http://www.access-to-all.eu
Issue: Nov. 2010

Mobility Schemes Ensuring ACCESSibility of Public Transport for ALL Users

Access 2 all

"New mobility concepts for passengers ensuring accessibility for all"
Coordination Action

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Supported by funding under the Seventh Research Framework Programme of the European Commission.

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Goals of the project

ACCESS 2 ALL aims at defining concrete mobility schemes, guidelines and policy recommendations, ensuring accessibility of Public Transport to ALL users, through the coordination of current research efforts, the production of common research roadmaps, the identification of best practice models and the appropriate use of ICT aids and networks.

Main productus

ACCESS 2 ALL's main findings; what new solutions have been brought to you:

- A set of online services, available through the ACCESS2ALL website www.access-to-all.eu
- A database of best practices in public transport accessibility applications
- A decision support tool, based on the TRANSPORTABILITY model elaborated within the project and linked with the best practices database
- A user forum, for discussion and ideas exchange on accessibility topics
- An eLearning platform available at http://access2all.bluepoint-it.ro

Reports have been produced by the consortium on several PT accessibility issues:

- Safety consideration for travellers with disabilities in public transport
- Safe cities for all: safety option for pedestrians with disabilities
- Vehicle concepts as part of the barrier free travel chain
- Infrastructure concepts as part of the barrier free travel chain
- Information concepts as part of the barrier free travel chain
- Cooperative concepts of the barrier free travel chain
- Innovative service provision and interface concepts
- PT usability monitoring and enhancement methodology
- HMI recommendations
- Concepts and recommendations on tackling social, cross-cultural and cross-generational issues in PT services
- Design guidelines, Standardisation and Policy Recommendations towards an accessible PT framework
- Research roadmap towards an accessible PT
- Training curricula

Mediate

So as to optimize our effort and increase our dissemination efforts, ACCESS 2 ALL has signed a MoU with another European project dealing with similar issues, Mediate [Methodology for Describing the Accessibility of Transport in Europe].
The Mediate project is a Coordination and Support Action with the objective to establish a common European methodology for assessing, describing and measuring accessibility to transport.
ACCESS 2 ALL has cooperated and exchange ideas and project results with the Mediate Consortium.

For more information on Mediate please contact Tone Oderud at:

Tone.Oderud@sintef.no
http://mediate.euregio.net

Training platform

An online based eLearning platform has been developed, addressing to public transport planners, operators, maintenance personnel and drivers as well as system providers.
Training curricula have been defined, including material from project results and external sources.

- Access2All training platform is available at http://access2all.bluepoint-it.ro

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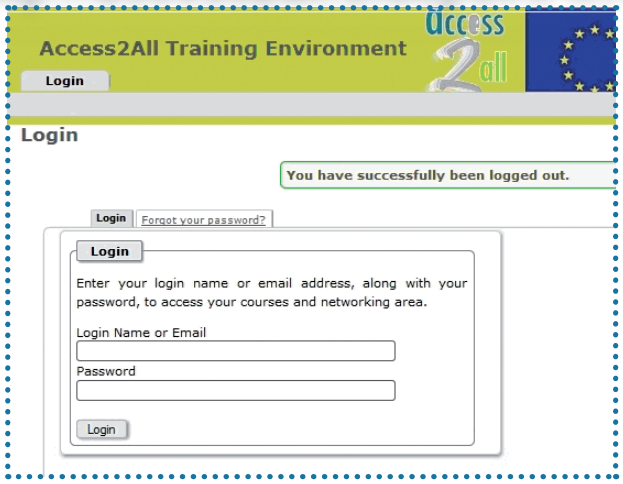
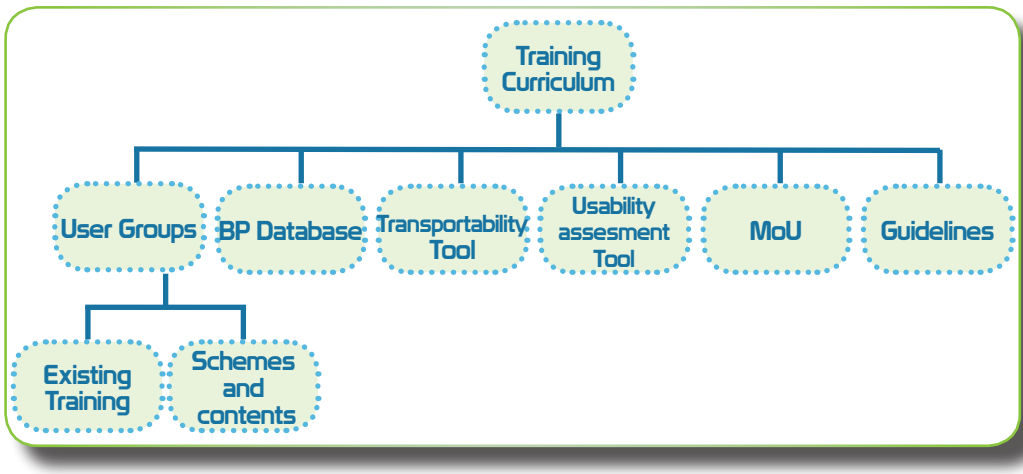


A short overview of the training material available on the platform

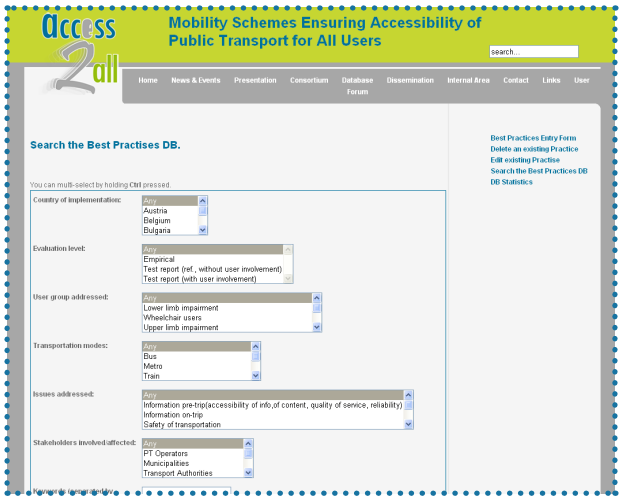


By accessing the training material the users can find valuable information through the best practices database developed during the project.
The transportability model is described and the relevant s/w tool can be accessed, to be used as a decision support aid.
The training content includes new concepts, usability assessment and accessible HMI development checklists, design guidelines, policy recommendations, etc.

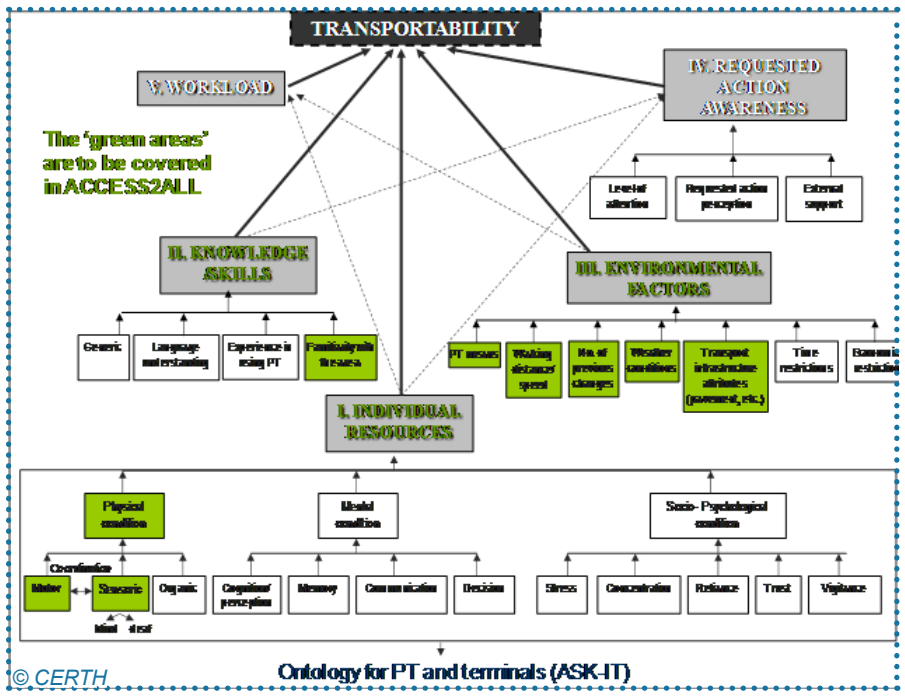
User needs and wants

The overall picture of the accessibility in public transport has been illustrated, addressing all users' categories and all modes of transportation, by:

- Clustering of the involved users, resulting to 12 main categories and relevant sub-groups (including stakeholders);
- Performing a user needs and preferences survey with the collection and analysis of more than 55 references;
- Creating of on-line best practices benchmarking database including so far more than 50 good and bad practices from 10 countries and 60 more are under evaluation for the final version;
- Developing of a functional requirements model (TRANSPORTABILITY model) with the implementation of tests with 42 mobility impaired persons for the development of related algorithms;
- Developing of a software tool resulting from the functional modeling (TRANSPORTABILITY s/w tool) for stakeholders consulting on providing accessible transportation adequate to the user needs;
- Defining and prioritizing more than 20 implementation scenarios addressing all user groups, accessibility issues, transport operation types etc., which illustrate future applications and measures that would contribute to further enhancement of Public Transport accessibility.



BP Database



TRANSPORTABILITY model

Accessibility and safety

In order to strengthen public transport and make it even more accessible, thus contributing to a sustainable development in terms of safety, public health and environment, the issue of safe and accessible public transport has been tackled from different perspectives: safety as a quality aspect, safe travelling with different modes, as well as risk management.

Firstly, the review of literature regarding the safety of wheelchair users, ambulant passengers and pedestrians highlighted several critical issues, such as:

- Boarding and alighting vehicles - a critical situation for several user groups
- Movement inside vehicles in motion - changes of speed / direction cause critical incidents
- Wheelchair as seats in vehicles - wheelchair structure critical in crash situation
- Wheelchair and occupant restraints - often used incorrectly
- Pedestrian crossings or ”shared space” areas - mixed traffic situation critical for older people and persons with visual or cognitive impairments
- Railway and metro: detection of platform end through tactile warning surfaces.

Design guidelines and policy recommendations

When designing and using new technological concepts for the service of Public Transport and enhanced mobility, this should be done a user friendly way and taking into account the special needs of all societal groups.

Moreover, further research in the area of accessible mobility should be implemented, in a targeted manner, following a specific roadmap.

Within ACCESS2ALL:

- A total of 46 design guidelines regarding PT infrastructure, vehicles and information systems were proposed.
- Recommendations were provided for appropriate disability legislation at the European and local level
- Standardization needs were identified. (e.g. standardisation of HMI issues for nomadic navigation aids, addressing different user needs), and new standards were proposed along with recommendations for modifications in existing ones
- Gaps in guidelines which might lead to misunderstandings during implementation were identified
- Cost Efficiency Analysis was performed for the top priority implementation scenarios, as emerging from the project work.
- More than 50 policy recommendations were issued deriving from project results and addressing all key actors in the public transport chain and accessibility area.
- Concertation meetings were organised during the project Workshops in Porto and Hong Kong, involving key actors in the area of Public Transport accessibility
- Previous and ongoing research activities were identified and cooperation was established with related research projects like OASIS (www.oasis-project.eu), Mediate (http.mediate-project.eu), etc. Especially with Mediate a MoU has been signed, establishing the cooperation of the two projects throughout their duration.
- Existing research activities and research gaps were identified and further research activities in the area were suggested, in terms of a low to medium term research roadmap on Public Transport accessibility.

Usability, social and cross-cultural concepts

Novel multimodal HMI concepts have been considered, taking into account also personalization of information, along with social, cross cultural and cross-generation issues affecting the mobility of citizens, while usability of PT information and public awareness enhancement have also been tackled, through:

- The definition of recommendations for HMI design in PT systems.
- The identification of innovative HMI concepts
- The creation of an HMI design checklist for PT systems.

Personalised service provision via smartcards

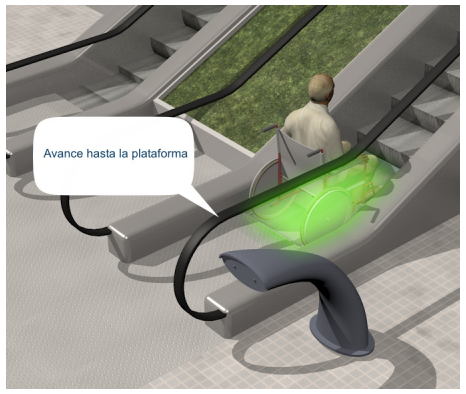
- The development of a methodology for pre-assessment, enhancement and monitoring of the usability of PT information and operation systems.
- The creation of a PT Usability checklist (and relevant questionnaire), composed of the following parts: pedestrian accessibility; usability of information and ticketing system; infrastructure accessibility; vehicle accessibility, safety and comfort; service availability and affordability; and social inclusion.
- The development of a shortlist of 29 key cross-cultural, cross-generational and social issues affecting MI users of PT.
- The proposal of 47 solutions under 7 topic titles of Social and socio-spatial exclusion; Gender; Communication and information; Culture and Customs; Racism; Ageing Population; and Children and Youth. Each recommendation was classified into 5 fields: Policy, Training, Implementation, Research and Evaluation.
- The creation of a checklist for the Public Transit Operators to tackle the 7 topics listed above.

Innovative Technological Concepts

New concepts in the field of public transport were investigated and proposed, aiming at increasing the mobility of people in cities. These involve the application of innovative technologies in vehicles, infrastructure, information provision as well as the use of cooperative concepts, employing cooperation of infrastructure-based and autonomous (vehicle-based and/or nomadic) systems.

More specifically:

- Existing best practices in vehicle technologies, infrastructure concepts, travel information and cooperative systems were identified and critically evaluated e. g. low floor vehicles in PT vehicles, tactile guiding paths.
- A case study was performed comparing different existing boarding aids for regional trains
- New technological concepts for accessible vehicles, infrastructure, travel information and cooperative systems were identified and described e.g.cabin hoisting lift for the “long-distance and high-speed trains”, new escalator design for wheelchair users, indoor navigation systems, Interactive, sound-based information system for mobility-impaired or blind people in Public Transport, Intelligent bus stop).
- The partly functional mock-up of the cabin hoisting lift was tested in a pilot study executed by experts with relevant user groups (wheelchair and walking frame users)
- More than 20 policy recommendations and guidelines were issued.



New Escalator design for wheelchair users

Cabin hoisting lift for the “long-distance and high-speed trains”

Innovative service provision

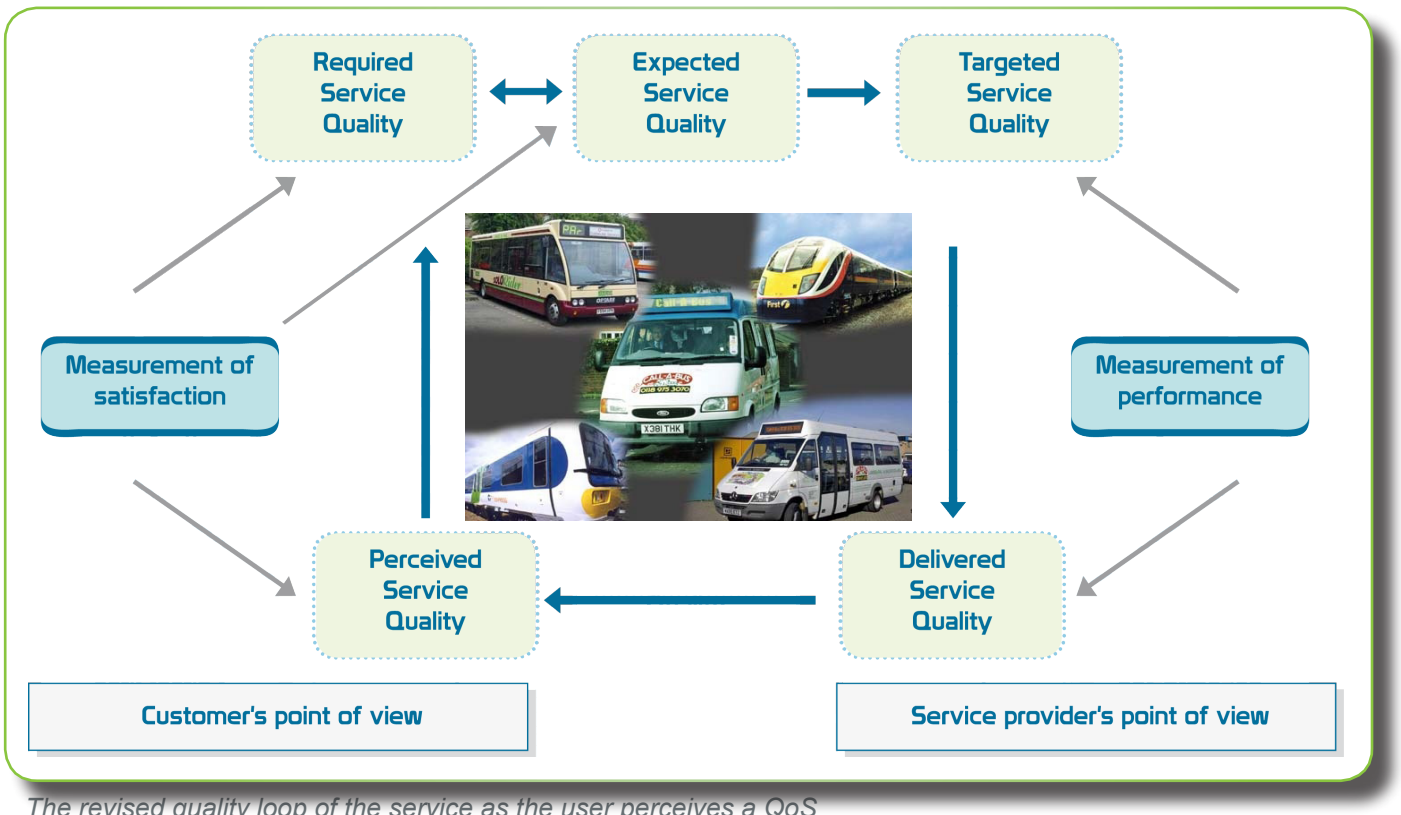
Service provision has been looked into in terms of quality of provided service, personalised services, accurate localisation and seamless service provision, as well as service expandability and maintainability, through:

- The definition of the QoS framework including quality criteria (availability, accessibility, reliability, comfort, customer care, safety and security and the environmental impact) and the corresponding indicators to evaluate the quality of service of a PT system, methods and tools for implementation, as well as analysis of the collected data.
- The development of a MoU in QoS of PT services between users and service providers.
- The state of the art review of existing systems in personalized services and technologies as well as service operation.
- The proposal of solutions on service personalization (personalisation parameters for pedestrian, car and multi-modal route guidance)
- The proposal of solutions for relevant services (journey planner, traffic demand, integrated Demand Responsive Transport, etc.)

Relevant localisation and guidance needs to be accurate not only because of comfort but also because of security.
The problem technically is far from trivial, due to the loss of signal because of urban canyons, within PT vehicles. Different localization technologies and algorithms have been analysed and described. The benefits of emerging hybrid localisation methods, combining satellite with infrastructure-based and vehicle-based modules have been presented.
Technologies with the corresponding parameters such as accuracy, range and features have been analysed.
Possible applications are described. Technologies and techniques in order to promote the MI users seamless support in public transport operations have been presented.

Service expandability and maintainability:

- Identification of components enhancing accessibility in public transport and accordant maintenance strategies.
- Recommendations on how to integrate standardised maintenance processes in public transport operations.
- Recommendations on software and service expandability in order to provide up-to-date information and to comply with future standards.



The revised quality loop of the service as the user perceives a QoS that is different from the required and expected one