EBSF, The European Bus
System of the Future

Use Cases

BUDAPEST   MADRID   GOTHENBURG   BREMERHAVEN   BRUNOY   ROME

ROUEN

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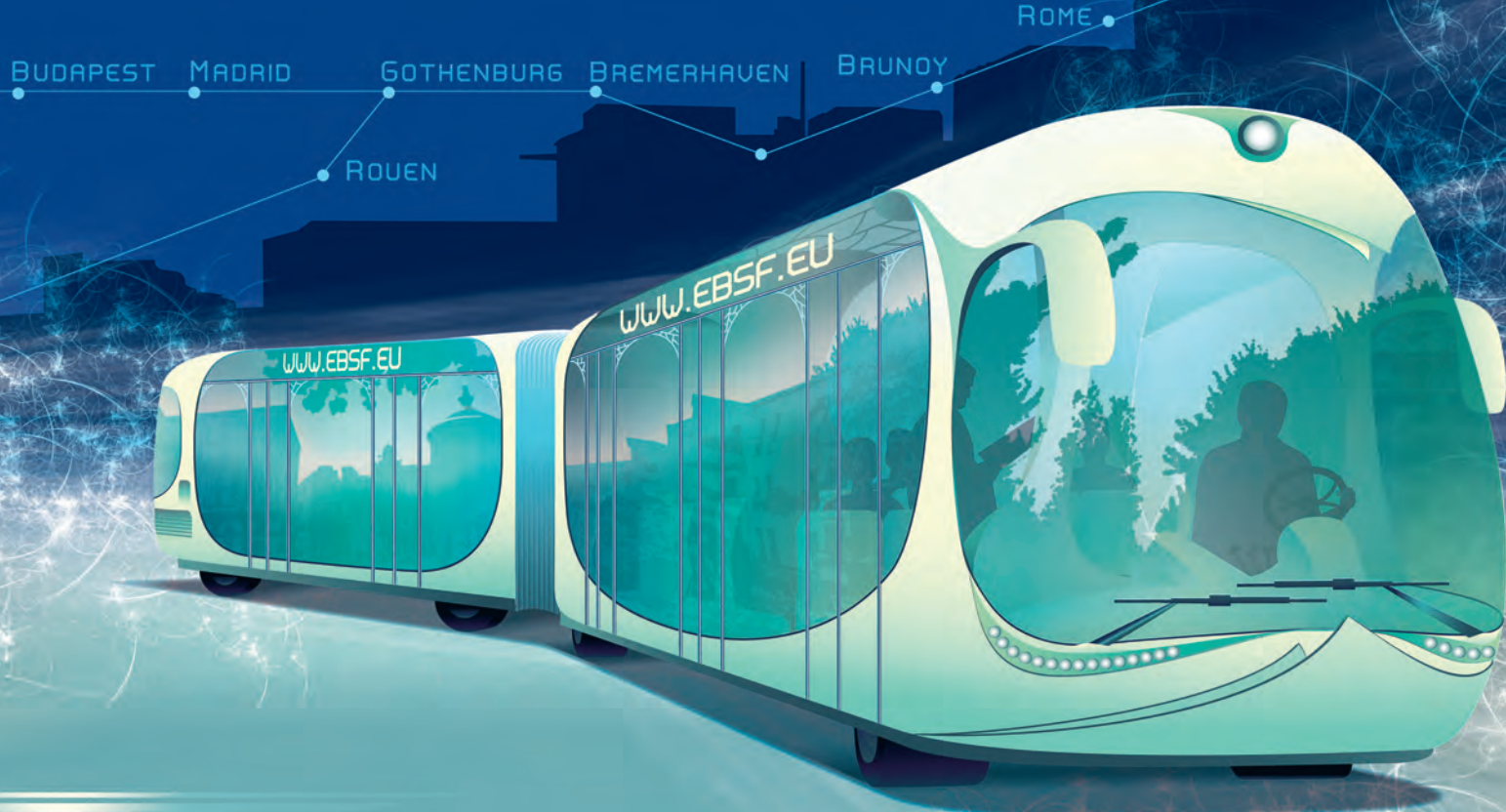
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EBSF project partners in the framework of the activities of the Sub-Project 4 *"Validate, Evaluate, Disseminate and Exploit".*

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Design
http://charlottelambert.net

THE EBSF Use Cases

EBSF aims at developing a new generation of urban bus systems adapted to the specificities of the European cities; the project acts as a driver to increase the attractiveness and raise the image of the bus systems in urban and suburban areas, by means of developing new technologies on vehicles and infrastructures in combination with operational best practices.

EBSF does not look at the vehicle in isolation but as one of the elements integrated in the whole bus system together with infrastructure and operations; such logic, called "the system approach" is the methodology applied by the Consortium. This system approach reflects also the functional integration of the main bus system stakeholders: the organizing authorities and the municipalities; the operators and the bus manufacturing industry.

Main targets of EBSF
- Innovative bus system definition
- Breakthrough design of vehicles, infrastructures and operations".
- Strengthened competitive position of the European bus manufacturers
- Boosting European research and development for urban bus networks
- Setting-up the frame for harmonisation and standardisation of the EBSF solutions

Test and evaluation
The innovations developed are tested by seven Use Cases in real operational scenarios in order to evaluate the added values of the new solutions vis-à-vis the existing status.

Each city is testing specific solutions to a specific problems:

Bremerhaven, Budapest, Brunoy, Gothenburg, Madrid, Rome and Rouen.

In 2012, at project completion, operators, public authorities and suppliers will receive guidance via a set of Recommendations on how to implement attractive and efficient bus systems that meet European requirements.

Bremerhaven

"Better e-public services"

Public transport is in the frontline when speaking about the consequences of demographic and climate changes (population getting older, effects of traffic congestion, etc.). Urban bus systems must therefore be prepared to offer new solutions and services in terms of accessibility, information tools, comfort, etc. Multiple public transport information and links to public communication services can help to overcome the "information barrier" to using public transport and provide more effective marketing tools to provide:

- seamless journeys' with a high level of on-board comfort and safety, attractiveness, in time operation and consistent level of information service;
- better e-public services through dedicated IT systems on-board and at selected bus stops.

Objectives

- Seamless journey
- High level of e-public services
- Public perception

Technical characteristics

The EBSF EvoBus demonstrator bus and the retrofitted buses

- Based on the Mercedes-Benz Citaro G City Bus, the EBSF demonstrator vehicle is an innovative urban bus thanks to new passenger information and communication system technologies with visual interior and exterior elements.
- Illuminated coloured (green / red) door frames (LED chains) light up when the bus approaches the bus stop and indicates to passengers at which door they can board the vehicle.
- A seat occupancy system is introduced in the rear part of the bus which uses coloured lights in the roof panelling above the seats to display whether a seat is occupied (green lamp) or vacant (red lamp).

"Passenger access to the vehicle is better controlled and passenger flow is improved less time spent looking for a vacant seat."

EBSF Test

About 56% of the population is living along the Use Case line (N° 502). This line connects densely populated districts in the outskirts of the city, the main tourist attraction area "Havenwelten", the city centre and the main station.

The test phase extends the information offer:
- from any place in the city (home, redesigned bus stop, vehicle, public space);
- to other means of transport (e.g. regional trains);
- and to other online information sources (e.g. e-public and tourism services).

The aim is to enhance public perception of the bus transport system among those who are not users (citizens, tourists, etc.).

Information quality

public perception

Comfort

On-board services
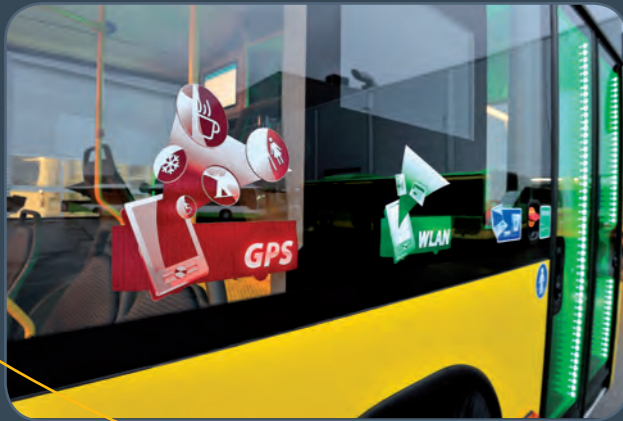
For a better internal comfort, the demonstrator bus is also equipped with:

- two 230V sockets to connect laptops or charge mobile phone batteries;
- leaning surfaces and folding seats in the two standing platform areas;
- WLAN router to ensure free access to the internet.

- a GPS amplifier to allow passengers to localise the bus through their mobile phone application;
- high-end vehicle amplifier automatically adapting the announcement through the interior loudspeakers to the ambient noise level.

IT and Communication Systems

The EvoBus demonstrator bus and the retrofitted vehicles are equipped with a driver terminal and on-board AVMS (ITCS) computer dynamic passenger information components for visible passenger information: announcement system and TFT passenger information screens (two 20" in each of the 15 retrofitted buses and four 19" in the demonstrator bus).

Real time interchange information is displayed on screens allowing passengers to see, for example, the real departure time from the next bus stops, interruptions to services, alternative routes, tourist and public service related information (events, city council announcements, etc.), weather, news and so on. In the retrofitted buses the same information is shown on the info-tainment screens.

All buses communicate with the central application via data radio (to get updated operation data) parts of it via UMTS / GPRS and WLAN. The communication protocols between these components are based on the technical specifications developed in the EBSF research activities (on-board AVMS services and MADT (display) services).

Passenger
information

Bus system
attractiveness

Information
diversity

Layout of
info-terminals
(lower screen)

Infrastructures

The infrastructure focuses on redesigned bus stops along the Use Case line 502.

Ten bus stops strategically situated in Bremerhaven (e.g. tourist attraction area "Havenwelten", city centre, main station, public buildings) are improved with new info-terminals displaying public transport and public service related information services constantly updated throughout the day. These info-terminals are a further development on existing ones, as they now offer 22' wide screen displays (format 16/9)

and additional communication features (Bluetooth, WLAN).

Four bus stops offers two screens: the upper screen displays the departure time of the buses and the lower screen (just as for the other six info-terminals) gives access to online public transport information (e.g. timetable, status of train services connections) and other online information sources (tourist and event information, route planner, e-public services, authority announcements, bus timetable, etc.).

The new design and layout of the EBSF info-terminals improve the quality of the service in terms of visual / non-visual (spoken) information through better visibility (e.g. backlighted TFT screens, micro non-reflecting protective glass, displayed information (text, images) rich in contrast, protection against solar reflection), arrangement of control elements (keyboard, trackball) and possibility to download specific contents as video, audio, image or text file via Bluetooth (tested at one site only).
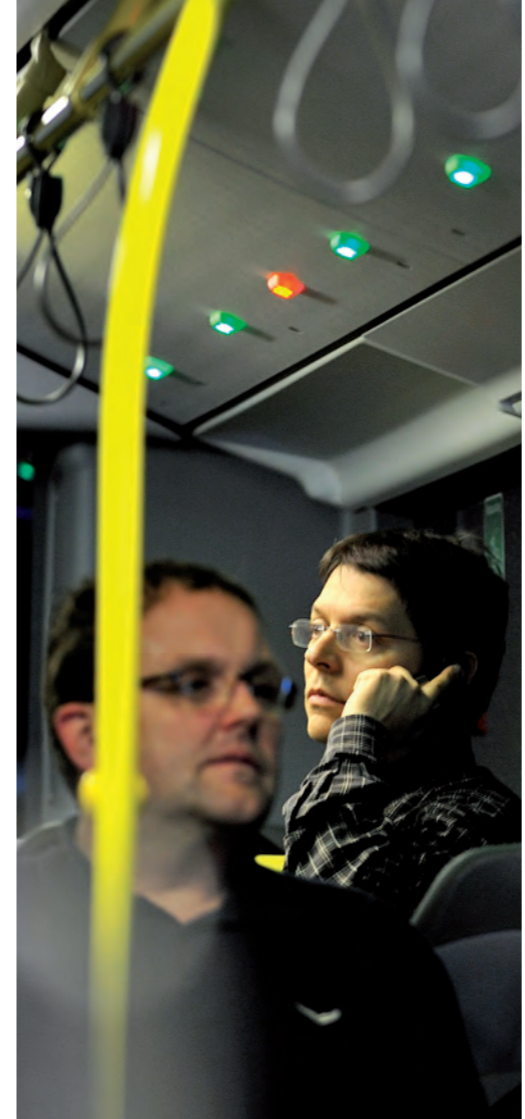
Use Case impact

Bremerhaven offers ideal conditions for testing new features and services of a modular advanced passenger information system in practical operations. Indeed, as a medium-sized city, Bremerhaven faces the challenges of urban regeneration (adapting to demographic and climate change) that call for strengthening the role of public transport. Furthermore, the city welcomes many tourists everyday on public transport.

The test phase extends the information offer from any place in the city (home, redesigned bus stop, vehicle, public space), to other means of transport (e.g. regional trains) and

to other online information sources (e.g. e-public and tourism services). The aim is to enhance public perception of the bus transport system among those who are not users (citizens, tourists, etc.).

The EBSF innovations in the EvoBus demonstrator bus facilitate passengers' journeys and in the redesigned bus stops, waiting time does not act as a barrier to choosing the bus as a transportation mode. The new solutions boost the quality level of the bus service for all passengers, in particular for visually and hearing impaired people.

Intelligent, Innovative, Integrated
The European Bus System of the Future is

An intelligent system...
- efficient use of information
- different bus system solutions adapted to specific needs of all stakeholders

...with innovative vehicles and infrastructures...
- improved comfort to drivers and passengers
- improved accessibility to all the users
- smart use of energy

...integrated in the European urban scenarios
- adapted to different modern and historical city contexts
- taking into account the future mobility trends
- new services for passengers and operators
- core part of the whole transport network for citizens seamless mobility

EBSF is an initiative of the European Commission under the Seventh Framework Programme for Research and Technological Development. Starting in September 2008; EBSF is a four-year project with an overall budget of 26 million Euros (16 millions co-funded) and is coordinated by UITP, the International Association of Public Transport.

For the first time, EBSF brings together the five leading European bus manufacturers and forty-two other partners in 11 EU countries:

• European bus manufacturers
Evobus / Mercedes, Iveco Irisbus, MAN, Scania, Volvo

• Public authorities
Vasttraffik Gothenburg, Nantes Metropole, Consorcio Regional de Transportes Madrid, BIS Bremerhaven

• Public Transport operators and national public transport associations
RATP, ATAC Rome, Veolia, TEC, Bremerhaven Bus, ATV Verona, ATM Milan, RATB, BKV, VDV, ASSTRA, UTP

• The supply industry
Hübner, Init, Digigroup, Ineo, Pilotfish, Actia, Hogia, Vultron, Tekia

• Research / consultancy
D'Appolonia, Berends, CERTU, Chalmers, CEIT, Fraunhofer, Transyt, FIT, Newcastle University, PE International, INRETS, University of Rome 3, University of Rome / DICEA, TIS, CRF

UITP, the International Association of Public Transport (UITP) represents 3,400 members from 92 countries.

www.ebsf.eu

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