Conduent Seamless® Transportation System

A disruptive mobility solution for travelers, transport operators and city decision makers.
Cities are critically reliant on transportation systems to enable the movement of people, goods and services. Failure of transport systems leads to delays, increased costs, frustration, increased pollution, a poor living environment and reduced health.

Transport is a common challenge area in cities across the world, where increasing populations and growing economic and environmental demands place ever-increasing stress on city infrastructure.

There are new smart transportation solutions emerging that promise improved balance between supply and demand, increased use of public transport and improved understanding of mobility through smarter back office processing and data analytics.

Transport is also being transformed by younger generations (so called generation Z group) who are already practicing what they preach when it comes to traveling around their city using smartphones and tablets to plan journeys.

As these ‘Future Commuters’ begin traveling into our cities more frequently, they bring with them high expectations of the transport system (including cashless transport transactions). Public transport provision and infrastructure must smarten up, incorporating digital services like integrated apps and cashless payment as standard.
Mobility as a Service

Mobility as a Service (MaaS) is a concept that changes the use of different transport modes from separate systems to a service promise. It has the potential to fundamentally change the behavior of travelers in and beyond cities, hence regarded as the biggest paradigm change in transport since affordable cars came to market.

Integrating services through smart, MaaS solutions puts users at the heart of the transport network, offering tailor-made travel services based on preferences. These services also provide the means to achieve the smarter, simplified transportation landscape envisioned and expected by future users.

Two approaches to MaaS are envisaged, one where users pay a regular monthly fee for all of their mobility needs (similar to mobile phone billing) and one where users have a single account that is used for their particular mobility service charges.

The Conduent Seamless® Transportation System

Our system has many characteristics of MaaS as it enables travelers to access city services and various mobility solutions including all forms of public transport.

Seamless® comprises of a payment service and a back-office processing platform that supports services. A single app can be used to share cars, park and ride, take the bus or the metro but also access other services. It also addresses the complex issue of when cities and transport operators invest time in new payment and information systems. Seamless® takes the risk away from these investments as Conduent takes the risk and installs the necessary components for customer services using smartphone payments.

Without having to alter current ticketing systems, public transport operators can now offer their customers the convenience of paying for travel with a smartphone.

Travelers simply tap their smartphone on any Seamless® tag. During the tap the tag creates and stores an encrypted transaction and relays it to the smartphone. Constant network connection is not required – the transaction is transmitted when network connectivity is available. Seamless® will provide a fully managed account-based payment system. This system has to enable users holding an account and an authentication means (e.g. NFC Smartphone) to travel in different modes of transport both public and private or even pay for parking. The system also has to allow transportation agencies and operators to deploy the validation and authentication means easily and cost effectively, guaranteeing the protection against fraud and to offer fare management and financial consolidation, customer support, and device and account management capabilities.
The Seamless® concept is illustrated below. The concept itself is a major architectural change compared to current automated fare collection architectures and conventional NFC payment architectures which struggle in their adoption in transportation due to the multiplicity of parties and costs of implementation.

The goal is to provide a Seamless® mobility service to travelers holding a smartphone. The passenger subscribes to the Seamless® and can then start using the services worldwide by simply presenting the mobile phone to a Seamless® tag affixed near the entrance of the transport means (bus entry, access control gate, etc.), or more generally at a place representing the consumption of a service. Passengers just tap on using their app loaded on their smartphone when boarding – there’s no need to set the final destination before start if the fare is flat. To maintain a “Seamless®” usage the fare calculated on the back end optimised to the best adapted fare for the user by choosing among various choices as flat fare capped with weekly or monthly pass. Customers will be billed the amount on a regular basis (ex: monthly) by direct debit or credit card payment. Passengers no longer need to buy tickets in advance or wait in queues at counters or ticket vending machines nor is a top up necessary.

Even if post payment is recent in transportation, the model is adapted to the usage of any citizens; not only for pure occasional users and occasional regulars (weekly or monthly), as it is combined with a smart best fare calculation and presents real flexibility to regulars.

The advent of dual technology (BLE / NFC) in the smartphone industry is revolutionising the payment of goods and services. Unlike Seamless® most NFC solutions are based on integrating a contactless transportation card or bankcard inside a phone, either in a secure element (e.g. a SIM card) or not (Host Card Emulation). These solutions require intensive capex investment for terminals and to overcome interoperability challenges.

Additionally, credit card payment regulation imposes a complex and renewable certification process along with an intensive investment and operational back end solution. But the main deployment limitation of NFC solutions is the number of stake holders involved in the transaction, making at the end, the business model non viable for a micro payment. “Any viable business model is built on robust and equal foundations, ensuring value is shared amongst participant and each participant plays to their respective strengths” (Deloitte UK, 2013).
Conduent Seamless® Transportation System is a turnkey solution based on Mobility as a Service model. Transport as a Service is a viable answer to global budget pressure imposed to governments and citizens while ensuring the development of new access to city services.

The expanding mobile payment sector is highly fragmented with a variety of competing technologies and business models vying to capture consumer attention and early market share. These range from peer-to-peer mobile money transfers to in-store-app based payment and full e-wallet functionality enabled by NFC. (Deloitte)

The main key assets of the solution are:

- Remains simple: mobile ticketing is a new and unfamiliar to most users. The aim is to provide a user experience that is intuitive and seamless. The users shall see their needs accomplished quickly, intuitively and with ease, leaving them with a desire to return and re-use the application.
- Provides a stable business model even for micro-payments.
- Mitigates fraud and security risks while delivering the services. For the service provider’s perspective it consists in answering to payment default and in traveler’s perspective, that personal data protection and data privacy are ensured.

The first Seamless® pilot was started on September 2015 in the city of Valence, France and first implementation will start September 2017 in this same city (Valence) and 2 other french cities in 2018. Public transportation is facing a major transformation in the way it is planned, managed and even consumed.

 Authorities and suppliers need to seize the opportunity and adopt new methodologies, systems and business models to fulfill the increasing requirements coming from citizens while at the same time they need to deal with budgetary pressures.

The adoption of mobile ticketing technology is one important step but it needs to be associated with new business models allowing capital investments to be significantly reduced while keeping authorities in control of the financial flows.

We propose Conduent Seamless® Transportation System as a universal, low CAPEX mobile ticketing system based on its decades of experience as ticketing technology providers.

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