Five unmissable opportunities in the post-pandemic world of public transport ticketing

infineon

Introduction:
The acceleration
of transformation

Public transport was hit hard by the global pandemic and local/national lockdowns. Operators and authorities faced unprecedentedly low passenger numbers, which in some of the world's most populous cities fell by up to 97%.

Many transport organisations had to adapt to this drastic consumer behavioural shift in order to survive: contactless interactions transformed from a "value-add" to a "must-have".

However, out of adversity comes opportunity and there are fresh opportunities now to do things differently and usher in the next significant evolution of public transport.

In a post-pandemic world, public transport remains a vital societal resource. We now need to reverse the migration to private transport if we're to live in green, clean, sustainable urban environments.

This means improving the passenger experience, making it convenient, seamless and secure, anywhere.

Digital ticketing, enabled by smartcards, smart tickets, smart mobiles and wearable devices, will be the driver of public transport growth and sustainability.

The global mobile ticketing in transportation market, valued at just under US$1 billion in 2018, **is anticipated to grow 18% year-on-year between 2021 and 2029, according to the Mobile Ticketing In Transportation Market Report 2021, from Absolute Markets Insights.** This growth is projected to be a result of rising urbanisation and interest in Mobile-as-a-Service (MaaS) across urban locations, creating demand for quick, personalised and remote digital ticketing solutions.

In this eBook, digital ticketing technology experts Infineon highlight five post-pandemic trends that are driving the transformation of transport ticketing, and explore the steps operators and authorities can take to maximise these opportunities for sustainable growth.

Five opportunities of the post-pandemic world

1

Digitised deployments

What are digitised deployments?

Deploying a digital strategy means creating a convenient, well-secured, flexible way for customers to buy tickets and use a transport network. Digital ticketing based on open standards also promotes interoperability between networks and usability from different devices.

Digital deployments can include account-based ticketing (ABT) via smart cards, or virtual tickets hosted on consumer devices, such as a smartphone, smartwatch or other wearable device, enabling touchless access and payment for public travel services.

What are the opportunities for public transport operators?

Technology advancements enable new experiences that customers want, encouraging greater uptake of services.

The pandemic accelerated the move towards touchless payments (primarily with NFC and QR Codes™) and Account Based Ticketing.

Populations are more aware now of the transmission risk on physical surfaces and will increasingly demand that public transport provides touchless experiences for safer, more convenient travel. This is particularly useful in managing crowds at access gates and ticket inspection points.

Are QR Codes™ here to stay?

QR Codes emerged as a popular way for passengers to travel contactlessly during the pandemic. However, the technology has many short-comings that mean it is not a credible long-term solution for transport.

It causes queues and crowding at hotspots while users find and take out phones, scan codes with their camera and then authenticate them online. Visually presenting QR Codes to ticket inspectors/technologies also takes time to complete.

It is also too easy to copy QR Codes, which can be inserted into legitimate settings but create security issues for users when scanned.

Alternatives such as NFC technologies embedded within the Secure Element of smartcards and smart devices provide greater convenience, security and reliability for transport service providers, while future-proofing their network through incremental, interoperable updates.

Why go digital?

Traditional subscription tickets are not fit for purpose. Customers want flexible fares that fit the "new lifestyle". The good news is that digital ticketing is innately equipped to deliver this.

Digitisation can enable

Greener practices
Re-usable digital tickets; reduced energy for ticket production; fewer plastic cards.

Enhanced security
User identification and payment capabilities securely embedded into personal devices.

Improved reliability
Multiple tickets for multiple transport options on one device; NFC functions even with no device battery.

Increased control of networks
Future-proof your transport network with support for MaaS, flexible fares and converging services ((including payment, journey planning, access control, retail loyalty and more).

Faster transport flow
Tap-and-go touchless technologies reduce bottlenecks and aid crowd management.

Greater financial efficiencies
Digital ticketing built on open standards lowers costs for operators and authorities by encouraging competition between providers.

What should operators and authorities consider when going digital?

1 Adopting open standards is essential in ensuring tickets can be accessed and read on any host device.

2 Digital ticketing can make tickets convenient, reliable and highly secure.

3 Digitised deployments require a long-term vision. Technology can be rolled out as part of a gradual migration, making it a more attractive alternative to short-term, out-of-the-box proprietary solutions.

2

Urbanisation and Mobility-as-a-Service

— » —

What is urbanisation and why is it linked with MaaS?

The United Nations **2018 Revision of World Urbanization Prospects** report estimates that 70% of the world's population will live in cities (or "megacities") by 2050. This "urbanisation" of our world means citizens are looking for safe, smart, sustainable, accessible and well-secured urban mobility choices.

The home of MaaS is inside these cities, giving urban populations one ticket that can provide access a vast range of transport options, enabling public transport journeys from door to door.

MaaS is a hot topic. We're seeing more joined-up transport services. The idea of connecting to everything – buses, trains, taxis, scooters, e-bikes, trams and anything else you can think of – means you can support the passenger from the first mile to last.

— « —

Greg Pote
Asia Pacific Smart Card Association (APSCA)

What is Mobility-as-a-Service (MaaS)?

The MaaS Alliance defines Mobility-as-a-Service as **the integration of various forms of transport services into a single mobility service that is accessible on demand.**

MaaS aims to provide an alternative to private cars. In other words, a public transport network that is convenient, more sustainable, helps to reduce congestion, reduces constraints in transport capacity, and which is more affordable for travellers.

According to the MaaS Alliance:

› To meet a customer's needs, a MaaS operator must facilitate **a diverse menu of transport options,** be they public transport, ride-, car- or bike-sharing, taxi or car rental/lease, or a combination thereof.

› MaaS should be the **best value proposition** for users.

› MaaS offers added value through use of **a single application to provide access to mobility, with a single payment channel** instead of multiple ticketing and payment operations.

What are the opportunities for public transport operators?

Municipal governments are turning to technology to create the sustainable "smart cities" that the majority of us will call "home" in the future. These are places where citizens will digitally connect with city infrastructures to support their daily lives and receive new, enhanced levels of convenience across multiple adjacent services.

Data will be the lifeblood of these public services and transport networks will need to interconnect not just geographically but digitally. Operators and authorities enabling other services like access control (to buildings, private vehicles etc.) and retail loyalty schemes, will create extra value for partners and customers alike.

To achieve this vision, we need open standards. Technologies must work in harmony alongside each other if ticketing systems are to realise their potential of becoming the foundation of mobility and access control solutions in the cities of the future.

— » —

Open standards can open the field of ticketing to new actors and this needs to be quick and competitive. Having new actors come into the market enables new solutions to be built more easily

— « —

Philippe Vappereau
Calypso Networks Association

What should operators and authorities consider when moving towards MaaS transport?

1 Using open standards makes it easier for small start-ups or enterprises to innovate and add their services onto a common platform.

2 The alternative is something that is prohibitively complex and expensive with proprietary systems.

3 Enabling the secured storage and transmission of associated data will be essential. Infineon specialise in this secured storage and supports all payment and ticketing standards such as Calypso help make MaaS a reality.

‹   ›

3

Convergence of services and technologies

What is convergence?

Convergence in transport refers to the process of bringing multiple services or technologies – that were previously unrelated – together in close integration or unification.

Convergence is primarily driven by easy and simple upgrades on the system side. Upgrading and extending the capabilities and functionality of infrastructure (readers and terminals) is driven by a growing commitment towards open standards, which supports interoperability and the possibility to provide any option as a "plug and play" product for the terminal infrastructure.
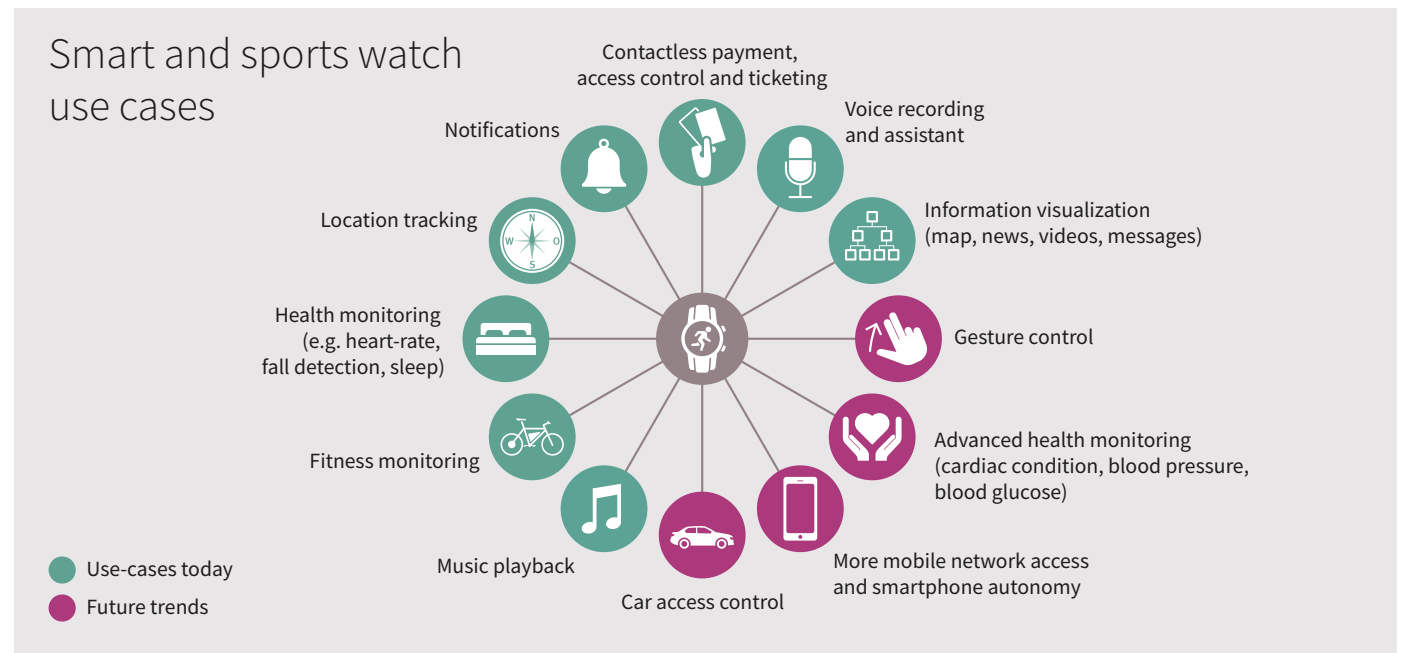
Mobile or wearable devices with NFC capabilities are integral to convergence.

What does this mean for operators, authorities and passengers?

› Passengers can use one payment ticket across different modes of transport
› Loyalty programmes can be easily integrated into the consumer's account – a significant value-add for retailers in stations and concourses
› Secured access control can be provider to premises, admitting users with a simple tap of their smart device.

Opening up the infrastructure and using open standards allows operators to gain control of their systems and enables them to adapt much easier to unexpected events that prompt short-term behavioral shifts.

Convergence can empower true scalability by offering the same standards, while enabling systems to remain backwards-compatible, thus protecting any investment made today.

Smart and sports watch use cases

- Contactless payment, access control and ticketing
- Voice recording and assistant
- Information visualization (map, news, videos, messages)
- Gesture control
- Advanced health monitoring (cardiac condition, blood pressure, blood glucose)
- More mobile network access and smartphone autonomy
- Car access control
- Music playback
- Fitness monitoring
- Health monitoring (e.g. heart-rate, fall detection, sleep)
- Location tracking
- Notifications

● Use-cases today
● Future trends

What are the opportunities for public transport operators?

Converging different transport modes onto a standardised infrastructure will:

› Remove friction from the payment process

› Support seamless journeys

› Encourage greater uptake of public transport options

Public Transport Operators and Public Transport Authorities should look at converging travel, loyalty and access services to improve the user experience and add value for customers and partners.

Transport organisations – and device manufacturers – can prepare themselves to benefit from opportunities that may even be unknown and undefined today, if they build systems based on industry-acknowledged "open" standards that encourage community contribution.

Like convergence itself, limiting yourself to one option only limits your potential for growth.

What should operators and authorities consider bringing different services together?

1 The good news is that transport cards and mobile/wearable devices capable of NFC are already enabling these experiences.

2 The availability and convenience of smart wearables will accelerate this trend, so long as they are based on open standards that deliver interoperability across networks, medias, and modes of transport.

3 Consumers need to be aware of the additional services their transport ticket can provide – external communications will be key to driving adoption.

‹   ›

4

Going green

What does it mean to be "green" in public transport?

Public transport is rightly seen as an alternative to private cars and motorbikes that cause high levels of pollution in cities, harming the health of urban populations.

Public transport options are increasingly low- or zero-emission. But more can be done, including in ticketing.

Transport operators and authorities have a huge role to play here as the industry is the fastest-growing source of global emissions (in the UK it is the highest carbon emitter, while in the EU and the US it is the second largest emitter after energy).*

Many countries and regions – for example, Canada, Chile, the EU, Japan, New Zealand, South Africa, South Korea, the UK and the US – **have committed to net zero carbon emission goals by 2050.**

Urban authorities need to discourage private journeys, while facilitating a boom in bike-sharing schemes and electric-powered vehicles to give residents new, healthier ways to get around.

*Sources: World Resources Institute and ClimateWatch

— » —

Without open standards, transport systems
would not be what they are today, with the complexities
required. We'd have more dependence on cars or
motorcycles, and pollution would be much worse.

Open standards enable PTOs and PTAs to
make informed decisions. If they disappeared,
cities would only deliver for the individual
rather than the collective.

— « —

Dario Cardona Sosa
SIMUS

‹   ›

What are the opportunities for public transport operators?

Since the global pandemic began in early 2020, passengers moved towards private transport methods like motorbikes and cars, which are significant pollutants.

Public transport is a greener alternative and PTOs should focus on getting passengers from A to B as environmentally sustainably as possible, as part of coordinated global efforts to reduce carbon emissions and improve air quality.

PTOs and PTAs have a responsibility to reduce waste throughout the chain, which includes reducing paper and plastic tickets, offering digital solutions instead.

Only by making public transport more attractive than private transport can PTOs and PTAs encourage customers to return to their networks, improving their quality of life and making the right choice for the planet.

What should operators and authorities consider in the journey to greener transport ticketing services?

1 Operators and authorities first need to ask themselves if they are willing to do the right thing for the planet and for their customers.

2 Organisations can implement travel cards from recyclable materials, discourage single-use tickets, and provide digital ticketing options that turn consumer devices into smart tickets.

3 To avoid being locked into proprietary vendors that dictate the ticketing infrastructure, PTOs/PTAs should consider open standards that provide choice, flexibility and scalability far into the future.

5

Sustainability

What is "sustainability"?

Sustainability is sometimes referred to in the context of "going green". But in reality it is much more than that: it refers to future-proofed transport operations that bring stability and longevity to transport operations.

The global pandemic has shown that no-one can take it for granted that their network will always have a certain volume of customers.

Many operators or authorities are tied into expensive proprietary contracts that provide only a short-term solution to their operational needs and offer little flexibility for the future.

True sustainability means establishing a service and an infrastructure now, that is flexible enough to operate long into the future. It means systems that can be gradually upgraded over time, without overhauling an entire system.

It means operators and authorities being in control of their networks.

What are the opportunities for public transport operators?

Open standards enable competitive tendering, which includes:

› Costs are controlled
› Procurement of chips is resilient
› Expensive vendor lock-in is avoided

Networks are strengthened when they use open standards. These have equal, transparent terms and conditions – more commonly known as reasonable and non-discriminatory terms. An independent body can certify open standard products and all industry players are free to contribute to the standardisation process, creating resilience across the industry.

A resilient network means transport organisations can focus on a longer-term vision, enabling the provision of new options for customers, in a way that fits their lifestyle. This could include mobile ticketing, access control, flexible fares, journey planning and much more, encouraging a higher uptake of services.

— » —
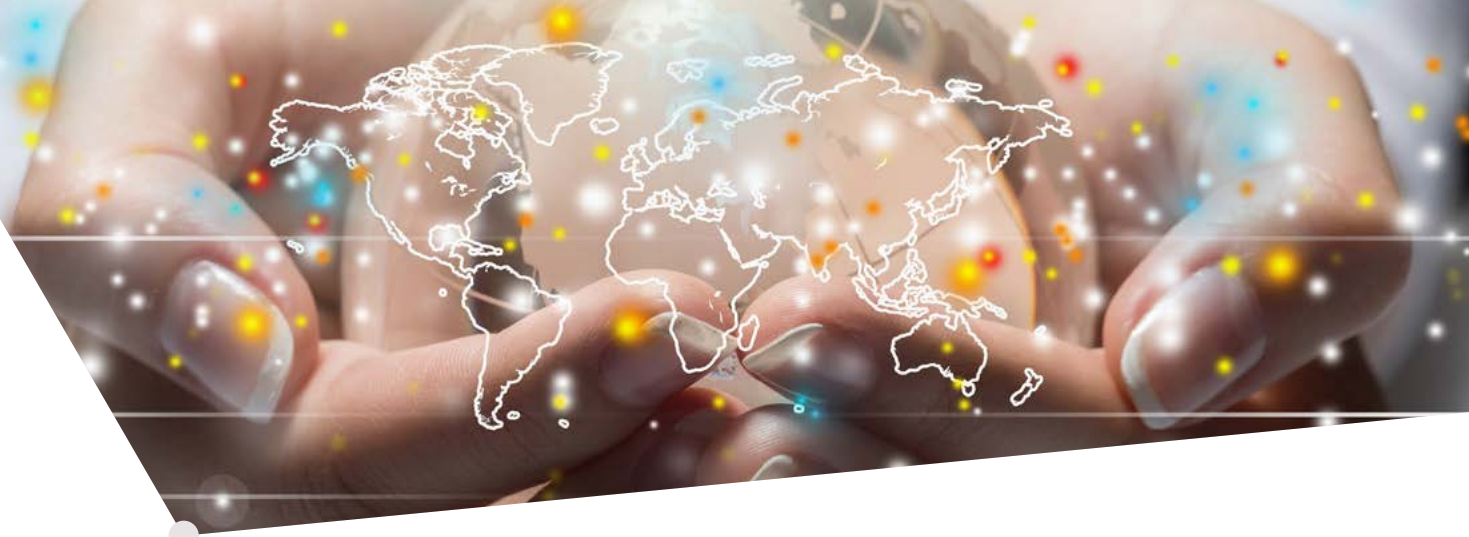
There is not a global one-size-fits-all here. The question is how to tweak technology to meet requirements in different regions. Open standards enable you to do this.

— « —

Kevin Gillick
GlobalPlatform

What should operators and authorities consider to be more sustainable?

1 PTOs/PTAs can migrate from legacy systems to open standard-based solutions smoothly and gradually, adopting state-of-the-art secure products that will support competitive tender processes.

2 RFPs can stipulate adherence to Calypso, CIPURSE and EMV standards to provide reassurance that there will be multiple suppliers involved long-term. This means a traveller can use any type of ticket media or form factor that they want for their journeys.

3 Collaboration and communication with partners and customers is critical to a sustainable transport operation.

‹   ›

Future-proof your transport network with Infineon

Checklist to future-proof your transport network

☐ Choose providers that support
open ticketing standards

☐ Avoid limiting your options

☐ Choose a partner with transport expertise

Connect with us today

www.linkedin.com/company/
infineon-technologies/

www.twitter.com/Infineon

www.facebook.com/Infineon

www.youtube.com/Infineon

Infineon Transport Ticketing: Mobility in Motion
**www.infineon.com/cms/en/product/
promopages/mobility-in-motion/**

About Infineon Transport Ticketing

Infineon technology assists PTOs / PTAs in smoothly and gradually migrating from proprietary legacy systems to open standard-based solutions and state of the art security prodcuts that support competitive tender processes. Products provided by Infineon support gradual migration as infrastructure (readers) may be updated / upgraded / replaced step by step.

Infineon drives open, flexible ticketing from the heart of transport communities. It supports open technical specification development as defined by the ticketing community to encourage competition, contain costs, and inspire innovations.

www.infineon.com