DEVELOPING TOOLS TO DESCRIBE AND IMPROVE THE ACCESSIBILITY OF TRANSPORT

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ABSTRACT

The Mediate project[1] will assist public authorities and transport operators in achieving equality of access, by providing a methodology for measuring accessibility in transport, making comparisons with good practice solutions and exchanging knowledge between stakeholders involved. The overriding goal of Mediate is to contribute to the development of inclusive urban transport systems with better access for all citizens.
The main tools to be developed within Mediate include a set of indicators to measure public transport accessibility and a self-assessment tool to help cities and transport operators helping to identify where they are on the accessibility scale (low level to high level of accessibility), and what effort (and actions) are required to reach the next step. These tools will enable public authorities, transport operators, policy makers and other relevant stakeholders to identify gaps and areas for improvements, and develop strategies for closing these gaps and accomplish the suggested improvements.
The development of a methodology for measuring accessibility is a process. The first step is to define the knowledge base, by reviewing the initiatives and methodological approaches that have been made to describe and measure accessibility to public transport. The challenge is to gather this information and identify common indicators to be used as a basis for a common set of standardised indicators at European level. Examples of good practice will be collected together with data supporting the indicators. The indicators and examples of good practice are input for the development of the self-assessment tool. The self-assessment tool will provide valuable information on possible gaps, give an indication of the actual level of quality of accessibility and make recommendations to improve accessibility.

Keywords: accessibility, levels of development, self assessment

[1] Mediate is a Coordination Action funded under the FP7 Transport programme. Mediate partners are: SINTEF (Coordinator), POLIS, AGE Europe, Transport for London, TTR, IMOB (University of Hasselt), TIS.PT and Timenco

BACKGROUND

European transport systems play a key role in the transportation of people and goods, and are essential to Europe's prosperity, being closely linked to economic growth. Despite the progress made in recent years in improving accessibility for all, it is estimated[2] that 10 to 20 percent of European citizens, including people with disabilities and older people, are still experiencing barriers and reduced accessibility to transportation. These barriers can lead to a lack of opportunities and limited possibilities for employment, social & leisure integration and full participation in society. Also, the demand for accessible transport will increase, as a result of the rapid growth in the number and proportion of older persons aged 60 years and above. Demographic trends are important for planning the future development of Europe. The recent publication on the Future of Transport[3] refers to a demographic transition trend: by 2060, the median age of the European population is projected to be more than 7 years higher than today and the number of people aged 65 or more is expected to represent 30% of the population as opposed to 17% today. An ageing society will place more emphasis on the provision of transport services involving a high level of perceived security and reliability, and which feature appropriate solutions for users with reduced mobility. Designing public transport modes and systems coping with this new reality implies making them safer, inclusive and more user friendly for all passengers.

A charter on access to transport services and infrastructure that was adopted by the ECMT Council of Ministers, already on May 1999, recognises this challenge and underlines the political commitment in Europe to ensuring that all new transport infrastructures should be constructed to take into account the needs of people with disabilities. Also in the its communication "Towards a barrier free Europe for people with disabilities" (COM (2000)284), the Commission emphasised that "mobility plays a crucial role in ensuring participation in economic and social activity and the lack of it is an inhibiting factor against the participation rights of people with disabilities …it also asserts that positive developments in improving access for people with disabilities have positive implications for other areas such as quality of working life, protection of consumer and competitiveness of EU industry". Furthermore it is referred that "mobility should not be regarded simply as a convenience or even a social and economic necessity. It should be regarded as a right to which everyone should be entitled…, being widely accepted that making transport easier to use for people with disabilities would contribute to meeting broader policy objectives…". From this communication it is clear that accessibility and mobility issues are now dealt with in the light of equal opportunities and the right to participate.

Later in the Green Paper on Urban Mobility, it is reinforced that "accessibility primarily concerns people with reduced mobility, disabled people, elderly people, families with young children, and the young children themselves: they should have easy access to urban transport infrastructure …" and subsequently in the recent Action Plan for Urban Mobility a

[2] AGE - the European Older People's Platform
[3] "A sustainable future for transport: Towards an integrated, technology-led and user friendly system" adopted by the Commission on 17 June 2009 [COM(2009) 279]

dedicated action (Action 5 - Improving accessibility for persons with reduced mobility) is fully dedicated to this subject:

> Persons with disabilities have the right of access to urban transport on equal terms with the rest of the population but in reality access is often insufficient and sometimes non-existent. Considerable achievements have been made, for example on the use of low platform buses. Other modes of public transport such as subways remain often largely inaccessible. The United Nations Convention on the Rights of Persons with Disabilities, signed since 2007 by the European Community and all Member States, contains clear obligations.
> Article 9 states "Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to (…) transportation, both in urban and in rural areas". The Commission will work with Member States to achieve full compliance with these obligations by including the urban mobility dimension in the EU Disability Strategy 2010- 2020 and by developing appropriate quality indicators and reporting mechanisms. It will also support further targeted activities under FP7.

In fact, during the recent years a broad variety of innovative concepts for making urban transport more efficient and accessible were assessed in several EU research programmes. Examples of that were the COST actions, the UITP and ECMT tasks forces and the projects running under the FP programmes, including those under the action line “research relating to people with disabilities” (key action Ageing population of the 5th RTD framework programme). Despite significant progress locally, many of these efforts have not been implemented in a larger European scale.

Review of past experiences

The review undertaken in MEDIATE stressed the fact that accessibility cannot be achieved and/or measured without a holistic approach, i.e. by addressing the whole travel chain. This requires the integration of multiple dimensions for accessibility measurement, ranging from the need for accurate, clear and concise information for users, to the provision of a barrier-free built environment, adoption of universal design, provision of high operational standards, interMediate solution between individual and mainstream transport options, appropriate, effective and accessible vehicle design, high levels of perceived comfort and safety, etc.
These elements should therefore be realised in a given transportation system, helping to meet the expected usability requirements, contributing for global accessibility performance.
This notion suggests that one may find several obstacles in relation to measuring accessibility performance, also because different groups have different requirements. For instance, mobility impaired people have major requirements related to physical design, calling for accessible vehicles, reliable operating conditions, stops and terminal facilities proximate and user-oriented.

Apart from rather scattered information, it is often difficult to find consistent information to judge and compare accessibility and usability in order to provide a thorough assessment on

accessibility. Whatever the scale or complexity of accessibility schemes in place, the criteria for the assessment of its success/effectiveness is the difference that it makes in terms of the daily life of a disabled person. The challenge remains therefore in creating a link between top level indicators at city level and low level indicators measuring such effectiveness. Furthermore, judging accessibility without resorting to a commonly accepted framework raises a number of questions and currently no common set of indicators exist to measure accessibility to transport systems in Europe. Defining such common indicators for Europe will provide cities and countries with the possibility of defining and measuring accessibility to urban transport.

MEDIATE answer

The methodology developed within Mediate will assist public authorities and transport operators in achieving equality of access, by providing common indicators and a self-assessment tool for measuring accessibility, making comparisons with good practice solutions and exchanging of knowledge across Europe. Public authorities, transport operators, policy makers and other relevant stakeholders will be able to identify gaps and areas for improvements, and develop strategies for closing the gaps and accomplish the suggested improvements. The self assessment tool will help cities and transport operators to identify where they are on the access scale (low level to high level of accessibility), and how much effort is required to reach a higher level of accessibility. Accessible cities will enhance their reputation as an inclusive city or location for their citizens, tourists and visitors. Improvements of accessibility will also serve the comfort and quality of public transport trips for all people, and potentially increase the number of passenger using public transport.
Policy makers will benefit because Mediate will provide a tool for measuring accessibility to transport. Accessible transport will provide mobility for people with disabilities and enable more people to access the job market, earn a wage (instead of being passive recipients of benefits) and participate in society through shopping, eating out and having holidays etc. This cycle has an impact at a macro and micro level for all people, especially people with disabilities. Stakeholders like Local Authorities will benefit from people with reduced mobility being able to visit public services such as Libraries and leisure centres rather than having to make special travel arrangements. Manufacturers could benefit because national and local transport bodies commission accessible vehicles complying with common European specifications. Developing an inclusive urban transport system with better access for all citizens will have an impact on ensuring the human rights of all citizens by equal participation in employment, education & training, the community and social life.

MEDIATE APPROACH: A CONTINUOUS LEARNING PROCESS

The overriding goal of Mediate is to contribute to the development of inclusive urban transport systems with better access for all citizens. The path to achieve that goal takes as basis the principles of the Total Quality Management (TQM). TQM recognises that the

development and implementation of accessibility policy is a dynamic process through the continuous cycle, the so called PDCA cycle (Plan-Do-Check-Act), of planning, actions and monitoring, producing learning moments that bring policy to a higher level of development.

The implementation of TQM in Mediate is based on quality management models as well as bringing the relevant experience from the BYPAD project and its self assessment tool. The BYPAD tool was developed, tested and validated in many European cities and the methodological approach has been successfully implemented for improving the quality of cycling.

Also within the development of Mediate the concept of the learning and continuous process is applied: the project will strive to achieve its objective by ensuring a strong user involvement by disabled people, end users of public transport, and involving public operators and local authorities in each stage of the process, thus bringing in the real world voices, requirements and practices.

MEDIATE community

The Mediate project is focused on involving relevant stakeholders (local authorities, public transport operators, industry, end users and experts) throughout the project. It is important to coordinate their expertise providing relevant input for the project, exchange information and utilize the stakeholders as a channel for dissemination. The project will define accessibility from the perspective that people with disabilities are facing physical and altitudinal barriers that restrict their full participation in society (“Social Model of Disability”). Quite often solutions regarding accessibility and inclusion of people with disabilities are proposed by able-bodied people who have limited concept of the barriers encountered.

A forum for information exchange and a tool for measuring accessibility will provide cities the possibility of verification on how accessible their transport system is, and get an indication of eventual gaps and what is needed to improve the accessibility.. The opportunity of sharing knowledge of good solutions from other cities and countries will enhance the speeding up of the process which may ensure a more inclusive urban transport system with better access for all.

The stakeholders involved are organized in three groups:

- Expert Group: 6 international experts within the field of accessibility to public transport (industry, academia, design for all, PT operators, constancies, user perspective)

- Working Group: 22 local authorities and transport providers representing European cities

- End User Platform: 11 individuals and organisations representing people with disabilities, older people and other relevant user groups facing barriers using public transport. A strategy plan for the long term viability of the End-user platform with the purpose of

providing a resource for other EU activities to tap into and engage end-users with different abilities in R&D projects will also constitute one of the MEDIATE outputs.

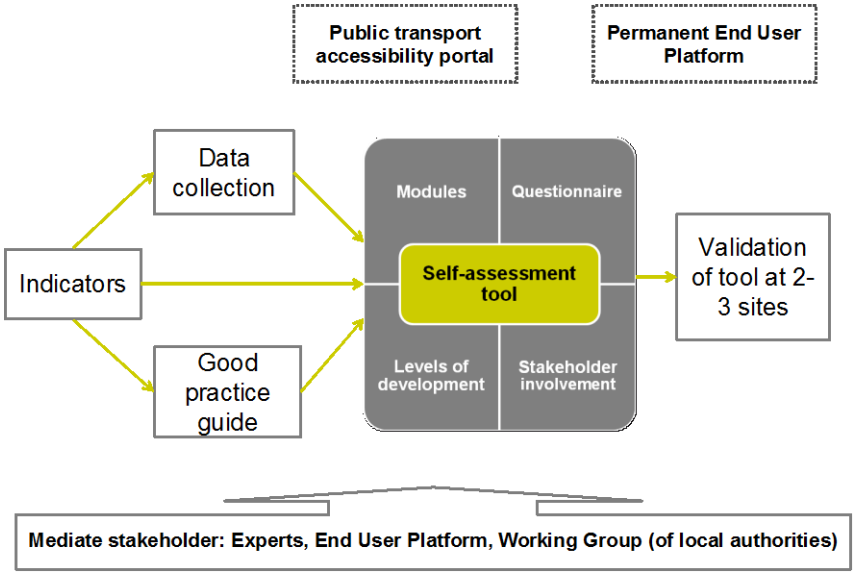


Figure 1 - Mediate knowledge coordination

This MEDIATE community was fully engaged in all the different stages of the project development, providing their real experience and knowledge on accessibility:

- In the identification, selection and evaluation of accessibility indicators
- By testing and applying the indicators questionnaire and by providing the examples of good practices to be used as learning tool for continuous improvement
- In the discussion and establishment of the aspects to be considered in the self assessment tool and respective levels of development
- 3 pilots will apply and validate the MEDIATE methodology

A quality approach to accessibility

It is recognised that an accessible urban transport system goes far beyond the provision of accessible public vehicles and should entail all services, infrastructure and built environment that in its whole enable all citizens to satisfy their mobility needs. Addressing, from a quality perspective, such complexity implies to set up a coherent framework and to focus the analysis of the performance on the interaction and relations between the different intervening agents. How well those different components and agents, for which no formal relations and dependencies exist, fit together is a major challenge, which to be successful requires the adoption of concerted and co-ordinated decision making approaches.

For several decades quality concerns had become widespread across the economy, with several important developments: from product' quality control through a shift of focus to the

quality of the process and company engagement towards the main focus on the client satisfaction.

The concept of TQM and its implementation is mainly based on quality management models, such as ISO (International Standard Organization) and EFQM (European Foundation for Quality Management) models, the best known in Europe. The ISO-model, crowned by certification is often looked at as a system killing creativity and even leading to bureaucracy. On the other hand, the EFQM-model is based on very important management values such as customer and staff satisfaction, and so far is considered the most flexible model for adaptation to several sectors. It allows pointing out the weak and strong points of the organization providing a starter for continuous improvement (QUATTRO, 1998).

Despite so, most quality programs, while referring to TQM methodologies, put the emphasis on the consumers' perception at the end point of the production chain, without addressing the problem of interaction between the different parts of the system lying behind the operational and visible output. This gap represents a constraint in the potential for improvement of the system, once the decisions taken at both strategic and tactical levels of decision are equally important, and very often critical, for the quality of the final set of services provided. The MEDIATE takes an overall vision of the accessibility process from the planning to the evaluation, aiming for an integrated approach where the different actors and components of the chain are addressed.

Service delivery and perceived quality

The CEN standard EN 13816 on quality of public transport systems addresses the gap between the providers' perspective and customers' perspectives, reinforcing the need to look forward to tools that while identifying the gaps contribute to its reduction, thus approximating what is offered with what is perceived by the customers. In Mediate, this gap is addressed using tools designed to measure the accessibility of public transport systems: joint working in the development of such tools with the Mediate community is clearly an important step towards a more targeted and focused approach to the provision of transport accessibility.

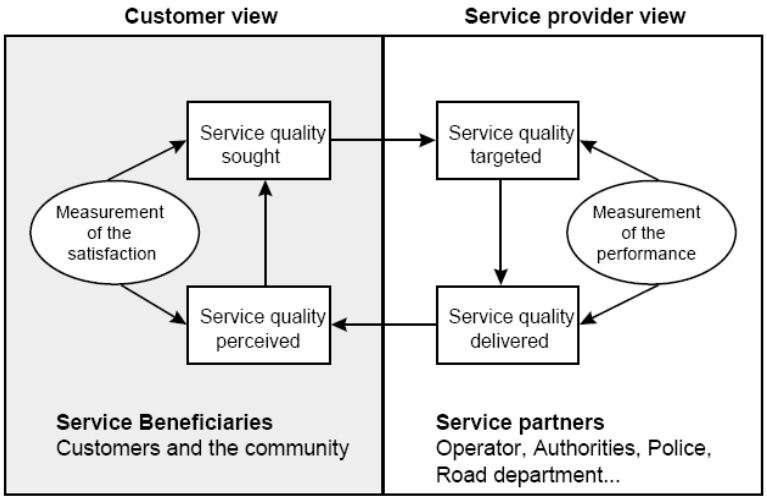


Figure 2 - Service provider and customer perspectives on public transport service quality (CEN 2002)

Quality modules

This approach regards quality of policy as a process of improvement: a continuous cycle of planning, actions and evaluation produces learning moments that bring policy to a higher level of development. The accessibility policy cycle is composed of 10 modules referring to:

- **User needs:** How does the city or authority find out what the real needs for users are? How are user (group)s involved in improving accessibility?
- **Leadership:** What impact do key individuals (both officials and politicians) have within the decision-making process concerning accessibility? What committees or working groups exist? How is the accessibility policy communicated to other policy domains and decision makers?
- **Guidelines & policy on paper:** What is the background of accessibility policy? What is the content of accessibility policy? How do responsible authorities make sure that the measures proposed in the accessibility policy plans are completed in reality?
- **Means & Personnel:** How is the financing of accessibility of public transport safeguarded? By whom is the accessibility policy prepared and implemented? What is being done to improve the topic-related knowledge and skills of the staff dealing with accessibility?
- **Vehicles & Built environment:** How accessible are the vehicles? How accessible is the built environment? Is implementation and maintenance of accessibility of vehicles and built environment organized? What is being done to ensure that vehicles and infrastructure are geared to each other?
- **Information & ticketing:** How are the citizens informed about the accessibility of public transport? How is information on timetables and departing platforms made available, before, during and after a trip (type of information, format, self-evident)? Where can tickets been purchased and are these facilities accessible for all?
- **Training & Education:** What is being done concerning education and travel training of users? Does staff provide service and specific assistance to passengers during travel? How appropriate are front and back office staffs educated in accessibility?

- **Seamless travel:** Is it easy for elderly and disabled people to travel by public transport, even when they need to use more than one line or mode? What is the impact of physical access, information, ticketing and fare concessions? Are relevant measures taken and is assistance provided to guide elderly and disabled people through security systems?
- **Results:** What are the actual effects on the accessibility of the public transport system and how are these taken into account? (indicators) How is accessibility performance perceived by different actors and how is it assessed?
- **Evaluation & effects:** How is the organizations performance assessed? How are actions for improvement implemented? Is periodical evaluation agreed on and how are user groups involved in the evaluation process? In what way do results have an effect on new planning activities?

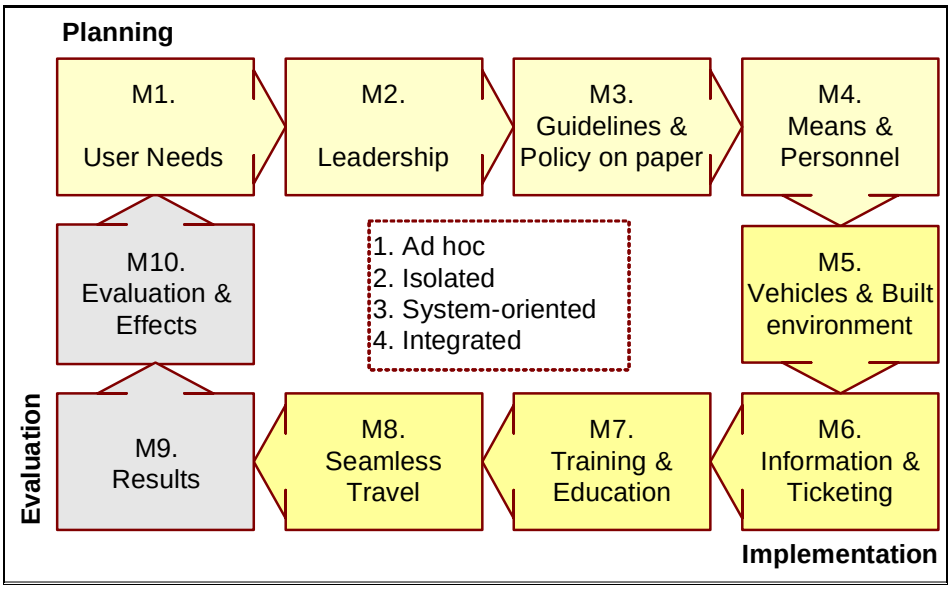


Figure 3 - MEDIATE policy cycle

Levels of development

An essential aspect of the TQM approach is the concept of continuous improvement or ladder development.
The philosophy behind the approach is that quality can be enhanced through continuous learning, so that improvements are made by going through sequential stages of development.
Four levels have been defined: Ad hoc, isolated, system-oriented, and integral policymaking, which key characteristics are synthesised in the following table.

Table 1 - Quality levels for accessibility

Level	Ad hoc	Isolated	System-oriented	Integral
Scope	Ex post	Short term (1-2 years)	Medium term (5-10 years)	Long term (10-20 years)
Focus	Problem solving	Project realisation	Comply with higher policy	Integral policymaking
Approach	Individual projects	Disability domain	Mobility domain	Complete local policy domain
Structure	Informal	Vaguely structured	Well structured	Well structured
Data use	- -	-	+	+ +

Source: MEDIATE, adjusted version based on Tormans et al. 2009

Set of tools

Three main accessibility tools are being defined and tested in MEDIATE. These set of tools can be used alone or combined, depending on the purpose that leads a city to undertake its own assessment. Each component can be characterised by each level of development. In all of the applicable tools, it is recommended that different interested parties are fully involved in the policy process: user groups, politicians, officials, operators, infrastructure managers, etc.

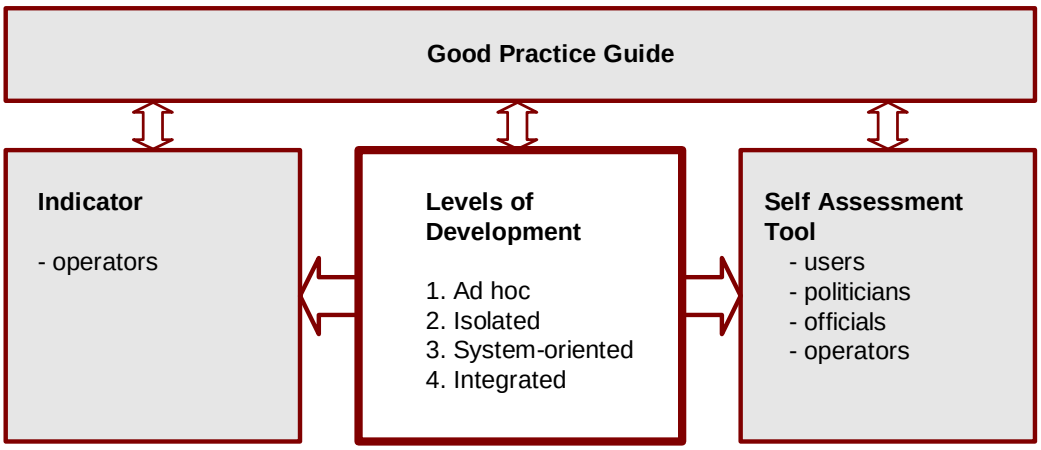


Figure 4 - Set of MEDIATE tools and levels of development

The outcome of an assessment based on the Mediate tools should therefore be considered to be a starting point and a with springboard for inspiration and motivation for further developing the accessibility of urban public transport. It should awaken organisations and administrations to the importance and potential benefits of an integrated approach towards their policy.

A key aspect in all this process is that its ultimate goal is not to judge organizations on their individual performances neither to produce a benchmarking of accessible cities, but instead to offer an instrument that is able to guide managers and policymakers in their pursuit of excellence by opening up a window that gives them a complete overview of good practices in urban public transport accessibility, which will desirably will lead to a new starting point of further development.

THE METHODOLOGIES FOR MEASURING ACCESSIBILITY

The review undertaken in the earlier stages of MEDIATE pointed out several dimensions concerning the measurement of transport accessibility, which have constituted, together with the inputs from the MEDIATE community the main basis for the setting up of indicators and self assessment tools.
In particular it should be referred to:

- A variety of requirements within the population (physical, sensorial and cognitive abilities and allergens) must be considered
- Accessibility is a relative concept depending on the individual (traveller), the environment (public transport system), the activity to be performed and the purpose of the task (to buy a ticket, wait in line, board a vehicle, travel to job/school or as a tourist etc.).
- Need to measure not only physical accessibility, but the usability of the system as experienced by the user, and to measure what is critical to success and how actions may improve the overall experience of the transport system
- Ensure accessibility (and consistency) throughout the travel chain (information, pedestrian environment, access area, terminals, ticketing, boarding, vehicles)
- Addressing the transport planning & operation dimension: logical modal integration, physical modal integration, vehicle accessibility, on board security, on board safety & health issues, information, and assistance.
- Addressing the infrastructure planning & management dimension: accessibility of terminals and stops, safety and security of pedestrian areas, stops and terminals, information, and assistance
- Cooperation between operational service providers, infrastructure managers and local authorities is essential, so that measures match and support each other
- Accessibility depends on the transport delivery chain: staff training and competence, physical planning and design, procurements, tendering contracts, monitoring, operational procedures, maintenance procedures, etc.
- Address the quality cycle and the gap between the planned and the actual delivered service accessibility and the perceived and thought accessibility, evaluating the results and implementing actions

As Slagsvold (1995) points out , that there are two distinct ways to assess the accessibility or usability of a travel chain: one is measuring the “objective” physical elements of that travel chain; the other is assessment of the subjective experience of the trip. Accessibility and universal design may be described along a scale as degrees of a quality. For data on quality

levels care should be taken in applying weights and total scores. The advice is to describe quality profiles or make a comparison with an ideal situation.

The process of identifying key accessibility themes in view of defining indicators

The identification and selection of indicators is an important step in the process of developing a self-assessment tool, providing a framework for data collection which in turn will inform the development of this tool.

The work on indicators was framed by the following objectives:

- To define a set of common indicators covering core aspects of accessibility. This may contribute to a more harmonious understanding of accessibility issues and the need for improvement throughout Europe.
- To indicate areas in need of improvement. Providing and analysing data for the indicators will serve as a learning process for those involved, with better insight in the different aspects of accessibility. The idea is to learn about the strengths and weaknesses of the local public transport system. So although common indicators point out core aspects, the indicators will serve to direct attention to different aspects within a city rather than a (benchmarking) comparison between cities.
- To provide a basis for data collection; fact finding on the organisation and performance of the public transport system. This data collection serves two purposes, to investigate and validate the selected set of indicators, and to inform the development of a tool for self-assessment (applying the self-assessment tool implies a different kind of data collection, where different actors are brought together to give their own assessment of the different aspects.)
- To provide a basis for the development of a self-assessment tool, based on the idea of Total Quality Management with step-by-step improvements considering the whole policy loop of planning, actions, evaluation etc. A basic concept of the self-assessment tool is that it is necessary to progress through one level of development in order to achieve the next level (Mediate work package 4). This outline for the tool also influences the framework and selection of indicators.

The selected indicators are targeted at local authorities to enable them to investigate the accessibility of the public transport system at city level or regional level. The set of indicators may also be used by individual operators, user organisations or others. This provides an opportunity to gain insight to the accessibility situation of the urban public transport system, and an overview of the status of the different parts of the transport system. The purpose is not to provide a ranking between cities, but to provide cues at city level on which areas are in imMediate need of improvement and where efforts should be focused to produce accessibility improvements for travellers. By repeating the procedure at certain intervals, the indicators will suggest whether the development is sustainable, investments are well spent and contracts followed up, and point out the next core areas to focus on.

A wide range of indicator themes were identified based on the outcomes of previous initiatives and input from vital stakeholder groups (the three working groups involved in the Mediate community). The main input to the priority-assignment has been discussions at two working group meetings involving end-user platform, city representatives, Mediate experts, and consortium members.

Key indicators have been grouped under five topics reflecting the MEDIATE policy cycle:

A. Policy and investments
B. Service operations and standards
C. Information and ticketing systems
D. Vehicles and built environment
E. Seamless travel (modal interoperability)

Each topic incorporates a range of themes. Key indicators have been identified under each topic, and, where appropriate, more detailed indicators have been defined under these headlines. A scale for the measurement of each indicator is also indicated. The aim of the scale is to assess the level of the indicator to communicate the direction (progress or lack of progress in reducing the accessibility gap) and the pace of development in the ladder of levels of development.

Table 2 - Key accessibility indicators

No	Indicator	Explanation	*Measure (scale) Most positive alternative first*
A	***Policy and investment***		
A1	**Accessibility plan**	Accessibility plan & strategy: Current plan at urban level.	*Yes / no*
A2	**End-user involvement**	End-user involvement in all stages: Involvement of older people and disabled people in planning, implementation, monitoring and evaluation.	*Qualitative description*
A3	**Integrated accessibility policy**	Accessibility integrated in all relevant policy: How accessibility is an integral part of all policy issues for all partners involved.	*Qualitative description*
B	***Service operations and standards***		
B1	**Meeting user needs**	Available assistance, staff training, complaint procedures, user feedback, personal security measures.	*Qualitative description*
B2	**Accessibility maintenance**	Plan, routines, and monitoring.	*Qualitative description*
B3	**Fare policies & alternative services**	Fare policies & public transport affordability, and availability of alternative services.	*Qualitative description*
C	***Information and ticketing***		
C1	**Accessible information**	Multi-format information before and during the trip: Multimodal and dynamic travel information, disruption information, and accessibility information according to user requirements, before and during the trip. Passenger travel training.	*Policy approach: Integrated / system-oriented / isolated / ad hoc / none*
C2	**Accessible ticketing**	Ease of buying and validating ticket. Simplicity, intuitive systems, possibility to	*Policy approach: Integrated / system-*

		buy multimodal tickets (all the way through).	*oriented / isolated / ad hoc / none*
D	***Vehicles and built environment***		
D1	**Accessible vehicles and built environment**	Possibility to travel by public transport: Barrier-free (physical) environment, modest mental effort (information, orientation) and low exposure of allergens throughout travel chain (pedestrian environment, stops and stations, platform, and vehicle).	*Policy approach: Integrated / system-oriented / isolated / ad hoc / none*
E	***Seamless travel***		
E1	***Seamless travel***	*Considering physical access, information, ticketing and fare concessions it is easy for older people and disabled people to travel by public transport, even when they need to use more than one route or mode. This also includes relevant measures and assistance to guide older people and disabled people through security systems.*	*Policy approach: Integrated / system-oriented / isolated / ad hoc / none*

Source: MEDIATE, D2.2.

The good practice guide

As for the identification of good practice in the field of accessibility, it is important for participating cities to exchange information, and to learn from others, in order to speed up the process of making transport systems more accessible. The MEDIATE good practice guide is designed to provide examples of where cities, transport authorities or transport operators have applied a strategic approach to investigating, developing, implementing and reviewing solutions to accessibility for all transport users. The guide could also be seen as a useful guide for users' and associations in helping them to clarify what they could expect authorities and operators to be able to deliver.
A mix of examples from larger authorities/operators/cities and smaller and medium sized authorities/operators/cities has been collected with the support of the MEDIATE community.

The guide covers the following areas of accessibility in public transport systems:

- Accessible Information & Communication Systems
- Infrastructure / pedestrian environment
- Level Access Throughout Transport Systems
- Staff Training
- Travel Training for Passengers
- Passenger Feedback and Monitoring Systems
- Ticketing Systems
- Leadership / vision
- Organisation / policy

The definition of levels of development

The concept behind the establishment of accessibility levels of development, as referred in other parts of this paper, correspond to a ladder of continuous improvement towards a more accessible transport system. The improvement is given basically by the climbing up the development steps, or in other words, that an integrated approach is not achieved from a moment to the other.

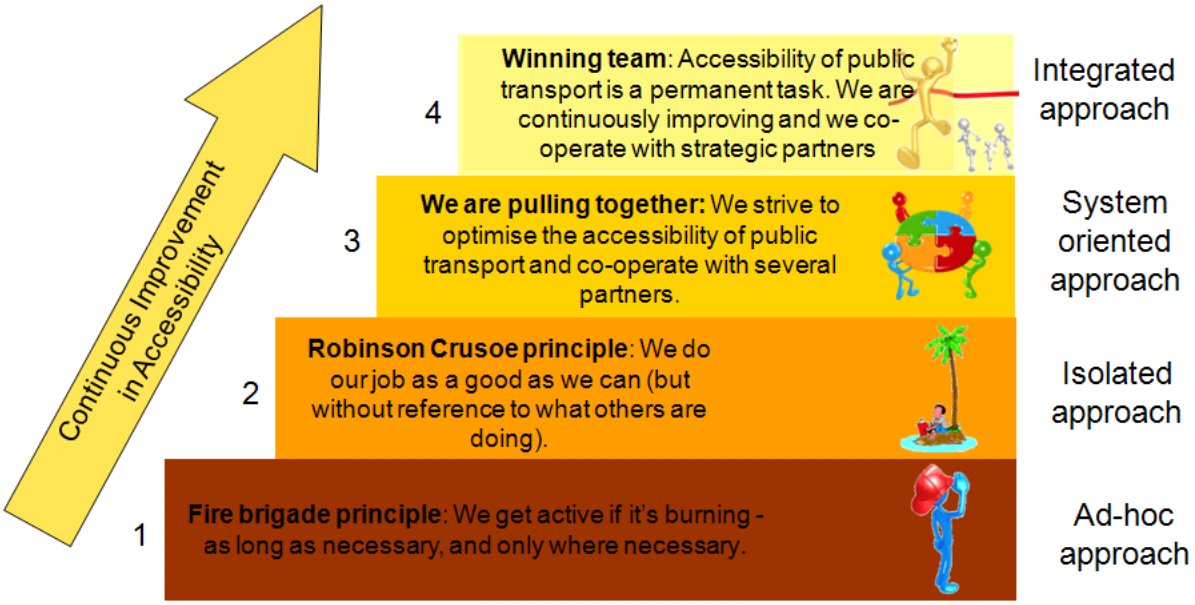


Figure 5 - MEDIATE levels of development

Ad hoc approach

There is some evidence of ad hoc measures or activities promoting accessibility targeted to solve punctual situations or punctual claims from end users, but not an overall vision or long term planning on accessibility policy. Sporadic involvement of user groups can be visible to act upon a problem. Budget is also attributed under an irregular basis corresponding mainly to those problem solving approaches

Isolated approach

The needs and priorities from target groups are identified enabling common vision and presenting evidence of planning, however the emphasis is placed on individual projects rather than on integrated approaches. Different relevant actors (i.e. operators, authorities, user groups) present already some experience of reaching a point of understanding (i.e. regular exchange of opinions, experiences, expectations) and agreements for short term commitments. Medium-long term planning activities are conditioned by the non existence of a guarantee of continuous funding support. Which means that measures are hardly self sustained.

System Oriented

Accessibility issues are usually integrated in the relevant mobility and accessibility policies therefore the existence of a political commitment is clearly visible. Systematic analysis and

regular monitoring and evaluation of actions are undertaken. Budget is evidently allocated for targeted activities and with guarantee of continuity (measures that are self sustained) enabling medium and long term planning. User groups are deeply involved in steering groups (partnership approach) active in the mobility policies.

Integrated approach
Accessibility is fully integrated in policy making – from operational to strategic decision making process. There is no need to earmarked budgets as it is already a part of the process (the so called inclusion paradox) with regular and substantial amounts of finance. As accessibility is totally incorporated in the transport and mobility actions, the use of special services for user groups tends to decrease. The way of working is oriented towards the future and innovative actions (continuous improvement). Synergies and prospective impacts are regularly assessed and re-alignment of the system can be easily conducted as all stakeholders share a common vision.

Data collection and assessment

The use of indicators: How to collect data and assess each indicator

For the data collection phase a checklist or questionnaire to define the data needed for the indicators was prepared. The assessment of the urban public transport system is, however, a joint undertaking for all the actors involved in the provision of local public transport. There are two suggested ways to organise the process:

- The local authorities may ask all relevant actors to provide the data needed to complete the questionnaire for which they are responsible.
- The local authorities invite all relevant partners around a table to give input to the indicators. Each partner then must have prepared the necessary data beforehand.

To achieve valuable information on the direction and pace of development, it is important to assess the aspects in a comparable way each time. It will be important to document the procedure. This also indicates that it may be better to keep the number of people involved low and to give sufficient information and training to those involved. Documentation regarding indicators need to be carried out at a reasonably high level in each organisation, with senior staff in charge of the investigation to ensure straightforward assessment, without the need to make things look better than they are.

The assessment of each indicator

Each sub-indicator may represent a set of questions and datasets. The assessment for each sub-indicator is an overall assessment based on the data provided. The assessment of the key indicator is an overall assessment based on the sub-indicators in that group (weighted average).

As per the consultation with the MEDIATE community, some rules underlying this assessment have been discussed and agreed:

- from the accessibility point of view all the aspects are equally important, therefore each sub-indicator under a key indicator should have the same weight, but there may be exceptions;
- the level of development of the key indicator is dependent on the levels of its sub-indicators and a maximum gap of 1 level is accepted (e.g. for a key indicator be in the integrated level only 1 of its sub indicators can be classified in system oriented and none in ad-hoc or isolated, to be in a system oriented level, only 1 could be in isolated and none in ad-hoc)
- If an sub-indicator is the cause of pushing down a key indicator, then that sub-indicator should have priority in development

However, the key important aspect of this process is to document how each indicator has been assessed, to allow comparison over time and follow the direction and pace of development.

A clear distinction from some previous initiatives is that this is not a benchmarking tool providing comparison between cities, but a tool facilitating the learning process within an organisation and pointing at strengths and weaknesses in the local public transport system. Moreover the indicators are based on the idea of Total Quality Management (TQM) recognising that the development and implementation of accessibility is a dynamic learning process of sequential stages that bring accessibility up to a higher level of development.
The challenge is to balance the framework of the holistic approach and the full policy cycle against the advantages of precise information on a limited number of indicator themes

Self assessment tool

Quality systems are not prescriptive and its application is voluntary. Self assessment methodologies constitute a powerful tool to identify weaknesses and improvement opportunities. The main idea of these procedures is that they assesses the current accessibility policies and practices within the city in all its aspects and that it can be used as a guidance to make further improvements. It should be challenging, feasible and useful for cities, irrespective of the current status of their accessibility levels.

The cities or organisations willing to apply this methodology, are required to take an active role in examining and assessing their current practices regarding each of the quality modules and then determine how changes in some of these elements could further improve the accessibility in the areas. In order to examine and assess the current practice in each of those modules, the levels of development are used to indicate at what stage of development a city or organisation is.

The self assessment process is highlighted in the following picture:

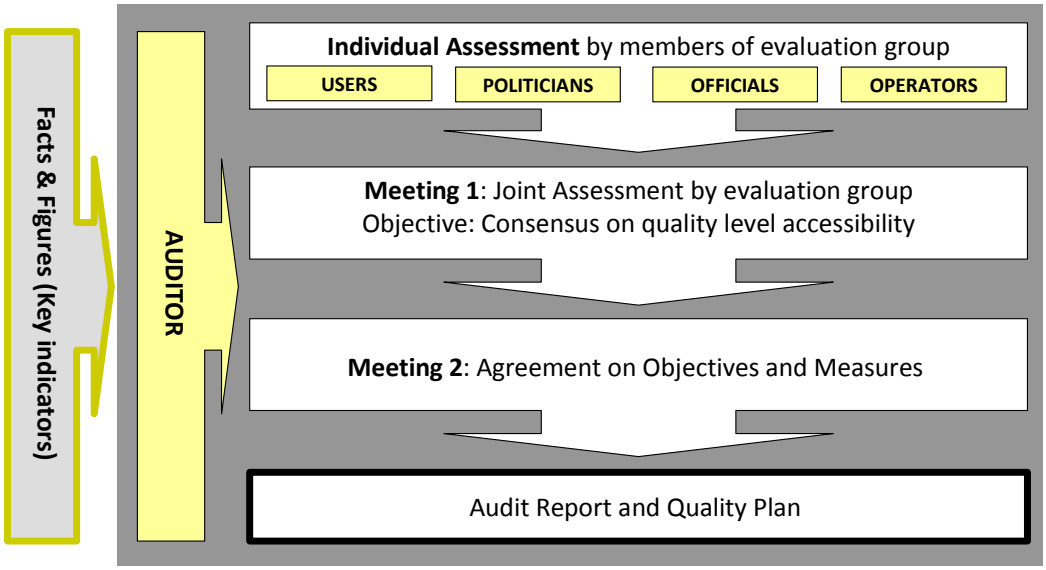


Diagram 1 - Applying the self assessment tool

By collecting and analysing evidence of each of the modules along a structured evaluation questionnaire filled jointly by the different parties in the city (authorities, operators, users, an assessment can be made of the current accessibility status and actions for further improvement can be though and defined. These include the identification of goals, priorities, responsible persons, employees and departments involved, time schedule, budgets, etc.

It is thought that this process should be repeated after a couple of years to assess progress. That new round should at least be undertaken and coupled with the city planning and/ or mobility planning cycles, for example before update of plans or during their interMediate assessments.

Presentation of results

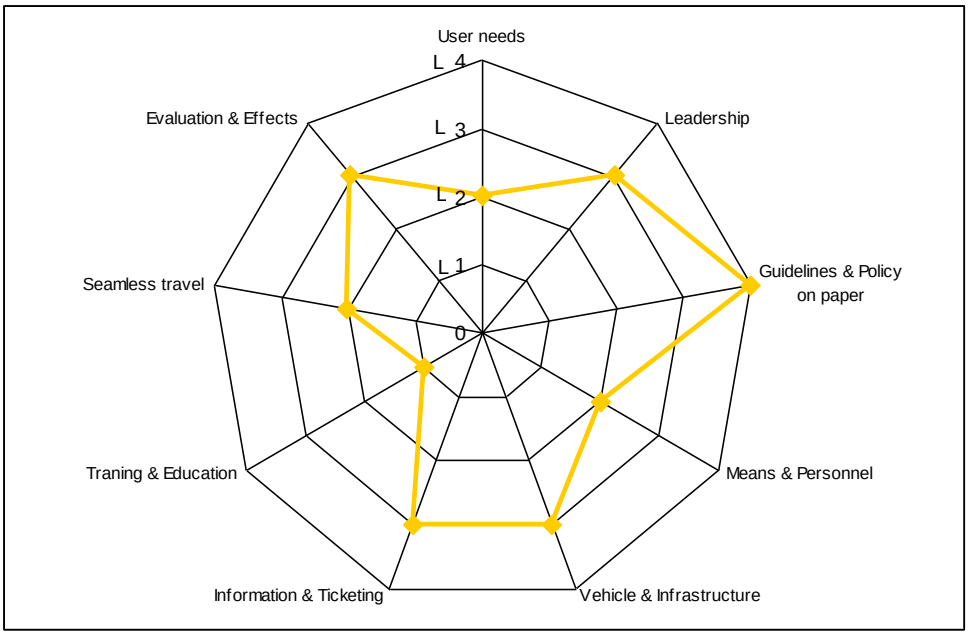
A key particularity of the MEDIATE evaluations and assessments is the fact that it is not intended to work as a benchmarking tool where cities will compare accessibility levels among them. The base and fundamental concern of the MEDIATE tools is to enable the evaluation of current weaknesses module by module or indicator by indicator, identifying areas of improvement and establishing targets for that improvement.

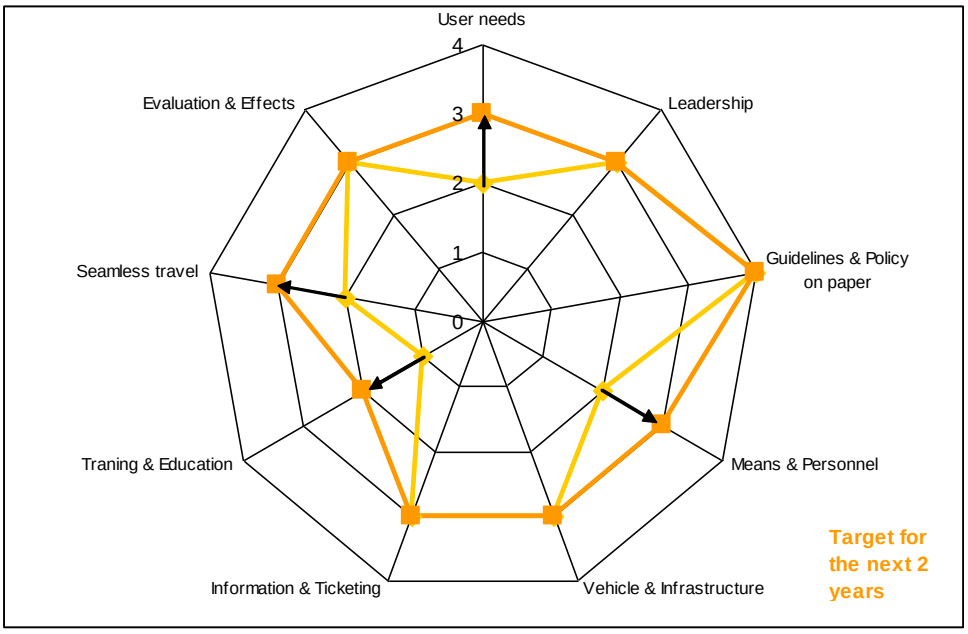
Working with level classifications module by module and not with overall scores, the identification of those improvement areas is clearly identified.

The following figures show some examples of how the results could be presented:

- In the first graphic, the results of the current levels of development for each of the policy modules are presented.
- In the second graphic, it is shown the priority modules for improvement, i.e. highlighting that efforts should not be placed in modules where the level is already high (for example

adapting more vehicles) but instead focused on modules where the level is lower (for example by dedicating some efforts to training) trying to reach a base level where all modules are more harmonised.





This approach should effectively be seen as a tool to evaluate and improve quality of Accessibility of Public Transport policy. It is a dynamic process characterized by systematic learning along the policy cycle form planning to implementation and evaluation, enabling to touch and act upon a set of aspects: organisational aspects; real measures; policy process; policy performance; users' involvement, etc.

CONCLUSIONS

The Mediate project is now reaching its final stage with the start of the real application of the tools in some of the cities belonging to the project community group; therefore it is too early to present clear results on its development.

However, more than the results that will derive from the assessments conducted by each participant city, is the approach and methodological process followed up to the finalisation of the tools constitute that constitute the clear added value of the project.

As a coordination and support action, this work builds on previous developments. The innovative aspect is the integration of identified and selected indicator themes from end-users, local authorities, operators and experts and the systematic framework based on previous approaches to accessibility, planning processes and quality management. Different systems and approaches have been systematised and the work constitutes a step forward in the definition of a holistic set of accessibility indicators and measurement methodologies.

The joint approach of accessibility and quality management is clearly a novel approach. While previous approaches have mainly been performance indicators on accessibility (reflecting the results or outcomes of policy actions measured as accessibility delivery), the inclusion of policy indicators makes MEDIATE a distinctively different approach from established public transport accessibility indicators present (as the most developed case) in the Nordic countries.

Although even this approach focuses mainly on accessibility, it opens up usability aspects including the customer's point of view (end-user evaluations and complaint procedures etc.), making it possible to investigate the gap between service delivery (from the service deliverer's point of view) and the perceived quality.

Furthermore, the novelty of MEDIATE relies also in the integration of a set of tools: indicators are closely connected to the Good Practice Guide and to the Self-Assessment Tool, and based on the same framework of total quality management and continuous improvement. While indicators points out an area in need of improvement, the Self-Assessment Tool provides cues on how to improve and the Good Practice Guide may be consulted for new ideas. In this way the different tools supplement and complement each other.

BIBLIOGRAPHIC REFERENCES

Commission of the European Communities (2009): Communication from the Commission. A sustainable future for transport: Towards an integrated, technology-led and user-friendly system. Brussels.

Commission of the European Communities (2007): Green Paper: Towards a new culture of urban mobility. COM(551)final, Brussels

Commission of the European Communities (2009): Action Plan on Urban Mobility, COM(490/5) draft, Brussels

CEN (2002): European Standard EN 13816 Transportation – Logistics and services – Public passenger transport – Service quality definition, targeting and measurement. Brussels: CEN, European committee for standardization.

CWA (2004): Guidelines to standardisers of Collective Transport Systems – Needs of older people and persons with disabilities – Part 1: Basic guidelines. CEN /CENELEC Workshop agreement.. CWA 45546-1: 2004. Brussels: CEN, European committee for standardization.

ECMT (2006): Improving Transport Accessibility for All: Guide to Good Practice. Paris: European Conference of Ministers Of Transport.

MEDIATE (2009) Deliverable 2.1, Review of previous and existing initiatives and methods for defining and measuring accessibility in public transport, Lisbon, TIS.PT

MEDIATE (2010) Deliverable D2.2, Indicators describing the accessibility of urban public transport, Oslo, SINTEF

MEDIATE (2010), Mediate questionnaire. Final version March 2010, Lichfield, TTR

MEDIATE (2010), Self Assessment Tool – Manual (in development), Diepenbeek, IMOB

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The overall objective of Mediate is to contribute to the development of inclusive urban transport systems with better access for all citizens. The project objective is to establish a common European methodology for measuring accessibility to transport.

Key elements have been the establishment of an End-User Platform (http://www.age-platform.org/EN/IMG/pdf_EUP_composition.pdf) and the web portal on public transport accessibility www.aptie.eu (www.accessiblepublictransportineurope.eu). More information about the Mediate project can be found on the project's website www.Mediate-project.eu .

The partners of the Mediate consortium:

- SINTEF (Norway, coordinator)
- Promotion of Operational Links with Integrated Services - POLIS, (Belgium)
- The European Older People's Platform – AGE (Belgium)
- Transport & Travel Research Ltd - TTR (United Kingdom)
- Transport for London - TfL (United Kingdom)
- IMOB Transportation Research Institute, Hasselt University (Belgium)
- TIS.pt (Portugal)
- TIMENCO (Belgium)