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Improve Fare Revenues and the Passenger Experience by Upgrading to a Modern, Future-Proofed Ticketing Infrastructure

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Growing consumer demand for ‘smart ticketing’ solutions is being driven by rapid urbanisation as well as technological advances such as RFID and near-field communication (NFC).

Today’s solutions are used in mass transit applications ranging from ticket vending machines (TVMs), gates and turnstiles to stand-alone platform validators and on-board products. Transportation authorities and operators who have not adopted these technologies operate with an outdated ticketing infrastructure that puts them at risk of irritating passengers and losing revenue. They must modernise or risk losing passengers – perhaps permanently.

Contactless ticketing has slowly been incorporated into public transportation over the past 20 years, which accelerated during the pandemic. As ridership continues its rebound, now is the time for transit authorities and operators to upgrade their aging ticket-reading hardware and move towards a more digital or mobile paradigm that will enhance the passenger experience and maximise revenue. The latest readers give passengers a single point of presentation for any ticket, regardless of orientation, and the ability to make contactless payments, all via a single interface. They also offer a range of benefits to operators, today and into the future.

What Consumers and Operators Want

Passengers want to go beyond physical tickets. Most resent the inconvenience of having to buy tickets in person, and a growing number also want to access their digital tickets from an app and add them to their digital wallets. Many want to use the same method of payment on a mass-transit trip that they use when shopping or entering a hospitality venue.

Public-facing transportation ticketing systems must address these preferences. Each category of passengers has different needs, learning curves and technology access and every group must be accommodated.

The latest contactless ticketing technologies enhance the passenger experience while maximising revenue





Ticket readers should support NFC/RFID tickets that can be read in any orientation

payments, making it easier and faster to board or pass through barriers, regardless of their preferred ticket medium.

Greater Operational Efficiency

Investing in the right ticket-reading hardware and contactless payment infrastructure allows for efficient upgrades and additional enhanced features. With digital fare payment hardware and mobile apps, it is also significantly quicker and more efficient to roll out new fares and ticket types.

Revenue Protection

New ticket-reading technologies effectively cut down on ticket fraud. The latest systems and devices can automatically detect tickets that have already been used or those that have expired. Additionally, cashless transactions eliminate fraud committed by employees and passengers.

Actionable Data

Migrating to a contactless digital ticket reading system allows data to be gathered about when and how passengers travel. It also enables transit operators to efficiently track payments, create fare caps and discounts, carry out refunds and collect and use transaction data. The latter capability enables operators to make smarter decisions and improve route planning to maximise ridership and system revenues.

Improved Passenger and Driver Health and Safety

COVID-19 has reminded us that eliminating personal contact in processing tickets reduces risks to the health and safety of passengers and transit operators.

Compatibility with the Latest Secure Ticketing Standards

Upgrading ticketing hardware is critical for transit operators to ensure compatibility with common standards such as ITxPT as well as appropriate open, secure ticketing standards, such as Calypso®. Calypso-certified ticketing hardware supports the necessary security and interoperability requirements of contactless ticketing systems to ensure long-term usability.

Transit authorities have their own needs, including reducing ticket fraud and using transit journey information to make data-driven, real-time operational decisions. They also need to optimise passenger throughput, and they want a path to contactless payments so they can reduce the expenses associated with handling cash.

Supporting these needs shouldn't require a rip-and-replace ticketing system deployment. Operators can't afford any disruptions during the transition to a new system, nor can they complete the cut-over process so quickly that people have insufficient time to gradually adapt to and adopt the new capabilities, at their own speed.

Benefits of Upgrading to Modern Ticket-Reading Technology

There are multiple benefits to be realised from using, upgrading and expanding the capabilities of a ticketing hardware system:

Increased Ridership and Maximised Revenue

Expanding the ticketing system to include state-of-the-art, multi-format ticket readers and validators enables more convenient and enhanced transit journeys. Accepting tickets from all media is especially important for citywide systems where the population's ticket medium of choice can be highly diverse.

Delighted Customers

Passengers want an efficient, technology-driven fare payment and ticketing experience using a single point of presentation for barcode, NFC and contactless EMV



On a bus, the driver can clearly see the ticket type and its validity, and passengers can also present their mobile app to a vehicle-mounted validator

Best Practices for Deployment

Transit authorities should choose ticket readers that support converged technology including open-loop contactless payment cards, scanned QR/barcodes (1D and 2D symbologies) and virtual barcodes on a smart device, as well as closed-loop RFID. Additionally, readers should support NFC/RFID tickets that can be read, in any orientation, on a phone, tablet or wearable. Such readers reduce customer transaction time.

Readers and validators also must offer a high level of usability at every step of the passenger journey. This includes giving users a single window to present the chosen ticket medium using an intuitive and quick interface for data reading and writing. Devices that read barcodes rapidly regardless of presentation angle also enables efficient passenger processing.

The addition of contactless payments provides the convenience and speed of a single touchpoint for ticket validation and payments. On a bus, the driver can clearly see the ticket type and its validity, and passengers can also present their mobile app to a vehicle-mounted validator. Ticket validation and boarding become simple, fast and efficient processes – even when the driver is busy operating the vehicle.

Another key consideration is support for open architectures and other future-proofing measures. Non-proprietary, open-architecture readers and validators maximise flexibility and long-term usability by working with any ticketing software and payment service provider. Mass transit operators can install ticketing devices with all the built-in capabilities they will need in the future, knowing they can enable these features when needed without having to replace or upgrade hardware.

Security is also important. To ensure devices incorporate the latest cryptographic elements and secure communication for closed and open-loop payments, select ticket readers and validators that are ready for EMV Level 1 and EMV Level 2 industry standards.



The final consideration is ease of installation. Look for features like the use of a single cable connection to the host, and the consolidation of ticket reading and payment into one module or reader to conserve space and minimise maintenance.

Meeting Expectations While Improving Operations

With the right system, operators can meet passenger expectations and improve operations. They will also be prepared for developments like payment via wearable devices and adding transportation to the NFC-enabled badges and IDs that university students and employees already use for physical access to parking facilities and buildings. A well-designed and future-proofed digital and mobile ticketing system with modern readers and validators as well as contactless payment support will enable transport authorities to meet these and other needs in the decades to come.

Watch our [video](#).

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