The European IFM Project: delivering smartcard ticketing across borders

Topic 1: Co-modal urban transport management
Sub-topic E: Seamless pricing, ticketing and payment
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Abstract
The EC-funded European Interoperable Fare Management (EU-IFM) Project is designed to make access to public transport networks more user-friendly by facilitating their accessibility through smartcards. By 2015 compatibility in smart ticketing systems will ease access to all the users of public transport. The objective of the IFM Project is to provide travellers with shared types of contactless media throughout Europe. Whether a smartcard, and NFC-enabled mobile phone, or a USB-dongle, it can be used for multiple transport products (“tickets”) in different geographic areas and for sustainable modal switching, such as the use of “Park and Ride”. Today, most media are restricted for use in specific networks. Payment will no longer be a barrier to travel.

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There is a growing expectation across the European Community that interoperable smartcards will significantly lower the barriers to mobility, and encourage social inclusion, particularly amongst migrant workers or extended families. Smart ticketing, currently implemented on smartcards, can also be expected to encourage the use of public rather than private transport, contributing to a reduction of carbon emissions as well as speeding transactions and a reduction or elimination of paper tickets and the environmental impact they create.

Interoperable smart media can be expected to meet customer needs and further enhance the efficiency of public transport and its positive impact on the environment. Interoperability will make it possible to tailor the media to assist specific groups such as existing concessionary travellers, disabled passengers, benefit recipients or part-time or migrant workers as well as delivering overall improvements to the customer experience and reducing barriers to switching modes.

Europe has adopted the International Standard ISO EN 24014 as the global model to define the systems and processes required to manage the distribution and use of fare products in an interoperable Public Transport environment. The EU-IFM Project aims to build on this standard and create a European wide initiative dedicated to the establishment of attractive access to public transportation with modern fare management which is safe, secure, reliable and convenient for both users and operators. Once achieved, this may serve as a model for many further countries outside Europe faced with the need to strengthen the use of public transport.

Seamless customer accessibility to different public transport networks across Europe using smart media means that by 2015 we can expect that the access processes to the networks shall no longer be a barrier for the users of public transport; travellers being provided with common styles of contact-less media throughout Europe which they can use for loading and paying for multiple transport products in different geographic areas using a single media such as a smartcard, an NFC-enabled mobile phone, PDA or USB dongle..

The IFM project has been funded by the European Commission to date under the 7th Community Framework Programme for research and technological development, as the first step of the IFM initiative. It has worked closely with the UITP (Association of Public Transport Authorities) to develop an IFM Forum with wide-ranging attendance delivering consensus views and disseminating EU-IFM outputs.

Although multiple EU-IFMs will continue in parallel with the development of the single EU-IFM Application and Product Template, the benefits of the EU-IFM will be readily achievable. In particular the benefits from using a single media, with access through the downloading of local IFM Applications, will encourage customers to switch to Public Transport. The commonality of media (and CEN Specifications) will encourage Electronic Ticket Machines and other Manufacturers and Suppliers to build equipment capable of pan-European use and, through competition, major benefits in procurement costs.
Thus initially there will be islands of major IFM schemes across Europe, each benefiting from complementary Specifications built on common EU Standards. This, together with the evolution towards common interoperable media hosting multiple applications, will bring IFM to the citizens’ attention. The benefits will be increased Modal Switching, increased pressure for access to mobility, and societal switching from private cars to Public Transport.

The EU-IFM Project has identified valuable benefits for using multi-application media to enlarge interoperability across Schemes:

- Coexistence of multiple ticketing applications on the same media is the most cost effective and immediate way to enlarge interoperability.
- It enables every participating IFM to keep on using its existing local applications and products, but available on a much broader range of media.

In conjunction with the IFM Forum, a demonstration was carried out in May 2010 to load a French Calypso Application and a UK ITSO Application onto a multi-application card issued by VDV in Germany. The card was loaded with Transport Products from all three IFM Schemes and successfully demonstrated on their respective ticket machines / validators. Each schemes’ individual security was maintained throughout and without the need to share security keys. This demonstration proved both the feasibility and practicality of the first step of IFM project based on a multi application media approach.

Within any Project using customer’s own media across borders, the protection of the customer’s privacy is an ethical requirement of confidentiality, un-linkability, un-observability and anonymity. A low level of protection not only could be punished as a violation of the law but would damage customer acceptance.

The Project has prepared a Charter oriented to defend the following principles:

- Anonymous accessibility
- Protection against risks of abusive use of personal data from applications in the media
- Protection against risks of abusive use of personal data by staff
- Protection against risks of abusive usage of abnormal events
- Protection against risk of abuse of direct marketing tools
- Protection against risks of hacking and criminal use of personal data in back-offices
- Protection against risks of uncontrolled dissemination of identity data

Customers’ trust will depend from the initial development of the interoperable offer and from the quality of users’ interfaces (transaction speed, man-machine messages in the customer’s own language, etc). The customer offering is critical to the success of IFM.

There is already outline agreement from a number of National and Regional IFM in Europe to join and create an IFM Alliance. This organisation will progress towards contractual agreement and initiate the technical steps necessary to create the EU-IFM.

In addition to these Public Bodies, the IFM implementation will also appeal to major Transport Companies (road, rail, ferry etc) who will be setting their own commercial strategies to utilise smartcards, potentially paralleling (and utilising at marginal cost) the national IFM Schemes. This will encourage equipment and system developers and integrators to design pan-European solutions based on EU-IFM architecture and standards and reduce the incidence and proliferation of bespoke solutions.

Engagement will be necessary with all actors at the strategic, technical and commercial level.
The most significant non-business drivers are those associated with Social Inclusion and Mobility, with the encouragement of Modal Switching in support of a Carbon Reduction policy. EU-IFM will significantly reduce barriers for car drivers and encourage a switch to Public Transport for part or all of their needs regardless of their location within the Community.

The Long Haul supports both long-term aspirations for full pan-European compatibility and to reduce the costs barriers and time-line to implementation for small Schemes still to adopt interoperable smartcards.

The initial objective of the European-funded EU-IFM Project was to develop a structured road map towards this Europe-wide concept by providing Transport authorities of the Member States with a toolset to build new fare and distribution agreements in order to progressively implement EU-wide Interoperable Fare Management. This has now been completed and delivers standardised specifications for non-proprietary open platform and application benefiting from easiest procurement with scale economics together with the associated EU security and back office interactions.

The objective of the EU-IFM Project is not to reduce competition, but to encourage co-operation and commonality between Schemes and ensure the smart media used are complementary, interoperable and capable of multi-application use. Together the EU-IFM Project CAN deliver seamless ticketing and payment across borders and across Europe.

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December 2010