

Ticketing-as-a-Service with TapNGo

Fast implementation of Open Payments
thanks to cloud-hosted solution



The trend toward cashless and contactless payment is on the rise. In addition, it is ideal for public transportation users if they can use existing payment media as fare media, such as their contactless bank card or smartphone. All they have to do is hold these in front of a passenger terminal when boarding and, if necessary, alighting. They don't have to think about the fare structure because a best-price system ensures that they always travel at the lowest possible cost. There is also no need for prior registration in the system, so each passenger can ride immediately upon boarding. Public transport companies can easily offer this service to their passengers thanks to the INIT Software-as-a-Service solution.



Faster implementation



Greater flexibility



Better passenger service

The 'TapNGo' logo is prominently displayed in a large, white, bold, sans-serif font. To the right of the text is a stylized graphic of three concentric arcs, resembling a signal or payment wave.

Fast implementation of Open Payments* thanks to cloud-hosted solution

› Secure Ticketing via Software-as-a-Service (SaaS)

With Ticketing-as-a-Service, INIT introduces a cloud-based Software-as-a-Service solution. This means that the software is installed and operated by INIT in the cloud. (a web-based further development of the INIT ticketing back-office system MOBILEvario). The public transport company therefore does not have to install and maintain its own version and has no acquisition costs, but instead benefits from full access to the solution via a web browser. INIT maintains, administers, and operates the ticketing software. The public transport company can securely view all transactions, import its existing tariff structure – and enjoy complete autonomy.

The entire system is fully EU-GDPR compliant.

A major advantage of the SaaS principle is that the system is developed as a “standard product” meaning the same range of functions exists for all customers. This makes rapid deployment possible. The system is continuously developed further together with customers. Each customer benefits from updates and functional enhancements and is always technologically up-to-date. Thanks to the cloud-based platform, security updates and operating system updates are carried out automatically in the back-office system without time-consuming installation processes.

The solution is suitable for small and medium-sized companies, as well as for larger companies and groups of companies (multi-client system). It can be used individually or as an additional sales channel alongside the existing ticket system.

› Use of existing payment media as fare media

The ticketing system uses open payment methods, i.e., payment media that the customer already possesses – credit cards as well as smart devices compliant with the standard for contactless bank cards (EMV). Passengers simply tap their contactless card or smartphone / smartwatch on one of the passenger terminals and board (check-in or check-in/check-out solution). This means they do not have to install an app in advance, buy a ticket, register in a system or buy and load a chip card, but can use public transport without additional hurdles. They can simply use what is already in their wallets to check in – done. A big advantage, not least for tourists.

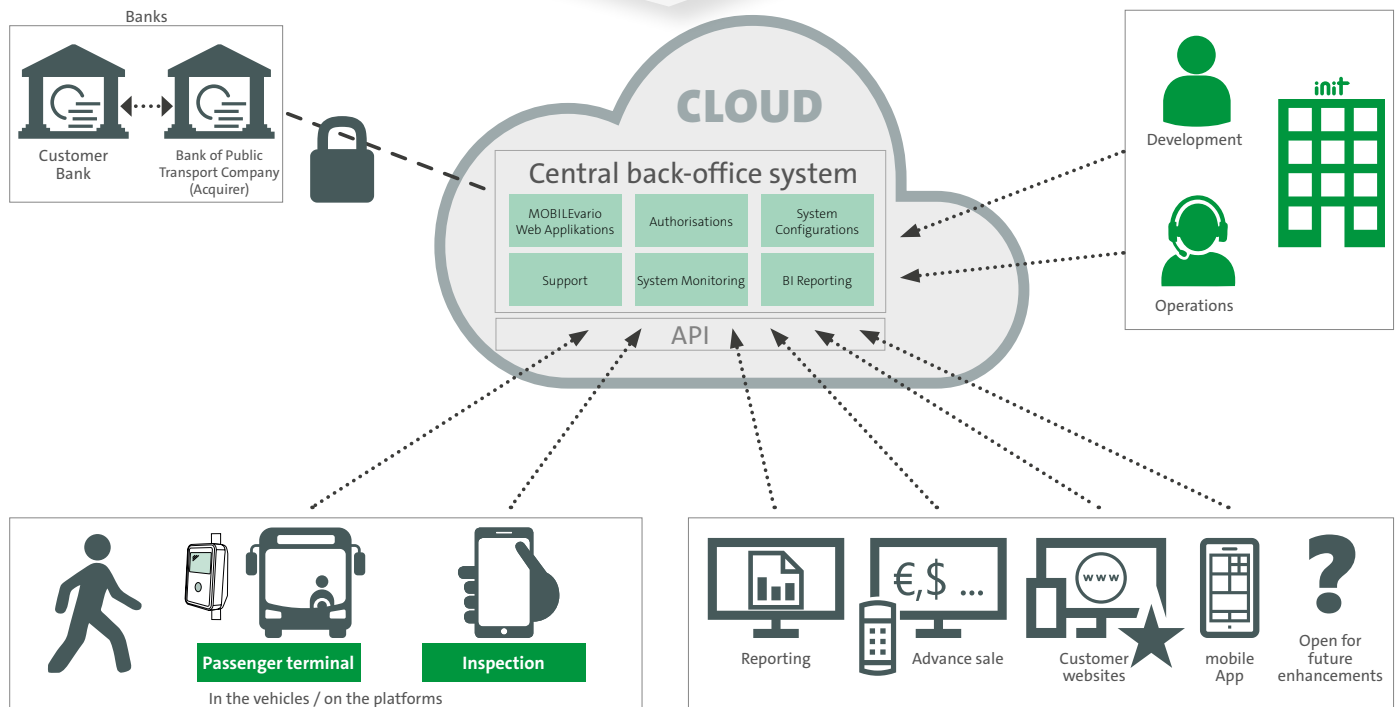
The entire handling of the card medium, be it printing, blocking lost cards, replacing expired cards, sending and activating new cards, is now a thing of the past. All the work that concerns card handling is done by the card issuers.

INIT's Ticketing-as-a-Service system naturally takes into account a wide range of providers, such as Visa, Mastercard, Google Pay and Apple Pay with more to come. Contactless payment in retail is here to stay, and the banks have set the course. Public transport companies benefit from it. In addition to credit cards, contactless debit cards also work.

For passengers, too, there are many advantages: There are no additional fees for the passengers. They do not accumulate potentially unused credit, unlike with prepaid cards.

* Open payments with credit cards as well as smart devices compliant with the EMV standard

TapNGo



| Overview of system and processes.

Advantages: public transport companies

- Benefit from a cost-effective and future-proof solution, thanks to SaaS.
- Low cost investment with only set-up costs, an annual service fee, and transaction-based charges. This means complete cost control.
- Reliable, low-risk and transparent payment model.
- Transfer of revenue directly to the operator's account without cumbersome and expensive fare handling costs.
- Rapidly implement the system with certified INIT passenger terminals, complementing the existing system.
- Reliably secure and certified execution of all transactions.
- Easy set up with only an up-to-date web browser => central system administered and operated by INIT.
- Convenient implementation of the necessary customer web portal via plug-in from its website.
- Quick and easy inspection of fare media via app.

Advantages: passengers

- Use ONE medium for fare payments.
- Board and ride. No need to know the fare structure.
- Quicker boarding times with tap-and-go payments.
- Enjoy best price fares, because they always pay the lowest price (fare capping).
- Contactless, safe payment method.
- Automatic check out at the end of the journey in case they forget to check-out.
- Complete history view via a customer portal.



| Fast check-in and check-out at the PROXmobile3 passenger terminal.

› Tariff logic in the back-office system

The foundation of EMV ticketing is an account-based back-office system. Here, all transactions, tariffs, new products, or test specifications are defined. Booking requests from the field devices are checked and executed in real time.

The transport authority is empowered to create tariff structures, new products, or to modify existing ones. In INIT's **TapNGo** – as in all ID/account-based ticketing systems – all data and the entire fare logic are stored exclusively in the back-office system. The end device only has read access to the card.

INIT's back-office system, **TapNGo** can be quickly and conveniently added to a public transport company's ticket and fare offerings, thereby offering the opportunity to implement contactless payments even in addition to existing systems. The system provides a fare management tool for creating and customising fares. Supported tariffs include single journey, zone tariffs, distance-based tariffs, and time-based tariffs. All payment processing is fully covered by the INIT administered and operated system.

For the public transport company, there is still full cost transparency and easy access to transaction data for their own business intelligence reporting. The system can also be operated as a multi-client system via Ticketing-as-a-Service to minimize investment and operating costs.

› Fast implementation

The main advantage of a SaaS system is its quick implementation. After all, everything is delivered by INIT in the cloud. All that is needed is a secured access to the cloud. Setting up an IT infrastructure, installing servers, setting up PCs and configuring networks and firewalls are no longer necessary. The system is configured by INIT and – on request – provided with master data and your tariff structure. The system can be accessed securely via any PC using a modern web browser.

The INIT passenger terminals (PROXmobile3, TICKETvalidator) can be promptly installed in the vehicles and connected to the system.

The transport company also requires a contract with an acquiring bank which authorizes the card payments of customers and may debit the respective sums of the transactions from their account.

› Payment transaction

Each time a credit or debit card is tapped at the terminal, the transaction is encrypted before the data leaves the PCI certified card reader. PCI certification is a Visa and MasterCard security standard that ensures the protected handling of payment data. It makes sure that companies that deal with credit card data, save or transmit them will take action in order to protect them against fraud and theft.

The encrypted request is forwarded to INIT's back-office system. The taps are collected to determine the price at the end of the day (see best price billing). After calculating the amount to be paid, the system communicates with a PCI certified, protected payment gateway. The task of the payment gateway is to exchange data securely with the acquiring bank (the bank of the transport company) and to authorize the payments. The acquiring bank in turn collects the money from the passengers' banks.

› Fast check, fast clearance

Thanks to high-speed mobile radio, communication between the field devices and the central back-office and verification system takes place virtually in real time. This allows passengers to check in and out with virtually no delay. Here is how it happens: The passenger holds his or her card up to the passenger terminal. In milliseconds an audiovisual signal confirms successful check-in. When alighting, the passenger checks out again with the same card and therefore pays for the journey. This eliminates the need to decide on a specific ticket. If the passenger forgets to check out when alighting, he or she is automatically checked out as soon as the vehicle reaches the final stop. In this case, the passenger pays for the journey to the final stop.

If the mobile network is not functioning properly (e.g. in a tunnel), checks are performed offline. Intelligent processes ensure that the information arrives securely in the back-office system at the next opportunity so that no disadvantages arise for the passenger or the public transport association. For this purpose, deny lists are made available offline on the field devices. This enables the terminal to perform a risk assessment locally and to validate the desired operation offline. The back-office system permanently updates the offline information stored on the terminals. The system utilizes fraud detection procedures to minimize the low risk even further.

Example of the best price structure. After the (daily) maximum fare (in this case: 5.50€) is reached, all further trips are free of charge.



› Best price billing

INIT's **TapNGo** ensures that passengers always pay the best possible price for their journeys. All they have to do is validate their card every time they board or alight. Should a predefined daily or monthly limit (cap) be reached, the system automatically ensures that only this limit, and no further amount within the capping period, is charged (fare capping). The caps can apply to daily or monthly tickets, for example. However, the back-office system also permits the definition of additional, freely definable time periods. Fare capping can also be applied to non-consecutive days, thereby enabling a fare structure that is geared to new mobility and work habits.

Even complex fare/tariff systems are no hurdles for passengers any more. They can board and ride without any knowledge of the system.

› Clear operator portal

A major strength of the system is its transparency. For the public transport company, payment transactions are visible and traceable. The necessary applications are integrated into the operator portal as web applications. This includes, among other things, customer management, tariff management and an overview of the transactions in the field, all in real time. Furthermore, the status overview of the field devices and all system-relevant components, the parameters and the field devices' software can be viewed and updated if necessary.

A comprehensive reporting function allows sales figures to be viewed in a modern report format. These reports can also be accessed via a mobile app. If required, this data can be exported for use in the company's own business intelligence solution. The operational work (e.g. tariff maintenance) can be carried out by INIT or by the public transport company.



- | The public transport company has a convenient online overview of transactions via its own operator portal. A comprehensive reporting function allows sales figures to be viewed in a modern report format.

› Certified system

Contactless payments in public transport require numerous special payment-related certifications for back-office and hardware, all of which INIT holds. These include EMV accreditation which recognizes that the solution meets the latest transit-specific requirements from Visa and Mastercard. Contactless EMV levels 1 and 2 are important, ensuring that standards-compliant EMV transactions are initiated and executed.

INIT's validators meet all transit-related requirements. In addition, TICKETvalidator and PROXmobile3 are also compliant with the bank card security standard PCI-PTS (PCI = Payment Card Industry; PTS = PIN Transaction Security).

Moreover, INIT received "Visa ready for Transit" certification for its account-based back-office system. The certification from Visa, the world leader in digital payments, confirms to public transport companies worldwide that INIT's solution meets all the conditions of the Visa Mobility and Transport

Transaction (MTT) Model. It meets Visa security standards and specifications enabling passengers to make secure cashless payments with contactless credit/debit cards, mobile wallets in smartphones or wearables.

Equally important is Visa's Transit Ready Model 2 accreditation. To get the accreditation, INIT's solution had to pass rigorous testing scenarios and meet all the requirements of major banking service providers.

The basic data security is already guaranteed by INIT's ISO 27001:2017 certification: this certification confirms that INIT's customers can be sure that its processes and specifications for development, production, implementation (project management process), maintenance and operation of the delivered systems and services comply with the globally valid ISO 27001 standard and take into account the current technical state-of-the-art. This standard defines requirements for an information security management system (ISMS) and its continuous improvement.

These certifications confirm that you can always rely on INIT's trusted software and hardware.



| Fare media can be inspected with the mobile e-ticketing reader PROXreader2.

› Customer portal

It isn't only the operator who has visibility of all transactions – passengers can also access their transactions and their travel history (overview of all journeys made) at any time via a certified customer web portal. Only the credit card number and its expiration date are required to log in to this portal. The portal can be integrated into the web presence of the public transport company via a plug-in and INIT can design the web portal to align with the transport company's website layout.

› Easy control of fare media with PROXreader2 and app

With the mobile e-ticketing reader PROXreader2, INIT offers the ideal means for fare media inspections. In combination with an android smartphone and the inspection apps INSPECTfare and VALIDATEfare, ticket inspectors can check

whether the smart card/credit card has been validated by the passenger before the journey.

PROXreader2 features a portable, battery-powered, fully certified reading device that contains the same card reader as INIT's passenger terminals. It can be conveniently connected via wireless interface to the smartphone and the inspection and validation app.

Quickly introduced, quickly checked in and out, and quickly inspected – INIT's **TapNGo** is the ideal ticketing solution for passengers and public transport companies alike.

*If you would like to know more about **TapNGo**, please contact us at sales@initse.com. We look forward to hearing from you.*

More than 1,100 transport providers worldwide rely on our integrated solutions to support them with their daily tasks

- *Planning & Dispatching*
- *Ticketing & Fare Management*
- *Operations Control & Real-Time Passenger Information*
- *Analyzing & Optimizing*

Moreover, transport companies can also master all requirements of electromobility and set up a single sign-on mobility platform using our integrated solutions. A robust package of operational services completes the INIT offer.

INIT is the worldwide leading supplier of integrated planning, dispatching, telematics and ticketing systems for buses and trains. For more than 40 years, we have been assisting transport companies in making public transport more attractive, reliable and more efficient.

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