Ticketing Solutions: Learning lessons among CIVITAS cities

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Ticketing solutions in MOBILIS cities

During the last decades, advanced ticketing solutions have seen a fast development in Europe: from the first machine-readable magnetic tickets in the 1960ies towards contactless smartcards, internet and mobile phone ticketing today. These systems have contributed to replace conductors by automatic gates, are able to count passengers and to record their travel behaviour and often offer additional, useful functionalities - like an electronic purse for example.

On the other hand, modern urban transport systems are meeting different challenges: passengers expect seamless ticketing, no matter which operator they are using or in which municipality they are entering the vehicle. In addition, new mobility services (carsharing, public bicycles, park + ride) need to be integrated into the pricing structures in order to enable seamless travel.

Ticketing solutions are a big market segment within the public transport sector – however ticketing means much more than more or less intelligent machines selling and validating tickets (what material they may exist of). In a multimodal and multi-operator environment, intelligent integrated ticketing is a key to user-friendly transport and fair share of revenues between operators.

Ticketing has technical and marketing/organisational aspects. The question of cost-effectiveness of electronic ticketing systems is an essential issue. On the one hand, it is difficult to calculate the benefits of such a scheme on the other hand many cities opt for it as they have to renew their old equipment anyway. As smartcards are not suitable for all types of ticketing (e.g. single ride tickets), so equipment for paper ticketing will be further maintained. However, it seems to be clear that the implementation of electronic ticketing is a financial burden for implementing authorities and a clearer view on benefits and costs would ease their decision.

The MOBILIS cities have shared their experiences in a workshop held in Toulouse in November 2007.

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Lessons learned and shared

Electronic ticketing systems offer various advantages for passengers, operators and authorities. They offer a comfortable and modern ticketing solution with useful additional functionalities. Operators and authorities get a clearer picture of passenger flows, helpful for sharing revenues between different operators and in terms of marketing and strategic planning. Also fraud can be reduced and the passenger flows can be made more fluent.

On the other hand, a smartcard e-ticketing solution also causes more complexity. Operators need to develop a new dimension of customer relationship and are confronted with more formalised processes. In some cases, the operators will also have to externalise their selling activities. For the Public Transport Authority, certain challenges concerning data management are to be expected, and contracts with operators will need to be amended (or even to be put on a new basis). For both, operators and authorities, it will be a challenge to include additional partners such as providers of new mobility services. In addition, full tariff integration, featuring a zone-model (or similar) and offering intermodality (in terms of fares) of all local transport must remain the main objective. Nowadays, many cities are experimenting with integrated ticketing as an option, mainly as daily / monthly e-ticket or as supplement to the standard (“monomodal”) single ride. It became clear that full tariff integration is only possible, where a unique authority, joining the forces of all municipalities / regional authorities and local operators in one region. Parity tariff integration based on e-ticketing can however be seen as an intermediary step making visible the potential impacts of full integration.

European standards in e-ticketing are an important issue, particularly in the actual framework of liberalisation and formation of European players in the public transport sectors. While International standards are existing (for example ISO 14443 for contactless smartcards and ISO 15693 for contact smartcards), national standards are developing in parallel, such as the CALYPSO standard in France or VDV core application in Germany, while Sweden and parts of Denmark have developed a common standard. Even though these national standards base on the ISO, it is difficult to assess interoperability under “real world conditions”. It has also been observed, that experts from different European countries are not well informed about the developments in neighbouring countries.

Finally, rapid technological developments require fast adaptation of standards – France just has seen the third standard within little more than one decade. There definitely remains some work on this topic, in order to achieve interoperability across Europe.

Technology trends in ticketing

Many developments occurred since the first magnetic ticketing system in 1968 to internet/mobile phone based services in 2007. During the last five years, technological trends have been rather stable, compared to the rapid development during the decade before. (Contactless) smartcards are the state-of-the-art product, while magnetic paper tickets are still in use and further distribution channels such as cellular phones and the internet gain importance.

On the market, maintenance / service contracts and PPP models play a bigger role, while “buy and go” solutions had been preferred in the past. So called “built-operate-transfer models” have become an option (sort of PPP).

A contractor designs and implements the system (providing own financing) and operates it for a certain time, receiving parts of the revenues to pay back investment costs. After this period, the system is transferred to the respective authority. Customers [authorities] expect value added services (e.g. smartcard distribution, system management or maintenance contract).

In the eyes of an industrial supplier, different factors are to be taken into account in terms of ticketing systems. Authorities and operators want to increase revenues from PT, renew outdated technology, and achieve interoperability (incl. further extensions). They also want to stay the key actor in such a project, while sharing financial risk and commitment with the private sector.

Toulouse

Various challenges and objectives led to the decision to replace the established ticketing system introduced in 1992 in the City of Toulouse. As the old ticketing system had reached the end of lifetime, large scale of the new infrastructures had to be equipped with a suitable ticketing system. Moreover, one of the main objectives of the new urban transport plan is to enhance intermodality and to provide improved services for users.

The project started in November 2004 and will be concluded in mid 2008. Operation already started in summer 2007 with the inauguration of the metro line B. The new product is called “carte Pastel“, different types are available (e.g. monthly travelcard, student ticket, concessionary fares for older people etc.). After 5 months, 330.000 cards have been disseminated.

The new contactless smartcard will fulfil high standards concerning interoperability and could be integrated in a multiservices card offering additional services, such as
motorway toll or university library card. The new system is also prepared to integrate the new public transport lines to be added to the system within the next few years (e.g., tramway line E). New technologies (Wi-Fi, contactless) also require a different organisation of commercial management, security (cashcard function), fraud prevention and maintenance of the new equipment.

But the introduction of contactless smartcards is also accompanied by changes for passengers and staff: customers have to familiarise themselves with a (partly) virtual ticket, customer support will be crucial for acceptance in the introduction phase. Also drivers and conductors will have to get used with new procedures and perhaps complex functions of the equipment.

Currently a marketing study is carried out within the MOBILIS project in order to know more about the travel behaviour of passengers, barriers to more intensive use and to develop new fares attracting new users or to rise customer loyalty. This will lead to different trials in terms of fares (combined tickets, new formats etc.) and new marketing approaches, such as individualised marketing.

Venice
The new contactless ticketing system I.MOB of the Venetian public transport operator ACTV will start operation in April 2008. As one of the first operators in Europe, ACTV will quit selling paper tickets from 2008 on (excepting on-board sales by salesmen on waterbuses). All public transport tickets will than be smartcard based. ACTV has two main sectors, waterborne and road public transport, serving 45 municipalities in four provinces.

When planning I.MOB, the main targets have been the interoperability of all tickets from different operators, the improvement and flexibility of pricing policies, to reduce fraud and fare dodging, to allow monitoring of user flows and management of data, to renew the ticket system and to contribute data to the Regional Permanent Observatory.

La Rochelle
With the pass’partout card, La Rochelle is offering a multi-modal urban transport card with a wide range of options: urban bus, regional trains, boats, taxis, park and ride, public bicycles (to be implemented), car sharing (to be implemented). The idea is to offer one ticketing solution for all sustainable transport modes in the La Rochelle area. Like other agglomerations, La Rochelle is offering a wide range of ticket options – partly paper based (magnetic), partly on contactless smartcard.

Tickets with validity shorter than one month are sold as paper tickets, season travelcards are smartcard based. The “classical” single-ride ticket is mono-modal, i.e. for urban buses only, however it can be purchased with a multimodal option.

All buses and boats are equipped with the same ticketing machines, allowing the validation of both magnetic tickets and smartcards. Also the two park and ride sites allow for both options. In SNCF trains between La Rochelle and Rochefort, a special “train + bus” offer has been created, also due to lack of interoperability of ticketing machines and tickets.

A particularity of the La Rochelle transport system is that season ticket holders are allowed to use taxis at a reduced fare (based on three zones depending on distance). There are no smartcard readers installed in taxi vehicles, passengers just show their season ticket.

The pass’partout 17 intermodal ticket allows to travel across the Charente-Maritime area with a single ticket, using different transport modes. A transport authority has been created, forming a tariff union. Four local authorities and six PT operators are involved in this authority.

There is a central server collecting all relevant data of the different operators, while the servers of the different operators also receive data from the central server. This allows interurban operators to accept urban passengers.

Smartcards can be purchased an reloaded at different points: There are 35 selling points, mainly in shops, but also the internet can be used from 2008 on to update contracts from home. In 2008, also 5 machines selling (and updating) the pass’partout 17 ticket will be installed.

Grenoble
In Grenoble, the decision to introduce e-ticketing was taken in 1999, for different reasons: old ticketing system had reached the end of lifetime, conversion towards the Euro had to be managed, to improve knowledge on user behaviour, to reduce fare dodging and fraud.

The scheme has been introduced in three steps from 2002 to 2006, starting with magnetic cards, than introducing contactless smartcards and finally introducing the “OuRAI!” card and making the system compatible with regional trains operated by SNCF. Total costs have been around 15 millions Euros.

At the moment, 150.000 smartcards are in operation,
to be used for 450,000 validations per day. Customers have familiarised themselves rapidly with the new system, the smartcard has a good image and fraud tends clearly downwards. More vending points could be introduced, new products (yearly travelcard) and new payment possibilities (cash card) facilitate ticket purchase. The Grenoble transport authority now knows much better about travel behaviour and also the cooperation between operators has been improved.

Objectives for the future are full integration of PT ticketing in the Rhône-Alpes region, an improved cooperation with intermodal services (bicycles, parking) and the integration of new technologies including new cooperation (e.g. mobile phone providers).

In the near future an integrated, zone-based ticketing system will be introduced for the Grenoble urban region (based on the “OùRA!” card) and a simplified tariffication urban transport / train will be developed. Also multimodal traveller information will be further developed, altogether serving the objective to double the modal share of public transport until 2012 (from 10% to 20%) and to triple the share of intermodal trips (4 to 12%).

Bremen

The different aspects of integration are an essential part of transport policies in the city of Bremen and its hinterland. The involved operators and authorities have particularly worked on optimised interchanges, real time information for all PT operators, integration between different modes (public transport with bicycle, carsharing and taxi) and regional tariff integration, serving 1.9 millions inhabitants and covering a surface of 8,500 km².

E-ticketing has been introduced in Bremen in 2001 and has been extended within the VIVALDI project (CIVITAS I), covering buses and trams in the three major cities within the transport authority’s area: Bremen, Oldenburg and Bremerhaven.

During the planning phase, different challenges and requirements had to be considered. Different operators had to be involved, the needs of different user groups (frequent, non-frequent users) has to be taken into account and finally, a convenient, easy-to-use check-in / check-out procedure needed to be defined.

In praxis, (contact) smartcards are used, while paper tickets are still largely available, particularly for single trip tickets. In order to purchase a ticket users have to insert their e-ticket into a terminal and select on the touchscreen the destination (or the fare zone, if known) and the number of passengers. From these terminals, data is radio transmitted to a central computer when the vehicle is returning to the depot.

Bremer Karte PLUS is a multimodal ticketing option, integrating a PT season ticket with a carsharing keycard, including further non-transport related functions (e-purse). This offer is particularly welcome among the approx. 4,500 carsharing users in Bremen.

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