



SUBE CARD

Migrating to MIFARE Plus® X for Better Travel Experiences Nationwide



In Argentina, what started as a simple system for automatic fare collection (AFC) in public transport in Buenos Aires is now a nationwide system for multimodal transport that supports road tolling, micropayments, and other third-party services.

Used in 33 cities with populations over 100,000, today's SUBE card offers easy access to other services stored on the card and lets passengers use their NFC smartphones to manage their accounts.

Migrating the AFC system to NXP Semiconductors' MIFARE Plus X contactless ICs, which offer a higher level of security and flexibility, made it easier to add new features and quickly expand operations beyond the capital city.

All citizens and visitors benefit from an integrated public transport system that provides convenient and hassle-free travel experiences across the country.

RAPID SUCCESS

EXPANSION OF THE SUBE CARD

- 33 cities with populations over 100,000
- Multi-transport access: Metro, bus, train
- More than 16 million active AFC cards
- More than 5.8 billion trips per year
- More than 23,000 top-up stations
- Road tolling in 230 different locations
- Car parks, micropayments, and more

Buenos Aires is the second largest metropolitan area in South America and home to more than 13 million people. Since 2009, the city has also been home to a MIFARE IC-driven system for AFC in public transport, known as SUBE (Sistema Único de Boleto Electrónico, or the Unified Electronic Ticket System).

Introduced as a way to modernize and streamline public transport, the contactless SUBE smart card replaced coin-based fares and paper receipts on buses, underground metro lines, and local trains. Moving away from cash payments meant the transport system no longer had to process, collect, count, and transport coinage, for lower operating costs. Transitioning away from traditional paper tickets also helped reduce waste and litter.

From the passenger perspective, SUBE's tap-and-go ticket validation meant fewer lines and less waiting while boarding. With city buses, not having to wait for a printed receipt also reduced greenhouse gas emissions, because buses didn't have to idle as long at each stop, so air quality improved, too. Seeing the success of the Buenos Aires installation, Argentina's Ministry of Transport began considering ways to expand the system, so as to manage urban mobility and improve traffic flows across the country. The goal was to create a better travel experience for everyone, no matter where they are, or where they're going.

As part of their decision to expand the contactless SUBE system to other cities, the Nación Servicios transport agency chose to migrate from their existing MIFARE Classic® product-based system to MIFARE Plus X. There were several reasons why.

ADDED SECURITY

To begin with, NXP's MIFARE Plus product family offers an upgrade in security, with support for AES encryption. The higher level of security lets the AFC system use AES for authentication and integrity, multi-sector authentication, optional Random ID, and anti-tearing for keys and sector trailers. MIFARE Plus ICs are also better at detecting cloned cards in the field, so there's less fraud and operating costs stay low.

SMOOTH MIGRATION

MIFARE Plus offers a smooth upgrade path for legacy systems running on MIFARE Classic. AES security-capable cards can be introduced into already-running MIFARE Classic product-based installations, for a lower cost of deployment. MIFARE Plus X gave Nación Servicios a smoother system upgrade, while being able to exploit convergence with other services.

ADDITIONAL SERVICES

Nación Servicios wanted to support multiple functions on a single card, so they needed a contactless solution that offers the right levels of security, stability, and performance. MIFARE Plus is designed to provide the security and stability

needed to safeguard consumer data and isolate applications so they run independently and deliver robust performance. In the case of the SUBE card, in addition to storing public-transport tickets, passengers can use their card to pay for road tolls and parking or to make micropayments with vending machines. Other services under consideration are a loyalty program and banking services.

NFC OPERATIONS

MIFARE Plus X also works with Near Field Communication (NFC), and this opens up the option to use an app, running on NFC-enabled smartphones, for account management. Using a top-up application developed by the Nación Servicios IT group, in association with the private sector, passengers now have a convenient, easy-to-use interface for managing their accounts, with quick access to account balances and a simple format for adding value at any time and from any place.

STRONG COLLABORATION

Expanding the SUBE system brought together more than 10 different system integrators, involved with metro, bus, and train lines throughout the country. All these services are now accessible with a single card, using the same AFC setup. Passengers have an easier time planning trips and changing from one mode of transport to another, and everyone involved in managing public transport uses the same system for communication, operation, and clearing.

CONTINUED EXPANSION

The SUBE system has been accepted quickly and continues to grow. The system now boasts 16 million active contactless transit smart cards in the field and manages more than 25 million transactions per day.

The widespread popularity of the MIFARE Plus IC format reinforces the commitment of Nación Servicios to expand functionality and continue to optimize operations, so everyone can travel in Argentina in a way that's convenient, hassle-free, and more efficient.

DISCOVER
MORE

Argentina Site for SUBE card
<https://www.argentina.gob.ar/sube>

More about NXP's MIFARE Plus X ICs
<https://www.mifare.net/mifare-plus-x>

**Webinar on Nación Servicios
and NXP's MIFARE Plus**
<https://bit.ly/MIFARE-Plus-webinar>

