Mediate – Methodology for Describing the Accessibility of Transport in Europe

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Preface

The Mediate project, Methodology for Describing the Accessibility of Transport in Europe, is funded as a Co-ordination and Support Action within the 7th European Commission Framework Program, Theme 7: Transport, under the Call FP7 - Sustainable Surface Transport (SST) – 2007 – RTD – 1, on the topic SST.2007.3.1.1 New Mobility Concepts for Passengers ensuring Accessibility for All. The Mediate project runs from December 2008 – November 2010.

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. This report highlights the findings from data collection based on the indicators defined in Mediate. Key Mediate deliverables are the report on indicators, the self-assessment tool, the good practice guide, and the final report.

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 were:

- 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)

This report was produced by TIS and TTR, incorporating the comments and suggestions from Mediate partners.

Mediate consortium is grateful for the collaboration of the Mediate Working Group members in providing data on the local Public Transport system by filling in the questionnaire which enabled the production of this report.
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Executive Summary

Mediate (MEthodology for Describing the Accessibility of Transport in Europe) is supported by the EU under the Seventh Framework Programme. This two year project will establish a common European methodology for measuring accessibility to urban public transport.

Within work package (WP) 2, a set of common indicators has been finalised describing accessibility of urban public transport. The objectives of WP3 were to collect and analyse data on the indicators from the cities involved in the Mediate Working Group; involve these stakeholders in the process of data collection, analyse the data, validate indicators and exchange knowledge about good practice. This report focuses on the following WP3 tasks:

- 3.1: Co-ordination of the collection of data.
- 3.2: Analysis of the available data.

Data collection

Data on indicators was to be collected from the 25 urban public transport authorities represented in the Mediate Working Group. A standard, web-based questionnaire was designed for data returns, following a consultation process which took account of comments from project staff and external stakeholders. The majority of data to be collected was quantitative but some qualitative data was also being requested.

TTR circulated a questionnaire to the public transport authorities represented on the Working Group. Comprehensive guidance was provided to authorities on completion of data returns. Respondents were asked to complete the questionnaire within a month. There was a 60% response rate, with both western and eastern European states represented within the respondents.

The data gathered from the questionnaires was sufficient to undertake an analysis which does not intend to reflect any site trend nor contribute to a benchmarking process but instead to provide an overview on the way that accessibility to public transports is being carried out in Europe.

Results herewith presented enabled for a general overview. In a restricted document provided to each of the respondents (city or transport provider) detailed assessment of the level of development for that city, per each of the key indicators is given, which will feed the policy module “results” in the assessment tool developed in WP4.

Data analysis

The analysis contemplates two distinct levels:

- In the first one, a standard data analysis was developed with the dataset from the indicators questionnaire. This was targeted to describe the accessibility
situation in the different cities, based on the answers directly provided by respondents. This descriptive assessment provided a quite positive portrait of accessibility in cities, and more positive than was expected. This is clearly a result of the fact that cities belonging to the working group were not randomly chosen, and that the questionnaire do not allow for a deep level of detail of topics.

- The second level of analysis was targeted to calculate levels of development for the defined key indicators. This was done through the development of a multicriteria assessment (MCA). MCA enabled to translate both quantitative and qualitative data into proper measurements enabling a common basis for assessment. As from the 1st level of analysis some caveats were identified, in this second stage it was decided to test the methodology applying 3 evaluation scenarios with more strict conditions to achieve each level of development.

**Lessons learnt from data analysis**

As from data analysis some lessons were learnt, both in relation to the format and to the contents.

In the framework of the project, a balance between the level of detail and the time to complete the questionnaire was necessary to achieve. Consequently a set of sub questions (as foreseen in the indicator report) were dropped from the questionnaire. Although it was assumed that respondents would take into account those aspects when answering to a certain topic, there was no capacity to verify it. On the other hand, the questionnaire was filled in by a single person and was not a result of a shared process with the different actors involved in the city (operators, authorities, planners, users). Such shared process for data acquisition differs from the consensus phase applied in the Self Assessment (the first aims to collect a diversity of fact finding elements, the second refers to a joint exercise to reach a consensus on the current situation and on the definition of an action plan).

As a result of above, a first learning was exactly that the level of detail is of utmost importance, and therefore it is preferable to extend the contents and the time to fill in for such a type of questionnaire, if more data accuracy is expected. The actual situation needs to be further assessed, identifying some central facts for each key indicator and how they relate.

To be able to monitor the development over time, it is important to document how data is collected and measured. The involvement of the different actors is also considered as extremely important and whenever it is not possible to promote a joint exercise, then having each actor filling the questionnaire and then someone compiling the different evidence is helpful.

In Mediate, it was agreed with the expert group that all indicators should have the same weight. However, as a result from all the process conducted it is considered that some aspects could be more important than others to achieve the desired accessibility levels. The fine tune of MCA by establishing a hierarchical analytical process, enabling to highlight the key relations between indicators and sub-indicators (and consequently imposing conditions) seems to be beneficial for that weighting.
process. This also includes balancing the number of aspects and sub-indicators for all key indicators.

It is considered that methodologies herewith applied were of extreme importance to establish a common understanding for the analysis of data obtained from the indicators questionnaire. It is also acknowledged that this process would benefit from an interaction process with the different actors in the city as foreseen for the self assessment tool.

Overall, and based on the results from this process, it is noticeable that there is still considerable work to be promoted, both in terms of hard and soft measures, to achieve a level of universal accessibility in European public transport networks. As such, all efforts in this subject are welcome to raise awareness to important aspects that in other terms could require much time to be taken into consideration.

Above all, and as already referred to, is the importance to engage and enlarge cities’ group representatives participating in the exercise of data gathering and analysis.

**Reflections on Mediate follow-up’s**

Mediate has provided a set of methodologies to evaluate and measure accessibility for all in transport systems. These methodologies have proven to be valid and useful but lack still some more evidence on its real application in enlarged contexts. More attention should be devoted to a smooth articulation between the different outputs obtained from Mediate analysis. This refers particularly to the concept of levels of development as the linkage between indicators, good practices and the self assessment process.

Throughout an enlarged group of cities testing and applying the methodologies, it could be possible to promote a learning process, minimising and avoiding the risk of having cities that are starting in the accessibility fields to fall in the same traps and faults as those in more advanced stages. This constitutes the basis for a transferability process, not addressed during Mediate, but which has proven in other contexts to be of utmost interest and as such should be an aspect to explore in future initiatives.
1. **Introduction**

The Mediate project, Methodology for Describing the Accessibility of Transport in Europe, is a coordination and support action within the 7th European Commission Framework Programme, running from December 2008 – November 2010. The overall objective of Mediate is to contribute to the development of inclusive urban transport systems with better access for all citizens. The main idea is to contribute to the efficiency of the process of achieving accessible transport systems in Europe, by developing a methodology for measuring accessibility to transport and a set of common tools: common European indicators for describing accessibility, a self-assessment tool, a good practice guide, a web portal on public transport accessibility (www.aptie.eu) and a European end-user platform. More information about the Mediate project can be found on the project’s website www.mediate-project.eu. The partners of the Mediate consortium are:

- 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)

The overall project objective is translated into the following operational objectives:

- Establish an overview of relevant initiatives and methodologies that describe and measure accessibility to urban transport (review report; Marques et al. 2009).
- Identify a set of common European indicators for describing accessibility to urban transport.
- Collect examples of good practice from European cities and collect data supporting the European indicators.
- Develop a self-assessment tool for measuring accessibility to urban transport.
- Establish working groups involving European cities (local authorities and public transport operators) for exchange of information among stakeholders and provision of relevant input about indicators to the project.
- Create an End-user platform providing end-user experience and input from a broad range of passenger groups. Define 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.

As figure 1 below illustrates, the end-user platform, local authorities working group and Mediate experts contribute to the process of developing a methodology and tools for assessing public transport accessibility. The process involves
identifying indicators which in turn influence data collection and the collection of good practice, leading to the development of a self-assessment tool. The analysis of collected data may later serve to review the selected indicators. The results will be communicated to relevant standardisation bodies.

![Diagram](https://www.mediate-project.eu/fileadmin/Deliverables/MEDIATE_D22_Indicators_for_accessibility_of_urban_public_transport_final.pdf)

Figure 1 - Mediate knowledge coordination, work packages and stages

1.1 Objectives of this report

Within work package (WP) 2, a set of common indicators has been finalised describing accessibility of urban public transport. A report on the indicators (deliverable D2.2) is available from the Mediate website. The objectives of WP3 were to collect and analyse data on the indicators from the cities involved in the Mediate Working Group, involve these stakeholders in the process of data collection, analyse the data, validate indicators and exchange knowledge about best practice. The collection of data and best practices is necessary to feed into and validate the self-assessment tool which will be developed in WP4.

This report focuses on the following WP3 tasks:

- 3.1, co-ordination of the collection of data, led by TTR
- 3.2, analysis of the available data, led by TIS.PT.

Two different outputs result from data analysis: a first and public part herewith compiled presents the general overview of data collected and its key findings; a second part is of restricted access to each of the respondents and includes the assessment on city level of development in each of the key indicators. Such results

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may feed the self assessment to be conducted in WP4, while at the same time they can be used for internal analysis and identification of action plans.

A separate deliverable for task 3.3, collection of examples of good practice is produced. This will be a public good practice guide, D3.2.

1.2 How to read this report

This report provides the results of the analysis of data on urban public transport accessibility collected in 15 European sites comprising both urban and regional contexts.

In chapter 2, the data collection procedure is described.

This is followed by the overall assessment of the answers provided to the Mediate data collection questionnaire, in chapter 3.

Chapter 4 is dedicated to the evaluation of levels of development per key indicator in the context of the 15 sites, as a result of the application of a multicriteria analysis.

A reflection on the key learning’s and conclusions from data analysis is provided in chapter 5.

The report comprises three appendixes, respectively:

- Appendix 1 – Mediate data collection questionnaire
- Appendix 2 – Criteria and weights applied in Multi Criteria Analysis (MCA)
- Appendix 3 – example of outputs provided to each site respondent.
2. Data collection process

2.1 Questionnaire design

Data on indicators was to be collected from the 25 urban public transport authorities represented in the Mediate Working Group. Project staff agreed to design a standard questionnaire for data returns.

TTR presented an overview of the data collection process at the second Working Group meeting. Subsequently the Group split into breakout sessions to consider and work through elements of a draft questionnaire prepared by SINTEF. Feedback was then reported from each breakout group. These comments were taken into account by TTR to produce a refined questionnaire.

This refined questionnaire was circulated for comment, to MEDIATE project staff, and Working Group members, End Users and Experts attending the third Working Group meeting. TTR presented the arrangements for data collection at this meeting. As a result of piloting the questionnaire, a number of comments were received from project staff and external stakeholders. TTR took these into account in producing a further refined, final version of the questionnaire. It was also prepared a table summarising comments and how we responded to them, which was circulated to project staff for information.

The questionnaire contained introductory text which explained why data on indicators were being collected and how the data would be used. Guidance notes were also incorporated throughout the questionnaire at relevant points to clarify terms used within specific questions.

Questions were grouped under four headings, reflecting the headings under which indicators were classified:

- accessibility policy and investment.
- service operations and standards.
- accessible information and ticketing.
- accessible vehicles and built environment.

The majority of data to be collected was quantitative but some qualitative data was also being requested. It was decided that a web-based questionnaire would be most user-friendly for both those entering and analysing data. It was important at this stage for TTR and TIS.PT to liaise, to ensure the format met the requirements for data analysis.

TTR used the software programme Survey Monkey to set up the questionnaire on the web (see www.surveymonkey.com). Data collected via Survey Monkey can be exported into Excel data output files and then used for analysis of quantitative questionnaire data. Survey Monkey is a US product and complies with Section 508, a US Federal law that outlines requirements to make online information and services
accessible to users with disabilities. Respondents to our questionnaire were given the option of completing it in an alternative format if they wished.

A copy of the questionnaire is presented in Appendix 1.

2.2 Questionnaire circulation and completion

A web link to the questionnaire was provided to the public transport authorities represented on the Working Group and respondents were asked to complete questionnaire within a month. Comprehensive guidance was offered to public transport authorities on completion of data returns.

Survey Monkey also has a facility to track questionnaire completion and to issue email reminders to respondents who have not yet returned questionnaires. TTR used Survey Monkey to monitor questionnaire completion and several reminders were sent.

After prolonging the deadline once, the final position was that 16 questionnaires were returned. A first assessment identified that one of the respondents did not provide data for the majority of questions and was not considered as satisfactory for analysis. At the end, 15 answers (60% response rate) were obtained. Both western and eastern European states were represented within the respondents.

Guidance on responding to specific questions was included in the questionnaire. The introduction to the questionnaire gave contact name/details for any queries. One query was received from one city about completion of a specific question, which was responded to.

2.3 Data analysis

The analysis process contemplated two main levels of analysis with different objectives:

- A standard data analysis was undertaken with the dataset from the indicators questionnaire to identify the accessibility levels provided in the different cities. Results herewith provided reflect the answers directly provided by respondents and not the opinion of consortium. The questionnaire contemplated the possibility for respondent to justify and/or provide more information and views on the answers provided, however in most of the cases such option was not used. Whenever more information is available it is included in the results presentation.

- The second level of analysis was targeted to calculate the levels of development for the defined key indicators. This was done through the development of a multicriteria assessment (MCA). MCA is translating both quantitative and qualitative data into proper measurements enabling a common basis for assessment. This assessment can be used as an evaluation and communication tool, to enhance the exchange of viewpoints among stakeholders, as for instance in the course of the self assessment
exercise, as promoted in WP4. To overcome or circumvent some caveats identified (as derived from the fact that it was answered by a person and not as a result of a consensual process involving different stakeholders), 3 evaluation scenarios imposing more strict conditions (as expected when combining different visions) to achieve each level have been tested. Through this it was possible to simulate the demand for more exigent criteria in high quality levels, being this also in line with quality audit approaches.
3. Data analysis: global results

3.1 Introductory remarks

The approach followed for the analysis that is herewith presented is in line with the different sections identified on the questionnaire and with the key indicators defined in D22 as below recovered.

It is considered that methodology herewith followed fulfils the objectives that have been defined. Taking into account the purpose of limiting the length of the data collection questionnaire, the questions herewith included do not contemplate the level of detail as expressed in the indicators report. However, in order to achieve a more sophisticated and appropriate tool for cities and operators, it should be improved. Those lessons are included in the concluding chapter.

Table 1 - Mediate key indicators

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<td>Accessibility plan</td>
</tr>
<tr>
<td>A2</td>
<td>End-user involvement</td>
</tr>
<tr>
<td>A3</td>
<td>Integrated accessibility policy</td>
</tr>
<tr>
<td>B</td>
<td>Service operations and standards</td>
</tr>
<tr>
<td>B1</td>
<td>Meeting user needs</td>
</tr>
<tr>
<td>B2</td>
<td>Accessibility maintenance</td>
</tr>
<tr>
<td>B3</td>
<td>Fare policies &amp; alternative services</td>
</tr>
<tr>
<td>C</td>
<td>Information and ticketing</td>
</tr>
<tr>
<td>C1</td>
<td>Accessible information</td>
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<p>| A1      | Accessibility plan &amp; strategy: Current plan at urban level.      |
| A2      | End-user involvement in all stages: Involvement of older people and disabled people in planning, implementation, monitoring and evaluation. |
| A3      | Accessibility integrated in all relevant policy: How accessibility is an integral part of all policy issues for all partners involved. |
| B1      | Available assistance, staff training, complaint procedures, user feedback, personal security measures. |
| B2      | Plan, routines, and monitoring.                                  |
| B3      | Fare policies &amp; public transport affordability, and availability of alternative services. |
| C1      | Multi-format information before and during the trip: Multimodal and dynamic travel information, disruption information, and accessibility |</p>
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<th></th>
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<th>Information according to user requirements, before and during the trip. Passenger travel training.</th>
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<tr>
<td>C2</td>
<td>Accessible ticketing</td>
<td>Ease of buying and validating ticket. Simplicity, intuitive systems, possibility to buy multimodal tickets (all the way through).</td>
</tr>
<tr>
<td>D</td>
<td>Vehicles and built environment</td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>Accessible vehicles and built environment</td>
<td>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).</td>
</tr>
<tr>
<td>E</td>
<td>Seamless travel</td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>Seamless travel</td>
<td>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.</td>
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The present analysis provides a first insight on current accessibility levels in the cities; however, some limitations, and caveats as to the interpretation of results, must be raised from the outset:

- The results only reflect the viewpoint and perspective of the Mediate Working Group member representing the city. Although, in general, this person should have a good knowledge of the city and its accessibility levels, answers provided, nevertheless constitute a personal view, and are not the result of a shared discussion with different stakeholders.

- For the purpose of limiting the length of the data collection questionnaire, not all relevant issues were covered in full, and some questions were compiled as Boolean answers (i.e. yes/no). Although it is assumed that respondents have taken different issues into consideration, the answer does not provide a full picture.

- As a consequence of the above, some results might portray a more positive image than is actually appropriate, and one that is different to the result if the questionnaire were completed by a number of stakeholders, and/or if the questions were framed differently.
- On the opposite, members representing cities belonging to the working group were not randomly selected and represent cases where accessibility is already a key discussion topic. Consequently, a more positive vision of accessibility conditions could be expected (lead group of accessible cities).

3.2 Respondent characterisation

As mentioned above, 25 cities represented in the working group were asked to answer to the Mediate questionnaire, of which a total of 15 answers was obtained (60%).

Though in quantitative terms, data do not enable for representativeness, it provides a good diversity of European cases with cities from Nordic countries, Central EU, Southern EU, New Member States and UK as shown in the figure below. Again it should be remembered that answers herewith presented reflect the viewpoint and perspective of the Mediate Working Group member representing the city. As mentioned, and given the fact that respondents and cities show specific interest for accessibility, the answers in the questionnaire are likely to be influenced and with more positive portraits than if common citizens were surveyed. In the large majority of the cases, the area covered by the analysis includes the city and its surroundings (metropolitan areas) and in some cases (i.e. Stuttgart) it provides the vision for the whole region.

![Figure 2 - Cities and regions in Mediate working group](image-url)
3.2.1 Allocation of responsibilities

The first set of questions aims to obtain an overview of the allocation of responsibilities for the pedestrian and public transport networks in the city area, to identify the bodies in charge of accessibility improvements and the organisational schemes adopted. Results show that such responsibilities follow a common pattern of allocation among respondents.

The identified entities (in most of the cases two types of entities are involved) responsible for delivering public transports and pedestrian networks were:

- Transport Operator.
- Transport Authority.
- Municipality.

Results also demonstrate that these entities can also be involved in the system throughout possible combinations between them: Authority_Operator, Authority_Authority, and, Municipality_Authority,

As it can be seen in the chart presented below, pedestrian networks are an issue mainly under the responsibility of the Municipalities, though the collaboration with authorities is also visible. As it could be expected, operators are involved in transportation planning but not so much in pedestrian areas. However, with the exception of one case where all responsibility for public transport is allocated to the operator, in all the other cases this is the result of a collaborative process with the municipalities and/or transport authorities.
3.2.2 Transport modes available

In the large majority of the cases (11 out of 15) there is a presence of more than 3 transport modes. As it could be expected, bus mode is present in all cities, being, in two of the areas considered, the only transport mode available.

When there are two modes available, this corresponds to a combination of bus and train. In the cases of three modes available, this refers to bus-metro-train, bus-metro-tram or bus-train-tram.

Ferry mode is available in 4 of the areas covered by this questionnaire, metro in 8 of them, tram in 9 and train in 11 cities. The cases with ferry as a mode always occur in areas with 4 or five transport modes available.

<table>
<thead>
<tr>
<th>Combined transport modes</th>
<th>Number of cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only Bus</td>
<td>2</td>
</tr>
<tr>
<td>Bus-Train</td>
<td>2</td>
</tr>
<tr>
<td>Bus-Train-Metro</td>
<td>1</td>
</tr>
<tr>
<td>Bus-Train-Tram</td>
<td>2</td>
</tr>
<tr>
<td>Bus-Metro-Tram</td>
<td>2</td>
</tr>
<tr>
<td>Bus-Train-Tram-Metro</td>
<td>2</td>
</tr>
<tr>
<td>Bus-Train-Tram-Ferry</td>
<td>1</td>
</tr>
<tr>
<td>Bus-Train-Metro-Ferry</td>
<td>1</td>
</tr>
<tr>
<td>Bus-Train-Tram-Metro-Ferry</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total cities</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>
3.3 Accessibility Policy and Investment

12 of the 15 city regions confirm the availability of an accessibility plan which is regularly updated. Despite the indication of existence of a plan and its regular update, the data gathered did not allow to identify if such plan does include the different accessibility requirements and/or if it is put available to all stakeholders and in accessible formats. Such aspect deserves some attention of the consortium and it constitutes some of the learning aspects to be considered in a follow up exercise. For those sites that have identified the availability of the accessibility plans, they were asked to define at which political level the commitment is present.

Chart 3 - Existence of accessibility plan at city level
For the 12 cities reporting the existence of a political commitment, half have a national backing, which is translated in the existence of targeted accessibility legislation (for public transport, public buildings and / or public spaces). In 8 of the cases, the local commitment is present, while regional commitment is present in 5 of the cases.

Interesting is the fact that in one of the cases accessibility plans do exist but where it is clearly state that there is no political commitment at any level. This could indicate either a non responsibility that could at the end impact on the implementation stages or in the opposite a case where plans are already at a higher stages of development for which there is no more need to formally involve and commit politics (unfortunately the available data does not allow to assess this aspect).

In the table and chart below, the different combinations of political commitment is given. As it can be seen, in the large majority of the cases the commitment is visible along the different levels. It is interesting to notice that in 3 of the 13 cases with accessibility plans, they are committed only at local level, though in the large majority of the cases such commitment is presented from national to local or regional to local.

<table>
<thead>
<tr>
<th>Level of commitment</th>
<th>Nr of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only Local</td>
<td>3</td>
</tr>
<tr>
<td>Only Regional</td>
<td>1</td>
</tr>
<tr>
<td>National and Regional</td>
<td>1</td>
</tr>
<tr>
<td>National, Regional and Local</td>
<td>3</td>
</tr>
<tr>
<td>National and Local</td>
<td>2</td>
</tr>
<tr>
<td>Regional and Local</td>
<td>1</td>
</tr>
<tr>
<td>No commitment at any level</td>
<td>1</td>
</tr>
</tbody>
</table>
Some sites have stated that the accessibility plan can be understood as strategy of the county council which sets out guidance, creating a suitable pedestrian environment. Others refer that accessibility is a legal requirement with quantified and targeted objectives both for public transport, for public buildings and designing vehicles and stations. Sometimes the accessibility plan has amendments that enable additional programs to adjust public transport systems to the needs of disabled people.

Neverthelesss, the commitment can be self evident but the delivery is patchy as different areas and operators interpret the guidance differently and this causes dissimilarities in delivering accessibility. Regarding the plan itself, this can be a more a political proclamation rather than an explicit commitment.

Reflection on demographic changes (in the accessibility plan)

The assessment made to the questionnaires revealed that in half of the 12 cases where an accessibility plan exists, a long term strategy that takes into account the reflection on the demographic changes in the society is not present, while in other half such reflection is done.

Being a fact that Europe’s population is ageing and the systems in general and the transport system in particular has to be adopted to provide support to this fact, it is somehow strange that half of the cases do not undertake such reflection in their planning (consortium note).
Involvement of end users in policy

Another topic that stands out from the analysis is the involvement of older and disabled groups in different aspects of accessibility policy. In fact this can be one of the greatest hurdles in the immediate situation. The data shows that there is already some involvement of disabled people and, although in a minor scale, the involvement of older people, showing that some progress is visible concerning reluctance to develop a system with the involvement of target groups. This fact should deserve high attention from the entities that are willing to build a more homogeneous Europe in what concerns delivering accessibility for all and thus overcoming the gap between leader and follower sites.

When looking to the different combinations that such user groups’ involvement could adopt, it is worth to notice that in none of the cases older people are involved as the only user group. However it should be highlighted that in almost all policy stages the combined presence of older and disabled people is a reality. Involvement of target groups is less visible in the monitoring stages, although in the evaluation stage they become more involved again.

Chart 5 - Involvement of older and disabled people in different aspects of accessibility policy

![Chart showing involvement of older and disabled people in different aspects of accessibility policy]

Stakeholders involvement in accessible transport delivery

The next question asked cities to mark all the stakeholders that, in some way, are involved in the process of delivering an accessible transport system. Public transport operators and transport planners are the most active groups when the matter of
delivering accessibility comes to the agenda. Those groups are immediately followed by urban planners and designers of public spaces. Legislators represent the last group in the chain of involvement.

Chart 6 - Stakeholder groups involved in the process of delivering an accessible transport system

When looking for the mix of involvement it is worth to notice that the transport operators are present in all 15 cases, either alone or in combination with two or 3 of the other agents, particularly with transport planners and urban planners. In 6 of the cases such mix is given by the jointly participation of PT Operators - Transport Planners - Urban Planners and Designers of Public Spaces which is a good indicator that cities have already some maturity to promote collaborative approaches in transport accessibility planning. One of the sites refer the involvement of all 6 stakeholders, and two sites refer to the involvement of 5 stakeholders (in one case the exception is the legislators, in the other the transport manufacturers).

In the next chart the sites were asked to identify the formal guidelines used to ensure accessibility. From a global perspective it can be seen that national guidelines are the most visible ones, however internal guidelines (thus regional or organisational guidance) are present in most of the aspects under analysis.

International guidelines are mainly visible in the cases of vehicles. The existence of an EU regulatory framework targeted to vehicles (i.e. Directive 2007/46/EC on Bus and coach certification) could justify this fact.
Chart 7 - Use of formal guidelines to ensure accessibility

Based on the information provided by the cities it is curious to assess the different possible combinations of guidelines and the main aspects that are highlighted (see table below):

- The majority of cities make use of internal (regional or organisational) guidelines which are mainly adopted for ticket purchase and validation aspects.
- Cities revealed that national guidelines are particularly adopted in the case of pedestrian environment but also with an important role in terms of transport stops, platforms and stations.
- Cities make use of international guidelines which are mainly followed for vehicles. Information provision is the other aspect where they are adopted as the only guidance, but with lower significance.
- Combined use of national and internal (regional or organisational) guidelines presents an important role for pedestrian environment, stops, stations and platforms as well as for information provision to the cities.
- With less intensity, though important to refer (present in 3 of the selected cases) is the combination of international – national and internal guidelines in all the topics considered, though in the case of pedestrian environment this is not significant (as seen above, in this topic, national or internal guidelines are specially adopted).
Table 2 - Combined use of guidelines

<table>
<thead>
<tr>
<th></th>
<th>PT stops, platforms &amp; stations</th>
<th>Vehicles</th>
<th>Pedestrian environment</th>
<th>Ticket purchase &amp; validation</th>
<th>Provision of information</th>
</tr>
</thead>
<tbody>
<tr>
<td>International (only)</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>National (only)</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Internal (only)</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>International / National</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>International / National / Internal</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>National / Internal</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Not known</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Specific rules in procurement contracts

The inclusion of accessibility requirements in procurement contracts is present in all the sites, although the range of issues covered presents a high diversity. In 8 of the cases, penalties are imposed if accessibility criteria are not accomplished.

Physical accessibility of vehicles constitutes the main criteria included in the procurement contracts, which is in line with the above findings where it was seen that international guidelines for vehicles are mainly followed. In fact, this criteria is present in all the 15 cases, being followed by the on board spaces for wheelchair users on vehicles (13 cases), that again is in line with the existence of guidelines that in general contemplate such prescription.

It is interesting to refer that inclusion in procurement contracts for provisions for staff training is present in 10 of the cases. Formal procedures for assisting disabled people are included in 8 of the cases. Inclusion of on board spaces for assistance dogs is presented in 5 of the cases as well as staff screening procedures and consistency of design and features within a district or mode.
As previously highlighted, such results must be observed with some care, as they tend to present a more positive vision than what is observed in the generality of the European cities. It cannot be forgotten that cities presented in the working group were not randomly selected but instead representing cases where attention to accessibility is already a priority.

Other provisions referred as included in the procurement contracts, reveal cases where all new acquisitions have to follow the universal design principles, rebuilt platforms should be mandatorily accessible, as well as next vehicle generation should include the features of the TSI PRM standard.

Existence of specific accessibility investments

The last group of question under the policy and investment key indicator refers to the investments done and by whom this is supported.

Sites are in general committed to provide citizens with a public transport system more accessible, for which specific investments are allocated. Only in 3 of the cases there is no specific investment. From the respondents that affirmatively state specific investment for making the transport system more accessible (12 cities), the identified responsibility is clearly committed to local and regional governments (in all cases specific investments are done at this level). However the major investments correspond to the cases where investment is shared among the different bodies. Investments by public transport authorities are presented in 10 of the cases. The cases indicating investments done by other bodies include the transport operator as well as the national governments.
It should however be noticed that for the 3 cases reporting “no specific investments” allocated, do not correspond to non investments. In two of the cases, it is stated that it is not possible to allocate among the different entities and one case referring to the universal design principle, thus with no more need to a specific allocation of investments.

**Chart 9 - Specific investments for making the transport system more accessible**

![Chart](chart9.png)

As expected, for the large majority of the cases surveyed there is no data available on the annual expenditure per inhabitant within the defined urban public transport system. This is explained by non capacity to calculate such amounts (a potential reason results from the annual fluctuations over the years). For the 3 cases that indicate such expenditure (in EUR), the amounts vary considerably ranging from 64€ per inhabitant to 750€ per inhabitant.

**Overall findings on policy and investments**

13 of the 15 sites have an accessibility plan at present; however it is not possible to evaluate the quality and details of such plans. In 3 of the cities a commitment is present at all administrative levels (local, regional and national) and in 4 at two levels. It is believed that having a commitment of at least two levels reinforces policy. In four of the cities the commitment is assumed by one level while in one of the cities there is no formal commitment. In 9 of the cities, the accessibility plan takes into account a reflection on future changes, particularly ageing.

End users are in general involved in public transport issues in many cities. But there seems to be challenges concerning the range of such involvement according to
policy stages. In 9 of the cities both older and disabled people are involved in implementation and evaluation stages, while in planning and monitoring they are involved in 7 cities.

In several cities transport planners, urban planners and operators are involved in delivering accessible environments. Most of the cities involve between 3 and 5 different stakeholders in such processes, with legislators and manufacturers being less often involved.

The use of formal guidelines to ensure accessibility are followed in most of the cities, however the actual situation is hard to judge without further knowledge on the status of such guidelines in each of the respective countries.

All cities include accessibility provisions in procurement contracts and in 8 of them penalties are applied.

Existence of specific investment for making the transport system more accessible is present in 12 of the cities, and in 10 of those, such investment is shared at different levels (local to national).

3.4 Service operations and standards

This section provides a global overview on how user needs are taken into account (i.e. up to what extent staff training, staff assistance, satisfaction surveys, procedures to deal with complaints and other requirements are in place). This is followed by the evaluation on transport affordability measures adopted in the selected sites.

Staff training

Training the staff on how to deal with users with special needs is of utmost importance to promote the use of public transport. A transport system where staff is aware of the needs and on how to provide support when requested, can transmit to the user the necessary confidence to make use of the system. In this set of questions it is aimed to assess to which extend transport operation staff and staff engaged in planning issues are trained and aware on accessibility issues.
Chart 10 - Extend of staff training in disability issues

Chart 11 – Categories of staff with refreshment courses offered
From the answers obtained, and looking for each of the staff categories per se it can be considered that:

- **Front line staff:** From the 15 sites just 9 have some procedure of training front line staff on disability issues. In 4 of the sites, all staff is involved in such training sessions while in 2 of the sites the majority of this staff category is involved. In 5 of the sites refreshment courses are offered. Just 4 respondents sites do not know if training for this staff category are offered or not.

- **On vehicle staff:** In total 11 of the sites offer training actions to on vehicle staff (5 to all staff and 4 to most of the staff) and refreshment courses are offered in 4 of those sites. 2 of the site respondents do not know if training on disability issues for on vehicle staff exists or not.

- The number of respondents site declared of not knowing if training is given to the remaining staff category groups not so directly engaged in contact with the public, increases, being this the answer provided in 7 of the sites in relation to pedestrian maintenance staff and 5 in case of transport operations management.

- While in staff categories with direct contact with users (front line and on vehicle) the answers mostly fall in options “most” or “all”, for the remaining staff categories such option falls mainly on the “some” or “few” cases.

- Refreshment courses are mostly offered to front line and on vehicle staff respectively in 5 and 4 sites. 2 sites reported the existence of such refresh courses for operation management staff and just one for pedestrian planners. None of the sites refer to refreshment courses in the remaining staff categories.

However, when looking for the whole set of staff categories from the site perspective it is worth to highlight that:

- In one of the sites, “all staff” in all staff categories are subject to training actions and “some staff” from other categories (not stated which) is also engaged on such actions. For on vehicle and front line staff members refreshment courses are offered.

- Two other cases state that all staff directly engaged in relationships with the public (so front line, on vehicle and public transport operations management) is subject to training.

- Whenever the decision fall on “most staff” or “some staff” the categories that are commonly included are front line and on vehicle.
Traveller satisfaction surveys

Chart 12 – Regular promotion of PT user satisfaction surveys

The chart presented above shows the results obtained concerning the regular promotion of user satisfaction surveys. Particularly relevant is the fact that a large number of sites (varying from 5 to 7 sites) expressed themselves on the “Not at all” answer, being consistent along all the types of customer surveys considered. Highest shares of “not at all” refer to the target groups “personal assistance companions” and “disabled with cognitive impairments”, followed by the group of “younger people”. A possible reason for the high number of cases reporting the non existence of specific surveys to target groups is the regular conduction of satisfaction surveys addressed to all passenger users which is a common practice on transport operation.

When surveys are done, most common periodicity period correspond to one year or less frequently.

One of the sites refers to the obligation of undertaking more frequently (less than 6 months) exercises on older people satisfaction.

Despite the fact that surveys accessing customers satisfaction is already a tool that is commonly used, sites revealed that a long walk on providing such surveys in accessible formats has not yet arrived to a satisfactory level, deserving the need of some attention. From the 15 sites, only 4 declare that their surveys are provided in accessible formats.
Chart 13 - Availability of surveys in accessible format

For cases with accessible format surveys the common formats include large format, different languages, electronically and in Braille on request. Officer assistance is available upon request.

Asking on how user survey results relating to accessibility are incorporated into policy planning, most of the sites confirmed, in line with previous points, that most of the surveys are integrated into general surveys. Such results normally feed the strategic policy review and its amendment when necessary, including the fine tune of the PT system. One of the sites refers clearly that survey results have been used to build accessibility investments programs, and from this year on they will be used as a tool to develop the programs if necessary. Besides surveys, two of the sites call the attention to the existence of round tables and consultation which results feed the business planning processes.

One of the sites affirms that user surveys are done year by year, therefore enabling for results comparability over the time, which includes not only the transportation but also all infrastructure related areas of city operation, i.e.: transport, electricity, waste management, etc.

Customer complaint procedures

Procedures for receiving and dealing with user complaints about urban public transport systems are in place in 14 of the 15 sites.
### Chart 14 - Existence of complaint procedures and available formats

<table>
<thead>
<tr>
<th>Existence of procedures for receiving and dealing with user complaints about the urban public transport system</th>
<th>Availability on accessible formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes 14 cities</td>
<td>No 5 cities</td>
</tr>
<tr>
<td>No answer 1 city</td>
<td>Yes 9 cities</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Complaints acting up

- Only in minor ways 3 cities
- To some extent 6 cities
- To a great extent 5 cities

Opposite to what was revealed for user satisfaction surveys, the complaints are to a great extent available in accessible formats (9 out of the 14 cities dispose of accessible formats for complaints). However it should be referred that when asked on the available formats, these are available upon request in large formats, being however the most common format the capacity to send e-mail, letters or phone calls with an assistant.

5 of those 14 cities agreed that complaints were acted upon to a great extent, 6 of them to some extend while in 3 only in minor ways there is some action. The apparent fact behind the delay in implementing (some) action is related to the dependence on political decisions.

Some insights are, however, noticeable:

- A general reference to the lack of resources to deal with the complaints is visible, however, and despite such aspect, most of the complaints are acted upon and improvements made where physical and budget restraints allow (i.e. lowering kerbs etc.).
- E-mails are all reviewed and answered and where it is possible and appropriate specific measures are being taken, however though accessibility situation are relatively well known, implementation depends on political decisions.
- In general, users complaints are considered in any new public transport planning
- One of the sites refer that all complaints and positive feedback are considered, for example leading to route changes or more vehicles on overcrowded lines. This is reinforced by the existence of a Mobility Forum set up - which gathers every 2 months, being a great opportunity for discussion with citizens and listening to the existent complaints.
Availability of Staff assistance

The information presented in the next chart is clearly showing that entities take some action towards the improvement of service in terms of staff availability to provide on trip information and assistance. Only one city did not provide answer to this question. These actions are implemented to the same extent both at stations and on vehicles, except more vehicles have little staff and more stations have no staff assistance. Staff availability occurs normally during the day time operation of transport services, though it is referred in some of the cases to 24 hours telephone assistance. On vehicle assistance is given by drivers.

Chart 15 - Staff availability to provide on trip information and assistance

<table>
<thead>
<tr>
<th></th>
<th>On vehicles</th>
<th>At stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>No assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On some</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On most</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specific on trip services

6 of 15 sites confirm to have on-trip services provided for older and disabled people. When available, such on trip services refer to services on request (e.g. ramps) and/or dedicated line services (door to door) connecting main points of their need (hospitals, residential areas with social housing for disabled). Other referred options include:

- Audio announcements on selected services.
- Internet services and individual information via SMS if there is an interruption.

It is thus clear that some actions should be undertaken in order to improve results on this topic.
Transport affordability

Transport affordability represents an important topic when discussing accessibility. This overview provides information on discounts or free travel for the different user segments as well as for companion / assistance people. Options are not exclusive, meaning that a city could simultaneously answer that both free travel and discount travel is applicable to the same target group.

What can be perceived from the outset is that all groups have free travel benefits, though younger people to less extend. This group represent the case where discounted travel is mainly applied. These results can be considered as being in line with the fare discounts in practice in the large majority of the European cities under the public service contracts.

Chart 16 - Travellers entitled to discount or free travel

Free travel is available in 9 of the sites for all the disability impairments under analysis and for older people in 8 of the 15 sites. It is noticeable that companion/personal assistance free travel is available in 10 of the considered sites.

Discounted travel is available for all target groups; in 13 of the 15 cities it is applicable for younger people and in 10 cities to older people and people with physic mobility impairments.

In one of the sites, people with cognitive impairment and sensory impairment do not dispose of free or discounted travel. This is also the situation for companion/personal
assistance in 3 of the sites. In seven of the cases allowances are valid for more than one mode for all users segments, except for the companion/assistance people where just in 4 cases offers the discount option.

Dedicated transport services

The availability of dedicated transport services for disabled and older people revealed some interesting issues:

- 14 of the 15 sites answered to this question, however for the site not answering, an observation stating that a 100% of accessibility to the transportation system is in place (statement provided by the cities), therefore no need for dedicated services is given.
- The majority of sites (8) have reported that they have door to door services for disabled people (7 in case of sensory and cognitive impairments), being available for older people in 3 of the sites.
- Other services are available in 3 of the sites for all disabled groups and older, while for companion and assistance person this is only valid in one case.
- The majority of the “no service” answers refers to older and companion / personal assistant people.
- Two sites refer to the existence of door to door services as well as other types of services such as semi scheduled dial a bus services, pre-bookable accessible mini buses for individual/group hire, and shop mobility services for electric scooter provision.

Chart 17 - Availability of dedicated transport services for older and disabled travellers
Overall findings on service operations and standards

Staff training is present in almost all cities and for most staff categories, with more emphasis on the staff with direct relation with the public (front line and on vehicle). While for staff categories with direct contact with users (front line and on vehicle) the answers mostly fall in options “most” or “all”, for the remaining staff categories such option falls mainly on the “some” or “few” cases. Refreshment courses are mostly offered to front line and on vehicle staff respectively in 5 and 4 sites. 2 sites reported the existence of such refresh courses for operation management staff and just one for pedestrian planners.

The practice of customer satisfaction surveys is present in several cities. It is however relevant that a large number of sites (varying from 5 to 7) expressed themselves on the “Not at all” answer, being consistent along all the types of customer surveys considered. Despite the fact that surveys accessing customers satisfaction is already a tool that is commonly used, sites revealed that a long walk on providing such surveys in accessible formats has not yet arrived to a satisfactory level, deserving the need of some attention. From the 15 sites, just 4 declare that their surveys are provided in accessible formats.

Complaint procedures are to a great extent available in accessible formats (9 out of the 14 cities in which complaints are a common practice, dispose of accessible formats for complaints). However it should be referred that when asked on the available formats, these are normally available upon request, being however the most common format the capacity to send e-mail, letters or phone calls with an assistant.

14 cities indicate the availability of staff to provide on trip information and assistance. Those actions are implemented to the same extent both at stations and on vehicles, except more vehicles have little staff and more stations have no staff assistance. Staff availability occurs normally during the day time operation of transport services, though it is referred in some of the cases to 24 hours telephone assistance. On vehicle assistance is in general provided by drivers.

6 sites confirm to have on-trip services provided for older and disabled people. When available, such on trip services mainly refer to services on request and/or dedicated transport services (door to door).

Free travel is available in 9 of the sites for all the disability impairments under analysis and for older people in 8 of them. Companion/personal assistance has right to free travel in 10 of the sites. All target groups have some form of discounted travel: in 13 of the cities this is applicable for younger and in 10 to physical disabled and older people.

3.5 Accessible information and ticketing

The main aim of this questionnaire section is to access the sort of information which is available on trip and on each site before trips enabling the whole journey planning. Evidently one of the driven factors to produce such assessment is to highlight the barriers that travellers with some impairment may have to overcome when planning
their trip. Throughout this procedure hopefully all public transport system may benefit from the assessment made improving their system.

Information

The results obtained demonstrate that before trips, the internet, telephone and staff as well as visual information are mainly applied, while during trip it’s the audio and visual tools that are mostly adopted. The use of more than one language is mainly visible for the trip planning rather than on trip. It should however be noticed that while for the “before trip” there is a single case where no information is provided, for the “on trip case”, 4 of the sites does not provide data whether information exists or not.

Chart 18 – Formats for public transport information before trip and on trip (simple)
However more interesting results are identified when one looks for the different combination of formats adopted by the sites:

- All sites reported the existence of information provision before trips, each 5 falling in each of the options (2 – 3 or 4 formats). In six of the 15 cases, the information is available in more than one language.
- Adopted formats include: Internet and Telephone/Staff (3 cases), Visual and audio (1 case), Visual and Internet (1 case), Visual, Internet and Telephone/Staff (5 cases), Visual, Audio, Internet and Telephone/Staff (5 cases).
- For the on trip information formats (available in 12 sites), the repartition is identical for the different combinations (1-2-3 or 4 formats) with 3 sites falling in each of the categories.
- In this case formats present a set of different combinations: for the cases reporting only one format available this refer to visual information (in 2 cases) and telephone/ staff (1 case); when two modes are available it refer to visual and audio while for the 3 formats is visual, audio and telephone. For the 3 cases reporting the use of four formats, it includes also the use of internet. It is worth to refer that only in 2 of the sites reporting the four formats for on trip information, it’s availability in more than one language is considered.

For information via telephone or staff, respondents were asked to provide some insights on the daily time range when staff is available to provide information. Data is available for nine sites, of which 5 reported 24 hour availability and four of them just
during the day time. However in one of the cases referring just to day time, it is indicated the capacity to interact though sms or internet.

Accessible information, from the received data from respondents, is in fact a major concern for all public transport planners and operators. As it can be seen in the chart below all the identified criteria for information was considered by almost all sites.

Looking from an overall perspective, the most common information available refers to the arrangements for free or discounted travel (11 cases) and dedicated transport services (9 cases), being followed by information on barrier free travel (8 cases) and arrangements for reserved seats (7 cases). However it is remarkable that almost all sites refer to the availability of several types of information: in one of the sites information is available for all the given options and in six sites it is given for 4 options. The cases reporting two options always include information on dedicated services. It should be noticed that some care must be put in the interpretation of this, as in almost all sites it is referred that such availability differs between the available transport modes.

Communication of unexpected situations

The availability of information before trip assumes even a larger importance when any unforeseen changes and disruptions may occur. At that time available information on multiple formats is extremely useful and may play a relevant role to the perceived and effective transport system quality. From the 15 sites, 10 reported that they have dedicated procedures to inform passengers about unforeseen situations in accessible formats, of which 5 refer that it only covers part of the network. 5 other sites reported that up to the moment there was no implemented procedures to communicate unforeseen changes or disruptions in accessible formats.
From the sites which have reported affirmative answers, information is available in visual and audio formats, and in one of the cases in more than one language. Only one of the respondents that stated the existence of communication procedures was not able to specify the format.

For the question on the daily time range when disruption information is available, the range of options is considerable and includes:

- Availability only during service hours (real time in audio way on board, in audio and visual way in stations).
- 24 hours availability if via internet.
- Information sent via generalised traffic broadcasts - radio etc.
- Information when elevators are not operating via SMS for people registered in the system, to whom taxi service could be organised if there is no other opportunity.

**Passengers travel training**

In some situations and despite the fact that the transport system is becoming more accessible, people with mobility impairments and older people can feel some insecurity and discomfort when using the transport system. For this reason some transport systems are offering to end users the possibility of having training in order to mitigate that unsecure feeling. From a global perspective in 9 of the 15 sites some kind of training is offered. The other sites indicate that none of the mentioned training offers is provided, however no further details are given.

The groups that most often benefit from training are disabled people with sensory impairments, followed by disabled with physical impairment. Groups with cognitive impairment and older people represent the third group to whom training is offered. Younger people and companion/personal assistance are the groups where less training actions are carried out.
When looking on a case by case basis, thus enabling to compare the range of combined training offers, it is interesting to note that in the nine sites offering training this include:

- One of the sites offers training to the six target groups.
- One site offers to four groups (in this case to the three disabled groups and older people).
- Training is offered to three groups in three of the sites (2 of them include training to the three disabled groups and 1 to older people and disabled with physical and sensory impairments).
- One site indicates the offer of training to two groups, being those disabled with physical and sensory impairments.
- Three sites only provide training to one target group, being this different in each of the sites: older, younger and disabled with sensory impairments.

**Ticketing facilities**

One of the aims of Mediates’ questionnaire was insight on how end users are able to purchase their public transport tickets and in which terms they can use them, if only in modal or multimodal perspectives. It should be highlighted that data available only allows evaluating the range of different facilities but not how they are placed within the cities (i.e. in how many locations are such facilities available).

The assessment asked for the following modalities for ticket acquisition:

- Over a counter at the stations.
- Over a ticket machine at the stations.
- On vehicle.
- By internet.
- Via mobile phone.
- Over a counter at travel information.
- From non-transport outlets.
- Others.

The first chart provides an overall picture for the different transport modes, being this followed by an analysis mode by mode.
Bus mode

In 14 out of the 15 sites where bus is present as transport mode, tickets can be acquired on vehicle. In 11 of the sites, this is also available from non transport outlets. In 10 it is possible to buy tickets over a counter at the station and counters at information centres. Acquisition through ticketing machine is available in 7 of the sites. To buy tickets via internet and mobile phones are available only in 2 and 3 sites respectively.

Chart 21 - Ticketing facilities - Bus mode
Tram

Tram is available in 9 of the 15 sites. In 5 sites acquisition is possible on vehicle and at ticket machines and in 6 of the sites also from non transport outlets. Counters at station are available in 4 of the sites. To buy tickets for the tram service over internet is possible in only one of the sites.

Chart 22 - Ticketing facilities - Tram mode

Rail

The use of internet for ticket acquisition is more frequently used for the rail mode compared to other modes, being available in 9 of the 11 sites with this mode. Tickets over a counter at stations are available in all sites and just in 9 sites from ticket machines. The possibility to use non transport outlets is less available for this transport mode.
**Chart 23 - Ticketing facilities - Train**

![Chart 23](image)

**Metro**

Ticket purchase over a counter at the station and through ticket machines, are the most common situations for the metro mode. In the 8 sites ticket machines are available and in 7 sites there are counters at the stations.

**Chart 24 - Ticketing facilities - Metro**

![Chart 24](image)
Ferry

For the 4 sites with ferry mode, 2 refer to the possibility to ticket acquisition at counters (station and travel information centres), on vehicle and from non transport outlets. Only one site refers to the possibility to make use of ticket machines, same as for internet.

Chart 25 - Ticketing facilities - Ferry

Multimodal tickets

Practically all sites reported that tickets may be used for multimodal transport. From the 13 sites with more than one mode available, 11 reported such possibility, through a set of possible combinations:

- In eight sites, tickets are valid for the whole network and modes.
- In one of the sites, they can be combined tickets (e.g. tram and bus; bus and metro; etc.).
- One of the sites reporting 2 modes available refers to the existence of combined tickets however in practice its availability is very limited.
- One of the sites reported an interesting practice where for all users tickets are valid for 2 of the 3 modes available, but where for older people tickets are valid for the entire public transport network.
Ticketing accessibility

The next block of questions aimed to obtain an insight on whether accessible ticketing is ensured and respective formats. The accessibility aspects included in this assessment cover:

- Ticket counters at stations/travel information centres are physically accessible to disabled people.
- Tickets counters at stations/travel information centres are fitted with induction loops.
- Websites allowing ticket purchase are accredited as being accessible.
- Other cases.

14 of the sites provided answers. Looking specifically to each of the options it is noticeable that a significant number of sites reported that ticket counters and travel information centres are physically accessible and available to disabled people in most of the public transport network. 1 site reported that this is available for all network, and 1 site stated that they do not know.

When asking if such ticket counters at stations/travel information centres are fitted with induction loops (a way of transmitting sound), 5 of the sites revealed that there is no provision of that feature across public transport network and 3 referred that they do not know.

For those that reported the existence of induction loops (6 sites); for 3 sites they are available in most of the network, while for each of the other possibilities there is one site in each (all, part and little provision)
Chart 26 – Accessibility requirements for tickets counters at stations/travel information centres

Concerning whether websites for tickets purchase are accredited as accessible, this is confirmed for 7 sites, this being valid to part of the public transport network (5 cases) and to the whole network (2 cases). It is worth to remind that when asked if tickets could be acquired through internet, 11 sites had indicated such possibility and 2 had in fact indicated that this was available for all modes (and rail was the mode where such possibility was mainly indicated).
Overall findings concerning information & ticketing systems

The results obtained demonstrate that before trips, the internet, telephone and staff as well as visual information are mainly applied, while during trip it’s the audio and visual tools that are mostly adopted. The use of more than one language is mainly available for trip planning rather than on trip.

The most common information available refers to the arrangements for free or discounted travel (11 cases) and dedicated transport services (9 cases), being followed by barrier free travel (8 cases) and arrangements for reserved seats (7 cases). However it is remarkable that almost all sites refer to the availability of several types of information: in one of the sites information is available for all the given options and in six sites it is given for 4 options.

From the 15 sites, 10 reported that they have dedicated procedures to inform passengers about unforeseen situations in accessible formats, of which 5 refer that it only covers part of the network. Another 5 sites reported that up to the moment no procedures are implemented to communicate unforeseen changes or disruptions in accessible formats. From the sites which have reported affirmative answers, information is available in visual and audio formats, and in one of the cases in more than one language.

Passenger travel training is a practice in 9 of the 15 sites. The groups that most often benefit from such training are disabled people with sensory impairments, followed by disabled with physical impairment. Groups with cognitive impairment and older people represent the third group to whom training is offered. Younger people and companion/personal assistance are the groups where less training actions are carried out.

In almost all cities, users have the possibility to acquire tickets throughout different locations, the acquisition over counters at stations and ticketing machines, being the most commonly adopted for all transport modes. Capacity to buy through internet
and mobile is not yet a regular practice in the generality of the modes with the exception of rail. For the most common urban modes (bus, tram and metro) the possibility to buy tickets at non transport outlets is a regular practice in several of the cities. Globally, in the majority of cities ticket acquisition is possible throughout 3 or 4 formats. A significant number of sites reported that ticket counters and travel information centres are physically accessible and available to disabled people in most of public transport network and 1 site reported that this is available for all network. The provision of induction loops is available in 6 of the cities, being available in most of the network in 3 of those. Although 11 sites had reported the possibility to acquire tickets through internet, only 7 indicate that they are accredited as accessible for ticket purchase.

3.6 Accessible Vehicles and built environment
The last part of Mediate questionnaire was envisaged to have a global insight in terms of accessibility to the built environment and to vehicles by people with mobility impairments.

Pedestrian environment
The criteria under evaluation include the following options:

- Tactile guiding is provided for users.
- Audible signals are provided for users.
- Level access is provided for users.
- Pedestrian routes are kept free of obstructions.
- Other.

For these criteria, respondents are requested to provide information whether such conditions are applied:

- All area.
- Most of the area.
- Part of the area.
- Limited provision.
From an overall perspective, thus including any kind of accessibility requirements, it is remarkable that most of the sites indicate that “part” and “most” of the pedestrian environment is accessible, however when one assesses each of the accessible requirements indicated results vary considerably. In general, and faced to the results herewith obtained, it could be considered that most of the cities presented in the working group are taking into account the limitations or special needs of users when planning and re-designing the pedestrian environment.

- Five sites reported the existence of tactile guiding in part of the network and other 5 in most of the network. In 4 of the sites such feature has a limited provision.
- All sites indicate the provision of audible signs. In 7 of them such feature is available in part of the pedestrian network and in 6 of the site sin most of the network. One site has limited provision and in another one it is available for the all pedestrian network.
- Level access is fully available in 2 of the 15 sites and partly in 7 of the sites. 3 sites reported that level access is provided in most of the pedestrian environment while other 3 sites refer to a limited provision of access level.
- All sites refer that pedestrian routes are free of obstructions. For 6 of them this refers to a limited provision, 5 in part of the pedestrian routes and for 4 sites this applies to most of the pedestrian environment.
Vehicle accessibility

This set of questions aimed at evaluating whether vehicle accessibility criteria are present in all vehicles, in most of them, in some of the vehicles or in none of the vehicles. Such criteria include:

- vehicles with low floor / level access.
- designated place for wheelchair.
- designated place for assistance dog.

From a global perspective (all modes), it can be considered that existence of low floor or level access vehicles is present in the large majority of the cases (when considering the options “all” and “most”), however when looking to the other aspects (reserved wheelchair space) the proportion of adapted fleet is reduced.

When the issue is related with the space for assistance dog, the most visible options fall either in the “none” or “non applicable”.

Chart 29 - Vehicles equipped with low floor /level access per mode

![Chart showing vehicle accessibility per mode](chart.png)
When assessing mode by mode, the following aspects are noticed:

- The bus fleet, as it could be expected given the existent vehicle standards in place, is the mode where accessibility conditions are better considered in all the domains assessed (low floor, wheelchair and dog space). The more favourable results are, as expected, found on the first two items (low floor and wheelchair space).
- From the 9 sites with tram mode available, 4 dispose of low floor/level access and space for wheelchair in some of the fleet. In 2 of the sites all tram fleet is equipped with low floor and level access and in 1 site this is available for most of the fleet. 3 of the 9 sites have all fleet with wheelchair space and 1 for most of the fleet. Place for assistance dogs is available in all fleet in 3 of the sites.

- Only for 4 of the 11 sites with rail mode, all the fleet dispose of space for wheelchairs and only in 3 it exist level access and space for assistance dogs. In 2 of the sites none of the vehicles has level access and in 4 just few vehicles dispose of such feature. Space for assistance dog is available in most of the fleet in 1 site while the majority of the others (7 sites) answer “none” or “not applicable”.

- In 6 of the 8 sites with metro mode, level access to the mode is assured in all the fleet, while in 1 site this is available just for a limited part of the fleet. Wheelchair space is available in all the fleet in 3 sites, while space for assistance dog is available only in 1 of the sites (all the remaining cases answered “none” or “not applicable”).

- In relation to ferry mode, available in 4 of the sites, just one of the sites indicates the provision of level access and space for wheelchairs in all its ferry fleet. Wheelchair space as well as dog assistance space is available for just few vehicles in 1 of the sites.

**Monitoring systems to act on safety and accidents**

The last assessment shows that systems implemented to monitor and act upon safety issues and accidents are available in 13 out of the 15 sites. In 8 of them covering the full transport network and in 5 just a part of the network is covered. Just 2 sites revealed that there is no system neither planned nor implemented.

**Chart 32 - Existence of systems for monitoring and acting on safety issues and accidents**

![Network coverage chart]

<table>
<thead>
<tr>
<th>Network coverage</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>All 8</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Part 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the information collected a set of different systems for monitoring and acting roles could be identified. Such systems generally include the following aspects:

- Recording of accident forms for analysis which could include the allocation of responsibilities among the different actors (operator, regulator, authority), this recording is in some cases legally prescribed.
- GPS surveillance systems enabling to control and monitors the operation of public transport vehicles.
- Video cameras in stations and vehicles.

Overall findings in relation to vehicles and built environment

Results obtained from the assessment of the 15 sites, show that most of the cities are taking into account special needs when planning and re-designing the pedestrian environment. Five of the sites reported the existence of tactile guiding in part of the network and other 5 sites in most of the network. All sites indicate the provision of audible signs; for part of the pedestrian network in 7 sites and for most of the network in 6 sites. Level access is fully available in 2 of the 15 sites and partly in 7 of the sites. All sites refer that pedestrian routes are free of obstructions. For 6 of them this refers to a limited provision, 5 in part of the pedestrian routes and for 4 sites this applies to most of the pedestrian environment.

Under vehicle accessibility, differences among transport modes are clearly highlighted, with the bus mode being presented as the one where accessibility issues are mostly taken into account. Majority of the fleet and in some cases all the fleet respects accessibility requirements in terms of level access and space for wheelchair users (it should be emphasized that bus standards and regulations are in place at EU level).

In general, and for all modes, the space for assistance dogs is not yet a common practice with majority of the cities reporting that this is not applicable.

Almost all sites (13) indicate the availability of systems for monitoring and acting on safety issues, and in 8 of such systems cover the whole public transport network. A range of different systems are available, most of them with surveillance features, however it is difficult with the available data to assess whether such systems are relevant or not for special users.

3.7 Appraised information and key recommendations on data collection

The analysis provided a first insight on current accessibility levels in the selected cities. However, the limitations and caveats to the interpretation of results as previously raised, definitively influenced the overall results. In particular it is worth to refer again to:

a) The cities involved in the data gathering process can be understood as belonging to the group of “leading “accessibility cities.
b) The deep knowledge and awareness on accessibility by the working group members that have responded to the questionnaire.

c) The fact that data gathering was made by a single person and not the result of a shared discussion and opinions involving the different actors in the city, in particular the assessment by end users.

The cuts that was necessary to introduce in the questionnaire to limit its length that resulted in less detailed questions and a set of questions being answered as Boolean, not allowing understanding and evaluating in detail.

As a result of the above, a first learning was that for such a kind of questionnaire the level of detail is of utmost importance and therefore it is preferable to extend its contents and the time to fill it in, if more data accuracy is expected. The involvement of the different actors is also considered as extremely important. If it is not possible to promote a joint exercise, then having each actor filling in the questionnaire and someone to compile the different visions, is helpful. Therefore this methodology should be improved in order to achieve a more sophisticated and appropriate tool for cities and operators. In particular some more reflection and elaboration on how to assess results provided by different users for the same city, is necessary.

As already mentioned in Deliverable D2.2, to further explore the potential of this questionnaire, it should be repeated in a two-year cycle, in order to identify improvements and new challenges. For that exercise, it is advisable to promote round discussions with the different stakeholders, aiming to each a balanced point where it is the sum up of answers, with clear identification of black spots (not being assessed by any department) or fields where it is being given to much attention. As result from this process some action plans can be designed and improvements can be done enabling the evolution assessment of the foreseen actions. It is important to record the process on how data is collected and measured in order to ensure the process repeatedly.

Some of central facts for each key indicator, as already mentioned in D22, which deserves particular attention in the process of data gathering, are transcribed below:

**Policy and investment:**

- Is there an accessibility plan at urban, regional or national level? If yes, is it formal or voluntary? Is it specific for public transport? Does it cover a range of barriers? Have people with disabilities and older people been involved? Is there political commitment to this plan? Are there responsibility gaps? Is the plan in accessible formats?

- Is there user involvement in all stages of planning, implementing, monitoring and evaluation? On-going or as ad hoc steering groups, and which user groups are involved? Is there a specific position or permanent unit centred on the coordination of accessibility within the local authority or company?

- Are other stakeholders involved in delivering accessible transport: Operators, manufacturers, legislators, planners, and user organisations? Are there delays or other problems due to Do unclear responsibilities, separate budgets, or lack of coordination etc.?

- Are there specific investments in making transport more accessible? By whom; local government, regional government, public transport authority,
infrastructure authorities, or operators? Are investments focused on the public transport system, the pedestrian network or both? What is the level and development of investments (operational, capital, maintenance, short/long term, new/retrofitting)?

- Are concession criteria clear? Do they lead to reduced services? Are there specific procurement rules related to accessibility? Which specific requirements are included in contracts? For which modes? Which specific elements are covered in Service Level agreements?

- Is there a platform for accessibility and service level discussions, in which disabled people, older people, transport operators, street managers, and local administration take part?

Service operations and standards:

- Are User Satisfaction Surveys carried out (frequency, which parts of the network are covered etc.)? Are travellers, non-travellers, people with disabilities, and older people, involved in designing the survey and interpreting results? Do surveys have accessible formats and cover accessibility issues? Are surveys followed up with actions and results communicated?

- Are on-trip methods of assessing accessibility employed; technical visits, mystery travellers etc.?

- Are complaint procedures in place? Are complaints analysed and acted upon? Are complaint procedures available in accessible formats? Are there ways of penalising companies if accessibility requirements are not fulfilled?

- Confidence: Regularity, punctuality, frequency (at off-peak periods) and the confidence that accessibility measures and service levels are in place (predictability, consistency). Is sufficient staff available for assistance at stops, terminals and vehicles; and how is it monitored that this is a sufficient level?

- Is disability awareness (theoretical and practical) part of staff training; for which staff? Which barriers are included? are guidelines used? What is the frequency of refresher courses? Are there disability awareness campaigns for the public?

- Is insurance covering accidents which may occur when staff is assisting travellers?

- Availability of other transport solutions; service lines, door-to-door transport etc.

- Affordability issues, fare policies; which groups are granted discounts? For all travel or specific periods?

- Is a personal security scheme for public transport passengers in place (public transport network, pedestrian network or both)? Which measures are included (staffing, lighting, alarm points, camera surveillance, opening hours, etc.) Is the issue of personal security included in design guidelines? Are staff available to assist older people and disabled people through the barriers caused by security systems?
Information and ticketing:
- Is the provision and monitoring of pre-trip and on-trip information and signage included in the accessibility plan? (Visual and audio announcements, real time information, directional signage, tactile signs, tactile surfaces, and pictograms.) Are formal guidelines for the provision of accessible information and signage used? Are users involved in planning and monitoring information? Is the need to standardise information formats across Europe considered?
- Is public transport information available in different formats (visual, audio, accessible internet sites, phone, info-kiosks, staff, and sign language when appropriate) before trip and on trip?
- Is information on the accessibility of the transport system available? Is it possible to obtain information on travel options according to specific accessibility requirements? Is information about the pedestrian network included? Are public transport stops easy to find?
- Information before journey: Ease to use travel planner, timetable information, connections with other modes of transport, which services are accessible, availability of facilities, availability of assistance, and requirements for ticket purchase, fares, booking etc.
- On-trip information: Timetable and connections, delays, how to get assistance, instructions on how to buy tickets and on safe boarding, alighting and waiting, service information, available facilities, what to do when disruptions, how to make a complaint, useful telephone numbers and help phone.
- On vehicle information: Visible external information on vehicle destination, visual and audible announcement on stops and delays, location and details of facilities on board, instructions on how to get assistance and what to do in the event of emergency or a disruption.
- Are staff available to provide on-trip information (on vehicles, stops, stations etc.)? Is there a clearly indicated phone help line available? Percentage of platforms with audio and visual announcements.
- How are disruptions, emergencies etc. communicated to all travellers? In which formats and languages, are enough staff available with sufficient training? Is the quality checked and how? Are users involved in the provision and monitoring of disruption and emergency information? Is there an emergency & evacuation plan?
- Is the purchase and validation of tickets intuitive, understandable, and accessible for all? Are tickets available to be purchased from a variety of sources (with accessible counters and machines on vehicles, stations, non-transport outlets, internet, SMS)? Are web-sites for purchase accredited as being accessible? Percentage of stations with accessible counters with induction loops, and with accessible and usable vending machines (ease of understanding, no physical and sensory barriers etc.)? Accessible ticket design. Are guidelines for accessibility used?
- Is passenger training provided (local authorities, transport operators, other organisations)? Which people and how many receive training? Are guidelines for training delivery applied?
- Is accessibility in an overall sense a basis for communication campaigns? Disability awareness campaigns for the public.
**Vehicles and built environment:**
- Is there a policy for making the pedestrian environment accessible? Is there a policy to keep pedestrian areas accessible and free of obstructions? Condition of pavements, pedestrian paths, street crossings, separation of pedestrians and cyclists, lighting levels, benches and seating, good signage and tactile guiding pavements, etc. Are guidelines used? How are the policies enforced? Are long walking distances (and steep hills) to public transport stops a problem?
- Is there level access from street network to public transport platform and from platform to vehicle? (Percentage of stops for each mode; with level access, and with ramps, lifts etc.). Share of platforms (stops) where the system needs driver or third party assistance, is manually operated by the user, and is automatic. Are formal accessibility guidelines applied? Is there a policy to prevent cars from parking at bus stops? Is door-to-door transport (taxi, private car, special transport services etc.) available at Public Transport stop?
- Share of vehicle fleet which is “low floor” or has alternative mechanisms to achieve level access. When is the total fleet expected to be “low floor”? Share of vehicle fleet with designated place for wheelchair users (how many places per vehicle). Is there a policy for prioritising the space for wheelchair users, people with push chairs etc.? Sufficient space for assistance dogs. Contrast marking of steps, rails etc. Are formal guidelines for accessibility within the vehicles used?
- Vehicle fleet: Average age and replacement cycle for each mode
- Percentage of stations, stops, vehicles etc. where smoking is not allowed and this is clearly signed. Is there effective surveillance and penalty system for a non-smoking policy? Share of stations, stops, vehicles etc. with clear rules (separate sections etc.) for the carriage of pets and assistance dogs. Is there a clear policy for the choice of allergy friendly materials, cleaning procedures and ventilation systems?
- Available toilets on trip (pedestrian network, stations, stops, vehicles; the existence of toilets, dimensions, the way doors open etc.)
- Quality scale regarding independent travel: 1) System needs driver or third party assistance, 2) manually operated by the user, and 3) automatic / no barrier.
- Is there a system for monitoring safety issues and analysing accident data and incidents? Are doors equipped with sensors to avoid closing the door when passengers are in the doorway? Are vehicles equipped with a locking system restricting motion without safely closed doors?

**Seamless travel:**
- Is there a combined source for pre-trip information for more than one public transport mode? Are there combined sources (information points etc.) for on-trip public transport information?
- Are tickets and fare concessions valid for more than one mode?
- Is physical accessibility provided throughout the entire transport network, including modal interchanges? Is the need for standards and uniformity of pedestrian environment across Europe addressed?
- Is there an accessibility plan in which all operators and authorities are involved? Is the plan monitored regularly and are there sanctions when obligations are not fulfilled?

Of particular relevance (in analysing the provided data) is the possibility for cross-analysis among the different indicators, enabling to evaluate how the performance in a topic influences the result achieved in the other key indicator.
4. Levels of development per key indicator

As mentioned in the beginning of this report, the analysis conducted in Mediate provides two different types of results. In the first part of this report, the general results obtained have been presented, providing an overall picture on how accessibility issues are being considered in the set of cities belonging to the working group.

The second part of this report aims to assess the levels of development (LoD) of accessibility key indicators in Mediate cities. Results are given at the level of key indicators, in line with the methodologies also applied in the self assessment tool.

This means that no overall result is given, being the main idea behind this process to identify the improvement areas for action plans. The process to calculate LoD is the result of the application of a multicriteria analysis, which measurement criteria (weights) are given in the Appendix 2 to this report.

4.1 The definition of levels of development

As per the deliverable D22, four levels of development have been defined: Ad hoc, isolated, system-oriented, and integrated approach, which key characteristics are synthesised in the following table.

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

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

A more exhaustive analysis on the concept and detailed descriptions of the aspects enabling to establish the level of development for each of the 10 policy modules (see also D22) is a core part of the WP4 and could be assessed in Deliverable D4.1., however it is useful to incorporate herewith an overview of its basic principles, allowing the reader to interpret the results provided below.
The concept behind the establishment of accessibility levels of development, correspond to a ladder of continuous improvement towards a more accessible transport system. The improvement is given basically by climbing up the development steps, or in other words, that an integrated approach is not achieved from a moment to the other.

The main aspects that characterize each of these levels are given below.

**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 realignment of the system can be easily conducted as all stakeholders share a common vision.

### 4.2 Methodological reflections

Bearing the overall goal to establish and define a level of development in line with the scale defined (from ad-hoc to integrated approach), several methodological tools were evaluated.

A key issue that framed the decision on the methodologies to adopt refers to the possibility to promote hierarchical dependencies between questions and sub-indicators or in alternative follow an isolated treatment of questions.

The possibility to establish a hierarchical process where different weights and interrelations between indicators could be defined seemed to be a correct approach. By applying the methodology from Saaty – Hierarchical analytical process\(^2\), it would be possible to attribute weights to each module, and within modules to each criteria and sub criteria\(^3\), however it was clear from the outset that due to the questionnaire structure and limits, such hierarchical dependencies were not appropriate.

Consequently it was agreed to promote isolated treatment of questions and leave such a step to be evaluated in revised applications of the indicators questionnaire. Additionally (see below), the Mediate expert group indicate that all sub-indicators should have the same weights.

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\(^3\) This methodology is based on a multicriteria analysis, working through hierarchical levels. Each level is worked out individually, and afterwards the contribution of each level to the whole set of indicators is evaluated. Classifications and weights could be based on concrete data or making use of judgments on its importance.
Using Multicriteria tools

Multi-Criteria Analysis (MCA) is a decision making tool that appeared in the 60s as a way of undertaking a comparative ex-ante assessment of alternative projects, policies or measures. Following the MCA techniques, several criteria can be taken into account in a complex situation and, thus, helping decision makers to integrate the different options in a common framework. This enables a relatively straightforward analysis, combining indicators and evaluation criteria of varied nature and allowing stakeholders to participate, as MCA is structured as an open and transparent evaluation tool.

MCA combines different types of indicators and evaluation criteria with the objective of providing a classification or ranking of the different available alternatives. The advantage of MCA when compared with other appraisal methods is precisely its ability to combine qualitative and quantitative dimensions to compare and evaluate alternatives, allowing great flexibility in the assessment process.

The methodology herewith used follows the normal steps in a MCA, as below:

- Definition of the set of actions or projects to be judged – in Mediate, the key indicators and sub-indicators
- Definition of the judgment criteria and indicators to be used to later evaluate the performance of each project, including a weighting system that allows the introduction of a prioritisation mechanism between the defined indicators – in Mediate, the definition of scales and weights based on a discussion with experts.
- Analysis of the impacts of the different projects, in terms of its performance on each of the indicators defined previously and subsequent allocation of scores, according to the performance of each project on the different indicators, taking into account as well the judgment of the experts involved during the process.
- Aggregation of judgments, including the allocation of variable importance to different indicators through the weighting system previously defined, and final ranking of the projects.

The correct definition of the most adequate evaluation criteria and associated indicators is the base of a sound MCA. In the case of our project, the most important condition to be taken in the definition process was the nature of the information available. As not all evaluation criteria and indicators are valued in the same terms, a weighting system is usually introduced in the MCA process. In technical terms, the weighting system must comply with the following condition: the sum of the weights must be equal to 1 or, in our case, to 100.

Once the overall criteria and associated individual indicators are defined, the next step is to define the values and scale within each indicator. A scale from 0 to 100 was created, for allocating values to the impact of each assessed criteria according to the indicators. The scale was subdivided in 5 intervals.
The following step of the MCA process is the allocation of scores per project according to its expected impact on each indicator. The quantification of the impact is subsequently allocated according to the scoring scale presented previously.

Once the score allocation process is finalised, the next (and last) phase of the MCA is the aggregation and consolidation of results. The application of the weights to the score of each sub-indicator provides the weighted score for the key indicator.

In the appendix 2, the criteria and weights applied in Mediate is given.

**Methodological decisions**

During the 2nd Working Group Meeting held in Barcelona, the Expert Group met and agreed on the weighting process inherent in the classification of the levels of development.

The following criteria were agreed and applied in this exercise:

a) No overall level of development of the city is defined.

b) The level of development is defined at the level of key indicators (A to E).

c) For each sub-indicator, the level is also defined, making it possible to identify the areas for improvement to be detailed in the action plan. This means that if a sub-indicator is the cause of reducing the score for a key indicator, then that sub-indicator should have priority in development terms.

d) Each sub-indicator belonging to a key indicator has the same weight. This is because, in accessibility, all aspects are equally important (i.e. a barrier free pedestrian environment is just as important as the level access to vehicles).

e) The level of development of the key indicator is dependent on the levels of its sub-indicators, and a maximum gap between levels of one level is accepted.

Two examples for a key indicator with 3 sub-indicators are given to clarify the accepted gaps

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 – ad hoc</td>
<td>A1 – system oriented</td>
</tr>
<tr>
<td>A2 – isolated</td>
<td>A2 – integrated</td>
</tr>
<tr>
<td>A3 – system oriented</td>
<td>A3 – integrated</td>
</tr>
<tr>
<td>Level of Key indicator A cannot be higher than</td>
<td>Level of Key indicator A can be</td>
</tr>
<tr>
<td>Isolated (one level above the lowest score)</td>
<td>Integrated (gap is one level)</td>
</tr>
</tbody>
</table>
In addition to the application of these criteria, during the last consortium meeting, and based on the results of the direct application of the methodology, it was agreed that results obtained translate a picture of accessibility considerably more positive than it was expected, with a high number of cases falling under integrated approach levels, when from practice in other contexts (i.e. Bypad), the number of cases in that level is 1 or 2 maximum.

To circumvent such aspect it was agreed that several scenarios should also be tested for different intervals between levels of development. The idea behind this assessment relates with the need to overcome some of the caveats previously identified and verified- some results portray a much more positive image than what is actually appropriate, and one that is different to the one that might have resulted if the questionnaire was completed by a number of stakeholders, and/or if the questions have been framed differently.

Taking the above mentioned aspects into consideration, four scenarios (base plus three) have been evaluated imposing more strict conditions to achieve each level. Below the minimum score necessary to reach to be in a certain level of development is presented for the four scenarios.

<table>
<thead>
<tr>
<th>LoD</th>
<th>Base</th>
<th>Very High</th>
<th>High</th>
<th>Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad hoc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolated</td>
<td>26</td>
<td>41</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>System Oriented</td>
<td>51</td>
<td>71</td>
<td>66</td>
<td>61</td>
</tr>
<tr>
<td>Integrated</td>
<td>76</td>
<td>96</td>
<td>91</td>
<td>86</td>
</tr>
</tbody>
</table>

4.3 Overall Results & Scenario selection

Like referred in other parts of this document, it was agreed with the working group members participating in this exercise that results are not compared between cities, and that each of the cities only have access to its own results and to the overall picture included in this report.

Each of the 15 participating cities has received a common document explaining how to read the results (included in annex 3) and the results for its own case.

The assessment was conducted for each key indicator along the 4 scenarios. The following charts present for each of the key indicators and scenarios, the number of sites that fits under each level of development. In general, major differences between scenarios refer to the number of sites placed in lower and top levels of development (ad-hoc and integrated) while in middle cases (isolated and system oriented) the differences in the number of cases fitting there do not present major variations.

As it could be expected, whenever one moves from policy to implementation stages, the number of cases reaching higher stages of development tends to be reduced,
confirming that achieving high levels at the policy level is not so difficult as when practices are implemented for which economic and financial issues need to be planned. In a context of economic crisis, such aspect deserves some attention.

**Chart 33 - Policy & Investment results per scenario tested**

As seen previously, most of the cities provided quite positive answers in relation to the different topics included under key indicator policy and investment. Such aspect turns clear when all topics are jointly evaluated using the MCA, resulting in no site under the ad hoc level, independently on the scenario considered.

This could somehow be expected – in almost all countries policy guidance towards accessibility exists, while the main differences rely in whether those strategic documents are effectively put in place, updated or even turned available in accessible formats.

Looking to the results obtained, and based on the professional opinion of the team, the most realistic scenario is placed between the “moderate” and the “high”, although given the experience in the application of the self assessment tool (consensus process among the different stakeholders) the results obtained under the “high” scenario seem as the most credible one. In both of these scenarios, it can be found one case as “integrated approach” while the main differences relate with the number of cases in the system oriented and isolated categories.
The key indicator service operations & standards comprise the joint assessment of the sub indicators related with how user needs are met (i.e. availability of trained staff, the adoption of customer surveys and complaints procedures, etc.), accessibility maintenance aspects (i.e. plans and routines) and fare policies in place.

At the level of this key indicator, which implies not only the existence of a policy but already some measures to address user needs effectively in place, the number of cases per level of development shows interesting aspects: in all scenarios with the exception of the base one (i.e. equal conditions for each level) it could be found 4 sites in ad hoc level, meaning measures provided punctually and not yet integrated in an overall strategy. On the opposite side it can be seen that integrated level is only reached under the base (2 cases) or moderate scenarios (1 case), while in the more restricted cases, none of the 15 sites reach that level. Major differences are found in relation to the number of sites under the isolated and system oriented approaches.

Like in previous key indicator, the most realistic scenario seems to be located between moderate and high. Again, if considering the effect of a consensus decision among stakeholders, it could be expected that the more realistic case would be the high scenario.
Accessible information and ticketing, as the name indicates refers to the measures in place to address information before and during the trip assessed together with the availability of a range of possibilities to acquire tickets, including multimodal tickets. As seen in chapter 3, several sites reported the existence of such facilities, including the availability of different formats to do so. However, when both criteria are analysed together and having the same weight, it turns clear that strong efforts are yet to be done on these matters.

As seen above, just one site reaches the integrated level in base scenario, while in all the other scenarios even the system oriented approach is hard to reach: in both high and very high scenarios one site is at that level and in the moderate scenario only two of the sites reach it.

The isolated approach level corresponds to the most common situation in all scenarios, which clearly indicates that in most of the sites, despite corresponding to cases in higher stages of accessibility, measures are implemented only in isolated parts of the network.

Like previously it can be considered that the high scenario is most likely to be the one with more adherences to the results that would be achieved under a consensual approach among stakeholders.
Vehicles and built environment constitute one of the aspects where more investment, or at least more visible outcomes, towards accessibility for all has been promoted: low floor buses can be seen almost everywhere. This does not necessarily mean that they are accessible; however it shows a case where such feature is almost a standard aspect.

As seen in the global assessment conducted in chapter 3, it was evident that strong progresses are being done either in relation to vehicles or to the surrounding environment. When these aspects are jointly evaluated under the same city, the results obtained reinforce the overall idea that in general cities are not yet at a higher level of development in this topic.

In fact, when one looks to the results obtained (with the exception of base scenario) it is noticeable that the highest number of cases is under isolated approach level. This clearly shows that, even in the sample of cities included in Mediate (remember that they were not randomly chosen), efforts are being placed either in one of the topics or in both but in limited areas within the cities.

Despite the “imposition” of more strict conditions, no major differences are found in the three modelled scenarios. Only one site makes the difference between high and very high scenario (ad hoc in very high and isolated in high). Between these and moderate, major differences are found between isolated and system oriented approaches.

As happened in previous key indicators, it is the high scenario that seems to be more consistent with the expected results as if they were obtained from joint evaluations between users, operators and authorities.
As mentioned previously, during the process of shortening the questionnaire, some indicators were not integrated. One of those cases was the seamless indicator, as it was considered at that time that it was more important to get more details on other key indicators rather than on this one, as at the end it is a result of all the previous. However, during this assessment it was recognised that it does not make sense not to include it in the analysis given its importance to provide an overall idea of how the city progress in terms of accessibility. Therefore, and in order to overcome its non-inclusion in the questionnaire, it was taken the decision to use it as a calculated indicator, taking as basis the overall results of the other 3 key indicators directly related with the provision of transport (i.e. indicators at policy and planning level have not been considered in the calculation).

Although the ideal solution, would be to include seamless travel data in the fact-finding process – aspect that is recommended as improvements for next steps – it is considered that this solution enable to obtain a good picture of how sites are performing at this level. It should be remembered again that the 3 key indicators used for the calculation (service operation & standards, information & ticketing and vehicles & built environment) represent the same weight and importance.

**Chart 37 – Seamless travel results per scenario tested**

Naturally, the most visible output, in line with what happened individually, is that most cases locate at the isolated approach level (with the exception of base scenario, which has seen and explained corresponds to a very optimistic situation). This is clearly an indication that progress is being made but yet a long way and important efforts need to be place in accessibility.
4.4  **Assessment at the level of sub-indicators**

The observation of the different scenarios for the different key indicators turn clear that “base scenario” portrait a quite positive image of the accessibility in cities. In opposite scenario “very high” could also be understood as too much severe case, providing a more negative picture than the one that could be expected taking into account the characteristics of the cities included in this sample.

In fact, and given the previous experiences with the application of the self assessment tool (SAT) in other contexts, and in particular the experience gained during the application of the Mediate SAT, it could be considered that “high” scenario is in fact the one that better simulates what would be the result of a consensus based decision. As from the experience gathered in SAT application, despite the existence of some opposite views – users tend to focus on what is missing while operators and authorities mainly focus on what was already implemented and the high costs involved – after being put face to face, and having each part explaining its own views and reasons behind a classification, the result achieved tends to be located above the middle point.

Taking the high scenario as the most feasible, in the next pages, the results obtained for the sub-indicators are presented. It should be remembered that this analysis allows identifying the aspects that mainly lead to a score reduction in the key indicator, being expected that cities would identify and define targeted action plans leading to its improvement.

### 4.4.1 Key Indicator Policy & Investment

Three sub-indicators define the level of this key indicator: accessibility plan, end user involvement and integrated accessibility planning.

Under accessibility plan, issues covered include the existence of an accessibility plan and if it addresses future changes, such as the demographic ones. The degree of commitment at different administrative scales (national, regional, local) is also considered at the level of this sub-indicator. As seen in the previous chapters most of the cities reported the existence of an accessibility plan. A commitment towards accessibility, reinforced at different administrative levels was also highlighted.

End user involvement refers to the involvement of old and disabled people in the policy process along the different policy cycle stages, as well as to the inclusion of other stakeholders in that process. As described previously, data shows that there is already some involvement of disabled people and, although in a minor scale, the involvement of older people, with less presence of representatives compared to disabled people. However, and as noticed, in almost all policy stages, but with less extend in relation to monitoring stages, the combined presence of older and disabled people already took place.

Under the sub indicator integrated accessibility planning, issues such as adoption of formal guidelines, procurement and contracting procedures and targeted investments
towards accessibility were incorporated. It was seen that vehicles are already to a large extend following international guidelines, and it was also noticed that all sites include accessibility requirements in procurement contracts, although the range of issues covered presents a high diversity. Specific investments towards accessibility were mentioned in almost all sites with responsibility mainly committed to local and regional governments, however the major investments correspond to the cases where investment is shared among the different bodies.

Despite this positive portrait, when each of these aspects are combined for a same location, results point to a high number of isolated approaches, meaning that either not all the aspects are incorporated or they are only applicable in certain areas.

Looking to the chart below, it is clear that the existence of one case at ad hoc in sub-indicator integrated accessibility policy is influencing the overall result of the key indicator. Existence of accessibility plan reveals as the sub-indicator with more cases at the integrated level (as expected), however such aspect is attenuated when assessed together with the other sub-indicators.

The levels achieved for the end user involvement are almost equally distributed between isolated and system oriented approaches.

Chart 38 - Level of development for sub indicators under Policy & Investment
4.4.2 Key Indicator Service Operation & Standards

Issues under discussion when assessing the sub indicator meeting user needs include the availability of assistance, staff training issues, satisfaction surveys and complaint procedures but also the presence of personal security measures. The sub indicator accessibility maintenance was not included in the questionnaire and therefore it was not considered in the calculations. The sub indicator fare policies include aspects related with transport affordability (discounts and or free travel applicable to user groups) and with the availability of alternative services. It should be noticed that in the calculations, available modes have been taken into account, and in cases where multi modes are available they all have the same weight and importance (i.e. metro is as important as the bus, if both are present in the same area).

As it can be observed, meeting user needs results pointed to one site already reaching the integrated level and two under the system oriented approach. Remaining cases are equally divided between ad hoc and isolated approaches.

As seen previously, a set of actions and measures to meet user needs, including door to door or alternative services have been reported, however a long process towards a full integration in the overall policy planning is still needed.

On the side of fare policies results are quite optimistic with 5 sites presenting already system oriented approaches. 3 cases have been classified as in the ad-hoc level and 7 as isolated approaches. This highlights that cities are clearly promoting measures towards intermodal fare systems in benefit of specific user groups. In some cases, old and disabled people benefit of fare discounts and/or free travel in all available modes and in almost all network. But in none of the reported cases, could a case be found where free travel is available in all modes for the whole network.
4.4.3 Key Indicator Information and Ticketing Systems

Sub indicator Information includes aspects as the provision of information before and after trip (availability in multi formats and in more than one language) and procedures in place at disruption and emergency situations (procedures, availability in accessible formats and languages). Passenger travel training is also one of the aspects herewith included.

Sub indicator ticketing facilities cover the range of alternatives for ticket acquisition in each of the modes and from a multimodal perspective as well as whether provisions for accessible ticketing are available (i.e. counters, websites).

Like it was seen, from a global perspective, information is actually provided in several formats, although at city level this is not always valid if it is considered both before and during trip. When all aspects under assessment are jointly seen for the same site, 6 cases are at the ad hoc level and 7 as isolated. In fact, actual information systems available in the selected cities already include accessibility criteria, but accessible information is far from being reached.

Results obtained on the side of ticketing systems, reveal that, although mostly applicable to some parts of the network or specific areas within the cities (therefore isolated level), important efforts are being put in practice to turn the acquisition of transport tickets easily for disabled and old people. As seen in the chart below, 12 sites are at isolated level and one already achieves the system oriented one. In fact, while looking to the results from a modal perspective, one keeps the idea that such
aspects have been considered and are in practice, however when assessed from a city basis (i.e. considering all the modes available, all of them with the same weight) it turns clear that users face difficulties in their journeys.

Globally it is clear that information and ticketing systems, despite the considerable progress, did not yet reach a level that enables special users to undertake a smooth travel (users still facing difficulties in terms of information provision and ticket acquisition) in all city area. Overall, it is clear that improvements are still necessary at this level if independent travel is aimed.

**Chart 40 - Level of development for sub indicators under Information & Ticketing Systems**

<table>
<thead>
<tr>
<th>Key Indicator</th>
<th>Accessible Information</th>
<th>Accessible Ticketing</th>
<th>Key Indicator - Information and ticketing systems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ad hoc</td>
<td>Isolated</td>
<td>System Oriented</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Integrated</td>
</tr>
</tbody>
</table>

**4.4.4 Key indicator Vehicles and Built environment**

Four main aspects are included under this key indicator: one targeted to the accessibility to vehicles (whether platforms are available), one to accessibility within the vehicles (whether provision of spaces for wheelchairs and dog assistance exist), one focused on barrier free pedestrian environment (including aspects such as areas free of obstacles, tactile pavements and audible signs, etc.) and another related to the existence of monitoring systems and whether these are available for the whole network or to parts of it.

During the assessment at global level, it seemed that pedestrian environment was contemplated in most of the cities with tactile pavements and audible signs being incorporated in a large number of cities. Likely the modal assessment provide a good
vision of platforms and vehicle accessibility, especially for buses, in particular in what concerns the more standard aspects of space for wheelchairs and low floor vehicles. Dog assistance places as seen were not yet an aspect covered in most areas.

Looking now from a city perspective, results are rather different, being clear from the chart below that vehicle accessibility (largely as the result of having all criteria with the same weight, the few existence of places for assistance dogs in transport modes leads to a score reduction in this sub indicator) is the aspect where it could be found more cases at the ad hoc level. This means that either this is not yet fully incorporated in all modes available in the city or when all modes are considered this is only valid in few parts of the network. However it is under this sub indicator (and also for platform accessibility) that it was identified one case reaching the integrated level (all modes, all area).

The sub indicator barrier free pedestrian environment is so far the one where more cases at the isolated level are found (12 in a total of 15 sites) and no case at integrated level.

On the opposite side, monitoring systems and acting on safety issues and accidents, reveal that an integrated level was reached in 8 of the sites.

Like it happened in previous indicators, the assessment performed on a modal basis provided a more favourable idea of the accessibility levels than the one that is obtained when all the modes available on the city are taken together in the equation.
### Chart 41 - Level of development for sub indicators under Vehicle & Built Environment

- **Monitoring**
  - No level
  - Ad hoc
  - Isolated
  - System Oriented
  - Integrated

- **Vehicle accessibility**
  - No level
  - Ad hoc
  - Isolated
  - System Oriented
  - Integrated

- **Platform accessibility**
  - No level
  - Ad hoc
  - Isolated
  - System Oriented
  - Integrated

- **Barrier free pedestrian environment**
  - No level
  - Ad hoc
  - Isolated
  - System Oriented
  - Integrated

- **Key Indicator - Vehicles and Built Environment**
  - No level
  - Ad hoc
  - Isolated
  - System Oriented
  - Integrated

### 4.4.5 Key Indicator Seamless travel

As already pointed out this key indicator is calculated based on the scores obtained on the basis of selected sub-indicators already used for determining the three other key indicators, (i.e. Service Operations, Information and Ticketing and Vehicles and Built Environment). The Seamless Travel sub-indicators used for this purpose were selected because they are associated with the ease and seamlessness of travel.

As it can be seen in the chart below, the large number of sites presents already some advancement, however far from enabling a seamless travel for users with special needs, with the large number of cases fitting under isolated approaches. This means that, despite some progress, this is limited to parts of the transportation chain or to specific groups of the population.
In summary

As previously referred, none of the indicators is more relevant than then other and all of them have been evaluated taking into account a weighting process, where all sub-indicators represent exactly the same weight.

While the overall goal from this analysis is to enable each city to identify the aspects where improvements are mainly needed, some overall remarks and trends resulting from the analysis can be done.

1. On the Policy & Investment indicator stakeholders must concentrate their strengths on the provision of an integrated accessibility policy. This sub-indicator is the one presenting lower score, at the ad hoc level. All the others sub-indicators are presenting a similar pattern where the identified level is the isolated.

2. In terms of Service Operation & Standards, there is no information concerning accessibility maintenance, therefore this sub-indicator could not be considered on the assessment made.

The sub-indicator within this category which needs more attention refers to meeting user needs. This sub-indicator reveals that on the sites assessed there are 6 of them that still belong to the ad hoc level, and one which is already at the integrated level. Therefore and in order to harmonize data
the sites that are at the ad hoc level should be pulled together and brought to the next level.

3. The key indicator Information and Ticketing Systems shows that there is the need to further improve the accessible information sub-indicator. This sub-indicator when compared to the other sub-indicators presents more sites at the ad hoc level.

4. The Vehicle and Built Environment presents strong discrepancies. Two cases are placed at no level in relation to the monitoring sub-indicator and 8 sites are at the system oriented level. Therefore and in order to get some harmonization among European site it is recommendable to place more initial efforts on this sub-indicator.

   The sub-indicator with major gap between levels is the vehicle accessibility, in which 5 sites are at the ad hoc level and one site at the integrated level, the remaining 9 sites are equally split among isolated and system oriented levels.

5. Both service operations and standards and information and ticketing systems, are the weakest sub-indicators influencing the overall result of the key indicator Seamless Travel and therefore the ones that may require more attention.

4.5 Lessons learnt and key recommendations on data analysis for indicator assessment

Multicriteria analysis herewith presented enabled to define, taking as basis the result of the assessment conducted through the indicators questionnaire, levels of development for the key indicators.

As already mentioned, the structure of the questionnaire, as applied in Mediate, presents some drawbacks, resulting mainly from the need to balance the information requirement with the time necessary to fill in the facts, resulting in a short version where important aspects were not contemplated in detail. That shortage conducted to a set of questions being made in Boolean format that reduces substantially the objective of the MCA if related sub questions were not considered as well.

However, and despite such restrictions, the methodology proved to be valid and enabling to achieve the Mediate objectives. Nevertheless, some reflections deserve to be mentioned for future improvements:

   a) Scoring process – in Mediate, experts provide the guidance that all aspects should be equally considered in accessibility. However from the analysis conducted, it is clear that MCA should be fine tuned by establishing a hierarchical analytical process, enabling to highlight the key relations between indicators and sub-indicators (and consequently imposing conditions and different weights).
b) Number of questions under each key indicator – this is directly related with the structuring of questionnaire to include more details. However, the importance to have a balanced number of sub indicators under a key indicator should be considered. Despite the fact that, at this stage, we had imposed equal weights to all questions and all of them be translated in a 100% score, the number of aspects included under each indicator, clearly influences the results.

Like referred in the start of this report, Mediate was not targeted to enable benchmarking exercises, and consequently results were always provided for the global set of 15 sites participating in the project. Consequently, and this was mainly visible at this stage of the work, it was extremely difficult to perform evaluations on which indicators are leading to global reductions of scores, as that analysis is only possible on a case by case.

That assessment reveals as of utmost importance for the interlinkage between results obtained through indicators questionnaire and results discussed during the conduction of a self assessment analysis. In fact, another key lesson from this process is the need to in depth assess the linkages between these two methodological tools, which was not possible to perform in the context of the present Mediate project.
5. **Conclusions and recommendations**

The analysis included in this report was conducted along two main lines:

- In the first one, a standard data analysis was developed with the dataset from the indicators questionnaire. This was targeted to identify the accessibility levels provided in the different cities, based on the answers directly provided by respondents. This assessment provided a more positive portrait of accessibility in cities than was expected (by the consortium). This is clearly a result of the fact that cities belonging to the working group were not randomly chosen, but also from the fact that the questionnaire do not allow for a deep level of detail of topics.

- The second level of analysis was targeted to calculate levels of development for the defined key indicators. This was done through the development of a multicriteria assessment (MCA). MCA enabled to translate both quantitative and qualitative data into proper measurements enabling a common basis for assessment. As from the 1st level of analysis some caveats were identified, in this second stage it was decided to test the methodology applying 3 evaluation scenarios with more strict conditions to achieve each level of development.

As from data analysis some lessons were learnt, both in relation to the format and the contents.

In the framework of the project, a balance between the level of detail and the time to fill the questionnaire was necessary to achieve. Consequently a set of sub questions (as foreseen in the indicator report) were dropped from the questionnaire. Although it was assumed that respondents would take into account those aspects when answering to a certain topic, there was no capacity to verify it. On the other hand, questionnaires have been filled by a single person and were not a result of a consensus process with the different actors involved in the process (operators, authorities, planners, users).

As a result of above, a first learning was exactly that in such type of questionnaire the level of detail is of utmost importance and therefore it is preferable to extend its contents and the time to complete it, if more data accuracy is expected. The involvement of the different actors in the city is also considered as extremely important and whenever it is not possible to promote a joint exercise, then having each actor filling the questionnaire and then someone compiling the different evidence is helpful.

Specific lessons in relation to each of the levels of the analysis have been produced and included in the respective chapter, being here important to refer that this methodology should be improved in order to achieve a more sophisticated and appropriate tool for cities. This includes a more sophisticated data collection questionnaire as indicated in chapter 3.7, and a finer tuned scoring and weighting system, with a balanced number of topics for each sub-indicator and key-indicator.
Nevertheless, the results obtained were clearly relevant and the methodologies applied revealed as coherent and applicable in other contexts, enabling to establish a common understanding for the analysis of data obtained from the indicators questionnaire. It is also acknowledge that this process would benefit from an interaction process with the different actors in the city as foreseen for the self assessment tool. The fine tune of MCA by establishing a hierarchical analytical process, enabling to highlight the key relations between indicators and sub-indicators (and consequently imposing conditions) seems to be beneficial to revise the weighting process applied in Mediate.

Overall, and based on the results from this process, it is noticeable that there is still considerable work to be promoted, both in terms of hard and soft measures, to achieve a level of universal accessibility in public transport networks. As such, all efforts in this subject are welcome to raise awareness to important aspects that in other terms could require much time to be taken into consideration.

From the assessment it was clear that policy issues are normally at a higher level of development (it is easier to draw a document), than implementation stages. Priority should be placed in the sub indicators with lowest scores but continuous improvement in all the other areas should be promoted, being important that cities understand that being at an integrated level do not mean that improvements are not necessary.

**Reflections on Mediate follow-up's**

Mediate had provided the capacity to define a set of methodologies to evaluate and measure accessibility for all in transport systems. These methodologies have proven to be valid and useful but lack still some more evidence on its real application in enlarged contexts as well as more attention should be devoted to look forward for a smooth articulation between the different outputs obtained from Mediate analysis. This refers particularly to the concept of levels of development as the linkage between indicators, good practices and the self assessment process.

Throughout an enlarged group of cities testing and applying the methodologies, it could be possible to promote a learning process, minimising and avoiding the risk of having cities that are starting in the accessibility fields to fall in the same traps and faults as those that have already advanced to improved stages. This constitutes the basis for a transferability process, not addressed during Mediate, but which has proven in other contexts to be of utmost interest and as such should be an aspect to explore in future initiatives.
References:

- Øvstedal, Liv; Azalde, Gloria; Øderud, Tone. Accessibility indicators for urban public transport Short introduction, December 2010.

- Øvstedal, Liv; Øderud, Tone; Barham, Phil; Jones, Samantha. Mediate D 2.2 Indicators describing the accessibility of urban public transport, April 2010.

- de Jong, Marjolein; Sweers, Willy; Carvalho, Daniela; Rodrigues, Alexandra. Mediate D4.1 Self Assessment Tool – Manual_V2, December 2010.


- UK Department for Communities and Local Government, Multi-criteria analysis manual, December 2000,
Appendix – Questionnaire to collect data on indicators

This is attached separately as a PDF.
### Appendix 2 – Criteria and weighting process (example for key indicator Service Operations & Standards)

<table>
<thead>
<tr>
<th></th>
<th>Weights per indicator</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>B. Service operations and standards</strong></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Meeting user needs</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>Staff training</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front-line sales staff</td>
<td>20% no few some most all</td>
<td></td>
</tr>
<tr>
<td>On-vehicle staff</td>
<td>20% no few some most all</td>
<td></td>
</tr>
<tr>
<td>Public transport operations management</td>
<td>20% no few some most all</td>
<td></td>
</tr>
<tr>
<td>Pedestrian environment planners</td>
<td>20% no few some most all</td>
<td></td>
</tr>
<tr>
<td>Pedestrian environment maintenance staff</td>
<td>20% no few some most all</td>
<td></td>
</tr>
<tr>
<td>Refreshment courses</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Front-line sales staff</td>
<td>20% no yes</td>
<td></td>
</tr>
<tr>
<td>On-vehicle staff</td>
<td>20% no yes</td>
<td></td>
</tr>
<tr>
<td>Public transport operations management</td>
<td>20% no yes</td>
<td></td>
</tr>
<tr>
<td>Pedestrian environment planners</td>
<td>20% no yes</td>
<td></td>
</tr>
<tr>
<td>Pedestrian environment maintenance staff</td>
<td>20% no yes</td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction surveys</td>
<td>20%</td>
<td>50%</td>
</tr>
<tr>
<td>Existence of surveys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disabled with physical impairment</td>
<td>17% not at all yearly 6 months</td>
<td></td>
</tr>
<tr>
<td>Disabled with sensory impairment</td>
<td>17% not at all yearly 6 months</td>
<td></td>
</tr>
<tr>
<td>Disabled with cognitive impairment</td>
<td>17% not at all yearly 6 months</td>
<td></td>
</tr>
<tr>
<td>Older people</td>
<td>17% not at all yearly 6 months</td>
<td></td>
</tr>
<tr>
<td>Younger people</td>
<td>17% not at all yearly 6 months</td>
<td></td>
</tr>
<tr>
<td>Companion / personal assistance</td>
<td>17% not at all yearly 6 months</td>
<td></td>
</tr>
<tr>
<td>Weighted per indicator</td>
<td>Points</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td><strong>Surveys in accessible formats</strong></td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Availability in accessible formats</td>
<td>100% No</td>
<td></td>
</tr>
<tr>
<td><strong>Complaint procedures</strong></td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Procedure for receiving and dealing with user complaints</td>
<td>33% No</td>
<td></td>
</tr>
<tr>
<td>Complaint procedures available in accessible formats</td>
<td>33% No</td>
<td></td>
</tr>
<tr>
<td>Complaints acted upon</td>
<td>33% minor some great</td>
<td></td>
</tr>
<tr>
<td><strong>Staff availability</strong></td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>on trip information and assistance in vehicles</td>
<td>50% none little some most all</td>
<td></td>
</tr>
<tr>
<td>on trip information and assistance in stations</td>
<td>50% none little some most all</td>
<td></td>
</tr>
<tr>
<td><strong>Personal security measures</strong></td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>specific on trip services to elder and disabled</td>
<td>100% no yes</td>
<td></td>
</tr>
<tr>
<td><strong>Fare policies and alternative services</strong></td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>Public transport affordability</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td><strong>Affordability</strong></td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Disabled with physical impairment</td>
<td>17% None Discount Free travel</td>
<td></td>
</tr>
<tr>
<td>Disabled with sensory impairment</td>
<td>17% None Discount Free travel</td>
<td></td>
</tr>
<tr>
<td>Disabled with cognitive impairment</td>
<td>17% None Discount Free travel</td>
<td></td>
</tr>
<tr>
<td>Older people</td>
<td>17% None Discount Free travel</td>
<td></td>
</tr>
<tr>
<td>Younger people</td>
<td>17% None Discount Free travel</td>
<td></td>
</tr>
<tr>
<td>Companion / personal assistance</td>
<td>17% None Discount Free travel</td>
<td></td>
</tr>
<tr>
<td><strong>Valid for more than one mode</strong></td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Disabled with physical impairment</td>
<td>17% No</td>
<td></td>
</tr>
<tr>
<td>Disabled with sensory impairment</td>
<td>17% No</td>
<td></td>
</tr>
<tr>
<td>Disabled with cognitive impairment</td>
<td>17% No</td>
<td></td>
</tr>
<tr>
<td>Older people</td>
<td>17% No</td>
<td></td>
</tr>
<tr>
<td>Younger people</td>
<td>17% No</td>
<td></td>
</tr>
<tr>
<td>Companion / personal assistance</td>
<td>17% No</td>
<td></td>
</tr>
<tr>
<td>Available alternative services</td>
<td>50%</td>
<td>Weighted average</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----</td>
<td>------------------</td>
</tr>
<tr>
<td>Disabled with physical impairment</td>
<td>20%</td>
<td>No services</td>
</tr>
<tr>
<td>Disabled with sensory impairment</td>
<td>20%</td>
<td>No services</td>
</tr>
<tr>
<td>Disabled with cognitive impairment</td>
<td>20%</td>
<td>No services</td>
</tr>
<tr>
<td>Older people</td>
<td>20%</td>
<td>No services</td>
</tr>
<tr>
<td>Companion / personal assistance</td>
<td>20%</td>
<td>No services</td>
</tr>
</tbody>
</table>
Appendix 3 – Example of information provided to the cities

How to read the results

NOTE: This is a hypothetical case that does not correspond to any of the Mediate city respondents

In the spider diagram, the level of development for the urban transport system for each of the 5 key indicators is presented graphically:

<table>
<thead>
<tr>
<th>Key Indicator</th>
<th>Level of Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Policy and Investment</td>
<td>L4 System Oriented</td>
</tr>
<tr>
<td>B - Service Operations and Standards</td>
<td>L3 - Isolated</td>
</tr>
<tr>
<td>C - Information and ticketing systems</td>
<td>L2 - Isolated</td>
</tr>
<tr>
<td>D - Vehicles and Built Environment</td>
<td>L1 - Ad hoc approach</td>
</tr>
<tr>
<td>E - Seamless travel</td>
<td>L4 - Integrated approach</td>
</tr>
</tbody>
</table>

The table presents the calculated level of development for each case, and the highest and lowest result found in the surveyed cities for that key indicator.

In some cases, given the application of the gap criteria, the final level of development of the indicator can be different to the one presented in the table (i.e. the calculation could give a result of 55 which corresponds to level 3, but if one of the sub indicators is in level 1, then final result will be level 2).
A set of 5 charts similar to those below was presented. Each chart shows the sub-indicators belonging to the key indicator and the positioning of the city in each of them, enabling an identification of the areas where improvement is mainly needed.

This chart highlights the Key Indicator A – Policy and Investment. It represents a case where, to improve the level of development, efforts should be focused on the involvement of users (the weakest result), and not so much in terms of the accessibility plan, where a high level was already achieved.

This example shows results for the Key Indicator D – Vehicles and built environment. It shows a case where the efforts to improve should be mainly placed on improving the vehicle accessibility monitoring and acting on safety and accidents, since, for the other sub-indicators, the results are already at a high level.
<table>
<thead>
<tr>
<th>System Oriented</th>
<th>Accessibility plan</th>
<th>End user involvement</th>
<th>Integrated accessibility policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated</td>
<td>Integrated</td>
<td>Isolated</td>
<td>System Oriented</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B - Service Operations and Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated</td>
</tr>
<tr>
<td>System Oriented</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C - Information and ticketing systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated</td>
</tr>
<tr>
<td>System Oriented</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D - Vehicles and Built Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Oriented</td>
</tr>
<tr>
<td>Integrated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E - Seamless Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated</td>
</tr>
<tr>
<td>System Oriented</td>
</tr>
</tbody>
</table>

The final page presents a summary table showing the level of development of the key indicator and each of the sub indicators.