay the groundwork for future strategic programmes.

Taken together, these instruments reflect an ongoing process towards a stronger and more coordinated institutional framework for the railway sector in Latin America. However, significant asymmetries remain between countries with consolidated strategies and those with still incipient or outdated frameworks, underscoring the need to move towards a more **coherent and coordinated regional system**.

From the regional analysis, the **current capacities of railways in Latin America present a heterogeneous landscape**, marked by stark contrasts between countries with consolidated networks and those where the railway mode remains marginal or inactive. While some networks achieve significant territorial coverage, their operational performance is limited by **infrastructure deficiencies, institutional fragmentation and lack of continuity in investments**. Freight and passenger volumes reveal **underutilised potential**, particularly in medium- and long-distance passenger transport. Operating models, governance and concession regimes also show disparities, with public, private and mixed operators coexisting under very different legal and financial contexts. At the technical level, the **diversity of track gauges and lack of interoperability** hinder the consolidation of national and regional corridors, while **cross-border integration remains incipient** and dependent on ad hoc agreements.

Nevertheless, the **strengthening of sectoral instruments, the creation of railway master plans and recent legal reforms** in several countries indicate a positive trend towards the recovery of railways as a **structuring axis of sustainable mobility and regional logistics**. These capacities, although uneven, form the foundation on which to build a **shared railway vision towards 2050**.

2.3. Railway corridors in Latin America

In recent years, **bioceanic corridors** have emerged as a key strategy for the physical, logistical and commercial integration of Latin America. Conceived as **multimodal axes** connecting the Atlantic and Pacific, these corridors aim to transform the region's economic geography by reducing time and logistics costs, while boosting productive development in historically isolated areas. In this context, the **railway mode** takes on a leading role due to its efficiency, sustainability and large-scale freight capacity.

The **Second Meeting on Bioceanic Corridors**, organised by ALADI (2024), highlighted the growing political, technical and financial commitment of member countries to the development of these corridors, with an emphasis on initiatives such as the **Bioceanic Railway Integration Corridor (CFBI)**, the **Capricorn Corridor** and the **Interoceanic Corridor of the Isthmus of Tehuantepec**. This section provides an overview of the main railway corridors under development, their characteristics, progress and challenges, as well as their potential to consolidate a modern, interconnected Latin American railway network oriented towards both intraregional and global trade. More detailed information on each identified corridor in Latin America – including routes, stakeholders, degree of progress and associated projects – is systematised in the **Corridor Information Sheet included in Appendix C** of this document.

Beyond their logistical dimension, **bioceanic corridors are being conceived as levers for structural and territorial transformation in Latin America**. Brazil's vision, presented during the Second ALADI meeting, emphasises that these projects should not be seen only as physical infrastructure, but as **instruments to redefine productive relations, the role of borders, approaches to regional development, and customs and logistics integration**.

This perspective highlights the potential of corridors to consolidate a **new South American regionalism**, based on more decentralised, multisectoral and multilevel governance that brings together public, private and academic actors. Within this framework, **railway integration** is not merely a means of physical connection, but a **strategic tool** to advance towards more efficient, secure and sustainable logistics chains – capable of drastically reducing times and costs, while promoting new logistics platforms, productive hubs and economic spaces in traditionally lagging regions. If implemented with a **territorial vision** and **effective cooperation**, these initiatives can position Latin America as a globally competitive logistics and production bloc.

2.3.1. Latin American perspectives on railway corridors

The **Second Meeting on Bioceanic Corridors, organised by ALADI**, revealed a renewed political and technical willingness among Latin American countries to move forward in consolidating a **regional transport infrastructure network** that is integrated, multimodal and trade-facilitation oriented. Although the focus of the meeting was on road and logistics corridors, **strategic railway projects emerged strongly, reaffirming the potential of railways as the backbone of regional physical integration**.

- **Argentina** presented the ambitious **South American Railways Project**, conceived as a platform to integrate different national railway segments within a regional bioceanic connectivity vision. The project seeks to overcome fragmentation and bottlenecks through investments, binational agreements and the strengthening of its diverse-gauge network. The initiative was presented as part of a long-term strategy that includes linkages with **Brazil, Bolivia** and **Chile**, recognising railways as a key element to ensure logistics efficiency and export competitiveness.
- **Bolivia** reaffirmed its commitment to the **Bioceanic Railway Integration Corridor (CFBI)**, a mega-project designed to connect the ports of **Santos (Brazil)** and **Ilo (Peru)**, crossing Bolivian territory. Bolivia also introduced the concept of the **Lithium Corridor**, a vision aimed at integrating the lithium value chain with railway, logistics and industrial infrastructure. These proposals seek to link the altiplano's strategic resources with global markets, positioning railways as tools of territorial and productive transformation.
- **Brazil** presented a comprehensive approach to the planning of **five South American integration routes**, several of them with significant railway sections. It was underlined that, within the **Growth Acceleration Programme (PAC)** and the **National Border Integration Plan**, there are **190 prioritised projects** in border areas, many with railway scope and guaranteed budget. The speaker emphasised the need to consolidate **technical and operational interoperability** to facilitate international rail freight transit as part of a broader process of “regionalising logistics solutions.”
- **Chile**, although focusing its presentation on the **Bioceanic Road Corridor**, showed significant progress in the **technical and institutional aspects of multinational coordination**, highly replicable in railway projects. Chile's experience with **binational technical committees** (infrastructure, logistics, border simplification, production, trade and tourism), as well as the implementation of **pilot trade facilitation plans**, provides a valuable methodological framework for designing interoperable, efficient and internationally aligned railway corridors.

- **Paraguay** presented a road development strategy that includes the full alignment of its segment of the **bioceanic corridor between Carmelo Peralta and Pozo Hondo**, with advanced works, multilateral financing and border crossing facilities under construction. Although the proposal is primarily road-based, the country has expressed interest in **progressive multimodality**, opening opportunities for future rail connections with **Argentina, Brazil and Bolivia**.
- **Mexico**, represented by its **Interoceanic Corridor of the Isthmus of Tehuantepec**, contributed an ongoing execution experience on how to revitalise railway infrastructure with the objectives of **regional development, port logistics and social transformation**. The Mexican model includes track modernisation, economic zones and logistics hubs, showcasing how railways can articulate **industrial, social and territorial policies** within a comprehensive development framework.
- **Uruguay**, while not presenting a specific railway corridor, stressed the need to **diversify regional logistics alternatives** and overcome rigid or exclusive approaches focused on a single mode or corridor. Its message was clear: the region must consolidate an **integrated triad of logistics, transport and trade facilitation**, with railways playing a **key role** in building sustainable, resilient and competitive supply chains.

2.3.2. New governance models for bioceanic corridors

The emergence and consolidation of **bioceanic corridors in Latin America** are driving a transformation in the governance models related to the planning and implementation of logistics infrastructures. These new schemes are characterised by their **multilevel approach**, bringing together national and subnational governments, the private sector, academia and multilateral organisations. This expanded governance framework integrates not only the interests of international trade but also the needs of territorial development, sustainability and productive inclusion.

In **Mexico**, the **Interoceanic Corridor of the Isthmus of Tehuantepec** is a paradigmatic example of this expanded governance. The project goes beyond railway modernisation – through the rehabilitation of the **Line Z** – to include the development of **Economic Development Poles (EDPs)** along the corridor. These poles are aligned with specific productive vocations such as agribusiness, petrochemicals, renewable energy, digital technologies, and light manufacturing. Corridor governance is led by the Federal Government through the **Ministry of the Navy (SEMAR)**, but progressively incorporates strategic partnerships with state governments, municipalities, private companies and local universities. At the international level, Mexico has signed cooperation agreements with countries such as **France** in areas related to port planning, logistics efficiency and energy sustainability, thereby strengthening the project's technical and institutional capacities.

The **Capricorn Corridor** – connecting northern Chile (ports of Antofagasta, Mejillones, Iquique and Tocopilla) with Paraguay, northern Argentina and southwestern Brazil – has consolidated a governance model noteworthy for its integrative and multisectoral approach. Unlike more centralised initiatives, this corridor has institutionalised a governance architecture that includes **joint presidential declarations, sectoral technical committees (infrastructure, logistics, production, customs, tourism and academia)**, and a **rotating executive secretariat**. Most recently, the secretariat was assumed by Paraguay. Governance of the Capricorn Corridor is marked by fluid interaction between national governments, customs agencies, business organisations, local governments and universities, such as the **Universidad Nacional Don Bosco**, which has even established a postgraduate programme on the bioceanic railway corridor. This combination of strategic vision and territorial ownership consolidates a replicable regional governance experience in logistics.

Brazil has adopted a decidedly **decentralised stance** in advancing its bioceanic corridors. Its logistics integration policy empowers subnational governments, especially those in border regions and historically marginalised areas. Through coordination between the **Ministry of Foreign Affairs** and the **Ministry of Transport**, Brazil has prioritised over **190 railway infrastructure projects**, many with guaranteed national budget financing. This effort is complemented by Public-Private Partnerships and regional cooperation mechanisms aimed at interoperability, customs integration, and the promotion of shared logistics platforms.

In **Bolivia**, leadership of the **Bioceanic Railway Integration Corridor (CFBI)** is exercised by the Plurinational State through the **Ministry of Public Works** and the **Empresa Ferrovial Andina**, with a strong emphasis on articulation with Brazil and Peru. The model is evolving towards the creation of a **trinational governance platform** to facilitate joint investment, regulatory coordination, and physical railway connection across the Bolivian Altiplano, while also integrating the **Lithium Corridor** as a strategic dimension tied to energy transition.

2.3.3. Towards common regulatory frameworks for regional railway operations

One of the main challenges facing railway corridors in Latin America is the **lack of regulatory harmonisation and operational procedures** that would enable seamless cross-border transit. Despite progress in infrastructure and political will, land borders remain high-friction logistical spaces due to dispersed regulations, overlapping controls, limited specialised agencies and weak inter-institutional coordination.

This regulatory gap is particularly sensitive in the **railway sector**, where cross-border operations require precise agreements on **technical interoperability** (track gauge, signalling, safety protocols, etc.), shared traction, insurance, terminal access, and especially customs clearance. Cases such as Brazil and Paraguay – where customs integration barriers persist – or the limited border presence of specialised agencies such as **ANVISA** (Brazil's health authority responsible for sanitary and phytosanitary inspections), illustrate the urgent need to update and expand existing legal frameworks.

International railway transit must advance towards mechanisms comparable to the **TIR carnet**, already partially implemented in countries like Chile, Argentina and Brazil, but still absent in many Andean nations. It is also essential to establish **single railway windows** with mutual recognition of documents and to develop corridors that ensure the permanent presence of customs authorities at key border points.

The adoption of **modern common regulatory frameworks** – consistent with international standards yet adapted to regional realities – is an enabling condition for railway corridors to move beyond physical infrastructure and operate effectively and competitively in practice.

In this context, the role of the **International Union of Railways (UIC)** is crucial. Acting as the global technical reference body for railway standardisation, safety, digitalisation and interoperability, UIC has extended its expertise to Latin America.

In the region, it has actively participated in initiatives linked to the development of multimodal corridors, organising webinars alongside **FIATA** to advance regulation and standardisation of tools for national and international transit. In addition, the launch of **regional platforms** – such as those on railway safety and track capacity – supports the construction of stronger legal and operational frameworks, indispensable for smooth cross-border transport.

UIC's work in Latin America also focuses on assisting its members with the application of the **TIR convention**, the implementation of the **Future Railway Mobile Communication System (FRMCS)** and the promotion of **green corridors**, i.e. low-carbon freight corridors. These technical initiatives provide the normative and digital scaffolding required to strengthen railway integration: from signalling and shared traction to pre-identified customs processes, digital insurance and borderless access.

Thus, UIC is positioned as an **indispensable strategic partner** for enabling Latin American bioceanic railway corridors to transition from isolated projects into **interconnected, standardised, efficient and competitive systems**, fully integrated into intraregional and global trade.

2.3.4. Railway corridors as drivers of a low-carbon logistics transition

The railway corridors currently under development in Latin America offer a unique platform to accelerate the transition to a more sustainable, resilient and low-carbon transport model. Given that rail is inherently one of the most energy-efficient and low-emission modes, its strengthening represents a strategic opportunity to advance regional climate commitments while enhancing logistics competitiveness.

Projects such as the **Bioceanic Railway Integration Corridor (CFBI)** – designed to connect the ports of Santos (Brazil) and Ilo (Peru) through Bolivia – are conceived as multimodal routes that integrate highways, railways and maritime transport. If accompanied by investments in railway electrification, efficient rolling stock and sustainable logistics platforms, these corridors can consolidate themselves as **green axes of regional trade**.

Similarly, initiatives such as the **Lithium Corridor**, promoted by Bolivia with connections towards Chile and Paraguay, gain additional strategic value when articulated with clean energy supply chains, leveraging the location of key natural resources for electromobility. Brazil's railway strategy, with its focus on transport modernisation and the potential use of hydrogen and hybrid technologies, also points to a feasible pathway for leading an energy transition in freight transport. However, its large-scale implementation will depend on technological advances, available infrastructure and cost competitiveness in the medium and long term.

In this sense, railway corridors should not be understood solely as physical conduits for goods movement but as **vectors of energy, technological and environmental transformation**, capable of attracting investment, fostering green jobs and reducing dependence on fossil fuels. Their planning and implementation must be aligned with sustainable transport policies, logistics innovation and inclusive territorial development.

2.3.5. Strategic premises from a regional perspective

- Railways are re-emerging as a **key vector of regional integration**, not only as physical infrastructure but also as a tool for economic development, territorial inclusion and environmental sustainability.
- The railway projects presented by **Argentina, Bolivia, Brazil and Mexico** mark a new stage of interconnected planning, where national investments are increasingly aligned with a **supranational logic of bioceanic corridors**.
- **Bilateral technical working groups** and pilot trade facilitation plans developed under the Chile–Brazil–Paraguay–Argentina road corridor represent valuable practices for future railway corridors. These experiences show that **technical governance, regulatory interoperability and customs coordination** are just as important as physical infrastructure.
- The presence of countries currently without active railway projects, such as **Paraguay, Uruguay and Chile**, does not imply a lack of potential but rather the need to strengthen a **common agenda** that integrates multimodal corridors with a long-term railway vision.
- A significant gap remains in terms of **technical standardisation, financing and supranational governance**, requiring stronger cooperation between countries, multilateral organisations and private actors.
- Latin America with **multiple connected, interoperable and socially oriented railway corridors** is not only desirable but increasingly viable, provided that the technical coordination, regional vision and political will evidenced in these meetings continue to be reinforced.

UIC FREIGHT TASK FORCE: CORRIDORS WITH PURPOSE

UIC has promoted the creation of the Freight LARA Task Force within the framework of its Latin American Regional Assembly. This initiative brings together key actors in the region's rail freight sector, including Trenes Argentinos Cargas, CENADIF, the Chilean State Railways (EFE) and technical representatives from UIC itself. Its objective is to identify concrete opportunities for the development of rail freight transport, with particular emphasis on interoperability, logistics efficiency and the articulation of strategic corridors.

The Task Force's technical work aims to generate applied knowledge, share international experiences and propose concrete solutions for the development of rail and multimodal corridors. Its approach complements and strengthens regional initiatives by providing a technical perspective based on international standards and global best practices in the railway sector.

The following table presents the ambitious agenda undertaken by UIC through this initiative, designed to transform the landscape of rail freight transport in Latin America. This technical and strategic roadmap covers issues ranging from interoperability and multimodal corridor planning to open operation models and new evaluation methodologies, positioning the region at the centre of global railway innovation.

Course of action	Description	Organisers/participants
International multimodal corridors	Technical definition of rail and multimodal corridors at the national and regional levels. Identification of pilot cases (Socompa, Victoria–Neuquén).	UIC, EFE, Trenes Argentinos Cargas, CENADIF, ANTF (Brazil)
Legal framework for international connections	Analysis of ATIT agreement restrictions and proposed solutions for combined transport (rail + road).	UIC, ALAF, national operators
Open Access Model	Evaluation of European experiences and feasibility of implementation in Latin America.	UIC, invited European operators
Rolling stock leasing	Identification of challenges and opportunities for leasing companies in the Latin American market.	UIC, European companies
Project evaluation methodologies	Development of new tools to measure the social and economic benefits of rail freight transport.	CENADIF, UIC
UIC-FIATA multimodal corridors	Coordination with FIATA to generate technical deliverables from LARA as strategic input.	UIC
Expansion of the Task Force	Incorporation of new regional players (Brazil, ALAF, Ferrosur Roca, FCAB, FERRONOR).	UIC

2.4. Challenges and opportunities for rail transport towards 2050

The virtual seminar on the **2050 Vision for Railways in Latin America**, organised by the International Union of Railways (UIC), highlighted a wide range of persistent challenges that continue to limit the development and integration of rail transport in the region. These challenges, identified by experts from different countries and institutions, are multiple and require a **coordinated and comprehensive response** (Figure 9).

One of the main challenges identified is the **chronic lack of investment in railway infrastructure**, particularly since the late 20th century. The absence of sustained financing has led to the progressive deterioration of railway networks in most countries, with numerous segments abandoned or in critical condition due to the lack of maintenance and resources. This situation has considerably reduced the operational capacity and competitiveness of the railway system, particularly in comparison with road transport.



Figure 9: Railway challenges in Latin America. Source: UIC, 2024

although **Public-Private Partnerships (PPPs)** are presented as a viable alternative; legal and institutional barriers limit private sector participation. In many countries, regulatory frameworks are obsolete or overly rigid, preventing the structuring and implementation of financially sustainable railway projects.

A second structural challenge is related to **rail interoperability and integration**. The coexistence of multiple track gauges and the lack of common standards between countries hinder the efficient flow of goods and passengers, limit regional integration and obstruct the development of an effective co-modal transport system. The absence of harmonised technical and operational criteria further complicates the consolidation of a functional transnational railway network.

Financing constraints also remain a recurring and cross-cutting issue. Public investment has proven insufficient and

Another essential dimension is the **lack of a long-term strategic vision and institutional continuity**. Railway policies and investment programmes are often subject to political cycles, which undermine the stability and coherence required for complex, long-term infrastructure projects. As a result, the implementation of railway initiatives lacks consistency and often fails to survive changes in administration.

The region also faces significant **deficits in regional integration and intermodality**. A competitive railway system requires solid connections with ports, highways and logistics platforms. However, planning for intermodal connections has been weak, resulting in operational inefficiencies and high transport costs. Some countries, such as Guatemala and El Salvador, have begun exploring strategies to strengthen connectivity with Mexico and access international markets, but these efforts remain **isolated and fragmented**.

The challenge of **sustainability and technological modernisation** is becoming increasingly urgent. While proposals have been made to adopt electric and hydrogen-powered trains (whose deployment will depend on regional technical and economic viability) as a way to reduce the sector's carbon footprint, this transition requires substantial investments, technological adaptation and institutional support. The shift towards more sustainable transport systems must begin with the rehabilitation of existing infrastructure and the progressive incorporation of energy-efficient technologies.

The development of the **Regional Master Plan for Mobility and Logistics 2035** confirmed the seriousness of these challenges. Currently, only some local railway segments remain operational in countries such as Honduras, Costa Rica and Panama, while the rest of the infrastructure is in critical deterioration. Furthermore, the region lacks the **institutional and technical capacities** needed to effectively manage and modernise the system (JICA, 2023).

Therefore, the revitalisation of the railway sector requires not only investment, but also profound improvements in **system governance, human capital development and innovation promotion**.

Based on this context, the main **challenges and weaknesses** that the railway sector must overcome in order to achieve its transformation and consolidate its role in regional mobility are the following:

2.4.1. Challenges in strategic planning and coordination of the railway system

The development of planning, monitoring and evaluation tools for the railway sector remains limited, making it difficult to identify and seize opportunities to strengthen this mode of transport.

A major obstacle is the lack of an integrated model that allows railway projects to be coordinated at the national level within a broader strategy. The absence of a shared vision prevents the alignment of efforts and the consolidation of an efficient and competitive railway system. Likewise, there is no clear strategy for railway revitalisation, which complicates the definition of priorities and the allocation of resources. Without a structured roadmap, progress in railway infrastructure tends to be isolated and lacks continuity over time.

Another significant challenge is the limited communication between the different stakeholders involved in railway infrastructure integration. The lack of effective mechanisms for coordination and dialogue hinders the development of an interoperable system, limiting the advantages of rail as a pillar of regional and international connectivity. To overcome these challenges, it is essential to establish a strategic planning framework that ensures policy harmonisation, project integration and the strengthening of the railway sector as a key alternative for sustainable transport.

■ Limitations in strategic planning and system coordination

The development of planning, monitoring and evaluation tools in the railway sector remains limited across the region. This constrains the identification of investment opportunities and restricts the alignment of efforts between stakeholders. A key obstacle is the absence of a national coordination model linked to a long-term strategy. Without a shared vision and a structured roadmap, initiatives remain fragmented, and infrastructure projects are implemented in isolation, without continuity over time.

In addition, communication and coordination between the various entities involved in railway infrastructures (such as ministries, agencies, operators and logistics stakeholders) are limited, which prevents the development of interoperable systems. The lack of dialogue platforms between stakeholders further aggravates institutional fragmentation and slows progress towards system integration.

To overcome these limitations, it is essential to establish institutional frameworks for strategic planning that foster policy harmonisation, project alignment and the development of multimodal transport at both national and regional levels.

- **Deterioration and obsolescence of railway infrastructure**

The widespread deterioration of physical infrastructure is one of the most visible symptoms of the railway sector's neglect. Tracks, bridges, stations and rolling stock have been affected by decades of poor maintenance and, in many cases, entire segments have been decommissioned without updated inventories or rehabilitation strategies.

The lack of records on dismantled or disused sections hampers project planning and the assessment of technical feasibility. Added to this is growing technological obsolescence, both in equipment and signalling systems, which increases operating costs, reduces efficiency and undermines safety.

Moreover, the effects of climate change – such as track deformations caused by high temperatures or the occurrence of extreme weather events – are increasingly affecting infrastructure resilience. To reverse this situation, specific investment programmes for rehabilitation, technological modernisation and climate adaptation are required.

- **Low resilience and deficient right-of-way management**

The railway system faces serious challenges in terms of resilience, both to natural and social factors. Natural disasters – such as landslides, floods and heat waves – interrupt operations and cause significant damage to infrastructure. Added to this are social factors, such as the occupation of rights-of-way by informal settlements or unauthorised uses.

These occupations generate legal and operational conflicts that hinder railway operations and project implementation. In addition, theft and vandalism of railway components, such as rails, cables or technical systems, increase maintenance costs and raise safety risks.

To address these challenges, it is necessary to strengthen territorial management of rights-of-way, implement mechanisms to protect infrastructure and establish resettlement strategies that balance social inclusion with the efficiency of the railway system.

- **Institutional limitations, low technical capacity and limited innovation**

One of the most pressing structural problems in the region is the lack of institutional and technical capacities to plan, manage and operate the railway system. Many countries lack specialised teams within their public administrations to design, evaluate and implement railway projects. Furthermore, there is a shortage of trained personnel, both at technical and managerial levels, due to the lack of training programmes and limited academic offerings in railway engineering and logistics.

This institutional weakness is compounded by a deficit in innovation, both technological and organisational. The region lags behind in the adoption of advanced railway technologies – such as digital signalling, predictive maintenance or integrated logistics platforms – and lacks policies to promote applied research or technological development in the sector.

The experience of institutions such as EFE (Chile) reflects the challenges of building institutional capacities while advancing system modernisation. Strengthening skills and fostering innovation must be central elements of any strategy to revitalise railways in Latin America.

- **Obsolescence and weaknesses in legal and regulatory frameworks**

The persistence of outdated legal, regulatory and administrative frameworks represents a significant barrier to the modernisation and expansion of the railway system. In several countries, railway legislation has not been updated for decades, creating uncertainty and hindering the efficient management of concessions, investments and regulatory processes.

Likewise, the absence of autonomous and technically specialised regulatory bodies limits strategic planning and the development of long-term policies. Without adequate oversight mechanisms, railway operations are exposed to inefficiencies, lack of transparency and weak control.

To reverse this situation, it is necessary to update legal frameworks, promote the creation of independent regulatory entities, and define clear rules that encourage investment, modernisation and system safety.

- **Fragmentation of connectivity and lack of demand-based planning**

Despite the existence of operational railway infrastructure in some countries, national networks often remain disconnected from each other, limiting their ability to facilitate regional trade and cross-border mobility. The absence of articulated regional connectivity reduces the competitiveness of the railway system and limits its strategic value as a co-modal alternative.

In addition, there is a lack of demand studies and technical analyses to support the development of binational or subregional railway corridors. Without solid information on freight and passenger flows, it is difficult to justify investments, select appropriate routes or structure viable integration projects.

Promoting regional coordination and conducting feasibility studies is essential to structure railway infrastructure around strategic corridors that respond to real transport needs.

2.4.2. Structural limitations to financing railway and intermodal projects

Access to sufficient and sustained financing is one of the main constraints on railway development in Latin America. The high capital costs associated with track rehabilitation, rolling stock acquisition and the construction of intermodal infrastructure require financing strategies that go beyond traditional public resources.

However, the region faces a limited diversification of financial mechanisms and little experience in structuring Public-Private Partnerships (PPPs). This has resulted in low private sector participation, particularly in long-term, capital-intensive projects. In addition, weak inter-institutional coordination often leads to the duplication of efforts and inefficient use of available resources.

This financing gap also affects the development of intermodal infrastructure, preventing the integration of rail with other modes of transport, such as ports and logistics platforms. Overcoming these limitations requires the design of innovative investment models, the promotion of strategic Public-Private Partnerships and the establishment of regulatory environments that reduce investment risks.

3

Global and regional trends



Figure 10: Belgrano Cargas train passing over a stone embankment on the La Picasa lagoon.
Source: FASE, 2025

- 3.1. Transition towards decarbonisation and sustainability**
- 3.2. Technological advances and digitalisation**
- 3.3. Reconfiguration of logistics chains and regional trade**
- 3.4. Urbanisation and demand for sustainable mobility**
- 3.5. New models of governance and financing**
- 3.6. Regional cooperation and interoperability**

3.1. Transition towards decarbonisation and sustainability

In recent decades, the global push towards decarbonisation **has reshaped priorities** in mobility and transport. The Paris Agreement and the SDGs have set clear targets to **mitigate the effects of climate change**, committing states to reduce their greenhouse gas (GHG) emissions. In this context, the energy sector – responsible for about three-quarters of global GHG emissions – and, within it, transport as a key component, are under growing pressure to shift to more sustainable models.

Rail, as one of the most energy-efficient modes of transport with the lowest emissions intensity per passenger-kilometre or tonne-kilometre, emerges as a strategic ally in this transition. The roadmap presented by the International Energy Agency in 2021 establishes that the energy transformation required to achieve net zero emissions by 2050 cannot be achieved without a drastic reduction of emissions across all modes of transport, favouring those that allow for rapid electrification or the use of low-carbon fuels.

This becomes even more relevant in Latin America, where transport accounts for approximately 38% of final energy consumption and more than 30% of GHG emissions. In this context, rail – due to its high energy efficiency and electrification potential – stands out as one of the best technological options to advance towards low-carbon mobility (CAF, 2024).

One of the main technological trends driving this transformation is the large-scale electrification of transport systems, including rail infrastructure. The International Energy Agency (IEA) estimates that by 2050, global electricity generation will need to increase by a factor of 2.5 and be supplied 90% from renewable sources, with solar and wind accounting for nearly 70% of the total. This increasingly clean energy environment reinforces the feasibility of electrified rail as the backbone of decarbonised mobility in the region.

Furthermore, in corridors where electrification is not technically or economically viable, emerging technologies such as green hydrogen could represent a strategic long-term alternative, provided they achieve cost competitiveness and the necessary infrastructure is in place. Globally, it is estimated that by 2050, the production of 435 million tonnes of low-emission hydrogen and an installed capacity of 3,000 GW of electrolyzers will be required, with a substantial portion destined for long-distance transport. Innovation in this area also includes the development of advanced biofuels and the integration of carbon capture and storage systems into residual energy processes.

In Latin America, the landscape is uneven. While countries such as Brazil and Uruguay lead in the incorporation of renewable sources – representing more than 50% and 98% of their energy mix respectively – Mexico and Argentina face significant structural challenges due to their heavy dependence on fossil fuels, which still account for more than 80% of their primary energy mix. This situation has direct effects on the logistics and transport sectors, where operating costs and emissions are harder to mitigate, and where emerging environmental regulations represent additional pressures.

Although Mexico has high potential for renewable sources such as solar and wind, their adoption in the transport sector – such as fleet electrification – remains low due to high costs and limited charging infrastructure. Recommendations include strengthening public transport, establishing energy efficiency standards and eliminating fossil fuel subsidies, aligning with international guidelines for an orderly and just transition (Moody's Analytics, 2024).

In the region, although some countries have begun to include rail transport in their climate strategies, such as in their NDCs, operational articulation between climate plans and mobility and transport plans remains limited. The IEA highlights that most climate commitments are still not backed by concrete policies or short-term measures, which represent an obstacle to advancing clearly towards net zero goals.

On the other hand, increasing access to international climate finance, combined with regulatory pressure, offers an unprecedented opportunity to reposition rail as a central component of mitigation strategies. The IEA's roadmap emphasises that the success of the transition will depend on the design of clear policies, investment in infrastructure, technological innovation and effective international cooperation – all factors where rail can offer a comparative advantage and significant climate returns.

The region also faces a significant financing gap. It is estimated that Latin America needs to invest around USD 220 billion annually through 2030 to reach carbon neutrality by 2050. Currently, only 32% of necessary mitigation investments and 14% of adaptation investments are being covered, limiting the potential to modernise strategic sectors such as rail, despite its multiple climate and social benefits (Moody's Analytics, 2024).

Beyond emission mitigation, the transition must also consider the growing impacts of climate change on transport infrastructure. Latin America and the Caribbean face high climate vulnerability, making it necessary to prioritise resilient modes such as rail, which can withstand extreme events and ensure operational continuity (CAF, 2024).

From this perspective, advancing towards a modern, clean and resilient rail network is not only an environmental necessity, but also a development strategy with multiple collateral benefits. These include improving air quality, reducing urban congestion, boosting regional economies and enhancing energy security. The **Vision 2050 for railways in Latin America** aligns with these objectives, positioning rail as a structural vector of decarbonisation and territorial inclusion within the framework of the global energy transition.

Finally, as highlighted by the CAF Compendium, the energy transition must not be limited to a technological shift, but should be conceived as a social process aimed at well-being, equity and justice. This requires ensuring universal access to modern energy services, guaranteeing an equitable distribution of the benefits and costs of the transition, and actively involving territories and communities in decision-making (MRC Consultants and Transaction Advisers; PSR Energy Consulting and Analytics, 2024).

3.2. Technological advances and digitisation

The digital transformation of rail transport is radically reshaping the way railway systems are planned, operated and maintained. These innovations not only enhance operational efficiency and safety but also enable new forms of connectivity and modal integration, which are fundamental to the sustainable development of the sector.

One of the pillars of this transformation is the automation of railway systems through technologies such as automatic train control systems. In particular, the use of advanced solutions such as CBTC (Communications-Based Train Control) and ERTMS (European Rail Traffic Management System) has proven its ability to increase line capacity, reduce headways and improve operational safety. These systems allow for communication-based real-time operation and reduce reliance on physical signals, which is especially relevant in dense urban environments or high-demand corridors.

ERTMS, developed under the joint initiative of the European Commission, the railway industry and UIC, **constitutes an international standard aimed at ensuring interoperability between railway networks in different countries by harmonising signalling and control systems**. UIC has played a central role in its technical evolution, facilitating coordination between operators, manufacturers and railway authorities through its working groups and standardisation activities. Its progressive implementation in Europe has also been projected as a reference model for other regions of the world seeking to integrate cross-border networks or modernise their signalling systems in line with international standards.

In this context, the deployment of ERTMS in Latin America is beginning to consolidate as a **viable and strategic technological benchmark for the region**, particularly in the framework of efforts to modernise signalling, ensure greater interoperability, and raise safety and efficiency standards. According to UNIFE (2021), countries such as Brazil, Chile, Mexico and Uruguay have taken concrete steps towards implementing the system.

In Brazil, the system was adopted on a limited scale in the SuperVia network in Rio de Janeiro, as part of a comprehensive modernisation programme for five suburban lines. The application of ERTMS Level 1 reduced train intervals to three minutes on the densest segments, increasing service frequency and safety.

In **Chile**, the **technological modernisation** of the railway system has included the implementation of **ETCS Level 1 (European Train Control System Level 1)** on the **Santiago Alameda–Nós** section, featuring onboard equipment, electronic interlockings and centralised control systems. It should be noted that **ETCS** is part of the broader framework of **ERTMS**.

For the new **Santiago–Melipilla** and **Santiago–Batuco** lines, the installation of **ETCS Level 2** is planned, offering enhanced capabilities for continuous supervision and real-time traffic management. Since **2005**, the **Valparaíso** service has already operated with an advanced system similar to **ETCS Level 2**, known as **CMT Mux**, which integrates electronic interlockings, track circuits and onboard **Automatic Train Protection (ATP)**.

Additionally, **EFE** is expanding the installation of **ATP systems** across the rest of the network through the **CSV Project (Signal and Speed Control)**, aimed at raising **safety standards** and **operational efficiency** throughout the national railway system.

Mexico, in turn, stands out as a regional benchmark, being the only country with two active ERTMS projects: the suburban Cuautitlán–Buenavista line, a global pioneer in applying ETCS Level 1 to a high-density line; and the Mexico–Toluca Interurban Train, the first project with **ERTMS Level 2** and Automatic Train Operation (ATO) in North America. The latter aims to transport up to 270,000 passengers daily, significantly reducing CO₂ emissions by relieving congestion on one of the country's busiest highways.

Finally, **Uruguay** is moving forward with the Central Railway project, which connects Paso de los Toros with the port of Montevideo over 276 km. This is the first project in the country to integrate **ERTMS Level 1** along with electronic interlockings and centralised traffic control. This mixed-use project (freight and passengers) seeks to strengthen the national logistics platform and increase the competitiveness of the multimodal transport system.

The experience gained by these countries demonstrates that the adoption of ERTMS in Latin America is not only technically feasible but also desirable from the standpoint of efficiency, interoperability and sustainability. According to UNIFE, the region is at a tipping point where success will depend on the speed and commitment with which these technologies are deployed. The progressive standardisation of ERTMS could become a catalyst for an integrated, safe and competitive regional railway network.

At the same time, the incorporation of **IoT sensors, Big Data and artificial intelligence** has enabled the development of **predictive maintenance strategies**, replacing traditional preventive or corrective models. Through continuous monitoring of critical variables such as temperature, vibration, pressure or energy consumption, it is possible to anticipate failures and **optimise asset life cycles**, reducing costs and increasing service reliability. This trend is consolidating as part of the global digital railway agenda.

Technological progress is also reflected in the development of digital platforms for logistics and intermodal management, which **integrate real-time information on infrastructure availability, train scheduling, cargo tracking and coordination with other modes of transport**. These platforms optimise supply chains, support data-driven decision-making and improve traceability in high-volume logistics corridors.

In the field of high-speed rail, although **Latin America still faces structural challenges for large-scale implementation**, there are significant technological advances at the global level. Countries such as China, Japan, France and Spain have developed next-generation trains exceeding 350 km/h, while autonomous models for high-speed services are being explored. Autonomous train technology is also advancing in urban and suburban networks, with pilots in cities such as Paris, Shanghai and Hamburg, which could serve as references for future regional applications in Latin America, particularly in suburban and trunk passenger systems.

The convergence of these technologies positions rail as an increasingly smart, safe, efficient and competitive mode, capable of meeting new demands for mobility, trade and sustainability. Vision 2050 promotes the development of public policies, investment in technological innovation and regional cooperation to accelerate railway digitalisation as a structural driver of transport system transformation.

3.3. Reconfiguration of logistics chains and regional trade

In recent decades, **global supply chains** have undergone significant transformations, driven by factors such as the **pandemic**, growing **geopolitical instability** and climate **emergency**. These phenomena have accelerated a trend towards **trade regionalisation**, aimed at reducing vulnerabilities, shortening logistics distances and fostering **self-sufficiency** within regional blocks. This trend is supported by recent data indicating that **72% of global companies** are considering relocating operations closer to final markets (McKinsey, 2023), giving **Latin America**, and particularly **Mexico**, a leading role in the **nearshoring** process.

Latin America has begun to identify **strategic opportunities** to reorganise its logistics and production networks, promoting **regional value chains** that strengthen **intra-regional trade** and reinforce global integration under efficiency and sustainability criteria. The modernisation and expansion of railways in countries such as **Mexico, Brazil, Argentina and Uruguay** respond to this need, aiming to reduce operating costs, increase transport capacity and minimise the environmental footprint of freight movement. A rail network well connected to strategic nodes – such as ports, airports and intermodal platforms – becomes crucial for decongesting roads, reducing logistics times and enhancing regional competitiveness. In this scenario, understanding the different forms of regionalisation acquires **strategic relevance** to properly guide **productive integration** efforts.

In this context, it is essential to understand the various forms that **economic regionalisation** can take. As explained by **ECLAC (2023)**, there are different types: **horizontal** (between companies in the same sector), **vertical** (integration of different stages of a production chain), and **services regionalisation**. Latin America is characterised by **weak intra-regional productive integration**, especially compared to regions such as **Europe** or **East Asia**, which limits its ability to generate regional value chains and reduces the **resilience of its economies** to external shocks.

Railway infrastructure can be a key enabler for consolidating **regional logistics platforms** that facilitate the efficient movement of intermediate and final goods between countries, thus promoting **productive regionalisation** with greater **added value**. Unlike road transport, rail allows for **lower logistics costs** and **greater scale** in intra-regional trade, while also enabling more **balanced and competitive territorial development**.

A concrete expression of this regional logic is the development of **bioceanic railway corridors**, conceived as structuring axes of physical and commercial integration. These projects seek to connect the **Pacific and Atlantic coasts** across South America, consolidating the region as a **logistics bridge** between Asia and the Atlantic. The **Bioceanic Railway Integration Corridor**, which aims to link the port of **Santos (Brazil)** with the port of **Ilo (Peru)** through Bolivia, is an emblematic example of this vision, combining **logistical benefits, reduced transit times** and **environmental mitigation**. Similarly, the **Central Railway in Uruguay**, connecting the centre of the country with the port of Montevideo, represents a prominent multimodal infrastructure initiative focused on strengthening exports and enhancing the country's **strategic trade positioning**.

The Master Transport Study for Latin America and the Caribbean (JICA, 2023) reinforces this vision, highlighting that the **structural changes in global trade**, the **dynamism of emerging economies** and the growth of **intra-regional trade** are creating **increasing pressure** on existing logistics corridors. Many are already operating at the limit of their capacity or present **structural deficiencies** that hinder effective responses to projected demand.

According to JICA, **international transport demand** in the region **tripled between 2000 and 2020** and will continue to grow, especially in corridors such as the **Mesoamerican** and **Central Bioceanic**. In this scenario, a **multilevel and coordinated planning** approach between countries is proposed, prioritising cargo flows by **volume and added value**, integrating **accessibility analyses** and optimising **transshipment points**. This strategy positions **rail** as the **backbone of the regional logistics system**, particularly where topography or distance undermines the competitiveness of other modes of transport.

In line with this, a **strategic classification of regional corridors** is established based on their **economic viability** and **integrative function**. Corridors such as the **Northern Pacific**, **Central America–Mexico** and **Southern Interoceanic Connection** are considered priorities due to their current and potential cargo volume, their linkage with high-productivity areas and their capacity to articulate **multimodal logistics platforms**. This approach helps channel investment towards **key nodes** of concentration, transshipment and logistics transformation, optimising rail use on medium- and long-distance routes.

Beyond physical infrastructure, **regional logistics transformation** also requires **technological modernisation** to achieve greater **visibility, efficiency and responsiveness**. Technologies such as **artificial intelligence, blockchain, digital twins and advanced automation** are being progressively adopted by major global logistics companies. Their application in Latin America, though still **incipient**, will be decisive in building **resilient and competitive supply chains**.

In this process of logistics reconfiguration, rail can and must play a leading role, as an efficient transport mode with lower energy intensity and high capacity to move large freight volumes over long distances. To achieve this, close coordination between infrastructure policies, regional trade strategies and long-term financing is essential, under a comprehensive perspective of territorial planning, environmental sustainability and shared economic development. However, the region must also confront structural challenges, such as high logistics costs (up to 35% of product value in some countries) and slow customs processes, which are three times the global average. Overcoming these challenges will be decisive for the region to strategically position itself in the new global trade configuration and move towards more balanced and competitive development.

3.4. Urban development and the demand for sustainable mobility

Latin America and the Caribbean, with a current population of about **662 million inhabitants** (8.02% of the world population), faces rapid **urbanisation** that puts pressure on its transport systems. Projections by **United Nations (2024)** estimate population growth will reach **752 million by 2056**. This demographic expansion is concentrated mainly in **urban areas**, where more than 80% of the regional population currently resides. Cities such as **São Paulo, Mexico City** and **Buenos Aires** rank among the largest in the world, each with more than 22 million inhabitants (Lujan,2024)

This pattern of **urban growth** intensifies the demand for basic services and infrastructure and raises structural challenges in terms of **mobility**. According to the **World Bank Group** (Schrader-King, 2023), cities are responsible for two-thirds of global energy consumption and more than 70% of **greenhouse gas emissions**, which means transport solutions must be not only efficient but also **sustainable**. The concentration of population in large metropolitan areas fully justifies the development of **mass transit systems** that effectively connect vast metropolitan regions.

In this scenario, **urban and suburban railways** emerge as key alternatives to individual motorised transport. Their capacity to move large volumes of passengers quickly, safely and with a **smaller environmental footprint** makes them fundamental tools to reduce congestion, cut emissions and guarantee the **right to mobility**. However, their implementation must overcome multiple challenges: from high upfront investment costs to the need for integrating rail with other modes (such as buses and bicycles) into truly **intermodal systems** centred on people.

According to a **World Bank** publication, a successful **urban railway system** must not only respond to population growth but also be supported by **coordinated urban planning**, strong **institutional governance** and sustainable **financial schemes**. As Latin American cities grow and diversify, it is imperative to adopt mobility models that combine **operational efficiency** with **social inclusion** and **universal accessibility**.

Therefore, the **Vision 2050 for railways in Latin America** cannot do without a strategy focused on the development of **urban and suburban trains**. These systems must be part of a broader **sustainable mobility network**, articulated with public transit and active modes, with policies aimed at reducing private car use and reclaiming public space for people. The challenge is significant, but it represents a historic opportunity to reshape cities into more liveable, equitable and resilient environments.

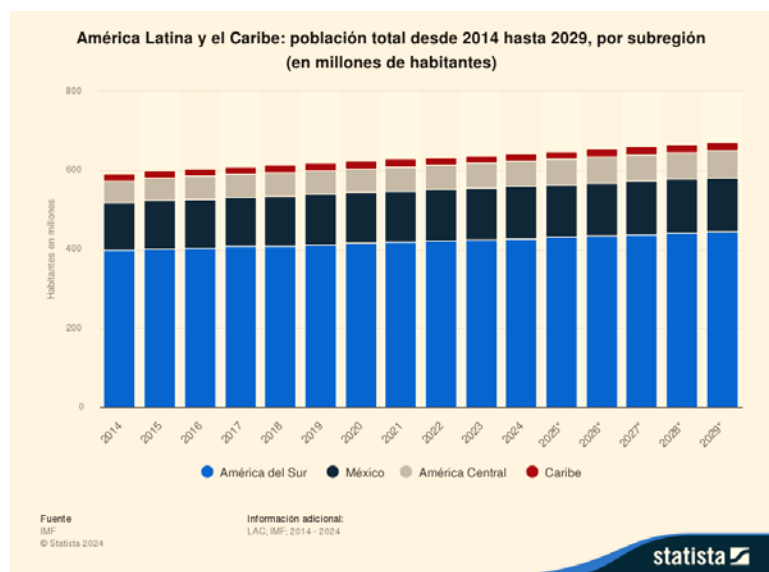


Figure 11: Latin America and the Caribbean: Total population from 2014 to 2029, by subregion (in millions of inhabitants). Source: Statista Research Department, 2024

3.5. New models of governance and financing

3.5.1. Trend towards Public-Private Partnerships (PPPs) and mixed financing schemes

In recent years, **Public-Private Partnerships (PPPs)** have become a key tool for advancing railway projects in **Latin America**. This trend responds to the need to mobilise **private capital** to complement limited public resources, given the magnitude of required investments and the fiscal constraints faced by many countries in the region. PPPs make it possible to share risks, leverage the **technical expertise** of the private sector and accelerate the execution of **strategic projects**, provided there are clear institutional conditions and effective oversight mechanisms.

Mixed financing schemes, which combine public resources, private investment and, in some cases, contributions from **multilateral organisations**, offer a viable alternative for unlocking high-impact railway infrastructure projects. This approach is particularly useful in the case of **urban railways**, where financial returns are more uncertain but **social and environmental benefits** are significant.

Examples such as the **Tren Maya** in **Mexico** or the **Ferrocarril Central** in **Uruguay** illustrate how PPP models have been adapted to local characteristics and needs, integrating private operators into construction, operation or maintenance under long-term contracts. However, international experience shows that the success of these schemes depends largely on **comprehensive planning**, **transparency** in contract awards and proper **risk assessment**.

It is therefore essential that governments strengthen their **institutional capacities** to structure railway PPPs that are viable, transparent and sustainable, supported by **regulatory frameworks** that protect the public interest and promote accountability. Likewise, it is necessary to design **innovative financial instruments** to lower the cost of capital, enhance the bankability of projects and attract investment aligned with sustainability criteria.

In this regard, it is useful to review international experiences that have systematised good practices and technical recommendations for the implementation of **PPPs** in the railway sector. In this sense, the World Bank's Urban Rail Development Handbook provides a detailed framework on the conditions necessary to structure successful projects: from contract design to risk allocation, including investment recovery mechanisms, bankability criteria and private sector participation. This approach offers concrete elements that can be adapted to Latin American contexts, strengthening the capacity of governments to formulate more robust and resilient railway PPPs that are aligned with sustainable development goals. The most salient points are presented below:

3.5.2. Diversity of PPP contractual models in railway projects

PPP schemes applied to the railway sector encompass a **diversity of contractual models**, which can be adapted to the **institutional capacity** and specific needs of each country or project. Among the most widely used are **concession contracts**, the **BOT (Build-Operate-Transfer)** model, the **BOOT (Build-Own-Operate-Transfer)** model and **availability contracts** (Pulido, 2021).

- **Concession contracts** delegate to the private sector the responsibility to design, build, operate and maintain railway infrastructure for a defined period, allowing it to recover its investment primarily through tariff revenues. This model transfers significant **demand risk** to the concessionaire but can be effective where there is a strong user base and a stable economic environment.
- In the **BOT scheme**, the private contractor finances, builds and operates the project for a limited period, after which assets are transferred to the **state**. Ownership remains public, but the private sector assumes the risk during the operational phase. This model is useful when construction needs to be accelerated and operational efficiency ensured, while maintaining long-term state control.
- The **BOOT model** adds an additional component: temporary ownership of the infrastructure by the private party. Here, beyond financing, construction and operation, the private company owns the asset until it is transferred back to the state at the end of the contract. This option provides stronger incentives to investors but requires clear **legal frameworks** governing ownership, asset revaluation and reversion conditions.
- **Availability contracts** are appropriate where **demand risk** is high or uncertain. In this case, the private operator receives regular payments for keeping the infrastructure available and operational, without depending directly on tariff revenues. This model is particularly useful for projects with strong **social or environmental benefits** but low direct financial returns, such as many **urban transport systems**.

The choice among these schemes depends on the degree of **risk transfer** the state is willing to accept, the project's **financial profile** and the **public sector's supervisory capacity**. In all cases, clarity in the distribution of responsibilities, regulatory predictability and **transparency** in the award processes are key factors to ensuring the sustainability and efficiency of the PPP model adopted.

3.5.3. Participation of multilateral organisations and development banks in railway projects

3.5.3.1. Investment recovery mechanisms

One of the keys to the **financial viability** of railway projects under **PPP schemes** is the clear definition of the mechanisms that will allow the private partner to recover its investment. In many cases, **user fares alone** are not sufficient to cover investment, operation and maintenance costs, especially in **urban transport projects** where equitable and affordable access is prioritised.

For this reason, modern contracts tend to structure **complementary revenue streams** that reduce exclusive reliance on direct user payments. Among the most common are **availability payments**, consisting of periodic transfers from the state to the private operator based on compliance with performance indicators such as service frequency, punctuality or quality of service. This scheme shifts **demand risk** to the public sector, making the project more attractive to investors and improving its **bankability**.

Cross-subsidies have also proven effective in practice. This is where revenues generated by more profitable segments of the system (e.g. trunk lines or **premium services**) subsidise other routes with lower demand but high social value. This strategy makes it possible to maintain **social tariffs** without compromising the financial balance of the system.

Another notable mechanism is the use of **real estate development** around railway stations. Through instruments such as land value capture, joint development agreements and development rights concessions, governments can mobilise additional resources to complement investment in railway infrastructure. This approach, known as **Transit-Oriented Development (TOD)**, not only supports financial recovery but also promotes urban densification, the integration of transport with land use, and reduced reliance on private cars.

The combination of these mechanisms must be adapted to local conditions, considering the user **socioeconomic profile**, the state's fiscal capacity, and the prevailing **regulatory framework**. In Latin America, several projects have begun to incorporate these mixed approaches, although their application still faces challenges related to **institutional coordination**, **real estate market regulation** and the social acceptance of shared financing models.

3.5.3.2. Importance of institutional strengthening

The **institutional quality** of the public sector is a critical factor for the success of railway PPPs, particularly in contexts where projects are complex, capital-intensive and long term. International evidence (especially in Latin America) shows that the lack of **technical, legal and administrative capacity** within governments has led to poor bidding processes, poorly structured contracts and weak or delayed supervision – all of which affect project viability and generate contractual disputes.

An essential component is the presence of a **multidisciplinary technical team** within government, capable of leading tender design, negotiating with private investors, assessing risks, and rigorously monitoring contract compliance. In many countries, these capacities have been limited by high staff turnover, the politicisation of processes and a lack of specialised training, which increases reliance on external consultants and weakens the state's negotiating position.

The establishment of **specialised PPP agencies or units**, endowed with autonomy, adequate resources and access to technical and financial assessment tools, is vital. These entities can act as guarantors of **transparency** and **process quality**, while also serving as an **institutional knowledge repository** – crucial for avoiding repeated mistakes and promoting continuous improvement.

Furthermore, the **regulatory and institutional framework** should facilitate intergovernmental coordination across **national, regional and local** levels, especially in urban projects where **municipal governments** play a key role in transport planning, land management and complementary services provision. In this sense, **collaborative governance and integrated planning mechanisms are indispensable** to align long-term public and private interests.

Institutional strengthening must also be accompanied by formal **monitoring and accountability processes**, including **independent audits**, **dispute resolution mechanisms** and informed **citizen participation**. Only through a robust institutional structure will governments be able to protect the public interest, ensure project sustainability and build **trust** between railway ecosystem stakeholders.

3.5.3.3. Bankability criteria and financial participation

Bankability, understood as a project's ability to attract private financing under market conditions, is a decisive factor for successfully implementing **Public-Private Partnerships (PPPs)** in the railway sector. In this field, **multilateral development organisations** such as the **Inter-American Development Bank (IDB)**, the **Development Bank of Latin America and the Caribbean (CAF)**, the **World Bank** and the **Japan International Cooperation Agency (JICA)** play a **strategic role** that goes beyond lending, acting as structurers of financial viability and catalysts for investment.²

Their contribution is expressed on multiple fronts: they provide **technical assistance** in project and contract structuring, defining **tariff schemes**, **revenue flows**, guarantees and regulatory frameworks that reduce investor-perceived risks. They also offer instruments such as **performance guarantees**, **political risk and demand risk coverage**, and **credit insurance** that enhance the financial rating of projects, thereby facilitating access to private capital and lowering its cost.

In addition, these organisations often act as **anchor investors**. Their mere participation generates **institutional confidence**, particularly relevant in Latin America, where regulatory frameworks are often perceived as fragile or exposed to political shifts. They also promote **innovative financial instruments** – including **green bonds**, **climate funds**, **land value capture financing** and **resilient infrastructure funds** – which mobilise resources aligned with **ESG principles** and global climate goals.

Strengthening bankability, however, does not depend solely on financial engineering. It requires a robust **institutional, contractual and technical ecosystem**, with **regulatory stability**, **dispute-resolution mechanisms**, clear institutional guarantees and predictable revenue streams throughout the life cycle of projects. In this effort, the intervention of multilateral organisations becomes a **governance factor**: supporting the creation of specialised PPP units, promoting modern regulatory frameworks, assisting in tenders under international standards, and facilitating regional coordination in cross-border projects such as **bioceanic corridors**.

Their participation spans the **entire project cycle**: from long-term territorial and logistics planning to the assessment of social and environmental impacts, innovative financial structuring, and monitoring of implementation. Documents such as the Master Transport Study for Latin America and the Caribbean (JICA, 2023) or the sustainable logistics programmes promoted by the IDB illustrate how these institutions have integrated railways into national and regional plans, prioritising strategic corridors, technical interoperability and emission reduction.

UIC, together with **UITP** and in collaboration with **ANPTrihos**, emphasised this approach at the event “*Thriving economies: Financing sustainable transport towards COP30*” (Brazil, 2025), highlighting the need to align railway financing strategies with **NDCs**. A joint position paper was presented, exploring, among other topics, the use of **Article 6 mechanisms of the Paris Agreement** as tools to channel resources towards sustainable railway projects. Such initiatives show that bankability criteria are no longer limited to traditional financial analysis, but now incorporate **environmental, social and regulatory variables** as part of the new standard of international cooperation.

In summary, the participation of **multilateral organisations and development banks** not only secures financing but also has a **structuring effect** on national and regional railway ecosystems. Their intervention raises the **technical, institutional and environmental quality** of projects while reinforcing their credibility with investors and their coherence with long-term sustainability goals.

3.5.3.4. Funding and financing: Two complementary pillars for urban railway projects

In the development of **urban railway projects**, it is essential to distinguish between **funding** and **financing** – concepts that, while interrelated, correspond to different mechanisms within the financial cycle of infrastructure.

Funding – Structural generation of resources

Funding refers to permanent or recurring sources of income designed to sustain the project throughout its life cycle. Its main feature is that it **does not require repayment**, unlike financing. Key sources of funding include:

² Appendix E provides a comprehensive description of various multilateral organisations that have experience in financing infrastructure projects in Latin America.

- **Public revenues:** derived from general taxation or intergovernmental transfers. This type of funding is crucial in railway systems with strong state subsidies or where transport is recognised as a **social right**.
- **User revenues**, mainly through fares, provide a direct source of income but are often insufficient to cover operating and capital costs, particularly in systems with subsidised or social tariffs.
- **Commercial revenues:** advertising, retail space leasing, **naming rights** or the sale of promotional items. In consolidated systems, these can represent **5-15%** of revenues, helping to reduce dependence on public subsidies.
- **Land Value Capture (LVC) revenues**, divided into **development-based models** (e.g. betterment contributions or real estate appreciation) and **tax-based models** (fiscal increments resulting from higher land values). This source is particularly relevant for railway projects tied to **urban regeneration**.
- **Other revenues**, such as specific fees imposed on certain users or special payroll/sales taxes, which can be legally earmarked to support railway systems.

This mix of sources helps build a **robust, diversified and sustained funding model**, capable of supporting both operations and maintenance, and in some cases, future expansions.

Financing: Temporary leveraging of resources

Conversely, **financing** refers to obtaining external resources to cover upfront investment costs, with the obligation of repayment in the medium or long term. Financing can be divided into **public** and **private**, each with several sources:

- Public financing includes loans from multilateral development banks (such as the IDB or the World Bank), bilateral agencies (e.g. KfW or JICA), public or municipal debt, tax exemptions to attract private investment, and the issuance of sovereign-backed securities.
- Private financing involves participation from commercial banks, equity investors, access to capital markets through the issuance of corporate or structured bonds, and vendor financing tied to the acquisition of rolling stock or other key assets.

These mechanisms enable the leveraging of initial investment and distribution of project costs over time, making it financially more feasible. However, they involve **risks** that must be mitigated through well-structured contracts, **public guarantees**, predictable revenue models and stable regulatory frameworks.

To better understand the multiple alternatives available for railway development financing, especially in urban contexts, it is essential to distinguish between funding sources (resources that sustain projects financially over time) and financing mechanisms (instruments that mobilise capital for execution). Figure 12 presents a conceptual framework classifying the main types of funding and financing, along with their respective sources. This helps visualise the diversity of actors involved and the potential public-private combinations.

This **integrated approach** facilitates the structuring of projects that are more viable, sustainable and attractive for both investors and **multilateral organisations**.

FUNDING		FINANCING	
TYPE	SOURCE	TYPE	SOURCE
Public revenues	General taxes	Public financing	Multilateral development banks
	Intragovernmental transfers		Bilateral development institutions
User revenues	Fare revenues		Public or municipal debt
Commercial revenues	Advertising	Tax exemptions	
	Rental of commercial spaces	Government-backed securities	
	Naming rights	Private financing	Banks
Land Value Capture (LVC) revenues	Development-based	Private financing	Equity investors
	Tax-based		Capital markets
Other revenues	Charges imposed on users		Equipment suppliers
	Special taxes on sales or payroll		

Figure 12: Sources of funding and financing for urban rail projects. Source: Pulido, 2021

3.5.3.5. Risk distribution and mitigation

One of the most decisive aspects in structuring **railway PPPs** is the proper **allocation and mitigation of risks** between stakeholders. The **Urban Rail Development Handbook** highlights that a balanced distribution of risks improves financial viability and strengthens trust between the public and private sectors, facilitating access to financing and ensuring long-term operational sustainability.

Within the risk set, the handbook emphasises **demand risk**, considered one of the most complex to predict and manage. Since passenger forecasts depend on multiple external factors – such as changing mobility patterns, income elasticity, modal competition or economic crises – many private operators consider it unfeasible to fully assume. In response, **risk-sharing schemes** or **minimum revenue guarantees** have been implemented, where the state absorbs part of the variability in fare collection to provide greater investor certainty without eliminating efficiency incentives. Other significant risks include:

- **Construction risks:** linked to cost overruns, delays or technical failures during execution. Typically borne by the private contractor, but requiring clear liability clauses, dispute-resolution mechanisms and proportional penalties.
- **Financial risks:** associated with interest rate volatility, exchange rate fluctuations or limited credit access. Mitigation tools include the involvement of **multilateral banks** offering tailored financial products or the use of hedging instruments.
- **Regulatory and political risks:** such as legislative changes, permit delays or unilateral contract modifications. Strengthened legal frameworks, independent regulators and **compensation clauses** are key to safeguarding private investment.

A comprehensive risk matrix prepared at the prefeasibility stage – identifying risks, assigning responsibilities and proposing mitigation measures – should be an integral part of PPP contracts. This matrix must remain updatable throughout the project life cycle, supported by continuous monitoring mechanisms.

Proper risk management does not imply elimination, but efficient allocation: each risk should be assumed by the party best positioned to manage it. This logic optimises public resources, avoids contractual disputes and enhances service quality for users.

3.5.3.6. Lessons learned in the region

Latin America's experience with **railway PPP projects** has yielded clear lessons regarding the factors driving success or failure. Common issues include overly optimistic demand forecasts, political instability, institutional fragility and fragmented regulatory frameworks, often resulting in renegotiations, cancellations or underperformance.

A first lesson is the need to base every project on **rigorous feasibility studies** – technical, financial, environmental and social – using robust methodologies, alternative scenarios and sensitivity analyses. This approach anticipates variations in demand, costs or external shocks, reducing the likelihood of financially unviable structures.

Another key lesson is the importance of **well-structured contractual frameworks** with enough flexibility to include **renegotiation clauses** or economic rebalancing mechanisms when initial conditions change significantly. This foresight is especially critical in contexts where political cycles disrupt continuity.

Finally, experience shows that **public-private trust** requires competitive bidding processes, effective contractual supervision, and mechanisms for transparency and citizen participation. Early consultations, disclosure of studies, and clarity in the distribution of risks and benefits strengthen social legitimacy and reduce resistance.

3.5.3.7. Need for harmonised regulatory frameworks and institutional strengthening

Looking ahead, the future of **railways in Latin America** depends on consolidating regulatory and institutional environments that can sustain **long-term investments**. The absence of clear and predictable rules increases perceived risk and discourages private participation, while **regulatory fragmentation** across different levels of government and countries limits the development of regional corridors.

It is therefore essential to move towards **harmonised regulatory frameworks** that include **technical standards, interoperability, tariff policies**, dispute-resolution mechanisms, and **social and environmental sustainability criteria**. This harmonisation must occur both at the **national level** (between municipalities, states and federal entities) and at the **regional level** for cross-border projects.

At the same time, it is essential to strengthen **institutional capacities**. This involves granting public entities both **technical autonomy** and sufficient resources, creating or consolidating **specialised PPP Units**, and ensuring **transparent bidding processes**. **Multilateral organisations** have played a key role in this area by financing **institutional reform programmes**, developing **model contractual frameworks** and promoting the training of technical staff.

International experience shows that many **railways project failures** stem not from technical shortcomings, but from **governance gaps**, lack of political leadership and insufficient inter-institutional coordination. Overcoming these obstacles will not only attract investment but also ensure that railway projects become drivers of sustainable mobility, territorial integration and orderly urban development in the region.

REGIONAL OVERVIEW ACCORDING TO CAF

The **International Forum for Railway Reactivation**, organised in **Bogotá in 2025** by **CAF** and the **Ministry of Transport of Colombia**, highlighted both the **potential** and the **challenges** of the ongoing railway revival in **Latin America and the Caribbean**:

- **155 railway projects identified**, with an investment demand close to USD 400 billion and a scope of 57,000 km of new or modernised tracks.
- **Country distribution: Brazil** (50 projects, USD 81.6 billion); **Colombia** (20 projects, USD 74.2 billion); **Mexico** (21 projects, USD 63.2 billion); and **Peru** (Coastal Line, USD 63.9 billion).
- **Priority levels:** 68 projects are **high priority**, 59 medium and 28 low. **80%** of the total have immediate strategic impact.
- **Critical package of 60 projects:** concentrate on **16,000 km** of tracks. This would benefit **150 million people** and require **USD 153 billion**, but also require support for their **technical and financial structuring**.

CAF emphasised that the main obstacle was “**not the money, but the quality of project structuring**.” Most of these projects are of medium quality and strongly linked to **ports and airports**, while 45 focus on **freight or mixed use** and 39 are **greenfield**.

In addition, key challenges were identified:

- **Innovative financing:** need to rely on **PPPs, concessions, international cooperation** and **value-capture mechanisms**, as public treasuries cannot absorb the full investment costs.
- **Low infrastructure investment:** only **1.4% of GDP** in the region (when it should be doubled to meet the **2030 SDG Agenda**); in transport, just **0.9%**, mostly in roads.
- **High logistics costs:** between **14% and 18%** of product value, almost double the **OECD** average.
- **Low railway participation:** only **7-10%** of freight moves by train, compared to **40% in the U.S.**
- **Railway benefits:** up to **80% GHG reduction**, **30-50% lower logistics costs**, greater competitiveness and stronger territorial integration.
- **Insufficient human capital:** the railway system's decline has limited the training of technicians and specialists, requiring the relaunch of **capacity-building programmes**.

CAF's conclusion is unequivocal: without **harmonised regulatory frameworks, solid governance** and **institutional quality**, the magnitude of investment will become unmanageable and the potential for **regional integration** will remain truncated. The call is to make the **railway a State policy**, shielded from government cycles and aligned with agendas on **intermodality, digitalization, and energy transition**.

3.6. Regional cooperation and interoperability

In the Latin American context, **cross-border railway integration** has gained renewed prominence as a key element to boost **intra-regional trade**, reduce **logistics costs** and promote more equitable **territorial connectivity**. Platforms such as the **Inter-American Transportation Commission (COMITRAN)**, the **Latin American Integration Association (ALADI)**, the **Latin American Railway Association (ALAF)** and the **Andean Community (CAN)** have played a central role in this process, fostering technical and political dialogue between countries to align infrastructure networks and regulatory frameworks. These bodies have served as spaces to define common transport agendas, harmonise standards and prioritise strategic corridors with potential for **bioceanic integration**.

One of the main challenges in realising this vision of railway integration is the **lack of unified technical standards**. Differences in track gauges, signalling and control systems, customs requirements, and operational rules between countries represent major barriers to interoperability and increase both operating and maintenance costs. In this regard, moving towards the adoption of common or compatible technical standards – drawing on successful experiences of railway integration in **Europe or Asia** – becomes essential. This would not only facilitate the international movement of goods and passengers but also allow countries in the region to optimise the use of their railway capacities and achieve economies of scale in the acquisition of equipment and services.

Likewise, several countries have begun designing or implementing **cross-border railway projects** as part of a shared development vision, in which rail transport acts as the backbone of sustainable regional integration. Initiatives such as the **Bioceanic Railway Integration Corridor** (led by Bolivia, Brazil and Peru), the Capricorn Corridor linking Argentina, Bolivia, Paraguay, Brazil and Chile, and ongoing efforts to connect the rail systems of the **Central American Isthmus**, reflect a growing willingness to consolidate an articulated network that overcomes historical limitations of national fragmentation. These projects aim not only to improve **logistics competitiveness** but also to generate positive externalities in terms of **territorial cohesion, social inclusion and carbon footprint reduction**.

An effective strategy for regional railway integration also requires strengthening **joint planning mechanisms** between countries, overcoming the fragmented approaches that have historically limited the development of international corridors. This entails creating **binational or multinational bodies** to coordinate investments, synchronise infrastructure works in border sections, and design joint protocols for railway operations. The existence of uncoordinated national agendas has led to situations in which one country advances in the construction of a strategic corridor, while its neighbour lacks planning or financing to continue the route. This imbalance jeopardises the viability of integration projects. Therefore, the development of **regional railway master plans**, supported by shared feasibility studies and harmonised timelines, becomes essential to guarantee the physical and functional continuity of networks.

Another key component is the need to move forward with **institutional and regulatory harmonisation**. Beyond technical compatibility, achieving interoperability requires countries to align their legal frameworks regarding **railway concessions, safety regulations, customs management and labour standards**. The diversity of legal arrangements for railway operations in each country – including state entities, private concessionaires and mixed enterprises – makes it difficult to implement common protocols. In this context, it is urgent that regulatory harmonisation processes, supported by **multilateral organisations and regional entities**, are promoted to establish minimum standards for the international circulation of freight and passenger trains.

In addition, **digital interoperability** has emerged as a new frontier for regional railway integration. The implementation of technologies such as **ERTMS**, intelligent signalling systems or unified control centres will require much more sophisticated technical and regulatory coordination between countries. While some progress has been made in standardising certain components, significant gaps remain in the compatibility of information systems, railway telecommunications and operational data management.

Finally, the construction of cross-border railway networks must be accompanied by a **shared geostrategic vision**, recognising railways not merely as transport infrastructure but as strategic instruments of economic, political and environmental integration. This requires sustained political will, investment in regional institutional capacities and the building of trust between participating countries. Initiatives such as the **South American Railway Integration Network**, promoted by **UNASUR** in previous years – although currently on hold – offer valuable lessons on the technical, diplomatic and financial requirements involved in building an **interoperable and sustainable regional infrastructure**.

4

Vision 2050



4.1. Vision 2050 statement for railways in Latin America

4.2. Strategic pillars

4.3. SMART goals and objectives

4.1. Vision 2050 statement for railways in Latin America



By 2050, Latin America's railways will have undergone a structural transformation, positioning themselves as the backbone of a **sustainable, intermodal transport system**, resilient to climate change, and a driver of **equitable and inclusive territorial development**. This modern and efficient railway network will not only meet freight and passenger needs with high standards of quality and safety, but will also serve as a key instrument to address the major **social, economic and environmental challenges** of the 21st century.

From a **sustainability** perspective, rail transport will have consolidated its position as the mode with the **lowest environmental footprint** per tonne-kilometre and passenger-kilometre, actively contributing to regional climate commitments through mobility decarbonisation and the extensive adoption of clean technologies, prioritising **electrification** and incorporating solutions such as **green hydrogen** and **energy efficiency** as they become technically and economically viable in the region.

Regarding **regional integration**, railways will have overcome the technical, regulatory and institutional barriers that currently fragment infrastructure, achieving **cross-border interoperability** that strengthens logistics corridors, promotes intra-regional trade and deepens ties between countries with complementary productive vocations.

The **resilience** of the railway system will be a structural feature, with infrastructure and services prepared to face the adverse effects of climate change – such as floods, droughts or natural disasters – thanks to **adaptive territorial planning** and the use of **smart technologies** enabling agile and coordinated responses.

On the **social front**, railways will contribute significantly to **territorial cohesion**, integrating historically marginalised regions, improving access to essential goods and services, and creating opportunities for **decent employment, technical training** and **economic inclusion** in both rural and urban communities.

Latin America's **economic competitiveness** will also find in railways a key ally, reducing **logistics costs**, improving the reliability of freight flows, and facilitating access to national and international markets, thereby boosting the productivity of strategic sectors such as **agriculture, mining, manufacturing** and **tourism**.

At the same time, a robust **railway governance framework** will have been strengthened, characterised by coordination across levels of government, private sector participation, international cooperation, and planning based on data, evidence and **citizen engagement**.

Finally, the Latin American railway system will act as a **driver of technological innovation**, adopting **digital solutions** for infrastructure management, train tracking, user services and strategic decision-making, within a framework of **sustainable and long-term financing**.

4.2. Strategic pillars

To make **Latin America's Railway Vision 2050** a reality, it is essential to have a **clear strategic framework** that guides policy formulation, resource allocation and coordination between public and private stakeholders. In this regard, **six strategic pillars** have been defined as the foundation for the development of a **modern, sustainable, resilient and inclusive railway system**. Each pillar addresses a priority area of transformation and aligns with the region's major challenges: **mitigating climate change, improving connectivity, reducing territorial inequalities** and promoting more balanced economic development. These pillars provide a **roadmap** that will structure the goals and concrete actions required to move forward in a coordinated and effective manner towards **Vision 2050**.

4.2.1. Pillar 1. Sustainability and transport decarbonisation



Figure 13: EFE freight train.
Source: EFE Trains of Chile, 2025

Objective

Promote the **energy transition** of the Latin American railway system towards a **low-carbon model**, through **network electrification**, **clean technologies** and **energy efficiency**, while ensuring a comprehensive approach that combines technological innovation, operational efficiency and public policy, to consolidate rail as a resilient and competitive transport mode aligned with international climate commitments.

Description

The transformation of the railway system towards a **clean and efficient energy matrix** is an essential requirement for consolidating railways as the backbone of sustainable mobility in Latin America. In a region heavily dependent on fossil fuels and

dominated by road transport emissions, this pillar proposes to accelerate the reduction of the sector's carbon footprint and move towards a model aligned with the Paris Agreement, the UN SDGs and NDCs.

The decarbonisation process requires the participation of multiple actors: **railway operators and infrastructure managers**, who must modernise their networks; **rolling stock manufacturers** responsible for developing more efficient trains; and **governments and local authorities**, who must drive regulatory policies, financial incentives and instruments of international cooperation. This **multi-stakeholder convergence** is indispensable for accessing **climate financing mechanisms** and creating opportunities for technological innovation that will strengthen the region's technical and institutional capacities.

Rationale

The transition to a **sustainable railway system** in Latin America demands a **structural transformation** aimed at reducing greenhouse gas emissions, optimising energy use and consolidating railways as the **most environmentally efficient mode of transport**. To achieve this, infrastructure electrification is the central strategy, supported by the integration of renewable energy sources such as solar and wind. This process requires investments in **catenaries**, **substations** and **hybrid systems** that allow operations on non-electrified segments, ensuring **progressive coverage across the entire network**.

In a complementary manner, the gradual adoption of alternative technologies is envisaged, such as **hydrogen-, hybrid- or battery-powered trains**, whose **viability will depend on each corridor's technological maturity and economic feasibility**. These solutions are particularly relevant in **sensitive urban areas** and **low-demand corridors** where full electrification is not financially viable. International experiences, such as Trenitalia's hybrid trains, have achieved up to 83% reductions in carbon emissions compared with conventional fleets, highlighting the potential of these technologies for **Latin America**.

The **third axis** is **energy efficiency**, which involves optimising routes, integrating **regenerative braking systems**, employing lightweight materials in rolling stock and applying **digital traffic management technologies** (e.g. **ERTMS**) capable of regulating speed and energy consumption in real time. These measures not only reduce the carbon footprint but also improve the competitiveness of rail compared to more polluting modes.

International literature emphasises that **railway decarbonisation** is an **integral process** that combines **technological innovation**, **efficient operations** and public policy. According to the IEA and UIC, rail represents only 1% of global transport emissions, and according to ambitious scenarios, could reach near-zero emissions by 2050. However, the main challenges include the magnitude of infrastructure investments, the need to ensure a stable supply of renewable energy and policy coordination at both national and international levels.

To overcome these challenges, a **robust regulatory framework**, coupled with **financial incentives** and multilateral cooperation mechanisms, is essential to accelerate **energy innovation and access international climate funds**. Initiatives such as Horizon Europe – Europe's Rail or the CEF Transport (AFIF) programme, which supports the installation of hydrogen refuelling points, demonstrate how the articulation between **innovation, financing and regulation** can drive a **just and scalable transition**.

Strategic lines of action

- **Progressive electrification** of the railway network: Promote electrification projects in **high-demand priority segments**, encouraging the technological conversion of currently diesel-operated lines. Strategic corridors should be prioritised, and regulatory and financial incentives established to foster this transition, considering the positive externalities in **emission reduction** and **energy efficiency**.
- **Adoption of clean and innovative technologies**: Encourage the evaluation and eventual incorporation of hydrogen-powered trains, hybrid systems and lithium-battery trains in services where electrification is not technically or economically viable in the short and medium term. This requires adapting regulations, facilitating pilot projects to validate performance in the regional context, and promoting international technical cooperation, particularly with European experiences.
- **Energy optimisation through artificial intelligence and digitalisation**: Develop smart energy management systems in railway operations through sensors, Big Data and predictive algorithms to reduce energy consumption, improve operational efficiency and minimise rolling stock wear. These systems should be integrated into fleet modernisation strategies.
- **Access to climate financing and international cooperation mechanisms**: Align railway projects with NDCs and the SDGs to access green financing, technical cooperation and resources from the Green Climate Fund or other multilateral sources. This includes strengthening technical capacities for the preparation of bankable projects with mitigation components.
- **Capacity building and training in railway energy transition**: Promote regional training programmes in clean railway technologies, electric train maintenance and refuelling/recharging infrastructure, in collaboration with technical centres and universities. This is key to ensuring the operational sustainability of the energy transition and to creating green jobs in the sector.

EXPLANATORY NOTE

In this Vision 2050 for railways in Latin America, green hydrogen and other emerging zero-emission technologies are presented as strategic options with high potential to advance the decarbonisation of rail transport, especially in corridors where electrification is not technically or economically viable.

However, their inclusion is framed as aspirational and conditional, recognising that large-scale deployment will depend on several key factors still under development.

- Technological maturity and suitability for the operating conditions of the regional rail system
- Cost competitiveness compared to other energy solutions
- Availability of infrastructure for the production, storage and distribution of green hydrogen
- Regulatory and safety frameworks that enable its use in rail transport
- Access to financing and incentives that enable pilot testing and scaling up

Despite these challenges, hydrogen remains a viable strategic option for the region due to several key factors:

- Latin America has high levels of renewable potential (solar, wind and hydroelectric) that could, in the long term, enable competitive green hydrogen production.
- Some countries in the region (Chile, Brazil, Colombia and Uruguay) already have national hydrogen strategies and pilot projects underway, which are generating valuable experience and the foundations of institutional frameworks.
- Its use could be particularly relevant in low-density, long-distance or complex geographical areas where full electrification is not feasible.
- International cooperation and technology transfer with countries that are already developing hydrogen trains can accelerate its adoption curve.

Under this approach, the document prioritises the electrification of rail infrastructure as the central pillar of the energy transition and considers hydrogen, along with hybrid technologies and high-capacity batteries, as complementary solutions to be evaluated and progressively adopted, according to the technical, economic and regulatory feasibility specific to each national context.

This treatment seeks to maintain consistency between the ambition of the vision and the realism of its implementation by avoiding recommendations that, although technically possible, may be unattainable within the set timeframe without the necessary progress and enabling conditions, ensuring that the region does not lag technologies that could be competitive and strategic by 2050.

4.2.2. Pillar 2. Regional integration and interoperability



Figure 14: Train in downtown Medellín.

Source: Shutterstock, 2024

Objective

Develop a **connected Latin American railway network** within and between countries, through technical and regulatory harmonisation, cross-border interoperability and the consolidation of strategic logistics corridors for both passengers and freight. International cooperation and multilateral frameworks will be key instruments to advance regional railway integration as a **strategic project for 2050**.

Description

This pillar promotes the physical, regulatory, and institutional connection of national railway systems, aiming to overcome the historical fragmentation that has limited service continuity in Latin America.

The fragmentation of infrastructure, the coexistence of different track gauges and the absence of cross-border coordination have hindered the construction of an integrated regional railway network.

Railway integration goes beyond physical works: it requires **compatible regulatory frameworks, cooperation agreements** and **multimodal planning** that links rail with **ports, airports and logistics platforms**. This opens opportunities to **reduce logistics costs**, strengthen **regional value chains**, improve **territorial cohesion** and advance towards a **sustainable mobility model** that connects people and goods more efficiently.

Rationale

Railway integration in Latin America addresses **historical connectivity gaps** that have resulted in **isolated and poorly interoperable systems**. Unlike Europe, where networks were conceived with a **regional interconnection logic**, Latin American railways were developed in a **fragmented, extractive-oriented** manner, limiting their role in **territorial and economic integration**.

Among the main technical challenges is the **coexistence of multiple track gauges**, which obstructs service continuity between countries, as well as **external technological dependency** and limited local innovation capacity. Overcoming these obstacles requires progress in **regulatory harmonisation**, strengthening **technical cooperation** and expanding **international financing mechanisms** to modernise infrastructure and equipment.

Recent experiences highlight the potential of integration: the **rehabilitation of the Belgrano Railway** in Argentina, the modernisation of corridors in **Chile and Colombia**, and **cross-border projects** in **Guatemala, Mexico and El Salvador**. Likewise, the **Mexican concession model**, together with its **interoperability with North America** through regulatory harmonisation, stands as a reference for designing regional schemes.

According to **ECLAC**, the consolidation of **railway logistics corridors** linked to **multimodal platforms** and **strategic ports** is essential to reduce dependence on road transport, decrease emissions and enhance the competitiveness of regional trade. These orientations reinforce the idea that **railway integration** is both a **technical challenge** and a **long-term regional development project**.

Strategic lines of action

- **Technical and regulatory harmonisation for railway interoperability:** Establish common frameworks for technical and operational regulation between countries, including the standardisation of safety, operations, signalling, control and maintenance norms. Priority should be given to track gauge compatibility or technical solutions for gauge change at border points, based on recognised standards such as those promoted by UIC.
- **Promotion of cross-border railway projects:** Boost strategic investments in the rehabilitation and connection of railway lines between neighbouring countries, prioritising key logistics corridors that enable the economic integration of complementary regions, such as the Mexico–Central America, Chile–Argentina or Brazil–Bolivia–Peru corridors. These projects must include binational or supranational governance mechanisms, joint financing schemes and participation from multilateral organisations.

- **Development of regional multimodal logistics platforms:** Establish intermodal logistics hubs at strategic points in the region to facilitate modal exchange between rail, road, ports and airports, with interoperable digital systems for cargo management and traceability. These platforms are fundamental to enhancing the efficiency of the regional network and should be located near productive zones, borders and port nodes.
- **Strengthening regional institutional and technical capacities:** Create or reinforce regional railway cooperation agencies to promote technical and strategic integration, with the participation of all relevant actors. Also, foster joint programmes for the training of railway human capital, technology transfer and knowledge generation adapted to regional conditions.
- **Participation in international interoperability frameworks:** Encourage Latin American countries to join global initiatives led by organisations such as UIC, OSJD and the European Commission, to adapt best practices and interoperable technologies to national and subregional contexts.

4.2.3. Pillar 3. Territorial and climate resilience



Figure 15: Train passing over Lake La Picasa, Argentina.
Source: FASE, 2025

Objective

Strengthen the capacity of **railway systems** to anticipate, withstand and adapt to the effects of climate change, natural disasters and external crises, through **robust infrastructure, adaptive territorial planning, and monitoring and rapid-response technologies**.

Description

This pillar seeks to ensure the **operational continuity** and sustainability of Latin America's railway system in the face of growing impacts from climate change and other disruptive events. As extreme phenomena such as **torrential rains, heat waves, wildfires** or **hurricanes** intensify, railways must consolidate their role as **critical**

infrastructure, capable of absorbing shocks and ensuring the safe mobility of people and goods during emergencies.

Resilience is conceived here as a **strategic property** of the railway system, grounded in adaptive infrastructure design, risk-focused territorial planning, preventive management, and articulation with monitoring and rapid-response networks. In this way, railways not only protect their operations against climate threats but also position themselves as an essential pillar of territorial security and civil protection in the region.

Rationale

The **vulnerability** of Latin American railway infrastructure to climate change has become evident in recent years. Events in **Brazil, Honduras** and **Colombia** have caused floods, landslides and thermal deformations of tracks, leading to prolonged service interruptions and high economic costs. These impacts highlight the urgency of a **technical transformation** centred on **structural adaptation** and **risk anticipation**.

Railway resilience requires improved **foundations and drainage standards**, the use of **weather-resistant materials** and the redesign of **critical zones** exposed to extreme events. At the operational level, key technologies include **early warning systems, AI-based risk management** and the **Internet of Things (IoT)** for predictive infrastructure monitoring. These tools enable vulnerabilities to be detected in advance and activate **rapid responses** that reduce downtime.

Investing in resilience not only prevents losses but also generates **long-term economic benefits** by ensuring the continuity of **logistics chains**, reducing repair costs and improving the competitiveness of railways compared to more vulnerable modes such as roads. It also reinforces trust between users and operators by positioning rail as the **safest and most stable mode of transportation** in times of crisis.

Institutions such as ECLAC, the World Bank, the IDB and CAF stress the need to promote institutional capacity-building, create innovative climate-financing schemes and strengthen regional cooperation to implement solutions adapted to local territories. Thus, resilience becomes a cross-cutting axis of railway planning and a **strategic component** of territorial sustainability and security in Latin America.

Strategic lines of action

- **Climate risk diagnostics and territorial adaptation:** Conduct systematic assessments of climate risk in **strategic railway corridors** using **GIS tools** and prioritising highly exposed zones. These assessments should be integrated into territorial and environmental planning instruments, embedding **resilience variables** in pre-investment studies and project design.
- **Climate-adapted railway infrastructure:** Incorporate **resilient engineering solutions** such as enhanced drainage, elevated structures, erosion-resistant materials and modular rapid-response systems. Designs should integrate **structural flexibility** and adaptive capacity in regions exposed to extreme climate events.
- **Monitoring and early-warning systems:** Implement **early-warning systems** with climate sensors, local weather stations, satellite technology and **AI-based tools** integrated into **IoT platforms**. These systems enable the real-time supervision of infrastructure conditions and external threats, allowing for **automatic operational adjustments**. The progressive adoption of systems such as **ERTMS** is also recommended, given its interoperability, safety and fault-detection capabilities in high-uncertainty climate scenarios.
- **Comprehensive contingency planning and operational continuity:** Design **unified protocols** for rapid response and recovery from natural disasters, including coordination between operators, local authorities and civil protection agencies. Inter-institutional communication networks and **risk-specific action plans** must be established.
- **Climate financing and international cooperation:** Promote financing mechanisms for resilient railway infrastructure, including Public-Private Partnerships (PPPs), green bonds and multilateral funds such as the **Green Climate Fund**. International cooperation will be key for transferring knowledge, technologies and successful practices in climate adaptation.

4.2.4. Pillar 4. Social and territorial cohesion

Objective

Leverage **railways** as an instrument to improve **territorial equity**, guaranteeing access to **quality transport services** in marginalised regions, promoting **economic inclusion**, connecting **isolated territories** and generating **jobs and opportunities** in local communities.



Figure 16: Train passing over the new Biobío Railway Bridge in Concepción, Chile. Source: EFE, 2025

Description

Social and territorial cohesion is understood as the capacity of transport systems to ensure the **right to mobility** under conditions of equity, connecting all people regardless of their geographic location or socioeconomic level. Within this framework, railways position themselves as an **inclusive and transformative mode**, capable of bringing lagging communities closer to **basic services, education, jobs** and markets.

This pillar envisions railway infrastructure not merely as a response to efficiency criteria but as an **instrument of social integration and territorial balance**. By connecting **isolated regions, rural areas, intermediate towns** and **urban peripheries** with major economic hubs, railways act as catalysts of **local development**, foster **integral mobility** and help reduce the **spatial inequality gaps** that characterise Latin America.

Rationale

Territorial cohesion is a strategic dimension of sustainable development, requiring the reduction of disparities. **Territorial inequality** in Latin America is reflected in the concentration of growth in large metropolitan areas and the exclusion of vast rural and peri-urban regions. This gap has resulted in limited access to basic services and restricted the productive potential of remote territories, perpetuating cycles of isolation and structural poverty.

According to **ECLAC**, territorial exclusion is one of the most persistent forms of inequality in the region, and overcoming it requires policies that integrate **infrastructure** with **social inclusion**. Rail offers comparative advantages: it can cover long distances continuously and safely, with **low environmental impact** and a superior capacity to connect dispersed populations compared to other modes.

World Bank and **IDB** studies show that inclusive transport systems generate a **multiplier effect** in education, health and employment. It is estimated that each dollar invested in inclusive transport infrastructure can yield up to **three dollars** in social and economic benefits, provided projects aim to reduce territorial gaps. International experiences, such as rural branches in India or regional trains in Morocco, demonstrate that railway design with a **cohesion focus** can transform local economies and expand social mobility.

In the region, initiatives like **Tren del Valle** in Argentina or the reactivation of **Belgrano Cargas** show that reintroducing railways in historically neglected areas fosters **productive revitalisation**, promotes **local employment** and improves the **accessibility of vulnerable populations**. However, their impact remains limited by the lack of integration with broader **social and territorial policies**.

Institutions such as **CAF** emphasise the need for a multilevel and cross-sectoral approach, where economic profitability is only one criterion, together with the redistributive and social-integration potential of projects. This implies strengthening participatory planning, conducting territorial and social impact assessments from the project design stage, and integrating **inclusive governance mechanisms** with local communities and subnational authorities.

Strategic lines of action

- **Expansion of railway corridors into marginalised territories:** Plan and build rail lines that connect rural communities, isolated regions and high-marginality zones with urban and economic hubs. Project selection must prioritise territorial equity and promote transport-oriented land use, improving access to public services, jobs and markets.
- **Design of accessibility policies and social fares:** Develop differentiated fare schemes to guarantee affordable railway access for vulnerable populations, including women, seniors, youth and indigenous communities. These policies must align with human rights and mobility-as-a-public-good approaches.
- **Strengthening local economies linked to the railway system:** Promote the development of productive chains, local jobs and community services around stations and railway corridors. This includes small businesses, rural markets, community-based tourism and local technical training for system operation and maintenance.
- **Integration of railways with local and non-motorised transport networks:** Design inclusive intermodal nodes that connect railways with local transport systems, bicycles, pedestrian paths and community services, reducing travel times and expanding the territorial coverage of public transport.

4.2.5. Pillar 5. Competitiveness and logistics innovation



Figure 17: Passenger train from La Vitoria to Minas Ferroviaria. Source: Divulgación/Valle, 2025

Objective

Improve the **efficiency, reliability** and cost-effectiveness of freight transport through **modern, digitalised** and **intermodal railway systems** that enhance regional productivity and strengthen Latin America's connection to global markets. Rail must consolidate itself as the most **competitive mode** compared to road transport for heavy and long-distance freight, strengthening its role as the **backbone** of multimodal logistics chains in the region.

Description

Logistics competitiveness is a decisive factor in Latin America's economic development, where high transport costs have limited the region's insertion into **global value chains**. In this context, rail is conceived as the core of multimodal logistics corridors, capable of more efficiently integrating regional production with international markets. Its ability to move **large cargo volumes** continuously and safely positions it as an essential mode for enhancing transport reliability and predictability.

Railway innovation extends beyond digitalisation, encompassing **practical solutions** adapted to local contexts, solving specific problems and improving operational continuity. This pillar promotes both the adoption of **advanced technologies** – such as automation, digital traceability or intelligent cargo management systems – and the ability of railway actors to creatively address everyday challenges. Together, the goal is a **robust, interoperable and technologically advanced railway system**, capable of boosting regional productivity, reducing logistics gaps and consolidating Latin America's position in a highly competitive economic environment.

Rationale

Regional logistics in Latin America faces **structural challenges** that reduce economic competitiveness. According to the **World Bank** and **ECLAC**, logistics costs can reach up to **20% of product value**, twice the level of developed countries. In **Central America**, this figure exceeds **40%**, due to poor infrastructure quality, fuel prices, border-crossing delays and security costs. These surcharges limit export capacity and discourage **high value-added investment**, creating a critical barrier to integration into global value chains.

Rail has the potential to reverse this situation if it consolidates as an **efficient and competitive alternative** to roads, especially for **heavy and long-distance freight**. Achieving this requires not only modern physical infrastructure but also **innovation in operational management** and **intermodal integration**. Technologies such as **process automation, customs digitalisation, logistics georeferencing** and **smart cargo-tracking platforms** can significantly reduce waiting times at terminals and borders, boosting service reliability.

Institutions such as the **IDB, CAF** and **OECD** emphasise the need for **collaborative logistics governance models**, where rail operators, port authorities, customs agencies and technology platforms work in coordination. These models not only reduce costs but also foster **transparency, fair competition** and the institutional capacities needed to scale up innovation. Railway modernisation, in this sense, cannot be uniform: it must adapt to the specific challenges of each corridor, offering **situated and replicable solutions** that raise competitiveness across the region.

Strategic lines of action

- **Promotion of multimodal logistics platforms:** Foster the creation and modernisation of logistics centres and intermodal terminals that efficiently connect rail with ports, airports and road networks. These facilities must be strategically located to maximise cargo flows, facilitate consolidation, and optimise national and international distribution costs.
- **Railway digitalisation and automation:** Adopt technologies such as IoT, Big Data, AI and real-time logistics management systems to improve cargo traceability, energy efficiency, operational programming and safety. The gradual implementation of ERTMS will also improve interoperability and reduce human error.
- **Regional technical standards and regulatory harmonisation:** Establish common regulatory frameworks and compatible technical standards to facilitate cross-border interoperability and regional rail integration. This harmonisation should consider international cooperation, alignment with UIC and integration into global supply chains.
- **Fostering innovation and attracting investment:** Promote new railway business models based on technological innovation, energy efficiency and circular economy principles. Encourage private sector participation through Public-Private Partnerships (PPPs) and green financing programmes focused on railway logistics infrastructure.
- **Productive integration through smart logistics corridors:** Design and operate integrated railway logistics corridors linked to industrial zones, technology parks and agribusiness hubs. These corridors must prioritise high-volume, value-added freight, reducing transit times and generating **territorial synergies**.

4.2.6. Pillar 6. Governance, financing and institutional capacity



Figure 18: Rumo train, Brazil. Source: Masa, 2022

Objective

Consolidate **robust institutional frameworks, strong technical capacities** and sustainable, transparent financing mechanisms for railway development. This includes strengthening strategic planning, sectoral regulation, private sector participation and public-to-public cooperation across government levels and countries, ensuring the long-term sustainability of the railway system in the region.

Description

Sustainable railway development in Latin America depends on **solid governance**, capable of effectively articulating competencies across government levels, ensuring balanced private sector participation and sustaining the **technical and financial continuity** of projects. Without this foundation, initiatives on **decarbonisation, regional integration, resilience, territorial cohesion** or **logistics competitiveness** cannot be fully implemented.

Historically, the lack of specialised railway entities and weak intersectoral coordination have limited the ability to implement coherent, long-term policies. This pillar seeks to overcome those gaps through the **creation or strengthening of specialised agencies**, the design of **collaborative governance models**, and the adoption of **results-oriented institutional evaluation methods** that incorporate criteria of **inclusion, sustainability** and **efficiency**.

At the same time, consolidating **stable and predictable regulatory environments** is essential to attract long-term investment and enable **Public-Private Partnerships**. Introducing **innovative financing mechanisms** – such as **green bonds, multilateral climate funds** or **land value capture schemes** – will expand funding sources and ensure project scalability across the region.

Rationale

International experience shows that countries with **modern, sustainable railway systems** have **specialised institutions, coherent regulatory frameworks** and **permanent technical capacities** able to sustain processes beyond political cycles. In Latin America, by contrast, the absence of stable institutional structures has been one of the main factors explaining the gap between railway project planning and execution.

In this context, institutions such as **CAF, ECLAC** and the **IDB** note that the **low bankability** of railway projects in the region is not only due to financial constraints but also to the absence of standardised demand-evaluation methodologies, insufficient use of cost-benefit and risk analysis tools, and the lack of legal frameworks guaranteeing legal certainty for investors. These deficiencies undermine private sector confidence and restrict access to international financing sources.

Strengthening governance also means investing in human and technical capacities: training specialised staff, establishing monitoring and evaluation units, and creating public-to-public cooperation mechanisms between countries and across government levels. These elements are key to ensuring administrative continuity and making railway projects true **state policies**, aligned with National Development Plans, regional integration and climate agendas.

Finally, **sustainable governance and financing** must be understood as **cross-cutting enablers** of all other pillars of Vision 2050. Without **strong institutions** and **innovative financial mechanisms** – such as **green bonds, multilateral funds** or **land value capture schemes** – initiatives on **decarbonisation, resilience, integration, cohesion** and **competitiveness** will lack long-term viability.

Strategic lines of action

- **Strengthening railway institutional frameworks:** Promote the creation, consolidation or reinforcement of railway authorities with clearly defined technical, regulatory and planning competencies. These institutions must have operational autonomy, trained staff and administrative continuity to coordinate with public, private and social actors, advancing long-term state policies. Collaborative governance across government levels and accountability mechanisms must be promoted.
- **Development of technical capacities and strategic planning:** Design and implement continuous training and technical assistance programmes for public officials in the railway sector. This includes project structuring methodologies, cost-benefit analysis, tools for territorial and social impact assessment, and expertise in sustainability and climate financing. Strategic planning should be integrated with territorial planning and national development instruments, aligning sectoral and cross-sectoral objectives.
- **Regulatory harmonisation and investment frameworks:** Establish legal and regulatory frameworks that provide legal certainty, transparency and clear conditions for private investment and international cooperation. This implies revising and harmonising transport, mobility, urban development and public finance laws, incorporating mechanisms such as land value capture, regulated tariffs, right-of-way and operating permits. Adoption of international standards such as those promoted by UIC or European ERTMS should also be encouraged.
- **Mobilisation of innovative financing sources:** Diversify railway financing sources through private capital attraction, PPP schemes, green bonds and access to multilateral climate funds. Mechanisms such as trust funds, land-value charges and special contributions from users and beneficiaries should be promoted. All measures must ensure financial sustainability, transparency and clear linkage to project outcomes and impacts.

4.3. SMART goals and objectives

To translate the **Vision 2050 for railways in Latin America** into concrete and measurable actions, it is essential to establish **strategic goals** that guide the implementation of each defined pillar. These goals transform general guidelines into **verifiable commitments**, facilitating progress monitoring, accountability and informed decision-making. They also provide a **technical and operational framework** to align the efforts of institutional, business and territorial actors involved in railway development.

Formulated on the basis of **international best practices** and consistent with the **SDGs** and the guidelines of organisations such as **ECLAC, the World Bank and CAF**, these goals are also a key tool for the design of **bankable projects** and the attraction of public and private investment. Together, they represent a **practical and verifiable roadmap** that enables progress towards a modern, sustainable and inclusive railway system, strengthening territorial governance and regional integration.

4.3.1. Time horizons for SMART goals

The definition of **specific timelines** for each goal in this Vision 2050 is not arbitrary, but responds to a **structured strategic planning process** designed to ensure the **political, financial and institutional feasibility** of the proposed objectives. Setting concrete years reinforces the credibility of the document by demonstrating that each goal has been conceived based on the actual time required to carry out reforms, develop infrastructure, implement new technologies or strengthen institutional capacities.

In addition, the selected time horizons are aligned with the **policy planning cycles** at both national and international levels. For example, many countries in Latin America update their development plans in **five-year cycles**, while organisations such as **ECLAC, the IDB or CAF** structure financing and evaluation programmes under similar periods. Such temporal synchronisation facilitates **inter-institutional coordination** and the mobilisation of strategic resources.

From an operational perspective, having **defined timelines** allows governments and railway stakeholders to prioritise investments, allocate resources in feasible phases and anticipate key milestones in implementation. Likewise, these defined timelines are fundamental for building effective monitoring and evaluation mechanisms, as they make it possible to set clear schedules, establish baselines, and facilitate feedback and continuous improvement processes. Altogether, these elements contribute to stronger governance and results-oriented management of the railway sector.

The following section presents the **SMART goals** corresponding to each of the six strategic pillars, formulated on the basis of internationally validated planning criteria and adapted to the Latin American context. These goals are intended to provide a **clear, quantifiable and time-bound guide** to orient public, private and multilateral action towards the fulfilment of the **Vision 2050 for railways in Latin America**.

4.3.2. SMART goals

4.3.2.1. SMART goals for Pillar 1: Sustainability

No.	Goal	Rationale
1.1	By 2050 , at least 80% of the active railway network in Latin America will operate with electric traction systems or very low/zero-emission technologies , including renewable energy, electric batteries, hydrogen and other emerging solutions, adapting the pace of implementation to the technical, economic and regulatory conditions of each country.	Grounded in the global trend of electrification and the use of clean train technologies as part of climate change mitigation strategies.
1.2	Reduce CO₂ emissions from freight and passenger rail transport by 90% compared to 2020 levels , through electrification, energy efficiency and technological innovation.	Supports the Net Zero 2050 scenario set out by the IEA .
1.3	Ensure that 100% of new railway projects designed from 2030 onward integrate renewable energy solutions from the planning stage.	Linked to the preventive design approach for low-emission infrastructure .
1.4	Incorporate intelligent energy management systems , regenerative braking and operational efficiency measures in at least 60% of the passenger rolling stock fleet by 2040 .	Based on the development and implementation of energy efficiency technologies , such as ERTMS and hybrid trains .
1.5	Achieve adoption of regulatory or fiscal incentives promoting investment in clean railway technologies in at least 10 Latin American countries by 2035 .	Connected to the need for enabling frameworks to accelerate decarbonisation through public-private collaboration .
1.6	By 2040 , at least 50% of priority freight corridors will be equipped with infrastructure for electric or hybrid trains, including substations, maintenance centres and digital energy management systems .	Drives the development of sustainable logistics corridors as a strategy for regional productive integration. This target also incorporates the European approach to smart green infrastructure , aligned with the TEN-T Initiative and rail interoperability .
1.7	Develop and implement regional standards for the measurement and reporting of railway emissions in at least 8 countries before 2030 , aligned with the Paris Agreement and the UIC Rail Carbon Tool framework.	Latin America faces challenges of technical and regulatory fragmentation . This target promotes a common emissions measurement platform , drawing on the European approach (using monitoring tools such as the Rail Carbon Tool), enabling climate finance and enhancing transparency.
1.8	Establish a Latin American Railway Decarbonisation Fund before 2035 , with the participation of at least 3 development banks , including specific lines for electrification, energy efficiency and hydrogen pilot projects, according to the technical and financial feasibility identified at each stage.	Inspired by EU green financial instruments (such as InvestEU), this target aligns with ECLAC proposals for the creation of regional funds to support the energy transition and multilateral financing for sustainable infrastructure.

4.3.2.2. SMART goals for Pillar 2: Regional integration and interoperability

No.	Goal	Rationale
2.1	By 2035 , at least five cross-border railway corridors will be fully operational in Latin America, connecting neighbouring countries with basic technical interoperability (either compatible track gauge or efficient gauge-change systems).	This target responds to the need to connect complementary regions through railway logistics corridors . It is aligned with ECLAC's approach to regional productive integration and with the experience of TEN-T corridors in the EU.

2.2	By 2030, establish a minimum regional regulatory framework for technical interoperability, formally adopted by at least eight countries in the region, including common standards for signalling, control, maintenance and operations .	It promotes regulatory harmonisation as the basis for interoperability, replicating the standardisation model of ERA in Europe and the governance frameworks promoted by ECLAC .
2.3	By 2040 , establish at least 10 regional intermodal logistics platforms that integrate rail with ports, highways and airports in strategic nodes across the region.	Logistics platforms are key for multimodal efficiency. This target reflects the European experience of interconnected logistics nodes and suggests their location in productive or border areas .
2.4	By 2030 , implement a joint technical training programme on railway interoperability , with the participation of at least 12 countries and the cooperation of international organisations (UIC, ALAF, OSJD, etc.).	It calls for the creation of shared technical capacities , emulating joint European programmes as well as various South-South and triangular cooperation initiatives .
2.5	Establish, by 2030 , a permanent regional technical entity for railway interoperability, bringing together at least ten countries to coordinate regulation, training and technical exchange.	Based on the ERA model , this target strengthens long-term regional governance , ensuring continuity in regulatory progress and structured technical cooperation.

4.3.2.3. SMART goals for Pillar 3: Territorial and climate resilience

No.	Goal	Rationale
3.1	By 2030 , at least five Latin American countries will have integrated railway resilience plans into their territorial and infrastructure planning frameworks.	This goal reflects a growing demand to incorporate climate adaptation criteria into public policies. According to ECLAC , territorial planning must consider future risks to ensure sustainability. Countries such as Mexico have made progress in linking railway systems with climate vulnerability analyses through GIS .
3.2	By 2028 , at least three strategic railway corridors will have infrastructure adapted to operate in high climate risk contexts (e.g. reinforced drainage, resilient materials, improved foundations).	The World Bank and the IDB recommend prioritising investment in resilient infrastructure to avoid high maintenance costs and operational losses. Experience in exposed corridors in Brazil and Central America demonstrates that anticipatory physical adaptation reduces disruptions.
3.3	By 2029 , real-time monitoring and early warning systems will have been installed on at least five vulnerable railway sections , including climate sensors and response protocols.	CAF and UIC have documented that the use of satellite systems and thermal sensors makes it possible to anticipate extreme events and coordinate mitigation actions. This goal also responds to the need for operational intelligence that improves safety and reduces damage-related costs.
3.4	By 2030 , climate finance funds or innovative instruments (green bonds, climate insurance, etc.) will have been implemented for resilient railway projects in at least four countries .	Organisations such as the Green Climate Fund , IDB Invest and the Climate Green Fund are promoting the creation of specific financial instruments for adapted infrastructure. This goal drives financial sustainability and access to strategic capital for long-term projects.
3.5	By 2030 , at least three railway corridors in Latin America will have incorporated traffic management systems based on ERTMS or equivalent technologies adapted to the regional context.	ERTMS , promoted by the EU , has proven effective in increasing safety, interoperability and resilience to extreme events. Adapting its principles to the region strengthens Latin American technological and operational integration .
3.6	By 2028 , a pilot predictive monitoring system based on IoT will have been implemented in at least three railway sections vulnerable to climate change (e.g. areas at risk of landslides, floods or extreme heat).	Predictive monitoring systems based on IoT allow real-time data collection and analysis to anticipate failures and climate-related impacts. According to UIC and CAF studies, this technology improves preventive maintenance and shortens response times in vulnerable sections .

4.3.2.4. SMART goals for Pillar 4: Social and territorial cohesion

No.	Goal	Rationale
4.1	By 2030 , at least five strategic railway corridors will be operational, connecting urban and rural areas, reducing travel times by 25% and improving access to basic services for isolated communities.	The operation of railway corridors that connect urban and rural areas helps to reduce travel times and improve access to basic services , thus promoting territorial equity . Rail transport is highlighted as a tool to reduce regional inequalities and foster inclusive development .
4.2	By 2029 , local economic development programmes linked to the railway network will have been implemented in at least ten municipalities in Latin America, generating direct and indirect job opportunities for at least 50,000 people .	The railway can act as a driver of local economic development . This goal follows recommendations from ECLAC , the IDB and the Paris Agreement (SDGs) to generate employment and boost municipal economies through railway infrastructure.
4.3	By 2030 , establish at least 10 pilot programmes of social railway fares in areas with high social vulnerability.	It is supported by IDB initiatives on inclusive mobility and by experience in Eastern Europe , where targeted subsidies have improved equity in transport access.
4.4	By 2031 , investments in railway infrastructure will have reduced territorial access gaps to markets by 20% , connecting rural producers with urban centres and strengthening regional economic cohesion.	Reducing market access gaps fosters territorial equity. This goal aligns with the SDGs by connecting rural areas with economic centres and enhancing regional cohesion .
4.5	By 2035 , at least 30% of new railway projects in Latin America will be aimed at improving connectivity in marginalised regions and rural areas.	Justified by ECLAC's ' territorialisation of development ' approach and the World Bank's experience in improving rural access through affordable transport. It seeks to reduce the divide between urban and peripheral territories.
4.6	Reach, by 2040 , a minimum of 200 railway stations with the development of local micro-economies (markets, community tourism, workshops and technical services).	Inspired by urban regeneration and economic inclusion programmes implemented in Morocco and India , where transport infrastructure has served as a driver for local economic revitalisation.
4.7	By 2035 , implement last-mile intermodal systems in at least fifty municipalities with railway stations.	Based on the World Bank's recommendation to integrate active and local modes into mass transport networks to improve the system's coverage and sustainability.
4.8	Ensure that by 2040 , 100% of passenger railway projects include social impact assessments and community participation in their design phase.	Aligned with participatory governance frameworks promoted by CAF and the World Bank's social inclusion approach in infrastructure, strengthening the legitimacy and adaptability of projects.
4.9	By 2030 , at least five railway projects will be linked to territorial strategies for business relocation or the creation of logistics-industrial zones in municipalities with high marginalisation, generating at least 10,000 direct and indirect jobs .	This goal aligns with the inclusive territorial development approach of the Paris Agreement , which proposes fostering regional value chains . Likewise, the World Bank has highlighted that investment in logistics infrastructure in historically disadvantaged areas can improve local human development by more than 20% . CAF also promotes the link between infrastructure and territorial competitiveness as a pathway for more equitable economic recovery.

4.3.2.5. SMART goals of Pillar 5: Competitiveness and logistics innovation

No.	Goal	Rationale
5.1	Achieve a 20% reduction in average railway logistics costs by 2035 , through efficient intermodality.	According to CAF , logistics costs are one of the main barriers to regional trade. Modal integration enables more competitive and sustainable logistics.
5.2	Implement at least five smart railway logistics corridors connected to industrial zones and ports by 2030 .	Promoting integrated logistics as a driver of productive development reduces times and connects production with exports.
5.3	Digitise 100% of railway logistics operations in main national networks by 2032 .	Digitalisation increases efficiency, reduces errors and improves traceability . This aligns with the World Bank's agenda to modernise infrastructure.
5.4	Ensure technical and regulatory interoperability in eight cross-border railway corridors by 2040 .	UIC and the EU have shown that technical harmonisation (such as ERTMS) is key to railway competitiveness in regional corridors.
5.5	Incorporate IoT and Big Data technology in at least 70% of rolling stock by 2035 .	The use of sensors and predictive analytics improves operational efficiency and maintenance, as demonstrated by practices from the Federal Railroad Administration (FRA) and European operators.
5.6	Attract at least USD 15 billion in accumulated railway logistics investments (public and private) by 2040 .	CAF and the IDB recommend PPPs and climate financing for resilient infrastructure. This target ensures the viability of the proposed transformations.
5.7	By 2030 , at least five strategic railway corridors will incorporate 100% real-time digital tracking and traceability technologies , reducing logistics costs by 20% and improving supply chain efficiency .	This target responds to the World Bank and ECLAC diagnosis of high logistics costs in Latin America, which in some Central American countries can exceed 40% of the final product value . Digital traceability improves control over time, reduces losses and facilitates decision-making, as shown by experiences in OECD countries and Chile (18% logistics costs).
5.8	By 2029 , an advanced intermodal integration system linked to the railway network will have been deployed in at least seven regions , facilitating efficient connections between trains, trucks and ports , and increasing intermodal delivery speed by 25% .	Physical and operational integration between modes is essential for modern logistics chains. According to CAF , intermodality reduces bottlenecks and enhances territorial competitiveness. This target advances towards a world-class logistics system , like the European model of intermodal railway hubs .
5.9	By 2032 , railway corridors with smart infrastructure (including electronic tolls, automated cargo and vehicle control) will have been implemented in at least four Latin American countries , reducing logistics operation times by 30% .	Smart infrastructure is key to reducing delays, improving planning and decreasing congestion. According to the OECD , these technologies are indispensable to improving operational efficiency and supporting the digital transition in transport .
5.10	By 2031 , at least ten multimodal logistics platforms will have been created at key railway nodes, incorporating technological innovation , enhancing the competitiveness of regional supply chains and generating positive economic impacts in at least 50 municipalities .	This target aligns logistics investment with regional development . ECLAC and the IDB recommend positioning logistics platforms as drivers of territorial development, with significant impact on job creation, investment attraction and productivity gains .
5.11	By 2030 , at least five countries will have adopted harmonised regulatory frameworks for digital and intermodal railway logistics operations , with standards compatible at regional and international levels.	The lack of common standards limits logistics interoperability . This target is inspired by the UIC approach and the European experience with ERTMS and unified regulatory frameworks, promoting efficiency and regional competitiveness in trade.

4.3.2.6. SMART goals for Pillar 6: Governance, financing and institutional capacity

No.	Goal	Rationale
6.1	By 2030 , at least 12 Latin American countries will have established a national railway authority with clear competencies in planning, regulation and operation.	According to ECLAC and UIC, having governing institutions with technical autonomy is key to transport sustainability. Countries with strong railway structures have achieved greater project continuity, multisectoral alignment and better investment attraction.
6.2	Train 500 public officials in the formulation of sustainable and intermodal railway projects by 2032 .	The IDB and CAF have highlighted that technical weaknesses limit the formulation of bankable railway projects. Specialised training is essential for structuring investments that are aligned with international standards and have access to green or climate financing.
6.3	By 2028 , at least 10 countries will have incorporated legal instruments for land value capture associated with railway development.	The OECD, the World Bank and CAF recommend these mechanisms to finance infrastructure without overburdening public spending; generating financial sustainability and territorial equity by capturing part of the value generated by investments.
6.4	Mobilise at least USD 25 billion in railway financing through PPP schemes, green bonds or climate funds by 2040 .	Reports from the IDB, the World Bank and CAF emphasise that diversifying financing reduces fiscal risk and allows for faster implementation of resilient infrastructure. This amount is consistent with the modernisation requirements of priority regional corridors.
6.5	Establish multilevel coordination and planning mechanisms in at least 15 metropolitan areas with railway services by 2035 .	The European experience and practice in countries such as Mexico and Brazil show that coordinated territorial governance improves modal integration, land management and the operational efficiency of suburban and regional services.
6.6	Include all Latin American countries in at least one regional railway technical cooperation network by 2029 .	UIC and CAF promote regional cooperation as a catalyst for technology transfer, regulatory harmonisation and innovation. The creation of technical networks allows for the sharing of experiences and the consolidation of institutional capacities on a continental scale.

Vision 2050 as presented in this chapter constitutes **an ambitious and structured roadmap**, fully aligned with the challenges and opportunities of the Latin American context. Through **six strategic pillars** and a robust set of SMART goals, it outlines a **transformative railway model capable of becoming the backbone of sustainable development**, regional integration, territorial resilience, social equity and logistics competitiveness.

Each pillar not only addresses sectoral priorities but is also grounded in **international references, best practices and up-to-date diagnostics**, turning this vision into both a technically viable and politically mobilising agenda. The goals, with clearly defined time horizons, are designed to facilitate monitoring, phased investment and the consolidation of institutional consensus at multiple levels.

This strategic and results-oriented approach provides governments, railway operators, multilateral entities and private stakeholders with a common framework to align efforts, coordinate interventions and generate long-term sustainable impacts. Vision 2050 is not intended to be a static document but rather a living platform for transformation and cooperation, **capable of adapting to the region's pace of change while remaining focused on a shared goal: a modern, inclusive, clean and resilient railway system that serves people and drives the territorial development of Latin America.**

5

Strategies and actions



Figure 19: EFE passenger train. Source: EFE Trains of Chile

5.1. Key initiatives

5.2. Roadmap

5.3. Resources needed for the implementation of railway projects

5.4. Stakeholders involved

The **materialisation of the Vision 2050 for railways in Latin America** requires the implementation of concrete strategies and structured actions that translate the strategic pillars and their goals into tangible results. This chapter proposes a set of key initiatives, a preliminary roadmap and the resources needed to advance the transformation of the regional railway system. Far from being an exhaustive list, these actions constitute a guiding framework for governments, operators, financial institutions and multilateral actors wishing to promote projects aligned with this shared vision of sustainable development, regional integration and logistics competitiveness.

5.1. Modernisation of railway infrastructure: Rehabilitation and expansion of networks

The rehabilitation and expansion of railway networks in Latin America is the foundational strategy for materialising the six pillars of Vision 2050. **Without modernised and expanded infrastructure, it is impossible to advance progressive electrification, cross-border interoperability, climate resilience, territorial inclusion, logistics competitiveness or sustainable financing.** Therefore, infrastructure modernisation must be understood as an enabling requirement, transversal to all the transformations proposed in this shared vision.

Comprehensive planning

The rehabilitation and expansion process requires comprehensive and orderly planning. This involves:

- Evaluating the current state of railway infrastructure, identifying critical sections, disused lines and strategic corridors.
- Prioritising investments based on their socioeconomic impact, reduction of territorial inequalities and connection with key logistics nodes (ports, industrial centres and borders).
- Integrating with land-use planning and national mobility instruments, ensuring that railway expansions contribute to regional development and sustainability objectives.

Sustainable financial schemes

The rehabilitation and expansion of railway networks requires **diversified financing sources**, combining:

- **National and subnational public investment**, ensuring continuity of strategic projects
- **Public-Private Partnerships (PPPs)** that mobilise innovation and private capital under clear and secure regulatory frameworks
- **Multilateral and climate financing**, through instruments such as green bonds, climate resilience funds and development bank programmes (CAF, the IDB, World Bank, etc.)

In this way, railway modernisation is directly linked to **Pillar 6 (Governance, financing and institutional capacity)**, providing sustainability and scalability.

Technological innovation in infrastructure

The rehabilitation of networks must be accompanied by the adoption of innovative technologies that extend the infrastructure's lifespan and optimise operational efficiency. The most relevant include:

- Use of new materials resistant to extreme weather events (special alloys, advanced concrete).
- Implementation of predictive maintenance based on sensors, artificial intelligence and the Internet of Things (IoT).
- Unification of regional technical regulations and standards (signalling, safety, track gauge interoperability), aligned with UIC and international experiences.

This component connects with **Pillar 1 (Decarbonisation and sustainability)** and **Pillar 3 (Territorial and climate resilience)**.

Regional examples

The conclusions of the Vision 2050 Virtual Seminar for Railways in Latin America highlighted progress and challenges in different countries:

- **Mexico:** Concession model that enabled continuous expansion of the freight network, connecting with North America and doubling transported volumes in recent decades.
- **Argentina:** Rehabilitation of more than 1,500 km of the Belgrano Railway, connecting productive regions with export ports.
- **Colombia:** Reactivation plan for more than 1,800 km of railway infrastructure to reduce logistics costs and foster multimodality.
- **Chile:** Expansion of passenger transport and modernisation of freight, with emphasis on connectivity to strategic ports.
- **Guatemala y El Salvador:** Railway integration projects aimed at reactivating historical lines and linking with the Mexican network.
- **Uruguay:** Rehabilitation of the Central Railway as a logistics hub for the export-oriented agribusiness sector.

These cases illustrate the diversity of national approaches and reinforce the importance of a common framework that allows scaling up and replicating successful experiences at the regional level.

In sum, the modernisation of railway infrastructure through the rehabilitation and expansion of networks represents an essential starting point for transforming the railway mode in Latin America. By articulating planning, financing, innovation and regional cooperation, **this strategy becomes the operational backbone** that will make it possible to achieve the six pillars of Vision 2050 and consolidate railways as the driving force of sustainable development in the region.

5.2. Key initiatives

Based on the goals and objectives established in the **Vision 2050 for railways in Latin America**, a set of key initiatives has been structured to guide strategic action across the six defined pillars. These initiatives group together specific programmes and projects that will translate the vision into articulated, viable and measurable interventions, with high territorial, social, environmental and economic impact. Each family of initiatives responds to a group of converging goals and proposes specific solutions adapted to national and regional contexts – from electrification and technical interoperability to social inclusion, climate resilience, logistics transformation and institutional strengthening. Together, these actions constitute the backbone of the roadmap towards a modern, sustainable and integrated railway system that serves the equitable development of Latin America.

5.2.1. Strategic pillars

5.2.1.1. Pillar 1. Sustainability and transport decarbonisation

a. Family 1.1. Technological transition and railway system electrification

Key initiative: Regional programme for electrification and zero-emission technologies for railway corridors

Promote the progressive electrification of the active railway network in Latin America and the adoption of clean technologies such as hydrogen, electric batteries or solar and wind energy, integrated from the project planning stage.

Associated projects:

- Electrification of priority corridors and renovation of electrical infrastructure.
- Progressive development and acquisition of electric, hybrid and, where technically and economically feasible, hydrogen trains.
- Integration of renewable energies in new railway projects.
- Implementation of maintenance centres adapted to new technologies.

Associated goals: 1.1,1.2,1.3 and 1.6

b. Family 1.2. Energy efficiency and technological innovation in rolling stock

Key initiative: Modernisation of the railway fleet with intelligent energy efficiency systems

Promote the technological renewal of passenger rolling stock through the incorporation of smart solutions that reduce energy consumption and improve operational performance.

Associated projects:

- Incorporation of regenerative braking in passenger trains.
- Digitalisation of energy and operational management.
- Progressive adoption of high-efficiency hybrid train systems.

Associated goals: 1.4 and 1.3

c. Family 1.3. Regulatory strengthening and incentives for technological transition

Key initiative: Regional programme of regulatory reforms and tax incentives for clean technologies

Design and implement regulatory and fiscal frameworks that promote investment in low-emission railway technologies, aligned with national and international climate commitments.

Associated projects:

- Development of laws and regulations promoting clean technologies.
- Design of fiscal and financial incentives for railway operators.
- Public-private campaigns for technological adoption.

Associated goal: 1.5

d. Family 1.4. Climate transparency and emissions monitoring

Key initiative: Regional system for measurement, reporting and verification (MRV) of railway emissions

Create a common platform for measuring and reporting emissions that facilitates climate transparency, access to green financing and accountability regarding international commitments.

Associated projects:

- Adoption of the Rail Carbon Tool by national operators.
- Development of regional technical standards for measurement and reporting.
- Training in MRV methodologies harmonised with the Paris Agreement.

Associated goal: 1.7

e. Family 1.5. Green financing and multilateral cooperation

Key initiative: Latin American Railway Decarbonisation Fund

Establish a regional fund to mobilise large-scale financial resources, channelled through development banks and green instruments, to support electrification, energy efficiency and technological innovation projects.

Associated projects:

- Institutional design of the fund and technical-financial governance.
- Development of credit lines for public and private operators.
- Implementation of pilot projects with hydrogen, battery and dual-traction technologies to validate their performance and scalability in the regional railway context.
- International articulation and strategic positioning of the Latin American Railway Decarbonisation Fund: consolidate the presence of the Latin American railway sector in the global climate agenda, such as the Conference of the Parties (COP), through the development of position papers, engagement with multilateral organisations and participation in joint initiatives that strengthen access to green financing and mechanisms under the Paris Agreement.

Associated goal: 1.8

5.2.1.2. Pillar 2. Regional integration and interoperability

a. Family 2.0. International multimodal corridors as a basis for rail integration

Key initiative: Multimodal logistics integration programme in priority international corridors

Promote the operation and consolidation of multimodal corridors (rail-road-port) which serve as a preparatory phase for future cross-border railway operations, allowing logistics flows to be optimised and consequently building confidence in the markets and establishing bi-national institutional mechanisms for cooperation.

Associated projects:

- Identification and prioritisation of strategic international multimodal corridors integrating rail, port and carriageway nodes.
- Design and implementation of international multimodal pilot services connecting cross-border production and logistics centres.
- Establishment of operational and regulatory arrangements for the joint management of multimodal corridors.
- Assessment of the logistical and commercial impact of multimodal corridors for their transition to international rail corridors.

b. Family 2.1. Operational cross-border railway corridors

Key initiative: Programme for the consolidation of cross-border railway corridors in Latin America

Promote the launch of international corridors that connect neighbouring countries through compatible railway services, generating logistical, economic and productive integration benefits.

Associated projects:

- Design and implementation of five fully operational cross-border railway corridors with basic technical interoperability (common gauge or efficient gauge-change systems).
- Development of a system for the identification, mapping and prioritisation of strategic cross-border railway segments based on trade activity, productivity and logistical demand.
- Formulation and implementation of binational agreements for joint operation, shared maintenance and institutional coordination of cross-border railway services.
- Technical and economic feasibility studies for pilot services on selected corridors.

Associated goal: 2.1

c. Family 2.2. Regulatory and technical harmonisation for interoperability

Key initiative: Minimum regional framework for railway technical interoperability

Establish a shared regulatory baseline between Latin American countries to ensure technical compatibility between national networks and facilitate the operation of cross-border railway services.

Associated projects:

- Preparation of a regional technical document with common standards on signalling, railway control, maintenance standards and operational protocols.
- Formal adoption of the interoperability regulatory framework by at least eight countries in the region.
- Establishment of a regional technical group coordinated with UIC, ALAF, ALADI, SICA, ECLAC and ERA for the periodic review and updating of standards.
- Design of a roadmap for the progressive implementation of the framework within national railway systems.

Associated goal: 2.2

d. Family 2.3. Regional intermodal logistics platforms

Key initiative: Establishment of a network of intermodal railway logistics platforms at strategic nodes

Develop logistics hubs that integrate railways with other modes of transport (e.g. ports, roads, airports), optimising supply chains and strengthening regional connectivity.

Associated projects:

- Conduct localisation and feasibility studies for the development of at least 10 intermodal railway logistics platforms.
- Design and construction of multimodal logistics centres in border areas, industrial zones and/or regions with high export potential.
- Physical and operational integration of platforms with ports, roads and airports through efficient intermodal interfaces.
- Establishment of Public-Private Partnerships for financing and managing the platforms.

Associated goal: 2.3

e. Family 2.4. Joint technical training and international cooperation

Key initiative: Technical training programme on railway interoperability

Strengthen the institutional and technical capacities of the region's countries by means of joint training programmes focused on interoperability, supported by international organisations.

Associated projects:

- Design and implementation of a regional training plan on technical interoperability with specialised courses and certifications.
- Organisation of at least 12 multilateral training programmes with the participation of experts from Europe, Asia and Latin America, in coordination with and advised by UIC.
- Creation of a regional catalogue of railway technical competencies for interoperability.
- Promotion of experience exchange and South-South and triangular technical missions with support from UIC, CAF, the IDB, ALAF and OTIF.

Associated goal: 2.4

f. Family 2.5. Regional governance for interoperability

Key initiative: Creation of a regional technical entity for railway interoperability

Establish a permanent regional technical coordination body to ensure continuity of efforts in regulations, training and articulation between countries.

Associated projects:

- Development of the institutional and regulatory design for the creation of a specialised regional technical entity on railway interoperability.
- Formalisation of a network of at least 10 founding member countries with technical and financial commitments.
- Establishment of a technical advisory council with the participation of multilateral organisations, railway associations and planning agencies.
- Launch of a virtual or physical headquarters with permanent technical staff and shared governance mechanisms.

Associated goal: 2.5

5.2.1.3. Pillar 3. Territorial and climate resilience

a. Family 3.1. Territorial planning with a railway resilience approach

Key initiative: Programme for the integration of railway resilience into territorial planning and national infrastructure

Incorporate climate change adaptation criteria into railway planning and development frameworks, ensuring that projects address future risks and are aligned with land-use planning policies.

Associated projects:

- Development of methodologies to integrate railway climate resilience into national infrastructure and land-use plans.
- Incorporation of climate vulnerability analyses into new and existing railway projects.
- Institutional strengthening for multisectoral planning with a railway resilience approach.

Associated goal: 3.1

b. Family 3.2. Climate risk-adapted infrastructure

Key initiative: Programme for the physical adaptation of strategic railway corridors to extreme events

Design and modernise railway infrastructure to withstand adverse climatic conditions, minimising operational disruptions and economic losses.

Associated projects:

- Reinforcement works for drainage, foundations and structures in high-risk areas.
- Selection and conditioning of construction materials resistant to extreme heat, floods and landslides.
- Prioritisation of investments in resilient infrastructure according to risk maps and national vulnerability analyses, targeting at least three strategic corridors in vulnerable areas for intervention.

Associated goal: 3.2

c. Family 3.3. Climate monitoring and early warning systems

Key initiative: Implementation of intelligent climate monitoring systems and railway risk management

Integrate technological solutions to anticipate extreme weather events and activate response protocols in vulnerable segments.

Associated projects:

- Installation of climate sensors and satellite systems in at least five priority sections.
- Development of real-time monitoring platforms for railway operators.
- Training on early response protocols to climate risks.

Associated goal: 3.3

d. Family 3.4. Climate finance for resilient infrastructure

Key initiative: Mobilisation of innovative financial instruments for railway resilience

Develop specific financing mechanisms for railway adaptation to climate change, aligned with international green funds.

Associated projects:

- Creation of portfolios of railway projects eligible for climate financing.
- Access to green bonds, climate insurance and multilateral funds.
- Partnerships with the Green Climate Fund, IDB Invest and CAF.

Associated goal: 3.4

e. Family 3.5. Technological systems for resilient management and operations

Key initiative: Operational modernisation programme with resilient management technologies and interoperability

Integrate advanced traffic management and failure-prediction technologies to improve operational efficiency under adverse conditions.

Associated projects:

- Incorporation of ERTMS or equivalent systems in at least three strategic corridors.
- Development of predictive algorithms and artificial intelligence for risk management.
- Integration of IoT in areas prone to landslides, extreme heat or floods.

Associated goals: 3.5 and 3.6

5.2.1.4. Pillar 4. Social and territorial cohesion

a. Family 4.1. Railway connectivity for isolated territories

Key initiative: Railway expansion programme for territorial integration and equitable access

Launch railway corridors that connect rural and marginalised areas with urban centres, reducing inequalities and improving access to services and economic opportunities.

Associated projects:

- Design and implementation of at least five railway corridors that reduce travel times in rural areas by 25%.
- Development of territorial gap studies and prioritisation of segments that connect rural producers with consumption centres.

- Incorporation of territorial equity criteria into the planning processes of new railway projects.

Associated goals: 4.1, 4.4 and 4.5

b. Family 4.2. Local economic revitalisation linked to railways

Key initiative: Regional programme for territorial railway economic development

Promote job creation and the establishment of productive ecosystems around railway stations and corridors through public and private investments.

Associated projects:

- Implementation of economic development programmes in at least 10 municipalities with railway presence.
- Establishment of economic zones and industrial parks in highly marginalised municipalities connected to the railway.
- Promotion of commercial, tourism and service activities in 200 railway stations through incentives and adequate infrastructure.

Associated goals: 4.2, 4.6 and 4.9

c. Family 4.3. Social inclusion and community participation

Key initiative: Promotion of social equity in railway services

Ensure inclusive access to railway transport through differentiated fare schemes and participatory processes starting from the design stage.

Associated projects:

- Establishment of at least 10 pilot railway social fare programmes for vulnerable communities.
- Mandatory inclusion of social impact assessments and community consultation mechanisms in passenger railway projects.
- Development of technical guidelines for effective social participation in transport projects.

Associated goals: 4.3 and 4.8

d. Family 4.4. Last-mile integration

Key initiative: Integrated local transport systems in municipalities with railway service

Facilitate public access to railway service through physical, operational and fare integration with local transport modes.

Associated projects:

- Design and implementation of last-mile solutions (public bicycles, community transport, feeder routes, etc.) in 50 municipalities.
- Creation of local mobility plans integrated with railway stations.
- Establishment of inter-municipal agreements for the operation of complementary services to rail.

Associated goal: 4.7

e. Family 4.5. Strategic productive resettlement and local logistics development

Key initiative: Programme for industrial and business relocation in railway areas

Promote the establishment of productive, logistics and service companies in areas with railway connectivity, through tax incentives, institutional agreements and regional coordination.

Associated projects:

- Design and implementation of at least five productive relocation zones with priority railway access, including feasibility studies and land-use planning.
- Development of a tax incentive and logistics subsidy scheme for companies established in railway-connected areas.
- Formalisation of binational agreements for business relocation in border municipalities with railway infrastructure.
- Integration of relocation zones into national and regional territorial development strategies, with or without nearshoring schemes.

Associated goal: 4.9

5.2.1.5. Pillar 5. Competitiveness and logistics innovation

a. Family 5.1. Reduction of logistics costs through railway intermodality

Key initiative: Intermodal logistics integration programme for strategic railway corridors

Optimise regional supply chains by reducing logistics costs and times through physical and operational interconnection between transport modes.

Associated projects:

- Development of at least five smart railway logistics corridors with direct connections to industrial zones and ports.
- Deployment of an advanced intermodal integration system in at least seven regions, connecting trains, ports and road transport.
- Implementation of corridors with smart infrastructure (electronic tolls, automated cargo control) in at least four countries.
- Establishment of multimodal logistics platforms in key railway nodes with high impact on productive municipalities.

Associated goals: 5.1, 5.2, 5.7, 5.8, 5.9 and 5.10

b. Family 5.2. Digital transformation of railway logistics operations

Key initiative: Comprehensive digitalisation of railway operations for traceability, efficiency and competitiveness

Increase operational efficiency, responsiveness and real-time traceability through digital technologies and connectivity.

Associated projects:

- Full digitalisation of 100% of railway logistics operations in main national networks by 2032.
- Incorporation of real-time tracking and traceability technologies in at least five strategic railway corridors.
- Integration of IoT and Big Data in at least 70% of railway rolling stock.
- Development of demand prediction and logistics optimisation algorithms.

Associated goals: 5.3, 5.5 and 5.6

c. Family 5.3. Regulatory framework for digital and intermodal railway logistics

Key initiative: Regional regulatory framework for digital and intermodal railway logistics

Develop a compatible regulatory environment between countries to facilitate logistics interoperability and improve intraregional trade efficiency.

Associated projects:

- Design and adoption of harmonised regulatory frameworks in at least five countries for digital railway logistics operations.
- Coordination with international organisations (UIC, ALAF, ALADI, ECLAC and OTIF) for the establishment of regional standards.
- Promotion of bilateral and multilateral agreements for digitalised railway logistics exchange.

Associated goal: 5.11

5.2.1.6. Pillar 6. Governance, financing and institutional capacity

a. Family 6.1. Strengthening railway institutions in Latin America

Key initiative: National railway institutional consolidation programme

Establish railway entities with clear competencies in planning, regulation and operations to ensure continuity, technical governance and investment attraction.

Associated projects:

- Design and implementation of national railway entities with technical autonomy and legal mandates in at least 12 countries.
- Preparation of national strategic railway plans led by these entities.
- Development of inter-institutional coordination mechanisms with ministries of transport, economy and planning

Associated goal: 6.1

b. Family 6.2. Development of technical and professional capacities

Key initiative: Latin American training programme on sustainable railway planning

Promote the professionalisation of public and technical personnel linked to the railway sector to improve project quality and facilitate access to climate and international financing.

Associated projects:

- Training of at least 500 public officials in the formulation of sustainable and intermodal railway projects.
- Establishment of agreements with universities and technical training centres in Latin America.
- Creation of a regional online platform offering courses on regulations, finance and railway technologies.

Associated goal: 6.2

c. Family 6.3. Legal instruments for the financial sustainability of railways

Key initiative: Regional legal framework for value capture and railway financial instruments

Promote legal reforms to capture part of the value generated by railway infrastructure, reducing pressure on public spending.

Associated projects:

- Reform of legal frameworks in at least 10 countries to enable value capture linked to railway development.
- Preparation of technical guidelines for the application of special contributions, value capture zones or development rights transfers.
- Exchange of best practices with OECD countries and successful regional experiences.

Associated goal: 6.2

d. Family 6.4. Mobilisation of green and multilateral financing

Key initiative: Regional fund for resilient railway infrastructure

Facilitate access to public, private and climate resources through the creation of specific financial vehicles for railway development.

Associated projects:

- Design and implementation of blended financing schemes with participation from development banks and climate funds.
- Issuance of green railway bonds in national and international markets.
- Technical support for operators to prepare bankable projects eligible for PPPs and climate financing.

Associated goal: 6.4

e. Family 6.5. Metropolitan governance and multilevel coordination

Key initiative: Railway governance programme in metropolitan areas

Strengthen coordination between levels of government to improve the integration of railways into urban and regional systems.

Associated projects:

- Creation of joint planning bodies in at least 15 metropolitan areas with railway services.
- Integration of railways into Urban Development, Land Use Planning and Mobility Plans.
- Preparation of institutional governance models adapted to metropolitan contexts in Latin America.

Associated goal: 6.5

f. Family 6.6. Regional railway technical cooperation networks

Key initiative: Latin American technical alliance for railway development

Consolidate a regional network for knowledge exchange, innovation and regulatory harmonisation to accelerate sector development.

Associated projects:

- Integration of all Latin American countries into at least one railway technical cooperation network.
- Organisation of annual high-level meetings with participation from multilateral organisations and railway associations.
- Creation of thematic working groups on interoperability, governance, financing and decarbonisation.

Associated goal: 6.6

The key initiatives presented here represent a coordinated effort that transforms **Vision 2050** into a set of concrete, programmable and measurable actions. Based on the goals defined under each pillar, high-impact actions have been grouped and structured, combining technical projects, regulatory programmes, financing schemes, social interventions and regional cooperation mechanisms. This architecture of initiatives not only addresses the structural challenges of the railway sector, but also catalyses processes of innovation, inclusion and sustainability.

Beyond the isolated implementation of projects, the initiatives adopt a systemic approach that promotes the coordinated transformation of railways as an integrating axis of territory, logistics and mobility. They also recognise the institutional and technical diversity of Latin American countries and therefore have been designed with scalability and adaptability criteria. Their development should not be understood as a rigid sequence, but rather as a flexible platform for cooperation between sectors, governments and social actors.

Taken together, these key actions constitute the operational backbone of **Vision 2050** and mark the beginning of a new cycle of investment, governance and regional commitment. The implementation of these initiatives requires coordinated efforts between governments, railway operators, multilateral organisations and regional technical associations. Their realisation demands not only investment and innovation, but also political will, institutional capacity and sustainable frameworks for technical cooperation.

In this regard, **UIC** reaffirms its commitment as a catalyst of this process, providing methodological support, facilitating technical harmonisation and promoting the development of local capacities through its global network.

These initiatives should be seen as a coherent roadmap towards the structural transformation of the railway mode in Latin America. They represent a concrete invitation to every country, every operator and every financial institution to join a shared vision that places railways at the centre of regional integration, logistics competitiveness, territorial equity and transport decarbonisation. Regional cooperation will undoubtedly be the main enabler for materialising this collective ambition.

5.3. Roadmap for the implementation of Vision 2050 for railways in Latin America

The railway transformation proposed by Vision 2050 requires not only strategic clarity but also an orderly and realistic programming of its initiatives. This roadmap proposes **a progressive temporal horizon that articulates short-term actions** – aimed at generating visible impacts and laying the foundations for change – with medium- and long-term interventions **that will consolidate regional railway integration**. The timeline is built based on institutional maturity, technical capacities and available financing frameworks in each country, while incorporating common milestones that allow for the coordination of efforts at the continental scale.

Additionally, **projects are presented in categorical form according to the timeframe in which they must begin**, making it easier to identify immediate priorities versus strategic and structural interventions. To this end, the roadmap is accompanied by a graphic document in the form of a map – **a large-format visual chart** – where projects are organised and highlighted according to their temporality, enabling clearer understanding and more effective monitoring of progress.

In this way, the roadmap becomes a **practical tool for planning, coordination and monitoring**, helping governments, railway operators, multilateral organisations and civil society move forward together towards a more efficient, resilient and inclusive railway system.

5.3.1. Project action plan

5.3.1.1. 2026-2030 – Regulatory and institutional preparation, studies and pilot projects

- P1_F1.2_1: Incorporation of regenerative braking in passenger trains
- P1_F1.2_2: Digitalisation of energy and operational management
- P1_F1.3_1: Development of laws and regulations to promote clean technologies
- P1_F1.3_2: Design of fiscal and financial incentives for railway operators
- P1_F1.3_3: Technology adoption campaigns with a public-private approach
- P1_F1.4_1: Adoption of the Rail Carbon Tool by national operators
- P1_F1.4_2: Development of regional technical standards for measurement and reporting
- P1_F1.4_3: Training in MRV methodologies aligned with the Paris Agreement
- P1_F1.5_1: Institutional design of the fund and technical-financial governance
- P1_F1.5_3: Implementation of pilot projects with hydrogen, battery and dual traction technologies (pilot phase)
- P1_F1.5_4: International coordination and strategic positioning of the Fund (process initiation)
- P2_F2.0_1: Identification and prioritisation of strategic international multimodal corridors integrating rail, port and carriageway nodes
- P2_F2.0_2: Design and implementation of international multimodal pilot services linking cross-border production and logistics centres
- P2_F2.1_2: Development of a system for the identification, mapping and prioritisation of strategic cross-border railway segments
- P2_F2.1_3: Formulation and implementation of binational agreements for joint operation and shared maintenance

- P2_F2.1_4: Technical and economic feasibility study for pilot services in selected corridors
- P2_F2.2_1: Preparation of a regional technical document with common standards
- P2_F2.2_3: Establishment of a regional technical group coordinated with UIC, ALAF, ALADI, SICA, ECLAC and ERA
- P2_F2.2_4: Design of a roadmap for the progressive implementation of the interoperability framework
- P2_F2.3_1: Location and feasibility studies for railway logistics platforms
- P2_F2.4_1: Design and implementation of a regional training plan on technical interoperability
- P2_F2.4_2: Organisation of at least 12 multilateral training programmes
- P2_F2.4_3: Creation of a regional catalogue of railway technical competencies
- P2_F2.4_4: Promotion of South-South and triangular exchanges of experiences and technical missions
- P2_F2.5_1: Development of the institutional and regulatory design of a regional technical entity

- P3_F3.1_1: Development of methodologies to integrate railway climate resilience into national infrastructure and land-use planning
- P3_F3.1_2: Incorporation of climate vulnerability analyses in new and existing railway projects
- P3_F3.1_3: Institutional strengthening for multisectoral planning with a railway resilience approach
- P3_F3.3_3: Training on early response protocols for climate risks
- P3_F3.4_1: Creation of project portfolios eligible for climate financing
- P3_F3.4_2: Access to green bonds, climate insurance and multilateral funds
- P3_F3.4_3: Partnerships with the Green Climate Fund, IDB Invest and CAF

- P4_F4.1_2: Development of territorial gap studies and prioritisation of segments connecting rural producers with consumption centres
- P4_F4.1_3: Incorporation of territorial equity criteria in the planning processes of new railway projects
- P4_F4.3_2: Mandatory inclusion of social impact analyses and community consultation mechanisms in passenger railway projects
- P4_F4.3_3: Development of technical guidelines for effective social participation in transport projects
- P4_F4.5_1: Design and implementation of at least five productive relocation zones with priority railway access, including feasibility studies and land-use planning

- P5_F5.2_4: Development of demand prediction and logistics optimisation algorithms
- P5_F5.3_1: Design and adoption of harmonised regulatory frameworks in at least five countries for digital railway logistics operations
- P5_F5.3_2: Coordination with international organisations (UIC, ALAF, ALADI, ECLAC and OTIF) for the establishment of regional standards
- P5_F5.3_3: Promotion of bilateral and multilateral agreements for digitalised railway logistics exchange

- P6_F6.1_1: Design and implementation of national railway entities with technical autonomy and legal mandate in at least 12 countries
- P6_F6.1_2: Preparation of national railway strategic plans led by these entities
- P6_F6.1_3: Development of inter-institutional coordination mechanisms with ministries of transport, economy and planning
- P6_F6.2_1: Training of at least 500 public officials in the formulation of sustainable and intermodal railway projects
- P6_F6.2_2: Establishment of agreements with universities and technical training centres in Latin America
- P6_F6.2_3: Creation of a regional platform of virtual courses on railway regulations, finance and technologies
- P6_F6.3_1: Reform of legal frameworks in at least 10 countries to enable value-capture mechanisms linked to railway development
- P6_F6.3_2: Development of technical guidelines for the application of special contributions, value-capture zones or transfer of development rights
- P6_F6.3_3: Exchange of best practices with OECD countries and successful regional experiences

5.3.1.2. 2030-2035 – Initial physical implementation and early expansions

5.3.1.3. P1_F1.1_1: Electrification of priority corridors and renewal of electrical infrastructure

- P1_F1.1_2: Progressive development and acquisition of electric, hybrid and hydrogen trains (initial phase)
- P1_F1.2_3: Progressive adoption of high-efficiency hybrid trains (initial phase)
- P1_F1.5_2: Development of credit lines for public and private operators
- P1_F1.5_3: Implementation of pilot projects with hydrogen, battery and dual-traction technologies (expansion phase)

- P2_F2.0_3: Establishment of operational and regulatory arrangements for the joint management of multimodal corridors
- P2_F2.0_4: Assessment of the logistical and commercial impact of multimodal corridors for their transition to international rail corridors
- P2_F2.1_1: Design and implementation of five cross-border railway corridors with basic interoperability
- P2_F2.2_2: Formal adoption of the interoperability regulatory framework by at least 8 countries
- P2_F2.3_2: Design and construction of multimodal logistics centres
- P2_F2.3_3: Physical and operational integration of logistics platforms with ports, highways and airports
- P2_F2.3_4: Establishment of Public-Private Partnerships to finance and manage platforms

- P3_F3.2_1: Reinforcement works on drainage, foundations and structures in high-risk areas
- P3_F3.3_1: Installation of climate sensors and satellite systems in at least five priority sections
- P3_F3.3_2: Development of real-time monitoring platforms for railway operators

- P4_F4.1_1: Design and implementation of at least five railway corridors reducing travel times in rural areas by 25%
- P4_F4.2_1: Implementation of economic development programmes in at least 10 municipalities with railway presence
- P4_F4.2_2: Establishment of economic zones and industrial parks in highly marginalised municipalities connected to the railway
- P4_F4.2_3: Promotion of commercial, tourism and service activities in 200 railway stations through incentives and adequate infrastructure
- P4_F4.3_1: Establishment of at least 10 pilot railway social tariff programmes for vulnerable communities
- P4_F4.4_1: Design and implementation of last-mile solutions (public bicycles, community transport, feeder routes, etc.) in 50 municipalities
- P4_F4.4_2: Creation of local mobility plans integrated with railway stations
- P4_F4.4_3: Establishment of inter-municipal agreements for the operation of train-complementary services

- P5_F5.1_4: Establishment of multimodal logistics platforms in key railway nodes with high impact in productive municipalities
- P5_F5.2_2: Incorporation of real-time tracking and traceability technologies in at least five strategic railway corridors
- P5_F5.2_1: Digitalisation of 100% of railway logistics operations on main national networks by 2032

- P6_F6.4_1: Design and implementation of mixed financing schemes with participation of development banks and climate funds
- P6_F6.4_2: Issuance of green railway bonds in national and international markets
- P6_F6.4_3: Technical support for operators to prepare bankable projects eligible for PPPs and climate financing
- P6_F6.5_1: Creation of joint planning bodies in at least 15 metropolitan areas with railway services
- P6_F6.5_2: Integration of the railway into Urban Development, Land Use and Mobility Plans
- P6_F6.5_3: Development of institutional governance models adapted to metropolitan contexts in Latin America

5.3.1.4. 2035-2040 – Scaling and intermediate consolidation

- P1_F1.1_3: Integration of renewable energies in new railway projects
- P1_F1.1_4: Implementation of maintenance centres adapted to new technologies

- P2_F2.5_2: Formalisation of a network of at least 10 founding member countries in railway interoperability
- P2_F2.5_3: Establishment of a technical advisory council with the participation of multilateral organisations

- P3_F3.1_3 (second appearance): Prioritisation of investments in resilient infrastructure based on risk maps and national vulnerability analyses, covering at least three strategic corridors in vulnerable areas for intervention
- P3_F3.5_1: Incorporation of ERTMS or equivalent systems in at least three strategic corridors
- P3_F3.5_3: Integration of IoT in areas prone to landslides, extreme heat or floods

- P4_F4.5_2: Development of a scheme of fiscal incentives and logistics subsidies for companies established in areas connected to the railway
- P4_F4.5_3: Formalisation of binational agreements for business relocation in border municipalities with railway infrastructure

- P5_F5.1_1: Development of at least five smart railway logistics corridors with direct connection to industrial zones and ports
- P5_F5.1_3: Implementation of corridors with smart infrastructure (electronic tolls, automated cargo control) in at least four countries
- P5_F5.2_3: Integration of IoT and Big Data in at least 70% of the railway rolling stock
- P6_F6.6_1: Integration of all Latin American countries into at least one railway technical cooperation network

5.3.1.5. 2040-2045 – Full deployment of advanced infrastructure

- P3_F3.5_2: Development of predictive algorithms and artificial intelligence for risk management
- P5_F5.1_2: Deployment of an advanced intermodal integration system in at least seven regions, connecting trains, ports and road transport
- P6_F6.6_2: Organisation of annual high-level meetings with the participation of multilateral organisations and railway associations

5.3.1.6. 2045-2050 – Full consolidation and final goals

- P6_F6.6_3: Creation of thematic working groups on interoperability, governance, financing and decarbonisation

5.3.1.7. Extended duration projects (more than 5 years)

- P1_F1.1_2: Progressive development and acquisition of electric, hybrid and hydrogen trains (continuous until 2050)
 Start: Stage B (2030-2035), once the initial infrastructure and regulatory frameworks are in place
 Duration: Continuous, since rolling stock incorporation occurs in fleet renewal phases
 End: 2050 (continuous, phased fleet renewal through 2050)
- P1_F1.2_3: Progressive adoption of high-efficiency hybrid trains (continuous)
 Start: Stage A–B (2025-2035), as a transitional technology
 Duration: Continuous, as it is a gradual process of substitution and modernisation
 End: 2050, though likely to decline towards the end in favour of hydrogen and pure electric trains
- P1_F1.5_4: International articulation and strategic positioning of the Fund (extending across the entire 2050 horizon)
 Start: Stage A (2025), with the initial design of the Fund
 Duration: Permanent, since financing management is continuous and adapts to each phase
 End: 2050 and beyond (continuous positioning and financing adaptation)
- P2_F2.5_4: Launch of a virtual or physical headquarters with permanent technical staff and shared governance (requires continuous installation and support)
 Start: Stage B (2030-2035)
 Duration: Permanent, as it requires institutional installation and ongoing support
 End: 2050 and beyond (permanent institutional presence required)
- P3_F3.2_1: Reinforcement works for drainage, foundations and structures in high-risk areas
 Start: Stage B (2030-2035)
 Duration: Extended (10-15 years), as works are phased progressively according to risk maps
 End: Around 2045, though some works will continue as maintenance beyond that
- P3_F3.1_3 (second appearance): Prioritisation of investments in resilient infrastructure based on risk maps
 Start: Stage A (2025), since it is required from the initial diagnostic phase
 Duration: Extended (more than 15 years), as prioritisation must be updated periodically
 End: 2050 and beyond (continuous prioritisation process)

- P3_F3.5_1: Incorporation of ERTMS or equivalent systems in strategic corridors
(These require several years due to the scale of the infrastructure; even if they begin in Stage B or C, their full implementation would extend beyond a five-year period.)
Start: Stage C (2035-2040)
Duration: Extended, as modernisation of signalling and control takes more than 10 years
End: 2045-2050 (extended rollout, potentially continuing beyond 2050)
- P5_F5.1_2: Deployment of an advanced intermodal integration system in at least seven regions, connecting trains, ports and road transport
Start: Stage B (2030-2035)
Duration: Extended (more than 10 years), requiring phased rollout across different regions
End: Around 2045, though final adjustments may extend towards 2050
- P5_F5.1_1 and P5_F5.1_3: Railway connectivity and accessibility (large-scale infrastructure across multiple countries also makes these extended)
Start: Stage B (2030-2035)
Duration: Extended (8-12 years)
End: 2040-2045, with possible reinforcements afterwards
- P6_F6.2_1: Training of at least 500 public officials in the formulation of sustainable and intermodal railway projects
Start: Stage A (2025-2030)
Duration: Extended, requiring periodic training and updates
End: 2050 and beyond (continuous training and updates)
- P6_F6.2_2: Establishment of agreements with universities and technical training centres in Latin America
Start: Stage A (2025-2030)
Duration: Permanent, as academic partnerships must be maintained
End: 2050 and beyond (permanent academic partnerships)
- P6_F6.2_3: Creation of a regional virtual course platform on railway regulations, finance and technologies
Start: Stage A (2025-2030)
Duration: Permanent, as the platform requires continuous updating
End: 2050 and beyond (platform requires continuous updating)
- P6_F6.6_2: Organisation of annual high-level meetings with the participation of multilateral organisations and railway associations
Start: Stage A (2025)
Duration: Permanent, since annual meetings provide political and institutional continuity
End: 2050 and beyond (annual meetings ensure continuity)

5.4. Resources required for the implementation of railway projects

Ensuring the viability and sustainability of railway plans demands a comprehensive understanding of the resources necessary for their execution. This section provides a structured overview of the **human, financial, technological, institutional and regulatory** resources required to implement the projects defined in the roadmap.

The effective deployment of railway initiatives depends on the systematic identification, assessment and integration of these resources from the **strategic-planning phase** onward. Financial structuring involves defining suitable funding sources and determining the proportion of public investment needed to leverage **private capital and multilateral cooperation**.

At the same time, specialised **technical teams** and **institutional-strengthening mechanisms** must be developed to build local capacities – particularly in contexts with limited prior experience. The incorporation of **modern railway technologies** also requires dedicated resources for system upgrades, interoperability and innovation.

These efforts must be supported by **robust regulatory frameworks** that ensure legal certainty and effective inter-institutional coordination, alongside **international-cooperation mechanisms** that foster regional integration and the exchange of best practices.

Table 2: Resources required for the implementation of railway projects

Resources	1	2	3	4
Financial resources	Estimated capital expenditures (CAPEX) in infrastructure, equipment and technology	Operating and maintenance costs (OPEX) over the life cycle of the project	Blended financing models, which may include public contributions, development bank loans, PPP schemes, green bonds or innovative mechanisms such as availability payments, cross-subsidies or land value capture	The proportion of public investment required to leverage private investment and multilateral resources should also be calculated, as well as investment recovery mechanisms
Human resources and technical capabilities	Engineers in transportation, structures, railway systems, signalling and electrification	Experts in financial structuring, contract law and risk management	Specialists in environmental and social impact assessment	Personnel for the operation, maintenance and supervision of railway services
Technological resources	Infrastructure compatible with international interoperability standards, especially in cross-border corridors	Control, signalling and electrification systems adapted to local climatic and geographical conditions	Digital platforms for operation, predictive maintenance and user and load management	Clean technologies, such as electric, hydrogen or hybrid drive, aligned with national and regional climate goals
Institutional policy resources	Harmonised contractual frameworks for Public-Private Partnerships	Standardised technical norms, homologated with other countries in the region in the case of multinational projects	Public institutions with clear mandates, operational capabilities and technical autonomy to lead and supervise implementation	
Resources for international cooperation	Participation in platforms such as ALADI, COMITRAN, CAN, CELAC and other integration networks	Establishment of technical committees and binational or regional governance to ensure technical and regulatory coordination	Access to cooperation programmes of agencies such as CAF, the IDB, ECLAC and UIC, among others	

Source: UIC, 2025

5.5. Stakeholders involved

The successful development of railway projects requires the coordinated participation of a wide range of stakeholders – public and private, national and international. These actors not only contribute financial and technical resources but also play essential roles in **planning, structuring, operation, regulation, financing and oversight**. Their participation must align with the project's strategic objectives and be supported by a clear allocation of responsibilities throughout the entire life cycle.

5.5.1. National and subnational government entities

Ministries of Transport, Planning, Finance and Environment play a strategic role in defining policies, prioritising projects and establishing regulatory frameworks. Subnational governments – states, provinces and municipalities – exercise territorial competencies that directly influence corridor alignment, urban integration and land management. Their participation is vital to ensure social and territorial viability, facilitate permitting processes and resettlement, and enable integration with other modes of transport.

5.5.2. Specialised agencies and regulatory bodies

Railway authorities, mobility agencies, regulatory commissions and mass-transport operators provide the technical, regulatory and operational frameworks for project structuring. They define interoperability standards, design contracts and tariff models, monitor operations and manage risks. Their technical and institutional capacities are key to ensuring the bankability, safety and long-term sustainability of the railway system.

5.5.3. Multilateral organisations and development banks

Institutions such as the Inter-American Development Bank (IDB), the Development Bank of Latin America (CAF), the World Bank and other cooperation agencies supply financing, guarantees, technical assistance and risk-mitigation instruments. Their participation enhances project credibility, facilitates access to concessional and climate financing, and ensures compliance with international Environmental, Social and Governance (ESG) standards. They also foster regional coordination and promote structural reforms that strengthen the enabling institutional environment.

5.5.4. Supranational organisations

Supranational and regional entities such as the Economic Commission for Latin America and the Caribbean (ECLAC), the International Union of Railways (UIC), the Latin American Integration Association (ALADI), the Andean Community (CAN), the Latin American Railway Association (ALAF), the Transport Ministers Committee (COMITRAN) and the OECD's International Transport Forum (ITF) contribute to technical cooperation, policy alignment and the harmonisation of regulatory frameworks. They provide platforms for knowledge exchange, promote interoperability standards, and support the development of shared regional agendas for sustainable railway integration.

5.5.5. Private sector and investors

Concessionaires, construction companies, operators and investment funds participate through **Public-Private Partnerships (PPPs)**, competitive tenders or other collaboration mechanisms. They bring technical expertise, innovation, execution capacity and access to private capital. Their role is especially relevant in design, construction, operation and maintenance phases, and must be supported by transparent contractual frameworks and balanced risk-allocation schemes.

5.5.6. Civil society, local communities and academia

The participation of communities, civil-society organisations, academia and users strengthens the legitimacy of projects, helps identify potential externalities, and prevents social conflicts or litigation. Academic and research institutions contribute through evidence-based decision-making, data generation, independent monitoring and evaluation of economic, environmental and social impacts. Their involvement ensures that railway projects are inclusive, transparent and responsive to local needs.

6

Conclusions

6.1. Success factors for implementing Vision 2050

6.2. Final recommendations to governments, institutions and international organisations

By 2050, **railways are envisioned as one of the central pillars in building a more integrated, resilient and equitable Latin America**. They are not merely a mode of transport but a strategic tool for transformation. Their ability to connect territories, reduce spatial inequalities and articulate value chains positions the railway system as a structuring axis for economic and territorial development.

In the face of the climate crisis, accelerated urbanisation and the urgent need to decarbonise mobility, trains represent a sustainable, efficient and low-impact alternative. The railway vision for Latin America in 2050 is not a distant or idealised future, it is a pathway already under construction through concrete decisions, investments and partnerships.

Achieving this horizon will require a combination of **political will, technical planning, innovation and regional cooperation**. Railways can and must serve as catalysts for a new territorial and ecological pact – one that moves not only goods and people, but also *hopes, opportunities and shared well-being* across the region.

6.1. Success factors for implementing Vision 2050

For the **Vision 2050 for railways in Latin America** to become a tangible reality, it is essential to establish a solid foundation of enabling conditions. These success factors ensure coherence between planning and action while guaranteeing sustainability, legitimacy and adaptability over time. The following strategic elements will make it possible to move from design to effective implementation.

6.1.1. Monitoring and evaluation indicators

Each strategy and initiative defined in this roadmap must be accompanied by **specific, measurable, achievable, relevant and time-bound indicators**. These should assess not only the technical and financial performance of the railway system, but also its **environmental, territorial and social contributions**.

Periodic monitoring will make it possible to track progress, identify deviations, implement timely corrective actions and foster a culture of **results-oriented evaluation** that strengthens transparency and accountability.

6.1.2. Regional spaces for technical governance

Sustaining Vision 2050 requires permanent platforms for coordination and knowledge exchange. Strengthening or creating **railway observatories, centres of excellence, expert networks and regional working groups** will ensure continuity and harmonisation of standards. Supported by technical cooperation from organisations such as **UIC, ECLAC, CAF** and the **IDB**, these spaces will facilitate joint monitoring of the roadmap and the alignment of national policies with regional objectives.

6.1.3. Financing and technical cooperation mechanisms

The **financial viability** of Vision depends on a robust and diversified architecture that mobilises public, private and multilateral resources. National budgets, **PPP schemes**, development bank instruments, climate funds and **land-value capture mechanisms** must be integrated into coherent financing strategies.

Likewise, **South-South and triangular cooperation** will play an essential role in transferring technology, strengthening institutions and addressing operational and technological challenges across the region.

6.1.4. Social participation and transparency

The railways of the future must be **built with citizens, not just for them**. Incorporating participatory mechanisms from the planning stage through implementation and evaluation ensures legitimacy, reduces resistance and guarantees an equitable distribution of benefits. At the same time, **transparency, open data and accountability** in project management will reinforce democratic governance and public trust – essential pillars for the long-term sustainability of railway development in Latin America.

6.2. Final recommendations to governments, institutions and international organisations

For Vision 2050 to materialise as a transformative axis of mobility, integration and sustainability in Latin America, it is essential that each key actor assumes an active, coherent and coordinated role. The following are concrete and strategic recommendations aimed at the main stakeholders responsible for driving this change:

To national governments

- Incorporate railways as a priority in mobility, logistics and energy transition agendas.
- Develop modern, transparent regulatory frameworks aimed at fostering interoperability and investment.
- Create specialised technical units to continuously monitor the railway roadmap.
- Promote human talent development and technology transfer to strengthen local capacities

To subnational governments and metropolitan authorities

- Integrate rail transport into urban and regional territorial development plans.
- Coordinate land use, housing and mobility policies that support railway nodes and intermodal hubs.
- Promote citizen participation in planning and decision-making processes.

To international organisations and development banks

- Prioritise railway financing within sustainable and resilient infrastructure agendas.
- Design financial instruments adapted to the long return cycles of the railway sector.
- Support technical cooperation, regulatory harmonisation and the creation of regional centres of excellence.

To railway companies, operators and the private sector

- Commit to technological innovation, digitalisation and the use of clean energy in operations.
- Foster Public-Private Partnerships drive projects with high social and environmental impact.
- Contribute actively to local capacity building and compliance with sustainability standards.

To supranational organisations and regional platforms

- Strengthen regional integration mechanisms with a railway focus.
- Promote multilateral agreements that ensure interoperability, joint investment and continental-scale corridors.
- Encourage cooperation between countries to accelerate the implementation of cross-border projects.

The Vision 2050 for Latin American railways is not a distant aspiration: it is a call to action from the present, supported by technical expertise, regional cooperation and the will to transform our territories in the name of sustainable development. Railways, more than just a mode of transport, represent a unifying thread between the needs of our societies and the solutions of the future.

Every rehabilitated track, every integrated corridor, every partnership forged between countries, institutions and communities builds not only infrastructure but also trust, integration and hope. Today, Latin America has a unique opportunity to reconcile competitiveness with sustainability, mobility with inclusion, and technology with resilience. And railways are the axis of that transformation.

The **International Union of Railways (UIC)**, together with its members and strategic partners across the region, reaffirms its unwavering commitment to this journey – driving knowledge exchange, advancing interoperability and fostering innovative solutions that will place rail at the heart of tomorrow's mobility.

The train of the future has already departed. Now is the time for every country, every institution and every citizen to come aboard. Our shared destination is a Latin America that is more connected, more sustainable and more just. And that future begins on the rails.

Reflections from the Virtual Seminar: Vision 2050 for railways in Latin America

Mexico: *With every kilometre modernised and every load transported, we are moving towards a more integrated rail system with North America. The key lies in continuity and understanding the value of rail as a pillar of logistical and economic development.*

Venezuela: *Reformulating plans, opening up space for investment and ensuring continuity are the key steps to turning rail from a promise into a reality.*

Argentina: *Railways are resilient. Their modernisation is a commitment to the future, with investments in electrification, signalling and operational efficiency. Every rehabilitated track is another step towards a sustainable and competitive railway system.*

Costa Rica: *Railways are not a dream of the past, but a necessity of the present. To alleviate road congestion and reduce dependence on road transport, we must move forward with technical vision and sustainability, ensuring that projects transcend political changes.*

Guatemala: *Interoperability is key, and with every kilometre rehabilitated, we move closer to a functional and competitive railway.*

ECLAC – Multilateral Body: *Railways must be part of sustainable and structured development. Private investment and strategic planning are essential, but the key is to ensure institutionality and continuity so that projects survive beyond governments.*

Chile: *Thinking big is the first step towards railway integration. Technology will allow us to break down borders, but only with coordination and a shared vision will we achieve a more connected and efficient railway.*

Brazil: *Breaking the inertia of traditional transport is not easy, but railways are the way forward. Learning from other experiences and joining forces with academia and international organisations will take us further.*

Peru: *Railway integration may seem like a distant challenge, but every great network began with a first step. Interoperability is the key to building the future of transportation in South America.*

Colombia: *Railways are not just infrastructure; they are a vision for the country. Sustainability and regional integration must guide us in building a railway network for future generations.*

Colombia: *Nothing moves forward without continuity. The challenge is not only to build railways, but also to consolidate state policies that guarantee their development beyond government cycles.*

CAF – Multilateral Body: *Railway integration is not only a question of infrastructure, but also of decisions. What we do today will determine whether our countries will be truly connected in the future.*

7

Appendices

- A. Historical context of railways in Latin America**
- B. National development and railway plans in Latin America**
- C. Technical data sheets of the main Latin American railway networks**
- D. Fact sheets on projects and corridors in Latin America**
- E. International organisations in Latin America**

Appendix A. Historical context of railways in Latin America

Chronology of the first railways in Latin America

The history of railways in Latin America is a testament to progress, modernisation and, in many cases, neglect. Cuba inaugurated the region's first railway in 1837, with the Havana–Güines line, preceding not only its Latin American neighbours but also Spain. Jamaica soon followed with a 23-km line in 1845, which expanded to 370 km by the 1970s, but was eventually fragmented and mostly dismantled in 1992, a victim of time, economic crisis and hurricanes. Guyana, whose railway emerged in the 1840s to transport sugar, met a similar fate, disappearing in 1974 when modernisation took different paths.

In **South America**, **Peru** and **Chile** compete for the title of the region's **first railway**, with lines inaugurated in **1851**. The **Callao–Lima** connection was the first in Peru, while Chile celebrated the milestone of the **Caldera–Copiapó Railway**, driven by mining development. Both systems would expand over time, becoming **pillars of industrial growth**.

Further south, **Argentina** inaugurated its first railway line in **1857**, the **Western Railway (Ferrocarril Oeste)**. This initial route, connecting **Estación del Parque** (today **Plaza Lavalle**) with **Floresta**, was approximately **10 kilometres (about 6.2 miles)** long and featured the legendary locomotive “**La Porteña**”. Meanwhile, **Brazil**, in **1854**, saw the birth of its own pioneering network with the **Estrada de Ferro Mauá**, a line of around **14.5 kilometres** that connected the **Port of Mauá** with **Fragoso**, near the **Serra da Estrela**. This early effort would eventually establish both Brazil and Argentina as **major railway operators in the region**. Although smaller, **Paraguay** made its mark in **1861**, when the **López administration** launched **Latin America's first passenger railway**, a milestone that was later forgotten, with operations ceasing in **1999**.

The growth of railway networks was unstoppable. In 1869, Uruguay's first train ran between Bella Vista and Las Piedras, while Colombia in 1871 revolutionised trade by connecting Barranquilla with the Caribbean, facilitating exports through the Magdalena River. In 1873, Mexico celebrated the inauguration of the iconic **Mexico City–Veracruz** line, a work that took 36 years to build and remains partly in service today. Meanwhile, Costa Rica's railway began with a similar vision in 1873, though construction faced enormous geographic challenges before consolidating into an essential route.

Other Caribbean islands also embraced railways. In 1876, Haiti installed streetcars in Port-au-Prince and a small rural railway network that operated until 1970. Trinidad and Tobago, in the same year, launched its first train from Port of Spain to Arima, a system crucial for cocoa transport but dismantled in the 1960s. In 1877, Venezuela inaugurated its first line to transport copper from Aroa to the port of Tucacas, while the Dominican Republic made its railway the central axis for coffee and sugar exports, although only a few lines remain in operation today.

In **Central America**, railways radically transformed mobility and trade. In 1881, **Nicaragua** connected Corinto with Chinandega, but its system fell into disuse before closing in 2001. In 1882, **El Salvador** expanded its lines to boost agricultural production, but the network stopped operating in 2002. Barbados, with its 38.6-km railway, served trade until financial troubles forced its closure in 1937. In 1884, Guatemala achieved a vital connection between Puerto de San José and the capital, key for mobility until infrastructure deterioration shut it down in 2007.

Other railway histories met similar ends. Suriname, with 166 km of tracks, abandoned its network in 1986, leaving the country without international railway links. In 1891, Puerto Rico opened the Bayamón–Cataño line, later expanded for sugar exports, but its railway was dismantled in 1957. Bolivia inaugurated the Antofagasta–Oruro line in 1892, an impressive achievement in the Andes that remains in operation along certain routes. Antigua and Barbuda launched an 80-km railway for the sugar industry in 1903, but it ceased operation in 1971.

In Ecuador, the Trans-Andean Railway, inaugurated in 1908, defied extreme geography by linking Guayaquil with Quito. After more than a century of service, it ceased operations in 2022. Finally, the railway of Saint Kitts and Nevis, inaugurated in 1926, stopped transporting sugar cane but re-emerged as a scenic tourist railway, with Polish locomotives and double-decker carriages.

While many countries embraced railways as engines of development, some nations never developed a significant network. Among them are the Bahamas, Dominica, Grenada, Saint Vincent and the Grenadines, Saint Lucia and French Guiana, where trains were not seen as key to growth. Table 4 below summarises the chronology of railways in Latin America with a brief description of their current condition.

Table 3: Chronology of the first railways in the region and their current status

No.	Region	Country	Year of inauguration	Comments
1	Caribbean	Cuba	1837	1837 – Active. The first country in Latin America to have a railway, with the Havana-Güines line in 1837. Although it is still operational, its infrastructure is in poor condition and needs modernisation.
2	Caribbean	Jamaica	1845	1845 – Partially closed in 1992. It began with a 23-km line for freight transport. Its network reached 370 km but declined due to economic crises and hurricanes. Today, only 65 km remain operational.
3	South America	Guyana	1848	1848 – Defunct in 1974. Built to transport sugar, its network expanded to carry passengers and freight. It closed in 1974 due to competition from road transport.
4	South America	Peru	1851	1851 – Active. The first South American railway line, Callao-Lima, was inaugurated in 1851 and subsequently expanded. Today, Peru maintains an operational railway network, with notable lines such as the Central Railway and the Southern Railway.
5	South America	Chile	1851	1851 – Active. In 1851, the Caldera to Copiapó Railway was inaugurated, which was key to the mining industry. Over time, the country consolidated a railway network that is still in operation, especially for freight transport and tourist routes.
6	Central America	Panama	1855	1855 – Active. The Panama Railway was crucial before the construction of the canal, as it connected the Atlantic and Pacific oceans. Today, it continues to operate as part of the country's logistics infrastructure, facilitating international trade.
7	South America	Argentina	1857	1857 – Active. With the inauguration of the Buenos Aires-La Floresta line, Argentina began its railway expansion in 1857. Today it has one of the most extensive networks in South America, transporting freight and passengers in various regions.
8	South America	Brazil	1858	1858 – Active. The first railway line, Mauá-Fragoso, was inaugurated in 1858, boosting the country's development. Currently, Brazil maintains its operational network, focused on freight transport with some passenger lines.
9	South America	Paraguay	1861	1861 – Inactive since 1999. A pioneer in passenger trains in the region. Its railway ceased operations in 1999, although there have been attempts to reactivate it.
10	Central America	Belize	1863	1863 – Defunct in 1937. Built to transport timber and other products, its network disappeared with the rise of road transport.
11	South America	Uruguay	1869	1869 – Active. The railway was inaugurated in 1869, connecting Bella Vista with Las Piedras and expanding in the following years. Today, its network remains in operation, mainly for freight transport and some passenger services.
12	Central America	Honduras	1870	1870 – Active. Its railway network, which began in 1870 with the Puerto Cortés-San Pedro Sula connection, remains in operation with limited use.
13	South America	Colombia	1871	1871 – Active and expanding. The first line, inaugurated in 1871, connected Barranquilla with the Caribbean Sea. Despite its decline in the 20th century, there are currently modernisation and expansion projects underway to revitalise rail transport.
14	North America	Mexico	1873	1873 – Active. The first line between Mexico City and Veracruz marked the beginning of a vital rail system. It is still in operation today and undergoing constant modernisation.
15	Central America	Costa Rica	1873	1873 – Active. Its railway, designed to connect the Caribbean with the centre of the country, is still in operation, with plans for expansion.
16	Caribbean	Haiti	1876	1876 – Closed in 1970. Haiti had a small rail network with trams in the capital, Port-au-Prince and rural railways dedicated to transporting sugar and coffee. Despite its importance to the economy, the rail system ceased operations in 1970 due to lack of maintenance and investment in infrastructure.
17	Caribbean	Trinidad and Tobago	1876	1876 – Closed in 1968. Built for the cocoa industry and passenger transport. It was closed due to competition from road transport.

No.	Region	Country	Year of inauguration	Comments
18	South America	Venezuela	1877	1877 – Active. Its first railway facilitated the transport of copper and agricultural products. Some lines remain in operation.
19	Caribbean	Dominican Republic	1877	1877 – Active, although reduced. Opened to transport sugar and coffee. Today, most lines have closed, but there are still railways in operation.
20	Central America	Nicaragua	1881	1881 – Suspended in 2001. Its railway opened in 1881 and connected Corinto with Chinandega, facilitating agricultural trade and passenger transport. In the 20th century, the railway system gradually declined until it was finally suspended in 2001 due to competition from road transport and a lack of modernisation.
21	Central America	El Salvador	1882	1882 – Suspended in 2002. The Salvadoran railway network began in 1882 with the section between the port of Acajutla and Sonsonate, promoting the export of agricultural products. Its expansion allowed connections with more regions, but lack of investment and a preference for roads led to its suspension in 2002.
22	Caribbean	Barbados	1883	1883 – Defunct in 1937. The Barbados Railway was a 38.6-km narrow-gauge line that operated from 1883 to 1937. Its route, with steep gradients and multiple bridges, facilitated the transport of goods and passengers. However, financial problems and the rise of road transport led to its demise.
23	Central America	Guatemala	1884	1884 – Suspended in 2007, with attempts to reactivate it. The Guatemalan railway was inaugurated in 1884, connecting the port of San José with the capital, facilitating trade and mobility. It was a pillar of national transportation, but lack of investment and road competition caused its decline. In 2007, it was officially suspended, although there are plans to reactivate it.
24	South America	Suriname	1890	1890 – Inactive since 1986. Its 166-km railway system was key to the transport of goods and passengers in the 20th century. It had sections of standard gauge and narrow-gauge track but ceased operations in 1986 due to low usage and lack of maintenance. Currently, it has no rail connections with neighbouring countries.
25	Caribbean	Puerto Rico	1891	1891 – Defunct since 1957. Puerto Rico's first railway line opened in 1891 and connected Bayamón with Cataño. It was later expanded to transport sugar and passengers across the island. At its peak, it played a key role in the economy, but the modernisation of road transport led to its permanent closure in 1957.
26	South America	Bolivia	1892	1892 – Active. The Bolivian railway launched in 1892 with the Antofagasta–Oruro line, connecting the country to the Pacific. Its construction was a challenge due to the Andean topography, but it allowed for the export of minerals. Today, it remains a fundamental part of freight and passenger transport in Bolivia.
27	Caribbean	Antigua and Barbuda	1903	1903 – Defunct in 1971. Antigua had an 80-km railway network used mainly for the sugar industry. It operated from 1903 until 1971, when the decline in sugar cane production and the transition to road transport led to its permanent closure.
28	South America	Ecuador	1908	1908 – Inactive since 2022. The Trans-Andean Railway, inaugurated in 1908, linked Guayaquil with Quito, crossing the difficult Andean geography. It was a key project for the modernisation of the country, but financial problems and lack of investment led to its suspension in 2022.
29	Caribbean	Saint Kitts and Nevis	1926	1926 – Active as a tourist railway. Built between 1912 and 1926 to transport sugar cane, it ceased operations due to the decline of the sugar industry. It was converted into a scenic railway for tourists, with Polish locomotives and double-decker carriages.

Source: UIC, 2025

Note: No historical or current records of railway infrastructure were identified in the Bahamas, Dominica, Grenada, Saint Vincent and the Grenadines, Saint Lucia, and French Guiana. The absence of data suggests that these countries have not had railway systems, relying instead on alternatives such as land and sea transport for the movement of people and goods.

Each of these projects not only marked the beginning of a new era in transportation, but also played a vital role in economic development, regional integration and social transformation in Latin America, leaving a lasting legacy that still resonates in the region today.

Major lessons learned from the railway history of Latin America

- Importance of investment and domestic management: Dependence on foreign investment limited industrial development and exacerbated regional imbalances that shaped social dynamics, some of which persist to this day.
- The need for equitable development policies: Railways must promote economic progress alongside social justice and national autonomy.
- Government influence in fostering and regulating railways: A fundamental aspect for the development of a cohesive and efficient transport system.
- Risks of development models based on intensive exploitation of natural resources: Without an integrated vision of national development, countries risk dependency and vulnerability to external economic crises.
- Interconnection between technological development, economic and social structures: Transport infrastructure can both drive and constrain economic growth, suggesting the need for more integrated and balanced approaches.
- Importance of comprehensive planning and management: In countries such as Costa Rica, the construction of the Atlantic Railway highlighted the critical role of adequate planning and management. Dependence on external financing and expertise can lead to unsustainable economic challenges if not managed properly.
- Risk of external economic and technological dependency: Countries such as Bolivia and Venezuela faced limitations due to reliance on foreign investments, which tied railway development to external interests not always aligned with local needs.
- Social and labour impact: In Uruguay, labour struggles and the railway's social impact underscored the importance of union organisation in the face of adverse business interests and state policies.
- Need for integration and equitable domestic development: Brazil's experience revealed the limitations of an export-focused model dependent on foreign capital, highlighting the importance of strategies that promote equitable development and social cohesion.
- National autonomy and sovereignty: The cases of Honduras and Panama illustrate how railways, when serving foreign commercial interests, can compromise national autonomy and provide lessons about the risks of dependent development models.
- Importance of the railway in cultural identity and collective memory: In countries such as Cuba and Argentina, railways became significant elements of cultural identity, underscoring their value beyond mere functionality.
- Sustainable development and social justice: The construction of the Panama Railway and efforts in Costa Rica and the Dominican Republic reflect the need for development that balances economic progress with social justice, regional autonomy and environmental sustainability.
- Flexibility and adaptation to technical and geographic challenges: Chile demonstrated the importance of overcoming technical and geographic obstacles through engineering and innovation. Building railways across deserts, mountains and valleys highlighted the need for flexibility and adaptation to connect the country and promote regional development.
- Coordination between public and private policies for sustainable development: Colombia illustrates how railway development can be a catalyst for economic growth provided there is effective coordination between the state and the private sector. This emphasises the importance of integrated strategies that consider both foreign investment and public policies to ensure equitable and sustainable development.
- National integration in the face of regional inequalities: As seen in Peru and the Dominican Republic, railway development highlighted the tension between economic integration and regional disparities. The concentration of railway projects in export-orientated areas underscores the need for planning that promotes territorial cohesion and more uniform national development.

Appendix B. National development and railway plans in Latin America

No.	Country	National Development Plan	Rail Development Plan	Observations
MEXICO				
1	Mexico	National Development Plan (NDP) 2019 -2024	National Rail Programme 2022	The Government of Mexico (2022), through the Official Gazette of the Federation (DOF) “declares the provision of public passenger railroad transportation services in the Mexican Railroad System as a priority area for national development”. Likewise, in 2024 Article 28 of the Mexican Constitution was modified and a fifth paragraph added, which specifies that the state may exercise its right to use the railways for passenger transportation. This contrasts with the previous situation, where private concessions dominated the sector. The 2019-2024 and 2025-2030 NDPs include the development and consolidation of the railway.
CENTRAL AMERICA				
2	Guatemala	National Development Plan K’atun, Nuestra Guatemala 2032	Railway Master Plan 2020-2030	Guatemala’s long-term development plan includes aspects for the promotion of the railway in terms of improving and modernising infrastructure as a key element for the country’s economic and social development. Guatemala’s Railway Master Plan is considered a road map that aims to solve the backlog in the railway networks and take advantage of them to improve long-term logistic competitiveness.
3	El Salvador	Plan Cuscatlán	El Salvador Infrastructure Master Plan 2019-2030	The Cuscatlán Plan seeks to rebuild a modern state. The plan includes restructuring the Executive Body, professionalising the public sector, reducing bureaucracy and facilitating investment. In the area of infrastructure, a Public Works and Development Team will be created to plan public investment in this sector, including the Pacific Railway. There is no Rail Development Plan but there is an Infrastructure Master Plan in which the Pacific Railway is presented as a flagship project. The objective of this development is to reactivate the national rail system to transport cargo and passengers using the old network, as well as new routes to connect domestic productive areas with ports, airports and borders. NDP includes railway development and consolidation.
4	Honduras	Country Vision 2010-2038 and National Plan 2010-2022	Honduras Country Strategy 2022-2026	The 2010-2038 Country Vision of Honduras includes in its challenge to productive infrastructure the construction of a renovated railway line that will move containers from a “dry port” in the city of Potrerillos to Puerto Cortés, the latter being planned to be the most important port in the Atlantic of Central America. Within the Honduras Country Strategy 2022-2026, the ‘Boosting sustainable competitiveness’ pillar includes strategic objectives to promote greater opportunities through regional integration and economic inclusion in which a potential investment is to develop Railway Regulation as a regional project.
5	Costa Rica	Development and Public Investment Plan 2023-2026	National Transport Plan 2011-2035 Master Railway Plan	Costa Rica’s Development and Public Investment Plan through 2026 includes within the sectoral strategy, specifically in public works and transportation, the modernisation of rail infrastructure and the re-establishment of freight and passenger rail service. On the other hand, the Master Railway Plan, developed by the Korean government, presents a series of guidelines to be followed for the construction of the railway transportation system in an integrated manner, mainly oriented towards a logistic approach. This Plan contemplates the interregional transportation of passengers requiring the construction of 8 railway routes interconnecting coastal and rural regions with the GAM (Greater Metropolitan Area).
6	Panama	National Strategic Plan with a Vision of State Panama 2030	Panama–Chiriquí Railway Project	Panama does not yet have a national rail development plan. However, the Panama–Chiriquí Railway Project aims to connect vast areas of the national territory through a 391.1-km network, covering the route up to the Costa Rican border. However, it is important to note that no railway projects have been formulated towards Colombia.

No.	Country	National Development Plan	Rail Development Plan	Observations
SOUTH AMERICA				
7	Colombia	National Development Plan (NDP) 2022-2026	Railway Master Plan 2020	Since 2018, from the National Planning Department (DNP), the Ministry of Transportation (MinTransporte), the National Infrastructure Agency (ANI) and the National Roads Institute (INVIAS), with the support of the Inter-American Development Bank (IDB), have been leading the reactivation and consolidation of railway transportation at the national level, in order to develop an efficient, interconnected and competitive national railway system, considering the commitments set forth in the Intermodal Transportation Master Plan – PMTI and in the National Development Plan 2018-2022.
8	Venezuela	National Development Plan <i>Plan de la Patria</i> 2022-2025	National Socialist Railway Development Plan	Within the <i>Plan de la Patria 2022-2025</i> , the objective is to turn Venezuela into a social, economic and political power, developing an economic power based on the optimal use of the country's potential. Among the actions to be taken, the plan highlights the strengthening, articulation and interconnection of transportation infrastructure for an intermodal system, associated with regional urban dynamics with an integral vision of the country. The operationalisation of this action is based on the completion and rehabilitation of railway sections prioritised in the National Socialist Plan for Railway Development.
9	Brazil	ENDES 2020-2031 (Federal Development Strategy for Brazil 2020-2031)	NLP 2035 (National Logistics Plan)	The Minfra remains responsible for overseeing its affiliates in the implementation of transport policies. In the rail sector, the Ministry oversees the National Department of Transport Infrastructure (DNIT), the National Inland Transport Agency (ANTT) and the company Valec Engenharia; Construções e Ferrovias S/A. ANTT is responsible for railway concessions, and also, with the advent of Law No. 14.273/21, manages the procedures for Railway Authorisation. Includes rail development and consolidation.
10	Ecuador	Development Plan for the New Ecuador 2024-2025	No railway development plan	Under IDB consultancy, it was determined to reactivate some sections (06) for tourism purposes in the existing rail network. The route to be reactivated will be Alausí–Sibambe, the Devil's Nose train. Followed by: Quito–Bolíche, Ibarra–Salinas, Riobamba–Urbina, Tambo–Coyocotor and Durán–Bucay.
11	Peru	National Strategic Development Plan for 2050 National Infrastructure Plan for Competitiveness	National Railway Development Plan 2016	The National Strategic Development Plan for 2050, which was formulated by the National Centre for Strategic Planning (CEPLAN), also includes a vision for the development of the railway system in Peru. Peru's National Railway Development Plan is still in effect today. The Ministry of Transport and Communications (MTC) has incorporated new rail projects into the National Infrastructure Plan for Competitiveness (PNIC) as of July 2022.
12	Bolivia	PDES 2021-2025 (<i>Plan de Desarrollo Económico y Social 2021-2025</i>)	Rail Transport Regulatory Regulations, 6 February 2017 Economic and Social Development Plan 2016-2020	The Economic and Social Development Plan 2016-2020 included the railway as one of the focuses in the modernisation programmes in order to boost passenger and freight connections. Among the most relevant projects are the Central Bioceanic Corridor and the Cochabamba Metropolitan Electric Train. Rail development plans are not included in the current development agenda. Does not include railway development and consolidation.
13	Paraguay	PND 2030 (National Development Plan 2030)	National Logistics Plan. National Transportation Plan	Fepasa has been promoting the project of a commuter train between the cities of Asunción and Ypacaraí for several years, but despite the great benefits it would bring, little or no progress has been made. It includes the development and consolidation of the railway
14	Chile	Chile's government programme <i>Apruebo Dignidad</i> 2022-2026	National Railway Development Plan 2022-2026	The plan of the Government of Chile includes the development of works to optimise the national logistics system, enhancing freight railway, establishing intermodal integration centres, and improving access to ports and international crossings. It also provides for the development of a railway policy, as well as the continuation of projects that are already in progress and the promotion of three new projects. Includes rail development and consolidation.

No.	Country	National Development Plan	Rail Development Plan	Observations
15	Uruguay	Country Programme 2021-2025 – UNDP Uruguay	Strategic development plan	The provisions of Law 17.930, Article 206 and Decree No. 473/11 laying down the basis for the reformulation of the railway mode, establish that the National Development Corporation shall constitute a public limited company whose shareholders shall be 51% AFE and 49% CND and whose main activity will be the provision of rail freight services. The articles of association of this company were created in April 2013. From 1 July 2015, SELF began to provide freight services to customers and invoice them accordingly.
16	Argentina	Argentina Productive Plan 2030	Rail Transportation Modernisation Plan (Freight and Passengers)	This plan is federal and includes important works in several provinces aimed at modernising passenger rail transportation and changing the way millions of people travel. Some of the current work includes the renovation of stations. As regards the Freight Train Modernisation Plan, an investment of USD 4,905 million is estimated for the intervention of 1,242 km of track on the Belgrano, San Martín and Roca lines, and the creation of 31 thousand jobs, covering 12 provinces.
CARIBBEAN COUNTRIES				
17	Dominican Republic	National Development Strategy 2010-2030 / National Infrastructure Plan 2020-2030	No information found	The Dominican Republic has a National Infrastructure Plan 2020-2030. However, within its chapters there is no precise information regarding railway infrastructure. On the contrary, it includes a list of numerous projects for the strengthening of roadways, through the construction and expansion of avenues, streets and highways, as well as the extension of metro lines in the metropolitan area.
18	Cuba	National Economic and Social Development Plan to 2030	Railway Recovery and Development Programme through 2030	In the Macro-Programme No. 3 of this Plan, reference is made to infrastructure as a favourable means of achieving integration and increasing the competitiveness of the economic and territorial system of the country, as well as the efficient provision of services based on its management and technological modernisation. For its part, the railway recovery and development programme carried out by the Unión de Ferrocarriles del Cuba seeks to increase freight and passenger transport, improve traffic safety and improve the running quality of trains, as well as the participation of Cuban industry in the recovery of the railway. These targets are expected to be met by 2030.

Source: UIC, 2025

Appendix C. Technical data sheets of the main Latin American railway networks

C.1. Technical data sheet of the Mexican railway network



Ferromex locomotives of Grupo Mexico Transporte (GMXT) in operation. Source: E. Martínez, 2024

Network name	Mexican Railway System (SFM) / National Railway Network		
Network extension (km)	28,864	Type of traction	Diesel, diesel-electric and electric
Operational extension (km)	24,549	Cargo volume (million tonnes/year) – 2024	132.69
Status of the operation	Operative	Passenger volume (millions/year) – 2024	51.53
Track width (mm)	1,435	Last major investment (year)	2025

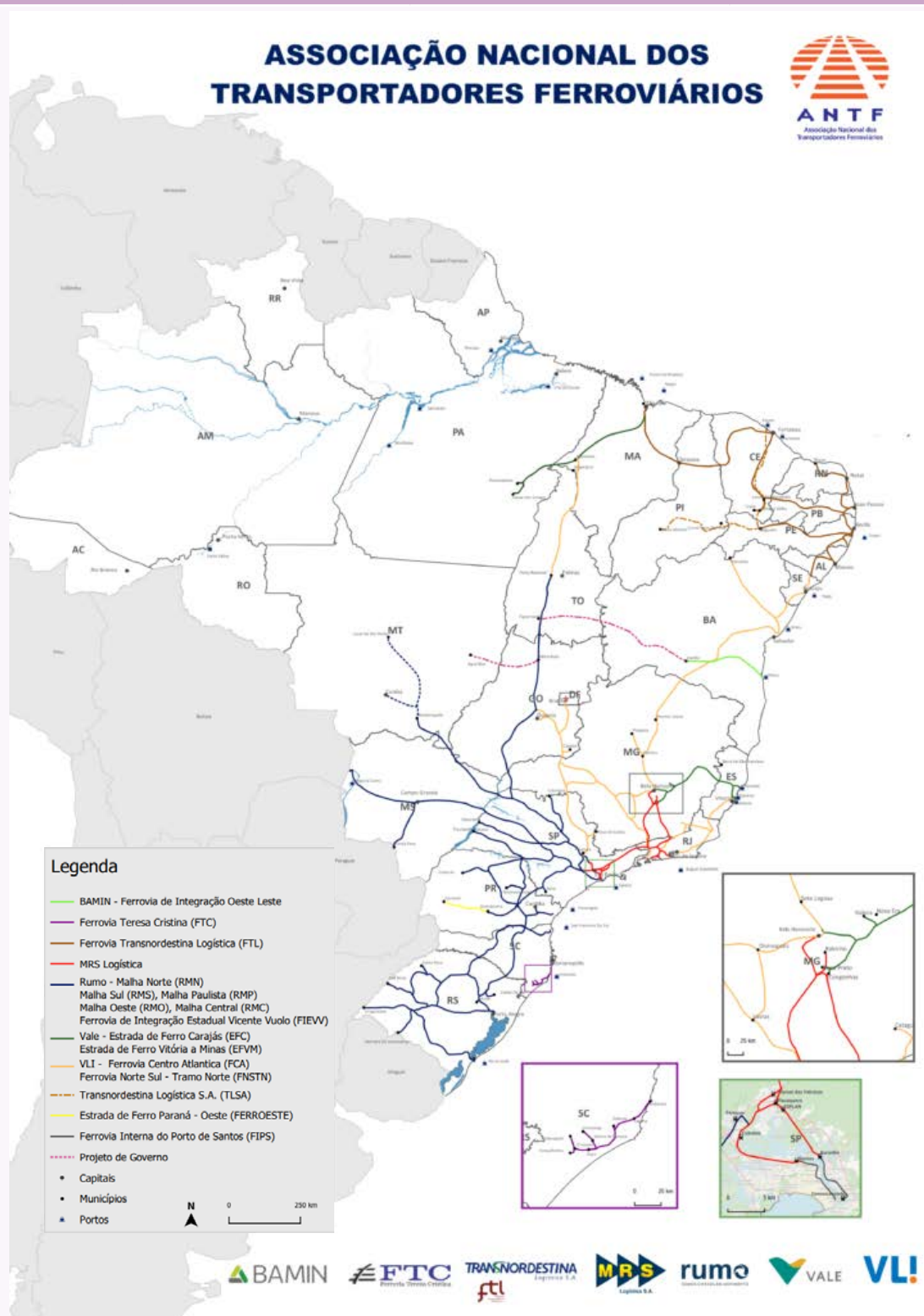
Category	Description
Geographic coverage	<p>The main areas of the country covered by the Mexican railway for freight transport include strategic industrial, urban and border regions. The railway network connects both the centre of the country with the north and south, as well as the main ports on the Pacific and Gulf of Mexico. In this regard:</p> <ul style="list-style-type: none"> Industrial and urban cities: Mexico City, Guadalajara, Monterrey, Aguascalientes, Chihuahua and Tepic Pacific ports: Manzanillo (Colima), Mazatlán and Topolobampo (Sinaloa), Guaymas and Puerto Peñasco (Sonora) Gulf ports: Altamira and Tampico (Tamaulipas), Veracruz, Coatzacoalcos and Salina Cruz (Oaxaca) Borders: Nogales, Ciudad Juárez, Ojinaga and Piedras Negras (connection with the United States) <p>Passenger coverage is limited and fragmented. The Valley of Mexico concentrates about 90% of the demand, while other interurban and tourist routes (Baja California, Chihuahua, Puebla, Yucatán) have a recreational character. In general, the network is still in its infancy and does not yet constitute an articulated national system.</p>



Mexican Railway System. Source: Anuario Estadístico Ferroviario 2024, 2025

Types of rail service	Freight, passenger: interurban, regular suburban; special tourist
Operating model	The railway model in Mexico is mixed. In freight, the infrastructure is state-owned, but operation has been concessioned to private companies since 1995, through long-term contracts supervised by ARTF. For passengers, there is also a mixed scheme with public and private participation, under concessions or direct administration. This makes it possible to offer suburban, interurban and tourist services, adapted to different demand profiles and territorial contexts.
Main operators and managers	<p>In freight, the main players are Ferromex, Ferrosur and Kansas City Southern de México (KCSM).</p> <p>In terms of passengers, both public and private entities operate:</p> <ul style="list-style-type: none"> Private: Ferrocarriles Suburbanos S.A. de C.V. → Tren Suburbano del Valle de México; Ferromex → Tren Chihuahua-Pacífico and Tequila Express Public: State of Puebla and State of Baja California. FONADIN → Mexico–Toluca Interurban Train. Ferrocarril del Istmo de Tehuantepec S.A. de C.V. → Interoceanic Corridor. Mayan Train S.A. de C.V. → Mayan Train
Linkage to strategic planning	<p>PND 2025-2030: recognises railways as key to territorial development, logistics competitiveness and sustainable mobility. National Railway Programme 2022: defines the roadmap for passenger reactivation, line modernisation and intermodality. Constitutional Reform 2024 (Art. 28): declares passenger rail transportation as a priority area, allowing the state to operate on concessioned tracks. Priority projects: Mayan Train and Interoceanic Corridor of the Isthmus of Tehuantepec, integrated to regional development, social inclusion and sustainability strategies.</p> <p>Agenda 2030: aligns railway policy with international commitments, promoting decarbonisation and territorial cohesion.</p>
Regional integration and interoperability	Mexico has a network connected to the United States, which allows for smooth binational rail operations in cargo. In 2024, international traffic reached 96.03 million net tonnes. There is no interoperability with Central America, although projects in the south of the country open up the possibility of future integration with Guatemala, even without concrete operational agreements.

C.2. Technical data sheet of the Brazilian railway network



Network extension (km)	30,354.55 (freight) 1,137.50 (passengers)	Type of traction	Diesel, electric
Operational extension (km)	19,354.55 (freight) 1,137.50 (passengers)	Cargo volume (million tonnes/year) – 2024	540.28
Status of the operation	Operative	Passenger volume (millions/year) – 2024	2.48 (billion)
Track width (mm)	1,000 / 1,067 / 1,600 / 1,435	Last major investment (year)	2025

Category	Description
Geographic coverage	<p>Cargo: The rail network of Brazil is highly concentrated in the southeast (47%) and south, especially in São Paulo, Rio de Janeiro and Minas Gerais. In contrast, the north and midwest contain only 8% of the network, while the northeast has isolated corridors.</p> <p>Passengers: The passenger rail system covers 73 municipalities in 12 states, with operations in 15 metropolitan regions (excluding metros). Highlights include the urban trains and VLT in Ceará, Pernambuco, Alagoas, Paraíba, Rio Grande do Norte and Rio Grande do Sul, reaching cities such as Cariri, Sobral, Teresina, Natal, Maceió and Porto Alegre</p>
Types of rail service	Freight, passenger, commuter train, urban passengers, tourism
Operating model	<p>The rail model combines private concessions for cargo and a mixed scheme for passengers. Since the 1990s, freight infrastructure has been operated mainly by private companies under federal concessions regulated by the ANTT, which has boosted investment, efficiency and expansion, although challenges such as market concentration and low interoperability remain.</p> <p>For passengers, public (CBTU, Trensurb) and private operators coexist (SuperVia, VLT Carioca, among others), with at least 9 out of 16 active private companies. The scheme is based on state or local concessions and has made it possible to modernise and expand services, with projects in cities such as Maceió, João Pessoa, Recife, Porto Alegre and Natal, as well as multiple lines in São Paulo.</p> <p>Operation includes urban trains, VLT and APM (People Mover), adapted to the particularities of each region.</p>
Main operators and managers	<p>Freight: More than 90% of Brazil's freight network is in the hands of private concessionaires, who manage infrastructure and services under long-term federal contracts.</p> <p>Main operators:</p> <ul style="list-style-type: none"> ▪ Rumo Logística: largest operator, 13,500 km. Agricultural cargo, oil and containers ▪ Vale (EFVM y EFC): mining transport, especially iron ore ▪ VLI Logística (FCA): more than 7,000 km. Steel, agriculture, fuels and general cargo ▪ MRS Logística: southeast. Minerals, steel, cement, containers and industrials ▪ FTL (Transnordestina): connects Pernambuco and Ceará with Suape and Pecém; much of it under construction or inactive <p>Passengers:</p> <ul style="list-style-type: none"> ▪ CBTU (Companhia Brasileira de Trens Urbanos): operates in five northeastern capitals ▪ Trensurb: urban train in Porto Alegre ▪ SuperVia: suburban train in Rio de Janeiro ▪ ViaMobilidade (CCR): subway in São Paulo ▪ CFLP: operates VLT in Teresina ▪ VLT Carioca y Baixada Santista: light rail operators <p>A mixed ecosystem: strong state presence in the northeast and private consolidation in the southeast.</p>
Linkage to strategic planning	<p>Freight: Brazil's rail network is becoming increasingly integrated into national strategic planning.</p> <ul style="list-style-type: none"> ▪ National Logistics Plan (PNL) prioritises the railway as the axis of efficiency; horizon 2035 with investments in corridors that connect productive regions with ports, seeking to reduce logistics costs ▪ Structuring projects (PAC and PPI) give institutional priority and access to financing. Include Ferrogrão, Nova Ferroeste, FIOL and FNS ▪ Legal framework (Law No. 14.273/2021) enables private railway authorisations; more than 80 applications approved for new lines under simplified regime. <p>Passenger: The projects under study are part of the National Passenger Rail Transport Policy (PNTFP) and the National Railway Plan, with a focus on:</p> <ul style="list-style-type: none"> ▪ Modal diversification ▪ Reactivation of long-distance and regional services ▪ Development of feasibility studies and regulatory frameworks favouring investment
Regional integration and interoperability	<p>The freight network in Brazil has limited regional integration, with connections to Argentina (Uruguaiana), Bolivia (Corumbá–Santa Cruz) and Uruguay (Santana do Livramento) facing technical obstacles such as differences in routing and low interoperability. Although Brazil is involved in projects such as the Bioceanic Railway Integration Corridor, cross-border coordination remains weak. Strengthening integration requires investments in infrastructure, bi-national agreements and common technical standards. For passengers, there are no international integration projects with neighbouring countries.</p>

C.3. Technical data sheet of the Argentine railway network

ARGENTINA

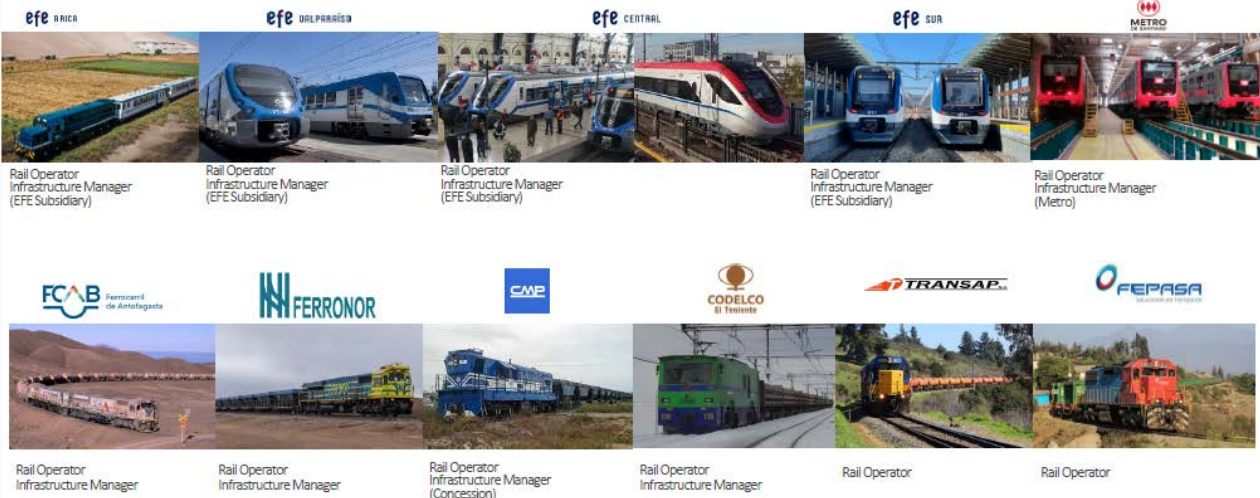


Operations of Belgrano Cargas y Logística SA. Source: [Infobae](#), 2024

Network extension (km)	17,857 (freight)	Type of traction	Freight: diesel Passengers: electrified and diesel
Operational extension (km)	14,163 (freight)	Cargo volume (million tonnes/year) – 2024	21.63
Status of the operation	Operative	Passenger volume (millions/year) – 2024	330.14
Track width (mm)	1,000 / 1,435 / 1,676 / 750* * Freight only	Last major investment (year)	2024
Category	Description		
Geographic coverage	<p>Argentina's freight rail network has a wide and strategic coverage, connecting 17 of the 23 provinces in the northwest, northeast, central and southern regions. Its route links the productive areas of the interior with the main Atlantic ports of Buenos Aires, Rosario and Bahía Blanca, facilitating the export of agribusiness, minerals and fuels. It also offers access to border crossings with Bolivia (Yacuiba/Villa Montes), Paraguay (Clorinda/Asunción) and Chile (Socompa and Mendoza-Los Andes), integrating into bioceanic and regional trade corridors. The coexistence of narrow, medium and wide gauges poses interoperability challenges, but also provides geographical and functional flexibility.</p> <p>In terms of passengers, the network is organised into three types:</p> <ul style="list-style-type: none"> ■ Buenos Aires Metropolitan Area (AMBA): 8 lines and 27 radial services from seven central stations to the conurbation ■ Long distance: connects the capital with northern, central and Atlantic provinces such as Chaco, Santa Fe, Córdoba, San Luis, Mendoza and Río Negro ■ Regional: covering northern (Salta, Jujuy), central (Córdoba, Santa Fe), southern (Río Negro, Neuquén) and eastern (Entre Ríos) provinces, with outlying routes such as the Tren del Valle and the Tren Patagónico <p>The network also includes the international connection Posadas–Encarnación (Paraguay) and tourist services in Patagonia, such as La Trochita.</p> <p>As a whole, the Argentine railway acts as an articulating axis of national and regional mobility.</p>		
Types of rail service	Freight, passenger, tourism		

Main operators and managers.	<p>The Argentine railway model is mixed, with public and private operators managing the network under concessions or direct administration. Since the 1990s, much of the system has been concessioned, but in recent years the state, through Trenes Argentinos Cargas, has regained operation of several lines, consolidating a hybrid scheme.</p> <p>Ownership of the infrastructure remains in the hands of ADIF S.A., which defines strategic guidelines, while operation is carried out by public and private companies. Notable concessions include Nuevo Central Argentino (NCA), Ferrosur Roca and Ferroexpreso Pampeano.</p> <p>However, Trenes Argentinos Cargas is a state-owned operator, independent of the three concessions mentioned above, and operates the freight service on the Belgrano, Urquiza and San Martín lines. The model also incorporates open access for new operators as a strategy for modernisation and competitiveness, although it faces challenges in terms of coordination, technical standardisation and financial sustainability.</p> <p>In terms of passengers, the network is also mixed: it combines private concessions (Ferroviás S.A.C., Metroviás S.A. and Tren Patagónico S.A.) with the state management of SOFSE, which operates the Mitre, Sarmiento, Roca, San Martín, Belgrano Sur and Tren de la Costa lines.</p>
Main operators and managers	<p>There are four main operators of the freight rail service in Argentina:</p> <ul style="list-style-type: none"> ■ Ferroexpreso Pampeano S.A. ■ Nuevo Central Argentino S.A. ■ Ferrosur Roca S.A. ■ Trenes Argentinos Cargas (Belgrano Cargas y Logística S.A.), which operates the Belgrano, San Martín and Urquiza lines. (Note: the name SOFSE – <i>Sociedad Operadora Ferroviaria del Estado</i> – corresponds to the passenger services operator, also known as Trenes Argentinos Operaciones) <p>The passenger rail network includes three services. The main operators and managers are detailed as follows:</p> <ul style="list-style-type: none"> ■ Metropolitan Area of Buenos Aires (AMBA): SOFSE – Mitre, Sarmiento, Roca, San Martín, Belgrano Sur and Tren de la Costa lines); Ferroviás S.A.C. – Belgrano Norte line; and Metroviás S.A. – Urquiza line ■ Long-distance service: SOFSE and Trenes Patagónico S.A. The latter also provides long-distance services ■ Regional service: SOFSE Trenes Patagónicos S.A. and the UEP MAGIyC (Provincial Executive Unit of the Ministry of Agriculture, Livestock, Industry and Trade of Chubut), are responsible for the management of La Trochita in that province. Tren a las Nubes S.E., which connects San Antonio de los Cobres with the Viaducto La Polvorilla in Salta, and the Tren Solar de la Quebrada, in the province of Jujuy, are emblematic tourist experiences of innovation and sustainability.
Linkage to strategic planning	<p>The freight railway in Argentina is part of the Transportation Modernisation Plan, aimed at rehabilitating infrastructure, renewing rolling stock and recovering strategic corridors. Through Trenes Argentinos Cargas, the aim is to connect productive poles, logistic nodes and border crossings, positioning the railway as the axis of competitiveness. Challenges persist in guaranteeing sustained and efficient long-term planning.</p>
Regional integration and interoperability	<p>Argentina maintains international railway connections with Bolivia, Chile, Paraguay, Brazil and Uruguay, although with uneven levels of interoperability. The main corridors are those to Chile (Socompa Pass) and Bolivia (Belgrano Line, currently inactive), both primarily focused on freight transport. However, these connections face significant limitations due to differences in track gauge, poor infrastructure conditions and limited binational coordination. Links with Paraguay and Uruguay are underutilised or inactive, yet they retain strategic importance for the development of bioceanic and river corridors.</p> <p>Operational services include the Posadas–Encarnación passenger train (Paraguay) and the Salta–Antofagasta corridor (Chile), which is active for freight transport and has potential for passenger service.</p> <p>The main technical obstacle lies in the coexistence of three gauges: broad gauge (1,676 mm), standard gauge (1,435 mm) and narrow gauge (1,000 mm), which complicates national and regional integration. The absence of a unified system limits the efficiency of cross-border corridors.</p> <p>Nevertheless, the reactivation of international services and the improvement of border nodes remain part of the strategic agenda, particularly through projects such as the Capricorn Bioceanic Corridor and initiatives promoted by COSIPLAN and IIRSA.</p>

C.4. Technical data sheet of the Chilean railway network



Network extension (km)	2,311	Type of traction	Diesel-electric, electric
Operational extension (km)	2,296	Cargo volume (million tonnes/year) – 2024	8.6
Status of the operation	Operative	Passenger volume (millions/year) – 2024	61.7
Track width (mm)	1,676 / 1,000 / 1,067 / 1,435*	Last major investment (year)	2025

Category	Description
Geographic coverage	According to the EFE 2024 Integrated Report, the geographic coverage of EFE Trenes de Chile's railway network extends over more than 1,700 km of operating infrastructure, covering 10 regions of the country , from the Valparaíso region to the Araucanía region. The network connects urban, interurban and rural areas, through passenger services that operate in urban, suburban, regional and tourist sections. In addition, EFE maintains infrastructure to the border with Bolivia through the subsidiary EFE Arica–La Paz, although this section is not currently in operation for passengers. This wide territorial coverage positions EFE as a structuring axis of railway connectivity in the centre-south of Chile.

Contexto



EFE: 40,5 millones (2022)
Metro: 359,3 millones (2021)



Norte: 16,5 millones (ton)
Red EFE: 10 millones (ton)
Codelco Tte: 60 millones (ton)

Location	Line	Length (km)	Traction	Service
3038 km	EFE Arica	208 km	-	< 1 Tren/día-sentido
	SQM	227 km	1500 V CC	0 Tren/día-sentido
	FCAB	700 km	-	1-5 Tren/día-sentido
	FERRONOR	2300 km	-	0-10 Tren/día-sentido
	CMP	38 km	-	5 Tren/día-sentido
	Codelco Tte.	7 km	1500 V CC	>100 Tren/día-sentido
	Metro de Stgo.	140 km	750-1500 V CC	>200 Tren/día-sentido
	EFE Valparaíso	140 km	3000 V CC	>100 Tren/día-sentido
	EFE Central	105 km	-	5-10 Tren/día-sentido
	EFE Central	571 km**	3000 V CC	5->100 Tren/día-sentido
2200 km	EFE Central	315 km	-	5-25 Tren/día-sentido
	EFE Sur	166 km*	3000 V CC	10-50 Tren/día-sentido
	EFE Sur	293 km	-	5-25 Tren/día-sentido
	EFE Sur	389 km	-	0-5 Tren/día-sentido
	EFE Sur	87 km	-	0-10 Tren/día-sentido
	EFE Sur	87 km	-	0-10 Tren/día-sentido



*Kilómetros lineales de vía. En zonas de doble vía está multiplicada por dos.

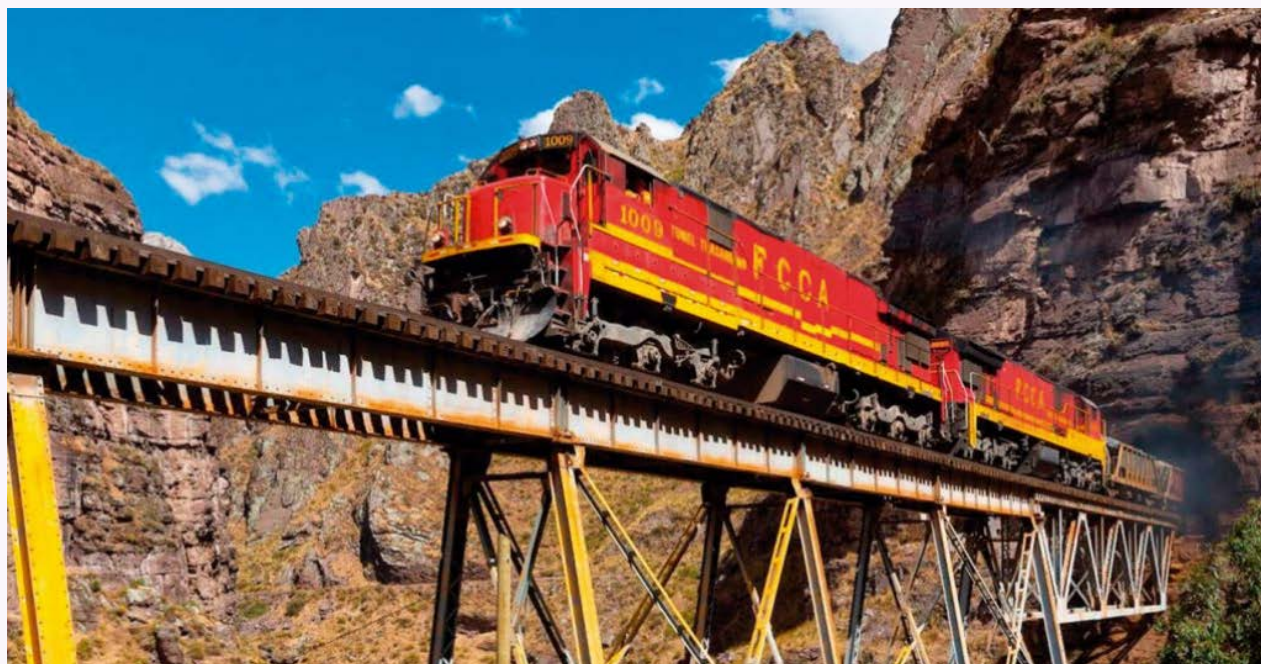
Types of rail service	Freight and passenger: urban, suburban, provincial and regional. Tourist
Operating model	<p>The operating model of Chile's railway network, managed by EFE Trenes de Chile, is based on the provision of railway infrastructure for both passenger and freight transportation. EFE acts as the administrator of the state-owned railway infrastructure, while the operation of the services may be carried out by its own subsidiaries – such as EFE Central, EFE Valparaíso, EFE Sur and EFE Arica–La Paz – in the case of passenger transportation, or by private concessionary companies in the case of freight transportation.</p> <p>For the latter segment, EFE grants the use of the infrastructure to private operators through contracts, as is the case of Transap and Fepasa, responsible for cargo transportation from La Calera to Puerto Montt.</p> <p>Additionally, EFE complements its model with the generation of non-fare revenues through the development and leasing of real estate assets linked to the railway network. This strategy contributes to the financial sustainability of the system and strengthens its role as a key player in the country's multimodal mobility.</p>
Main operators and managers	<p>The main operators and infrastructure managers of Chile's railway network, according to the EFE 2024 Integrated Report, are as follows:</p> <ul style="list-style-type: none"> ▪ State Railway Company (EFE Trenes de Chile): This state entity administers and manages the country's public railway infrastructure. EFE is responsible for the maintenance, planning, development and availability of the network for passenger and freight transportation ▪ Passenger operating subsidiaries: EFE Central, EFE Valparaíso, EFE Sur, EFE Arica–La Paz (although it does not currently operate passenger services) ▪ Private freight operators (using the infrastructure under concession contracts with EFE): FEPASA (Ferrocarril del Pacífico S.A.) and TRANSAP (Transportes Ferroviarios Andinos S.A.) <p>Together, EFE and its subsidiaries operate passenger services and manage the infrastructure, while private operators use the network for freight transport under a regulated access scheme.</p>
Linkage to strategic planning	<p>Chile's railway network is strongly linked to national strategic planning. EFE Trenes de Chile operates under a Corporate Strategic Plan, aligned with the Ministries of Transport and Finance, with axes on network expansion, financial sustainability, user experience and institutional strengthening.</p> <p>Projects such as the Trains of Chile Plan, Santiago–Melipilla, Alameda–Chillán and Batuco are part of the public policy of sustainable mobility and territorial planning. In addition, EFE promotes infrastructure projects articulated with development strategies, logistics, urban decongestion and emissions reduction, consolidating the railway as a central player in state planning, both for passenger and freight transport.</p>
Regional integration and interoperability	<p>EFE Trenes de Chile's railway network has limited regional integration, being mainly focused on cargo. Its subsidiary EFE Arica–La Paz manages the international railway that connects Chile with Bolivia, with binational character and cross-border infrastructure, although without passenger services. Interoperability on this section is reduced, due to the state of the infrastructure and the fact that active traffic corresponds almost exclusively with freight operated by Bolivian concessionaires or binational agreements.</p> <p>Outside this connection, there are no active rail services to Argentina or Peru. Thus, regional integration is restricted to the Arica–La Paz section, with a logistical focus on freight rather than on an interoperable and multimodal system for passengers.</p>



Note:

* The Chilean railway network operates mostly with a broad gauge of 1,676 mm (5 feet 6 inches), used mainly in the central and southern areas of the country, where EFE's freight and passenger services are concentrated. There are also sections with a metric gauge of 1,000 mm, such as the Talca–Constitución and Los Andes–Saladillo branches. Other track gauges are more limited, such as 1,067 mm (narrow gauge) and 1,435 mm (standard gauge), the latter being present, for example, on the international Arica–Tacna section.

C.5. Technical data sheet of the Peruvian railway network



The Central Andino Railroad, crossing through the Rio Blanco. Source: J. Terradas, 2019

Network extension (km)	1,957	Type of traction	Diesel, electric
Operational extension (km)	1.748	Cargo volume (million tonnes/year) – 2024	2.4
Status of the operation	Operational, with sections to be rehabilitated	Passenger volume (millions/year) – 2024	No information ³
Track width (mm)	914 / 1,000/ 1,435	Last major investment (year)	2025
Category	Description		
Geographic coverage	<p>The Peruvian railway network covers the coast, central and southern highlands, with strategic links to Pacific ports and border crossings with Chile and Bolivia, although with a strong concentration in the mining and logistics corridors in the centre and south of the country.</p> <p>Territorial coverage</p> <ul style="list-style-type: none"> ■ South and central coast: with access to ports (Lima, Callao, Mollendo and Ilo) ■ Central and southern highlands: connecting the capital with Junín, Huancavelica, Cusco and Puno ■ International borders: connection with Chile (Tacna–Arica) and Bolivia (Puno–Desaguadero–La Paz) 		

³ Conventional passenger rail transport in Peru did not generate relevant passenger numbers in 2024, as regular service is very limited or absent outside the metro.



Railway infrastructure 2025. Source: Ministerio de Transporte y Comunicaciones del Perú, 2025

Types of rail service	<p>In Peru, the rail network offers mainly mining and industrial cargo services, along with tourist and urban passengers (Cusco–Machu Picchu, Lima Metro) and a bi-national passenger service on the Tacna–Arica section.</p>
Operating model	<p>Peru's railway operation model is mixed, with the coexistence of private concessions and state operation:</p> <p>Infrastructure and property</p> <ul style="list-style-type: none"> ▪ All infrastructure is owned by the state ▪ Management and regulation are the responsibility of the Ministry of Transport and Communications (MTC) and the Autonomous Authority of the Electric Train (AATE) in the case of the Lima Metro <p>Private concessions</p> <ul style="list-style-type: none"> ▪ A large part of the national network is given in concession to private operators, who are responsible for operation, maintenance and modernisation: <ul style="list-style-type: none"> ▪ Ferrovías Central Andina (FCA) operates the Central Railway (Lima–La Oroya–Huancayo) ▪ PeruRail manages part of the South and Southeast Railway, with tourist and freight services ▪ Inca Rail operates tourist services operate between Cusco and Machu Picchu ▪ Southern Perú Copper Corporation operates private mining lines in the south <p>State operation</p> <ul style="list-style-type: none"> ▪ Tacna–Arica Railway: managed directly by the Regional Government of Tacna, with passenger service to Chile ▪ Lima Metro, Line 1: concessioned to a private operator (GyM Ferrovías-Graña y Montero), but under the supervision of AATE ▪ Lima Metro, Line 2: under construction, also under private concession

Main operators and managers	<p>Infrastructure managers/owner:</p> <ul style="list-style-type: none"> ■ Peruvian state → the railway network is publicly owned ■ MTC (Ministry of Transportation and Communications) → governing body ■ AATE (Autonomous Electric Train Authority) → manages the Lima Metro ■ Regional Government of Tacna → directly manages the Tacna–Arica Railway <p>Main private operators:</p> <ul style="list-style-type: none"> ■ Ferrovías Central Andina (FCA): the Central Railway (Lima–La Oroya–Huancayo) ■ PeruRail: part of the South and Southeast Railway, with tourist services (Cusco–Machu Picchu, Cusco–Puno) and freight services ■ Inca Rail: tourist services in the Cusco–Machu Picchu corridor ■ Southern Perú Copper Corporation: private mining freight network (231 km) in the south of the country <p>State-owned/concessioned operators:</p> <ul style="list-style-type: none"> ■ Lima Metro, Line 1: operated by GyM Ferrovías (Graña y Montero) under concession, supervised by the state ■ Lima Metro, Line 2: under construction, also under private concession ■ Tacna–Arica Railway (60 km): directly managed by the Regional Government of Tacna, the only binational passenger service in the region
Linkage to strategic planning	<p>Peru’s rail network maintains a clear link with national strategic planning, framed in instruments such as the National Infrastructure Plan for Competitiveness (PNIC), the Intermodal Transport Master Plan (PMTI) and the Railway Master Plan (2016-2050), which guide its modernisation and expansion. These plans prioritise key projects such as the rehabilitation of the Huancayo–Huancavelica Railway, the consolidation of the Central Railway and the South and Southeast Railway as logistic axes for freight and tourism, and the development of the Lima-Lima Suburban Train to improve connectivity on the central coast. In the urban sphere, the construction and operation of Lines 1 and 2 of the Lima and Callao Metro are integrated into the policy of sustainable mobility and emission reduction.</p>
Regional integration and interoperability	<p>Peru’s rail network currently has very limited regional integration and interoperability, with the only active connection being the Tacna–Arica Railway, which offers binational passenger service with Chile. There are also links to Bolivia, through the South and Southeast Railway, particularly through Puno–Desaguadero, but its operation is minimal and it lacks an effective interoperable system. There are no active links with Ecuador, Brazil or Argentina, and the differences in rail gauge (1,435 mm, 1,000 mm and 914 mm) represent an additional obstacle to smooth connection with neighbouring networks. However, the country plans to become a regional articulation node through strategic initiatives such as the Central Bioceanic Railway Corridor. In this sense, although current interoperability is limited, the projects underway and in planning reinforce Peru’s potential as a hub for transcontinental rail integration.</p>

C.6. Technical data sheet of the Colombian railway network

COLOMBIA



Colombian railway in the Chiriguaná–La Dorada central railway corridor. Source: MundoMaritimo, 2018

Network extension (km)	5,533	Type of traction	Diesel, diesel-electric
Operational extension (km)	1,096	Cargo volume (million tonnes/year) – 2024	32.1
Status of the operation	Operational and under reactivation project	Passenger volume (millions/year) – 2024	No information ⁴
Track width (mm)	914 / 1,435	Last major investment (year):	2024
Category	Description		
Geographic coverage	<p>The network follows the natural corridors of the Magdalena and Cauca valleys, in addition to the eastern corridor that crosses Bogotá. It is organised into three major zones:</p> <ul style="list-style-type: none"> ■ Atlantic Railway Network: ~592 km in operation. Includes the Chiriguaná–Santa Marta section, key for coal and containerised cargo ■ Central Railway Network: ~739 km. Corridors such as La Dorada–Chiriguaná and Bogotá–Belencito, undergoing rehabilitation and maintenance ■ Pacific Rail Network: ~498 km. Connects to Buenaventura, although its operation is limited <p>The network mainly covers the Caribbean, Andean and Pacific regions, connecting the productive axes of the interior with the export ports. Currently, close to 95% of rail traffic corresponds to heavy cargo: minerals, cement, coke, coal and containers.</p>		

⁴ Colombia has no conventional rail passenger service in operation, only tourist services (such as the Savannah Tourist Train between Bogotá and Zipaquirá, and a funicular to Monserrate hill in Bogotá) and some projects under construction to reactivate passenger rail transport.

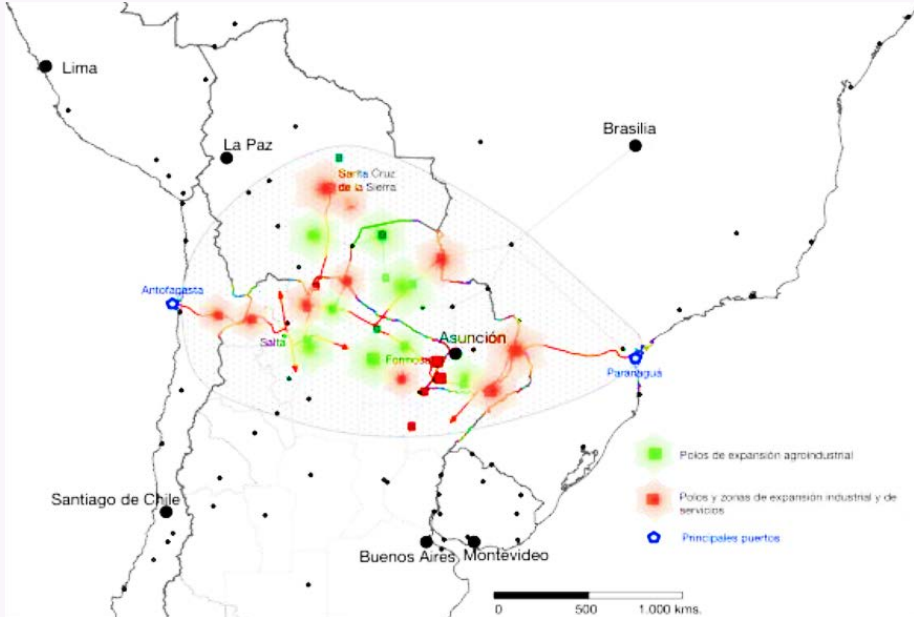


Infrastructure of the National Railway Network. Source: ANI, 2024

Types of rail service	Almost exclusive service for cargo, while passenger and tourist services are limited and isolated, without being articulated as a national system.
Operating model	<p>Operation under concessions:</p> <ul style="list-style-type: none"> Most of the corridors are concessioned to private companies, which are responsible for their operation, maintenance and commercial exploitation Example: FENOCO, which operates the Chiriguaná–Santa Marta corridor, key to coal exports <p>Mixed scheme with state participation:</p> <ul style="list-style-type: none"> The state, through autonomous patrimonies and public works contracts, promotes the rehabilitation of corridors such as La Dorada–Chiriguaná and Bogotá–Belencito, which are under direct or partial state management
Main operators and managers	<p>Administrators/network ownership:</p> <ul style="list-style-type: none"> Colombian state → the rail infrastructure is public Managers: <ul style="list-style-type: none"> National Infrastructure Agency (ANI): manages approximately 1,610 km Inviás (National Roads Institute): manages about 1,734 km <p>Freight operators (concessioned):</p> <ul style="list-style-type: none"> FENOCO S.A. → Operates the Chiriguaná–Santa Marta corridor (245 km), specialising in coal and containerised cargo Pacific Railroad Concession (498 km): currently in liquidation, with very limited operation La Dorada–Chiriguaná Corridor (≈558 km): partially rehabilitated, under state management through autonomous patrimonies and public works contracts Bogotá–Belencito (262 km): State-managed, with occasional industrial cargo operations (cement, steel) <p>Tourist services and passengers:</p> <ul style="list-style-type: none"> Turistren (Savannah Train) : Bogota–Zipaquirá (tourist) Passenger projects under study or structuring: Regiotram de Occidente (Cundinamarca), Buenaventura-Palmira and regional corridors
Linkage to strategic planning	Projects to reactivate the railway mode in Colombia are directly linked to national strategic planning, framed in the Railway Master Plan and the Intermodal Transportation Master Plan, which seek to diversify the transportation matrix and reduce dependence on roads. Initiatives such as the rehabilitation of the La Dorada–Chiriguaná corridor, the reactivation of the Bogotá–Belencito corridor, the recovery of the Pacific Network, and regional projects such as the Regiotram are part of a comprehensive strategy aimed at strengthening logistics competitiveness, improving connections with export ports and moving towards the decarbonisation and sustainability of transportation. These projects, far from being isolated efforts, are consolidated as structuring axes of the public policy for mobility and territorial development.
Regional integration and interoperability	Colombia currently has no operational international rail integration , and regional interoperability is practically non-existent. The network concentrates on serving the domestic freight market, with no active cross-border rail corridors. However, there are potential connections, historical routes to Venezuela (Cúcuta and La Guajira) and Ecuador (Nariño–Carchi).

Appendix D. Latin American rail projects and corridors fact sheet

D.1. Project Information Sheet – Corridor in Argentina

Country promoter	ARGENTINA
Corridor project name	South American Railways
Countries involved	Paraguay, Argentina, Bolivia, Chile
Main strategic objective	Reposition rail as the central mode of freight transportation in the region, significantly reducing logistics costs and travel time to Asian markets.
 <p>Desired territorial scenario, focusing on the Tropic of Capricorn region. Source: Parlamento.com</p>	
Nature of the project	International rail corridor for agricultural, mining and energy logistics integration
Layout and territorial scope	<ul style="list-style-type: none"> From Asunción (Paraguay) to ports in northern Chile Capricorn Axis Region: Argentine NOA, Paraguay, Bolivia and several Brazilian states <p>Estimated savings: 30 days of navigation vs. current routes</p>
Status	Proposal under discussion, taking advantage of existing roads in Argentina, Bolivia and Brazil
Works and key elements	<ul style="list-style-type: none"> Building a railway tunnel through the Andes Mountains Exploitation of the existing metric railway network
Railway technical characteristics	<ul style="list-style-type: none"> Metric gauge (interoperable between countries) <p>Possible future adoption of electric trains, taking the 100% electrified Indian network as a reference</p>
Estimated load and demand	25 million tonnes/year projected for the first 20 years
Economic sectors involved	Agriculture, livestock, mining, forestry and renewable energies
Investment and financing	To be defined (political and technical proposal phase)
Responsible institutions and stakeholders	Promoted by Argentine Senator Francisco Manuel Paoltroni and presented at the 2nd Meeting on ALADI Bioceanic Corridors
Regional integration and complementarity	It complements the Capricorn Corridor and other bioceanic axes in the region
Strategic impact and expected benefits	<ul style="list-style-type: none"> Reduction of costs and export times to Asia Atlantic–Pacific regional logistics reconfiguration <p>Promoting the development of cross-border production chains</p>
Sources of information	<i>Francisco Manuel Paoltroni, National Senator of Argentina, 2nd Meeting on Bioceanic Corridors, ALADI</i>

D.2. Project Information Sheet – Corridor in Bolivia

Country promoter	BOLIVIA
Corridor project name	Bi-Oceanic Integration Railway Corridor (CFBI) and Lithium Corridor
Countries involved	Brazil, Bolivia and Peru
Main strategic objective	Connecting the port of Santos (Brazil) with the port of Ilo (Peru), consolidating a competitive logistic alternative to the Panama Canal and the Strait of Magellan. It is a priority project and was declared of great interest by Mercosur in July 2017 in Mendoza.



Bi-oceanic Railway Integration Corridor. Source: Enrique Ponce de León, Vice Minister of Transportation of Bolivia. ALADI/DW

Nature of the project	Atlantic–Pacific transcontinental rail corridor, prioritised as a strategic regional project
Layout and territorial scope	Total length: 3,755.5 km, of which 2,000 km cross Bolivia (from Puerto Quijarro on the Brazilian border to Ilo, Peru), allowing the connection between these geographical points
Current status	<ul style="list-style-type: none"> ▪ Eastern Network (Puerto Quijarro–Santa Cruz–Montero): operative ▪ Montero–Bulo section: under rehabilitation ▪ Eastern-Western Network Connection: in financing and design phase ▪ Extension to Ilo (Peru): seeking financing for design
Works and key elements	<ul style="list-style-type: none"> ▪ Rehabilitation of the Eastern Network ▪ Studies to link Eastern and Western networks ▪ Extension to the Peruvian border
Railway technical characteristics	Compatible gauge in Bolivian networks; requires technical integration for international connections
Estimated load and demand	Optimisation of mining, agricultural and energy flows (no exact official figures published)
Economic sectors involved	Mining, agriculture, energy and foreign trade
Investment and financing	In process of definition; support in exploration with multilaterals (CAF, the IDB)
Responsible institutions and stakeholders	Ministry of Public Works and Vice Ministry of Transportation of Bolivia; declared of great interest by Mercosur in 2017

Regional integration and complementarity

Alternative to the routes through the Panama Canal and the Strait of Magellan, reducing time and logistics costs to Asia

Position Bolivia as an Atlantic-Pacific “logistic bridge”

Complementarity with other regional corridors:

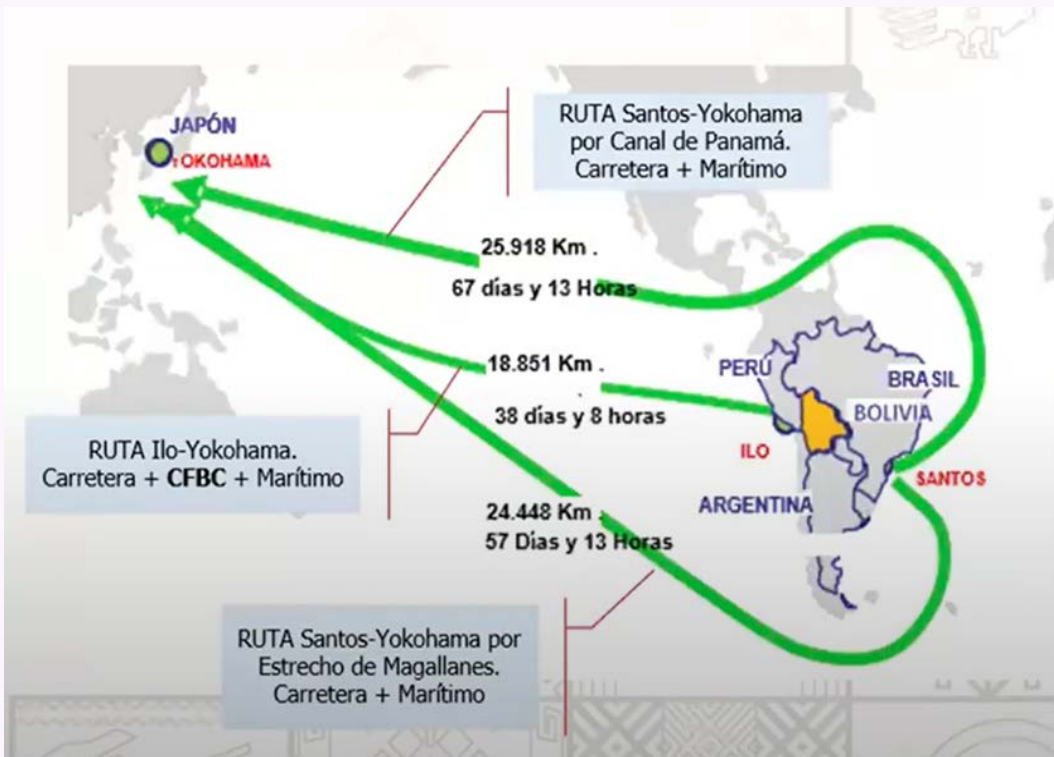
- **Lithium Corridor:** strategic road project that connects Uyuni with the border of Chile (Milestone LX) and Paraguay (Milestone BR-94). It requires an estimated investment of USD 520 million and is in the construction and studies phase. It enables the diversification of the outflow of strategic products, especially lithium, to the Pacific and the Asian market
- **Capricorn Corridor:** complementary road and rail connections from Paraguay, Brazil, Argentina and Chile



Bolivia’s Uyuni Solar, the largest lithium reservoir on the planet. Source: AFP, taken from Página12

Strategic impact and expected benefits

Distance and time reduction: Panama Canal: 26,000 km/67 days; Strait of Magellan: 24,448 km/57 days; and CFBI: 18,851 km/38 days to Yokohama, Japan. Promotes Atlantic–Pacific integration and strengthens regional production chains



Comparison of three routes with common origin (Brazil) and common destination (Yokohama). Source: taken from the intervention of the Vice Minister of Transportation of Bolivia during his speech at the 2nd Meeting on Bioceanic Corridors

Status and next steps

- Rehabilitation of ongoing sections
- Technical studies for network interconnection
- Active search for international financing

Sources of information

Enrique Ponce de León, Vice-Minister of Transportation of Bolivia, 2nd Meeting on Bioceanic Corridors, ALADI

D.3. Project Information Sheet – Corridor in Brazil

Country promoter	BRAZIL
Corridor project name	Bioceanic Train Bayovar–Santos
Countries involved	Peru and Brazil
Main strategic objective	Connect the Pacific Ocean (Port of Bayovar, Peru) with the Atlantic Ocean (Port of Santos, Brazil), creating an inter-oceanic railway axis to strengthen the logistical competitiveness of both countries and South America as a whole
Nature of the project	Mega Atlantic–Pacific transcontinental railway port, declared of national interest by the Peruvian Congress and promoted by the Regional Government of Piura and the Ministry of Transportation and Communications (MTC)
Layout and territorial scope	<ul style="list-style-type: none"> ■ In Peru: Bayóvar–Olmos: 245 km; Olmos–Bagua Grande: 234 km; Bagua Grande–Tarapoto: 330 km; Tarapoto–Pucallpa: 530 km; Pucallpa–Brazilian border: 290 km ■ In Brazil: Lucas do Rio Verde–Campinorte: 890 km, Lucas do Rio Verde–Vilhena: 630 km, Vilhena–Porto Velho: 570 km, Porto Velho–Rio Branco: 560 km, Rio Branco–border with Peru: 640 km
Status	Declared of national interest in Peru (2025). Technical file under preparation. Preliminary studies financed, with support from the National Assembly of Regional Governments (ANGR). No official date for the start of construction or operation.
Works and key elements	<ul style="list-style-type: none"> ■ Integral construction of the Bayóvar–Santos railway line ■ Railway equipment for freight trains for 100 cars (80 tonnes each) ■ Expected capacity of up to 40,000 tonnes per day ■ Direct connection with strategic ports: Bayovar (Pacific) and Santos (Atlantic)
Railway technical characteristics	Trains of 100 cars, 80 tonnes each, up to 5 daily trips per convoy
Estimated load and demand	<p>Estimated total operating capacity: 40,000 tonnes/day</p> <ul style="list-style-type: none"> ■ Bayóvar phosphates ■ Hydrobiological products (e.g. Sechura fan shell) ■ Agroexports: mango, banana, blueberry, grape, cocoa, coffee and soy ■ Agricultural and industrial goods from north-eastern Peru and west-central Brazil
Economic sectors involved	Mining (phosphates), fisheries and aquaculture, export agriculture, agribusiness, logistics, construction, energy and manufacturing
Investment and financing	In definition stage. Endorsed as national public policy in Peru. Participation of public, private and multilateral capital is foreseen
Responsible institutions and stakeholders	<p>Peru: Regional Government of Piura, Ministry of Transportation and Communications (MTC), Congress of the Republic, ANGR</p> <p>Brazil: States of Acre, Rondônia, Mato Grosso, Goiás and São Paulo; coordination with federal government</p>
Regional integration and complementarity	<ul style="list-style-type: none"> ■ Atlantic–Pacific articulation via Bayovar–Santos ■ Connection with productive poles in central-western Brazil (Mato Grosso) ■ Complementarity with the Bioceanic Railway Integration Corridor (CFBI through Bolivia) and the Capricorn Corridor ■ Position Piura as a strategic interoceanic node
Strategic impact and expected benefits	<ul style="list-style-type: none"> ■ Estimated generation of 193,000 direct and indirect jobs during construction ■ Boosting Peruvian and Brazilian exports to Asian markets ■ Significant reduction in time and costs of interoceanic transport ■ Territorial integration of poorly connected Amazonian and Andean areas ■ Positioning of Peru and Brazil as central actors in global logistics
Sources of information	<ul style="list-style-type: none"> ■ Regional Government of Piura (2025) ■ Congress of the Republic of Peru, declaration of national interest ■ Press releases (Mariana Quilca Catacora, June 2025)

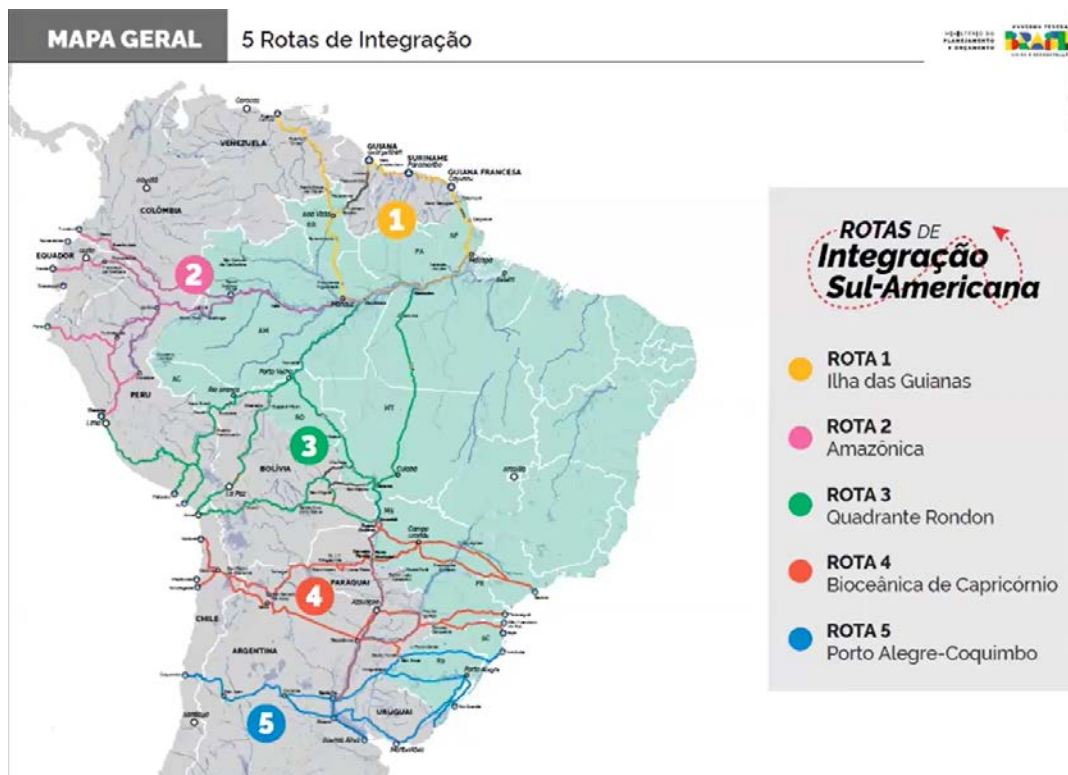
Brazil's strategy on territorial integration and regional corridors

In the past year, **Brazil has reestablished federative dialogue with its border states**, involving the Ministry of Planning, eleven bordering states (Amapá, Pará, Amazonas, Roraima, Acre, Rondônia, Mato Grosso, Mato Grosso do Sul, Paraná, Santa Catarina and Rio Grande do Sul) and their respective secretaries of planning and development. This effort has made it possible to identify common obstacles in relations with neighbouring countries and to redefine regional integration priorities in the context of profound commercial and productive transformations.

Over the last two decades, **Brazil's foreign trade structure has undergone radical change**: while 20 years ago only about 3% of exports were destined for China, today that share has reached 35% (and exceeds 40% in the central-west region). At the same time, **intra-regional trade has weakened** in the face of the growing weight of the Asian market. This global reorientation, together with the demographic and productive growth of the western border areas, presents the challenge of developing new corridors towards the Pacific and strengthening connectivity with neighbouring countries.

In response, the Ministry of Planning, together with other ministries, parliament, state governments and the private sector, has identified **five strategic integration routes** that build upon the legacy of IIRSA and COSIPLAN. These routes are not competitors but rather complementary, grouping projects in roads, waterways, ports, airports, fibre optics and electric transmission. Among the priority projects are the **electrical connection of Roraima to the national system**, the **Manaus–Roraima–Venezuela and Guyana highway**, the **interoceanic road between Acre and Peru** and the **Guajará–Mirim bridge** on the border with Bolivia. Also noteworthy are the advances in the **Capricorn Bioceanic Corridor**, linking Mato Grosso do Sul with Paraguay, Argentina and Chile, where the **Puerto Murtinho bridge** is already under construction.

In total, **190 regional integration projects have been identified** and incorporated into the new **Growth Acceleration Programme (PAC) 2024**, within a universe of 9,708 national works. These projects have guaranteed resources in the budget law and are complemented by concession mechanisms and private sector participation. The government also seeks to secure additional financing from multilaterals such as the **IDB**, **CAF** and **FONPLATA**, for an estimated amount of **USD 10 billion**, while the **BNDES** will exclusively finance works within Brazilian territory.



South American integration routes. Source: Undersecretary of Institutional Coordination of the Ministry of Planning and Management of Brazil, Luciano Wexell Severo, 2024

Brazil's strategy combines **“hardware” (physical infrastructure)** with **institutional “software”** (customs, sanitary surveillance, police, tax collection), highlighting the need for **inter-institutional coordination** both within Brazil and with neighbouring countries. To this end, the creation of an **Interministerial Commission for Regional Integration** under the Presidency of the Republic was announced, which will centralise the planning and management of these projects.

Within this framework, Brazil reaffirms its commitment to **intensifying intra-regional trade, diversifying export routes to Asia** and consolidating itself as a **production and logistics hub in South America**.

Brazil presented an ambitious **regional integration strategy**, based on the creation of **five routes of physical and institutional connection** with neighbouring countries, within the framework of the new **Growth Acceleration Programme (PAC)** and in response to recent structural changes in Brazil's trade and economy.

D.4. Project Information Sheet – Mexican Isthmus of Tehuantepec Corridor

Country promoter	MEXICO
Corridor project name	Isthmus of Tehuantepec Interoceanic Corridor (CIIT)
Countries involved	Mexico (with projected integration into Central America and markets in Asia, Europe and North America)
Main strategic objective	Consolidate an inter-oceanic axis that connects the Gulf of Mexico (Atlantic) with the Pacific Ocean through port, rail and highway infrastructure, enhancing multimodal logistics and industrial development in southeastern Mexico



Interoceanic Corridor of the Isthmus of Tehuantepec. Source: Government of Mexico, 2024

Nature of the project	National and regional logistics and industrial platforms, considered a priority project of the current federal administration
Layout and territorial scope	<ul style="list-style-type: none"> Region: Isthmus of Tehuantepec (Oaxaca and Veracruz) Area of influence: four states (Veracruz, Oaxaca, Tabasco and Chiapas) Coverage: 113 municipalities and 9,418 localities Land area: ~47,500 km²
Status	<ul style="list-style-type: none"> Advances in port infrastructure (Salina Cruz and Coatzacoalcos expanding) Three railway lines in operation and undergoing modernisation: <ul style="list-style-type: none"> Line Z: 308 km (Coatzacoalcos–Salina Cruz) Line FA: 329 km (Coatzacoalcos–Palenque, connection with Tren Maya) Line K: 459 km (Ixtepec–Ciudad Hidalgo, towards the border with Guatemala) Construction and tendering of 10 development centres for welfare (industrial parks) Four industrial concessions already granted, initial investment: 4,400 million pesos
Works and key elements	<p>Strategic ports: Salina Cruz, Coatzacoalcos, Puerto Chiapas and Dos Bocas</p> <p>Railway infrastructure: three interconnected lines, plus branches to the refinery of Dos Bocas and Puerto Chiapas</p> <p>Port expansion with breakwaters and specialised terminals (containers, natural gas)</p> <p>10 industrial parks (~3,000 ha) linked to railways and roads</p>
Railway technical characteristics	Network of more than 1,000 km of modernised railways. Gulf–Pacific interconnection and connection with the Mayan Train and Central America. Integration with logistic services such as rail ship (Coatzacoalcos–USA).

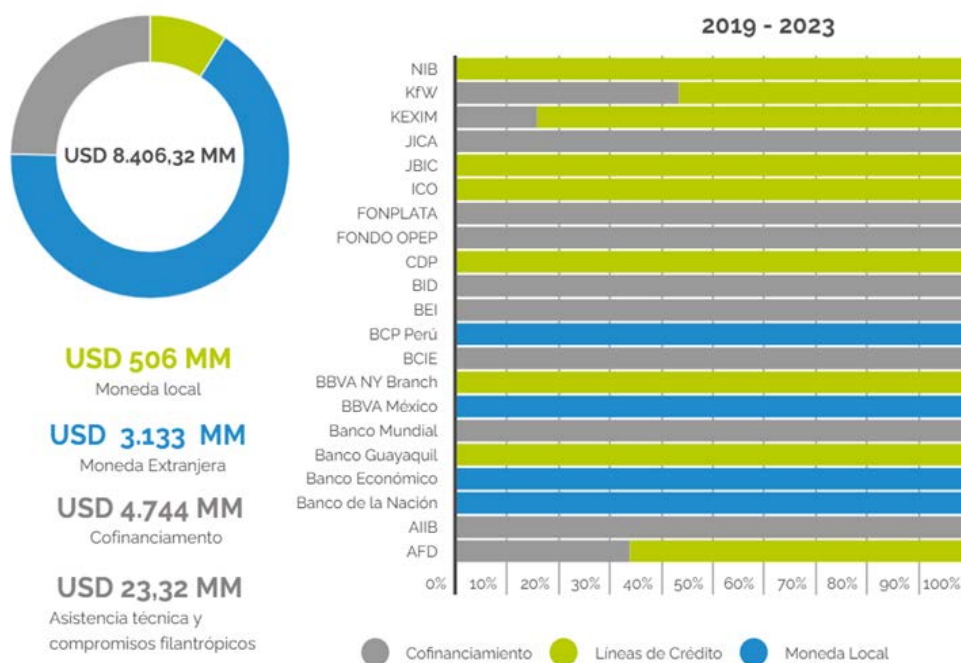
Estimated load and demand	<ul style="list-style-type: none"> Hydrocarbons and petrochemicals Agricultural and agro-industrial products Manufactured and industrial goods of development poles International trade via ports and interoceanic crossing
Economic sectors involved	Energy and petrochemicals; automotive and electromobility; electrical and electronics (including semiconductors); medical devices and pharmaceuticals; agribusiness; and metals, machinery and equipment
Investment and financing	<ul style="list-style-type: none"> International public tender model for industrial parks Private investment in development poles: 4,400 million pesos (concessions) Federal tax incentives and financial support structured by the Ministry of Finance Plan for the final sale of parks to private concessionaires
Responsible institutions and stakeholders	<ul style="list-style-type: none"> Ministry of the Navy (SEMAR) General Directorate of the Interoceanic Corridor of the Isthmus of Tehuantepec General Coordination of Investment Promotion (CIIT) State and municipal governments of the region
Regional integration and complementarity	Logistics alternative to the Panama Canal. Direct connection with international ports and markets in the U.S., Europe and Asia. Complementarity with the Mayan Train (rail connection in Palenque). Integration window to Central America via Ciudad Hidalgo and Puerto Chiapas.
Strategic impact and expected benefits	<ul style="list-style-type: none"> Multimodal platform (rail + ports + roads + rail ship) Attraction of national and international investment in 11 industrial vocations Employment generation, welfare and economic development in the south-east Transformation of the Isthmus into a strategic logistics and industrial hub in Latin America
Sources of information	Intervention by Rear Admiral Alfonso Fabián González Belmonte, CIIT General Coordinator of Investment Promotion Secretary of the Navy, Directorate-General for the Interoceanic Corridor of the Isthmus of Tehuantepec (2024-2025)

Appendix E. International organisations in Latin America

The development and modernisation of railway infrastructure in Latin America requires not only **solid national policies** but also **access to international financing sources** to drive long-term strategic projects. In this regard, **multilateral organisations, development banks** and **cooperation agencies** play a key role in providing financial resources and technical assistance for the planning, construction and operation of more efficient, sustainable and resilient railway systems.

Various institutions, such as the **Inter-American Development Bank (IDB)**, the **World Bank**, the **Development Bank of Latin America and the Caribbean (CAF)**, the **European Investment Bank (EIB)** and the **Asian Infrastructure Investment Bank (AIIB)**, have participated in the structuring of railway projects in the region, providing direct financing, investment guarantees and technical assistance. Likewise, cooperation programmes from organisations such as the **European Union**, the **Japan International Cooperation Agency (JICA)** and the **International Finance Corporation (IFC)** have contributed through innovative financing mechanisms and knowledge transfer.

In this context, the figure below illustrates the **resources mobilised between 2019 and 2023** by different financial institutions and international cooperation agencies. The total amount reached **USD 8,406.32 million**, distributed across three main modalities: **co-financing, credit lines** and **local currency contributions**.




Resources mobilised through partnerships. Source: (CAF, S/F)


Foreign currency funds amount to **USD 3.133 billion**, while financing in local currency totals **USD 506 million**. **Co-financing** stands out as the most widely used modality, reaching **USD 4.744 billion**, which reflects a strategy focused on the joint participation of multiple financial actors. Additionally, USD 23.32 million are accounted for in technical assistance and philanthropic commitments, showing the non-reimbursable support aimed at strengthening institutional and technical capacities.

The bar chart breaks down the type of financing by institution. It shows that entities such as the **EIB**, the **IDB**, the **CDP** and **FONPLATA** concentrate their contributions in co-financing schemes, while others, such as **BCP Peru** and the **World Bank**, channel a significant share of resources through credit lines. Meanwhile, banks like **BBVA Mexico** and **Banco Económico** stand out for their contributions in local currency. This diversity of schemes highlights the flexibility of the available financial mechanisms, enabling their adaptation to different national contexts and project models.


This outlook reinforces the relevance of proactive management to align the opportunities offered by these international sources, both financial and technical assistance, with national and regional railway development plans.

This section presents **an analysis** of the main international funds and multilateral cooperation schemes available for Latin America in the railway sector, **emphasising their objectives, financing mechanisms and examples of funded projects**. Within this framework, the information provided below offers both a detailed and concise view of these sources, showing the financing instruments offered by different institutions along with concrete cases of application in regional projects. In this way, the analysis is complemented by a practical and concise reference on financing options and their use in the context of Latin American railway development, whose identification and access are essential to ensure the sustainability and viability of regional integration projects.

Organism	Financial mechanisms			
Sovereign loans	Private sector financing	Technical cooperation and grants	Multilateral funds and co-financing	Green funds and climate financing
	<p>IDB Invest is the private-sector arm of the Inter-American Development Bank (IDB) Group, specialised in promoting private sector development in Latin America and the Caribbean. Its mission is to catalyse responsible and sustainable private investment that generates economic, social and environmental impact through loans, equity investments, guarantees and innovative financial products, operating under strict sustainability, integrity and governance standards.</p> <p>As part of the IDB Group, it primarily serves the region's 26 borrowing member countries with projects focused on infrastructure, poverty reduction and social equity. It also relies on 22 non-borrowing member countries – such as the United States, Japan, Spain, Germany and Canada – which contribute financial resources and participate in governance, thereby strengthening the IDB's capacity to foster sustainable development and reduce inequalities across the region.</p>			
<p>IDB Invest does not operate with sovereign-guaranteed loans. Instead, it focuses on the private sector and on state-owned enterprises that request financing without sovereign guarantees.</p>	<p>Modalities:</p> <p>A. Senior and subordinated loans B. Equity investments C. Mezzanine financing</p> <p>Conditions:</p> <p>A. Market-based interest rates, in U.S. dollars or local currency; tenors adapted to client/project objectives; flexible terms tailored to project needs. B. IDB Invest may participate as a shareholder, sharing both risks and returns. Applies to private companies that do not rely on sovereign guarantees. C. Hybrid instruments between debt and equity, used when traditional financiers do not cover specific risks.</p>	<p>Modality:</p> <p>Advisory, technical services and support for compliance with environmental and social standards; project structuring assistance.</p> <p>Conditions:</p> <p>Projects must demonstrate social impact, scalability, sustainability and compliance with IDB Invest's environmental and social standards, as well as corporate governance requirements, reputation standards and audited financial statements (typically over at least three years).</p>	<p>Modalities:</p> <p>A. A/B loans B. Parallel co-financing</p> <p>Conditions:</p> <p>A. IDB Invest finances the "A" portion with its own capital, acting as lead lender; the "B" portion is funded by external institutional investors. Risks are shared under a single contract, administered by IDB Invest. "B" investors benefit from certain privileges, such as preferred creditor treatment. B. IDB Invest coordinates with other lenders, arranges the financial structure and negotiates with borrowers. While common loan terms are applied, each lender may have specific conditions. Privileges are not always equally extended to all co-financiers.</p>	<p>Modality:</p> <p>Results-based financing: preferential terms (e.g. interest rate reduction) are offered upon achieving predefined environmental or social milestones.</p> <p>Conditions:</p> <p>Projects must demonstrate measurable environmental benefits, comply with environmental and social safeguards, ensure good governance, scalability, audited financial reporting and transparency, and adhere to reputation and integrity standards.</p> <p>Examples:</p> <p>Since 2016, results-based financing in LAC has supported 47 operations, with approx. USD 247.81 million committed directly by IDB Invest and around USD 16.74 billion mobilised.</p>

Organism	Financial mechanisms			
Sovereign loans	Private sector financing	Technical cooperation and grants	Multilateral funds and co-financing	Green funds and climate financing
	<p>CAF, the Development Bank of Latin America and the Caribbean, is a multilateral financial institution founded in 1968 whose mission is to promote sustainable development, regional integration and social inclusion in the region. Provides financing for infrastructure projects, social development, climate action and innovation, working with both governments and the private sector under sustainability criteria, governance and environmental and social standards.</p> <p>Currently has 21 member countries, including 19 from Latin America and the Caribbean – among them Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, Panama, Paraguay, Peru, Dominican Republic, Trinidad and Tobago, Uruguay, Venezuela, Bahamas, Dominica and Grenada – as well as Spain and Portugal, which are strengthening Euro-Latin American cooperation.</p>			
<p>Modality: Sovereign-guaranteed loans for member states.</p> <p>Conditions: CAF finances operations with sovereign risk; loans can be granted for different project stages, including large infrastructure programmes, social development, water and transport, among others. Lending terms (maturities, interest rates, grace periods) are negotiated according to the country, risk profile and project type, contingent upon state credit guarantees.</p> <p>Examples: One example is the sovereign loan approved for Colombia to support green energy, cultural industries and public policies for green development.</p>	<p>Modality: Loans to private companies, local financial institutions and non-sovereign clients.</p> <p>Conditions: These loans may be extended without central government guarantees (“non-sovereign”), particularly when borrowers demonstrate capacity and a strong risk profile. They require stricter due diligence on risk, income and governance. CAF also has the flexibility to provide loans for working capital, exports and other purposes.</p> <p>Examples: In Peru, CAF has issued non-sovereign loans to companies such as Petroperú and COFIDE.</p>	<p>Modality: Technical assistance, grants and capacity development for project preparation, climate awareness and overcoming structural barriers.</p> <p>Conditions: These resources are primarily targeted at member states and local/financial entities requiring institutional strengthening, technical capacity and project structuring support with environmental and social impacts. Depending on the programme, concessional financial terms (lower rates, grace periods) may be offered to incentivise sustainable projects.</p>	<p>Modality: Co-financing with other banks, multilateral organisations and international funds; issuance of sustainable bonds; green credit lines with partners.</p> <p>Conditions: Risk sharing; alignment with environmental and social standards; sustainable financing structures; compliance with green finance frameworks; transparency in resource allocation.</p> <p>Examples: CAF issues green and sustainable bonds to mobilise capital from international markets. For instance, its first major sustainable bond issuance (€1.5 billion) was aimed at financing social and environmental projects.</p>	<p>Modality: Green financing through credit lines, concessional loans, issuance of green and sustainable bonds, and programmes in partnership with international funds (such as the Green Climate Fund).</p> <p>Conditions: At least 35% of CAF’s portfolio is allocated to green projects with positive environmental impact (emission mitigation or climate adaptation). Compliance with CAF’s Environmental and Social Standards is mandatory, including impact assessments, monitoring and environmental/climate risk management. Preferential financial terms (lower interest rates, grace periods) may apply to incentivise green investment.</p>

Organism	Financial mechanisms			
Sovereign loans	Private sector financing	Technical cooperation and grants	Multilateral funds and co-financing	Green funds and climate financing
	<p>FONPLATA directs its services mainly to the five founding member countries (Argentina, Bolivia, Brazil, Paraguay and Uruguay). Its mission is to support the harmonious, inclusive development and physical, social and economic integration of these countries through financing and investments that favour infrastructure, productive, social and environmental development, with special emphasis on small and medium-sized projects, and in border areas.</p>			
<p>Modality: Loans to member countries or state entities, including national or subnational governments, for investment projects, pre-investment, works and the acquisition of goods and services aimed at the comprehensive development and inclusion of the area of influence of the Plata Basin.</p> <p>Conditions: Negotiated terms include interest, commissions, disbursement and amortisation periods, grace period, and sovereign guarantee when applicable. The maximum amortisation period for sovereign-guaranteed loans is up to 20 years, including a grace period chosen by the borrower. Variable interest rate (e.g. based on 6-month LIBOR or its replacement, plus a fixed margin) applied to outstanding amounts, semi-annual payments after the grace period. Contract currencies are generally U.S. dollars, but disbursements and repayments may also be made in local currency, converted to U.S. dollars at the effective exchange rate.</p> <p>Examples: In October 2018, FONPLATA approved USD 50 million in financing for the project “Support to the Railway Safety Programme in the Metropolitan Region of Buenos Aires”, which is part of the National Railway Plan 2016-2030.</p>	<p>Modality: Non-sovereign loans to financial institutions or national, state or provincial non-financial entities operating with legal and financial autonomy, without sovereign guarantee. Country and borrower concentration limits apply.</p> <p>Conditions: The borrower must be legally incorporated, have financial autonomy and operate under commercial principles. A maximum percentage of the non-sovereign portfolio is allowed (e.g. ~5-6% of the bank’s lending capacity) to mitigate risks. Operational standards and financial conditions (interest, maturity, guarantees) are the same as for sovereign loans but without state guarantee.</p> <p>Examples: In 2019, FONPLATA approved a non-sovereign risk financing line for financial/provincial institutions in its member countries. As of June 2021, the non-sovereign risk portfolio included operations with development banks such as BDMG (Brazil) and Banco Fomento (Paraguay).</p>	<p>Modality: Technical cooperation for studies, institutional support, knowledge transfer, training, advisory services, seminars, research, etc. Offered in reimbursable, non-reimbursable or contingent-recovery modalities. Managed as an independent special fund.</p> <p>Conditions: Must align with FONPLATA’s operational and financial policies. Aimed at strengthening project preparation and execution, and promoting integration, environmental development and social inclusion. Resources are approved by the Board of Governors.</p> <p>Examples: Subregional studies on economic and social development, environmental improvement, support measures for approved projects, technical seminars or training courses for member countries.</p>	<p>Modality: Issuance of sustainable debt (green, social and sustainability bonds); establishment of a Sustainable Debt Framework that defines green and social categories; financing lines aimed at green transition under specific agreements with partners (e.g. ICO lines that include green transition).</p> <p>Conditions: The framework is aligned with international standards such as the Green Bond Principles, Social Bond Principles, Green Loan Principles, etc. Managed with transparency and independent ESG evaluation (e.g. through Sustainalytics). Eligible green projects must fall within the defined framework categories, comply with socio-environmental criteria, and demonstrate measurable green impact (renewable energy, energy efficiency, natural resource management, climate change). Consistent with its mission of inclusive and harmonious development, it prioritises cross-border projects or those fostering physical integration.</p>	

Organism	Financial mechanisms			
Sovereign loans	Private sector financing	Technical cooperation and grants	Multilateral funds and co-financing	Green funds and climate financing
	<p>The Central American Bank for Economic Integration (CABEI) directs its services primarily to governments, financial institutions and companies in its member countries (Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica), non-founding members (Panama, the Dominican Republic and Belize) and extra-regional members (Mexico, Taiwan, Argentina, Colombia, Spain, Cuba and South Korea). This institution is dedicated to sustainable development and the integration of Central American countries. It operates with financial instruments for both the public and private sectors, applying environmental and social standards through evaluation and mitigation systems, with an increasing focus on sustainability, climate change and regional development</p>			
<p>Modality: Loans granted to the public sector or state-owned entities of member countries for public investment projects, infrastructure and regional integration.</p> <p>Conditions: Various modalities and financial instruments are available. CABEI has a Development Impact Evaluation System (SEID) and an Environmental and Social Risk Identification, Evaluation and Mitigation System (SIEMAS) to ensure environmental and social standards. Projects must comply with these systems. CABEI also has a Sustainable Bank Framework and a Sustainable Bond Framework. In addition, it offers debt instruments and medium- and long-term programmes. Specific terms for maturity, interest rates and commissions were not clearly identified in the information reviewed.</p> <p>Examples: Public projects in Central America: infrastructure and regional programmes such as <i>Blue Growth</i> and <i>Bio-CLIMA</i>. (<i>Bio-CLIMA</i> is an active climate change and environmental project).</p>	<p>Modality: Loans or financing directed to the private sector, companies and private financial institutions within member countries.</p> <p>Conditions: Environmental, social and governance (ESG) standards apply. Possibility of financial intermediation, programmes for MSMEs, and support for competitiveness. Transparency, reporting and risk compliance requirements must be met.</p> <p>Examples: MSME support programmes, financial instruments for competitiveness, education loans and financial intermediation schemes.</p>	<p>Modality: Technical assistance, cooperation programmes, donor-funded initiatives, advisory services and studies for project preparation and institutional strengthening.</p> <p>Conditions: Must align with CABEI's institutional strategy and comply with environmental and social standards. Impact monitoring mechanisms are in place to ensure social and environmental accountability.</p> <p>Examples: The <i>Bio-CLIMA</i> project is an example of an operation that includes technical components and environmental studies. Other examples include support programmes for MSMEs, housing, competitiveness and intermediary financial institutions.</p>	<p>Modality: Co-financing with international organisations and donor funds; use of debt instruments in capital markets; strategic alliances; donor trust funds (e.g. Korea-CABEI Trust Fund).</p> <p>Conditions: Co-financed projects must comply with the same environmental and social impact standards, transparency requirements and shared financial structures. No details were found in the reviewed material regarding interest rates or external participation percentages in co-financing agreements.</p> <p>Examples: Korea-CABEI Single Donor Trust Fund; extra-regional strategic alliances; regional programmes requiring support from multiple financiers.</p>	<p>Modality: Climate and sustainable projects; issuance of sustainable bonds; participation in climate change programmes; institutional frameworks for sustainable debt.</p> <p>Conditions: CABEI has a Sustainable Bank and a Sustainable Bond Framework. Projects must undergo environmental and social risk evaluation, monitoring and risk management mechanisms (SIEMAS, SEID, and the MAQRAS social and environmental grievance mechanism). They are enabled to operate with climate-related financial instruments. Specific maturities, financial conditions or the percentage of the portfolio allocated to green projects were not identified.</p> <p>Examples: <i>Bio-CLIMA</i> project (environment/climate change); Sustainable and Blue Growth in the Gulf of Fonseca programme; e-mobility initiatives; green housing finance; sustainable debt instruments</p>

Organism	Financial mechanisms			
Sovereign loans	Private sector financing	Technical cooperation and grants	Multilateral funds and co-financing	Green funds and climate financing
 	<p>LACIF is aimed at 32 countries in Latin America and the Caribbean, focusing on projects that promote sustainable development and the SDGs.</p> <p>LAGreen (Latin American Green Bond Fund) is a fund dedicated exclusively to the green bond market in Latin America, managed by Finance in Motion, with institutional support from KfW, the European Union, the BMZ (German Federal Ministry for Economic Cooperation and Development) and other partners. Its objective is to finance investments that are climate- and resource-friendly, while mobilising local and international private capital towards green bond issuances.</p>			
<p>Not applicable. LAGreen is not a development bank and does not provide loans backed by states.</p>	<p>Not applicable as loans. Its support to the private sector is indirect, through the purchase of green bonds issued by banks, companies and financial institutions in the region.</p>	<p>Modality: Technical Assistance Facility for green and sustainable bond issues. Includes support in structuring, certification, compliance with standards, transparency and impact reporting.</p> <p>Conditions: Technical assistance is funded by donor contributions (EU, BMZ, KfW). It is aimed at financial institutions, banks and companies seeking to issue green bonds for the first time or improve their reporting and governance practices.</p> <p>Examples: Support to BanBif (Peru) in issuing the first subordinated thematic bond. Technical assistance to Banco Nacional de Costa Rica for issuing its first blue bond.</p>	<p>Not applicable as project co-financing. However, LAGreen itself is a fund capitalised by contributions from multilateral and international donors (EU, KfW, BMZ), ensuring credibility and attracting additional private capital.</p>	<p>Modality: Direct investment in green and sustainable bonds, acting as an anchor investor to build market confidence. It also supports pioneering issuances (new issuers or innovative structures).</p> <p>Conditions: All bonds must comply with the ICMA Green Bond Principles, as well as transparency, governance and climate impact criteria. Additionally, monitoring includes CO₂ emissions reductions and other environmental benefits.</p> <p>Examples: USD 20 million investment in BAC Guatemala's first sustainability bond. Subordinated thematic bond issuance by BanBif (Peru). Blue bond issuance by Banco Nacional de Costa Rica. According to estimates, LAGreen's investments could avoid up to 5.16 million tonnes of CO₂ by 2029 and mobilise more than USD 2 billion in green bonds across the region.</p>
	<p>The Asian Infrastructure Investment Bank (AIIB) is a multilateral financial institution established in 2016 and based in Beijing, which aims to promote sustainable infrastructure development and regional connectivity. It currently has more than 100 member countries from around the world, and its mission focuses on driving projects that support the transition to resilient, low-carbon and inclusive economies under the strategic framework "Infrastructure for Tomorrow (i4t)".</p>			

Organism	Financial mechanisms			
Sovereign loans	Private sector financing	Technical cooperation and grants	Multilateral funds and co-financing	Green funds and climate financing
<p>Modality: Loans granted directly to member states to finance infrastructure projects, or loans to public entities backed by a sovereign guarantee.</p> <p>Conditions: Loans may be granted in strong currencies (USD, EUR, RMB, among others). They have a maximum maturity of up to 35 years, with an average maturity of around 20 years, and include grace periods before capital repayment begins. The amortisation scheme is flexible (level, bullet, annuity or customised), with semi-annual interest payments. AIIB charges an upfront fee of 0.25% on the committed amount and a commitment fee of 0.25% per year on undisbursed amounts after 60 days from signing. Cancellations and early prepayments are allowed with prior notice, although refinancing cost charges may apply.</p>	<p>Modality: Loans, investments in private or public companies not backed by sovereign guarantee; participation in equity investments; financial instruments such as guarantees, underwriting, etc.</p> <p>Conditions: Direct equity investment cannot exceed a certain percentage of company ownership (up to ~30%) when applicable. Sustainability, financial viability, risk assessment and AIIB's standard environmental and social safeguards also apply.</p>	<p>Modality: Special Funds that provide grants for technical assistance, institutional strengthening and project preparation. These funds support feasibility studies, environmental and social assessments, and activities to structure sustainable and bankable infrastructure projects.</p> <p>Conditions: Resources are typically directed to less developed members or those with institutional constraints and may cover early-stage design and preparation. Typical grants range between USD 1 and 5 million, with implementation periods of 1 to 2 years. Specific windows include the Special Fund Window (for reducing interest rates on sovereign loans) and the Project-Specific Window (to channel donor grants to concrete projects). Other examples include the GIF Special Fund (mobilising private capital) and the MCDF Special Fund (focused on connectivity and quality infrastructure in low- and middle-income countries).</p>	<p>Modality: Co-financing with other multilateral banks, regional organisations, investment funds, etc. to leverage financing, share risks and jointly finance infrastructure projects.</p> <p>Conditions: Co-financing requires alignment of technical, environmental and social standards; coordinated evaluations; and risk-sharing agreements. Costs and terms vary according to the co-financing partner. AIIB adapts modalities and maturities based on the partnership.</p>	<p>Modality: AIIB does not operate an independent green fund but integrates climate action transversally across its project portfolio. Through its "Infrastructure for Tomorrow (i4t)" strategy, the Bank has committed to ensure that at least 50% of approved financing is climate-related by 2025, while guaranteeing that from 2023 onward, all projects are Paris Agreement-aligned.</p> <p>Conditions: AIIB promotes investment in green infrastructure as part of its climate commitment, financing mitigation and adaptation measures that must comply with strict environmental and social standards. Projects are assessed for their climate impact and include continuous monitoring mechanisms. Initiatives are developed under themes such as "Investing in Climate Action" and "Green Infrastructure," applying ESG-aligned sustainability criteria and environmental risk management frameworks. In addition, specific conditions may apply depending on project nature, including additional mitigation or adaptation requirements. Loan terms and currencies may also integrate green risk valuation.</p>

Multilateral funds and financing mechanisms for railway infrastructure. Source: UIC, 2025

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Published by: UIC Latin America Region
Director of publication: Nicedolly Taborda
Coordinator: Vanessa Perez Miranda
Cover and layout: Ludovic Wattignies
Photo credit: Adobe Stock
Printing: UIC

ISBN: 978-2-7461-3563-5
Copyright deposit: May 2026

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