

Teresina, Brazil

Pilot Project

Completed

Basic information

Urban area → 1,392 km²

Population → 1,203,922

Growth rate → 1.21%

Region capital city

GDP per capita → USD 6,729

Modal share

Formal public transport → 21.3%

Walking → 32.6%

Cycling → 11.8%

Private cars → 24.8%

Private motorbikes or 2-wheelers → 5.8%

National GHG emissions per capita → 5.12 (tCO₂eq)

Exposure to climate change → MEDIUM



Context

Teresina is a low-density agglomeration of 1.2 million inhabitants located in northeast Brazil. The city is located at a crossroads near significant towns on the country's north coast, notably Fortaleza and São Luís, which contribute significantly to its economic development. However, the city suffers from urban sprawl, which increases travel time and costs and reduces the efficiency of public transport.

The 2008 Master Plan for Transport and Urban Mobility states that 1.91 million trips are made per day in the greater Teresina, standing out on foot (32.6%), followed by private car trips (24.8%), and municipal public transport (21.3%), with less representation, bicycle (11.8%) and motorcycles (5.8%). The relatively low share of public transport illustrates existing issues related to its efficiency, accessibility, and affordability. Public transport in Teresina currently has about 100 bus lines, and a BRT system is under development. Four leading companies operate this network with a total fleet of 550 vehicles. This network is supplemented by eight alternative service routes, operated by 45 cars from minor operators organised under the SINTRAPI (Alternative Passenger Transport Operators Union).

Over the last year, the current "conventional" bus system has been gradually replaced by the new Integrated BRT System. This evolution redesigns the bus routes, previously classified into (i) radial, (ii) circular, and (iii) diameters (from one side of the city to the other, going through the city centre), all converging to the Central Business District, and leading to overlapping itineraries and saturation of some segments in the system.

The Integrated BRT System introduces a new feeder-trunk system, operating with a set of feeder lines that connect neighbourhoods to zone terminals and trunk lines (BRT) departing from terminals to the city centre or linking terminals. It divides the city into four main zones (South, Southeast, East, and Centre-North - Teresina doesn't have a West zone within the municipal jurisdiction), each with two bus terminals, and the CBD has four unloading terminals. The bus route concession was allocated by zone, and each operator holds the concession for the routes in their zone.

Teresina Municipality Town Hall, the local counterpart, has the mandate and responsibility to finance mass public transport infrastructure. It has the authority to borrow from international financial sources. Systems and procedures are partially in place to monitor, evaluate and report on urban transport.

The project supported by the MobiliseYourCity partnership implements an Open Innovation approach which aims at (i) identifying the key issues of the transport system management and (ii) developing relevant digital solutions that can address those issues and scale up strategy.

The specific objectives of the Project are to:

- Provide a rapid assessment of the current public transportation system of Teresina;
- Co-identify and prioritise the main issues faced by the public transportation system;
- Identify solutions and technologies which could address those prioritised issues, including blockchain;
- Provide methodology and resources to prototype pilot projects;
- Lesson learned from the pilots: documentation and definition of the pilot implementation strategy.

Technical assistance contributes to institutional strengthening by addressing trust issues among all mobility sector stakeholders through data and technological solutions.

Support from the Partnership

Technical Assistance: Pilot Project development

Funded by: EUROCLIMA+

Funding amount: EUR 500,000

Implemented by: Agence Française de Développement (AFD) through the project

Local counterpart: Teresina Municipality Town Hall, Secretary of Planning and Coordination (SEMPLAN)

Supported activities:

- Install the blockchain platform and promote its use by the actors involved in the Teresina transport system.
- Implement a public transport governance system based on co-management and the opening of data and processes whereby the municipality, companies, users and the treasury interact collaboratively.

Status of pilot project implementation

Project start: 2021 Q4

Project completion: 2022 Q1

Completed outputs:

- Signature of a MoU between Teresina and AFD
- Finalisation Diagnosis
- Finalisation Setup of The Open Innovation.
- Finalisation Pilot Conception
- Finalisation of Proof of concept
- Scale-up strategy

Insights from practice: key pilot project takeaways

Breaking Down Barriers: How Teresina's Pilot Project Overcame Data Inefficiencies in Transport Management

The pilot project in Teresina aimed to improve the efficiency of the BRT system by implementing an innovative information and interrelationship system. By reducing information asymmetries between stakeholders, decision-making improved, making it easier to align with each actor's interests. The project successfully tackled the challenges of inefficient data management and analysis, paving the way for more effective traffic reorganisation policies in the future.

The use of this information system is also intended to improve the levels of traffic norm infringement by private companies, in terms of fines and infractions, as well as to provide better traceability of the process.

The open innovation process enabled public interest and data sharing, but political will is lacking to expand solutions.

Implementing blockchain technology in the transportation sector is highly innovative. It has become a challenge in the open innovation process, as few participants have been able to integrate it into their solutions. The open innovation process allowed for citizen participation and interest in the transportation system's management; internally, the municipality had to coordinate to share data and public information¹. However, the lack of political interest from the high officers, along with the remaining basic challenges of the public transport system, prevented systemic change.

¹ <https://observatorio.stardust.dev.br/>

Results and perspectives for scaling

The scaling-up strategy developed from the outset connects to potential funding for the city.

The scaling up of Teresina's pilot project was included from the beginning. Solutions developed in the Open Innovation process were structured into a strategy to be implemented by the city and included as part of potential funding for expanding the Proof of Concept through the AFD Project "Teresina 2030".

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