PROJECT

TELEPAY

Telepayment System for Multimodal Transport Services using Portable Phones

Funding: European (5th RTD Framework Programme)
Duration: Jul 2001 - Dec 2002
Status: Complete with results

Background & policy context:

Easy payment systems are the backbone of seamless intermodal solutions in Transport. User-friendly payment systems are crucial for customer-oriented, cost-effective transport operations. Therefore public transport operators tend to set up Contactless Smart Card based ticketing systems. Due to the relatively high price of the Smart Card itself, such systems are however only cost effective for multi-ride and season tickets to be used by regular customers. Single tickets or in general low value ticket are still combined with magnetic stripe technology. Both systems need an infrastructure with costly maintenance.

The main interest of TELEPAY concept is to reduce those costs by providing a complementary low-cost solution for occasional users. TELEPAY project contributed to the implementation of Mobile Phone based payment in public transport by developing scenarios using different technologies and by trialling some of these solutions.

The TELEPAY concept is based on an intelligent innovative combination of wide spread technologies (GSM/SMS, GSM/WAP, GPRS, Bluetooth) applied to a new application. The omnipresent availability of cellular phone network infrastructure in Europe has been used to innovate payment for transport services and to innovate access to Public Transportation and other transport services. TELEPAY project achieved with success his objectives by providing valuable results such as the technical and commercial assessment of TELEPAY concept, the comparison of the different implementation approaches and the production of a set of recommendations and model contracts.

Thanks to the excellent cooperation between partners, all activities succeeded and especially trials which demonstrated as well the technical performances and high level of user acceptance. These very encouraging findings lead to consider the great potential of TELEPAY concept to improve quality and effectiveness of transport services such as public transport and motorway tolling.

Objectives:

Main objectives of TELEPAY project were as follows:

- Establish the technical, legal and commercial feasibility of a purchase and payment system for virtual 'e-tickets' through mobile phones, using SMS, WAP and short range communication technologies,
- Present a Europe-wide harmonised payment means for tolling applications,
- Promote the adoption of wireless devices as a payment means for transport services,
- Propose different test sites across Europe; Berlin, Rome, Turku and Paris Ile de France,
- Test the access to closed transport systems (e.g. opening barriers and/or turnstiles) using short range communication based terminals.

Methodology:

The work was organised in six work packages (WP) in addition to the project management (WP1) as
briefly presented in the table below WP1 Project management.

**WP2 Definition of User Needs:**
- To identify needs, requirements and limitations for both end user and intermediate user
- To compile a comprehensive user needs overview
- To identify services to be implemented

**WP3 System Specification**
- To define the system requirements and the common core architecture as a basis for the system specification in the different trial sites

**WP4 Legal & Operational Framework**
- To investigate the legal framework of the use of mobile phones as means of payment in multimodal applications in the EU
- To determine the kinds of contracts that must be established between the actors of such system

**WP5 Trials**
- To implement and test different configuration of the TELEPAY system in the four different test sites, Berlin, Rome, Turku and Paris IdF
- To provide the necessary data for the evaluation of these trials (WP6)

**WP6 Evaluation**
- To design and perform a comprehensive evaluation of the test sites performances
- To produce a synthesis, presenting recommendations for setting up this kind of service
- To produce a conclusive Technology Implementation Plan

**WP7 Dissemination and Exploitation**
- To produce a Dissemination and Use Plan
- To perform the actual dissemination actions.

**Evaluation Methodology:**

The evaluation process will cover all the involved players: travellers, PT and motorway operators, telecom operators. Two kind of data will be collected for the evaluation:

1. Technical data regarding usage that will be stored by the TELEPAY hardware: number of transaction, percentage of failure will be the minimum data collected by all sites.... These data will be used to derive technical feasibility indicators.
2. Data regarding usage that will be collected by surveys among TELEPAY users, PT operators and telecom operators. These data will be used to derive satisfaction indicators, expectations regarding service efficiency and ease of use as well as expectations regarding the future system on the operators side.

**Parent Programmes:**
**FP5-IST KA1 - Systems and services for the citizens**

**Institute type:** Public institution

**Institute name:** European Comission, DG Information Society

**Funding type:** Public (EU)

**Partners:**

EU
- ERTICO (European Road transport Telematics Implementation Coordination Organisation S.C.R.L.);

Italy:
- ATAC (Agenzia per i Trasporti Autoferrotranviari del Comune di Roma);

Germany:
• BVG (Berliner Verkehrsbetriebe A o R);
• SIEMENS AG;

Finland:
• JLT (Turku Kaupungin Joukkoliikenntoimisto - Turku City Public Transport Office);
• MTC (Ministry of Transport and Communication);
• TRAFICON Ltd;

France:
• COFIROUTE (Compagnie Financière et Industrielle des Autoroutes);
• EUROLUM;
• SETEC ITS.

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Key Results:
The main results of the project were:

• The assessment of the technical and commercial feasibility of using portable phones for the payment of transport services.

• A comparison of the different approaches for payment using GSM demonstrated in the different TELEPAY test sites. This comparison included all important aspects such as technical feasibility, user acceptance, ease of use, business case, legal and institutional appropriateness.

• The production of different model contracts (as guideline for other operators wanting to set up the system) describing the contractual relations between all concerned partners (transport operator, telecom provider, financial institution, Authorities...) in different constellations. The work performed in TELEPAY project and described in the previous chapter has successfully led to key results as follows:

  ◦ Result 1: Technical and commercial feasibility assessment. The assessment of the TELEPAY ticketing and payment concept has been performed first by defining the functional requirements of the system, then by elaborating the relevant system architecture exploited by the different test sites for the implementation and the operation of trials, and finally these trials provided results that have been analysed regarding evaluation indicators
  ◦ Result 2: Comparison of the different payment approaches.
  
  Regarding the trials performed in the four test sites as described in the next sub chapters, the comparison of the different approaches was based on the assessment categories as follows:
  - Economic Viability
  - Service Provision
  - Policy implications

Overall, the four test sites showed the TELEPAY project as a real success. The technical as well as the human evaluation of the project was highly positive. Thanks to a very reliable implementation of the service, users showed a genuine interest in and contribute to make TELEPAY a best practice. The different trials have succeeded in assessing the technical and commercial feasibility of the TELEPAY concept for ticketing and payment of transport services.

A major finding is the high level of user acceptance and a very explicit output is the decision of Turku Transport Authorities to continue the TELEPAY service on a commercial base.

Another important result of the project is the comparison of the different TELEPAY implementation approaches adopted by the test sites.

These differences in implementation cover not only technologies (GSM/SMS/WAP, GPRS, Bluetooth), but also public transport organisation (open / closed network), transport
services (public transport / road tolling) and service organisation (transport operator only / transport operator + telecom operator / transport operator + telecom operator(s) + service provider).

Last but not at least the TELEPAY project pushed in Germany the discussion how to use mobile phones in mass transit / public transport. The VDV (Verband Deutscher Verkehrsunternehmen, Association of German Transport Companies) established now a working group 'Mobile Ticketing' and is studying how the HandyTicket (product name of TELEPAY in Germany) can be used within in the Electronic Ticketing.

Finally, a set of recommendations and model contracts will provide an efficient and valuable support to transport operators who intend to implement such innovative ticketing and payment service using mobile phones. Outlook From the results of the project and the experience gained during trials, several issues have been identified and need to be addressed for a future EU-wide implementation of TELEPAY concept:

- Legal Framework
  - Adaptation and harmonisation of legislation with mobile telecommunication and mobile payment for a EU-wide service Operational Framework
  - Extension of roaming to value added services to make the TELEPAY service independent from localisation and telecom operator
  - Improvement of payment means by giving more choices to customers (phone bill, direct debit, credit card...)
  - Development of micro-payme

**Related Projects:**

After being made operational in the Finnish city of Turku, the TELEPAY concept has now also been turned into reality in Rome. Indeed, ATAC has used the project’s innovative payment system to launch its own similar service in Roman buses and trams (electroBIT). The e-ticketing system was launched by ATAC, the government-owned company responsible for public transport service in Rome. ATAC, which is in charge of managing the Metrebus regional integrated fare system, was a partner in the TELEPAY project.

Launched on 10 April 2005, the electronic ticketing system allows users to buy public transportation tickets with their mobile phones by sending a text message (SMS) to a special number. ATAC’s service, which is also called TELEPAY, uses an SMS as a transport pass including information about the date and hour of emission, validity and security code for conductors.

The ticket cost – one euro plus the cost of the SMS – is charged to the user’s credit card or a pre-paid card. (more information on [www.atac.roma.it](http://www.atac.roma.it) - Fares & Tickets -TICKET PURCHASE BY SMS).

Several mobile payment related projects have been supported by the EC recently:

- The Secure Mobile Payment Service (SEMOPS - [www.semops.com](http://www.semops.com)) aims at developing a universal, standard-compliant open mobile payment system that will be able to handle national and international, micro, mini and macro payments. Privacy, security, trust, openness and flexibility are driving forces of this approach. The open business model is based on the cooperation MNOs and financial service providers such as banks.
- The Secure Mobile PAYments and Services On Chip (Sm-PaySoc - [www.smPaymentsoc.org](http://www.smPaymentsoc.org)) aims at realizing mobile and trusted secure access to information services by developing a novel smartcard-based service platform that allows the mobile fruition of services such as mobile payment.
- @DAN stands for '@DvANced and high secure mobile platform to support the digital economy’ and is another European Union project that develops a PC-based platform for applications based on digital signatures and secure payment over UMTS handsets. Currently there are several efforts at the European Union (EU) as well as international level in order to support and accelerate mobile payment solutions. Towards this end the following consortia have aroused:
  - Mobile Network Operator driven: Simpay ([www.simpay.com](http://www.simpay.com)), Starmap Mobile Alliance, GSM Ass

**STRIA Roadmaps:** Smart mobility and services
**Transport mode:** Multimodal transport
**Transport sectors:** Passenger transport
**Transport policies:** Digitalisation, Societal/Economic issues
**Geo-spatial type:** Other