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POLICY LEARNING IN INFORMATION TECHNOLOGIES
FOR PUBLIC TRANSPORT ENHANCEMENT

GOOD PRACTICES – PUBLIC TRANSPORT AND/OR MULTIMODAL INFORMATION SYSTEMS

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MOBILE TRAVEL INFORMATION

General information

Description

Although significant emphasis is put on securing quality of public transport in Aalborg, delays do still occur, and sometimes passengers report feeling uncertain if the bus is delayed, or if they themselves arrive too late at the bus stop. Uncertainty about planned and actual departure times and the location of bus stops are some of the barriers that discourage potential passengers from using public transport. The availability of Real Time Passenger Information prior to getting on a bus and on board information (via screens. At the same time the systems contribute to improving the image of public transport as a modern means of transport and thereby helping public transport to appear as an attractive alternative to car use. In this measure, a mobile portal for public transport has been developed, including a set of Location Based Services (LBS) for mobile phones (based on the mobile phone' GPS).

The LBS includes Real Time Passenger Information (RTPI) from 30 nearest bus stops selected from the present GPS position, and a 'Take Me Home' service that gives the user a combined walking and PT trip from their present GPS position to your predefined Home address. It achieves this by integrating the GPS position, and saved user information, with the national Journey Planner.

The complete IT infrastructure for delivering RTPI including busPc and back offices system with prognoses algorithms in Aalborg were planned as part of EU project VIKING and implemented during the CIVITAS I VIVALDI project.

As part of the VIVALDI project, RTPI was implemented on 40 variable message signs (VMS) at major bus stops in Aalborg. The information has proved to be of great benefit for public transport users and as a consequence is helping to maintain uptake of public transport, although it does only cover the most important bus stop in Aalborg. Equipping bus stops with VMS is very expensive and is therefore only

possible for major stops with a high customer flow. But in Denmark, almost everyone aged over 8 carries a mobile phone. So by using these mobile phones as VMS for RTPI, the information is spread to all people and all bus stops; the investment is taken up by the users and the technology is always kept up-to-date. As a consequence of this, a mobile service was implemented as part of the EU MIDAS project. This service was menu based prompting the user to choose in a three level menubefore the RTPI were presented. In this way, it was possible to get round the two problems of the customer not knowing the precise name of the bus stop, and the difficulties of keying long names on a mobile phone.

As an even better solution it is now possible to skip the menus and present the user for RTPI based on the users GPS position. As a parallel, an interface to the national Journey Planner have been develop, where keying in is substituted by either GPS positions or predefined locations. The approach used in ARCHIMEDES provides information in a convenient manner that is expected to increase user satisfaction among present users and potentially attract new users to public transport including tourists unfamiliar with the public transport system, thereby expanding the market for public transport.

The measure introduces three different new public transport mobile phone features. The first feature is “NTmobil.dk”, which is a mobile phone platform integrating different PT mobile services. The second feature is a Location Based Service that provides RTPI via mobile phone on the nearest bus stops, based on GPS. The third feature is the “Take Me Home” feature based on GPS data, that saves user data and the National Journey Planner provides the user with public transport information.

Specification of NTmobil.dk

The mobile platform **NTmobil.dk** is a platform where mobile phone users can access a range of mobile PT features such as buying a SMS ticket, getting RTPI information and accessing personalised travel information created via ARCHIMEDES measure 9 ‘Modernizing travel information’. With the fast technological development of mobile phones it is expected that NTmobil.dk will be further developed along with the change in technological possibilities and user needs.

The first possibility is the RTPI system NTLive that allows passengers to check if buses are on-time and to get information on eventual major changes or disturbances such as heavy snow.

The second possibility is the Mobile ticket, allowing the passenger to buy a ticket via the mobile phone by sending a text message.

The third possibility is Rejseplanen, ‘the National Journey Planner’ offering the user journey planning information with access to all public transport in Denmark supplemented by map based walking instruction from address to bus stop.

The fourth possibility is an integration of functions based on personalised travel information from MitNT (ARCHIMEDES measure 9). For example, actual real time information and disruptions for the users preferred routes and bus stops.

Last but not least, the menu item NTertainment offers different forms for entertainment to the passenger during travelling.

Specification of the GPS based RTPI

The NTLive JAVA application is an expansion of the functionality and an improvement of user interface of the HTML based mobile phone RTPI system. The LBS includes RTPI from 30 nearest bus stops selected from the present GPS position.

At the present it is not possible to access the mobile phones GPS from a build-in browser.1. To reach the goals for this task, it has thus been necessary to develop a

JAVA application, even though it is still generally accepted that having to install an application constitutes a barrier for many customers. Fortunately, this barrier is less significant for the target group for this task, mostly being young people.
When using the JAVA application, the application uses the phone' GPS to position the user. The 30 nearest bus stops are found and presented to the user – sorted by closest first and with an option to see all stops on a map instead. When a bus stop is selected, the RTPI from this stop is shown for the next 50 departures with an option to see even more. Off course it is still possible to choose a stop or a terminal further away by typing in the name. The time displayed is the scheduled departure time, supplemented with any eventual delay in minutes. Times marked with * mean that the bus has not yet started driving, so no real time information is available. After having selected one departure you can click the departure time and see the whole trip for that bus, with prognosis for the rest of the trip.
All buses running for the day and the next can be shown on the departure board. Of course, RTPI is only relevant for an hour or so forward, but as planned departure times are shown for the next day, people tend to use the mobile phones as a replacement for a printed timetable.
The service is free except for ordinary data traffic costs which are very low in Denmark.

Specification of the "Take Me Home" Feature

The 'Take Me Home' service is another menu item in the java application. This function gives the user a combined walking and PT trip from present GPS position to the users predefined Home address. It achieves this by integrating GPS positions and saved user information with the national Journey Planner.
To start, the user would define their home address in the programs settings. When journey advice home is required the user would just need to push the programs 'Take Me Home' button. The program will then find the three first possible public transport journeys from your present GPS position to your home address from the national journey planner, including possible walking trips to and from the bus stops.
Due to the national journey planner containing data on all public transport and all bus stops and train stations, this function can take the user home from anywhere in Denmark. Of course, if required the user can choose another destination than Home, or a later departure time than Now'.
Besides using the program pre-trip to find the right PT journey, integrating the GPS in the program's search makes the program a good help on-trip. If PT is delayed or interchanges between buses or train fails the GPS based search from current position is a fast and reliable way to reschedule your trip.
This GPS based 'Take Me home' function is expected to significantly lower the barrier against using public transport among infrequent PT users.

Backround and Context

The measure introduces three different new public transport mobile phone features.The first feature is "NTmobil.dk", which is a mobile phone platform integrating different PT mobile services. The second feature is a Location Based Service that provides RTPI via mobile phone on the nearest bus stops, based on GPS. The third feature is the "Take Me Home" feature based on GPS data, that saves user data and the National Journey Planner provides the user with public transport information.

Policy design details

Policy Design Steps and Timing

This task have been planned and implemented by a working group consisting ofARCHIMEDES' measure leader, two members from Nordjyllands Trafikselskab (NT) (Public Transport Authority of North Jutland) and a planner from the Department for Sustainable Development of the City of Aalborg. Within the working group, ideas were discussed, the solution designed and the project has been implemented.

The planning started in the winter 2008 and the strategic decisions were taken during 2009. Different possibilities for the framework were discussed. It was decided to subcontract with an IT company for the mobile portal. A decision was taken to work with the National Journey Planner Cooperation (Rejseplanen A/S) on the GPS based RTPI and the 'Take me Home'function, since this would offer the best end-user product. The National Journey Planner Cooperation, owned by the Public Transport Authorities in Denmark, was ready to implement an application with similar GPS function to what was described in the full ARCHIMEDES project description as a goal for this measure. Therefore, it was decided to benefit from thesynergy effects by building upon this National Journey Planner service and implement RTPI for the bus users in the Journey Planner.Different features of the measure were discussed and it was decided to focus on the three features:

1. the development of the mobile platform "NTmobil.dk";
2. the Location Based Services providing RTPI via mobile phone on the nearest bus stops, based on GPS;
3. the "Take Me Home" feature for mobile phone based on GPS data and the National Journey Planner.

Actors Involved

ARCHIMEDES is an integrating project, bringing together 6 European cities to address problems and opportunities for creating environmentally sustainable, safe and energy efficient transport systems in medium sized urban areas.

The two Learning cities, to which experience and best-practice will be transferred, are Monza (Italy) and Ústí nad Labem (Czech Republic). The strategy for the project is to ensure that the tools and measures developed have the widest application throughout Europe, tested via the Learning Cities' activities and interaction with the Lead City partners.

The four Leading cities in the ARCHIMEDES project are:

- Aalborg (Denmark);
- Brighton & Hove (UK);
- Donostia-San Sebastián (Spain); and
- Iasi (Romania).

Decision Making Process

All information are included in "policy design steps and timing"

Implementation details

Implementation Steps and Timing

The mobile platform, NTmobil.dk, included a slight makeover of the mobile phone RTPI system, originally from the MIMOSA project, which had been launched early in 2010. The 'Take Me Home' and the new GPS based RTPI were launched as a java application in October 2010. Migration of the functionality to HTML5 is expected to be launched in the next phase.

Human Resources

Number of staff: 2 – 3. However, larger number of staffs tested solutions.

Monitoring Procedures
It is monitoring how many people downloaded application.

Supporting Mechanism

Awareness/Information Campaigns
Communication has been important for this measure with a consistent layout and the gathering of the different features on NTmobil.dk.
The marketing of NTmobil.dk started in spring 2010. The marketing campaign consisted of flyers posters and magazine advertisement introducing and explaining NTmobil.dk. The information screens in the buses are also being used to advertise for the mobile phone features. In addition, advertisement for NTmobil.dk was placed in the introduction handbook for the new students in September 2010. As for the marketing of NTLive and the Take Me Home feature, those were a part of the overall marketing of NTmobil.dk. In order to test new information channels ARCHIMEDES recorded 3 small humorous campaign movies featuring the Take Me Home function, to be played on the information screens in the buses and to be promoted on YouTube.com. The most common way for users to get the JAVA application will be from the websites of NT, the City of Aalborg and Trafikken.dk/Nordjylland (measure 9) or the journey planner website, Rejseplanen.dk.
Partnerships/Key Supporting Stakeholders
Public Transport Authority of North Denmark.

Results

Quantitative Results Achieved
More than 3.000 people have downloaded the JAVA application.
Qualitative Results Achieved
Aalborg has following expects from this measure: increased levels of satisfaction among public transport users and an increase in public transport usage.

Key Considerations

Lessons Learned
The big challenge in this measure is the speed of technological development when it comes to mobile phone applications. When including the GPS dependent mobile phones functions in the proposal for a FP7 project, this was very innovative and ambitious and there was even reasonable uncertainty, if it would be possible to develop such a function in the project period. But with the launch of the iPhone and Android, and the open programming interfaces associated with these systems, some of the GPS based journey planner functions is already being created by third party developers, as for example private talented young people.
Critical Success Factors

- "NTmobil.dk", which is a mobile phone platform integrating **different PT** mobile services.
- User friendly application on mobile phones.
- Availability of real data time.
- Good information campaigns.

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