



## Deliverable 2.4

# CONSOLIDATION OF USER REQUIREMENTS, DEFINITION OF VARIABLES TO BE MEASURED BY THE METPEX TOOL

### *Publishable summary*

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## Summary details

The terrestrial public transport system is the principal research area of the METPEX project and an important economic sector in each country, which define the strategic, political, economic and operational environment for movement of people between different geographic points.

The variables relating to the evaluation of passenger experience during their journeys have been defined and structured as a custom questionnaire, by specifying the correlations, correspondence and interdependencies between them. This forms the base of a conceptual model of the variables to be measured with the METPEX tool and will be the foundation for the design of the METPEX tool in WP3 and a reference document for the evaluation of the project results.

The questionnaire and conceptual model presented support the identification of the passengers' requirements and expectations related to terrestrial public transport, based on their experience in different journeys, obtained by using public transport services.

Because various stakeholders are involved in providing terrestrial public transport services, with different roles and responsibilities, the questions have been structured in 6 principal categories. These refer to the political, organisational, functional, environmental, technological and social aspects of the terrestrial public transport system, each category can be used by one or more stakeholders in the customisation process to define own questionnaire.

## Purpose

The purpose of the deliverable D2.4 was to include the results of the research activity performed during the Task 2.4: "Consolidation of User Requirements and definition of variables to be measured by the METPEX Tool" of the WP2 "Identification of quality and whole journey".

The research activity has been oriented on:

- Identification of all variables that explain the passenger experience from the point of view of the perception and expectation,

referred to in the strategies, initiatives, methodologies, standards, best practices presented in deliverables D2.1 “Presentation of current methods and best practice in measuring the quality of the passenger experience”, and those concerning the critical aspects related to passenger journeys presented in D2.2 “Specification of journey types and critical stages where service quality may be an issue”;

- Definition of the variables that reflect the requirements of the public terrestrial transport users, resulted from D2.3 “User requirements concerning definition of the variables to be measured by the METPEX tool”);
- Synthesis and consolidation of the results of Task 2.1-Task 2.3 to ensure that the measurement instruments will include questions dedicated to the needed variables in relation to journey type, traveller, critical journey stages, and passenger experiences;
- Clearly define and structure the variables, by specifying the correlations, correspondence and interdependencies between them to provide a conceptual model that will form the foundation for the design of METPEX in WP3;
- Classification of the identified variables considering political, organisational, functional, environmental, technological, social aspects;
- Presentation of the conceptual model of the METPEX tool.

## Definition of variables

The deliverable includes the variables that have been defined, variables related to the journey and respectively those concerning the passenger experience and service aspects.

Based on the analysis, the syntheses and the consolidation of the results of the research activities performed, in different research activities, by different groups and in various contexts, are described the diversity of variables related to journeys identified and the variables selected to be implemented in the METPEX tool related to journey characteristics like: time, journey elements, journey purposes, movement modalities, journey phases, journey quality, passenger information and, traveller information technologies.

In the definition of the variables related to passenger experience have been identified those included in the European and national initiatives, variables considered in transport services evaluation approaches, variables used in measuring of public transport accessibility, variables related to the impacts of information services, variables related to transport accessibility for persons with various types of disabilities, variables related to transport operation and the impact on the environment and, variable related to social status of citizens.

The variables proposed to be considered in the METPEX tool and considered essential for a survey related to passenger experience evaluation, performed by transport operators to improve their services are related in principal to accessibility, attractiveness, passengers’ care, comfort, feedback, flexibility, frequency, information, integration / connectivity, reliability, speed, safety and

security, passenger right protection, reasons for choosing a certain transport mode, tickets, environmental impact and persons with disabilities contextual aspects.

## Conceptual model for METPEX tool

The deliverable provides the information needed to give a conceptual image on the elements that have to be considered in the design of the tools to support the acquisition of the data and to evaluate the passenger experience related to the public transport services.

Passengers as users are an essential interest group for the transport sector. The mechanisms that ensure specific activities and behaviours in the terrestrial transport area are under the management and administration of various actors, which have different complementary roles and responsibilities and a multitude of interconnections between them.

The relevant actors and stakeholders in the terrestrial passenger transport sector were also identified and considered in order to understand what kind of travel information they need for planning, developing and providing optimised mobility services. These stakeholders include transport providers, planners, authorities and many others, which are described in this deliverable.

METPEX tool will be a means to analyse the experience gained by passengers when they travel by public terrestrial transport. The model proposed considers the relevant aspects that concern a passenger on his journeys, in order to support successfully the measurement of passenger experience.

In order to enhance the usefulness of METPEX tool, the following issues have been considered under all the research conducted to develop the conceptual model of this tool:

- Increasing relevance of the variables considered and of the results provided based on the data gathering through the questionnaire, making sure the topic is pertinent to current policy, and understanding the passengers' present and future needs;
- Improving the interface, through involving the passengers in WP2 in the research process;
- Strengthening credibility, by producing a model that is attractive to passengers, and easy to use by them, and while also being a good support for decision makers;
- **User friendly** User-friendly presentation, making sure that the results obtained through the METPEX tool are communicated to passengers and stakeholders in a non-technical language.

The research done effectively provides the idea that there is also a need to make transport research more accessible, to policy makers, transport service providers and passengers.

The quality of public transport can be measured in two ways, one 'internal', which is quality based on hard performance targets, and other 'true', which relies on passengers' perceptions on the transport services used. The second

way that has been proposed to be used in the METPEX tool, because it provides true measures of quality, by considering the opinions provided by passengers.

The METPEX tool will be an inclusive passenger experience measurement tool, based on the results of the research activity performed in all of WP2 tasks, and consolidated through Task 2.4, addressing transport complexity.

The data collected enabled the creation of a conceptual presentation of the various interrelated aspects that characterise the terrestrial transport system, which is perceived by the passengers and stakeholders in different ways as service customers and, respectively, transport services providers.

The METPEX tool will be dedicated to stakeholders and used by the citizens, in their capacity of transport passengers, for identifying people's expectations concerning the quality of transport services provided by transport operators, transport infrastructure administrators and transport authorities.

By using this tool, more intelligent solutions can be added to the public transport design, accessibility could be improved and mobility and quality of life for EU citizens can be enhanced.

The conceptual architecture of METPEX specifies the factors that will provide the inputs, the types of inputs that will be used, the principal functionalities of the METPEX tools and the proposed outputs support for terrestrial transport stakeholders.

The identified variables and, also, the proposed indicators were structured in the following categories taking into account the aspects of terrestrial public transport considered:

- Political aspects – having as the target the stakeholders with roles and responsibilities in the elaboration of the strategies and policies;
- Organisational aspects – are addressed to the stakeholders involved in the organisation of the terrestrial public transport;
- Functional aspects – refer to the stakeholders involved in the operation of the terrestrial public transport;
- Environmental aspects – useful to all type of stakeholders;
- Technological aspects – useful to all type of stakeholders;
- Social aspects – useful to all type of stakeholders;
- Contextual aspects - useful to all type of stakeholders.

The customised questionnaire contains 457 variables structures as follow:

- Political aspects - 90 variables;
- Organisational aspects – 125 variables;
- Functional aspects - 106 variables;
- Environmental aspects – 25 variables;
- Technological aspects – 46 variables;
- Social aspects – 41 variables;
- Contextual aspects - 24 variables.



A Measurement Tool  
to determine the quality  
of the Passenger Experience



## Conclusion

Research conducted can be summarised as follows:

- A significant ~~semnificative~~ number of variables and indicators concerning the passenger experience (perception and expectation ~~retation~~), was identified as a result of the analysis and evaluation of strategies, policies and initiatives at European and national level, the results of research approaches, methodologies and examples of best practices;
- The complexity of the actions and the issues involved in the modal journeys and, especially, in the multimodal journeys was considered, presented and conceptualised;
- The review and evaluation of this complexity was essential to enable a better knowledge of the field addressed by the project, to formalisze and conceptualisze it, in order to develop a measure of passenger experience, useful and usable by stakeholders in different ways, in the public terrestrial -transport system;
- The results of the research highlight the diversity of users involved in identifying variables, the high reliability of the process launched, and the multitude of issues proposed to be considered in defining the variables used in the design and development of the METPEX tool for finding the experience of passengers using public transport, and their expectations;
- The conceptual model of the instrument is intended to METPEX factors involved in public terrestrial transport system with different and complementary roles and responsibilities, in providing transportation services for citizens;
- A coherent, correlated and customised set of variables, which include existing experience in the field, and development ~~it~~ through a systemic and holistic approach ~~to~~ of all the elements that characterisze the public transport system. ~~lin~~ in terms of its structure and quality of service provided, in different contexts and stages of the journey, it is offered in order to identify and ~~to~~ evaluate passengers' experience ~~is provide~~.