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# Deliverable 2.1

## State of the Art Report

### *Publishable summary*

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# PUBLISHABLE SUMMARY OF THE SURVEY OF METHODOLOGIES IN ENERQI

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## **Purpose of this report**

ENERQI is a European project, aiming to reduce fuel consumption and the related environmental impacts in the passenger transportation industry, by increasing the usage of public transport and reducing the usage of private cars. The basic philosophy of ENERQI is that an increase in public transport usage can be achieved if the quality of the Public Transport (PT) service is improved and that this is recognized and acknowledged by the passenger's satisfaction. To prove this, a (common) methodology for the "real time" monitoring of PT quality and passenger satisfaction in several EU countries will be developed within ENERQI.

As a first step in the development of a common ENERQI methodology, this "state of the art report on best practices" has been made, with regard to measuring PT quality and customer satisfaction in Europe and the world today.

## **How was the review carried out**

Best practice information found in the *literature* on customers satisfaction surveys in 48 different, mostly European, sources and on the *internet* were analysed. For example the European BEST and QUATTRO projects provided valuable information. In addition to this, *case studies* from 12 European countries related to the (quality of) public transport systems where also examined (Austria, Belgium, Bulgaria, Finland, France, Ireland, Greece, Luxembourg, the Netherlands, Portugal, Romania and the UK).

## **Customers satisfaction surveys: how to apply the theory to ENERQI**

First of all, if we look at the theory behind customer satisfaction surveys, we can distinguish many different types of survey methods, design specifications, (key) indicators, types of data collection, scales but in general we can say that a distinction can be made between:

- *Qualitative research*: in which data is obtained from a relatively small group of respondents and not analyzed with statistical techniques.
- *Quantitative research*: which typically involves the construction of questionnaires and scales and utilizes statistical techniques.

and, if based on observations, between:

- *Observational techniques*: the researcher observes phenomena in their natural setting.
- *Experimental techniques*: the researcher creates an artificial environment.

In the context of ENERQI , where we want to set up real time monitoring, a quantitative observed “attitude measurement” seems to be most suitable for measuring passenger satisfaction. The “passenger satisfaction indicators” that should be or that are usually measured are: availability, accessibility, reliability & time, price, information, customer support, comfort, safety, environment, and their lower level components.

Best practice as found in the literature on customer satisfaction surveys in 48 different, mostly European, sources and on the internet underpin this recommendation. For instance in the QUATTRO project the transport quality factors are determined and analyzed hierarchically. Also a quality loop concept is presented combining: service quality targeted and delivered by the service provider, with service quality sought and perceived by the customer.

### **European Quality Standard EN13816**

The findings of QUATTRO lead to the development of the European Standard EN 13816:2002 “Transportation – Logistics and services – Public Passenger transport – Service quality definition, targeting and measurement” which *defines service quality, targets and measurement guidance*. The main purpose of the standard is to promote a quality approach to public transport operations and focuses interest on customers’ needs and expectations, by specifying procedures most likely to:

- draw the attention of the responsible parties to matters to be considered;
- lead to relevant and well-founded decisions particularly with regard to the allocation of responsibilities;
- enable customers, and others, to compare service quality claims from alternative suppliers, reliably;
- contributes to the implementation of a process of continuous improvement.

Many customers satisfaction surveys make use of this standard and also ENERQI will be built upon this EN 13816 standard.

### **BEST Project**

In the BEST project, a standard PT survey is conducted every year, since 2001, in a number of European cities, thus providing a database for the estimation of PT service quality and passenger satisfaction. This information is also used for in depth research and study of the elements of quality and passenger satisfaction and their relation to the local conditions of every city where the services take place.

BEST mentions four new composite indicators, not included in the EN 13816 standard: overall citizens satisfaction, value for money, social image and loyalty of the customer. In the ENERQI methodology these four indicators will be taken into considerations.

### **Benchmarking**

Other projects, furthermore, showed that benchmarking is an important tool. Certainly if it is incorporated into the management structure and the organization of Public Transport.

It is useful to identify own strengths and weaknesses and as such it contributes to a long lasting strive to improve the performance. Therefore within ENERQI benchmarking will get a prominent place.

### **Results from 12 EU case studies carried out by ENERQI partners**

In addition to the best practices found in the literature within ENERQI the cases of public transport systems which refer to 12 European countries: Austria, Belgium, Bulgaria, Finland, France, Ireland, Greece, Luxembourg, the Netherlands, Portugal, Romania and UK were examined. The population and area sizes of the cities and districts to which the PT systems refer, vary from a minimum population of ~ 80.000 people to a maximum population of ~ 4 million people and from an area of ~ 20 sq km to over 13.000 sq km. The PT systems in the areas examined cover all the range of PT modes, from suburban rail and train, to metro, tram, light rail, bus, trolleybus, microbus, demand responsive services and ferries. Nine of the examined cases refer to public PT systems and six refer to private PT operators. The PT share varies from small percentages in the regions (4-15%) to high percentages in the city centres (35-50%). In almost all of the examined cases there is a strategic or business plan which sets the vision and targets of the PT organization. The big variation observed in the components of the cases examined, showed that the issue of quality and passenger satisfaction in PT systems is complex and also that it is rather difficult to use as a general approach for dealing with Energy and Environmental issues in a uniform way.

Based on the analysis of the above mentioned cases, it proved essential for the purposes of quality improvement to:

- highlight the importance of having all the activities related to quality management, collected in one operational unit,
- allocate PT contracts to operators with the quality of the services being incorporated in the contract,
- relate quality certification of PT authorities and operators to pre defined Customer Charters,
- financially reward PT operators if they meet or surpass certain quality criteria which are included in the tender documents

In addition to this, and most relevant for the development of the common ENERQI methodology, analysis of the case studies from existing European schemes showed that ENERQI should:

- make use of a “Barometer” type of presentation and monitoring, because it offers flexibility and speed in responding to issues raised by customers,
- make use of innovative methodologies for monitoring PT quality, for example through an internet survey based system,
- make use of volunteers who observe quality aspects on a regular basis,
- manage the way observations will be carried out to counteract the risk of only getting complaints or observations of incidents/incidental situations.

### **Common elements from existing methodologies**

There are a number of methodologies for quality management or passenger satisfaction measurement reported in the examined cases which cover the needs of specific organizations. All methodologies include common elements which can be roughly described as follows:

1. Determination of the indicators which better describe the level of quality in the PT system;
2. Collection of data related to the selected indicators;
3. Analysis of the collected data and estimation of the quality level;
4. Development of action plans for the improvement of the quality level;
5. Implementation of action plans for the improvement of the quality level;
6. Increase the customer satisfaction and the PT usage;
7. Collection of data related to the selected indicators to evaluate the success of the implemented actions.

The ENERQI quality loop incorporates all the above elements. It starts with setting of the desired quality level of the public transport system. Periodic (monthly) collection of data for the key performance indicators is done through suitable observations; the information is input via an internet application and stored to a central database. Quarterly reports are then produced identifying weaknesses and suggesting recommendations for improvement. The suggestions are transformed to quality improvement actions which lead to meeting or improving the desired quality level of service. The passenger receives a better quality of services, which leads to higher satisfaction levels and this in turn leads to the increase in public transport usage.

Figure: ENERQI Quality Loop



### Lessons learned - recommendations

The way the observations should be done is still open and will be determined in the next phase of the project. Based on the research, it is recommended to make use of *passenger surveys*. Additional mystery shoppers and direct performance measurements can be done.

The set of indicators to observe will be a *subset of the EN 13816:2002 certification*, because this is a basic reference point in many situations and is thus recommended for all PT services.

In terms of frequency the annual measurement is appropriate for reporting purposes, but *shorter intervals* are more useful for flexible quality responses to everyday challenges.

The *direct availability of survey results* to all employees in an organization means more awareness and consequently direct involvement of the personnel in the continuous effort for quality operations.

The size of the PT system surveyed is important for the formulation of the cost of the quality and customer satisfaction measurement.

The use of internet and mobile telephony and the extreme possibilities they offer for information spreading, communication and tele-working, gives great opportunities to lower the cost of quality management measures and at the same time increase the speed and accuracy of the results. In the field of public transportation it seems that there is a lot to be gained by *exploiting the opportunities offered in the domain of contemporary technology availability*.