# Benchmarking and Quality Management in Public Transport

PORTAL
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RESEARCH FOR SUSTAINABLE MOBILITY

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The aim of PORTAL is to accelerate the take up of EU research results in the field of local and regional transport through the development of new education and training courses and teaching materials. The beneficiaries of the project are higher educational institutions.

Due to the size and (in some cases) the number of individual projects, it is not possible to explain each single result in detail and include it into these written materials.

The following set of material should rather act as a PORTAL and facilitate the access of single projects and detailed results by the lecturers.

Therefore the material in hand doesn't lay claim to completeness.

Since the expectations of the lecturers regarding these materials are quite diverse - the expectations run the gamut from 'providing a survey of the result of the EU-research to a specific topic' to 'providing special results of a single research-project in detail' -, the attempt has been made to make a compromise and (more or less) come up to the expectations of all user groups.

The following compendium contains results of EU research-projects and complementary results of national research-projects. PORTAL thanks the partners and collaborators of the following projects. A complete list of the projects, consortia, and cited literature is given at the end of the material.
This material of project results for the topic " **Quality and Benchmarking in Public Transport** " was compiled by Pascal Vincent (CERTU) in 2001 and adapted after a workshop with lecturers in 2002.

**BEST**

**BENCHMARKING**

**BOB**

**EQUIP**

**ISOTOPE**

**QUATTRO**

# Table of Contents

# 1. Introduction

## 1.1 Definition

Quality and Benchmarking in public transport are both management methods. Although they are common in the industrial field and used for a long time, they are not much known in the public transport field yet.

They need to be clearly defined, because their present use is generally not appropriate : quality is a very well known word, but everyone puts their own interpretation on it . And benchmarking is often reduced merely to mean some sort of comparison.

It is not really possible to define quality in a simple and short definition. Formal and quantitative approaches are the two adjectives which probably express best what is intended to be done. And quality is a relative notion: it depends on the relation you make between the three elements which are: objectives, means and results. That is very true in the public transport field, where objectives for public service are not always precise, the results depend on the user's perception, and the service delivery is never at the level which would be sufficient.

Concerning benchmarking, the core of the concept is obviously the notion of comparison. But to compare is not to benchmark. Comparison is static, but benchmarking is dynamic. In bench-marking, there is the idea of improvement and action.

## 1.2 Objectives and skills

The learning objectives of this topic is double :

- make them know the different methods and tools used for the improvement of quality in the public transport sector. Among them, Benchmarking is a new management tool.
- enable them to understand that behind the concept of quality, there is a rigorous and scientific approach.

That means that this key topic is essentially a methodological approach.

In many coutries in Europe, improvmemt of quality stand in a more and more competitive context, and companies hesitate to give their methods in detail. For this reason, it is recommended to lecturers to take from their local experience example which apply to the presented concepts. The European and foreign examples which are given simply lighten the demonstration, but cannot be presented in depth in such a document.

In particular, the link between quality and the regulatory framework of public transport can be understood better with developments of topic « Regulatory Framework in Public Transport ». Lecturers and students are suggested to read the material of this topic too.

The students should further gain the following skills and knowledge:

- To understand that quality in public transport is not a qualitative concept.
- To know that there are several different tools to measure and improve quality, and to be able to monitor them.
- To be aware of the new common European framework of quality in public transport.
- To have a clear knowledge of the notion of benchmarking.
- To know the key success factors of a process of benchmarking, and to be able to initiate a process.
- To be able to give advice to both local authorities and operators in the considered field.

## 1.3 Link with EU Policies

Within the European discussion, it is generally agreed that public transport has to play an important role in a future transport system, aiming for environmental sustainability. This awareness has a history of at least a decade, and a background that does not rely only on the environmental threats to air quality caused by increasing car traffic. Also in other respects has public transport been expected to contribute to a better quality of life in European cities. This document presents research results in the area of "Quality and benchmarking in public transport". Thus, the focus is on methods for identification, quantification and comparisons of standard in urban and regional public transport.

In several documents published over that last years, the commission has explicitly expected such methods to play an important role in the future development of public transport systems. However, it is also obvious from the document that the interest in such methods (and even in the concept of "public transport quality") has developed gradually. In 1990 the Commission published a green paper *On the Urban Environment, COM(90)218* , dealing with a wide range of problems that urban environments generally were facing. The green paper concluded that *"even if it has been known for long that public transport contributes to reduce urban traffic, only few cities have succeeded in shifting the balance from individual to public transport, to any considerable degree"*. The green paper puts the major blame for this failure on weaknesses of land-use planning, leading to conditions that are unfavourable for the introduction of economically efficient public transport. However, there is also a comment about the need for improved service and investment in public transport vehicles. It is not until 1995, however, that the role of public transport customers in defining and measuring quality and standard is explicitly acknowledged in a policy document. This is done in a Green paper specifically dealing with public transport issues: *The citizen's network - Fulfilling the potential of public passenger transport in Europe.* Here, a checklist is presented for the evaluation of public transport standard from a customer perspective. The text argues that such a checklist may work as an instrument for citizens to put political pressure on relevant bodies, with the target of improving public transport quality.

Another illustration to *"The citizen's network"* introducing a new approach to public transport standard is that it proposes, for example, a common minimum level of driver education, indicating an interest in 'soft' aspects of standard. In contrast, the earlier 1990 green paper seem to focus totally on 'hard' aspects, covered by the term "efficiency". In *"The citizen's network"* there is also a first step towards benchmarking of public transport introduced, as there is a suggestion for a European prize for best practice in public transport quality.

Recently (2001), a new White paper on transport policy has been published: *"European transport policy for 2010 - time to decide"*. In that document, a large set of measures is described and discussed. For reasons of subsidiarity, many of the issues raised are outside of what may be decided on a common European level. Despite this, the paper argues that there may be good reasons to initialise a common European discussion, for example to be able to take advantage of the experience of others. The concept of 'best practice' (i.e. benchmarking) is suggested as an efficient tool to benefit from the experience of others in this way. Also the 2001 white paper is clearly based on a customers' perspective on standard and quality. One of the innovative proposals in the document is to guarantee the users' right to a specific, expected, level of standard for each trip, generally. Such 'passenger protection mechanisms' are suggested to first be introduced for rail and maritime services (on top of air travel, for which it is already largely applicable). The White paper does however mention that in the long run, such guarantees should also apply to urban transport services "*as far as possible*".

## 1.4 Challenges

### The European context for urban public transport provision

Urban Public Transport plays a vital role in daily life:

- 80% of European citizens live in urban areas (to be adapted a t a local level).
- 1000-1300 journeys per year per citizen are made by one of the available mobility modes (to be adapted a t a local level).
- About 500 billion journeys are made each year in the European Union (to be adapted at a local level).
- Each citizen has the choice between different modes and is a free agent. Choice for one or another mode will be based on notions such as availability, quality, price and reputation.
- Citizens of all socio-economic groups increasingly value customer service attributes highly in every aspect of their life.
- The "added value" of good and performing local public transport benefits to individuals and the community at large.
- Public transport is a business that helps to support a good quality of life, sustainability of employment and development potential. It is both market and mission driven so as to satisfy wide ranges of demand.
- Efficient urban living demands reliable, effective, customer-conscious, inter-modally friendly, door-to-door, public transport systems.
- A real time world needs a real time service and it is essential to recognise the perishability of URBAN PUBLIC TRANSPORT and its highly ephemeral and hypothetical value.

## Challenges for urban public transport actors

The Urban Public Transport (urban public transport) sector is vital to prosperity in the European Union as a whole. The capacity of people to move inside the European Union has recently been highly increased by the reduction of legal constraints and the simplification of visa procedures. Further developments are expected in the near future. This leads to expectations for a significant mobility increase in the next decades.

The thrust of the Citizens' Network objectives can only be achieved by the adoption of quality principles and practices which will result in the provision and procurement of public transport in support of sustainable mobility of high quality and at a marketable tariff level.

If authorities and operators handle local public transport policies in an insufficiently customer-oriented manner, it leads to :

- decline in service frequencies;
- loss of ridership;
- “cheap and cheerful” using old vehicles and staff paid at the lowest possible rate;
- further loss of ridership;
- further economy and so on;

Interurban mobility increase by the way of PT has no sense if no connection is made with urban, local transport systems. Inter-modal interface facilities play a major role. However the growth of private personal transport - the motor car - makes it essential for the PT industry to come to terms with its own problems by :

- changing to customer rather than production driven management;
- making quality and quality driven systems an instrument of change for the benefit of front line staff, customers, stakeholders and managers in the urban public transport sector;
- encouraging innovation and the effective spread of “Best Practice”;
- increasing the overall use of public transport by the facilitation of inter-modal services where the customer has choice within a competitive structure.
- Above all, by applying these principles and adopting a quality approach, local public transport will challenge its real competitors rather than fighting itself.

## 1.5 Description – summary of the contents

This studying material is divided into five main parts :

- Description of the seven management tools to understand the concept of quality and help to improve it. Some of them are already known, others are rather new: quality loop; self-assessment methods; benchmarking ; standardisation and certification; quality partnerships; guarantee of service and service charters; and the CEN quality framework. As it is a rather new concept in public service field, benchmarking is more explained and described than the other tools.

- Several fundamentals in urban public transport affect quality. This part shows that quality is not a concept which can live alone with a life of its own , but is dependant on other factors like: planing, internal or external actors, importance of measurement, links with the environment, and shows that quality is a virtuous circle.

- In urban public transport, there are two principal actors: local authorities and operators. Quality is strongly dependent on the procedure for the choice of the operators and on the relations between local authorities and operator. This part examines the influence of these two elements on quality.

- There are then several recommendations for the 3 types actors involved in improving quality: local authorities, operators and manufacturers.

- And finally, concrete examples taken from results of European projects, illustrating the concepts, are given.

# 2. Contents on Quality in Public Transport

## 2.1 The quality management tools

Different tools aim to facilitate understanding of the concept of quality and continuous improvement processes:

- quality loop;
- self-assessment methods;
- benchmarking;
- standardisation and certification;
- quality partnerships;
- guarantee of service and service charters;
- the CEN quality framework;

We will then give elements to connect the tools together.

### The quality loop: customer-orientated not production-orientated

This is:

- a dynamic process;
- a process for improvement;
- a principle which can be applied at the system level as well as within the system;
- a way to define the required service and to identify priorities for change

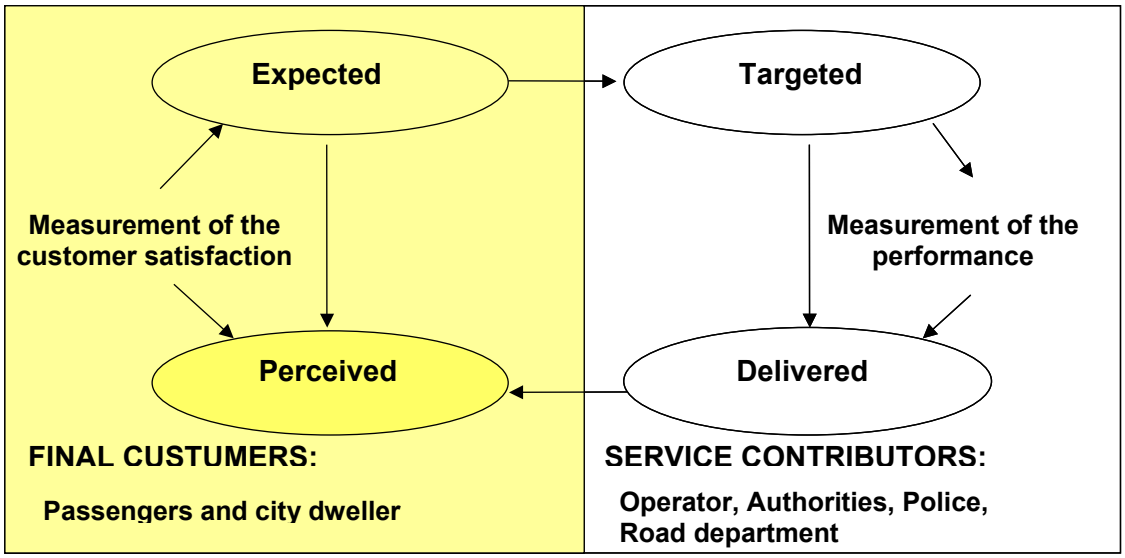



*Figure 1: The quality loop at the level of the public transport system. Source: AFNOR*

The quality loop results from a series of interactions between two worlds with clearly distinctive viewpoints, the world of customers and the one of the supplier(s). It is also based on four distinctive benchmarks:

**Expected Quality:** this is the level of quality anticipated by the customer and it can be defined in terms of explicit and implicit expectations. The level of quality expected by the passenger can be defined as the sum of a number of weighted quality criteria.

*Figure 2: Expected Quality*

**Targeted Quality:** this is the level of quality that the operator aims to provide to passengers. It is dependent on the level of quality expected by the passengers, external and internal pressures, budgetary constraints and competitors' performance.


*Figure 3: Targeted Quality*

**Delivered Quality:** this is the level of quality that is achieved on a day-to-day basis in normal operating conditions. Service disruptions, whether or not they are the fault of the operator, are taken into consideration.

*Figure 4: Delivered Quality*

**Perceived Quality:** this is the level of quality perceived by passengers in the course of their journeys. However, the way passengers perceive the service depends on their previous personal experiences with the service or with its associated services, on all the information they receive about the service - not only that provided by the company but also information coming from other sources - their personal environment, etc.

*Figure 5: Perceived Quality*

The four benchmarks above can be used to define four critical gaps in service design:

- the gap between perceived quality and expected quality;
- the gap between expected quality and targeted quality;
- the gap between targeted quality and delivered quality;
- the gap between delivered quality and perceived quality.

Improving service efficiency and quality means closing the four gaps.

And let's keep in mind that "over-quality" is not quality"

## Self assessment methods

These approaches are based on the concept "to measure to improve" with the objective of bringing continuous improvement processes to the system. Self assessment is a practical way for a companies to measure their own performances and from there to improve these by adapting their organisational system. Self assessment makes comparison possible over time or with other companies.


*Figure 6: Over-quality*

### The EFQM self assessment model

The EFQM has for several years been developing an efficient model of self assessment for quality management at the level of a company or of a production system. The EFQM defines self assessment as "*taking a hard look at your organisation and scoring it against an ideal or model (the EFQM model in this case). The results indicate the organisation's strengths and areas for improvement and provide the basis for future strategy and improvement plans…*".

In the public transport sector, self assessment can certainly lead to an improved knowledge of system and company performances.

Within the transport system, weaknesses can be identified in:

**Leadership and system co-ordination:** The allocation of responsibilities between the different bodies involved ("Who does what?") is not always well defined and this can lead to duplications of effort. Questions to address are: "Are the available resources efficiently exploited?" and "Do processes exist to manage the total system optimally?".

**Policy and strategy:** Strategy and transport policy are not always co-ordinated or integrated in time and in space. The importance of urban public transport in mobility policy is not always well understood or well developed. The urban public transport sector does not offer any unified image of the complementary transport modes available to the public.

**People management:** In this respect, one important issue is: "Do the workers of the urban public transport sector receive adequate training and development opportunities?".

**Customer satisfaction**: Customer satisfaction is mainly measured at the level of the operator: "Does the service provided by the operator fulfil the expectations of the users?", "What about the measurement of their global satisfaction at with the transport system?", "What about the expectations of stakeholders, non users and of potential users?".

**Business results:** Business results must be measured at the level of the operator but not globally at the level of the system. Measurement tools are not always available and need to be developed to permit a more accurate measure of the system's results.

**Impact on society:** As with business results, there is a need to develop measurement tools for the global impact of the transport system on its environment. Traffic congestion and pollution are now a very sensitive matter of concern in cities.

The EFQM model collects nine management data sources and proposes a weighted assessment method.

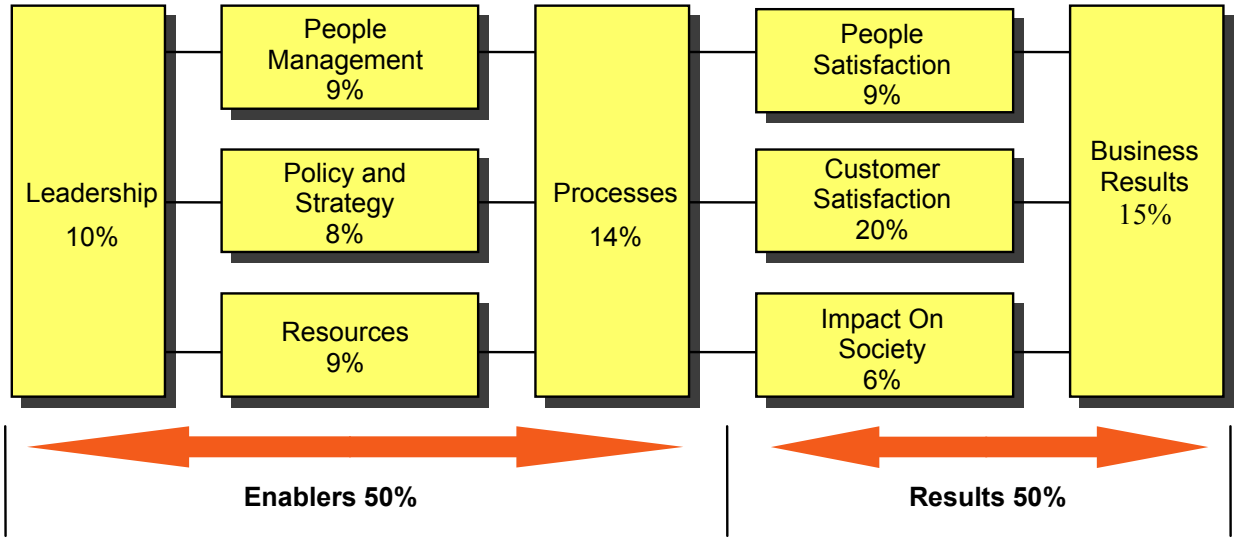



*Figure 7: The EFQM self assessment model. Source: EFQM*

The EFQM self assessment model is composed of 9 boxes divided into 2 fields: the enablers and the results. As it consists in a work method based on self assessment, it is presented under the form of questions. For each of the nine boxes, a major question must be asked at the level of the self assessing entity in order to identify if the criterion considered is properly dealt with. A "translation" of the questions is proposed at the level of the passenger transport system, at the level of the companies in charge of passenger transport (the operators) and at the level of the public authorities responsible for passenger transport activities in the area.

### The EQUIP model

Equip was a 4th F.P. project which developed a self-assessment method for public transport operators , as a first step for a benchmarking process.

The table (below) shows the clustered topics and the number of indicators per cluster.

- Company Profile indicators (Cluster 1) provide the background for selecting operators with which to benchmark as they describe how a company is organised and the level of penetration within its operating area. Some aspects of the company profile may limit the choice of potential partners, e.g. the size and location of the operating area and the type and number of competitors (if any).

- The External Influences on the Operator (Cluster 2) form a key set of indicators for determining benchmarking partnerships in a further step. The influence of the outside world in which the operator provides its service may be significant for the performance of the operator. This is especially the case if the following comparison is at an international level and the operators come from different market environments with varying degrees of regulation and subsidy. In addition, the legal and operational environment may vary considerably between countries.

| Cluster | Cluster title | Number of Indicators in Cluster |
|---|---|---|
| 1 | Company profile | 21 |
| 2 | External influences on operator | 13 |
| 3 | Revenue and fare structure | 9 |
| 4 | Asset/Capacity utilisation | 8 |
| 5 | Reliability | 5 |
| 6 | Production costs | 3 |
| 7 | Company performance | 4 |
| 8 | Technical performance | 6 |
| 9 | Employee satisfaction | 12 |
| 10 | Customer satisfaction | 7 |
| 11 | Safety and security | 3 |
| Total: | | **91** |

*Table 1: The EQUIP Clusters of Indicators. Source : Equip project*

- Cluster 3, Revenue and Fare Structure, refers to the indicators that define the fare structure of the operator. This includes a general description of the fares over certain distances, together with a look at more detailed indicators such as the relationship between the cost of private and public transport, the ratio between single and monthly tickets, and the non payment of fares.

- The utilisation of vehicles and manpower is the key to the financial performance of a public transport operator (Cluster 4, Asset/Capacity Utilisation). The most important indicators are those that consider how full the vehicles are, the time it takes for passengers to board the vehicle, the utilisation of the fleet and the drivers, and the distance travelled by vehicles that does not produce any revenue.

- Even if an operator utilises its assets well, its performance may be impeded by poor Reliability (Cluster 5). For example, services may be delayed or abandoned at the origin or during the journey and the operator may have difficulty in maintaining the planned headway.

- Production Cost indicators (Cluster 6) measure how efficiently the operator is able to provide the service with the available resources. These indicators depend on monetary units. It limits their use as the financial operational framework should be similar between the operators that are benchmarking with each other.

- Most of Company Performance indicators (Cluster 7) are more suited to the national rather than the international level. The indicators chosen to measure company performance give a broad overview, such as patronage, the overall operating profit or loss, operating performance, net profit margin and interest cover. Trends over a period of five years should be measured.

- There are two parts to the Technical Performance (cluster 8): firstly, it measures indicators that directly affect on the road performance, e.g. fuel consumption, emissions, reliability and the installation of features that assist passenger mobility. Secondly, it examines the on-going maintenance programme.

- Most of the Employee Satisfaction measures (Cluster 9) can be evaluated by the operator, using information in the company records.

- The best and almost the only way to get relevant information about Customer Satisfaction (Cluster 10) is to make a survey of the current public transport passengers. Survey results can be compared with the image that the operator has of its performance simply by asking the operator to complete the same questionnaires as the customers. In addition to customer opinions, hard measure indicators are also relevant for the benchmarking exercise, e.g. the number of complaints and accessibility to vehicles.

- The Safety and Security cluster (11) covers the actual traffic safety of the operator and the safety of the working environment. It shows the number of incidents on the road, together with the number of injuries sustained by drivers and passengers.

Below the clustering of indicators, a certain number of major indicators can be identified. They are the following:

| Cluster and Indicator Number | Name | Cluster and Indicator Number | Name |
|---|---|---|---|
| 1.1 | Subcontracting of services | 7.1 | Operating profit or loss |
| 1.3 | Type of service area | 8.2 | Emissions |
| 1.4 | Vehicle kilometres | 8.3 | Fleet reliability |
| 1.6 | Fleet composition | 9.1 | Staff turnover |
| 1.7 | Passenger trips | 9.2 | Sickness |
| 1.15 | Operating speed | 10.1 | Passenger feedback ratio |
| 2.9 | External contributions to variable costs | 10.3 | Vehicle accessibility |
| 3.3 | Type of tickets | 10.4 | On board the vehicle |
| 4.1 | Load factor | 10.5 | At the stations/stops |
| 4.2 | Peak fleet utilisation | 10.6 | Information etc. |
| 5.3 | Abandoned service journeys | 10.7 | Transfers between vehicles |
| 5.4 | Delayed service journeys | 11.1 | Incidents |
| 6.2 | Costs per employee | 11.3 | Passenger health and safety |
| 6.3 | Costs per vehicle and passenger | | |

*Table 2: The EQUIP Super Indicators. Source : Equip project*

Concerning the feedback of passengers, it is recommended to make the difference between two different aspects passenger don't give the same weight in their perception of quality: the importance of a topic, and the opinion they give about quality of the (wanted or perceived) service.

The following graph shows simply how to present the results.

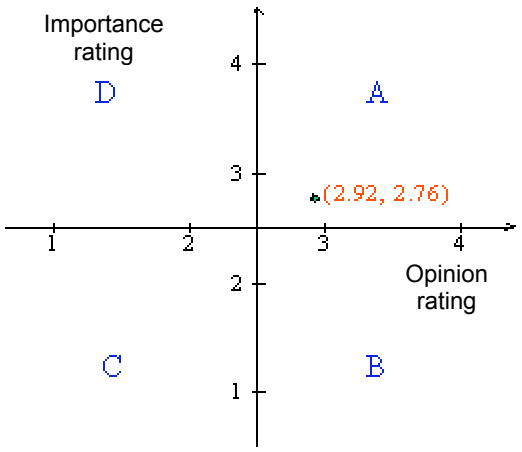



*Figure 8: Presentation of results; Source: Equip projectInterpretation of Weighted Average Scores for Opinion Surveys*

Example of indicator:

| 1.3 Type of service area | Percentage of total number of services that operate in each type of service area | | | | |
|---|---|---|---|---|---|
| | See System Definitions sheet for defenition of service areas (urban access, etc), and demand responsive transport | | | | |
| | Place 2 Yes" in appropriate boxes | | | | |
| | Period: Most up to date information avaible | | | | |
| | Method: Operator's personal knowledge | | | | |
| | Parcentage of Services | | | | |
| | 0-20 | 21-40 | 41-60 | 61-80 | 81-100 |
| Urban access | | | | | |
| Connecting | | | | | |
| Rural access | | | | | |
| Demand Responsive Transport | | | | | |
| The Type of service area is an important description of the operation. Some operators will be hybrids (these are likely to be large companies). See also vehicle kilometres (1.4), fleet composition (1.69, passengers trips (1.7) and passenger kilometre (1.8). In a number of cases a service will chage ist character during ist route ( e.g. it may start as a rural access service but end as a connecting service) – this variation is accommodated by the broad bands used to complete the indicator.<br>(the EQUIP Handbook does not specify indicators that relate to the actual size of the operational area, as it is difficult to calculate, and may have limited meaning for operators where services are mainly connecting and / or rural access). | | | | | |

*Table 3: Example of indicators; Source: Equip project*

# Benchmarking

## Definition and goals

### The word "Benchmarking" itself

Several approaches of its definition can be done :

The term "Benchmarking" has been around for a number of years, but it is still not really understood and the word is misused daily. We frequently hear the words 'Benchmark', 'Benchmarking', 'To benchmark' and 'Best Practice' used interchangeably. In reality, they have four completely different meanings that are *not* interchangeable!

A **Benchmark** is a standard of excellence or achievement against which other similar things must be measured or judged. Something that is worthy of emulation.

**Benchmarking** is a **process.** It is the *means* by which we attempt to locate a level of performance in a certain area that is superior to ours.

Simply speaking, it is the process of:

**Figuring** out what to benchmark

**Finding** out what the benchmark is (What is the standard of excellence?)

**Determining** how it is achieved (What methods or processes produce those results?)

**Deciding** to make changes to our own business practices that will enable us to meet or even exceed the benchmark.

**Best Practice** is the means by which this 'benchmark' level of performance is achieved.

### Goals

Benchmarking can be described as the systematic comparison of the performance of an organisation against that of:

- other departments/subsidiaries (internal benchmarking);
- other organisations, competitors or leading industrial companies (external benchmarking).

The main goal of benchmarking is to build on the successful experiences of others instead of "re-inventing the wheel". The idea is simple: the most efficient way to implement change is by learning from the positive experience of other organisations. Benchmarking top companies in a similar type of activity and with similar work processes can help an organisation to identify the practice(s) behind success so as to adapt them to its own needs. Benchmarking is a way of management that develops a continuous improvement imperative. It is an ideal tool to achieve more efficient use of resources, cost reductions and also to improve service quality.

By benchmarking on an on-going basis, the learning organisation is always trying to keep up with the latest best practices in its field instead of relying on dated ideas or utopia. Bench-marking is always carried out with the intention of implementing improvement. The analysis may be focused on products, processes and/or results (outputs). By doing this, the organisation gathers information for improvement and insights, which may lead to better performance.

The benchmarking process does not only design, sort and compare collected data, it also sets up a dynamic process of exchange which becomes a powerful catalyst for change. The benefits of benchmarking derive from the fact that:

- it encourages and enables the management of change through the implementation of innovation and «best in class» processes;
- it results in increased customer and people satisfaction as well as in superior competitive advantage;
- in the longer run, benchmarking can be extremely important for setting strategic goals and identifying programmes for their achievement;
- it increases awareness of what you do and how well you do it. Benchmarking can be successful because it requires significant self analysis and motivation;
- it removes «blinkers» and «not invented here» attitudes;

**To benchmark** is to undertake a benchmarking exercise (using the *benchmarking* process)

**Explaining "comparison" and "best" practice :**

The core of a benchmarking approach is the comparison with others. It needs to be clarified.

Let's have a look at the following graph:

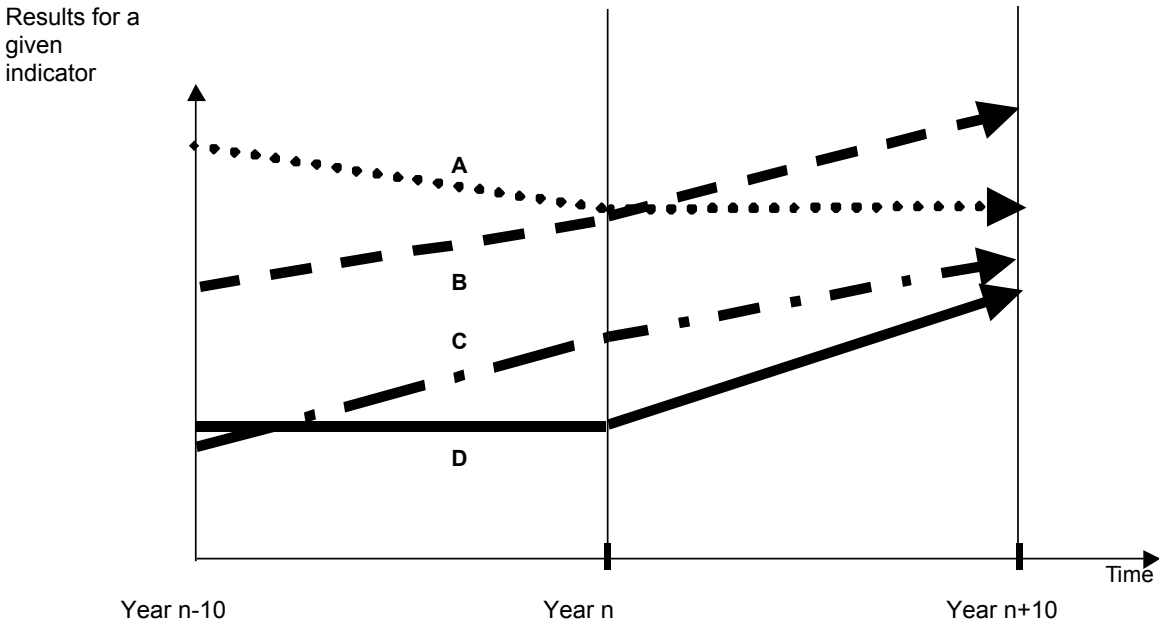



*Figure 9: Graph with the results for a given indicator; source: CERTU*

Let's suppose that we are at year n in city D, and that, wishing an improvement for a strategic chosen indicator (like, for instance, modal share in urban public transport), we compare ourselves with cities A, B and C.

What will we keep as useful best practice(s)?

- City A has the best actual result. But for 10 years, it decreases continually, and its objective, ambitious already, is to stop decreasing. Its actual good results are therefore misleading.
- City B has also an excellent result at year n, growing regularly over the last ten years. But its starting level, ten years ago, is far from city D situation. So is the way to obtain its good results useful for city D ? We need to be cautious.
- City C is not among the best cities at year n. But it was in a comparable situation against city D ten years ago and obtained excellent results, in term of progress, during the period. Surely its case can be examined in depth.

From this example, we will get that the notion of "best" practice can be taken as a "better" practice than oneself. In every situation, we will have to be sure that local situations are really comparable.

Finally, it is in other's past time that we are looking for our own future. Analysis of trends in a given period is as important as analysis results at a given time.

## Benchmarking in the urban public transport sector

Benchmarking activities are not yet well developed in the urban public transport sector. Some exercises exist but their number is small and they cover only some specific aspects of management and are often limited in duration.

3 types of benchmarking can be identified in the transport sector :

**Internal benchmarking:** Internal benchmarking is not specific to public transport. Administrative management, financial management, people management or other general management practices can be and are benchmarked between departments inside many companies using value analysis techniques.

**External benchmarking among operators:** External benchmarking between operators is not common. The main reasons are: confidentiality, the lack of efficient tools to identify comparable practices, and a reticence to openness and "no blame" cultures.

Nevertheless, several clubs exist, such as the Comet group.

**External benchmarking among authorities:** Benchmarking among authorities could be considered in the following fields : authority behaviour during a transition period ; authority relation to operator(s); authority involvement in system management ; sharing of responsibilities between authorities and operators.

Benchmarking can also be seen in another approach in 3 other different ways : benchmarking at a local level, at a national level, and at an international level. According to the level where the process is set up, methods and results would be different.

## Key Factors for Successful Benchmarking

### First factor: conditions for a successful benchmarking

Know yourself, know your "enemy", incorporate the best, gain superiority.

"Benchmarking is the continuous process of measuring our products, services and practices against our toughest competitors or those companies renowned as industry leaders."

There are several points in this definition that are important to note, and which can be developed:

- Continuous process
- Measuring
- Products, services and practices
- Companies renowned as industry leaders

In summary, benchmarking is a structured way of looking outside to identify, analyse and adopt the best practices, wherever they are to be found. It is an ongoing learning experience that makes us aware of what others are doing, how they are doing it, and how well it is being done. It is the means of establishing rational performance goals through the search for, and adoption of, best practices that will lead to superior performance.

Benchmarking is not :

- Only suitable for large projects
- The latest management 'fad'
- Market research
- Always easy

*Figure 10: conditions for successful Benchmarking*

**The second area that is vital to the success of a benchmarking exercise is the support and commitment provided by management.**

Each and every benchmarking exercise needs the active support of the organisation. If, as it needs to be, benchmarking is to become an integral part of the normal work ethic of the organisation it has to have management's backing.

Each benchmarking exercise needs the real, active support from a 'Sponsor'

*Figure 11: Benchmarking and senior management*

**The third key to success is the choice of the subject of a benchmarking exercise.**

The subject of the exercise has to be, and seen by the organisation to be, in an area that is important to the achievement of key business goals. Current business opportunities, threats, strengths, weaknesses, performance shortfall, etc., have to be clearly understood.

*Figure 12: Benchmarking and choice of the subject*

**The fourth key is the choice of the people who will actually conduct the benchmarking exercise.**

When considering undertaking a benchmarking exercise, it is important that some thought is given to the team, the people who will actually be doing the work.

It must be borne in mind that the members of the benchmarking team will be working on this exercise in addition to their 'day job'. Time spent in selecting a team that will have the necessary skills, be committed, enthusiastic, with lots of stamina can make the difference between success and failure.

It is also important that before the team begins work it is trained in the benchmarking process.

*Figure 13: Benchmarking – the right man at the right place*

**The fifth key is the way in which the exercise is carried out – the approach.**

The benchmarking process provides a rigorous, step-by-step approach to helping ensure that the exercise stands a good chance of success. Any 'shortcuts' taken invariably lead to guesswork and assumption replacing facts. This leads to recommendations for change being riddled with holes. Even recommendations that are 100% fact based are sometimes turned down, those that are not 100% most certainly will not be accepted by the organisation.

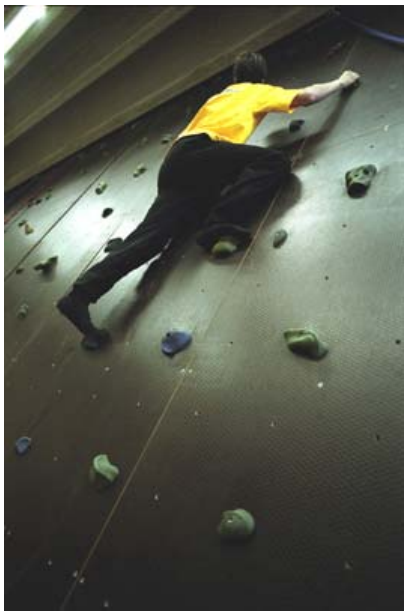


*Figure 14: Benchmarking – the approach*

## The formal benchmarking process:

The benchmarking process consists of four phases. In each of these phases there are action items that need to be accomplished.

### Phase One: Planning & Data Collection:

This phase identifies the subject and the 'benchmarking partners', develops and tests the questionnaire. Then the required data is gathered by the most appropriate means.

Key questions are : Is the selected subject critical to our success? Who are the most appropriate 'benchmarking partners'? Who will collect the data and by what means?

### Phase Two: Analysis:

After the data has been gathered, it must be analysed. The objective of this phase is to understand the strengths of the 'benchmarking partner(s)' and to assess those strengths against your own performance. Key questions are:

Are they better? If so, by how much? Why are they better? What can we learn from them? How can we apply what we learned to our business?

### Phase Three: Integration

This phase identifies any changes that need to be made to current goals in order to equal or exceed the benchmark level of performance uncovered in the previous steps. These changes then become the new or modified goals which need to be integrated into your process outputs and measurements.

Key questions are: Have we identified the benchmark? Do we understand how the benchmark is achieved? Have we quantified the performance gap? Have we established a projected performance gap? Do we understand what changes we need to make? Have the results of the analysis been accepted?

**Phase Four: Action**

In order to achieve the goals established during the integration phase, action plans must be developed and implemented. A reporting mechanism is also required to monitor progress in achieving targets. Lastly, re-calibration of the benchmark needs to be conducted on a periodic basis.

Key questions are : Have we identified the key actions that will enable the achievement of the required improvements in process outputs? Have we agreed the 'who', 'what' and timescale of each element of the plan? Have we communicated the plan to those involved?

**But…**

Benchmarking is a powerful tool. However, it is only a tool. It is not a miraculous, stand-alone device that will deliver outstanding business results by itself.

There is an ongoing need to continue embedding benchmarking into every aspect of the business in an ever changing world where targets and goals will be set by ever more demanding benchmarks derived from every corner of the earth from every industry possible, possibly even industries than don't yet exist.

Benchmarking needs, therefore, to be part of an integrated management process and used within that framework in a very explicit way to support the realisation of the 'Vision', the achievement of 'Critical Success Factors', the continuous improvement of key business processes, the setting of stretched but achievable goals and the identification of critical areas for improvement.

## Standardisation and certification

Standardisation and certification are part of the quality assurance process. Quality assurance consists in "all the planned and systematic activities implemented within the quality system and demonstrated as needed to provide adequate confidence that an entity will fulfil given requirements for quality". The standard defines the "systematic activities" and certification, the assurance that the standard will be respected.

The International Organisation for Standardisation (ISO) defines standards as "documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose".

*Figure 15: Standardisation and certification*

### Quality system standards: standardisation of the production process

ISO 9001, 9002 and 9003 are quality systems standards. ISO defines the quality system as "*organisational structure, procedures, processes and resources needed to implement quality management*".

ISO 9001, 9002 and 9003 standards focus on the production process. This process has to be optimised and managed to produce the best output.

### Quality management standards : standardisation of the management process

ISO 9004 (parts 1 to 4) is a quality management standard. Quality management is defined by ISO as "all the activities of the overall management function that determine the quality policy, objective and responsibilities and implement them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system". The management standard deals with process management inside the company. ISO 9004 standard provides a reference for quality management (guide of good practices) and does not involve certification.

### Output standards: standardisation of output characteristics

This concept consists in the definition of the characteristics of the product. In the service sector, the idea is that the standard defines the characteristics of the service. In public passenger transport, AFNOR, the French organisation for standardisation published in April 1997 (and improved it since then) a French standard (ref. NF X50-805) entitled "Quality within transportation services – Identification of the quality criteria for passenger transport". It constitutes a unique example of output service standard laid down for public passenger transport.

The standard gives guidelines on how to develop a comprehensive process of quality management starting from the identification of customer expectations, then defining service specification on the basis of the expectations identified and other external and internal constraints, then producing the service and checking if targeted objectives are fulfilled, and finally checking how the service is perceived by the customer leading to the revision of service specifications if necessary.

## Quality partnerships

The concept of "quality partnership" is relatively recent in the public transport sector. It first appeared in the UK in the beginning of the nineties as a consequence of the deregulation and privatisation in 1986 of the UK Bus Industry (outside London). In fact, the need for quality partnerships is a direct consequence of the reduction in service co-ordination in public passenger transport that followed deregulation.

The initial outcome of deregulation was to produce a marked lack of ability of the Passenger Transport Executives in conurbations and the County Councils and Unitary Authorities elsewhere, to influence the way in which the inter-modal facilities and the numerous support facilities for passengers (e.g. bus stops, bus stations, information services) were maintained in conditions appropriate to the local circumstances.

The Department of Transport which, through the Minister is responsible for local transport and bus services, has requested the Passenger Transport Executives and the County Council to consider improvements to overall service by improving relationships with the operators.

The partnerships are implemented with:

- "commercial bus" service operators;
- "supported" bus service operators;
- with new developments so as to include "franchised" rail operators.

The agreements cover the provision of "ground" infrastructure and information systems by the Authorities in return for the support of operators seeking to provide higher standards of operation and higher quality vehicles. In addition, operators must be committed to provide information on service levels and changes and timetables outside the statutory framework for commercial services. The Operators are also encouraged to co-ordinate service provision at interchange points with operators with whom they are not in competition.

The benefits and drawbacks of the scheme itself are that:

- customers and passengers will benefit from improved local infrastructure and arrangements for intermodal transfer as well as enhanced information systems and facilities;
- a partnership has no legal enforceability and no direct return on investment for the Authority is possible whilst the Operator can capitalise on the improved service infrastructure to increase viability and profit margins;
- the improvements visible to the customer will tend to be credited to the Operator and the inadequacies to the Authority;
- the "lower quality" operator may benefit disproportionately to the value his company can contribute to the operation. There are no minimum standards of entry into the market in excess of those prescribed by various laws and structures.

## Guarantee of service

### Service guarantee and charters

The urban public transport user has a certain level of expectation and is not concerned with the way the service provider manages production activities in order to reach this level. The user is concerned with the service (does the service fulfil its expectation?) and one of the main expectations concerns the reliability of the service (can they expect the same level of service each time it is used?). Reliability is identified as one of the most important weaknesses of urban public transport nowadays.

In consequence, the questions are: How can the urban public transport user "trust" the service? How can the consumer of the urban public transport service be sure of what he will get for the money he pays? How can the urban public transport consumer be sure to reach their final destination well satisfied?

The concept of the service guarantee has been introduced to answer these questions. An operator or responsible authority needs to guarantee the urban public transport user the service they will get. The guarantee must be applicable at every hour of the day and every season of the year and anywhere on the network.

A charter details the commitment to the customer; it sets out the standards to which the operator works, how it publishes its performance against those standards, how it looks after the customers and compensates them if things go wrong and indicates how they can contact the operator.

Charters can be classified into four categories:

1. The **charter of intention** which sets out general values and principles.
2. The **charter of commitment** which explains the formal commitments set up to establish the values and principles defined in the charter.
3. The **charter of means** which defines which actions will be taken to fulfil the commitments and, finally.
4. The **"agreement" charter** which details the rights and duties of all parties.

### Compensation

If the level of service promised is not reached, compensation must be given to give more credibility to the commitment expressed in the Charter. Compensation can be considered under two approaches:

**Financial compensation:** the principle of "satisfied or reimbursed". The objective is to guarantee "what" the user will get for the money he pays. If the level of service is not reached, the customer gets his money back. This principle is common in goods purchase but not often developed for the service sector.

**Other compensation:** there exist several examples of alternatives to the financial compensation. The objective can be to provide totally different compensation (gifts, free subscriptions, …) or guarantee a minimum level of service (free taxi to reach its final destination, guarantee of reaching its final destination).

### Service guarantees and contracts

The service guarantee is a contract in itself between the bodies responsible for the production of the urban public transport service (authorities and operators) and the final customer of the service (the users). By the way of a service guarantee, the authorities and the operators commit themselves to offer a certain level of service.

In the contractual relationship between authorities and operators, service guarantees can be considered as a standardisation of a minimum level of service quality directly related to the production capacity of the system.

## The CEN quality framework for public transport

This matrix, which is still under development in the CEN (final validation in 2001), offers a comprehensive framework for analysing both functional and technical quality determinants in urban public transport. It will become in the future the common European reference to identify the quality elements in public transport.

| | | |
|---|---|---|
| **QUALITY** | **1. Availability** | 1.1 Network |
| | | 1.2 Timetable |
| | **2. Accessibility** | 2.1 External interface |
| | | 2.2 Internal interface |
| | | 2.3 Ticketing |
| | **3. Information** | 3.1 General information |
| | | 3.2 Travel information normal conditions |
| | | 3.3 Travel information abnormal conditions |
| | **4. Time** | 4.1 Length of travel time |
| | | 4.2 Punctuality and reliability |
| | **5. Customer care** | 5.1 Commitment |
| | | 5.2 Customer interface |
| | | 5.3 Staff |
| | | 5.4 Physical assistance |
| | | 5.5 Ticketing options |
| | **6. Comfort** | 6.1 Ambient conditions |
| | | 6.2 Facilities |
| | | 6.3 Ergonomics |
| | | 6.4 Ride comfort |
| | **7. Security** | 7.1 Safety from crime |
| | | 7.2 Safety from accident |
| | | 7.3 Perception of security |
| | **8. Environment** | 8.1 Pollution |
| | | 8.2 Natural resources |
| | | 8.3 Infrastructure |

*Table 4: The public transport quality matrix; Source: Quattro project*

*Figure 16: Availability*

*Figure 17: Accessibility*


*Figure 18: **Information**: "On street underground real time displayer in Stuttgart"*

*Figure 19: Customer Care*

*Figure 20: Comfort*

Many comments can be done with such a matrix. For instance, the fact that "financing" is not included.

### Links between quality tools

The following chart shows the main links which can be described between the different tools. It doesn't mean that other links don't exist.

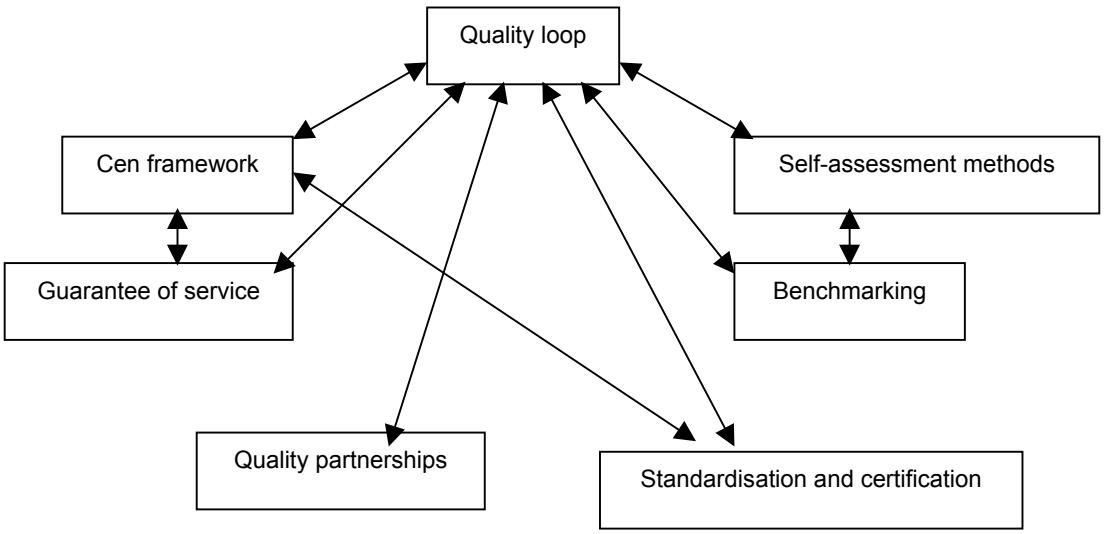



*Figure 21: The quality loop is clearly at the intersection of all the tools. It is a common reference. Source: CERTU*

## 2.2 Fundamentals of quality management in urban public transport

### Quality and planning in urban passenger transport

To achieve success in the creation of a new process and a new way of operation, the following factors are essential:

- to make extensive, daily use of services for which you have responsibility - not just in the morning and evening, but any time and any day. Know your product;
- to plan, prepare and evaluate, not looking at the end product alone but how you get there;
- to have vision - if you do not know where you want to go, how can the team support you;
- to communicate clearly and quickly. The team wants the real news not the T-shirt or the coffee mug;
- to clarify how "we will do things round here" in future and give strong management support;
- to overcome "fear of failure" and "human resource inertia" by obtaining reward systems to support a new performance driven, team-orientated environment with real incentives for changes in behaviour;
- to recognise the vital importance of human resource skills - raise standards but provide good training, improve procedures but make "HELP" the keyword.

These principles apply to companies and authorities - all have much to learn from this process in improving the effectiveness and the position of urban public transport on the market.

## Urban public transport quality is a shared responsibility

There are three shared key points to the improvement of quality in Urban Public Transport:

- stimulation of the market, including the political, legal and regulatory framework;
- intelligent use of the best tools and methodology, such as tendering and contracting;
- encouraging culture changes by management and staff who will see customer service improved and public opinion positively influenced.

## If you can't measure, you can't manage

The vital, ideal company management system for quality focuses first on:

- performance of customer related services;
- activities related to customer support;
- and last but not least, financial statements and statistics.

## Public transport and quality of the environment

Urban public transport is not the sole responsibility of any one body. There is a positive contribution from the operators to be made but they cannot be responsible for all effects of their presence.

Urban transport has great potential for externalities (which create external costs) through:

- effects on the natural environment through pollutants and Emissions;
- effects on noise and vibration;
- effects on noise and personal safety of other transport users;
- effects on residents and business in urban areas.

Externalities affect:

- environmental impact (pollution, noise and vibrations);
- safety and security (social costs);
- congestion (loss of effective working time and pollution).

They require a joint evaluation – they do not affect just the operator, they adversely affect gross national product and sustainable mobility. The joint approach requires:

- clear statement by authorities and operators of their common goals;
- identification of aspects to be included in tendering and contracting processes;
- identification of aspects to be included in partnership and co-partnership arrangements.

The results should be:

- reduction of negative external costs (pollution etc..) through acceptable constraints on the operators;
- increase of environmental quality standards by targeting the achievement of higher standards at acceptable costs;
- establishment of specific quality elements in the tender and contract documents;
- and above all, acceptance of joint responsibility in all aspects by those concerned.

## Quality in public transport results from quality in people management

One of the most undeveloped skills in the Urban Passenger Transport sector is the Human Resource factor. Since urban public transport has often been in the past purely a production process, its staff have been regarded as part of that process. In fact, the whole success of a customer-orientated business is people. This applies:

- to the staff at the front line who provide the day-to-day service;
- to the supervising, technical and management staff who support the day-to-day service and maintenance organisation;
- to the Management Team and the Board of Directors.

### Quality is virtuous

With co-operation of all concerned, quality creates a “WIN, WIN” virtuous circle.

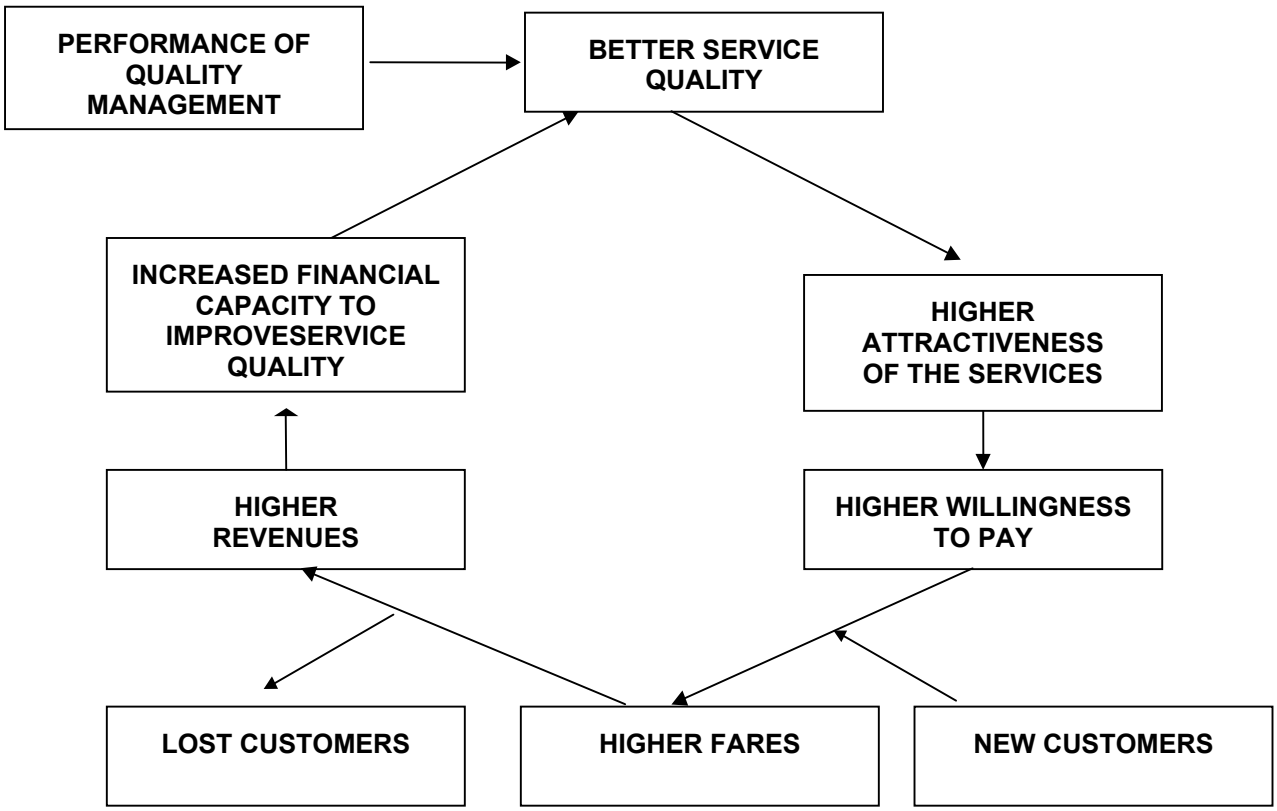



*Figure 22: The willingness to pay circle; Source: QUATTRO.*

## 2.3 Quality contracts and tenders

A good tender and a good contract are crucial elements for a good quality of the public transport service. Different elements contribute to this quality:

- the legal framework
- the tender procedure
- the contract itself

## The legal framework

| | Market regulation | | |
|---|---|---|---|
| **Procedures** | **regulated** | **limited competition** | **free competition** |
| free access | | | |
| open tendering | | | |
| restricted tendering | | | |
| direct negotiation | | | |

*Table 5: Market regulation and tendering procedures; Source: QUATTRO*

Within the sphere of open or restricted tendering, there are certain principles to be confirmed in terms of the legal framework before tender bids are invited. These are:

- accessibility of data and market information to all bidders;
- communication of supplementary information (resulting, for example, from questions from -one bidder) to all bidders;
- whether a precise level of service is to be specified or whether compliant and non-compliant (possibly innovative) bids will be accepted;
- The procedure for contract award and for example, how will quality be evaluated in the bid in cash terms;
- the negotiating procedure in terms of National Contract Law and Practice;
- the procedure for additional parts of the contact package in a comprehensive bid involving: purchase agreements; construction agreements; equipment leasing agreements; operations and maintenance contracts; insurance; financing packages.

| | Types of contracts | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | net cost | | | gross cost | | | management | | |
| Risks | auth | both | oper | auth | both | oper | auth | both | oper |
| political | | | | | | | | | |
| production | | | | | | | | | |
| revenue | | | | | | | | | |
| financial | | | | | | | | | |
| planning | | | | | | | | | |
| environmental | | | | | | | | | |
| contractual | | | | | | | | | |

*Table 6: Contracts and risk division between authority and operator. Source: QUATTRO*

In this context, the types of contract are:

**Net Cost Contract** – Productions and Revenues Risk borne by the operator who receives all the revenue

**Gross Cost Contract** – Production Risk borne by the operator and Revenue Risk by the authority; revenues go to the authority

**Management Contract** – although the basis will vary, this is effectively the same as a Net Cost Contract

### Contract Length :

In each case, the contracts can vary in length. In essence:

**Long Term Contracts** can be desirable but expensive to invite, negotiate and enforce

**Short Term Recurrent Contracts** can be attractive in principle but may discourage innovation (for example purchase of new vehicles) and be costly in terms of administration and operator costs which will be passed on to the Authority.

The debate on a regulatory length, by principle, of the contracts is open. Advantages and disadvantages can be discussed.

| | | Production risk borne by | | |
|---|---|---|---|---|
| | | **Agent (Transporter)** | **(Both)** | **Authority** |
| | **Agent (transporter)** | NET COST CONTRACT | | |
| **Revenue risk borne by** | **(Both)** | Net cost contract with shared revenue risk<br><br>Gross cost contract with revenue incentive | Management contract with productivity and revenue incentives | |
| | **Authority** | GROSS COST CONTRACT | Management contract with productivity incentives | MANAGEMENT CONTRACT |

*Table 7: Production risk. Source : Quattro*

## The tender procedure

Obviously, this paragraph applies only for countries where a tendering procedure exists. If it is not the case, what is said below can be described as an example, or useful for the future in accordance with the regulatory framework in preparation at the Commission.

The tendering procedure is the vital beginning to a process that must be well prepared prior to any document being issued. The first part of the process will be the issue of the invitation to tender. This will be advertised as being available unless there has been a pre-qualification process which will create an approved list of bidders.

The invitation to tender will address:

- the objectives of the tender;
- a full description of the procedure to be followed;
- the technical specifications;
- procedure for short-listing of bidders;
- the criteria by which the successful bidder will be selected and the evaluation process;
- details of the allocation of responsibilities and risk sharing.

- It will be accompanied by a statement outlining the strategy and policies being followed by the Authority.
- Also included will be the appropriate pricing information about:
  - the network or line and route design;
  - fares and ticketing schemes;
  - timetables and minimum service levels (by route and including interchange features);
  - service frequency, quality and reliability components.

Finally, the document will indicate whether non-compliant (possibly including innovation) will accepted or not.

### Evaluation Procedures:

The evaluation procedures are the core parts of the procedure and involve the Authority and the Operator in real time activity. It is vital that the procedures and principles are known and accepted by all concerned.

*Figure 23: Tendering Procedures*

## The contract itself

In principle, a well drafted, soundly based contract will be a "silent" document on which principles of day-to-day contract operation and performance assessment can be managed on a non-confrontational basis. The contract documents will specify:

| | |
|---|---|
| **As standard clauses** | • whether it is a " Net " or " Gross " cost contract<br>• the insurance and indemnity clauses<br>• the duration of the contract (for rail 5-7 years ; bus 3, 5 or 7 years with intermediate reviews seem equitable)<br>• arrangements in the case of disputes and an arbitration procedure |
| **In the service related clauses** | • management and staffing details<br>• employment practices<br>• vehicles specifications and standards<br>• vehicle procurement and maintenance<br>• accessibility for customers and the mobility impaired<br>• livery and badging<br>• ticketing<br>• publicity and information<br>• complaints<br>• provision of data<br>• infrastructure matters<br>• monitoring and performance rewards / penalties<br>• revenue protection / ticket examination<br>• facility charges |
| **In the revisions, prolongation and termination clauses:** | • local planning / environmental circumstances<br>• changes in local transport patterns of use<br>• revised education / user requirements<br>• new legislative and regulatory circumstances<br>• default of the operator in not fulfilling the contract<br>• penalties imposed on the operator by a statutory authority (e.g. maintenance default)<br>• loss of operators licence by "disrepute "<br>• financial irregularity of operators<br>• bankruptcy or financial failure of the Authority or Operator<br>• acquisition of the operating Company by another<br>• voluntary service withdrawal by operators<br>• cancellation of contract by Authority if contract not met<br>• conviction of Operator / Operator's Manager in a criminal case<br>• emergency situations<br>• summary termination of the contracts following a formal warning |

*Table 8: The contract; Source: Quattro*

## 2.4 Responsibilities of the actors

There are a series of requirements for public authorities, operators and, for some aspects, to the equipment manufacturing industry, which is a major contributor to total quality in public transport.

*Figure 24: The Contract*

### General recommendations to improve quality in public transport

The different bodies involved should:

- promote the best possible service to public transport customers in urban areas by applying adapted quality management practices and procedures, so as to optimise the use of physical and financial resources in a market driven environment;
- transform the public transport experience from “an obstacle course” to a “seamless journey”, which means proposing a door to door service to the users;
- avoid imposing on the user the need to understand the institutional organisation of the system and its production processes;
- use quality and quality management to attract customers by offering services which compete with the private car;
- consider “quality” management as a continuous search for better service and permanent progress in organisation, rather than as a the pursuit of a rigid and specific level of quality;
- make sustainable mobility possible in an environment stimulated by a strong political and legal framework;
- develop a customer-orientated approach. Think “Customer”, “Customer”, and “Customer”;
- consider public transport as more than a business. It has a remarkable societal impact and therefore requires special care in the implementation of common economic and managerial considerations.

## Requirements for public authorities

- to define an urban development strategy including traffic management strategies;
- on that basis, to formally agree on a policy for the network and explain clearly to the bidding operators "how we will do things around here";
- to be clear on transport policy, its expected impact on behaviours and its consequences on priorities in terms of quality;
- to be clear about what they do best in-house and what they can contract out to others for what concerns not only public transport provision but also land use planning, road network developments, etc.;
- to act to involve all the competent authorities in influencing public transport performance and all the participants in the system (like police committees or other operators who are not under the control of the authority) in the search for better public transport; quality partnerships with operators may be used in addition to tenders and contracts and may help in establishing tariff co-operation;
- to use tenders to promote quality management techniques by attaching importance to know-how and well-thought-out proposals in this respect;
- to be specific on whether they will accept non-compliant bids and, if so, how they will consider and implement innovations;
- to design penalty-and-reward systems in such a way as to avoid penalising the operator for matters beyond his control;
- to commit on the achievement of targets under their own control (concerning for example the availability and quality of road and/or rail infrastructure) and if necessary to submit to penalty-and-reward mechanisms so as to reassure the bidders/contractors on the credibility of these commitments or to compensate them for the costs they might incur as a result of any failure by the authority to deliver the agreed conditions);
- to try to develop with the operator(s) a working relationship favouring a co-operative attitude and stimulating innovativeness on the part of both parties;
- to be clear on what they expect from the contractual relationship;
- to use a balanced basket of objective and subjective performance indicators to evaluate the effectiveness of their programme and to try to involve customers in service quality assessment;
- to encourage a positive "no blame" culture in their organisation and to try to achieve excellence in management through established principles;

- to act as a learning organisation within the system, resorting to internal and external benchmarking with other cities and with other sectors to identify improvement opportunities: benchmarking may provide innovative and implementable solutions by looking at how traffic/mobility/public transport management but also other sectors (tourism, leisure, shopping centres, etc.) work in other cities;

- to build experience in real situations by regularly using public transport themselves;

- in their specific regulatory system, to use contracts, tenders and licensing to stimulate the operators to take the decision and orientations described hereafter.

## Requirements for operators

The value of the operator is linked to its capacity to win tendering procedures and to negotiate good quality contracts. This will be the consequence of its ability to provide the users and the citizens good quality service. We recommend operators:

- to know their market;

- o appreciate their service performance as it is (good or poor), compared to demand and competition;

- to consider their activity as more than a business: the impact of passenger transport activities on the local community and on the quality of life must be taken into consideration in urban public transport strategies, objectives and priorities;

- to seek to establish a visible professional competence by reaching standards set for formal qualification (ISO 9000, XP X 50-805) and/or by implementing total quality management principles in the running of their operations;

- establish a well designed customer satisfaction measurement system base in the customer expectation;

- establish a well designed quality monitoring system and quality “tableau de bord” using the indicators related to customer satisfaction aspects measured;

- to develop a customer satisfaction measurement system and to use its results in connection with those of the internal quality monitoring system;

- to achieve excellence in management and operations through established management principles (e.g. EFQM);

- to use front line management (front line: in direct relation with the user) development and continuous improvement programmes to improve customer-contact related performance;

- to continuously assess customer satisfaction;

- to innovate within secure business boundaries and principles;

- to cultivate a positive “no blame” approach to the coaching of staff;

- to adopt an open and honest approach to service problems and to compensate customers in case of service flaw;

- to try to develop a partnership with the authority as a support;
- to benchmark their performance with others, formally or informally, within the public transport sector or with other sectors.
- not to forget that the people who ultimately influence service quality in public transport are the bus driver, the traffic warden, the person in charge of complaints or vehicle maintenance. Their working conditions will influence directly their willingness and capacity to provide good service. Listening to the staff, communicating with them on their working conditions, on the firm's traffic management strategy, on the results of their work and on the practical consequences for them of the management's decisions is therefore essential.

## Requirements for public transport equipment manufacturers

Through their responsibility in equipment and vehicle design, development and production, manufacturers play a key role in the quality provided to citizens. They are recommended :

- to recognise that customer demands are driving the market, not the operators' or the authorities' wishes;
- to be ready to respond and support innovation in equipment design;
- to fully support the operators by the establishment of adequate after-sales services;
- to make customer-supplier chains an accepted business practice;
- to benchmark against competitors and other industries;
- to seek to establish a visible professional competence by reaching standards set for formal qualification (ISO 9000) and/or by total quality management principles at their level;
- to achieve excellence in management and operations through established management principles (e.g. EFQM).

# 3. National Differences/Local Adaptations

Concerning quality in public transport, the Isotope project (and the ongoing Maretope project) showed that there could be important differences between the countries in the field of the organisation of public transport.

If we keep in mind the three levels in public transport organisation (strategic, tactical and operational), there is no doubt that the strategic highest level is always hold by the transport authority, the main differences between the countries being in the share of responsibilities between the national government and the local authorities.

On the other hand , the operational level is done by a transport company, which can be totally private or completely public, or mixed.

But the main difference concerning the role which could be given to quality is at the medium level , meaning the tactical one. The initiative and the place given to quality depend on the share of responsibilities, and the involvement of each partner at the tactical level.

**If everything is designed in detail by the local authority, and if the role of the operator is only to supply exactly what was precisely described, the room for manœuvre seems to be very narrow.** On the other side of the spectrum, if the initiative of the route and the service provided depend on the operator itself, with only a weak framework of obligations, its role in the improvement of quality will be much higher.

Therefore, it is recommended to the trainers to make with the students an in-depth analysis of the features of the national and local framework of the share of responsibilities. This exercise, with, if possible, the input help of the Isotope and Maretope results, will help the students to understand better the opportunities and the limitations of their own context compared with the ones of the other European countries.

In particular, quality in integrated public transport can be better understood with the knowledge of national and local frameworks.

# 4. Examples and Study Sites

Quality and benchmarking are concepts and methods. So there are no study sites to present. But there are of course several examples of the formalisation of quality and implementation of benchmarking.

The following examples can support the presentation of the concepts.

We can also give advice to get the updated examples on the Internet sites ELTIS (www.eltis.org) and BEST (www.bestransport.org).

## 4.1 Example: The service certification of three RATP bus lines

RATP is, since 27 February 1998, certified for the service of three bus lines. In accordance with the French decree n° 95354 of 30 March 1995, which outlines the terms for service certification, a frame of reference has been drawn up and approved in conjunction with all interested parties, namely: two groups representing passenger and consumer interests, the organising authority, an official from the Ministry of Transport, the certification board and representatives from RATP.

At the request of the organising authority, the *Syndicat des Transports Parisiens* (Paris Transportation Agency) the terms of reference are to be applied to all bus services in the Ile-de-France region and not just those operated by RATP. The terms of reference are flexible and includes the following:

14 service commitments of which 9 are generally applicable and 5 are line specific. The 9 general commitments must be applied to each bus line in the Ile-de-France region seeking certification. The line specific commitments are to be drawn up individually to take into account the characteristics of each line. All the commitments must conform to the French standard NF 50-805 and must, in addition, cover all groups of criteria belonging to the standard.

RATP's 14 service commitments:

- Distance information services
- Information at points of sale
- Information at bus stops
- Information at bus stops during service disruption
- On-board information during service disruption
- Driver behaviour
- Regularity / punctuality
- Comfort / rate of occupancy

- Fight against fraud
- Driver appearance
- Bus reliability
- Fight against pollution
- Clean bus stops in good condition
- Clean buses inside and out

Each commitment carries with it:

- A reference service
- A targeted level of achievement
- Unacceptable situations
- Responses to unacceptable situations
- Methods used to measure and calculate results for each commitment as well as a description of how measurement is organised (Who is responsible for what).
- Organisation of the implementation of service.
- Methods of control and auditing applied by certification body.
- Passenger information regarding the commitments.

The certification body is responsible for a number of checks, including:

- The relevance and effectiveness of the system of measurement
- An assessment of whether the delivered quality matches commitments

The certification body must also analyse any customer complaints it receives and has the right to conduct passenger surveys. Certification is renewable annually and is subject to a follow-up audit.

## 4.2 Example: Oslo Public Transport (OPT)'s customer charter:

Oslo Public Transport (OPT) implemented a very innovative system. The “Oslo customer charter” and the compensation scheme related are very different from other “classical” charters. It is the only charter that offers a compensation equivalent to the inconvenience lived by the customer. The objective of the customer of public transport is to reach its final destination. The Oslo Travel Guarantee ensures the customer that he will get to its final destination by covering the taxi expenses in case of service failure (see comment on compensation below).

The objectives of OPT were to increase the rights of their customers and offer compensation when disruption occurs, so as to make it easier for their customers to express themselves and suggest improvements and also to show how seriously service quality is taken. The internal

effect of such a guarantee has been to show where quality can be improved. The guarantee applies to all operators within the Oslo Public Transport metro, tram and bus routes, including subcontracted bus routes. The Travel guarantee is an ongoing process for quality improvement, leading to more satisfied customers and not a project that is finished the day the guarantee was launched.

The Norwegian experience also illustrated "Eight points to consider when introducing a guarantee". Those points are quite interesting for those who plan to introduce the same kind of document. They are:

1. Take time to convince the management. First, it is of vital importance that management is behind a guarantee.
2. It is vital to give good information to all employees. Any change in the Guarantee creates uncertainty. It is important to have continuous up-dating for everybody involved.
3. Allow plenty of time for the internal processes. It will probably take longer than you think.
4. Internal courses should be conducted professionally. Use outside specialists and staff with a good knowledge of the company.
5. There is sure to be a wide variety of opinions about a guarantee. Use surveys to test the different concepts and base further development upon these surveys.
6. Do not be afraid to introduce a guarantee. The consequences for the company are usually exaggerated. They estimated that the taxi refunds would be 1,3 million Norwegian crowns per year (most said that this was far too optimistic), instead they are paying 120,000 Norwegian crowns.
7. Use extensive and good marketing. Do not take media coverage for granted. By presenting the guarantee yourself you avoid misrepresentation or misinformation.
8. Do not lose momentum. Continue monitoring, develop and change the guarantee after the introduction to meet changing circumstances.

Since the introduction of the travel guarantee in Oslo, contract has been considerably improved with the customers at every level.

## 4.3 Example: financial compensations at London Underground

The reimbursement system functions well at London Underground (UK) and illustrates the financial compensation concept very well. London Transport (LT) has two customer charters: the metro charter and the bus charter. Only the metro charter includes a payback system.

The metro charter is presented in a simple and practical form. The commitments expressed in the charter concern the train service (it must be « *fast, frequent and reliable* »), stations (they must be « *welcome, clean and safe* »), information (it must be « *updated* ») and staff (they must be « *polite and courteous* »).

The charter includes a compensation clause «*equivalent to the value of the trip during which the delay occurs*». The compensation is made by a refund voucher in case of delay more than 15 minutes « *due to the responsibility of LT* ». The charter includes a complaint from to be completed by the complainant. In addition to general information (details), the complainant must provide his ticket as proof of the delay. More than 250.000 refunds are made every year. The annual cost of the operation is less than 0,9 million ECU against a total income of 1,1 billions ECU.

## 4.4 Benchmarking clubs: a case study of the CoMET group

In early 1995, five of the world's largest heavy metro railways – Berlin, London, Hong-Kong, New York and Paris formed a benchmarking consortium, co-ordinated by the Railway Technology Strategy Centre (RTSC) at Imperial College, London, to compare each system's performance indicators and to use them to find ideas for Best Practice. Since then, three more systems – Mexico City, Sao Paulo and Tokyo - (TRA) – have entered the group, which is known as CoMET – Community of Metros.

The basic idea of the benchmarking club has been to collect among the different members the basic data necessary to develop:

**Key Performance Indicators (KPI**). This task consists in:

- the definition of indicators within the areas of financial effectiveness, efficiency, asset utilisation, reliability and service quality and safety;
- the design of appropriate survey techniques;
- the collection and validation of relevant data;
- the improvement of the comparability and understanding of the data.

**Case studies**. This activity is part of the data collection and quality improvement programme with both quantitative and qualitative insights into different practices in different areas of the business. The case studies are designed to test the implementation of KPI and to define best practice. These case studies concern metro railways and other relevant industry experiences.

**Best practice**. This task gives the opportunity to participating companies to identify revised practices and procedures and to introduce the "best practice" identified on the basis of the KPI and of the conclusion drawn from the various case studies.

After three years, the first examples of best practice implementation are related to:

- **capacity:** several systems are implementing operational changes to improve the capacity and the reliability of their service;
- **contracting out:** the lessons learned on contracting out non-core activities are being shared and applied by several participating metros;
- **staffing levels:** early work of the consortium has indicated significant opportunities to improve cost effectiveness related to staffing – implementation analysis is now underway;
- **reliability:** the importance of reliability management has been demonstrated and London Underground is now implementing changes on two lines;
- **rolling stock investment maintenance and staffing.**

The CoMET consortium is one of the rare benchmarking groups in urban public transport established for a long period (no deadline was fixed at the creation of the consortium). The objectives of the 4th year plan (1998) are:

- to gain full value from the existing database and the work done in previous phase;
- to assist metros to put in place passenger quality KPIs;
- to improve the implementation rate of Best Practice proposals;
- to start to draw conclusions from time series data to establish trends and impacts of given policies and action programmes;
- to continue to define Best Practice in high priority areas that can lead directly to implementation.

## 4.5 Example: the implementation of ISO 9004/2 by STIB/MIVB in Brussels

The quality management process as applied by STIB-MIVB is based on a simple leitmotiv "Satisfaire le client au juste prix - Voldoening voor de juiste prijs ", meaning "customer satisfaction at the right price". Four major items can be identified:

- fulfilment of the expectations of the region;
- continuous research and measurement of quality for client services;
- use of a common and customer-orientated language inside the company;
- search for the best relationship between the different interests.

Four underlying principles are that:

- monitoring the development of satisfaction should be a first priority;
- any activity should contribute to a recognised outcome;
- the company must function in harmony with its environment;
- the company can only change when the complete community is involved.

The approval of the above quality policy was contained in the first management contract signed between the government of the Brussels Metropolitan Region and STIB-MIVB. This contract, which was valid for four years (1991 - 1994), indicated the tasks STIB-MIVB had to fulfil and required STIB-MIVB to satisfy the customer, to search for the highest cost-effectiveness and to set up a progressive quality system based on ISO 9000-standards.

### A. LOTS training (Logical Thinking System)

The general management started a training cycle intended for all members of the staff, top to bottom. The LOTS method (Logical Thinking System) imbued every participant with:

- one message: the customer is at the centre of the business;
- a management technique;
- a common language.

As an exercise, each group had to study and develop an improvement project for some activity within the company. The training of 5,500 STIB-MIVB members, divided in four major categories (executive staff, employees, drivers, technical staff) took place between 1991 and 1996.

A functional analysis of all the company's departments was started in 1992. It consisted of:

- the definition of the functions carried out by each department and section and of the services they provide;
- the classification of these functions on the basis of customer expectations;
- the organisation of discussions between the departments and users;
- the validation of the functions in comparison with the tasks assigned to STIB-MIVB.

The tasks specified in the contractual agreement signed in 1990 were slightly changed and refocused in the second version dated 1995. The specification of STIB-MIVB missions comprises:

**7 customer functions (CF) for STIB-MIVB:**

- transport;
- sales;
- action vandalism and criminals;
- fraud protection;
- transport co-ordination (with other companies);
- collaboration with the ombudsman;
- knowledge of the existence of the users' consultative committee.

**4 resource functions (RF):**

- human;
- financial;
- technical;
- resource specific.

**4 functions for the environment:**

- Regional;
- Municipal, Federal and European Authorities;
- Maintenance of the infrastructure;
- Respect for the community.

**3 tasks delegated by the Region (TR):**

- Realisation of a network infrastructure works;
- Support for the mobility policy of the Region;
- Availability to the Region of particular STIB-MIVB competencies.

Following this, an inventory of each function was carried out. Over 800 products/services have been recorded with, for each of them, an identification of several beading such as the ordering, the frequency, the volume, the supply delay and the users.

## C. Process control

Each product/service or group of products/services is the result of a process, which is a succession of activities from recognition of the need and concept to final completion. The description of those processes, which often involves activities exercised by several company departments, required the development of a transverse vision of the company, which did not exist yet. The updating of each process was made by a co-ordinator in collaboration with the managers or responsible staff of all relevant activities, who had to be made aware of the interaction and interface between all the departments involved. About a hundred processes have been identified, to decide on "who is responsible for what?" as well as on the criteria on which the staff involved had to agree (quality, quantity, time).

With the knowledge of the company functions and the formalisation of the various processes, measurable indicators were established for each function, enabling the creation of the quality needed to assure the function. The STIB-MIVB quality manual summarises the 18 basic functions, realised by about a hundred processes and 800 resulting products/services.

## 4.6 Example: The management strategy of Semitag (Grenoble)

SEMITAG1 manages an urban transport network in the urban area of Grenoble (23 towns) on behalf of the organising authority, SMTC. The company operates 20 routes, has 800 workers and 300 vehicles (tramways, trolley bus and bus). SEMITAG carries 220.000 passengers a day and its annual budget reaches 300 million FF.

After a rapid increase in patronage due to the opening of two tramway lines in 1987 and 1990, the management decided to focus on the improvement of both the service provided by the company and its organisation. This led, in June 1993, to the launch of a company project entitled PAQT 97 (Plan d'Action Qualité Tag). This plan defines the strategy and the main objectives of the company for the next 5 years. The three thrusts of PAQT 97 are:

- Better serve the customer;
- Better enhance the value of staff and their competencies;
- Better manage the economic and financial constraints.

Quality is the common denominator of the three approaches. They include some elements of a Total Quality Management approach: the customer approach, the greater concern of the workforce for the business and a more efficient use of resources. Inside these three approaches, 8 main objectives have been defined for the period 1993-1997.

**Approach 1:**

- Finishing the South-North extension;
- Opening of a new depot;
- Launching a quality process;
- Improving service quality;
- Certification.

**Approach 2:**

- Modernisation of operational structures;
- Individual assessment interviews;
- Optimisation of the organisation and working time arrangements.

**Approach 3:**

- Installation of a decentralised budgeting systems ;
- Installation of a now ticketing system.

[1] Société d'Economie Mixte des Transports de l'Agglomération Grenobloise (SEMITAG), BP 258, 380444 Grenoble Cedex 9.

Certification is thus a major objective of the management plan for the period 1993-1997. Nevertheless, it is only a part of the quality process of the company. The quality process, a major theme of PAQT 97, has two aspects:

- action for the improvement of customer service quality;
- action for the improvement of internal operations with the objective of being ISO 9001 certified.

The first part of the quality process has been split into three phases:

- a satisfaction survey to identify customer expectations and their opinion on the service (September 1993);
- a service commitment to the public with a charter and quality objectives (March 1994);
- a change in existing practices in order to reach the objectives defined (from 1994).

## 4.7 Example: the ISO 9000 certification of STIB-MIVB (Brussels).

In order to stimulate the different departments of STIB-MIVB to progress towards total quality and to reinforce the competitive position of STIB-MIVB in preparation for any possible liberalising Directive or Regulation of the Council, STIB-MIVB decided to get certification based on ISO 9000 standards.

Instead of having all the departments of the company certified in the same period, STIB/MIVB managers decided, in close co-operation with the Quality Department of the company, to select a reduced number of departments in the first instance. The criteria used for this selection were:

- Volunteer basis and involvement of managers;
- Representativeness of the different departments;
- Involvement of the different departments in direct customer contact.

Four departments are certified or under a certification process:

- The department responsible for passengers assistance in case of metro breakdown (ISO 9002 certification foreseen for March 1998);
- The workshop for tramcar bodywork (ISO 9002 certified in December 1997);
- The department Security - Hygiene – Ergonomics (ISO 9002 certified in October 1997);
- The drivers' training centre (ISO 9001 certified in December 1997).

A cumulative effect is expected inside the company and other departments are being attracted by management practices implemented in the departments already certified. It seems that decision-makers in other departments of the company are keen to receive information about the management practices of the certified departments. A benchmarking process is also under way.

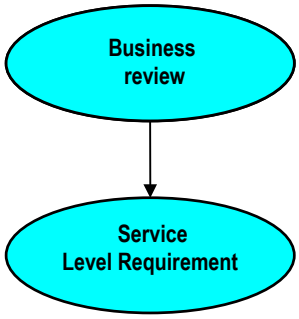
## 4.8 The hybrid benchmarking framework (HM Customs and Excise)

### Business Review


This is a high level review of business needs and an examination of any service constraints. The review will establish the scope of the exercise, the needs of both managers and the customers of the service, identify any national systems that must be used and look at any other factors which might affect how the service or activity is delivered. This could include:

- personnel issues
- estate issues;
- the impact of any plans for re-organisation;
- other relevant reviews/reports;
- legislation (eg Equal Opportunities, Health and Safety, EU);
- closer working with other public sector organisations, and
- partnerships with the private sector.

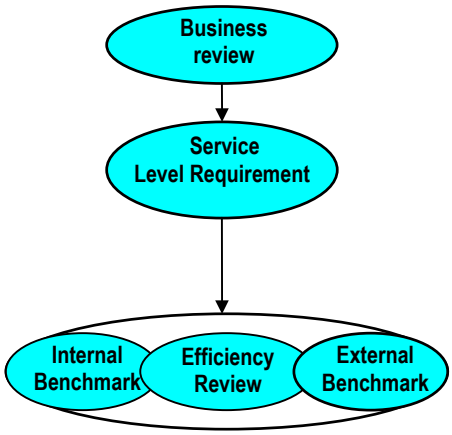
### Service Level Requirement




Following the business review, a Service Level Requirement (SLR) is prepared. This document uses the findings of the Business Review to set out the work to be performed. It will include:

- a description of what is to be achieved (outcome);
- descriptions of what is to be produced or delivered (outputs);
- service standards to be achieved;
- any technical constraints or other considerations (eg security), and
- workload.

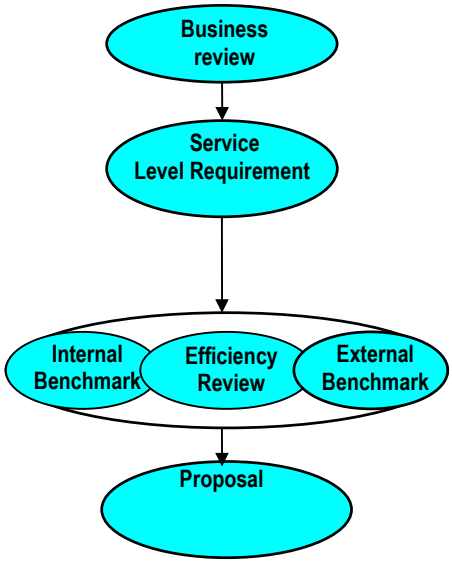
### Efficiency Review




The Efficiency Review is a detailed look at how best the service or activity can be delivered to the standards, and within the constraints laid down in the SLR. **The Efficiency Review will undertake public and private sector benchmarking to gather information on cost and good practices.** This will help inform the Review's proposal as to how the work can best be carried out.

Management and staff carrying out the work are always involved in the Efficiency Review as it is important that they have a sense of ownership of any changes to existing work practices.

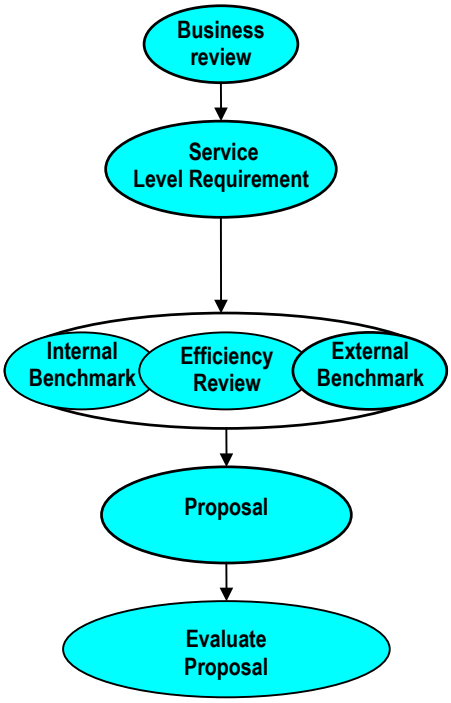
### Proposal




Following the Efficiency Review a proposal is produced. It will include details of:

- the methods and systems used to perform the task;
- allocation of resources;
- means of monitoring delivery, and
- cost of delivery.

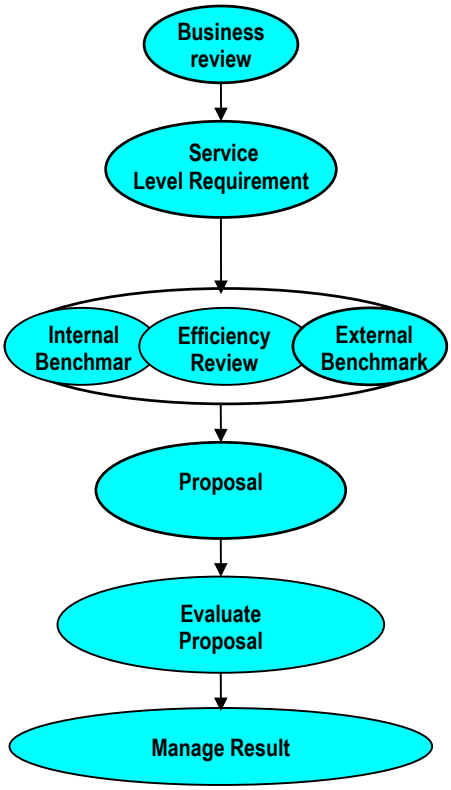
**Evaluation**




The evaluation is a two stage process:

1. **Consideration of the in-house proposal** - the evaluation panel must satisfy themselves that, if the work is carried out as described in the proposal, the service standard set out in the SLR will be met.
2. **Benchmarking comparison** - once the evaluation panel is satisfied with the proposal in its own right, they will then go on to examine it against the benchmarking information obtained from the internal and external sources.

**Manage the Result**




If the evaluation panel is satisfied with the proposal, then a Service Level Agreement (SLA) is set up to ensure that the service is delivered in the manner and a*/0t the cost proposed. If the evaluation panel is not satisfied, they will consider alternative sources of supply.

# 5. Conclusions and Recommendations

**First recommendation:** present the institutional and financial organisation of public transport before introducing the concepts of quality and benchmarking.

**Second recommendation:** put the students in the situation. as much as possible. Their perception as users will help them to find the concepts, and at the same time they will understand better that there are other interests (authority, operator…) than users.

**Third recommendation:** it is difficult to present the benchmarking process among operators, because confidentiality means that they don't enjoy talking about it. National experiences could be presented with great advantage, and influence on the learners.

**Fourth recommendation:** everyone tries to improve quality everywhere. To understand how difficult it is to do it when you are inside a local authority or a local operator it is necessary to understand how it works in reality. The involvement , of a local authority in the training, and a local operator who would present how, concretely, they do it, and would help the students to make the link between the concepts and what happens really.

# 6. Exercises

Both the concepts of quality and benchmarking (and inside its core : comparison) are used by everyone – and students – in one's own life. The pedagogical aim is to give a structured and professional meaning to common concepts. It would be interesting to make students discover themselves the different approaches of the concept. It could be done either in small groups, or individually by each student.

For instance, the four elements of the quality loop are not specific to public transport, but they can be applied to all type of production. The different topics of the European framework of quality in public transport, as well as main clusters of an assessment exercise.

Concerning the benchmarking approach, the most difficult aspect of the concept, to be really integrated by people, is the last step: the design and implementation of an action plan. Everybody understands that you need to self-assess if you plan to compare your performance/quality with others. And it is clear that the comparison step is the central part of the process. But many people would stop the exercise after the comparison step, which is already an effort, as we are not really given in the European projects the proof of the implementation of the results of comparison. In this respect, it could be interesting to put students "in the actual situation". It can be done in the public transport field, or in any other locally interesting field. Furthermore, the fact to be put "in the live situation" makes understand better the crucial difference between comparison and classification, and between results and means.

# 7. Glossary

## 7.1 Quality (taken from QUATTRO – modified)

1. **Benchmarking.** Systematic comparison of the performance of an organisation in relation with other departments/subsidiaries (internal benchmarking) or other organisations, competitors or industry leading companies (external benchmarking), as a method of sharing knowledge and experience of "best practices" to bring improvement.
2. **Charter.** Document that details the commitment of our entity among its customers.
   - 2.1. **Citizen's charter.** Document explaining which services can be expected by citizens and sets out the public service's commitments to them, whose views are taken into account when the charter is reviewed.
   - 2.2. **Customer charter.** Document that details the commitment to the customers, sets out the standards to which the operators works, how it publishes its performance against those standards, how it looks after the customer and compensate them if things go wrong and how they can contact the operator. Customer charters can be classified into four categories :
     - **Agreement charter.** Charter detailing rights and duties.
     - **Charter of intention.** Charter setting general values and principles.
     - **Charter of commitment.** Charter explaining the formal commitments set up to put in concrete form the values and principles defined in the charter of intention.
     - **Charter of means.** Charter defining which means will be put at work to fulfil the commitments.
     - **Intermodality charter**. Charter giving the views of the actors of public transport involved in a transport system on topics concerning intermodality : connection centres, multimodal information, intermodal ticketing, collaboration with the automobile industry, collaboration with other transport actors such as taxis, airport operators, car rental companies or bicycles users and R&D for new transport technologies and systems.
     - **Development charter.** Charter defining principles on which public transport service will be adapted in the future.
     - **Public service charter**. See citizen's charter.
3. **Continuous improvement ( on-going improvement ).** Need of continuous adjustment of the service design and processes of the provider organisation itself in order to maintain or increase its value enabling the identification of their strong and weak characteristics.
4. **Customer satisfaction.** Overall level of attainment of a customer's expectations, measurable as the percentage of the customer expectations which have actually been fulfilled.

5. **Delivered quality.** Level of quality that is achieved on a day-to-day basis in normal operating conditions.
6. **Desired quality.** Level of quality that the company wishes to reach on the basis of the expected quality, external constraints and financial conditions.
7. **Expected quality.** Level of quality that is requested by the customer and can be defined in terms of explicit and implicit terms.
8. **External quality.** It refers to quality aspects directly perceived by the customer.
9. **Internal quality.** It refers to quality aspects for the company not directly perceived by the customer (internal organisation, etc).
10. **Optimal quality.** Situation where the services supplied are in correspondence with the preferences of customers, expressed in the willingness to pay the accompanying efficient prices.
11. **Partnership (travel partnership).** Agreement or series of agreements between Authorities, Contracting Bodies and Operators designed to encourage co-operation at a working level so as to improve the achievement of the business objectives of each party to the agreement but without any contractual liabilities.
12. **Quality partnership.** Non contractual agreement of co-operation between parties within the public and private sectors that have common interests in promoting public transport.
13. **Perceived quality.** Level of quality perceived, more or less objectively, by passengers in the course of their journeys.
14. **Professed satisfaction.** Formalised opinion of a customer regarding the level of attainment of his/her expectations.
15. **Quality.** Totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs (ISO 8402).
16. **Quality assurance.** All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality (ISO 8402).
17. **Quality management.** All activities of the overall management function that determine the quality policy, objectives and responsibilities, and implement them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system (ISO 8402).
18. **Quality system.** Organisational structure, procedures, processes and resources needed to implement quality management (ISO 8402).
19. **Targeted quality.** Level of quality that the company aims to provide for its passengers.
20. **Total quality.** Management approach that integrates all functions and processes within an organisation in order to achieve continuous improvement of the quality of goods and services (ISO 8402).

## 7.2 Norms and standards

21. **Accreditation.** Process of ratifying the jurisdiction, capabilities and impartiality of the certifying authorities.
22. **Certification.** Situation where first, second and third parties evaluate a company's quality system against some specified standard or manual.
23. **Standard.** Documented agreement containing technical specifications of other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose.
24. **Quality management standard.** Standard providing guidelines and specifications concerning management process.
25. **Quality system standard.** Standard providing guidelines and specifications concerning the production process.
26. **Standard of results.** Established level for a final service quality item. It should be established taking into account the customer expectations.
27. **Tool standard.** Standard providing guidelines for the implementation of specific fields of the fundamental standards (ISO 9000-1, 9002, 9003 and 9004-1). The specific fields are the audit (ISO 10011-1, -2 and -3), the conception and the redaction of a quality manual (NF X 50-160, 161, 162),...
28. **Standardisation.** Activity that sets the unification of criteria with regard to precise goods and services and enables the use of a common language in a concrete field of activity.

## 7.3 Economy

29. **Allocative efficiency.** Relates to the production of products or services that best meet the preferences of consumers, expressed in their willingness to pay the accompanying (cost efficient) prices.
30. **Cost efficiency.** Relates to the production of products and services at minimum possible costs.
31. **Economic efficiency.** Relates to the combination of allocative and cost efficiency.
32. **Effectiveness.** Achieving the stated objectives. Action having an effect on producing a definite or desired result in economical terms.
33. **Externality.** Economic relationship not efficiently controlled by prices.
34. **Market contestability.** Characteristic of certain markets in which incumbent companies are threatened by potential entrants, causing efficient results without the existence of perfect competition conditions. Baumol, Panzar and Willing (1982) hold that contestable markets guarantee the social benefits of perfect markets without the need of making strong assumptions about the number of companies that must be operating in the market. Shepherd (1984) has observed that these results are only valid under the following assumptions:
    - Enter to the market is free and without limits.
    - Enter is absolute.
    - Enter is perfectly reversible.

35. **Market failure.** Situation where the market produces inefficient results due to the existence of any of the following factors: imperfect competition, natural monopoly, public goods, externalities, common ownership of goods, lack of perfect and symmetric information, incomplete markets.

## 7.4 Regulatory framework

36. **Bid (tender, tender procedure).** To offer a particular amount of money for something. In UPT, to offer a specific level of service for a specific amount of money.
37. **Bidding document (tender document).** A formal written offer to do a job or provide goods and a services at a specific price.
38. **Collective transport.** A commercial passenger transport service aiming to fulfil common transport needs in large or small communities, the needs being shared by all or large groups of community members.
39. **Market competition.** Competition between multitude of companies in an open market, that struggle among them in order to get their products and services' sold, setting the prices that their costs and market enable.
40. **Concession act ( concession agreement, concession contract ).** Kind of license granted by a local authority to a transport operator specifying an exclusive right to operate public transport in a particular area.
41. **Public service.** A service that fulfils a mission of a common interest of which public domination has decided to ensure the authority in response to society's requirements linked to various specificities.
42. **Public transport.** Services provided for the carriage of passengers and their incidental baggage over long or short distances, within or between urban areas, usually on a fare-paying basis with fixed timetables and predetermined routes.
43. **Regional transport.** Transport in the surroundings of conurbations and between smaller cities in this area and the conurbation. Regional transport can roughly be described with a travel distance up to around 60 km and a travel time up to 1h on average. For very large conurbations there may be somewhat like a regional transport with higher speed and with distances up to 150 km and travel times up to 2h. Beyond these limits long distance transport takes place.
44. **Service of general interest.** Service activity, considered by Public Authorities as being of general interest and therefore subject to public service obligation.
45. **Service of general economic interest.** This term is mentioned in the Treaty of Rome under article 90. It refers to commercial service activities that cover general interest missions and are therefore subject to public service obligations. This is the case of transport networks, energy and communication services.
46. **Universal service.** Public service, available to all, with reasonable conditions of access and price.
47. **Urban transport.** Urban transport takes place in the borders of a city or a conurbation and in a small belt around it. It may be described by travel distances of up to 20 km (in public transport an usual average of travel distances is between 5 and 8 km) and a travel time of up to 0,5 h. Larger values may be valid for big metropolises and conurbations.

# 8. Literature

**The following literature and websites have been used to set up this written materials:**


**QUATTRO –** 4th F.P. project – Quality approach in tendering/contracting urban public transport operations – Final report and www.quattro-eul.nl/quattro/uk

**EQUIP –** 4th F.P. project – Final report and particularly the annex (practical handbook) www.europrojects.ie/equip

**Benchmarking** performance of local transport systems**, pilot exercise : subgroups reports** (available from KTE), and report to the commission (id)..

**BEST –** thematic network on benchmarking (5th F.P.). Papers presented at the first conferences. www.bestransport.net

Benchmarking methodologies in transport **– CEMT – minutes of the conference of November 1999.**

Benchmarking in Europe **– spring 2000. www.benchmarking-in-Europe.com**

European foundation for quality management **– EFQM – www.efqm.org**

**ELTIS –** best practices internet site of the European commission.

**AFNOR –** French organisation for standardisation. www.afnor.fr

**CEN –** European committee for standardisation – www.cenorm.be

**EXTRA** – summary of European projects

And concerning the Quality Bus Partnerships, which now have a statutory basis in Britain. useful reference are:

- Quality Bus Partnerships - A Survey and Report, 2000 - TAS, February 2001 Available from Landor Publishing Ltd., Quadrant House, 250 Kennington Lane, LONDON, SE11 5RD
- As above for 2001, due out February, 2002 BUT this will (only?) be available through TAS Publications & Events [www.tas-passtrans.co.uk]
- Quality Bus Infrastructure - A Manual and Guide - published by Landor, but also available through TAS Publications & Events
- Quality Bus Partnerships: Good Practice Guide - TAS, 2001 available through TAS Publications & Events

# 9. Quality and benchmarking in Public Transport – The consortia of the projects

### BEST - Thematic network on BEnchmarking in tranSporT

| Consortium: | |
|---|---|
| Organisation Gestion Marketing S.A | BE |
| Forschungs- und Anwendungsverbund Verkehrssystemtechnik Berlin | DE |
| NEA Transport Research And Training | NE |
| TOI | NO |
| Erasmus University Rotterdam | NE |
| Centre d'études sur les réseaux, les transports, l'urbanisme et les construction publiques | FR |
| Warsaw University Of Technology | PL |
| Ingeniería Y Economía Del Transporte SA | ES |

### BOB - Benchmarking of Benchmarking

| Consortium: | |
|---|---|
| NEA Transport research and training | NE |
| Universitaire Faculteiten Sint-Ignatius Antwerpen Vzw | BE |
| Forschungs- Und Anwendungsverbund Verkehrssystemtechnik Berlin | DE |
| TOI | NO |
| Centre d'études sur les réseaux, les transports, l'urbanisme et les construction publiques | FR |
| Warsaw University Of Technology | PL |
| Ingeniería Y Economía Del Transporte SA | ES |
| Erasmus University Rotterdam | NE |
| Organisation Gestion Marketing S.A | BE |

**BENCHMARKING – Pilot exercise of Benchmarking the performance of local passengers transport systems**

| **Consortium**: | |
|---|---|
| OGM | BE |
| Socialdata | DE |
| CERTU | FR |
| Oulu Koskilinjat Oy | FI |
| Terni | IT |
| Praga TCZ | CZ |
| Stuttgarter Straßenbahnen AG | DE |
| District de l'Agglomeration Nantaise | FR |
| Steirische Verkehrsverbundgesellschaft StVG | AT |
| DGTT, Direcao Geral de Transportes Terrestres Lisboa | PT |
| Merseyside | UK |
| Dresdner Verkehrsbetriebe | DE |
| The City of Edinburgh Council | UK |
| Strathclyde Passenger Transport Glasgow | UK |
| OASA, Athens | GR |
| BSAG – Bremer Straßenbahn AG | DE |
| Azienda Mobilità e Transporti, Settore Studi Sistemi, Genova | IT |
| Syndicat des Transportes Parisiens | FR |

## ISOTOPE - Improved Structure and Organization for Transport Operations of Passengers in Europe

| Consortium: | |
|---|---|
| Transportes, Inovação E Sistemas, A.C.E. | PO |
| University Of Leeds | UK |
| Stockholm University | SE |
| NEA - Transportonderzoek En -Opleiding | NE |
| Union Des Transports Publics | FR |
| Greater Manchester Passenger Transport Executive | UK |
| Erasmus University Rotterdam | NE |
| Institute Of Transport Economics | NO |
| Societe Des Transports Intercommunaux De Bruxelles | BE |
| TRANSPOR - 5 | PO |
| Studiengesellschaft Fsr Unterirdische Verkehrsanlagen E.V | DE |
| Groupement Des Autorites Responsables De Transport | FR |
| Organisation Gestion Marketing S.A | BE |
| Halcrow Group Ltd | UK |
| INECO S.A. | ES |
| Swedish Institute For Transport And Communications Analysis | SE |
| Centre D'etudes Sur Les R_Seaux, Les Transports, L'urbanisme Et Les Construction S Publiques | FR |
| Swedish National Road And Transport Research Institute | SE |

## EQUIP - Extending the Quality of Public Transport

| Consortium: | |
|---|---|
| University Of Newcastle Upon Tyne | UK |
| Erasmus University Rotterdam | NE |
| Viatek Ltd | FI |
| Asm Brescia S.P.A | IT |
| Universitat Fur Bodenkultur Wien | AT |
| European Transport And Telematics Systems Ltd | IE |

## QUATTRO - Quality approach in tendering urban public transport operations

| Consortium: | |
|---|---|
| Organisation Gestion Marketing S.A. | BE |
| Lt Consultants Ltd | FI |
| NEA - Transportonderzoek En -Opleiding | NE |
| Istituto Di Studi Per L'informatica Ed I Sistemi | IT |
| Union Des Transports Publics | FR |
| Calidad Estrategica, S.A. | ES |
| Izba Gospodarcza Komunikacji Miejskiej | PL |
| Sociedade De Trannsportes Colectivos Do Porto, S.A. | PO |
| CERTU - | FR |
| Societe Des Transports Intercommunaux De Bruxelles | BE |
| Sociiete D'economie Mixte Des Transports En Commun De L'agglomeration Grenobloise | FR |
| Metro De Madrid S.A. | ES |
| Studiengesellschaft Fsr Unterirdische Verkehrsanlagen E.V. | DE |
| Transportes, Inovação E Sistemas, A.C.E. | PO |
| Estonian Lt-Consultants Ltd | EE |
| Federazione Nazionale Trasporti Pubblici Locali - Federtrasporti | IT |
| Ingenieria Y Economia Del Transporte S.A. | ES |
| Transman Consulting For Transport System Management Ltd | HU |
| Erasmus University Rotterdam | NE |
| Institute Of Transport Economics | NO |