GOOD PRACTICES – PUBLIC TRANSPORT AND/OR MULTIMODAL INFORMATION SYSTEMS

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ON-BOARD BUS TRAVEL INFORMATION

General information

Description

Although priority is granted to public transport in Aalborg, delays do still occur and passengers still miss their connections. Uncertainty about departure times and possible problems in reliability prior to and on public transport trips are some of the barriers that can discourage potential passengers from using Public Transport. On-board information on delays and connections, and access to the same kind on information prior to entering the bus (via mobile phones ARCHIMEDES measure 68) is expected to lower these barriers and give the traveller "peace of mind". Another benefit is that the system contributes to improving the image of public transport and thus helps public transport to appear as an attractive alternative. In this measure, on-board information screens have been implemented on 100 city buses at Nordjyllands Trafikselskab (NT - Public Transport Authority of North Denmark). Information on the current journey (e.g. up-coming bus stops and overall destination) as well as information on connections and traffic information as changes in routes or cancellations will be shown. The information on the flat screens is based on NT's Real Time Passenger Information system (RTPI). The screens show information on the current trip as the destination for the trip and the three upcoming bus stops. News, weather forecasts and advertisements are shown in between as well as simultaneously with public transport information. In addition transfers and connection information will be shown in the next phase. Of the 100 city buses, 50 buses operating in the CIVITAS corridor are financed with the support of ARCHIMEDES, whereas the remaining 50 city buses are financed by NT. The ARCHIMEDES project contributes to the purchase and installation of flat screens as well as the upgrading of the bus computer system to handle data for the flat screens.

Backround and Context

The measure aims at installing and providing information on screens in 100 city buses in Aalborg. These information screens show information about the current trip with the upcoming bus stops and the overall trip destination as well as other services such as traffic information, news, weather forecast and advertisement.

Policy design details

Policy Design Steps and Timing

The planning and pre-data collection phase started in winter 2008 with a working group consisting of the ARCHIMEDES' measure leader, two people from Nordjyllands Trafikselskab and a traffic planner from the Department for Sustainable Development of the City of Aalborg.

In 2009, NT initiated a pilot-project on one selected bus line to test the system and to Rather user evaluations as input to the final system. The pilot project consisted of installation of software and two flat screens in each of 6 buses on the bus line starting in the end of June 2009.

After the pilot project, experiences with the user interface and the passengers' acceptance were collected with the help of a questionnaire that was conducted in November 2009 to which 368 people responded. The respondents showed a very positive attitude towards the information screens. Key results from this survey were as follow:

- 88% of the respondents liked the information screens;
- 87% of the respondents found it positive that news and advertisement were shown as a supplemental to the traffic information;
- 91% supported the method of providing traffic information on screens in buses;
- 90% thought that the information screens were a service improvement;
- Only 15% prefer announcements of the next bus stop via loudspeakers instead of the screens. (40% would prefer the information both via screen and loudspeakers, whereas 50% would like only to have the screen information).

Combining on-screen announcement with loudspeaker announcements of central bus stops was consequently chosen as a solution to the dilemma of infrequent travelers – or elderly and disabled people - wanting this information and frequent users wishing to avoid this auditory disturbance. In addition to evaluating the user interface, the pilot project provided experience in the operation of the screens, including the timing of passenger information and the combination with other types of information. Based on these experiences, specifications for the on-bus information system were incorporated into the tender for public transport in Aalborg. The new contracts become effective from end of June 2010 and by September 2010 the system was implemented on all 100 buses.

In the contract the responsibility for keeping the system running is shared between NT and the bus operators (Arriva and CityTrafik). The operators install and maintain the screens in the bus and are paid a dedicated amount for this. NT delivers the centralised and decentralised system which manages the content of the information.

An interface was created that allows RSS news to be read by the BusPc and integrated on the screens. Agreements were reached and contracts signed with the local media concerned with the delivery of a special bus RSS newsfeed consisting of the normal news feed tailored for use in the bus, where for example links are removed. The RSS feed is delivered once an hour to the buses via GPRS communication (data communication over a mobile phone network).

The commercials are delivered from an advertising company in the form of readymade JPGs, WMV or other standard file formats. Communication is over GPRS. All files are transferred during bus start-up and new files that are released during the day are transferred to the buses 'on the fly'.

Decision Making Process

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

Implementation details
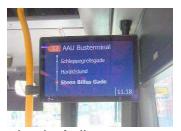
Implementation Steps and Timing

Installation of the two information screens in each of the 100 city buses was finished in September 2010. There were still a few minor software problems; however it was expected that all the information screens will be running without problems from the end of October 2010.

ICT/Infrastructures needed

Information screens are installed in 100 city buses and on each bus there are two flat screens. The supplier uses the term ´infotainment´ as a description for the screens that display information as well as entertainment. Infotainment is one part of a fully integrated information solution based on a central databases providing real time public transport information.

The screens are divided into three parts (figure below):

Source: Deliverable: T69.1 On-trip Bus Traveller Information in Aalborg

- The top line shows the final destination and the present time.
- The middle part shows changing types of information.
    - One third traffic and general information from NT and the City of Aalborg

Source: Deliverable: T69.1 On-trip Bus Traveller Information in Aalborg
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    - One third news and weather forecasts

Source: Deliverable: T69.1 On-trip Bus Traveller Information in Aalborg

Source: Deliverable: T69.1 On-trip Bus Traveller Information in Aalborg

- One third public and commercial advertising

Source: Deliverable: T69.1 On-trip Bus Traveller Information in Aalborg

- The bottom part shows the next three bus stops.

Human Resources

Number of staff: 2 – 3. However, larger number of staffs installed screens in buses.

Monitoring Procedures

For the evaluation, a questionnaire was conducted in November 2010. The questionnaire undertaken will be similar to the one that was conducted in 2009. The goal was to make a comparison to the first questionnaire to and evaluate if the changes made in the final system have further improved satisfaction with the user interface and the passengers' acceptance.

Supporting Mechanism

Awareness/Information Campaigns

In a press release NT announced that "all of Aalborg city, metro and service buses service will be equipped with information screens and real time passenger information" (NT press release, 22.1.2010).

The local radio channel (P4) brought a short story about the information screens in the buses.

In month 27 of the ARCHIMEDES project (November 2010) a SMS competition with riddles will run as a campaign on the screens to attract attention to the screens and in this way to disseminate the knowledge of the screens.

In addition, four large screens showing similar information have been set up in the waiting room of NT.

Partnerships/Key Supporting Stakeholders

Public Transport Authority of North Denmark.

Results

Quantitative Results Achieved

Installation of the two information screens in each of the 100 city buses.

Qualitative Results Achieved

Increased user satisfaction.

Passengers satisfaction.

PT companies image improvement.

Key Considerations

Lessons Learned

The on-bus information system is an information channel whose prime function is to deliver existing Real Time Information on next bus stops etc. to the passengers. The success or failure of the system is therefore dependent on the reliability of the underlying RTPI system and the quality of the information in the system. As NT has a clear IT strategy for these matters and has been deliberately working on the data and IT infrastructure for some years, this has not been a problem in Aalborg. But attention has to pay to this issue.

Primary Obstacles

Securing a satisfactory uptime for the system can be challenge, especially in the technically demanding bus environment. A clear division of responsibility for the different parts of the system is a prerequisite for success. In Aalborg, NT is responsible for the busPc and the software where as the public transport operator is responsible for the uptime of the screens. This is a natural and sound division as it is the operator's employee, the driver, who is the first person to identify when the screens are not running.

As the system is an information system first, and a news and entertainment system second, it is important that the responsible organisation (the City or the Public Transport Authority), deliberately sets up the scheme so that information provision takes priority over news /entertainment. In Aalborg it was decided that the route destination and next stops should be shown all the time and that one third of the screen time should be reserved for traffic information.

During the project using sound on commercials and news was considered. It was decided to begin with a silent solution and to later test the impact of adding sound. In the meantime, experiences from a parallel system in the urban commuter rail system in Copenhagen have shown great discontent with the use of sound.

The final system became rather complex with a lot of parties involved (contractors, news providers, advertisement agencies, NT etc.). Therefore responsibility must be kept clear and internal and external interfaces must be open and simple. This requires a clear strategy and the willingness to simplify the system and keep traffic information the focus, if necessary.

Critical Success Factors

After the pilot project, experiences with the user interface and the passengers' acceptance were collected with the help of a questionnaire which 368 people responded. Project was conducted with strong relations with public transport users.

Transferability Considerations

It is possible to transfer the solutions to other sites. Although many requirements can be met.

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