



EU Lifelong Learning Programme 2007-2013 - Leonardo da Vinci

## Project ISSTE

*Improving Safety and Security in Public Surface Transport*

134115 -LLP - 2007 - IT - LMP

# WP4 DELIVERABLE

*WP4  
Deliverable*

- **New accreditation / certification methodologies**
- **Standards**
- **Quality assessment**

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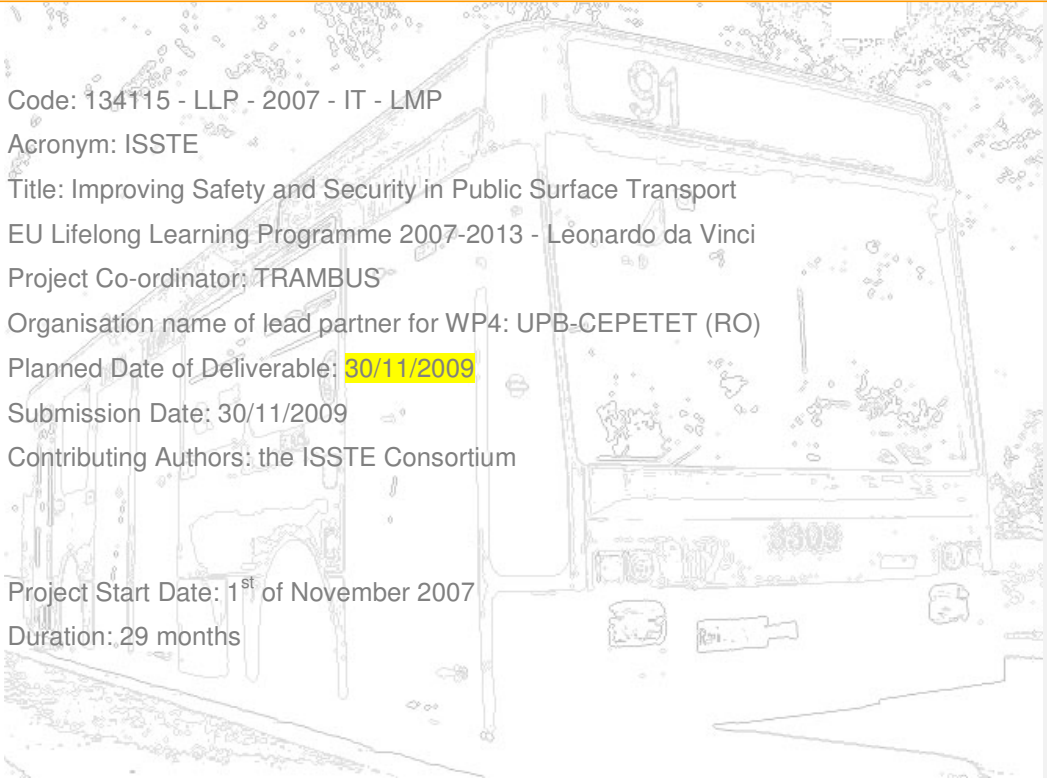
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## 1. Executive summary

### 1.1. Inputs from other work packages

In this work package, the research has been focused on the most adequate and innovative methodologies for accreditation / certification in training, along with quality assessment in safety and security, for the public surface transport. Using results achieved in previously developed WP2 (framework analysis, key performance indicators) and WP3 / WP 5 (testing of new training curricula), the present document integrates best practice and further develops the research, providing a set of measures aimed at improving the quality in Safety and Security training.

### 1.2. Objectives of research

The main objective of the present Work Package 4 (WP4) was to establish a common and efficient framework for the accreditation and/or certification in surface transport training, according to available standards. Another goal was to find out the best methodologies for quality assessment, considering both the educational process flow and the public transport process, as a prerequisite for an overall increase of transport company performances. The effects of this improvement in training and the work environment are expected to have a large impact, resulting in better productivity and higher safety and security for the public transport.

The purpose is to decrease the number of traffic incidents and other security issues in public transport field of activity, without investing in expensive equipment or technologies, but in human resources, instead.

According to the procedures presented in WP4, the training and quality control departments from the public transport companies will be able to instruct, coordinate and to ensure a high level of knowledge regarding elements of safety and security to the drivers, to cope with risk situations, to prevent and reduce the number of errors in driving the public transport vehicles. Alternative techniques for quality assessment and continuous improvement of the training processes were also analysed and the innovative methodologies presented here aim at further increasing the quality of the surface public transport.

### 1.3. General methodology

As stated before, the study has been carried out considering all the previous work developed in the ISSTE project, being especially connected with work packages WP3 and WP5. In these WPs, specific curricula for safety and security have been developed and tested by Trambus (P1) and RATB (P2). Two different approaches were considered, at that time:

- A dedicated Safety and Security (S&S) module (performed by the ISSTE project leader, Trambus – Italy).
- A mixed training process (performed by the Romanian partner RATB), integrating in the usual curricula for trolley bus drivers the safety and security components;

In the same period of time, several series of documentation and leaflets aimed at improving the knowledge and awareness of the public transport vehicles' drivers

regarding the safety and security issues were developed, both by Trambus and RATB.

Taking into account the Key Performance Indicators (KPIs) described in WP2 and the methodologies employed in the selection of candidates, the training methodologies and infrastructure used, the examination and control methodologies, a study regarding the innovative certification and accreditation methodologies has been elaborated by P4 UPB-CEPETET. The activities started early, in the period of designing the curricula, with the design of a specific first questionnaire, regarding the available methodologies and legislation in the partner countries. The results of the study served as a start point in the development of the new accreditation and certification methodologies.

#### **1.4. Expected results of the research**

The recommendations resulting from this research are intended to serve as a guideline for building up a complete, recognised and accredited training department in a public transport company. The advantages that might be obtained employing the recommended procedures are expected to be:

- *Documented accreditation of the public transport training departments, and certification of the S&S curricula* - very helpful for externalising the activities of the training departments in the public transport companies, those being able to perform training for a wider category of beneficiaries, including smaller companies, or physical persons seeking for a certification in safety and security; harmonisation of training services amongst the educational bodies in the field of transports;
- *Official recognition of the quality and professionalism of the public transport drivers* (regarding safety and security in surface public transport) – helping the social integration of all personnel that had graduated the S&S training courses. This is also helpful for lifelong learning and sustainable development of the transport company, but also for travellers' increase in trust regarding the quality of the public transport;
- *Conformity and harmonisation with international, EU-level, national standards* and applicable local regulation for quality in education and work; it is expected this will help ensuring compatibility and harmonisation between all transport companies' activities and information sharing;
- *An innovative methodology for quality control*, with several checkpoints, both in the training process and in the work activities, helping to increase productivity, to reduce risks and to build better procedures for granting salaries to employees, for establishing a close control of the activities and of the social factors;
- *Building a community network of training centres, and a common database* – a premise for a better usage of the know-how and best practice in the domain of safety and security for the public surface transport etc.

#### **1.5. Innovative approach**

For this research, specific procedures taken both from the superior educational domain or employed by the transport companies have been analysed, considering that these are the most adequate, in terms of correctitude, completeness and standardisation with the goals of the WP.

Another information that has been considered was the applicable legislation. Available standards, at all levels (international / EU, national / regional or local regulation), were analysed (with emphasis on ISO 9000 components). The accreditation and certification procedures have been put in comparison with the present situation of the training departments in the public transport companies and best procedures for implementation were also recommended.

The innovative approach presented in WP4 consists of the methodologies for accreditation and certification, along with the quality control methodologies.

The WP4 report contains the following main topics:

- Research: state of the art regarding the accreditation and the certification processes in the educational activities;
- Analysis: assessment of main standards in terms of quality for education and work at the international, EU, national and regional levels;
- Design: adaptation, modernisation and design of improved methodologies and procedures for accreditation and / or certification, that apply to the modules of safety and security in transports; harmonisation of the procedures performed in the countries of the project's partners and the compatibility with the proposed ones;
- Analysis: internal results of the ISSTE project, regarding the procedures for training S&S modules;
- Design: Guidelines and recommendations for increasing the quality in training and work environment;

## **1.6. ISSTE Internal Evaluation**

Beside the general research performed in this work package, an in-depth analysis of the ISSTE project results has also been carried on.

The main purpose of the internal evaluation was to determine if the recommended methodologies for the quality assessment return enough information for being able to observe the improvements of the quality in terms of safety and security. These procedures, described in detail in this document, imply two feedback loops: the assessment of the results obtained by the S&S training course graduates and the assessment of the results obtained by the graduates, in their normal activities (work results assessment).

Starting from the initial analysis of the results obtained in WP3 and WP5 (applying the newly developed curricula and methodologies via different procedures: the continuous training procedure and the specific designed, separately provided module concerning the safety and security issues in the surface public transport), the results of this evaluation proved that these approaches are perfectly applicable.

A second purpose of the internal evaluation of ISSTE project's results was to find out if the newly designed procedures, curricula and assessment methodologies are adequate and can be implemented with the project's goals respect, i.e. increasing the safety and security of the surface public transport by providing a better training to the vehicles' drivers. The results of this assessment proved that the procedures are feasible, despite the fact that some of them may require extra budget, involvement of competent authorities and time.

## 1.7. Conclusions

The quality of the drivers' training process and its results in the effective public transport are closely related. Therefore, the innovative methodologies for accreditation, certification and quality assessment presented in WP4 can serve as guidelines for the developer of this field of activities. Due to differences between habits, local regulations and other issues, the exact mode of application cannot be defined in detail, each applicant being able to fine tune the procedures, according to local interests. But these procedures are considered as a common approach in a cooperative environment (a network of training centres), establishing the necessary activities for:

- Continuous training and improving of skills (public transport drivers);
- National / international level recognition, in terms of quality that a public transport service has;
- Attractiveness of public transport company;
- Better sharing of best practice amongst stakeholders in this economical sector.

## 2. Introduction

The transports sector is a vital link of economy. Safety and security represent one of the main goals to achieve in a reliable transport system. As developers and transports specialists stated many times, the simplest way to decrease congestion in traffic is to increase the interest of travellers in the public transport. The most recent EU policies point towards this solution. The accessibility and attractiveness for the public transport system cannot be obtained without achieving complete and reliable services, including those related to safety in traffic and security for the passengers. Safety and security can also be improved when using a good strategy for drivers' instruction, accreditation or certification methodologies.

### 2.1. Background

Many examples show the necessity of improving the safety and security in public surface transport. A brief analysis regarding the present situation at Bucharest surface transport provider, RATB, showed that there is a lot to do in improving the conditions of the transport, especially in reducing the number of incidents involving the public transport vehicles and drivers:

- Increased number of traffic incidents: national reports indicate that from EU countries, Romania and Bulgaria experience a high rate of traffic incidents.
- In Romania, the number of traffic injuries increased by 10% in 2009;
- Most significant causes of traffic incidents:
  - *low discipline of traffic drivers*: in 2008, RATB recorded 5377 lost hours due to illegal parking, affecting the RATB travelling lines and lanes, equivalent to a lost of 441,570 Lei (approx. 103,400 EUR); traffic incidents due to illegal parking, involving RATB in 2008: 1,250, with 2% lower than in the past year) – from these, the RATB personnel was guilty of producing around 23.8% of cases; the number of injured persons increased by 12% in 2008, the main causes of these accidents being the personnel of RATB vehicles that did not pay enough attention at openings/closures of doors; other cases include: 46.12% other vehicles' drivers; 28.47% pedestrians that crossed in forbidden places the street; 25.41% travellers injured inside vehicles due to loss of equilibrium; RATB mentions that main cause of these incidents is the high density of traffic;
  - *low quality of the road infrastructure*;
  - *large number of conflicting points*;
  - *lack of facilities for public transport*;
  - *poor illumination of the streets in night*;
  - *road police is not enough efficient*;
- Causes of traffic accidents:
  - 43.38% - *wrong overcoming manoeuvres*;
  - 34.44% - *emergency braking due to inadequate traffic speed*;
  - 19.21% - *failure of giving the way in intersections*.

The new quality certification methods are expected to provide the possibility to recognise the higher level of quality in terms of safety and security offered.

The project *“Improving Safety and Security in Public Surface Transport”*, acronym ISSTE, is focused on increasing the safety and security in urban transports thru a comprehensive set of measures including education, formation, evaluation and accreditation of the public transport vehicles’ drivers.

This process is a complex one and in the project ISSTE it was considered in several research phases and activities. As an example, in WP2, Key Performance Indicators (acronym KPI) for quality assessment were analysed and developed, in order to quantify the higher quality standards achieved in Safety and Security (acronym S&S) in Public Transport and to demonstrate to all responsible factors and actors from the public transport (acronym PT) the new level of knowledge for PT human resources.

In WP3, specific procedures for innovative training were developed, emphasizing a new approach, including training procedures, didactical methodologies and applications. The result of WP3 was concretised in the capacity to design an innovative Safety and Security training procedure, able to be flexible and adaptable to the different standard of training methodologies of the European community of reference.

In WP5, the partners in ISSTE (especially Trambus and RATB) have implemented and evaluated the innovative procedures outlined on WP3, through the delivery of the specific trainings for Public Surface Transport (acronym PST) drivers, following the two different approaches designed in WP3. It was emphasized that the ISSTE project developed the capacity to design an innovative Safety and Security training procedure, able to be flexible and adaptable to the different standard of training methodologies of the European community of reference. This is a very important issue, as each country has its own particularities and there is no formula to be worldwide applicable without particularisation.

A training programme designed around a Safety and Security (acronym S&S) module was tested, just after the basic learning, involving drivers selected with an average of 7-8 years of corporate experience.

The main objective of the training is to enhance the knowledge of the drivers on S&S. The role played by a PT driver has a crucial impact for traffic and road security.

The role of WP4 was to create new, improved methodologies for evaluating the quality and certification in the process of training, in public surface transport safety and security.

In order to be able to quantify the results achieved in terms of increased qualitative standards delivered and to clearly outline to the market all of the project’s innovative tangible and intangible features, accreditation/certification methods have been studied, analysed, selected, and innovative procedures were proposed in WP4. These new quality accreditation/certification methods help providing the possibility to recognize the higher level of quality in terms of safety and security offered. Therefore, it is expected that the latter will provide a substantial follow-up effect, encouraging other companies involved in the field to adopt and implement such paths for several reasons: an increased image of the proper company corresponds to employees’ satisfaction, market’ improved perception, pushing the whole towards a logic of continuous innovation.

The new certifications of quality will be able to underline to the market the new standards in terms of safety and security in surface public transport, obtained by the

companies who will have implemented the vocational and curricula training activities established by the ISSTE consortium. In other words, these quality certifications express the guaranty to passengers and to transports' stakeholders that the specific accredited transport company that possesses this typology of certification has previously obtained the highest levels of safety and security by implementing training activities established by the ISSTE consortium, making its human resources attend the new courses developed in this specific project.

In order to obtain best results from this WP, partner P4 UPB-CEPETET has designed a specific questionnaire in the previous phases of the project and has distributed it to the other partners. The questionnaire was comprised from different parts, focusing on:

- The assessment of current situation in terms of knowledge and best practices regarding the education, training, evaluation, certification methodologies used in public surface transport;
- Designing a new approach for improving the role of education in improving safety and security in public surface transports.

The results from the questionnaire were analysed and the conclusions, along with best practice ideas were used to produce the new certification methodologies.

## **2.2. Contents of the report**

This report presents the results of research regarding the following topics:

- Evaluation of the main problems regarding the accreditation and the certification processes in the educational activities;
- Analysis and presentation of solutions for harmonising the main standards in terms of quality for education and work at the international, EU, national and regional levels;
- Design of innovative, adapted or modernised methodologies and procedures for accreditation and / or certification (that apply mostly to the modules of safety and security in transports);
- Internal analysis on the results of the ISSTE project, obtained in performing procedures for training S&S modules;
- Analysis of the training process and provision of recommendations for increasing the quality in training and work environment;
- Analysis of the procedures performed in the countries of the project's partners and recommendations for harmonisation with the proposed ones (direct analysis and discussions with RATB partner, questionnaires for other partners).
- Conclusions and final recommendations.

## **2.3. Work Package overall planning**

The Work Package 4 was focused on the quality of the S&S training and its results in the surface public transport process, along with the methods for improving, assessing and certifying the training processes for the drivers. The package worked

in close relationship with Work Packages 3 and 5, being dependent on the actions and results of these packages. Despite this dependence, the WP4 was also structured to obtain independent information regarding the present situation in the countries of the ISSTE project partners. This information was related to the standards, procedures and local regulations regarding the training process that the drivers are experiencing before entering the work environment. As stated elsewhere in this document, a close attention is being paid to the methods for improving the quality by the evaluation of results. At least two stages of evaluation were proposed for this purpose, one in the early training phase (at the end of the S&S training module) and the other after a period of normal activity, concerning the results in work obtained by the graduates of the new S&S training module.

The WP4 also focused on the latest available standards regarding the educational and training activities, standardised methodologies of accreditation and certification and proposed solutions for these issues in the domain of public transport companies' educational activities.

The work performed in ISSTE project and the present situation regarding the training activities in the partner countries' were also analysed, using two separate questionnaires distributed amongst the partners from Italy, Romania, Germany, Spain, Slovakia and Bulgaria.

Another analysis was performed to evaluate the results obtained in ISSTE project. The results of this analysis are provided in the last part of this document.

## **2.4. Objectives**

### **2.4.1. Overall objectives**

The following are considered the main objectives of this Work Package:

- Increasing the safety/security and the overall quality of the public transport via improved accreditation and certification methodologies in Safety and Security training;
- Recommendations regarding optimised methodologies for quality assessment of the certification for courses modules and/or accreditation of training centres;
- Analysis and harmonisation of the available and applicable standards in the partners' countries. Recommendations regarding the most appropriate and applicable standards regarding the quality assessment of the educational activities.

### **2.4.2. Specific objectives**

The following are considered more specific objectives:

- Analysis of present situation regarding the procedures of training in the project partner countries (via a questionnaire);
- Analysis of available standards for training activities and quality;
- Design and definition of new, improved methodologies for accreditation, certification and quality assessment;
- Cooperation with partners in defining best practices and activities for the new S&S curricula;

- Analysis of internal results in ISSTE for WP5 and the possibilities for implementing the proposed methodologies (via a second questionnaire);
- Dissemination of WP4 results in international conferences and in other publicist activities.

## **2.5. Actions performed in WP4**

The actions performed in WP4:

- Cooperation with other ISSTE partners in finalising and improving the quality of the WPs;
- Analysis of the KPIs defined in WP2 in order to improve the quality assessment methodologies and to propose adapted KPIs for the quality evaluation;
- Analysis of the innovative curriculum developed in WP3 and cooperation with RATB (P2);
- Development and analysis of results for the specific questionnaire regarding the training certification procedures (distributed amongst the project's partners);
- Analysis of the implementation of training procedures provided in WP5;
- Analysis of available international, EU, national standards and local legislations in terms of quality assessment and accreditation (independent research);
- Development of a proposal regarding best accreditation/certification and quality assessment procedures for the S&S training centres and its results in public transport companies.

In order to obtain a better accreditation methodology P4 has proposed a specific flow of actions for the following period of the contract. As stated before, it is considered that the training and the effective work are two inseparable items and therefore they have to go together.

## **2.6. Connection with other WPs**

As declared before, the WP 4 is closely connected with WP3 and WP5. Therefore, a close contact and discussions were undertaken with the partner RATB (RO), which is one of the most important public transport operators amongst the project's countries. P4 UPB-CEPETET has analysed in depth the activities, implications, legislation and documents employed for the training of public transport drivers. The most significant remarks noticed from RATB were referring to the lack of accreditation of the training department and the necessity to improve the quality of the personnel and the overall quality assessment methodologies. In this sense, RATB proposed internally to develop a specific procedure with criteria for personal work performance. Using these criteria, the company will be able in the future to closely evaluate each public transport drivers in terms of behaviour, events in traffic for which the driver is responsible, traveller public notices etc. Presently, RATB is analysing the possibility of continuously monitoring the entire department for electric public transportation<sup>1</sup>, according to the above-mentioned procedure.

The other partners also presented their situation to P4 via the specific questionnaires. Trambus, the Project Leader, informed P4 regarding the specific procedures in Italy. Trambus is also a very important public transport operator in Rome. In WP5, Trambus implemented the S&S training procedure as a separate

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<sup>1</sup> Personnel from this department graduated the S&S integrated training

module, provided immediately after the graduation of the normal training that the public transport drivers have to perform.

RATB, in WP5, employed a different approach, using integrated S&S modules in the normal training procedure.

Both methodologies were analysed using specific questionnaires distributed amongst the trainees.

Starting from these results, P4 UPB-CEPETET developed innovative methodologies for the training flow, accreditation/certification and quality assessment of the training practices.

The methodologies, procedures and recommendations are described in this document and its annexes.

### **3. PURPOSE AND OBJECT OF ACCREDITATION**

#### **3.1. Professional accreditation and certification procedures of professional training centres**

This section is describing principles and actions (called *procedures*) proposed and necessary to follow, in order to perform *accreditation* of a selected training institution (or training centre, or division from a public transport company) and/or *certification* for a specific course.

The document provides specific guidelines, but the application of its results may suffer modifications, as each country, region and public transport company may be subject to local regulation, habits and procedures. However, a general flow of activities is describable, and the goal of these procedures is to improve the overall quality of the training and evaluation of the public transport drivers, with the purpose of improving the safety and security in surface transport.

#### **3.2. Object of accreditation**

##### **3.2.1. Background**

- *What are accreditation and certification?*

The *accreditation* is a process in which certification of competency, authority or credibility is presented.

The *certification* makes reference to the processes intended to demonstrate certain characteristics of an object, person or organisation.

- *To whom they apply, in ISSTE context?*

While the ISSTE project is focusing mostly at the safety and security training in public surface transport, the accreditation methodologies extend their influence far beyond these boundaries. The accreditation methodologies may apply to all public transport companies that provide training for their drivers and need recognition of quality and/or rights to issue certificates for the training courses performed internally. The accreditation is a process involving evaluative and assessment activities, and third party continuous monitoring. The conformity with a specific set of standards and regulations apply and the company seeking for accreditation is required to align all its processes to these standards. Quality is also one of the most important things that is to be improved on a continuous base and is subject of evaluation, both with internal and external procedures.

- *What is their area of coverage?*

The public transport sector is, as the questionnaires performed in WP4 revealed, a complex sector, involving in a wide scale the social work and human behaviour. When talking about safety and security, human behaviour becomes a critical factor. Therefore, we consider that the S&S training, which is aimed at improving the quality of the way an individual behaves in the work environment, is also crucial in the attempt of reducing the number of incidents, injuries and material damages in the day-by-day public transport activities. Thus, specific curricula, methodologies for

evaluation and accreditation have been developed in ISSTE project and are presented in the related documents.

### **3.2.2. Definitions and Terms Employed in Quality Assessment and Accreditation**

- *Recognised institution*: a training institution that has been found by a competent authority to be fully compliant with specific program requirements and has been granted a recognition status by the competent authority for the purpose of providing the training necessary to obtain a Training Certificate, or a Certificate of Proficiency in S&S for a PTV driver;
- *Accredited institution*: a training institution that has been accredited and therefore has the legal rights of issuing training diplomas, certificates and other certification documents recognised by national/international authorities and has the rights to organise graduation exams;
- *Methodologies*: synthetic, coherent and phased programs for achieving a training activity (e.g. admission, knowledge assessment, using IT in the training process etc.);
- *Procedures*: the know-how in making a specific activity: elaboration and implementation of a study program, course teaching etc.;
- *Procedure for accreditation*: a specific procedure required for a training institution to obtain the recognition as a quality training provider in terms of S&S for surface public transport drivers;
- *Procedure for certification*: a specific procedure required for a training institution to perform a specific training course, on a limited period of time; *Certification of a training programme/course*: a procedure for demonstrating, according to approved criteria, that a training programme/course fulfils a set of conditions for contents, utility, adequacy, costs, timeframe and need, that allows training for a determined period of time, performed by an accredited institution;
- *Training Certificate*: a document issued by the recognised training institution, indicating attendance and successful completion of an approved course or training program;
- *Certificate of Proficiency*: a document issued by a recognised training institution, that meets specific requirements, indicating attendance and successful completion of a specific requirements S&S training program; may also be a certificate proving the accreditation of a training institution;
- *Standards*: a set of rules that describe the requirements which define an optimal system for a specific task; normative at international, EU or national level, regulations and rules that an institution for training has to be compliant with, in order to perform training, to obtain accreditation etc.;
- *Indicators*: represent an evaluation of the level of an activity fulfilment, with regard to teaching plans, analytical programmes, trainers and trainees etc.;
- *Forms*: specific documents that both the accreditation institution and the training institution seeking for accreditation use to prove and process the accreditation. The documents are standardised and used uniformly in any accreditation process;

- *Quality requirements*: requirements for an institution in terms of quality, needed in the accreditation process and in normal training operations.

### **3.2.3. Purpose**

The purpose for the *accreditation activities* is to obtain official recognition of compliance with specific programs and standards of quality for performing the training activities. The specific programs include also the existence of dedicated infrastructure staff for the S&S training activities, as well as a structured program for teaching, learning, and examination of graduates.

The purpose for the *certification activities* is to obtain official recognition of the quality and contents for a specific curricula, or course, dedicated to the safety and security concepts in surface public transport.

The award of accreditation and certification allows the training company (or department) for issuing graduating certificates that can be recognised also in other transport companies. These certificates attest the quality of the carrier in terms of knowledge and experience in safety and security. The effects of the accreditation extend beyond the normal training activities of a public transport company, influencing also the marketing services, the visibility of the company in the larger family of transport companies and last, but not least, the credibility of the best practice provided by the accredited company.

Included in the certification there is also the quality assessment procedure, which involves both the internal and the external audits, aiming at the improvement of the overall results for the public transport company.

### **3.2.4. Authorities and responsibilities**

This section describes the involved authorities and actors in the processes of accreditation of professional bodies and certification of course modules. This section is also showing the main responsibilities that come with the processes of accreditation and certification, i.e. the nomination of the responsible committees, eligibilities, and hierarchical distribution of the responsible factors.

The Accreditation / Certification Authority (ACA) is the official recognised entity enabled to issue accreditation certificates that entitles a specific organisation to perform training and other types of activities with a recognised high-standard of quality.

The ACA has to be comprised of leading specialists nominated by the tutelary organisation, empowered to commit audits, accreditations and certifications.

The members of evaluation teams of an ACA are playing a vital role in the maintenance and preservation of the system. Therefore, the fulfilment of this role requires an understanding by evaluators of their relationship with and function in the accreditation process. In fulfilling accreditation responsibilities, an evaluator encounters a variety of issues and situations that require the exercise of fair and impartial judgment. Fundamental ethical principles available recommend the following:

- The evaluator shall uphold the integrity of the accreditation process;
- The evaluator shall perform all specific duties impartially and diligently;

- The evaluator shall refrain from any business activity inappropriate to accreditation responsibilities, including the offering of any materials or information pertinent to the institution's operation or services;
- The evaluator shall preserve the confidentiality of the institutional information to which he or she is privy etc.

ACA has specific responsibilities and may conduct several activities in order to perform its prerogatives:

- Monitor the operations of a service provider to assess its compliance with the obligations and standards required for the process it is performing (i.e. training activities);
- Temporarily suspend or revoke the accreditation of a service or service provider;
- Appoint an independent auditing firm to conduct periodic audits of the service provider to ensure its compliance with the obligations and standards required;

It is also recommendable that ACA obtains a publicly accessible database containing documents referring to:

- Services accredited in terms of specific requirements and standards;
- Services recognised in terms of specific requirements and standards;
- Revoked accreditations, certifications or recognitions;
- Other information relevant for the accreditation/certification processes.

### **3.3. Certification procedure flowchart**

This section describes the flowchart of the actions performed in a certification process.

An accreditation of a training institution is the overall process in which an entity is empowered with the legal bounding for providing education for a specific field of activity. The certification of a course represents the set of procedures that implement the course requirements established by a specific set of *Rules and Regulations* (on which an accredited institution is relying on), which outline the criteria for certification and presentation of courses.

A primary responsibility of the board designated to certificate a training course is to establish minimum standards for training of personnel in those units of government that participate in approved training programs. In fulfilling this responsibility, the board must conduct on-going evaluations of training programs in the training facilities to assure a sustained level of quality training.

Every training course must be priory approved and certified in order to ensure that a required level of quality and trust is therefore ensured in the training process. The purpose of the requirements for the course certification is to evaluate those factors that justify the need for, and assurance of the quality of the training course. The set of the factors evaluated must include, but must not be limited to several factors that allow for a good course certification (figure below).



desirable, the Course Director or Training Officer shall employ specific, approved modifications procedures and policies.

Each certified training course shall be reviewed prior to the revision period established by the certification procedure of an accredited institution. The review shall include evaluation of continuing need for the training course, adherence to the safety guidelines and, eventually, currency of the curricula.

Any course not certified at the end of the revision period or that has not been presented within the revision period for evaluation shall be *de-certified* unless justification is presented.

Possible reasons for de-certification may be:

- There is no longer demonstrated need for the course; the permanent control of the importance and need for the course, along with the formative evaluation should be the main sources of information regarding this issue;
- There is failure to comply with the certification requirements set forth by the certification and or accreditation policies and procedures;
- There are other causes warranting revocation as determined by the board or the accreditation body etc.

## **4. STANDARDS, LEGISLATION and NATIONAL PROCEDURES**

### **4.1. Introduction**

Standards are a means for the sharing of knowledge, technology and good practices: an essential component of the world-wide industrial and post-industrial infrastructure supporting economic activities, societal needs and more equitable opportunities – in other words, sustainable development.

The key role of standards has been implicitly recognised, since a long time, in the education programmes covering a broad variety of technical fields.

However, it is a more recent trend the increased awareness of educational institutions all over the world of the importance of standardization activities in a more general sense: for the contribution that they can give to trade of products and services, to promoting good business practices and to fostering technological innovation.

ISO considers this trend of utmost importance and believes in the fundamental contribution that educational institutions can give on teaching what international standardisation is and what can be achieved through it.

ISO is keen to support these institutions in their efforts and to encourage them to share their knowledge, experience and expertise. Also, considering that education and research are often linked, ISO wishes to promote studies and surveys relating to the macro- and micro-economic benefits of standardization.

### **4.2. International Standards (ISO)**

This section is dedicated to a brief study and presentation of the main international standards that are involved and recommended in accreditation, certification and quality management for the transport and training in transports processes.

ISO (the International Organisation for Standardisation) and IEC (the International Electrotechnical Commission) form the specialised system for worldwide standardisation. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organisation to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organisations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

Quality in the field of E-Learning has become an issue of increasing importance in both researchers' and practitioners' communities. A variety of approaches has been developed and implemented successfully: Generic standards, such as EFQM or ISO 900x: 2000 have been used also in the educational community. Secondly, specific quality guidelines for distance education or E-Learning (such as the ASTD criteria for E-Learning or the BLA Quality Mark) have been developed and used. It has become clear that Quality Management can contribute to improve the performance of organizations in the field of learning, education, and training (LET).

However, the high number of approaches and their different scopes and objectives lead to confusion in the users' and decision makers' communities. Therefore, a harmonised quality standard has been developed and consensually approved in the standardisation committee ISO/IEC JTC1 SC36 (International Organisation for Standardisation /

International Electrotechnical Commission, Joint Technical Committee 1, Subcommittee 36: Information Technology for Learning, Education, and Training).

ISO/IEC 19796-1 - The Quality Standard for Learning, Education, and Training is the basic framework for quality development in organisations in the field of learning, education, and training (LET). It has been developed by experts in the international standardisation group ISO/IEC JTC1 SC36.

The standard is an instrument to develop quality in the field of E-Learning. It consists of mainly two parts:

- A description scheme for quality approaches;
- A process model as a reference classification.

It supports the development quality profiles for organisations (such as objectives, methods, relations, people involved). Quality profiles means that the standard is adapted to the needs and requirements of an organisation. It does not provide specific requirements or rules – it is only a framework to guide actors through the process of quality development in the field of education, specifically e-Learning.

The Description Model is just a scheme for inter-operability that describes the quality approaches (such as guidelines, design guides, requirements). It documents all quality concepts in a transparent way. Each process can be described by this scheme:

**Tab. 1 Description Model for Quality Approaches of ISO/IEC 19796-1**

Attribute	Description	Example
ID	Unique Identifier	ID1234
Category	Main Process	Course Development
Process Name	Process name	Method selection
Description	Description of the process	“Within this process the didactic concept and methods are evaluated and selected”
Relations	Relation to other processes	“Before the method selection a target group analysis must be performed”; [Process 1.6]
Sub-processes / sub-aspects	Sub-processes / sub-aspects / tasks	Method identification Method alternatives Method prioritisation
Objective	Objective of a Process	Adequate selection of one or more didactic concepts according to learner preferences and learning styles
Method	Methodology for this process	Method selection shall be based on the target group taking into account their competencies and learning styles. Methods are selected based on the teachers’

		experience.
Result	Expected result of a process	Method specification Documents
Actors	Responsible / participating actors	Team Didactical Design, Project leader
Metrics / Criteria	Evaluation and Metrics for this process	Criteria catalogue 3.2.2-3.2.6
Standards	Standards used	DIN EN ISO 9241, LOM See Method Guidelines Handbook
Annotation / Example	Further Information, Examples of usage	

This model serves only as a base to provide a harmonised scheme to describe quality approaches.

The Process Model is a guide through the different processes when developing learning scenarios. The process model includes the relevant processes within the life-cycle of information and communication systems for learning, education, and training. The process model is divided in seven parts. Sub-processes are included referencing to a classification of processes.

**Tab. 2 Process Model of ISO/IEC 19796-1**

ID	Category	Description/ Sub-Processes
NA	Needs Analysis	<b>Identification and description of requirements, demands, and constraints of an educational project</b>
		NA.1 Initiation NA.2 Stakeholder Identification NA.3 Definition of objectives NA.4 Demand analysis
FA	Framework Analysis	<b>Identification (Analysis) of the Framework and the context of an educational process</b>
		FA.1 Analysis of the external context FA.2 Analysis of staff resources FA.3 Analysis of target groups FA.4 Analysis of the institutional and organizational context FA.5 Time and budget planning FA.6 Environment analysis
CD	Conception / Design	<b>Conception and Design of an educational process</b>
		CD.1 Learning objectives CD.2 Concept for contents

		<p>CD.3 Didactical concept / methods</p> <p>CD.4 Roles and activities</p> <p>CD.5 Organisational concept</p> <p>CD.6 Technical concept</p> <p>CD.7 Concept for media and interaction design</p> <p>CD.8 Media concept</p> <p>CD.9 Communication concept</p> <p>CD.10 Concept for tests and evaluation</p> <p>CD.11 Concept for maintenance</p>
<b>DP</b>	<b>Development / Production</b>	<b>Realisation of concepts</b>
		<p>DP.1 Content realisation</p> <p>DP.2 Design realisation</p> <p>DP.3 Media realisation</p> <p>DP.4 Technical realisation</p> <p>DP.5 Maintenance</p>
<b>IM</b>	<b>Implementation</b>	<b>Description of the implementation of technological components</b>
		<p>IM.1 Testing of learning resources</p> <p>IM.2 Adaptation of learning resources</p> <p>IM.3 Activation of learning resources</p> <p>IM.4 Organisation of use</p> <p>IM.5 Technical infrastructure</p>
<b>LP</b>	<b>Learning Process</b>	<b>Realisation and use of the learning process</b>
		<p>LP.1 Administration</p> <p>LP.2 Activities</p> <p>LP.3 Review of competency levels</p>
<b>EO</b>	<b>Evaluation / Optimisation</b>	<b>Description of the evaluation methods, principles, and procedures</b>
		<p>EO.1 Planning</p> <p>EO.2 Realisation</p> <p>EO.3 Analysis</p> <p>EO.4 Optimisation / Improvement</p>

**ISO/IEC 19796-1** is specifically designed for learning, education and training. It helps to extend generic standards like ISO 900x for educational organisations. Other national and international standards (like PAS 1032-1 and CEN/ISSS CWA 14644) have served as a base for international harmonisation.

- Part 2: "Quality Model" harmonises the aspects of quality systems and their relations and provides orientation for all stakeholders. It does not enforce any particular implementations but is, instead, focusing on their effects. The model is extensible for the requirements of certain communities.
- Part 3: "Reference Methods and Metrics" is harmonising formats for describing methods and metrics for quality management and assurance. It is providing a collection of reference methods that can be used to manage and assure quality

in different contexts. This part is further providing a collection of reference metrics and indicators that can be used to measure quality in processes, products, components, and services.

- Part 4: "Best Practice and Implementation Guide" is providing harmonised criteria for the identification of best practice, guidelines for the adaptation, implementation, and usage of this multi-part Standard, and is containing a rich set of best practice examples.

**ISO/IEC 24751-1** was prepared by Joint Technical Committee ISO/IEC JTC 1, Information technology, Subcommittee SC 36, Information technology for learning, education, and training.

**ISO/IEC 24751** is derived from the IMS GLC Learner Information Package Accessibility for LIP Specification and the IMS Access for All Meta-data Specification. More references at <http://www.imsglobal.org>.

**ISO/IEC 24751** consists of the following parts, under the general title Information technology — Individualized adaptability and accessibility in e-learning, education and training:

- Part 1: Framework and reference model;
- Part 2: "Access for all" personal needs and preferences for digital delivery;
- Part 3: "Access for all" digital resource description.

This part of **ISO/IEC 24751** provides a common framework for additional parts. These additional parts provide two complementary sets of information:

- the description of a learner's accessibility needs and preferences, including:
  - how digital resources are to be displayed and structured,
  - how digital resources are to be controlled and operated, and
  - what supplementary or alternative digital resources are to be supplied;
- the description of the characteristics of the resource that affect how it can be perceived, understood or interacted with by a user, including:
  - what sensory modalities are used in the resource;
  - the ways in which the resource is adaptable (i.e. whether text can be transformed automatically);
  - the methods of input the resource accepts, and
  - the available alternatives.

**ISO/IEC 24751-2:2008** - Information technology - Individualised adaptability and accessibility in E-learning, education and training - Part 2: "Access for all" personal needs and preferences for digital delivery.

**ISO/IEC 24751-2:2008** provides a common information model for describing the learner or user needs and preferences when accessing digitally delivered resources or services.

- It discusses the basic principles adhered to in developing this model for describing personal needs and preferences. It explains: the rationale for using a functional approach to describing needs, possible methods of creating a personal needs and preference statement, the major groupings of needs and preferences

within the standard, the use of different needs and preferences statements in different contexts, how needs and preferences can be ranked with respect to priority, and the use of generic and application-specific needs and preference specifications.

- It contains the information model for **ISO/IEC 24751-2:2008**, including the attribute, allowed occurrence and data type of each element. It defines and describes how the terms in the information model should be used.

Conformance to **ISO/IEC 24751-2:2008** is discussed. Conformance is dependent on the role played by the conformant technology. Conformance requirements for both education delivery applications and alternative access systems are explained.

The vocabulary codes, values and associated rules of application are defined. An informative list of recommended default values for the learner preferences and needs is provided.

It lists existing bindings of the IMS Learner Information Package Accessibility for LIP - Version 1 [ACCLIP] that serves as the reference specification for **ISO/IEC 24751-2:2008**.

It describes information scenarios for applying ISO/IEC 24751-2:2008 and gives informative implementation examples.

ISO/IEC 19796-3 Ed. 1.0 - *Information technology - Learning, education and training - Quality management, assurance and metrics - Part 3: Reference methods and metrics*. Extends the reference framework for the description of quality approaches (RFDQ) defined in ISO/IEC 19796-1 by providing a harmonized description of the methods and metrics required to implement quality management and quality assurance systems for stakeholders designing, developing, or utilizing information technology systems used for learning, education, and training.

### **4.3. EC Directives regarding Quality in Education and Training**

This section presents the main standards and normative adopted by the EU in the processes of education, training and quality management.

#### **4.3.1. European Quality Assurance Standards**

The Bergen Conference of European Ministers Responsible for Higher Education 19-20 May 2005 adopted Standards and Guidelines for Quality Assurance in the European Higher Education Area.

##### **European standards for internal quality assurance within higher education institutions:**

Policy and procedures for quality assurance:

Institutions should have a policy and associated procedures for the assurance of the quality and standards of their programmes and awards. They should also commit themselves explicitly to the development of a culture which recognises the importance of quality, and quality assurance, in their work. To achieve this, institutions should develop and implement a strategy for the continuous enhancement of quality. The strategy, policy and procedures should have a formal status and be publicly available. They should also include a role for students and other stakeholders.

- Approval, monitoring and periodic review of programmes and awards:

Institutions should have formal mechanisms for the approval, periodic review and monitoring of their programmes and awards.

- Assessment of trainees:

Trainees should be assessed using published criteria, regulations and procedures which are applied consistently.

- Quality assurance of teaching staff:

Institutions should have ways of satisfying themselves that staff involved in the teaching of students is qualified and competent with regard to teaching. The methods and procedures for ensuring that this is the case should be available to those undertaking external reviews, and commented upon in reports.

- Learning resources and student support:

Institutions should ensure that the resources available for the support of student learning are adequate and appropriate for each programme offered.

- Information systems:

Institutions should ensure that they collect, analyse and use relevant information for the effective management of their programmes of study and other activities.

- Public information:

Institutions should regularly publish up-to-date, impartial and objective information, both quantitative and qualitative, about the programmes and awards they are offering.

#### ***European standards for the external quality assurance of higher education:***

- Use of internal quality assurance procedures:

External quality assurance procedures should take into account the effectiveness of the internal quality assurance processes described above.

- Development of external quality assurance processes:

The aims and objectives of quality assurance processes should be determined before the processes themselves are developed, by all those responsible (including higher education institutions) and should be published with a description of the procedures to be used.

- Criteria for decisions:

Any formal decisions made as a result of an external quality assurance activity should be based on explicit published criteria that are applied consistently.

- Processes fit for purpose:

All external quality assurance processes should be designed specifically to ensure their fitness to achieve the aims and objectives set for them.

- Reporting:

Reports should be published and should be written in a style which is clear and readily accessible to their intended readership. Any decisions, commendations or recommendations contained in reports should be easy for a reader to find.

- Follow-up procedures:

Quality assurance processes which contain recommendations for action or which require a subsequent action plan, should have a predetermined follow-up procedure which is implemented consistently.

- Periodic reviews:

External quality assurance of institutions and/or programmes should be undertaken on a cyclical basis. The length of the cycle and the review procedures to be used should be clearly defined and published in advance.

- System-wide analyses:

Quality assurance agencies should produce from time to time summary reports describing and analysing the general findings of their reviews, evaluations, assessments etc.

#### ***European standards for external quality assurance agencies:***

- Use of external quality assurance procedures for higher education:

The external quality assurance of agencies should take into account the presence and effectiveness of the external quality assurance processes described in Part B above.

- Official status:

Agencies should be formally recognised by competent public authorities in the European Higher Education Area as agencies with responsibilities for external quality assurance and should have an established legal basis. They should comply with any requirements of the legislative jurisdictions within which they operate.

- Activities:

Agencies should undertake external quality assurance activities (at institutional or programme level) on a regular basis.

- Resources:

Agencies should have adequate and proportional resources, both human and financial, to enable them to organise and run their external quality assurance process(es) in an effective and efficient manner, with appropriate provision for the development of their processes and procedures.

- **Mission statement:**

Agencies should have clear and explicit goals and objectives for their work, contained in a publicly available statement.

- **Independence:**

Agencies should be independent to the extent both that they have autonomous responsibility for their operations and that the conclusions and recommendations made in their reports cannot be influenced by third parties such as higher education institutions, ministries or other stakeholders.

External quality assurance criteria and processes used by the agencies:

- The processes, criteria and procedures used by agencies should be pre-defined and publicly available. These processes will normally be expected to include:
  - a self-assessment or equivalent procedure by the subject of the quality assurance process;
  - an external assessment by a group of experts, including, as appropriate, student member(s), and site visits as decided by the agency;
  - publication of a report, including any decisions, recommendations or other formal outcomes;
  - a follow-up procedure to review actions taken by the subject of the quality
  - assurance process in the light of any recommendations contained in the report.

- **Accountability procedures:**

Agencies should have in place procedures for their own accountability.

#### **4.4. National Normative**

The international standards represent the general legislative framework for the training process. However, particularisations may occur when specific rules and legislation are applied from country to country. Here, the national normative specifies the local procedures and the frame for all the activities that are to be in accordance with the national standards. The section presents specific aspects raised by the national normative regarding the educational/training process, the quality management and other connected principles, with regard to local applicable legislation. Only the ISSTE project partner countries aspects have been investigated.

Common principles for quality assurance (QA) in education and training:

- QA should include regular evaluation of institutions or programs by the structure or external monitoring agencies;
- The structures or external monitoring agencies should themselves be regular evaluation;
- QA will refer to "background", "input", "processes" and "outputs", a particular focus on out of the system and learning outcomes.

Justifications:

- The documents propose a broader approach to quality management in higher education, the specific contribution of strategic management at the partial or total resolution of important issues, assumptions and implications, achievements and challenges arising in the context of management approach to ensure quality education.
- The documents try to "build" a mechanism to implement the change process involving the simultaneous consideration of organisational change and individual change that you go through direct beneficiaries and indirect by educational services which belong from the organisation: "The Organisation which is learning".

Methodological matching Quality Assurance (QA):

- In the Romanian legislation, the CQAF (The Common European Framework for Quality Assurance) and common principles are set out;
- With the specificity of PTE (Professional and Technical Education) and other levels and types of education;
- Using the national standards for licensing and accreditation;
- Respecting the national system of indicators but using specific instruments (planning, reporting, self-evaluation and inspection) and specific descriptors;
- Using revised tools for PTE – including tables of correlation between national indicators and specific performance descriptors.

Example of Romanian Normative Acts on quality in education:

- LAW no. 87/2006 for approval of Government Emergency Ordinance no. 75/12.07.2005 regarding the quality assurance of education;
- Government Decision no. 1258/2005 the approval of the organization and functioning of ARACIP;
- Government Decision no. 21/2007 Standards approving authority and standards of accreditation / evaluation;
- Government Decision no. 22/2007 on approving the Methodology of the requirements for institutional assessment, accreditation and periodic evaluation;
- Government Decision nr.320 on approving charges of authorizing , accreditation and periodic evaluation of pre-university educational establishments;
- Order no. 5337/11.10.2006 on approving the Code of Professional Ethics of experts in evaluation and accreditation of ARACIP;
- Order no. 5338/11.10.2006 on approving the Methodology on selection criteria and training of experts registered in ARACIP;
- Order no. 4889/2006 on the generalisation instruments on assurance quality in IPT.

Example: LAW ON QUALITY ASSURANCE IN EDUCATION 87/2006 approved by OUG 75/2005 Deficiencies in CONCEPTUAL FIELD

- More specific concepts are not defined according to international standards ISO 9000:2000 (Fundamentals, vocabulary) and they are not shown properly;
- There is no clear need, function and utility of quality assurance in education, compared with accreditation (well known);

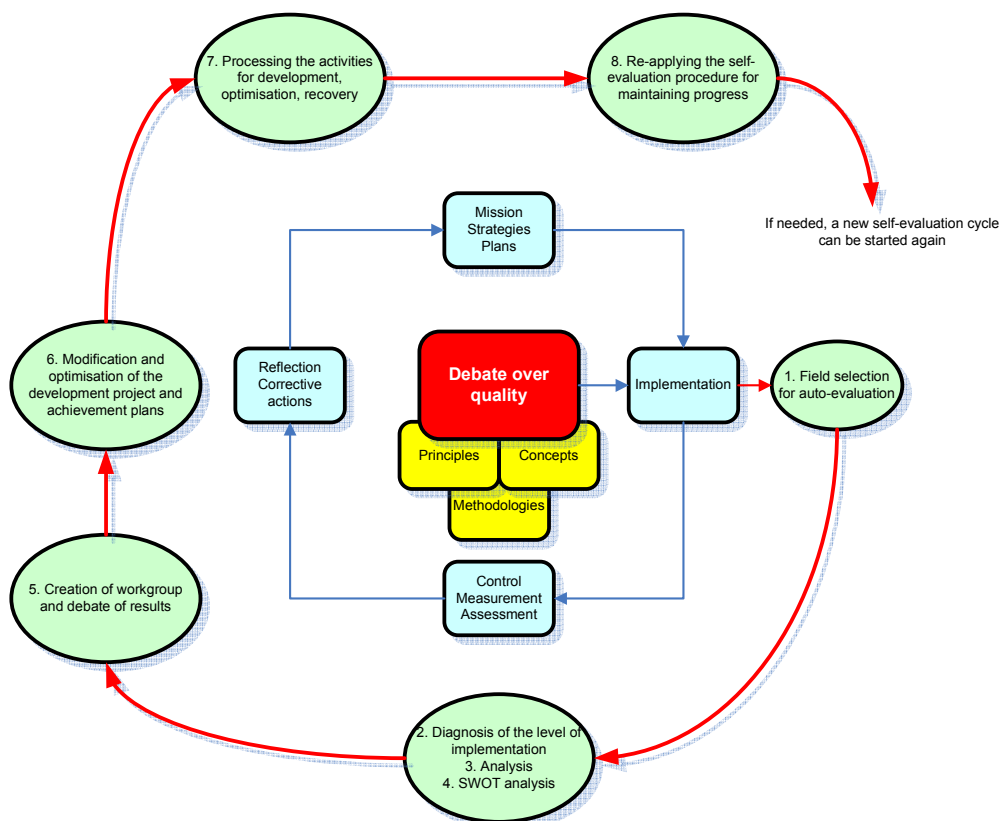
- The benefits of the role and importance of the system management / quality assurance which should be implemented in each university / school to achieve quality assurance in education – specific standard SR ISO IWA 2: 2006 (“Guidelines for the application of ISO 9001:2000 in education”) are not present,
- Quality management principles, international standards exist in the field but even the standards, procedures and guidelines developed by ENQA are not listed.
- There are not specified the relevant differences between “standards” (used for accreditation) and “reference standards” (used for quality assurance). In addition, the formula “benchmarking” is pleonastic;
- The law should have been correlated with pre-existing laws and structures in Romania for conformity assessment (“quality infrastructure”).

#### 4.5. **Internal Normative**

This section presents some aspects regarding the steps that a company seeking for accreditation should impose itself, in order to better cooperate with external agencies. Internal normative is a first step to align company’s training centres with the external (of the company) standards. Beside this, the self-evaluation represents a necessary feedback and is recommended for improving the training process:

- *Quality* – the essential way by which the training centre itself assesses its performances;
- The *self-evaluation* represents a first step, beneficial and useful, in order to ensure development, growth, and must not be orientated to punishing purposes; the self-evaluation provides self-adjustment, optimisation and reviews the functioning and the development of an institution; the self-evaluation raises the awareness of its results to all involved; it represents a systematic and gradual process of assessment in which the training providers collect and analyses evidences to make judgments on their performance against targets; the self-evaluation refers to all aspects of the training provider, but it is orientated especially on the quality and standard of learning experience and student performance; the self-evaluation refers to all the principles of quality and performance of all descriptors of the self-assessment of training providers; the self-evaluation must take into account the national strategies and policies to improve the process.
- The *internal quality assessment* strategy strategic options are:
  - Curriculum development;
  - Human resource development;
  - Development of material and financial resources;
  - Developing community relations.
- The *strategic targets* are:
  - Improving training - community relations for the educational activities and upgrading of the training process by a better integration of graduates into the local work community;
  - Development of a favourable climate for the educational act;
  - Motivating trainers for the quality educational - training activities;

- Increase trainees' performances;
- Training of trainers to ensure quality instruction and flexibility in training;
- Increase the promotion of graduates and reducing difficult integration.
- *Means of implementation strategy for the evaluation of quality:*
  - Tools and procedures for internal quality assessment;
  - Methods and procedures to improve quality.



**Fig. 2 Self-evaluation in the quality assessment spiral**

The commission for accreditation has set some attributions, in the Romanian national framework:

- To define explicitly values, principles and quality indicators;
- To build, through participation and debate, the consensus of all vectors of interest (students, trainees, teachers/trainers, employers, local government, other community representatives) in the values, principles, quality indicators;
- To track compliance in all current operating procedures and development of values, principles and indicators agreed;
- To assess the impact of all processes (including and especially the educational process) and activities on the quality of education provided in schools and report to the authorities and the community on how quality was ensured;

- To propose measures to optimise / increase / develop the quality of training offered by the training centres – in the concept, principles, indicators, quality standards, but current procedures concerning the operation and development of the training unit;
- To coordinate the procedures and institutional self-evaluation activities on quality education, according to the domains and criteria provided by Law 87/2006 and Government Decision 1534/2008;
- To prepare an annual internal evaluation report on the quality of education in such training centres – report it to that person by posting or publication;
- To formulate proposals to improve the quality of training.

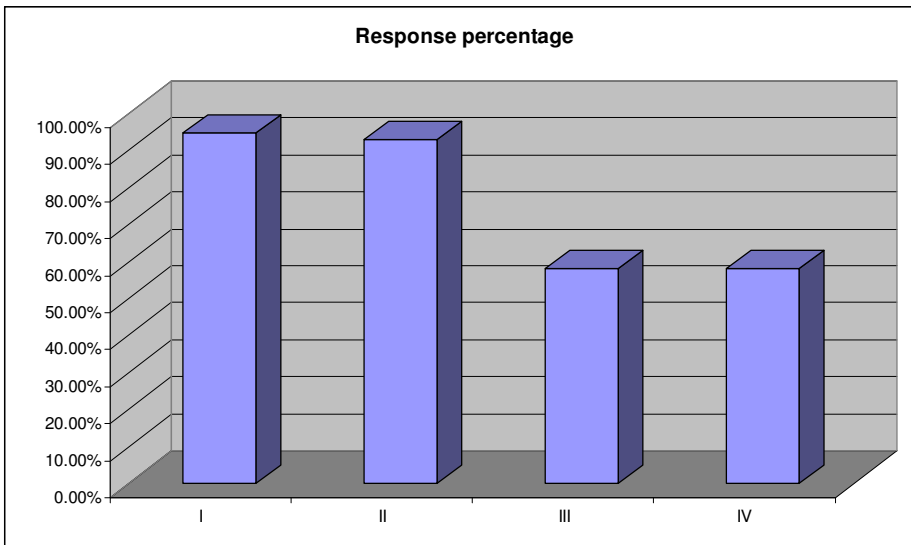
#### **4.6. National procedures – research results (questionnaire analysis)**

In this WP a questionnaire (presented in **Annex I**) was developed and the partners filled in information according to their national and local status. This questionnaire was divided into two parts:

- ***The assessment of current situation in terms of knowledge and practices regarding the education, training, evaluation, certification methodologies used in public surface transport, containing the following topics:***
  1. Safety and security rules in surface transports: standards at EU level; implementation at local level;
  2. Education policies in EU – knowledge at national level;
  3. Good practices in transport training;
  4. Education processes and evaluation of personnel in surface transports;
  5. Training of trainers and certification – national practices;
  6. Certification and accreditation of educational bodies in surface transports – national practices;
  7. Training methodologies – national practices;
  8. Evaluation methodologies – national practices;
  9. Certification methodologies – national practices;
  10. Role of the trainees in improving safety and security in surface transports – national practices;
  11. Role of the trainers in improving safety and security in surface transports – national practices;
  12. Role of the methodologies for training and evaluating in improving safety and security in the surface transports – national practices.
- ***The design of a new approach for improving the role of the education in improving safety and security in public surface transports, regarding the following topics:***
  1. The *Quality in Education*; EU normative; Rules and improvement of existing processes; Cult of the quality;
  2. The *Key Performance Indicators* in the educational and training processes (KPIE) – proposal;

3. Evaluation of *Judicial and Legislative Normative* regarding the implementation and evaluation of quality in the educational process;
4. Establishing the role of the *certification methodologies* in improving safety and security in surface transports;
5. Designing new and innovative evaluation and certification strategies and methodologies;
6. Main targeted policies and projects in course;
7. Other.

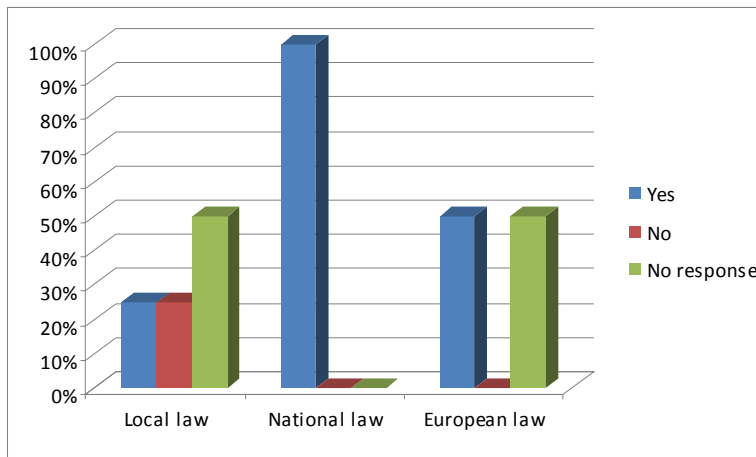
Four partners have completed the questionnaire with a completion percent of 76%. The following section will present some charts in which the partners are put in a random order (there is no connection with the partners' order in the project).



**Fig. 3 Questionnaire response percentages**

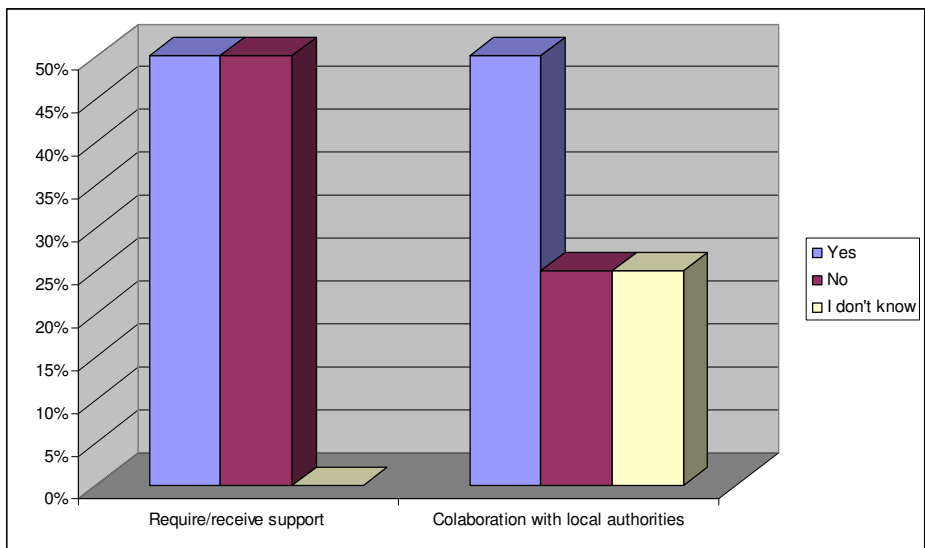
From the responses several conclusions may be drawn:

1. All the responders have dedicated departments for staff training;
2. Regarding laws that must be applied, only one partner stated that local laws are applied, all partners have declared to apply national laws such as: D.Lgs 81/2008 in Italy, Bau- und Vergaberecht Direktiven in Germany or ZCP 08/2009, ZCP V 09/2009 in Slovakia. Among European laws that are implemented, regarding safety and security in surface transport, 2004/17/CE and 2004/18/CE were mentioned;



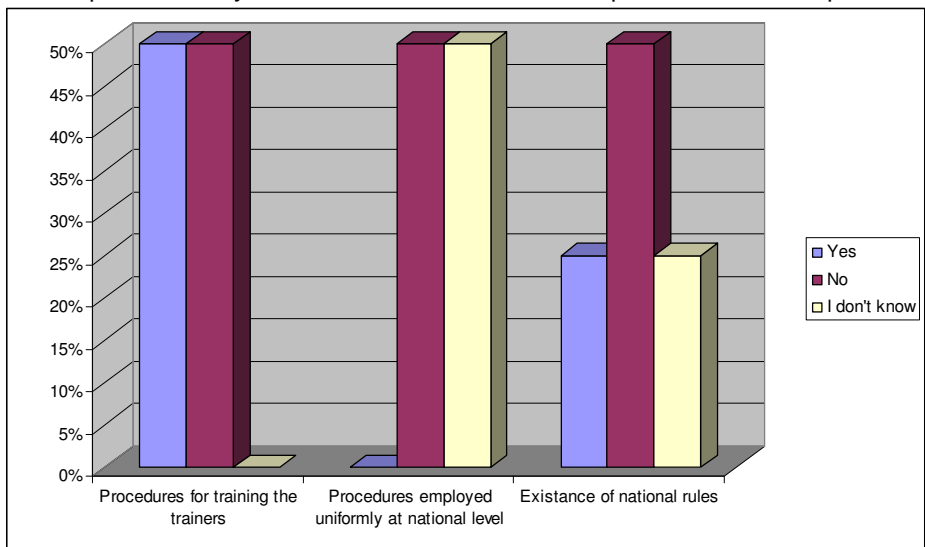
**Fig. 4 Applicability of Laws and Regulations**

3. In the training departments from all the partners are taught rules of safety and security within the educational process, based on the transcription of European normative in local or national regulations.
4. All the partners know that there are some specific standards employed for public transport drivers, such as Driving license D type and CPC, in Italy or the requirement to be at least 21 years old and to have the Driving license type D for normal buses and D+E for buses type “worm”, in Spain.
5. There are specific standards for the trainers of the public transport drivers in accordance with EU normative in every country.
6. Three of the responders said that their transport companies have a formally adopted mission statement in terms of safety and security, which means these concepts are embedded in the company policy and all of the transport company regularly use internal/external review processes for assuring that its programs accomplish their stated educational and training processes for public transport vehicles drivers.
7. Also three of the responders said the transport company has in place policies and procedures that govern its education/training abroad programs and practices.
8. All the companies establish and continuously maintain effective health, safety, security and risk management policies, procedures and staff training and provide adequate financial and personnel resources to support its training programs.
9. At the question “Does the transport company require/receive any support in Safety and Security for the training process, or for the normal activities processes?” 50% of the respondents said that they do not require/need support and the others said that support is offered by external experts and, for example, in Spain, there is a Tripartite Foundation (with the Government, Unions and Employers’ Association) which gives allowances for training in the companies. But only 50% of the responders said that is developed a collaborative support for training with local authorities.



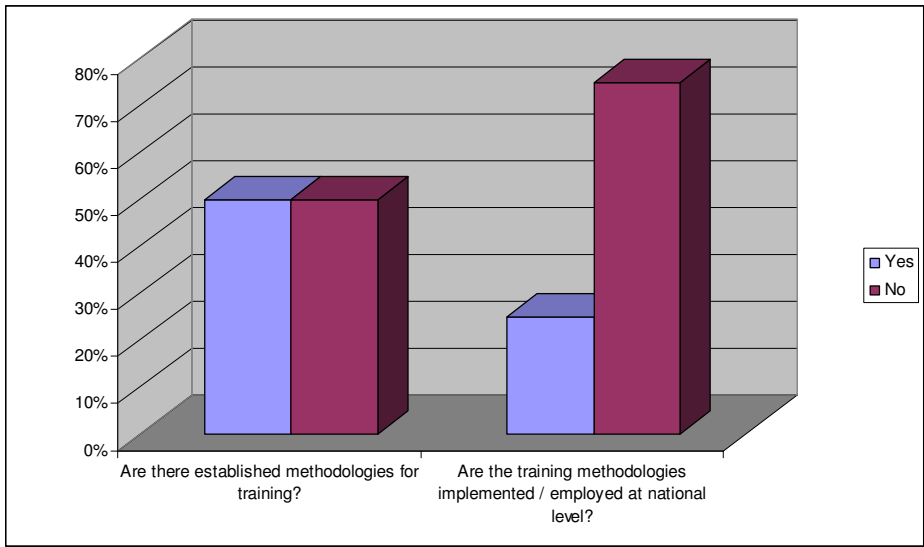
**Fig. 5 Cooperation and support activities**

- 10. For the public transport drives, the questionnaire reveals that the minimum requirements, in general, are: high school and driving license and no previous experience.
- 11. Regarding the training for the trainers, only 50% of the responders have developed such processes and none of them said that these procedures are employed uniformly at national level.
- 12. At the question "Is there a national rule that establishes the necessity of certification and accreditation of educational bodies in surface transports?" only one partner said yes, the Local Authorities are responsible for this aspect.



**Fig. 6 Uniformity of procedures**

- 13. Regarding the methodologies for training 50% of the responders said that there are such methodologies and 50% said that these don't exist and only 25% said these are implemented at national level.



**Fig. 7 Extension of training methodologies**

14. The duration of the initiation course for public transport drivers per category of public transport vehicle (PTV) was fully completed by only one partner:

For bus drivers initiation course – theory (h): 39

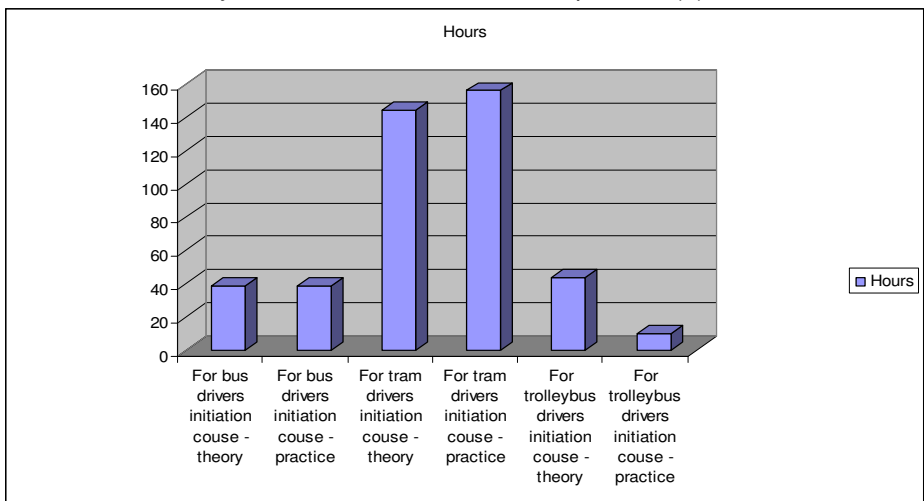
For bus drivers initiation course – practice (h): 39

For tram drivers initiation course – theory (h): 144

For tram drivers initiation course – practice (h): 156

For trolleybus drivers initiation course – theory (h): 44

For trolleybus drivers initiation course – practice (h): 10



**Fig. 8 Duration of the courses**

and other partner said that in his company initiation courses exist just for bus drivers (they need previously the driving license) and the initiation course lasts 24 hours, divided in 3 days.

15. For the maximum number of trainees per series / course for public transport drivers per category of PTV the responses are shown in the next chart:

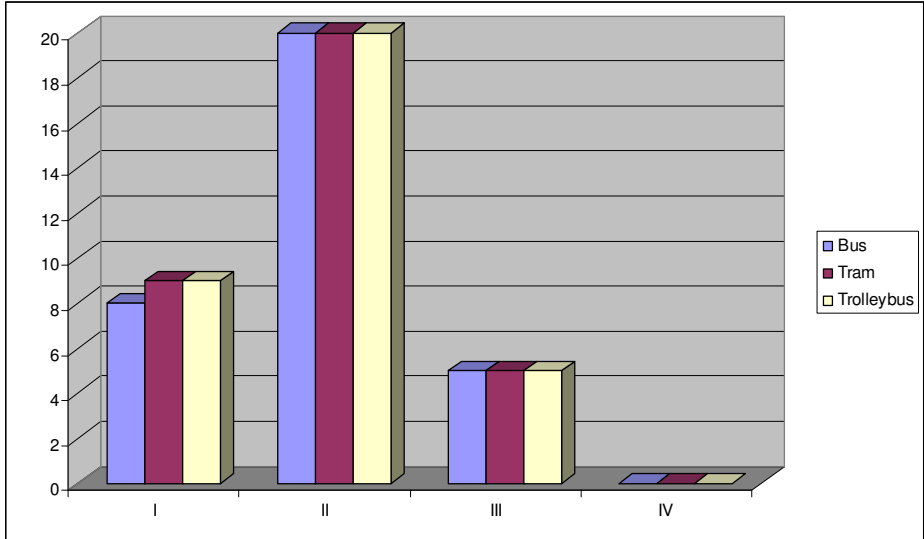


Fig. 9 Number of trainees per series

The third partner in the chart mentioned that for newly enlisted drivers there are 5 persons / training and for periodical training there are 5-12 (max) persons / training. The fourth partner didn't respond to this question.

16. Regarding the methodologies for evaluation 75% of the responders said that there are such methodologies and 25% said that these don't exist and only 25% said these are implemented at national level.

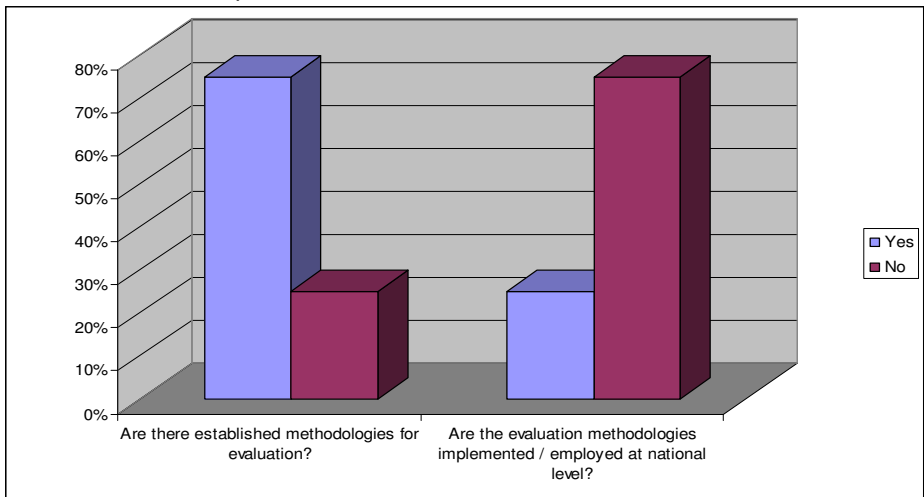


Fig. 10 Methodologies for evaluation

17. Regarding the methodologies for certification 25% of the responders said that there are such methodologies and 75% said that these don't exist and only 25% said these are implemented at national level.

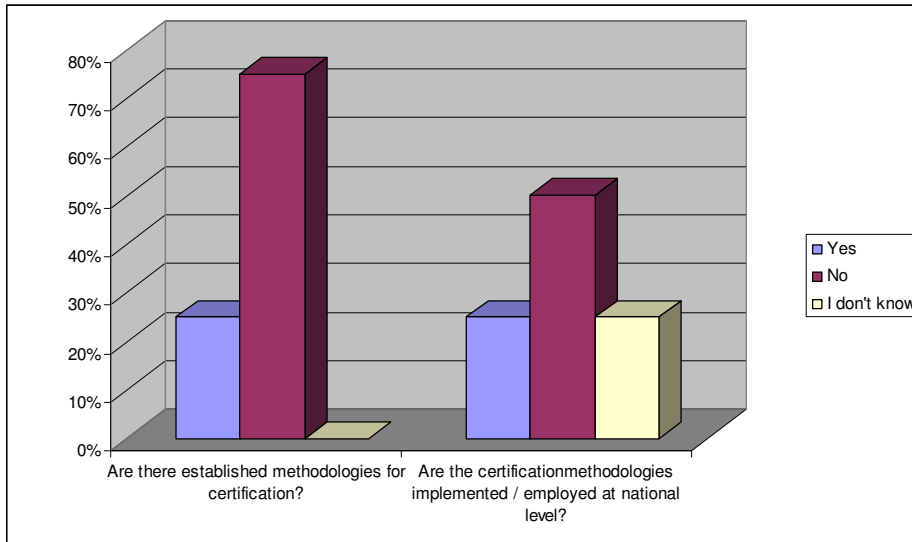
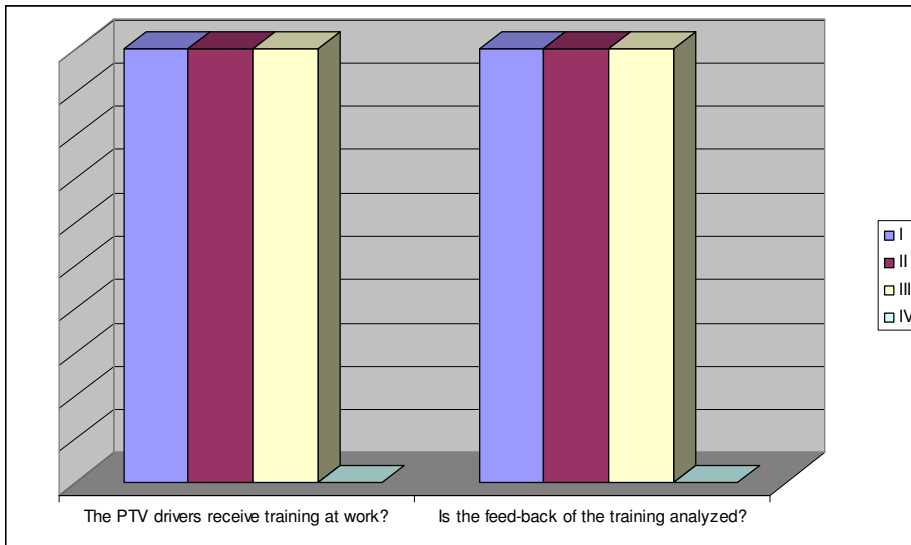


Fig. 11 Methodologies for certification

- 18. The main roles of the trainees in improving safety and security of public transports should be to try to learn as much as possible acquire best practices in driving and apply them in daily work and driving.
- 19. The main roles of the trainers in improving safety and security of public transports should be to try to explain to trainees how they must drive to ensure safety and security for themselves and other people, to be able to prevent risky situations and improve the safety and security.
- 20. For the training process are used the following normative: ISO 9001:2000, UNI EN ISO 9001:2008, UNI EN ISO 14001:2004, SA8000, certifications issued by organizations such as AENOR or CERES.
- 21. Regarding the question "What would you consider the impact of implementing compulsoriness to speak a foreign language in safety and security?" two partners said that this would be a good thing, one partner didn't have an opinion and one partner didn't answer.
- 22. Training is received at work in 75% of the situations and in external units in 25% of the situations. The feedback of the training is received in 75% of the situations.



**Fig. 12 Feedback information in training activities**

- 23.25% of the responders said that there are dedicated safety and security information campaigns and 75% said that there aren't such campaigns.
24. The contents of the actual curricula used for the initiation of urban public transport drivers in terms of safety and security was specified only by one company and is the following (for bus drivers, it's the only category in this company): "Course for prevention of work risks". Its contents are:
- a. Basic concepts about security and health at work (I).
  - b. Basic concepts about security and health at work (II).
  - c. General risks and their prevention.
  - d. Specific risks for each workplace and measures to take.
  - e. First aid.
  - f. Basic knowledge about fire.
  - g. Basic elements on management of risk prevention.
  - h. Plans for emergency, self protection and evacuation.
25. The contents of the actual curricula used for the improvement of knowledge thru periodical training of public transport drivers was specified only by one company (the same) and examples of courses for improvement held in EMT (except the risk prevention course, described above), and its contents are:
- a. Course of professional driving
    - i. Previous considerations before switching the engine on.
    - ii. Issues to take into account with the vehicle when driving.
    - iii. Special characteristics of motors, their behaviour and functioning.
    - iv. The motor's "health" and "vital signs".
    - v. The transmission as the vehicle's spinal column.
    - vi. Adequate use of the gear stick.
    - vii. Progressive acceleration and braking.
    - viii. Attention, prevision and anticipation.
    - ix. Balance between speed and time.
    - x. Importance of a good maintenance plan of the vehicle.
    - xi. Recommendations about tires, fuels and lubricants.
    - xii. Permits and driving license with points system.
  - b. Course for customer services.

- i. Introduction to customer services.
  - ii. Quality in the customer services.
  - iii. The customer services professional.
    - 1. Self knowledge.
    - 2. Self-management.
  - iv. Types of clients.
    - 1. Developing an empathic attitude.
    - 2. The client's opinion.
  - v. Communication with the clients.
    - 1. Guidelines for the driver.
    - 2. Listening abilities.
    - 3. Feedback.
  - vi. Treatment of complaints or claims.
26. At the final questions there were two partners who offered answers. The question has three parts:
- a. Please describe the methods employed for training:
    - i. The educational modules on safety concern all drivers without distinguishing the type of vehicle they drive. In particular, the educational modules can be divided as follows:
      - 1. a six hours module to all new enrolled drivers; in particular: 3 hours on national law and specific risks related to the driver job ("National Law – D.Lgs 81/2008 – job risks") and 3 hours on fire fighting and preventing fire ("Course Fire Fighting and Fire Prevention" );
      - 2. a follow up to all new enrolled drivers within first three years.
    - ii. The training is done in the classic method, that is, teacher explaining and students taking notes with pen and paper. Students receive a manual and depending on the course, materials such as test dummy are available. Other methods might also be used in some cases, to reinforce the knowledge, such as drawing boards, video-projections, or vehicle driving, role plays.
  - b. Please describe the methods employed for ongoing evaluation (Performed while the module is ongoing):
    - i. ongoing evaluation is not provided;
    - ii. there is none.
  - c. Please describe the methods employed for the final evaluation (Final evaluation is done at the end of the module):
    - i. is provided a final evaluation: test with 20 items to monitoring acquired knowledge;
    - ii. The final evaluation involves the teachers and the contents of the course, it's not an exam the students must do. Since the courses are voluntary, they are intended just to improve the quality of the courses and their contents.

The questionnaire was developed for the purpose of obtaining an image of the safety and security integration in the trainings performed within the public transport companies. As the results of this questionnaire shows, this aspect is taken into consideration in most countries and is integrated in the training processes within the companies. Although not all of the public transport entities fully respect European normative in this area, they have implemented procedures and methodologies for education, evaluation and certification, both for trainers and the trainees.

## 5. INNOVATIVE METHODOLOGIES and PROCEDURES FOR ACCREDITATION

### 5.1. *Surface transport safety and security training certification procedures*

This section describes the main procedures proposed for surface transport safety and security course training certification and recommendations regarding the accreditation of the training department. The steps are using the results of an in-depth analysis of the best methodologies employed in quality high level education and are adapted to the specific needs of the S&S Training in public transports. These procedures constitute themselves as a set of guidelines. The application in different countries may involve some modifications or fine tuning, according to the local regulation and procedures that may apply. The set of procedures presented below describe an adequate and complete flow of activities regarding the way to obtain official recognition of the quality in training activities and work for a public transport company.

#### 5.1.1. Procedure “Methodology for admission”

This procedure describes the mode of organising the admission exams and contests for selecting the trainees in S&S training.

##### Introduction

Admission is organised by field of study to the accredited and licensed specialisations, according to the expression of choice of selected candidates. Applicants for admission must comply with specific criteria, like being a high school graduates with high school diploma etc.

This methodology shall include requirements for enrolment and admission, enrolment fees, cases of exemption of payment for candidates who meet certain conditions, elements and standard situations for deployment and validation of admission.

The necessary steps for this stage are presented in the following table.

Activity	Explanations
1. Appointment of the admission committee	Committees are composed of President, Vice President, secretary and members
2. Establishing the general admission program	
3. Defining the internal admission criteria and necessary annexes	
4. Elaboration and dissemination of the Admission Guide and other informing materials	
5. Preparation of the registration rooms	

(optional)	
6. Validation of aptitude tests – where necessary	
7. Settling disputes	

#### Standards and indicators for admission

General standards	Reference standards
Institutional capacity	Institutional, administrative and managerial structures
	Infrastructure / material base (endowment, financial resources etc)
Institutional efficiency	Structure and content of study programs
	Differentiation in the realisation of study programs
Quality management	Initiation, monitoring and periodical revision of the activities performed
	Periodical evaluation of the didactic personnel's quality
	Transparency of the information regarding study programs

#### 5.1.2.Procedure “Contents and Quality of Curricula”

This procedure describes the quality elements that a S&S curricula must contain in order to be certified, in terms of extension, elements that are to be covered, mode of distribution and references.

##### Introduction

The study program is designed and implemented taking into account the requirements that are raised by the changes and transformations that are recorded in all fundamental components related to the subject of the study – economic, social, technical/scientific, technological etc. – of public transport company's development, which have become, in a significant part, information and knowledge.

The programs are structured and carried out according to the requirements of national education legislation, including the basic, specialised, complementary, mandatory, optional and voluntary disciplines.

At the same time, the study programs are intended to ensure compatibility with the other study programs employed by public transport companies from European Union countries and other countries of the world.

The necessary steps for this stage are presented in the following table.

Activity	Explanations
1. Content of the study program	- Designing and implementing training programs according to the current trends of scientific knowledge, technical progress and interests of the

	<p>public transport company;</p> <ul style="list-style-type: none"> <li>- Promotion of multidisciplinary, interdisciplinary and trans-disciplinary training;</li> <li>- Maintaining the unity between studies and level of knowledge;</li> <li>- Providing training for effective participation in economical life and permanent evolution.</li> </ul>
<p>2. Training efficiency. Structure and relevance of the study programs</p>	<p>Each study package must include:</p> <ul style="list-style-type: none"> <li>- General and specific objectives;</li> <li>- Thematic programs or discipline files included in the curriculum and the results of the training expressed in the form of specific learning skills that are the outcome of a discipline;</li> <li>- The examination and evaluation for each discipline, given the planned results;</li> <li>- The organisation and content of the final examination as the summative examination which certifies assimilation of cognitive skills corresponding to professional standards.</li> </ul> <p>The relevance of study programs is considered according to:</p> <ul style="list-style-type: none"> <li>- The phase of development;</li> <li>- Knowledge in specialised fields;</li> <li>- Labour market requirements;</li> <li>- Professional and employment standards.</li> </ul>
<p>3. Curricula and analytical programs</p>	<ul style="list-style-type: none"> <li>- Develop of curricula, analytical programs and structures of didactic activity (lectures, seminars, practical activities, etc..) in a balanced way;</li> <li>- The structure of training activities on time shifts, courses, by type of training department.</li> </ul>
<p>4. Trainees</p>	<ul style="list-style-type: none"> <li>- Early identification and support for the future candidates;</li> <li>- Free access, non-discriminating training;</li> <li>- Regulation regarding the professional activity of trainees;</li> <li>- Self system and regulation for granting</li> </ul>

	<p>merit prizes or diplomas;</p> <ul style="list-style-type: none"> <li>- Provide an optimal environment for training and placing responsibility on trainees learning, to ensure all opportunities and means of learning required;</li> <li>- Regulations on how to promote, transfer and confer diplomas.</li> </ul>
5. Infrastructure	<ul style="list-style-type: none"> <li>- Modern facilities for educational spaces and, optional, for accommodation and food services.</li> </ul>
6. Training personnel	<p>Develop and implement personnel policies to ensure:</p> <ul style="list-style-type: none"> <li>- Complete coverage of the needs for training personnel;</li> <li>- Specialised and age structure appropriate to each training program;</li> <li>- Developing courses and other work necessary for the educational process, performed by trainers.</li> </ul>

### 5.1.3. Procedure “Study Plan”

This procedure presents the distribution in time for a S&S curricula.

#### Introduction

This procedure is a guide for the work of developing, substantiating, coordinating, updating and approval of a curriculum. The result of applying this procedure is, of course, a curriculum for a specific specialisation. The procedure is accompanied by application regulation and methodology (standards) of quality assessment.

The necessary steps for this stage are presented in the following table.

Activity	Explanations
<p>1. Fundamentals for the curriculum:</p> <ul style="list-style-type: none"> <li>- Establishing curriculum structure according to the accreditation requirements;</li> <li>- Develop preliminary version of the curriculum;</li> <li>- Discussion and improvement of the curriculum.</li> </ul> <p>Setting up the general and specific objectives for each subject within the specialisation.</p>	<ul style="list-style-type: none"> <li>- Preliminary form of the curriculum;</li> <li>- Workshops with the departments involved in each discipline;</li> <li>- Registration of the objectives in the discipline's form.</li> </ul>
<p>2. Verification and completion of the training plan</p> <ul style="list-style-type: none"> <li>- Checking the objective's realisation,</li> </ul>	<p>There are highlighted, where needed, possible duplications and gaps against the objectives and the requirements</p>

according to the accreditation requirements, for each discipline and for the entire study plan as a whole.	resulted from accreditation. The result is the final form of the training plan.
3. Approval of the curricula	Performed by a special commission in charge of the training process.
4. Changing of the curriculum - Initiation of the curriculum - Develop the modified version - Checking the amended version and complete the curriculum - Approval of the curriculum	Based on regular assessment or complaints coming from stakeholders, the coordinator of the specialization initiates a change in the training plan -> preliminary form of new curriculum -> final form of the new plan education.

#### 5.1.4. Procedure “Analytical Programme”

This procedure presents the necessary contents of a S&S curricula, mode of organising it and other aspects.

##### Introduction

This procedure is a recommendation for guiding and coordinating the activities of development (substantiation, verification, modification and approval) of an analytical program for the subjects in the curriculum, regardless of their type and nature (fundamental, specialised, complementary, mandatory or optional subjects).

The necessary steps for this stage are presented in the following table.

Activity	Explanations
1. Elaboration of analytical programme and discipline file 1.1. Formulation and submission of the request to a specific department (if applicable) 1.2. Nomination by the department of the trainer for the course and/or seminar 1.3. Develop preliminary analytical programme of the discipline 1.4. Checking and improving the preliminary analytical programme 1.5. Completing the discipline’s file	Written requests are sent to various departments, taking into account the accreditation and quality requirements.  Depending on the requirements the specialisation coordinator nominates the appropriate trainers.
2. Approval of the analytical programme and discipline file 2.1. Analysis of consistency, coherence and convergence of the discipline file considering the specialisation’s objectives	

<p>2.2. Completion of the analytical programme and discipline file</p> <p>2.3. Approval of the analytical programme and discipline file</p>	
<p>3. Changing / updating the analytical program and discipline file</p> <p>3.1. Initiating of change / update</p> <p>3.2. Analysis of changes desired</p>	<p>Analysis at department level and removal of possible duplication and parallelisms.</p> <p>Editing the final form of disciplines' files</p> <p>Following self evaluation or complaints, the trainer initiates changes in analytical program or discipline file.</p> <p>The team for the discipline review changes in accordance with the requirements of accreditation and those arising from the request received.</p>

### 5.1.5. Procedure “Technical Base and Course Support”

This section is describing the technical and laboratory support that is employed in the training process, i.e. computers and software, simulators, laboratories etc. The practical activities are a very important component in the training process, due to the fact that they create abilities and accommodation with real situations, without endangering any persons or material goods. Also, for practical activities, real traffic situations that induced accidents involving public transport vehicles should constitute a database for further analysis within the S&S training, where possible.

The necessary steps for this stage are presented in the following table.

Activity	Explanations
<p>1. Preparation of course support and technical base</p> <p>1.1. Manuals and course notes</p> <p>1.2. Laboratory and other practical activities handbook</p> <p>1.3. Project development guide</p> <p>1.4. Checking and improving the demonstrative laboratories</p> <p>1.5. Checking and improving the simulators (hardware or software, if any)</p> <p>1.6. Building a database with examples and exercises – a video database with traffic incidents involving public transport vehicles could also be built for examination within the S&amp;S training procedures</p> <p>1.7. Provision of the direct</p>	<p>Depending on the requirements the specialisation coordinator nominates the appropriate trainers.</p> <p>The manuals, handbooks and project development guides are verified regarding accordance with the course purposes.</p> <p>The purpose of simulators is to introduce the real-life environment and specific safety/security situations without endangering the materials and/or the trainee's health.</p> <p>Written requests are sent to various departments, taking into account the accreditation and quality requirements.</p>

demonstrations (that can take place in the normal work environment, not in the training facility)	
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### 5.1.6.Procedure “Training Activities”

This section gives a brief introductory description of the mode of performing the teaching activities and the applicative ones (distribution of the technical contents of a discipline amongst the theoretical presentations, applications and projects etc.).

- *Courses and Teaching Activities*

#### Introduction

This procedure is designed to be the foundation of the organisation and conduct of courses and teaching activities.

This procedure concerns only the part of teaching courses.

Regarded as a quality assurance tool, this procedure is intended to provide useful information for trainers to improve the teaching activity and learning process as a whole. The procedure includes the main stages of the teaching in direct connection with the process, content and results of teaching.

The necessary steps for this stage are presented in the following table.

Activity	Explanations
1. Preparation and organisation of courses	a) Clarity of course objectives (stated in the analytical program) and the objectives of each teaching subject; b) Organisation of the material taught (internal logic of teaching a course, organisation of the material per time unit); c) Frequent use of methods that facilitate learning (e.g. simulations, applications, other specific methods for the discipline); d) Adjustment of the course based on the feed-backs received from trainees.
2. Knowing the discipline’s content	a) The scientific accuracy of the information taught; b) Relations and transfer of knowledge taught with other courses or other related disciplines; c) Integration of recent research results in the taught discipline; d) Appropriate responses to trainees’ questions.
3. Communication abilities	a) Clarity of exposure, in terms of receptor; b) Appropriate rhetoric.

4. Relations with the trainees	a) Available and timely on consultation hours; b) Honesty and positive relations with the trainees; c) Usefulness of comments made on seminars, papers and final papers, as perceived by the trainees.
5. Quality of teaching materials	a) Quality of the syllabus <sup>2</sup> and other materials delivered to trainees; b) Evidence of curriculum innovation effort.
6. Feed-back of the teaching activity	a) Incentive <sup>3</sup> character; b) Intellectual character; c) Normal load/ overload character; d) Positive aspects of teaching; e) Negative or restrictive aspects of teaching; f) Suggestions for improving teaching.

▪ *Applicative Activities (Seminaries, Projects and Practical Activities)*

**Introduction**

This procedure is designed to organise and conduct seminary and laboratory activities. It aims to deepen some themes and problems presented in courses and aims to support trainees in acquire theoretical knowledge of courses, training and skills development in operating with the appropriate knowledge base and skills for apply in practical activities the scientific content of subjects taught.

The necessary steps for this stage are presented in the following table.

Activity	Explanations
1. Preparation seminars and practical activities	a) Establishing bibliography and teaching materials; b) Proper organisation of the activities and teaching materials used; c) The conduct of activities and forms of work used (discussions, essays, laboratory thematic works, practical works etc.).
2. Content of seminar activities	a) clearly definition of the activity's objectives and their correlation with the discipline's overall and specific objectives; b) The relevance, usefulness and applicability of the activities in the seminar;

<sup>2</sup> An outline and summary of topics to be covered in education and training

<sup>3</sup> Any factor (financial or non-financial) that enables or motivates a particular course of action

	c) The appropriateness of the methods used and intellectual stimulation of trainees.
3. Linking seminar activities with courses' content	a) Correlation of the seminar activities' objectives and course content; b) Motivating trainees' activity in the seminars and laboratories; c) Increase participation and creative thinking of the trainees;
4. Complementary nature of seminar activity to courses' content	a) Completion of courses' fundamentals with elements and issues that could not be treated in the course; b) Debates of the last acquisitions of scientific research; c) Establishment of additional study tasks required by the need of further thoroughgoing study.
5. The relationship between theoretical and applied aspects of the seminars	a) Relevance of the theoretical content of seminars; b) Applicability of theoretical content; c) The news aspect and useful content activities.
6. Formative nature of seminar and applicative activities	a) Training and development of critical, divergent and creative thinking of trainees; b) Training schemes of thought and productive action; c) Building skills and competencies with practical application of the preparation obtained in assimilation of specific disciplines.

### 5.1.7. Procedure "Evaluation"

This section is dedicated to the presentation of the most specific procedure to evaluate the results of the training process: the *examination*. There are descriptions for the modes of organising the exams, periods for examinations, the modes for organising the evaluation committees, how the evaluation methods should be and the feedback with the trainees and graduates, as a control means for the evaluative actions.

- *Organising the Exams;*
- *Organising the Evaluation Committees;*
- *Evaluation methods;*
- *Trainees performance perception in the training process;*

Before issuing any graduation certificate, every training course must first be approved and certified by the ACA or the competent Board. The purpose of the requirements for course certification is to evaluate those factors that justify the need for, and assurance of, the quality of the training course. Factors evaluated include, but are not limited to:

- a. Course context;
- b. Qualifications of instructors;

- c. Adequacy of physical facilities;
- d. Cost of course;
- e. Potential clientele;
- f. Need for course;
- g. Time frame of course presentation;
- h. Method of presentation.

Any transports training department or agency certified by the ACA or the responsible Board shall be subject to inspection by the Board members or Board staff for the purpose of determining whether the training department is maintaining those standards deemed necessary for certification.

Activity	Explanations
1. Preparation and organisation exams	<ul style="list-style-type: none"> <li>a) Each S&amp;S training course shall be announced and scheduled, along with the evaluation methodologies and requirements for graduation;</li> <li>b) The training department shall be responsible for nominating the exams commissions;</li> <li>c) The commissions shall employ the procedures for examination that have been certified;</li> <li>d) The examinations commissions shall treat equally and impartially all trainees submitting the exam;</li> <li>e) The commissions shall take into account the harmonisation between the difficulty of the subjects in the exam and the time granted for their solving;</li> </ul>
2. Periods for examination	<ul style="list-style-type: none"> <li>a) The periods chosen for examination shall be in accordance with the certified procedures and the applicable rules;</li> <li>b) The examination commissions are responsible for establishing the exact dates, the issuance of the references for exams and/or extra dates for consultations with trainees;</li> <li>b) Normally, a short period of few days with no training activities is recommendable before the final examination;</li> </ul>
3. The evaluation committees	<ul style="list-style-type: none"> <li>a) The number of the members for an evaluation committee shall be (recommendable) an odd number;</li> <li>b) The evaluation committees members shall be selected from personnel with certified qualification and good practice in training;</li> <li>b) Extra members from departments related to the topic of the exam may be invited to assist the examination.</li> </ul>

<p>4. Relations with the trainees</p>	<p>a) The trainees shall be informed prior to the exam regarding the dates, procedures and requirements;  b) The trainees' comments regarding the examination may be used to continuously improve the procedures and the quality of the exams.</p>
<p>5. The evaluation methodologies</p>	<p>a) The evaluation methodologies shall be clear and written in the procedures for certification of a training course;  b) The evaluation methodologies shall be able to evaluate the acknowledgement of the whole curricula and shall be noticed to applicants at the start of the course teaching;  c) Different procedures for examination may be employed (from oral examinations to essays, or grid designed questionnaires), according to the preferences of the examination commissions;  d) The graduation criteria and the evaluation methodologies shall be designed in such a way to be as clear and impartial as possible and to give no possibilities for doubts;  e) The candidates shall be given the possibility to make appeals to the examination commissions decisions;  f) The results of the exams shall be published to the attention of all candidates simultaneously and in the shortest time possible;</p>
<p>6. Feed-back of the examination activity</p>	<p>a) The results of examinations shall be subject for analysis in each internal quality assessment;  b) The results of examinations shall be a factor to continuously promote a formative evaluation<sup>4</sup> character to the training documentation;  c) Normal load/ overload character;  d) Positive / negative aspects of teaching, reflected in the examination results shall be noted and used in quality improvement.</p>

<sup>4</sup> The term and procedures for *Formative Evaluation* are described in sub-chapter 6.1.

## 5.2. Procedure “Training Staff”

This procedure describes the ways to select the training staff, the mode of maintaining a high quality of the training staff and procedures for evaluating the trainers.

- *Quality of Didactical Staff and Selection of the Trainers;*
- *Multi-criteria Evaluation of the Trainers;*
- *Continuous learning;*

### Scope

This procedure applies to department instructors who provide instruction to personnel using training materials. It also sets forth requirements for the qualification of training vendors.

### Qualifications for instructors

Individuals are qualified as instructors in one or both of the following ways:

1. Instructor Training Course. The candidate provides certification that he or she completed an instructor training course. A refresher training course at every established period is recommended.
2. Demonstration. The candidate successfully demonstrates his or her instructional capabilities relative to training program standards.

### Procedure

Step	Person	Action
1.	Program manager/ training program manager	Nominates instructor candidate because <ul style="list-style-type: none"> <li>• A new course is being developed (program manager identifies candidate based on technical expertise and proficiency in the subject)</li> <li>• An existing instructor position has been vacated (training program manager identifies need)</li> </ul>
2.	Program manager	Identifies instructor candidate and documents qualifications using the Training: a specific Instructor Selection, Qualification, and Authorisation (ISQA) Form
3.	Program manager	Submits ISQA form to training instructional designer
4.	Training instructional designer	Review candidate’s course completion/re-qualification record to determine instructor capabilities
5.	Training instructional designer	Consults with program manager regarding the candidate’s technical expertise/proficiency
6.	Training instructional designer	Forwards the completed ISQA form with any supporting documentation to the training program manager for

		authorisation and assignment
7.	Training program manager	Reviews ISQA form and approves it <ul style="list-style-type: none"> <li>• If special circumstances require that approval is needed for an outside vendor</li> <li>• If has questions or objections to the appointment of the instructor candidate, discusses with the nominating program manager</li> </ul>
8.	Training program manager	Forwards the completed ISQA form to the training data manager
9.	Training data manager	Adds the new instructor to the personnel database and files the ISQA form in the training program document control file.
10.	Training instructional designer	Maintains the Trainer Qualifications spreadsheet

### 5.3. Procedure “Internal Audit”

A very important step in building a complete set of procedures for the training is to define a feedback loop, which provides information regarding the success and impact of the training activities. This section describes a procedure for performing a self-evaluation of the training process. There are given guidelines for organising the audit, the specific department or a dedicated committee, along with the main steps in order to maintain a high quality in the overall training process.

Activity	Explanations
1. Proposal for Internal Audit Commission	Consists of evaluators (3-5) with important professional activity and recognised integrity
2. Internal evaluation is done as an integrated process of Quality Management System	Steps: <ol style="list-style-type: none"> <li>1. Establish of the Internal Audit Committee (IAC)</li> <li>2. Establishment of internal evaluation plan</li> <li>3. Internal evaluation of study program and self assessment reports</li> <li>4. Written record of nonconformities and presenting of recommendations to remedy</li> <li>5. Corrective action and improve of the study program and the self assessment report</li> <li>6. Final verification and approval of internal evaluation report</li> <li>7. The preparation of internal evaluation</li> </ol>

	process on the outcome of the evaluation
3. IAC consists of people who are not involved in implementing the study program rated or self-assessment report writing	
4. The IAC Coordinator is developing internal evaluation plan	<ol style="list-style-type: none"> <li>1. the aims of evaluation</li> <li>2. evaluation criteria and reference documents</li> <li>3. the evaluation field</li> <li>4. dates and places where evaluation activities are being performed</li> <li>5. periods and estimated time to conduct evaluation activities</li> <li>6. roles and responsibilities of internal evaluation team members.</li> </ol>
5. IAC Members	Check self-assessment reports, analyse relevant information to the allocated evaluation activities and prepare their working documents and performance recordings evaluation forms
6. Internal evaluation	<ol style="list-style-type: none"> <li>1. is performed in successive meetings between the internal audit team and representatives of the evaluator, established in advance in a schedule by mutual agreement;</li> <li>2. information relevant to the evaluation objectives, scope and criteria must be collected by consultation of the documents contained in the self-evaluation report</li> </ol>
7. IAC prepares the conclusions of the evaluation taking into account	The analysis of the conclusions from internal evaluation and other appropriate information collected during the evaluation, the lack of conformity noticed, and the corrections and improvements performed.

#### 5.4. Training certificate issuance

The section describes methodologies for performing training certificate issuance: what entity is entitled to issue certificates for training graduation and how these certificates may be made recognised by other institutions.

1. To the graduation examination shall apply the participants who have run the training program.
2. In case of qualification or retraining programs the participants who entered the graduation exam have passed each exam's subject.
3. Graduation exam is performed in front of a commission consisting of at least three persons.

4. The graduation exam may be attended by observers, representatives of operators etc.
5. The Examination Commission organises and conducts the examination and gives marks to the participants at the graduation exam, having the following tasks:
  - a) checks the technical conditions of operation of the graduation exam and if it finds that something is not appropriate decides to postpone examination until the remedy of the situation;
  - b) approves the schedule for conducting the graduation exam and publishes it at least 24 hours before the examination starts;
  - c) determines how to conduct theoretical written and / or oral tests;
  - d) determines subjects for graduation tests, based on variants of the proposed topics of education and training, checks the coverage of the full content of the training programme;
  - e) establishes practical tests lengths, depending on its specifics, but shall not exceed three hours;
  - f) displays the results of the graduation examination;
  - g) establishes and maintains, throughout the course of the graduation exams, its documentation, which ultimately is given, with signature to the training provider;
6. The commission shall record on the organisation and conduct of graduation examination;
7. Professional qualification certificates and graduation and their annexes shall be printed by the tutelary forum or entity, that certifies the training program, on special paper, with security elements;
8. Qualification or graduation certificate, together with its Annexes, shall be issued under the signature to the holder, on the basis of the identity card, by the training provider, not later than an established period of days after passing the graduation examination;
9. In exceptional circumstances, the certificate shall be issued to an authorised person, based on authenticated proxy by public notary.

### **5.5. Eligibility requirements for training centres**

The section describes the requirements (economical, social and legal) that an entity is to be compliant with in order to perform recognised training activities.

Selection of the certification body (where it is not covered):

- Completion and submission of self-assessment questionnaire, together with QMS (Quality Management System) documentation, to the certifying organisation;
- Reception of the assessment documentation report, its correction if necessary, and remission to the certifying organisation;
- Certification audit (which may be held in two phases: one which reveals pre-audit corrections to be made followed by the QMS audit certification) and its reporting;

- The decision of the certification body and delivery of the certificate;
- Annual surveillance audits.

### **5.6. Training centre database**

In this paragraph there are described the important issues regarding building, maintaining and using a dedicated database used in the S&S training process.

A transports training centre seeking to adopt measures to improve the quality of its programs of study and training must have its own data base, in order to enable internal self-evaluation. Information on quality assurance is considering mainly the following aspects:

- a. progression in the number of trainees across each training program and the success rate in promotion exams and years of study;
- b. the success of graduates in work activities (i.e. reduction of the number of traffic incidents involving the bus drivers);
- c. the level of professional satisfaction of trainees evaluated in each study program;
- d. presentation of the efficiency of the trainers (number of students / trainers etc.);
- e. learning resources available and their cost / trainee;
- f. the institution's own performance indicators, respectively, of the study program, compared with the performance of similar institutions (programs) in the country and abroad (to the extent that such data are known).

### **5.7. Certificate of proficiency**

The section describes the major activities related to issuing a certificate of proficiency. The individual's file shall be sent to a commission for processing. Once issued, the certificate of proficiency shall be returned to the trainer. In the interim, an examiner's certificate shall be issued and used as proof of proficiency.

#### *Possession of a Certificate of Proficiency*

The only person who shall possess a certificate of proficiency shall be the person to whom the certificate was issued (the holder of the Certificate).

#### *Tampering with a Certificate of Proficiency*

There shall not be any modifications to, or tampering with the Certificate of Proficiency. The certificate must be maintained in a state relative to when it was issued.

## 6. QUALITY ASSESSMENT

### 6.1. *Concepts of Quality and Quality Culture in Training – the Formative Evaluation*

Here some concepts regarding the quality and quality culture in S&S Training are described. In order to obtain accreditation and certification for specific course modules, a S&S Training Centre must maintain a complete and high-level quality control.

The quality in education and training represents an important instrument to maintain a good overall activity quality. In public transports, taking into account the possibility for the educational process to evaluate the quality both in terms of knowledge and work results, the importance of instruction becomes more and more obvious.

The “formative evaluation” represents a systematic tryout of instruction, for purposes of revising it. The method should be a valuable and respected part of the design of an educational process.

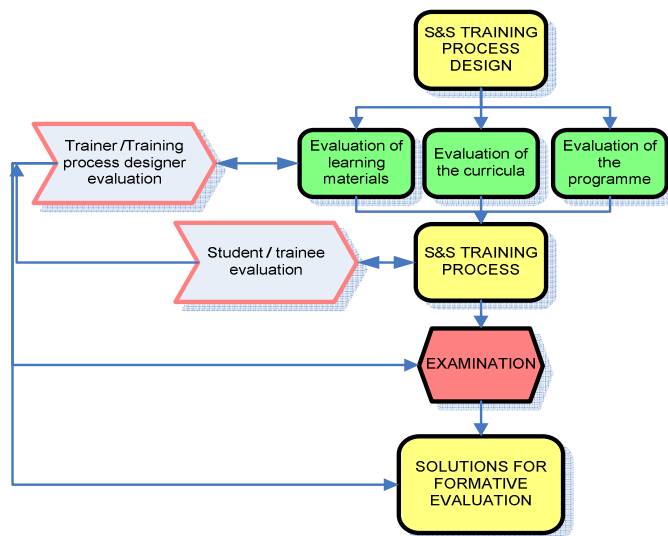
Over the past 35 years, a number of empirical studies have shown that formatively evaluating instructional materials has resulted in revised instruction that produces significantly in trainee performances over the original, unevaluated versions of the instruction. These improvements have been reported on all types of instruction: computer based instruction, simulation and games, text and multimedia. Beneficial results have also been reported upon every evaluation stage: expert review, single person evaluation, small group and field test. Thus, there is evidence that when using formative evaluation a training centre can improve the learning effectiveness of instructional materials. Therefore, when discussing about the planning of the training process, the training programme should mandatory take into consideration the formative evaluation.

Even though formative evaluation is frequently used by the instructional staff, this does not mean it is accepted by all organisations.

The most important target of the formative evaluation should be the instructional materials. Workshops, seminars and lectures are all viable formative evaluation candidates. For example, the person-led instruction is practically another form of media, since the instructor acts as an instructional delivery system with a unique set of media attributes.

Formative evaluation is usually applied to materials being developed by the instruction design team, according to the learning programme, but finished instructional materials should also be evaluated for their adaptability to the instructional environments in which they will be used.

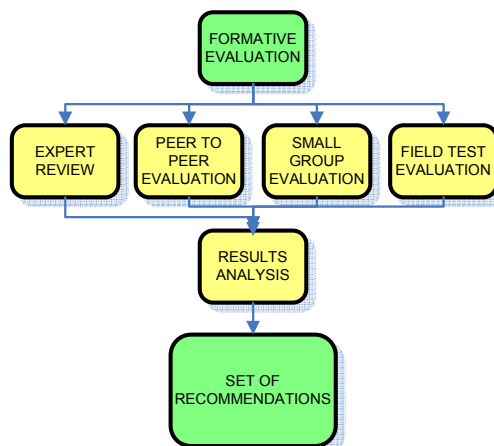
As long as the purpose of the evaluation is to “revise” the instruction by reorganising and supplementing it, the evaluation can be a type of formative evaluation. For example, a S&S instructor can evaluate the commercially prepared materials to see if they fit with their trainees’ level of knowledge, classroom schedules, curriculum objectives and physical facilities. The results of this evaluation may mean that, in some cases, only some parts of the materials could be used, or that new materials should be developed to supplement the inadequacies of the commercial ones. Similarly, the trainees could evaluate the instruction’s easiness of understanding and appeal to determine if adaptations must be made to it.



**Fig. 13 The process of evaluation as a solution for the formative evaluation design**

It is important to notice that, no matter the size of it, an instructional process can be formatively evaluated. Thus, the target of the formative evaluation process can be a unit, lesson, course or curriculum. Of course, the limitation of the evaluation process can be set by the designers of the training process. Where there is too much instruction to evaluate within the design process constraints, such as a course or curriculum, they may select smaller segments to more thoroughly evaluate, segments that may allow them to generalise their findings and revisions to unevaluated segments.

The first action of the formative evaluation should be the evaluation of instructional products such as texts, lectures and multimedia products. The formative evaluation of the instructional programmes is also an important part of the training process, but it is conducted less frequently by the instruction designers than formative product evaluation. Sometimes, programmes are subject of evaluation by educational researchers, being a complex and time-consuming process.

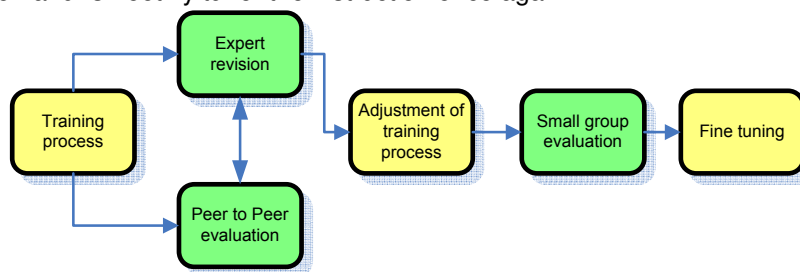


**Fig. 14 Cohesion of the formative evaluation types**

The recognised types of formative evaluation are the following:

- The *Expert Review*, where experts (technical experts, content experts, designers or other instructors) review the instruction in the presence or in the absence of the instructor;
- The *Peer-to-Peer* evaluation, where one trainee at a time reviews the instruction with the evaluator and comments upon it;
- The *Small Group Evaluation*, where the evaluator tries out to evaluate the success of the instruction with a group of learners, recording their performances and comments;
- The *Field Test Evaluation*, where the evaluator observes the instruction being carried out in a realistic situation with a large group of learners.

The best results can be obtained when the evaluator conduct expert and peer to peer evaluations first, revise the instruction process and then conduct a small group evaluation and “smoothly tune” the instruction once again.



**Fig. 15 The best procedure for formative evaluation**

While this is a complex process, the application of it in different country environment and customs may introduce variations. The methods may also vary in time and effort to conduct them, and also according to the degree of sophistication of the evaluated materials. Small group and field test instruction may be more resource intensive and be used selectively.

In addition of the above mentioned procedures, there may be used also some variations, such as:

- The *Self Evaluation* where the designers of the training process evaluate their own products;
- The *Expert Panels* where teams of experts discuss the instruction together with the evaluator;
- *Multi Point to Point* evaluation – where several trainees review the instruction with the evaluator;
- *Condensed Evaluation* – where the evaluation is produced for a selected segment of the instruction, for speeding up the process of evaluation.

In the case of Safety and Security training curricula for transports, this being a newly developed process, the best approach would be using formative evaluation after the development of instruction as a productive strategy, especially if the evaluation is performed early enough before the training season deadlines to allow for changes.

The formative evaluation of the training process is necessary mostly when:

- Developing a new training curricula, programme and contents – this is the case for the safety and security training modules in public surface transports;

- The team of developers is relatively new in the field or in the practice of instructional design;
- The technologies employed are new for the design team (for example, RATB in Bucharest had recently introduced Automatic Fare Collection system (AFC), the Public Transport Management sub-system embedded in the Bucharest Traffic Management System – these new, high-technologically developed systems need good knowledge both from the side of the instructors, the training designers and the trainees) – so the training materials reflect the reality of each application and local rules;
- The learner population is new to the design team – special aspects, such as former knowledge, formation, age etc. have to be considered when designing the learning product, in order to have the most suitable impact on the trainees and their remaining knowledge;
- Unfamiliar or experimental instructional strategies are part of the training process – for example, when introducing new simulators of software;
- Chances for revision are weak etc.

An example of formative evaluation may also be taken from the ISSTE tests made by RATB regarding the new S&S curricula. During the last test for a package of S&S training activities (RATB employed the method of teaching integrated modules of S&S in the overall curricula), RATB evaluated the trainee's responses question by question, at every 4 questionnaires used at this training (the *1<sup>st</sup> Questionnaire* – before training; the *2<sup>nd</sup> Questionnaire* – at the end of the training; The *Final Questionnaire* – similar to the Police and the Training classes evaluation Questionnaire).

After collecting and analysing the answers of the trainees group (for the 4 sets of questionnaire) the situation of the curriculum testing was as follows:

At the *1<sup>st</sup> Questionnaire*, some questions were discussed again in order to be better understood. Also, on the following training, this issues will be underlined, better explained and assimilate. This was an Expert Panel discussion.

After analysing the answers form the *Questionnaire 2*, it became visible that one of the questions with a higher number of wrong answers needed to be redesigned because it was not well understood. The other questions with high percentage of wrong answers will need to be explained better in the future, because they tackled important issues regarding the S&S of the surface public transport. This was a Multi Point to Point evaluation.

Regarding the *Final Questionnaire* all trainees answered correctly to more than 22 questions, this representing the minimum trainees admission point (similar to the Police testing) and most of the trainees (89.6%) answered correctly to 23, 24 or 25 questions.

Regarding the training classes evaluation, it was used a qualitative evaluation file which was filled in by every trainee, and in which the trainees expressed themselves about the satisfaction degree of the various training classes evaluation.

This may be assimilated with a Peer to Peer evaluation.

Thus, in the process of developing the new curricula, an important thing is to ensure always the feedback from the instruction process, in order to provide the best channels in information distribution to the learners.

## 6.2. Recommendations for Conducting Formative Evaluation of S&S Training

This section is dedicated to the description of the procedures recommended to the training institution regarding how to conduct a formative evaluation in S&S training.

The means of carrying out the evaluation is very dependent on the trainer’s resources (in terms of personnel, degree of specialisation, materials, time and costs).

It is important, in the first phase, that the trainer institution establishes a plan for evaluation, mostly in the cases where modules of the course or entire course are new.

The following diagram depicts the main steps recommended in the case of S&S training formative evaluation. After balancing between the costs (personnel involved, time spent, infrastructure needed, materials etc.) and the periodicity needed for the formative evaluation, the institution may conduct the formative evaluation according to one of the above presented methods.

One important step is to inform the participants regarding the evaluation procedure and the purpose of the evaluation.

After conducting the formative evaluation, a set of data is gathered from the participants. The recommended procedures are: field test evaluation/multipoint to point evaluation. These data are used to evaluate the efficiency in relevance and information transfer of the analysed modules. If revisions are necessary, then corrections may be applied to the curricula contents and/or procedures of training and examination.

The best results may be obtained if the newly revised curricula / training procedures are again submitted to an evaluation procedure (recommended procedure: expert review evaluation / expert panel evaluation).

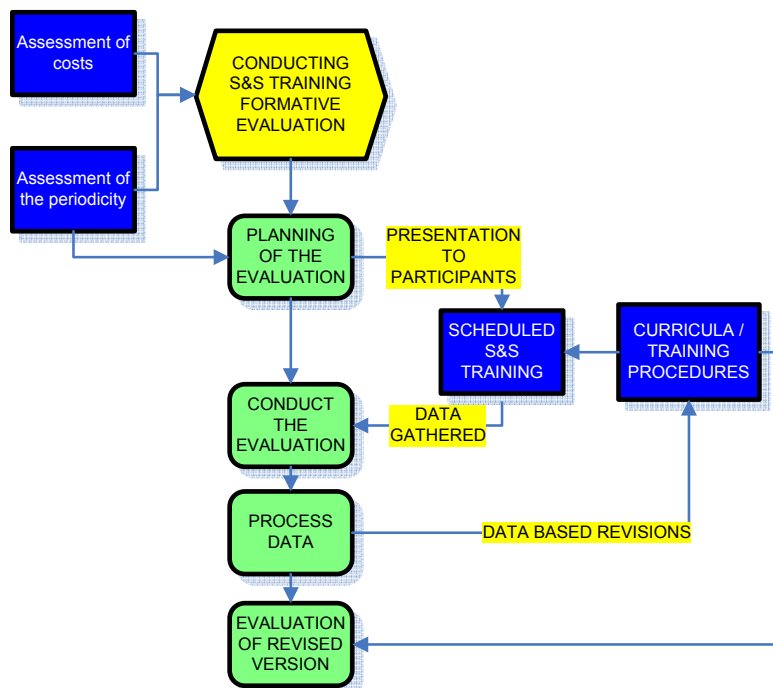


Fig. 16 The methodology recommended for the formative evaluation in S&S training

During the assessment of costs, the planner of the formative evaluation may assess the tools he is going to use for this purpose. The main process in the formative evaluation, in terms of costs, is the data collection. The following tools may be used to successfully accomplish this step:

- Observations of the overall training process;
- Logs of the training process;
- Questionnaires provided by the trainees;
- Databases (if any) of the training process;
- Forums and discussions with the trainees;
- Notes made by the trainees;
- Notes made by the instructors;
- Audio/video recordings;
- Other observations regarding the results of the examinations.

It is recommended that a brief analysis should be made before deciding which of the above mentioned tools is the most appropriate to obtain best and most relevant results of the evaluation. Data fusion is to be taken into consideration when using more tools for obtaining best results. While in this document we tried to give a more “scientific” approach of this activity, procedures may vary in a consistent way from applicant to applicant, due to different conditions (i.e. legislation, local procedures, size of the applicant company etc.) that may apply locally.

However, the formative evaluation is an empirical process and not necessarily scientific. The results of the formative evaluation are relying on the expertise of the personnel carrying it and not strictly on strict rules. The expertise, the common sense and the intuition of the training process designer puts its imprint also on the evaluation procedures. Therefore, the above described methodology may be considered more a guideline and not a well defined process.

One other important thing in obtaining a good formative evaluation is the methodology of selecting subjects for evaluation.

In the discussions carried on with P2 RATB, some of its representatives claimed that it would be beneficial to include in the examination procedures, some steps regarding the psychology of the candidates and the formation of the psychological habits (especially for the drivers).

When selecting the subjects for a formative evaluation using the procedure peer to peer, the designer of the process should take into account all types of abilities that the learners may have: high, medium or low. When going to more extended procedures, such as the multi point to point one, the effects of selective ability of the candidates dissolve and it is less relevant. So, if a formative evaluation designer knows that the mass of candidates is more homogenous, will prefer to employ single person evaluation procedures, while the mass of candidates is more heterogeneous, he will adopt the more general procedures, such as the group evaluation.

The decision regarding what to be revised and which would be the most appropriate methodology of revising the item, without affecting the global behaviour of the training process is also a difficult one. Some of the poor results of the examinations may be “hidden” to the attention of the evaluator (poor instruction methodology, lack of entry skills of the candidate, improper usage of the instruction by the student etc.). In this case, revision of the training process may not be as necessary as it would seem, and therefore the evaluator must gather more information regarding other possible causes. Because it can be difficult to identify a specific instructional problem or solution, we

recommend that evaluators should seek a variety of information, whenever possible, in the evaluation process.

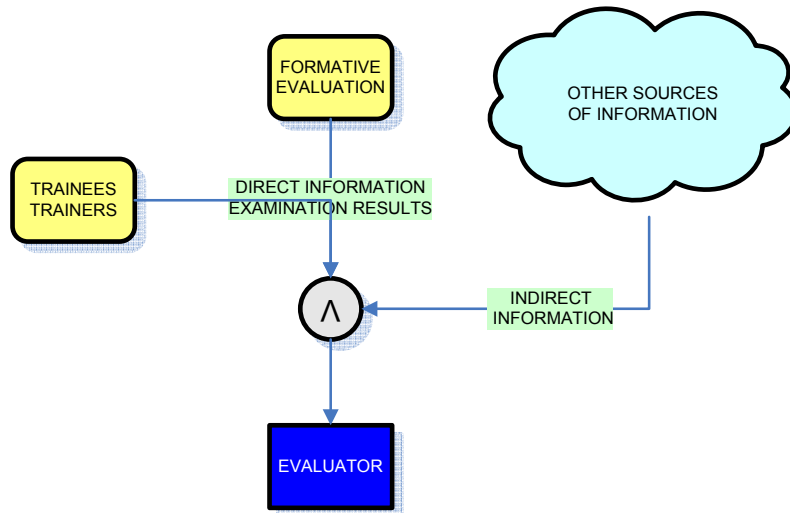


Fig. 17 Sources of information for the formative evaluator

In the above figure, the evaluator is taking into account both the results of the questionnaires given to trainees and the additional information gathered, regarding the profiles of the candidates, the training process, the trainers experience, the conditions of learning for the trainees etc. Also, the results obtained from the graduates in the normal driving activity (as public transport drivers) may be a collateral information helping the evaluator to gather the most relevant information. This may also help solving more accurately the problem of the formative evaluation.

As a conclusion, we may say that the formative evaluation is the first step in ensuring the quality of the S&S training process. It represents a systematic and empirical method for revising instruction, in order to improve its effectiveness and efficiency in obtaining good quality personnel in public surface transport. Therefore, we consider the formative evaluation the first loop in the quality assessment process, the first “quality control” step helping to guarantee that the graduate will contribute effectively in reducing the number of traffic incidents and improving the overall public transport safety and security.

### 6.3. Means for Quality Assessment in Surface Public Transport Safety and Security

This section briefly describes some tools used in the quality assessment of S&S Training for surface public transport. It is considered that the Quality Assessment is the link in the overall safety and security processes in the surface public transport, which ensures complete control over the effects of actions undertaken by the transport company. The Quality Assessment process is a complex one and has to contain at least the following two components:

- A preventive action intended to improve indirectly the safety and security, by continuously evaluating the quality of the training process and results: the formative evaluation step;

- The *Quality Assessment of the work performance itself*, which is the second feedback loop in the complex evaluation process.

The following sub-chapters will provide a brief description and recommendations regarding the application of these steps.

### 6.3.1. STEP 1 – Planning the formative evaluation of the S&S Training

As described above, the formative evaluation may be considered the first step in assessing the quality of the instructional process. The formative evaluation was described previously in more details and the main problems regarding this activity were also shown. The reasons for performing this very first step in the overall qualitative assessment were also presented. The following table (a SWOT analysis) delivers some vital information regarding the planning of the formative evaluation for S&S Training.

Crt. No.	Item	Observations	Strengths/Opportunities	Weaknesses/Threats
1	Certification of instruction	The process needs to be performed mandatory at the beginning of instruction	<ul style="list-style-type: none"> <li>▪ Leads to gaining acceptance of the instruction</li> <li>▪ Improves the quality of the training process</li> <li>▪ Allows for externalisation of the training products</li> <li>▪ Gains acceptance for new instruction</li> </ul>	<ul style="list-style-type: none"> <li>▪ May induce additional costs and it is time-consuming;</li> <li>▪ Cannot be performed without the involvement of a third party</li> <li>▪ Implies conformity with a pertinent set of standards and requirements</li> </ul>
2	Analysis of the necessity for formative evaluation	<p>This is a process that needs to be performed on a regular basis. Items to check:</p> <ul style="list-style-type: none"> <li>▪ What period of time is to be set out for the formative evaluation?</li> <li>▪ What is the budget and time available for the evaluation?</li> <li>▪ Who will perform the evaluation?</li> <li>▪ What is the needed level of expertise of the evaluators?</li> <li>▪ How revisable is the instruction?</li> <li>▪ What is to be revised: learning environment, or work environment?</li> </ul>	<ul style="list-style-type: none"> <li>▪ It confers reliability and trust in the training process;</li> <li>▪ Improves the overall quality of the training and the surface transport safety and security</li> <li>▪ Is planned to make instruction stronger through diagnosing and treating its weaknesses</li> </ul>	<ul style="list-style-type: none"> <li>▪ May induce additional costs and it is time-consuming;</li> <li>▪ May prove to be hard to perform when resources are limited;</li> <li>▪ Requires a pertinent analysis both from the institutional and social points of view</li> </ul>
3	Determination of the main goals of the evaluation	The major goal of the training process evaluation is to improve instruction's learning effectiveness and efficiency	<ul style="list-style-type: none"> <li>▪ Helps learning more</li> <li>▪ Helps learning easier, quicker and cheaper for both of the parties: the instruction unit and the trainees</li> </ul>	<ul style="list-style-type: none"> <li>▪ May require extra time and budget</li> </ul>

4	Determination of additional goals of evaluation	Secondary goals may include demonstration of the utility of the training process and/or the formative evaluation	<ul style="list-style-type: none"> <li>▪ Helps gaining acceptance of instruction</li> </ul>	<ul style="list-style-type: none"> <li>▪ May require extra time and budget</li> </ul>
5	Determination of the amount of the instruction process that is to be evaluated	This step is employed only when not all the instruction can be evaluated	<ul style="list-style-type: none"> <li>▪ Improves the speed of the process</li> </ul>	<ul style="list-style-type: none"> <li>▪ Does not offer results as concluding as the complete evaluation</li> </ul>
6	Analysis of the personnel and resources available for evaluation		<ul style="list-style-type: none"> <li>▪ Can contribute to a better selection of the personnel for the evaluative actions</li> </ul>	<ul style="list-style-type: none"> <li>▪ May sometimes lead to the conclusion that external personnel will be needed for the evaluation – extra costs</li> </ul>
7	Analysis of the environmental aspects that could affect the evaluation	This is about the “hidden” information that should be revealed to the evaluator, concerning the administrative conditions that may affect the quality of the S&S training process	<ul style="list-style-type: none"> <li>▪ This is a beneficial action to improve the quality of the assessment and to finely tune the results, taking into account indirect aspects that could affect negative results obtained by some of the graduates</li> </ul>	<ul style="list-style-type: none"> <li>▪ Time consuming</li> </ul>
8	Analysis of the social aspects that could affect the evaluation	This is about the “hidden” information that should be revealed to the evaluator, concerning the social, behavioural, psychological etc. conditions for both the trainees and the trainers that may affect the quality of the S&S training process	<ul style="list-style-type: none"> <li>▪ Same as above</li> </ul>	<ul style="list-style-type: none"> <li>▪ Same as above</li> </ul>
9	Analysis of the material base used for training	Analysis of the different types of media used in the training process	<ul style="list-style-type: none"> <li>▪ Same as above</li> </ul>	<ul style="list-style-type: none"> <li>▪ Same as above</li> </ul>
10	Analysis of the evaluation stages that are to be employed in the evaluation process	An action intended to offer more detail to the examination procedures	<ul style="list-style-type: none"> <li>▪ Can result in a good systematisation of the evaluative process</li> </ul>	<ul style="list-style-type: none"> <li>▪ None</li> </ul>
11	Analysis of the category of personnel that should be employed in the evaluation process (experts or	A selection process necessary to ensure a good quality of the formative evaluation	<ul style="list-style-type: none"> <li>▪ Ensures a good quality of the formative evaluation;</li> <li>▪ Improves the quality of training;</li> <li>▪ Ensures a good quality</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not relevant to the process</li> </ul>

	other persons)		control	
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**6.3.2. STEP 2 – Planning the quality assessment of the work performance in public surface transport – basic recommendations**

This section describes the modalities for performing the quality assessment of the work performance, as a secondary mode of proving the efficiency of the S&S training.

In the ISSTE project it had been defined that the quality assessment process is a double loop feedback one. The first step is the formative evaluation (or a simple evaluation of the knowledge gathered by the S&S training graduates). The necessary second step should be the quality assessment of the future work performance, to see if the influence of the S&S training was beneficial in terms of incident impact reduction, better response of the public to the surface transport etc.

The *professional development* is crucial to reform, because trainers are a deciding factor in the success of performance assessments in affecting desired trainee’s outcomes. As a link with the formative evaluation, in order that performance assessments are effective, trainers’ expectations of their students and of their own teaching methods must be analysed and, if necessary, changed.

*Performance assessment* therefore demands trainers’ participation in assessment development, implementation and scoring. Trainers must become knowledgeable about assessment design, scoring and new pedagogical techniques.

Professional development activities are not cheap. All similar activities are resource intensive, when compared with those associated with traditional systems of testing. Therefore, the commitment on the part of the transport company’s leadership to provide budget, trainer release time and materials is essential to successful implementation of performance assessments.

Systematic evidence of work performance provides the means for obtaining diagnostic information to improve instruction and the processes of teaching and learning, in general.

The work performance assessment may serve several purposes. It may encourage employee involvement, may provide a formal mechanism for employees to receive feedback regarding job performance and expectations, and allows the employee to work closely with the employer to establish goals and priorities for the next period of time. Work performance assessment also facilitates growth and development of employees and results in a documented history of employees’ performances.

Usually, work performance evaluation is not a simple task. There are many factors that are to be considered, that contribute to the final results of the work delivered by a trained driver in the surface public transport. Therefore, the methodology employed to determine performance, quality, and the coverage area of the evaluation system must match the process intended to be assessed.

Throughout the cross-cases analysis, a transport company may employ several terms associated with assessments: *assessment tasks, criteria and scoring methods, performance assessments* and *performance assessment systems*.

The evaluation is collaborative in nature. It not only allows the Supervisor to review the employees’ achievements and performance in the past but it also helps develop a plan of action for the next period. Employees and supervisors may want to establish a

development plan to support continuous learning and improvement. Salary increases may be based upon the annual evaluation, with a specific budget allotted for increases. Employees with reviews that meet specific defined expectations could be eligible for a salary increase.

The characteristics of the work assessments in practice are strongly influenced by the level of the authority at which they are initiated. The work performance assessment is a general activity of the overall company's quality assessment process. Therefore, the common infrastructure can be used also for the work assessment with the purpose of improving both the S&S training process and the S&S in public transport in general. The evaluation process can be performed in the following formats:

- Sequential evaluation: before taking S&S training instruction and after graduation of S&S training; this procedure assumes there is information gathered before the training has been done;
- Parallel evaluation: when the matrix of tested subjects is evaluated on a simultaneous basis: a set of subjects that had graduated the S&S formative instruction is compared with a set of subjects (in terms of work performance) that had not yet graduated the S&S training. While this second procedure is less time consuming and may be more effective, it still is affected by some external factors, that may include:
  - Formation of the subjects;
  - Age of the subjects;
  - Social life of subjects (subjects must be selected from the same social categories);
  - Psychological profiles etc.

It is advisable to document employee's work performances. Documentation may include databases with nominal records of performance. Sharing the databases in a common environment, like a network of training centres may also contribute to a sustainable development of the quality and implementation of best practice procedures.

The emphasis of the performance assessment process is on the two-way communication between the employee and supervisor. While the supervisor provides the employee with feedback about his or her performance and communicates future expectations, the employee should also actively participate in the process, describing his or her accomplishments over the assessment period.

The two way conversation should be also an important part of performance management. It should be designed to promote two-way communication throughout the period of employment, improve job understanding and promote effective job performance, performance planning, and employee development. The performance assessment discussion may involve the following:

- Review progress made on all aspects of work assignments and job goals over the previous assessment period;
- Review progress made on professional development goals over the previous assessment period;
- Establish new goals and behavioural expectations in consideration of performance ratings.

The following picture describes the interdependence between the overall quality assessment system and the work performance assessment with the purpose of improving the quality of S&S training and the S&S of the surface public transport.

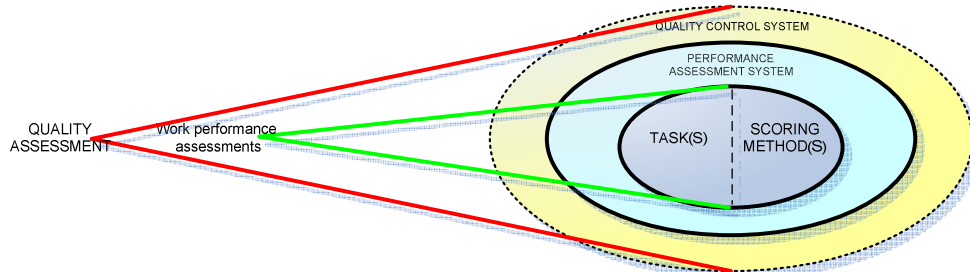


Fig. 18 Inclusion of the work performance assessment in the overall quality assessment

### 6.3.3. Methodologies

This section presents some recommendations regarding the most appropriate methodologies to employ for the overall quality assessment in the combined environment S&S Training – Work Performances.

There is now a wide variety of methods available to the industrial field if an institution wants to engage in quality assessment, quality assurance, or quality improvement activities in its activities. These methods require some kind of performance review, or at least the collection of some performance-related data. The choice of methods depends on what research questions one wants to address.

In a primary analysis of the case, it is important to emphasize the key concepts related to the choice of methods, making a distinction between whether any method actually covers performance or competence, as well as a distinction between whether a method is direct or is indirect.

The methods most commonly used for data collection within quality assessment have to be analysed on a regular basis, in order to see if there is any need of improvement in the quality assessment methodology. These methods have to be analysed in terms of their validity, reliability, feasibility and acceptability.

Direct methods aimed at recording performance are assumed to hold the highest validity, but practical, economic and logistic factors may favour less ambitious methods for audit or quality improvement activities. One crucial element in all methods is *creating a set of empirical data*, as a basis for comparisons, analysis of the process in time, dialogue and discussions among responsible factors.

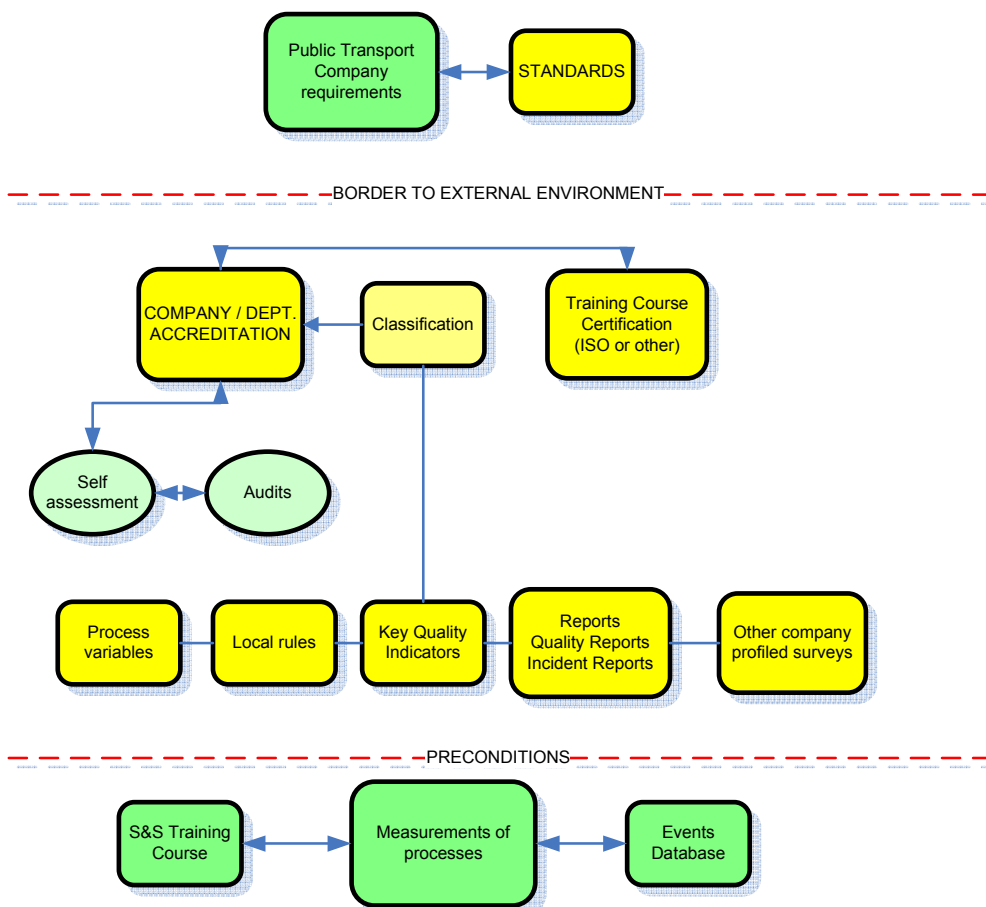
In order for a Quality Assessment process (both regarding the S&S Training results and the post-graduate Work Performances) to be efficient, it is recommendable that the methods employed for the quality assessment follow a standardised structure, covering the mandatory items:

- Definition and presentation of the QAs methods objectives;
- Description of the method;
- Experience elsewhere – best practice;
- Recommendations for implementation;

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- Inter-linkages with other methods (where applicable);
- Analysis of the efficiency;
- Recommendations to the beneficiary.
- Conformance and adaptability.

The quality assessment methods of work performance (for the S&S Training graduates) require (internal or external) standards as a reference against which the assessment can be carried out. Such reference can be provided in the form of general quality guidelines, policies, minimum standards, ISO standard or as process specific guidelines (e. g. for questionnaire testing or editing). Similarly, the user requirements are a further key input to data quality assessment. The general environment for the quality assessment in public transport companies, taking into account the S&S component could be such as the one shown in the figure below.



**Fig. 19 The QA environment of a Public Transport company, taking into account the S&S Training component**

In the above figure, the preconditions for a good quality assessment are:

- Implementation of the Safety and Security Training;
- The capability of measuring the processes (the capability of evaluating the impact of the training in the public surface transport safety and security: definition of a set of key indicators, existence of a previously recorded database with

statistics regarding the traffic incidents were public transport drivers had been involved, existence of a quality assessment department, establishment of the set of standards and local rules that apply etc.).

With other words, the public transport company must have a priory set environment for the quality assessment. The QA process is a continuous one, and therefore maintaining databases with records of the obtained results can improve the analysis of the whole transport process performances.

The central area of the above figure shows the effective actions and processes needed for the complete QA of the effects (in terms of Safety and Security) in surface public transport, taking into account the impact that the S&S training has over time, in terms of reduction of traffic incidents and traveller security.

The recommended instruments for these processes are:

- A set of key quality indicators (KQI);
- A set of rules regarding the required format and periodicity of quality assessment reports;
- The recommendations resulted from the QA process.

The distinction in three levels has been made for the purpose of a systematic presentation. In practice, the methods could be implemented in combination, e.g. quality reports together with quality indicators and audits. There are also connections with activities that are not directly data quality assessment. For example, quality reports and quality indicators should (ideally) be included in a comprehensive metadata system combining the technical documentation of the data with a documentation of work performances quality.

#### **6.3.4. Regulations**

Usually, the quality assessment process is a rigorous one, requiring adequate procedures and expert commissions to carry it on. The quality assessment commission aims to guarantee the proper application of every instrument and procedure to ensure quality standards. In the application of the quality assurance instruments, the quality commission must promote quality in all stages of the process: the design, the planning of activities and development of them, the results of activities.

The quality commission (QA) has to be impartial when making decisions regarding the issuance of reports, certificates or accreditations.

All the procedures for quality assessment must meet the requirements of the national and international quality standards that may apply. The regulations for the QA commission aim to establish its competences, attributions, and working pattern.

The following section will describe some recommendations regarding the attributions that a QA commission for the public transport training activities should have:

- Evaluating training programs which may lead to obtaining of an official and recognised training certification offered by the training centre in the public transport company;
- Certifying the quality standards in S&S training, in their management activities held in the public transport companies;
- Certification of S&S training courses (if enabled to perform such activities);

- Assessing training compartment in the public transport company within the framework of the standards, legislation and regulation that apply;
- Providing evaluating systems and procedures for assuring quality in the training centres, including the accreditation of the assessment on training functions carried out by the training staff;
- Evaluating the training and management activities developed by the training staff and the training centre management staff;
- Promoting assessment and comparison of quality criteria within the national and European contexts;
- Performing studies, aimed for improving and innovating the procedures and patterns for assessment, certification and accreditation;
- Issuing assessment reports and classification for the training centres or departments in the transport companies;
- Promoting cooperation between regional, national or EU's agencies with functions in assessment, accreditation and certification;
- Working on assignments made by the relevant compartment of the public transport company or tutelary ministry (or directorate of the tutelary ministry);
- Having initiatives and proposals for improving the working regulations of the quality assessment commission;
- Other functions conferred by the local legislation, which may apply.

Delegation of specific activities to sub-commissions: the QA commission may have the responsibility to assume some of its attributions to a specific designed sub-commission, e.g.:

- Special QA sub-commission for assessing quality standards in training activities;
- Special QA sub-commission for assessing training centres in public transport companies;
- Special QA sub-commission for assessing individual teaching and management efforts developed by the training staff;

The structure of the QA commission: the commission has to be conducted by a Chairman and is composed of several members. The following are recommended attributions for the Chairman:

- Is representing the body;
- Is deciding regarding the agenda of the commission;
- Is chairing the sessions, moderating the discussions and decisions;
- Is designating a member of the commission who will substitute his attributes in case of absence;
- Is monitoring and assuring the conformity with standards and regulations;
- Is performing additional functions established by regulations for his position.

The following are attributions for the members of the QA commission:

- The members are appointed by the tutelary department, selected from specialists with experience; the appointments are to be made with respect to the standards and regulations that apply;
- The members of the QA commission are appointed for a limited period, established by the standards and regulations that apply;

- The rights and obligations of the members are also those specified in the correspondent regulations of QA commission functioning, currently in force;
- The Chairman and the members of the QA commission are to collaborate to achieve best results in the attributions they have been entrusted;
- The members of the QA commission are subject to confidentiality, in the performance of their attributions;
- Other responsibilities that result from the regulations and standards which apply.

The Secretary of the QA commission: is appointed by the members or the Chairman and approved by the commission. Some of the secretary's recommended functions include:

- To attend the commission meetings;
- To convoke the commission body to sessions at the Chairman's order;
- To write the minutes of the meetings;
- To issue certificates and to submit them for approval to the Chairman;
- To ensure communications and documents circulation between the commission's members and the Chairman, between the QA commission and external bodies;
- To notify the agreements reached by the QA commission;
- Other attributions that may result from regulations, which apply to the secretaries in professional associations.

### **6.3.5. Procedures and tools**

The notion work performance quality refers to three aspects:

- the characteristics of the results of the S&S training activities;
- the perception of the surface public transport by the users;
- the characteristics of the public surface transport process.

The three aspects are closely interrelated. The public transport quality is achieved through many steps. Different process designs will give priority to different final service quality components. A process will never maximise all final service quality components at a time (e. g. the S&S training is intended to improve the safety and security for the travellers, but will not improve the quality of the public transport vehicles, or the time travelled). The way the service (and the process) is perceived by the traveller public will often deviate from the way it is perceived by the service provider. Even though public perception is heavily dependent on the service quality achieved, travellers will have their own perspective and priorities. Therefore we must emphasize that the traveller public will (sometimes) see the statistical product with different eyes than the company charged with the public transport. For example, the traveller public might not always have a full overview on the entire set of quality components. It might also give priority to other quality components (e. g. aspect of the public transport bus instead of schedule adherence), or have difficulties to assess the certain quality components without expert support (like incident statistics). For this reason, it is vital that service quality assessment also covers the question how the traveller public actually perceive the quality of the overall surface public transport service.

In order to assess public transport service quality, first of all a clear picture on service quality is needed. The definitions and the components analysed in the previous chapter were considered preconditions. Secondly, a report on data quality is recommendable, reflecting the data characteristics by the quality components and presenting the data features according to data quality requirements.

Quality reports are also important for producers of official statistics. Users of official statistics need to have access to a range of relevant quality measures and indicators for understanding the strengths and limits of the economy and to know how to use them properly (user-oriented quality report). Public transport service providers need to have a picture on the service quality in order to see the results of the earlier developments (including the effects of the S&S training activities) and to identify the points of further improvements (producer-oriented quality reports, formative evaluation). For this end they need the most detailed quality reports and a number of indicators, involving the processes behind.

Whoever the user is, the data producer has to compile a quality report to characterise the quality components, and search for indicators to illustrate these features, taking into account that different users have different needs concerning quality information.

Quality reports and indicators provide documentation of the quality features of statistical analysis. They are the key reference documents for quality assessment. For this reason they form an important input for auditing and self-assessment.

#### **6.3.5.1. The Quality Reports**

Quality Reporting represents the preparation and dissemination, on a regular or irregular basis, of the specific reports conveying information about the quality of a statistical survey on the public transport service.

A quality report provides information on the main quality characteristics of the transport service, so the user would be able to assess service quality. In the optimal case quality reports are based on *quality indicators*.

The main potential target group of the quality report are the users of these, both inside and outside the public transport company. Moreover, these reports might also be necessary for the superior institutions (i.e. Ministry of Transports) or statistical analysis institutes.

In order to meet the requirements of a standard quality report, the quality report should be in line with the latest legal regulations.

Recommendations for a good quality report:

- Matching with the user satisfaction factors concerning relevance;
- Sampling and non-sampling (methods employed in the measurement of work performance, interviews) errors – concerning accuracy;

Indicator examples: coefficient of variation, number of traffic incidents, personnel that has promoted etc., average costs etc.

- Key service dates concerning timeliness and punctuality.

Indicator examples: punctuality of time schedule, time lag between the end of reference period and the date of the first/final results.

- Forms for dissemination, availability data in databases and documentation.

Indicator examples: number of publications disseminated or sold, number of accesses to databases.

- Changes over time, differences between national and European concepts, comparability.

Indicator examples: compared performance in terms of accident number, km travelled without incidents etc.

- Coherence with other sources.

In addition – although they are not quality components – it is advisable to add a general description of:

- The scope of the survey;
- The survey and methods used;
- The costs and burden in order to support quality assessment.

The preparation and updating of quality reports are depending on the frequency of surveys and on the stability of the quality characteristics, balancing between the need for fresh information and report compiling burden.

#### **6.3.5.2. The Timeline**

The timeline and the way the quality of work assessment are also important elements of the overall quality assessment process. The best way to produce a good quality assessment is that every department's administrator should perform his internal analysis prior to the one performed by the QA responsible entity. Every department's head should be responsible for requiring completion of performance assessments. These assessments become then part of the staff's member Human Resources file and could also enter in specific software for quick evaluation of work performances.

The timeline for the work assessment should be established according to the specific of the staff's activities: if the activity is requiring a lot of responsibilities and involves safety and security of the travellers and the vehicle, then a higher frequency of the assessments is required. As described in sub-chapter 6.1, the training process also needs a quality assessment – the formative evaluation. This is intended to improve on a regular basis the quality of the curricula, training activities, documentation, facilities, laboratories, software, simulators etc. in order to maintain a high-level of the performances obtained both at graduation and in the post-graduation activities.

#### **6.3.5.3. Maintaining Records of the Staff's Competencies and the Staff's Performances**

The main criterion of evaluating the work performances should be the analysis in time of the staff's competencies and the way these are satisfied by the employees. For this process to be feasible, it is advisable that the employer builds and maintains (electronic) records of the staff's competencies and their performances.

Competencies are observable behaviours that encompass the knowledge, skills, and personal characteristics that distinguish levels of performance in the work environment. Specific competencies have been identified as critical for every job at the public transport company, and they should serve as the basis for the supervisor's rating of employee performance. A special attention should be considered for specific activities with high responsibilities in terms of safety and security, and for which an incident could lead to large material damages or injuries: the public transport drivers, the staff responsible with the vehicle maintenance etc. A competencies supervisor may add competencies when s/he believes there are competencies unique to the specific department/job. Adding competencies is optional and may not be needed in many departments. Competencies should not be deleted since they are understood to apply to all jobs within the public transport company.

Therefore, it is recommendable that for each competency exists at least the following:

- A complete, but brief definition of the competency;
- A synthetic list of examples of performance indicators (key indicators) that, when performed in good conditions, demonstrate the abilities of the subject in the

respective competencies area. The supervisors or the observers may expand the list of indicators and more explicitly describe a competency for the particular job. The examples of performances indicators under each competency should be meant to be illustrative; therefore, it should be not necessary to address all of them.

#### **6.3.5.4. The Performance Rating Scale Provision**

Based on the company's previous experience, it is recommendable that for each job a specific performance rating scale should be provided. These performance ratings should be in accordance with the company's interests in economy, social protection, safety and security and should be provided based on each job competency. It is also recommendable that "an overall rating", representing the employee's performances and results in the areas of competencies and goals should be provided, taking eventually into account the contribution of a team employees to the department's overall rating.

The performance rating scale should be an item of the overall employee's electronic file maintained in the specific files database. This should also contribute at maintaining a specific competitive environment to all the staff.

An example of a Rating Scale for the Public Transport is given below:

- Rating: *Over (Exceeding) Performance Expectations:*
  - On a regular basis, the employee considerably surpasses job performance expectations;
  - The performances of the employee is obviously above the expectations in terms of completeness, timeliness, demonstrating all time a good level of skills and knowledge of the job's problems;
  - The employee is frequently taken as an example by his (hers) colleagues or by the leadership of the department; his opinions are also sometimes required in the work process development; the employee frequently makes significant contributions to the department's success;
  - The employee is able to perform independent planning in the limits of the regulations, to anticipate problems and to undertake the most appropriate measures;
  - Proves to see the "overall picture" of the process and beyond, but is also able to find the most hidden details of a problem; he proves to understand all problems involved by his job;
  - The work is done independently and completed on schedule, with a high degree of accuracy;
  - Performance is what could be expected of a fully qualified and experienced person in his position; the employee is able to raise the whole department results, due to his / hers influence among the colleagues;
  - Errors in decisions and judgements are rare and may be due to the lack of information;
  - The overall performance is at a high level and the employee shows frequently initiative;
  - The employee requires minimal supervision or follow-up;

- The employee may be a candidate for promotions;
- Rating: Meeting Performance Expectations:
  - The employee is a good one, meeting in all cases or in the majority of them the requirements of the job;
  - The employee is reliable in attaining expected results and understands the implications of his job in the overall company;
  - His initiative and outputs are generally adequate;
  - The amount of supervision necessary to this kind of employee is affordable and reasonable for the company;
  - It is considered that a formative process of this employee could lead to a superior rating of him;
- Rating: Limited/Satisfactory (Just Satisfying) Performance Expectations:
  - The employee does not entirely satisfy the job requirements, is not satisfactorily completing all the assigned duties and needs to demonstrate improvement towards meeting performance standards;
  - Work results are inconsistent and not timeliness;
  - Continued improvement in performances is needed; this kind of employee needs participation at training courses more frequently;
  - The level of supervision for the employee is higher;
  - The frequency of the performance evaluative measures needed is higher;
  - The company's costs for the employee in terms of actions needed is higher;
- Rating: Unsatisfactory (Far Below) Performance Expectations:
  - The employee is not meeting the expected standards or goals set for his position;
  - The employee does not demonstrate a good knowledge of its job requirements, implications and the safety and security rules in all their encompassing;
  - The costs for the employees supervision, guidance, training and evaluation are very high;
  - The integration of the employee in the collective is low;
  - The frequency of the training activities and evaluation needed for this kind of employee is very high;
  - In case of a personnel diagram restructuring, with the need of reducing the personnel costs, the employee might be a potential candidate.

#### **6.3.5.5. Establishing the Job and Professional Development Goals**

One important step in developing a well structured architecture of the jobs in the public transport company is to find and establish a set of job and professional development goals. These should form a basic instruction set of requirements for any employee that temporarily or permanently occupies a specific function in the company. Each job has to have a well defined set of requirements, in order that the evaluative post-actions can take place. The set of requirements has to be announced to the employee at its first day in the job.

Definitions:

- Job Goals – specific task assignments that include clearly defined desired outcomes and measurement criteria, to be accomplished over the next assessment period. Each job goal should identify specific assignments or areas on which the staff member needs to focus and may describe the specific action that will be taken to accomplish this goal.
- Professional Development Goals – specific aims for acquiring knowledge, skills and abilities needed for the job and/or career development. This is not intended to imply substandard performance but rather to identify areas on which the staff member will focus for improvement and/or professional growth over the next assessment period, as well to identify ways the supervisor may provide assistance in achieving these goals.

The professional development is another area where the company should be interested in. The employees' professional development leads in the company's overall success in performing the global activity with good performances.

At least the following sections for addressing the job goals should be taken into consideration:

- The description of the job: goals, importance, safety and security rules, ways of performing the job, team work etc.;
- The description of the work performance procedures and its advantages in the quality assessment;
- The interconnection between the employee's progress in achieving goals that were identified in the prior performance assessment and the establishment of the goals for the next assessment period.

These job goals should be written, in order that both parties understand their meaning. Goals should meet attributes such as: to be specific, measurable, attainable, relevant and time bound.

### **6.3.6. Key Indicators**

In ISSTE WP2, specific sets of key performance indicators (KPI) for safety and security in public surface transport have been defined. The general framework for the ISSTE – KPI system was developed based on the following 4 categories:

- Human Behaviour (HB);
- Training and Working Environment (TWE);
- Vehicle Equipment (VE);
- Management Systems (MS).

The right choice of indicators for evaluating and measuring the Safety and Security in the Surface EU Transport is a very complex and extended technical-political issue with various actors, as local authorities, governments, transport companies, passengers, drivers and employers.

Of course, each of these KPI can be further divided into several parts, in order to evaluate in more detail the effects of the S&S training in the whole public transport process. Such a division could be the following one:

- For the category Human Behaviour (HB):

- No. of traffic incidents recorded before/after S&S training;
- No. of complains/driver received in a specific interval;
- For the category Training and Working Environment (TWE):
  - No. of S&S instructions/year;
  - If the training unit is accredited, ISO 9000 compliant and the S&S courses are certified or not;
  - If the unit is allowed to issue Certificates of Proficiency;
  - Percentage of S&S topics in contained by the regular training's study program;
  - No. of trainers/trainees per study session versus number of graduates;
  - Adequacy of the training environment;
  - No. of S&S procedures implemented in the working environment;
- For the category Vehicle Equipment (VE):
  - No. of S&S assurance equipments provided per vehicle;
  - Percentage of vehicles equipped with specific S&S units;
  - Percentage of S&S improvement by installation of a new safety system;
- For the category Management Systems (MS):
  - No. of S&S systems monitored and/or in a centralised system;
  - No. of quality standards implemented.

By providing quality S&S training, the transport process is influenced in terms of: the human behaviour (HB) and in the training and working environment (TWE). These are considered to be the main effects of the specific training activities concerning the safety and security, no matter in which format were the notions provided (embedded in the normal training courses, or separately).

The KPI list may be therefore sub-divided by secondary key performance sub-indicators, noted here as KPSI. This section will focus on proposing a list for the KPSI included in the above two categories, the HB and TWE. These KPSI should be useful in defining the quality and the influence of the S&S training process in the whole safety and security of the public surface transport.

With the occasion of the first questionnaire issued by Partner 4 amongst the other project partners, a list of KPSI for the educational and training process was proposed:

- The Quality of Educational Process (QEP);
- Training Environment (TE).

The Quality of Educational Process may be considered a factor influencing the future human behaviour; therefore it had been set as a sub-indicator of the category HB.

The Training Environment is the medium where the trainee, future driver of a public transport vehicle, is developing his training activities, in terms of safety and security mainly (from the point of view of this indicator). Therefore, the indicator may be considered as a sub-indicator for the TWE category.

### 6.3.7. Recommendations for Implementation

The implementation of quality in the surface public transport is complex and a continuous activity. With the emphasis on the safety and security aspects, this process has also to comprise the training activities and to be fully integrated in a total quality management system. This section describes some recommendations regarding the most appropriate ways to implement such a quality management system.

*Total Quality* is a description regarding the culture, attitude and mode of organisation for a transport company that strives to provide customers with services that satisfy their needs. The culture requires quality in all aspects of the company's operations, with processes being done right the first time and malfunctions or bad practice eradicated from the process flow.

The *Total Quality Management (TQM)* represents in the literature a method by which the management and the employees can become involved in the continuous improvement of the services. It is a combination of quality and management tools aimed at increasing business and reducing losses due to wasteful practices. In case of the surface public transport, it is also beneficial in terms incidents number reduction, injuries reduction and last but not least, the increase of travellers' trust in the public transport.

TQM is a management philosophy that seeks to integrate all organizational functions (marketing, finance, design, engineering, and work flow, customer service, etc.) to focus on meeting customer needs and organizational objectives.

TQM views an organisation as a set of processes. It maintains that organisations must strive to continuously improve these processes by incorporating the knowledge and experiences of good practice. The simple objective of TQM is stated "*Do the right things, right the first time, every time*". TQM is infinitely variable and adaptable. TQM is now becoming recognised as a generic management tool, just as applicable in service and public sector organisations. TQM should be the foundation for activities, which include the following recommendations:

- The commitment of the public transport company management and all its employees;
- Providing actions aimed at meeting customer requirements;
- Reducing development cycle times, optimising investments in infrastructure;
- Just In Time / Demand Flow Service Providing;
- Reducing service costs;
- Developing systems to facilitate improvement;
- Employee involvement and empowerment;
- Introducing regular training and evaluation of personnel qualities and achievements in work; introducing a scheme for personnel evaluation, with points, known by all the staff, helping increase of salaries, promotions etc.;
- Recognition and celebrations for the personnel with best results;
- Challenging quantified goals and benchmarking;
- Focus on processes / improvement plans;
- Specific incorporation of quality analysis in strategic planning etc.

An adapted scheme proposed for the public transport companies is recommended below:

- Management Involvement:
  - Plan (support actions for the strategic development of services quality);
  - Do (deploy, support, participate actively);
  - Check (measure and provide corrective actions);
  - Act (do corrective actions, communicate, revise again);
- Employee Empowerment:
  - Training – continuous improvement of the knowledge;
  - Auto control of results and prevention of mistakes to occur;
  - Measurement and recognition of merits – correlated with a pertinent scheme for promotions and salary increases, dependent on the results in work;
  - Excellence teams – used also in training activities;
  - Building networks of excellence centres;
- Fact Based Decision Making:
  - Constructing a SPC (Statistical Process Control). Maintaining databases with results of work activities for continuous analysis;
  - Promoting TOPS (Team Oriented Problem Solving);
  - Promoting DOPS (Department Oriented Problem Solving);
- Introducing continuous improvement activities:
  - Systematic measurement and focus on quality;
  - Excellence teams contribution: projects for quality improvement;
  - Cross-functional process management;
  - Attain, maintain, improve standards;
- Customer Focus:
  - Partnership with client – promoting feedback from the client;
  - Developing customer driven standards.

As a conclusion, it should be stated that if a public transport company wants to introduce quality, it has to do it in all departments and on a continuous base. Starting with the organisation of the company, then with the policies, the training of the employees, the training environment, the work environment, building a system for quality management and assessment of activities, building a system for promotion, based on best results in activity etc.

### **6.3.8. Internal Quality Assessment**

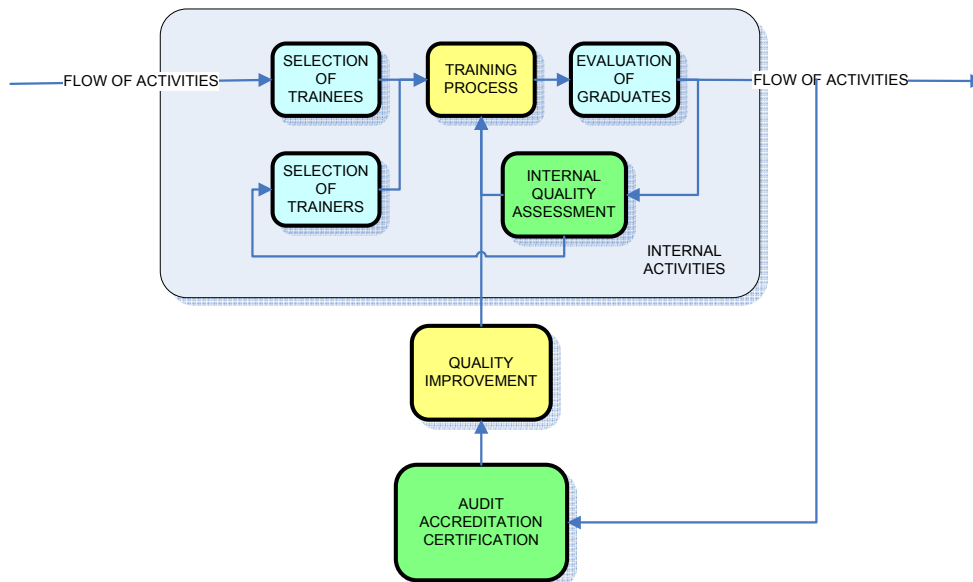
The section presents the steps necessary to undertake in order to verify the quality and results of the S&S Training activities.

At the level of each training institution or department, a quality assessment commission is to be set. This commission has the task to ensure and to monitor on a continuous basis the implementation and fulfilment of the quality and standard adherence criteria, thru specific actions:

- Inspections to training courses, seminaries and practical activities within the training programme;
- Internal analysis regarding the impact of the training courses and the quality of the training process;
- Discussions and interviews with the trainees (unsigned questionnaires) regarding the training process;
- Comparative analysis regarding the marking procedures at examinations, for different practices, different training staff;
- Analysis regarding procedures for composing, editing and issuing the exams subjects;
- Analysis regarding the quality of the practical activities and simulations;
- Provision of a set of minimal requirements for the practical activities elaboration;
- Assessment of the relevance of the study curricula;

Except these regular activities regarding the internal evaluation of the training process quality and fulfilment of tasks and standards, the commission must have another obligation, to evaluate the methodologies for recruiting training staff. Organising admission contests represents the most appropriate and quality guaranteeing form of recruiting the training staff. A basic condition for a successful team of trainers is the earnestness of the examination commission.

Quality is the synthetic indicator and the main engine of efficiency, performance and competitiveness in all training institutions.



**Fig. 20** The importance of the internal quality assessment in the overall quality management process

| The figure above (~~Fig. 20~~[Fig. 20](#)) shows how important is, in the training process, to perform formative evaluations and assessment on an internal basis, as a component for the improvement of the training procedures, trainees' selection and examination procedures and also for the overall quality improvement.

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## 7. ISSTE PROJECT INTERNAL EVALUATION

### 7.1. Purpose of Internal Evaluation

This section is dedicated to the presentation of the purposes and results regarding the internal evaluation of the ISSTE project results.

In order to emphasize the benefits that a better instruction, examination and evaluation methodology is offering, preliminary analysis of the whole training and public transport workflow processes is necessary. The ISSTE project was aimed on recommending a common strategy for continuous training in safety and security, with the purpose to improve the quality of the whole public transport process, starting early with the formation of the personnel and ending with the whole work environment. This is expected to lead to an overall improved service quality and more attractiveness for the travellers.

One initial purpose of the internal evaluation process was to find out if it is possible to apply the innovative curricula and methodologies. While the public transport companies involved in the project employed different approaches in training the drivers, different methodologies for applying the new curricula were adopted. The procedures included: a continuous training approach and a specific designed, separately provided module concerning the safety and security issues in the surface public transport. The partners involved in these actions were Trambus and RATB, the most significant transport service providers from two different countries,

The procedures for a complete drivers' instruction process, with emphasis on the *continuous training* are presented in this work package report and are based on the experience and the know-how from two, apparently different, domains of activity:

- The public transport;
- The educational process.

Combining best practice from the two above areas of activity, the partners of ISSTE project agreed to bring the methodologies for personnel formation to a new level, in order to achieve superior results in the safety of public transport.

The partners of the consortia and P4 UPB-CEPETET considered that the best way to determine how new methodologies may function in reality is to test them in practice. This is why the two big transport service providers, Trambus and RATB trained a selected lot of drivers according to two different approaches.

Another reason for performing the training activities in a different manner was because different countries and different stakeholders employ different strategies in achieving the same goal: a good performance of the public transport drivers. On the other hand, one single methodology, no matter how performing should it be, cannot satisfy all the requirements of the transports service provider, or the necessities of the company.

The procedural activities in the drivers training process are differing from company to company, but they also share a common part, the legislative one. Standards at the international level apply in all countries, but local legislation and national normative impose different approaches in achieving the goals of the training. Also, the quality evaluation may have different procedures. The diagram below shows where an analysis of the training process have to be more consistent, in order to determine if the differences can have a disturbing effect on the results.

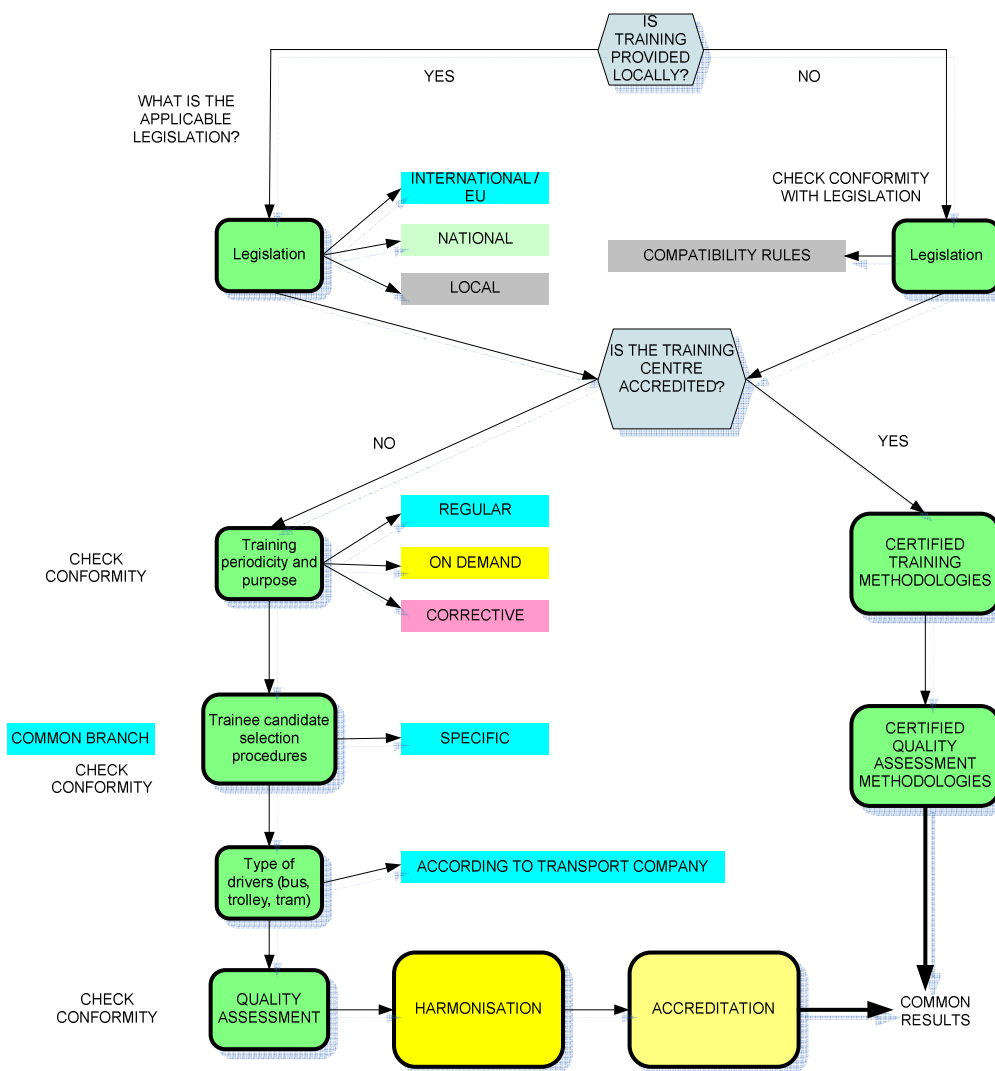


Fig. 21 Checkpoints of the internal ISSTE analysis

On the diagram above, the main checkpoints performed in the internal ISSTE analysis are presented.

In the first phase, it was important to know what was the applicable legislation in the project partner countries, and how much the procedures for training were having a common branch.

A second purpose of the internal evaluation of ISSTE project’s results was to find out if the newly designed procedures, curricula and assessment methodologies are adequate and can be implemented with the project’s goals respect, i.e. increasing the safety and security of the surface public transport by providing a better training to the vehicles’ drivers. The results of this assessment proved that the procedures are feasible, despite the fact that some of them may require extra budget, involvement of competent authorities and time.

A third purpose of the internal evaluation of ISSTE project results was to determine if the recommended methodologies for the quality assessment return enough information for being able to observe the improvements of the quality in terms of safety and security. These procedures, described elsewhere in this document in more detail, imply two feedback loops: the first is the assessment of the results obtained by the S&S training course graduates and the second is the assessment of the results obtained by the graduates in their normal activity (work results assessment).

The evaluation of the results that are obtaining when performing new curricula and new methodologies is time consuming. This is because the approach is considering not only the results of the training purely as extra-knowledge gained by the trainees, but also their performances in reduction of traffic incidents and/or security issues involving the drivers or public transport vehicles. The evaluation of these benefits has to be performed on a continuous base by the public transport services provider. It can be easily achieved if records of these events are maintained in a database and associated with each driver.

The lower part of the diagram in figure 21 means that even if a training centre from the public transport company is not accredited, it can obtain superior quality if applies internally the procedures in conformity with the accredited ones, seeking in continuous quality improvement and permanent control of all the activities.

Performing the *formative evaluation* described elsewhere in this document, the training centre will be able to actively introduce in the newly developed curricula all aspects of best practice, taken even from experience in exploitation of the own company.

At the days when writing this document, significant results regarding the possible effects in normal work activities of the S&S training are available. These monitoring actions and analysis are still continuing. The following paragraph describes in more detail the actions that were performed in the work package for the ISSTE internal analysis.

## **7.2. Parallel Actions Performed in ISSTE**

This section presents the main actions performed in ISSTE, regarding the S&S Training, the assessment of the results and an estimation of the quality for the whole training process.

The evaluation of the project's results has been performed in different stages in ISSTE:

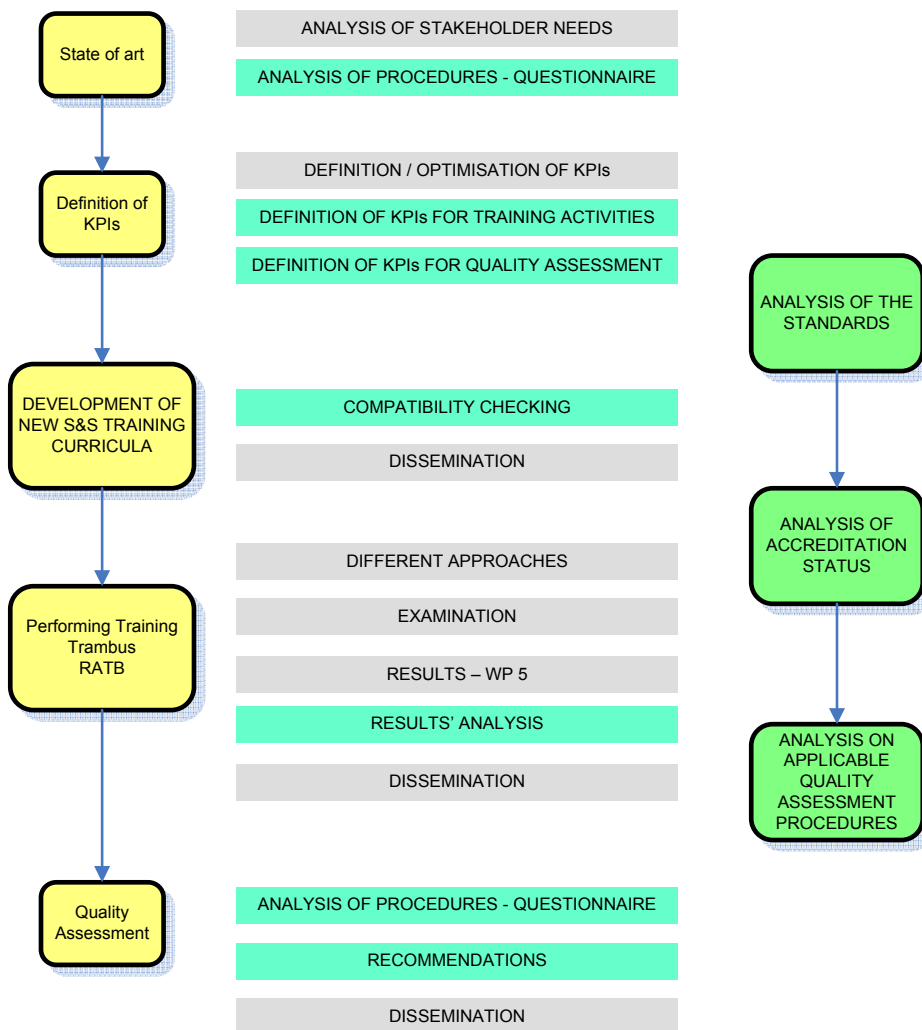
- An initial evaluation of the training results was performed by the partners that provided training courses (P1 Trambus and P2 RATB); the two partners employed different methodologies in training:
  - a S&S training able to be delivered independently from any other internal standard training;
  - a S&S training to be delivered within the internal standard training.

The results of the trainings were evaluated taking into account specific questionnaires answered by the trainees and graduates;

- A parallel, direct evaluation provided by P4 UPB with the co-national partner P2 RATB regarding the procedures for training, quality control, accreditation and certification.
- A third evaluation provided by P4 UPB amongst other partners in the project, regarding performed via a two-phased process, and specific questionnaires:

- A first phase included a questionnaire distributed to the project partners, aimed at discovering the main issues that may exist regarding the procedures for training and the available standards that apply in the respective partner’s country;
- A second phase questionnaire, aimed at discovering the degree of compliance with the newly developed accreditation and certification process, to seek out if the proposed process would be easily applicable to all partners in the project.

The diagram in the figure below presents the parallel actions performed for the internal analysis of the ISSTE action points.



**Fig. 22 Parallel actions for the internal ISSTE analysis**

The contacts between the partners ensured a good sharing of information. In the internal analysis of the procedures performed in different partner countries resulted that differences in procedures exist, but they are not significant. The most notable parallel actions performed for the internal evaluation were:

- Analysis of the training centres and facilities that perform training for public transport companies;
- Analysis of the applicable legislation and procedures in different countries (from the partners in the project);
- Analysis of local legislation (Romania);
- Evaluation of the training procedures performed by Trambus and RATB (in terms of applicants, curricula contents, procedures, examination results and overall results);
- Analysis of quality assessment procedures, services and results (RATB);
- Analysis of ISSTE project results impact in safety and security for public transports.

### 7.3. Results of the Internal Evaluation

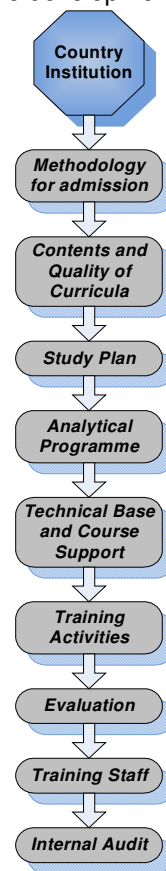
This section presents most significant results and analysis of the internal evaluation performed for the courses and training curricula used in the S&S Training by partners of ISSTE project (Trambus and RATB). The analysis of the quality assessment procedures also led to a set of recommendations which are intended to increase the attractiveness of the public transport and to create a easier way for the companies seeking for accreditation.

The analysis of the procedures was presented in chapter 5 and lead to the development of a flow of actions which all the institutions are recommended to follow, in order to have the best S&S training implemented and to comply with most of the European and international normative in this field. A general flow of procedures and elements of interest has been produced and is considered optimal and most easy to adapt in order to achieve conformity with accredited institutions. In the figures are presented this proposed course of procedures, starting from the admission to the training, going through the items related to the training itself, like curricula, study plan and technical base and course support and reaching the evaluation procedure.

It has been stated elsewhere in this document that a transport company has interest in becoming accredited, in order to gain quality in all economical processes and to become recognised amongst the top service providers.

P4 UPB-CEPETET performed an in-depth analysis of the procedures in each partner country, seeking for compatibilities for the:

- How the standards, rules and applicable legislation, are compatible;
- If the training provider is an outsider or resides inside the public transport company;
- If it is accredited – and in how much extend this counts for the quality of the training process;
- Procedures of admission (on what criteria the candidates are selected, how the criteria of selection match with the interests of the company and the transport safety and security, if the selection criteria also include psychological testing etc.);
- Contents, adequacy and quality of curricula;



- Procedures for examination, re-examination and certification;
- Quality and methodology for selecting the training staff;
- Quality, adequacy and efficiency of the technical base;
- Ways, procedures and materials for disseminating the related information;
- Procedures and conformity with standards for the quality management etc.

In addition there are two procedures mandatory for assurance of the quality in the training process: the first one is the Training Staff procedure, which assure competent trainers and the second one is the Internal Audit, which certifies that the training is done according to all the quality normative mentioned before in this document.

An analysis was performed in order to show the compliance with this flow of procedures for all partners.

From the discussions with different partners (or from the results obtained in the questionnaires provided) it resulted that there are several discrepancies between different countries: in some countries the trainings are provided externally from the transport company (ex. Spain), in other the stakeholders act according to their interests and differences appear between procedures (ex. Slovak Republic). In some countries the training is not performed by accredited centres (ex. Romania) but the transport provider has the intention to become accredited.

In the figures, the representation of colours is the following one:

- green boxes represent parts of the training process that are implemented and have quality control assured;
- yellow boxes are the procedures that exist, but don't fully comply with international standards and/or quality assurance methods. The ones that don't exist should have been marked with red colour (this was not the case for any of the partners).

In the next figure is presented the flow described for the partners Regia Autonoma de Transport Bucuresti (RATB) – Romania, Trambus – Italy, Združenie Autoškôl SR (ZAS) – Slovakia, SSB AG – Germany and Empresa Malagueña de Transportes (EMT) – Spain.

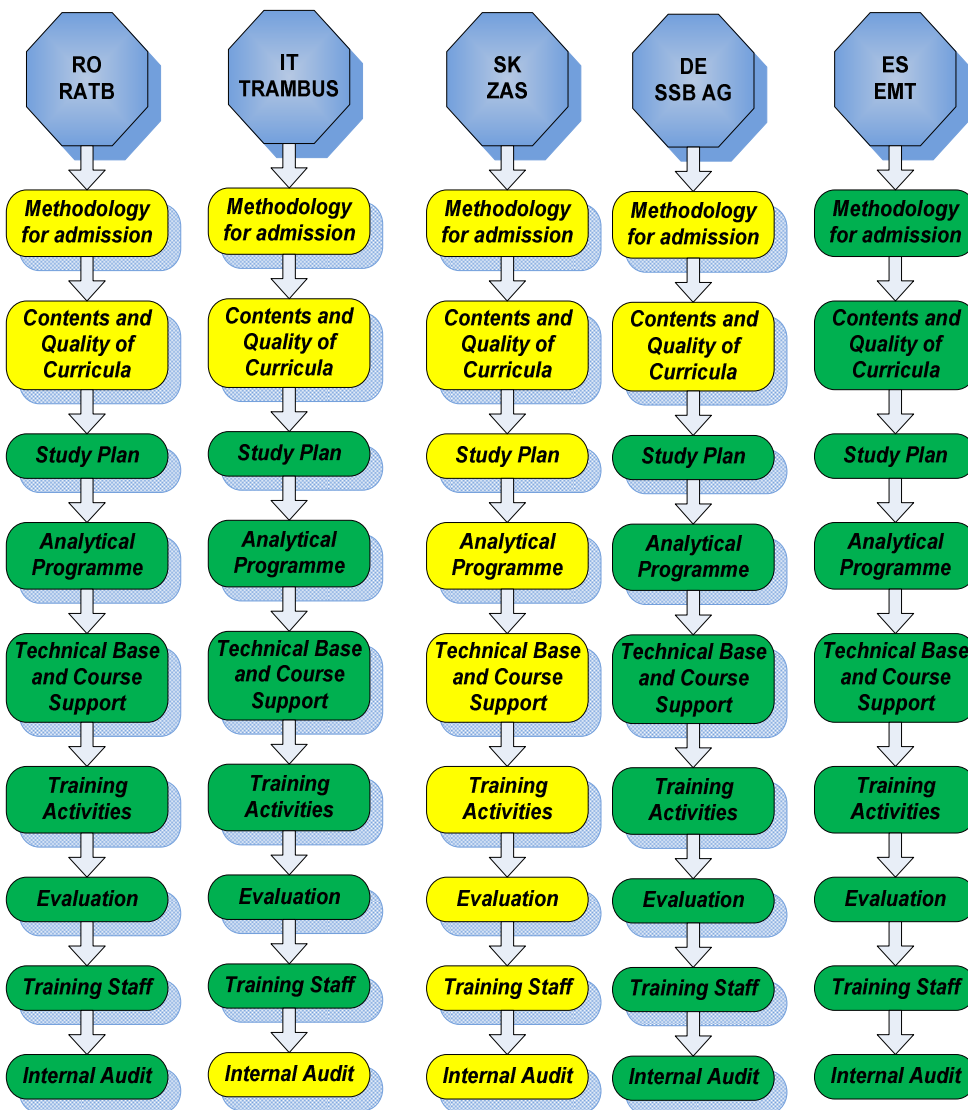


Fig. 23 The flow of S&S training procedures for the ISSTE partners

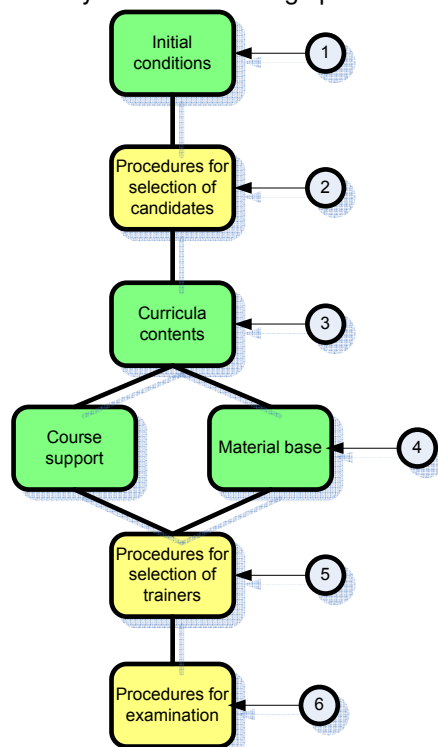
The discussions with P1 Trambus and P2 RATB revealed that both of these partners have developed specific procedures for quality assessment and the quality control has very strict methodologies.

The training performed for selected public transport drivers was on two different approaches, as described above, one as an integrated module, and the other as a separate module in the training procedure.

These procedures can be improved by commonly sharing best experience in the field of quality. Both Trambus and RATB have a good support for training in terms of documentation. Special for the safety and security module, both Trambus and RATB developed documentation. In fact, dissemination is very important to make known the new approaches developed in this project. The way this has been achieved in ISSTE is presented below:

- Course curricula modules (Trambus, RATB);
- Leaflets and dissemination of information (Trambus, RATB);
- Book (RATB) concerning legislation;
- Conferences papers (UPB-CEPETET);
- Project website (all partners).

This support could also be improved with shared experience and best practice, developed via a common database with information. The following diagram presents the checkpoints of the internal analysis for the trainings performed by Trambus and RATB.



**Fig. 24 Checkpoints for the internal analysis regarding the training activities performed in WP3/WP5 by Trambus and RATB**

The numbers have the following significance :

- (1) Analysis of the initial conditions (legislation, applicable procedures, workflows etc.): it resulted that both companies are very important transport services providers with a strong infrastructure and procedures. The applicable legislation differs slightly. The procedures for training differ also. Both companies have training processes performed internally. RATB is not accredited, but is conform with quality standard ISO 9001;
- (2) The procedures for selecting the candidates also differ in a certain matter. RATB lacks a more control over the psychological factor of the candidates;
- (3) The curricula contents has been commonly developed within the project phases and improved with the participation of project’s partners. Both companies produced curricula modules also supported by dissemination activities;

- (4) The course support was adequate for the training purposes in both companies; also the material base – intensive usage of simulators and/or examples from reality with traffic incidents involving public transport drivers, causes and measures to rapidly recover are required for both companies.
- (5) The procedures for selecting the trainers also differ slightly. Some of the trainers can be selected from more experienced drivers, especially for the practical training activities;
- (6) Procedures for examination and quality control. From the discussions with RATB it resulted that the company has a good and ISO 9001 compatible control service that is extending both in the training sector and the normal work. The complete quality control requires a large amount of time and data collection in order to be effective. Therefore, several methodologies for QA have been presented in the WP4 deliverable.

The actions for improving the results of the internal evaluation are still continuing: both Trambus and RATB are maintaining databases with records of the activities and results of the S&S training graduates. These records will serve in many way at improving the quality of all activities in the public transport sector:

- A better selection of candidates for training;
- A better selection of trainers;
- Improvement of the transport services in terms of quality, safety and security;
- Improvement of the documentation for training and instruction, based on the *formative evaluation* procedures;
- Better organisation of the transport enterprise thru gaining the accreditation etc.

## 8. CONCLUSIONS

The research activities performed in WP4 tried to improve the overall process flow in the safety and security training, with emphasis on modern and innovative methodologies for accreditation, certification and quality assessment. It resulted that the recommended procedures and workflow are not strictly applicable, as each country or stakeholder may have different standards, rules or interest. However, the procedures presented in this document represent a guideline and a comprehensive set of recommendations for improving the general quality of the transport process, especially investing in the human factors. This is considered an efficient approach, as the human factor is mostly responsible for traffic incidents involving public transports vehicles.

### 8.1. *Guidelines and recommendations*

- In WP4, direct evaluative actions took place for P2 RATB and an evaluation of the training process for drivers in the public transport for the rest of the project's partners has been performed by the means of a dedicated questionnaire distributed amongst them;
- Standards applicable in terms of quality assessment and training are in general the same, but the local regulations and methods for implementing may differ from country to country, so corrective actions are necessary; adaptability should be one of the attributes for the certification/accreditation methodologies developed in WP4;
- The project's strategy for accreditation and quality assessment had been developed based on the past work performed in WP2, WP3 and WP5. Segments of this strategy are already functioning in large transport companies, as part of the quality process flow. The complete implementation strategy and procedures can be further discussed and improved in the next period, in continuous cooperation with all project' partners and possible third parts;
- The accreditation/certification methodologies were developed in accordance with the latest available standards and with best practice in high education (universities and academies);
- The term "*accreditation*" was proposed to be used instead of simple "*certification*", as it refers to a larger set of activities, intended to obtain large recognition for a public transport company' training department. The "*certification*" only refers to the activities undertaken by third parties that have the purpose of certifying a specific course or course modules, in order to obtain legality in issuing certificates of graduation. Accreditation was considered to be a most appropriate term for the purpose of the actions developed in WP4, and it also means performing all activities, including issuance of a certificate of accreditation. In our opinion, the term "*accreditation*" may also include the procedures of "*certification*". Accreditation is to be performed initially by a specific accreditation entity, while certification may repeat more frequently, when the curricula contents changes over a certain percentage, or is completely renewed.

### 8.2. *Building a Community Transport Training Network for the surface public transport*

Developing the S&S training activities within the premises of the own company has, of course, many benefits, especially in terms of budget and time. Beside this, a permanent

control over the training activities can be more easily implemented. All these factors contribute substantially to the sustained development of the safety and security components in the surface public transport.

All the benefits of the training activities would not be complete without the integration of external know-how and expertise. This can be easily achieved when building a community transport training network.

A training network may represent the enlargement of the public transport operators' community, in terms of knowledge and experience, or exchange of information. It may be used for directing people to results of others' experience, publications, research, training activities and to other people's knowledge in the S&S specific applications, employing in this way a more productive use of resources and energies.

The network could be build based on the principle of an open system, giving access to Training Centres' Databases, Training Services, Training Consultants, Training Courses pages, forums for discussions etc.

The network of training centres could also help to develop exchanges on the public transport companies experience and to promote the development of the skills of professionals in the surface public transport sector as a prerequisite to achieving the maximum performances in the assurance of safety and security.

It is recommended, as a first step in building this community, to start finding out and defining common needs and expectations. For this purpose, a questionnaire is to be developed and disseminated among the future members of this society.

The information gathered and further on shared may refer to the financing, the organisational aspects of the training system and with topics of potential interest for the future activities of the new International Training Centres Network:

- Promotion of professional training and reinforcement of the relations with the main international public transport companies supporting the development of the safety and security sector;
- Regular organisation of seminars and workshops on training needs and methods;
- Development of exchanges of experience between the partner centres on their educational tools;
- Organisation of technical visits and study tours;
- Reinforcement of the training centres' promotion, thanks to communication tools, such as an Internet portal, a network newsletter, etc.;
- Creation of working groups for joint projects development.

## 9. ANNEXES

### 9.1. Annex 1 Best Practice Questionnaires

#### PROFESSIONAL ACCREDITATION AND CERTIFICATION PROCEDURES OF PROFESSIONAL TRAINING CENTRES

##### *Introduction*

The transports sector is a very vital link of an economy. The safety and security represent one of the main goals to achieve a reliable transport system. The policies of EU point towards increasing the demand for public surface transportation in large congested urban areas, instead of using private cars. The accessibility and attraction for the public transport system cannot be obtained without achieving complete and reliable services, including those related to safety in traffic and security for the passengers. Safety and security can also be improved employing a good strategy for drivers' instruction and certification methodologies.

Specialists affirm that "Knowledge is the principal success factor in competition between businesses and, at the same time, a resource at the base of personal and professional growth for workers, a primary source of security for confronting a labour market that is increasingly demanding and flexible. In training, the theme of quality is a priority in intervention strategies. From an organizational profile, this new orientation towards the customer and quality requires organic, flexible models that are integrated with the territory and working against objectives defined on the basis of needs emerging from the context. The evaluation of training services is conceived not only in terms of the dynamic selection of the actors vying to manage and dispense training but also as an opportunity to provide a strategic tool for the continuous improvement of the quality of the services themselves. The concept of quality in training requires particular attention in this context, given the specificities of training services that, being services is an intangible with a high relational content inserted in a complex system of expectations whose roots are often anchored in the fabric of the local area. The evolution of professional training systems in recent years has given rise to the need to develop a new organizational and management model with clear, certain procedures oriented towards objectives of satisfying the customers that use the service and other stakeholders. The need to develop evaluation, accreditation and certification models suited to the needs of different types of training organizations and, especially, capable of stimulating a culture of quality in training becomes the key point to develop to guarantee that professional training could really become a driving force in an increasingly market-oriented world. Accreditation assumes a strong strategic value; it represents a process of evaluation whose purpose is to the meet the need to guarantee, on the one hand, the reliability of the training services provider and, on the other, that competition takes place between selected subjects equipped with the qualified structures and resources that are indispensable for guaranteeing the minimum threshold of quality defined by the accreditors and a perspective of the continuous improvement of the service. It is useful to distinguish between *accreditation* and *certification*: in accreditation, the accreditor determines its own rules and controls; in certification, the rules are determined by a standard and competent third parties perform the controls. Accreditation means recognition that an institution attributes to its suppliers on the basis of certain minimum criteria and respect for a determined procedure. The regional accreditation system guarantees the achievement of a minimum threshold of quality and reliability as the condition for access to public financing. Certification, on the

other hand, is the attestation by an institutionally legitimate and third-party agency that guarantees that the structure and personnel in question have characteristics that conform to a specific, public list of requirements. An accreditation system could include some elements of certification. So, through accreditation, the regions define the criteria for selecting their suppliers of educational and/or orientation services. Accreditation is a tool that allows a public body that finances certain services to verify and guarantee the minimum standards of quality of the delegated organizations on the basis of objective parameters. The problem of the conditions required of subjects who propose to conduct professional training paid for with public funds is a problem of significant importance whose solution represents a response to two fundamental needs that are connected to each other: to assure users of the quality of the training service and to provide the public administration a retroactive guarantee of the managerial reliability of the service provider. A state/regional agreement establishes who accredits whom, the areas of application of the accreditation and the indicators for minimum standards. Accreditation introduces quality standards for providers of professional training.”

## QUESTIONNAIRE WP4

### Regarding the certification methods, knowledge, good practices in transports training, education and evaluation of personnel

#### General items:

- **Assessment of current situation in terms of knowledge and practices regarding the education, training, evaluation, certification methodologies used in public surface transport**
- 13. Safety and security rules in surface transports: standards at EU level; implementation at local level (Q2-Q5);
- 14. Education policies in EU – knowledge at national level (Q6-Q11);
- 15. Good practices in transport training (Q12-Q19);
- 16. Education processes and evaluation of personnel in surface transports (Q20-Q26);
  - a. Components regarding Safety and Security in the schooling system;
  - b. Collaborative support in Safety and Security education from the government and legislative environment (specific policies of the country regarding the safety and security issues that could be in relation with the educational processes of the surface transport vehicles drivers);
  - c. Collaborative support from local authorities;
- 17. Training of trainers and certification – national practices (Q27-Q29);
- 18. Certification and accreditation of educational bodies in surface transports – national practices (Q30-Q34);
- 19. Training methodologies – national practices (Q35-Q42);
- 20. Evaluation methodologies – national practices (Q43-Q44);
- 21. Certification methodologies – national practices (Q45-Q49) ;
- 22. Role of the trainees in improving safety and security in surface transports – national practices (Q50);
- 23. Role of the trainers in improving safety and security in surface transports – national practices (Q51);
- 24. Role of the methodologies for training and evaluating in improving safety and security in the surface transports – national practices (Q52).
- **Designing a new approach for improving the role of the education in improving safety and security in public surface transports:**
- 8. Quality in education; EU normative; Rules and improvement of existing processes; Cult of the quality (Q53-Q55):
  - a. European movement towards the quality of the training and educational processes;
  - b. Concepts of quality in the educational processes;
  - c. Means for evaluating the education quality:
    - i. Methodologies;
    - ii. Rules;
    - iii. Procedures;
    - iv. Criteria;
    - v. Standards;

- vi. Performance indicators;
- 9. Key Performance Indicators in the educational and training processes (KPIE) – proposal (Q56):
  - a. Quality of Educational Process (QEP);
  - b. Training and Working Environment (TWE);
  - c. Rules and Procedures for Evaluation and Certification (RP);
- 10. Judicial and Legislative Normative regarding the implementation and evaluation of quality in the educational process (Q57-Q59);
  - a. International standards (ISO) and Directives of EU;
  - b. National level;
  - c. Internal rules;
- 11. Role of the certification methodologies in improving safety and security in surface transports (Q60);
- 12. Designing new and innovative evaluation and certification strategies and methodologies (Q61):
  - a. Ethic codes;
  - b. Policies for ensuring quality in the educational processes;
  - c. Policies for ensuring quality of the didactical activities;
  - d. Policies for trainees and social programs for trainees;
  - e. Policies for ensuring best practices;
  - f. Improved/new evaluation and certification methods;
  - g. Periodical internal quality check;
  - h. Standards harmonization in surface public transport education, training, evaluation and certification
- 13. Main targeted policies and projects in course (Q62);
- 14. Other (Q63-Q68);
- 15. Adaptable (Q69-Q71).

Proposal for the general architecture of the training processes for surface transport companies

- **Methodologies, criteria, procedures, standards and indicators for quality of education**
  1. Methodologies for selecting trainees;
  2. Procedure *Contents and Quality of Studies Curricula (P1)*;
  3. Procedure for *Education Plan (P2)*;
  4. Procedure for *Curricula (P3)*;
  5. Procedure for *Evaluation (P4)*;
  6. Procedure for *Course teaching (P5)*;
  7. Procedure for *Seminars and Applications (P6)*;
  8. Procedure for *Practical Activities (P7)*;
  9. Procedure for *Examination and Evaluation (P8)*;
  10. Procedure for *Internal Activities of Educational Body (P9)*;
  11. Procedure for *References and Study Documents (P10)*;
  12. Procedure for *Administration and Payroll (P11)*;
- **Methodologies, criteria, procedures, standards and indicators for trainees**
  1. Quality of education for the trainers training;
  2. Program for preparing the students for the educational process;
  3. Procedure *Contents, Organization, Development and Finalization of the Training for Didactical Activities (P12)*;
  4. Methodology for organizing and performing the evaluation of the trainers;
  5. Procedure *Practical Didactical Activities (P13)*;
  6. Rules regarding the practical didactical activities;
- **Rules for trainers' performances evaluation;**
- **Rules for effects in improvement of safety and security of surface public transport evaluation;**
- **Education quality assessment:**
  1. Procedure *Evaluation of the Training Process (Institutional Capacities, Educational Efficiency, Quality Management) – (P14)*;
  2. Rules for quality evaluation at different levels;
  3. Implementation of *e-Learning Processes*;
  4. Internal Audit;
  5. Certification;
  6. Accreditation.
- **Building a Community Transport Training Network for the surface public transport**

**Questions:**

- Q1. Transport company name/city/country;  
Name:.....City:.....Country:.....
- Q2. Has the company a dedicated compartment for training? Please describe the staff scheme of this compartment;  
YES:.....NO:..... if the answer is NO please name the entity or person in charge with this activity.  
Description:.....
- Q3. What is the local legislation regarding to safety and security rules in surface transport, that applies (please name Laws and Standards)?  
Local laws – YES:.....NO:.....Name:.....I do not know.....  
National laws – YES:.....NO:.....Name:.....I do not know.....  
European laws – YES:.....NO:.....Name:.....I do not know.....
- Q4. Start year of training activities in the company?  
Year:.....Number of years:.....(aprox.)
- Q5. Are safety and security rules taught in the educational process?  
Safety – YES:.....NO:.....I do not know.....  
Security – YES:.....NO:..... I do not know.....  
Related actions – YES:.....NO:..... I do not know.....
- Q6. Do the correspondent EU standards in terms of education apply to the training program of the transport company?  
YES:.....Name:.....I do not know exactly – reference:.....  
NO:.....Why:.....  
I do not know.....
- Q7. Are the educational processes completed according to actual EU recommendations in general education in your country (e.g. Lisbon Strategy)?  
YES:.....NO:.....I do not know:.....
- Q8. Is the European Legislation in terms of education applied at National Level?  
YES:.....NO:.....I do not know:.....
- Q9. Are there any specific standards employed for public transport drivers? If yes, please specify. Are these in accordance with EU normative?  
YES:.....NO:.....Standards:.....
- Q10. Are the public transport drivers trained according to these standards?  
YES:.....NO:.....I do not know:.....
- Q11. Are there specific standards for the trainers of the public transport drivers? If yes, please specify. Are these in accordance with EU normative?  
YES:.....NO:.....Standards:.....
- Q12. Does the transport company have a formally adopted mission statement in terms of safety and security?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name of the paper/document:.....
- Q13. Has the transport company established and does it regularly use internal/external review processes for assuring that its programs accomplish their stated educational and training processes for public transport vehicles drivers?  
YES:.....NO:.....I do not know:.....
- Q14. Does your transport company maintain clearly stated and publicly available policies in training of the transports safety and security related staff?  
YES:.....NO:.....I do not know:.....

- Q15. Does the transport company provide advising and learning support that is consistent with the training mission and the needs of the trainees?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down some actions:.....
- Q16. Does the transport company have in place policies and procedures that govern its education/training abroad programs and practices?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down some policies and procedures:.....
- Q17. Does the transport company provide adequate financial and personnel resources to support its training programs?  
YES:.....NO:.....I do not know:.....
- Q18. Did the company establish and continuously maintains effective health, safety, security and risk management policies, procedures and staff training?  
YES:.....NO:.....I do not know:.....
- Q19. The company informs itself, educates its employees in and adheres to the ethical principles and practices of similar education/training in public transports abroad?  
YES:.....NO:.....I do not know:.....
- Q20. Are the educational and training processes in the transport company continuously monitored and evaluated?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name of entities in charge with monitoring:.....and evaluation:.....
- Q21. What are the components of Safety and Security that are trained in the schooling system?  
Name:.....Level of education:.....Target public:.....Duration:.....
- Q22. Does the transport company require/receive any support in Safety and Security for the training process, or for the normal activities processes? If yes, please name them.  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name.....
- Q23. Are there developed any collaborative supports for training with local authorities? If yes, please name them.  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name of actions.....
- Q24. Please specify minimum education requirements for the public transport drivers;
- Q25. Please specify minimum experience requirements for the public transport drivers (if any);
- Q26. Please specify minimum competence / specialization / training requirements for the public transport drivers;
- Q27. Is there developed any process of training for the trainers?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name of action:.....duration:.....short description:.....
- Q28. Who is the entity authorized to perform training for the trainers in your transport company?  
Name:.....Description:.....
- Q29. Is the procedure employed uniformly at national level?  
YES:.....NO:.....I do not know:.....
- Q30. Is there a national rule that establishes the necessity of certification and accreditation of educational bodies in surface transports? If yes, please name it.

- YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name.....
- Q31. Are the educational bodies certified?  
YES:.....NO:.....I do not know:.....
- Q32. Who certifies these departments/ companies / educational bodies?  
Name:.....Description:.....
- Q33. Please specify the criteria of certification for these departments/ companies / educational bodies;
- Q34. Period of time for these departments / companies / educational bodies certification;  
Period of validity?
- Q35. Are there established methodologies for training?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name.....and online available documents (English version).....
- Q36. Are the training methodologies implemented / employed at national level?  
YES:.....NO:.....I do not know:.....
- Q37. The duration of the initiation course for public transport drivers per category of PTV;
- Q38. The period of time for the re-initiation for public transport drivers per category of PTV;
- Q39. The duration of re-initiation course for public transport drivers per category of PTV;
- Q40. The maximum number of trainees per series /course for public transport drivers per category of PTV;
- Q41. The approximate cost of initiating / training professional urban public transport drivers:  
a. For obtaining the PTV driving license;  
b. For periodical PTV training;
- Q42. The period of validity of a training module:  
a. The updating interval;  
b. Who does the updating?  
c. How is it done?  
d. Criteria for the updating;
- Q43. Are there established methodologies for evaluation?  
YES:.....NO:.....I do not know:.....
- Q44. Are the evaluation methodologies implemented / employed at national level?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name.....
- Q45. Are there established methodologies for certification?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name.....
- Q46. Are the certification methodologies implemented / employed at national level?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name.....
- Q47. Who certifies the PTV operators' instructors?  
Name:.....Description:.....
- Q48. What are the methodologies employed for certification?
- Q49. For what period are they certified?
- Q50. Please describe shortly the main roles of the trainees in improving safety and security of public transports, in your opinion;
- Q51. Please describe shortly the main roles of the trainers in improving safety and security of public transports, in your opinion;

- Q52. Please describe shortly the main roles of the methodologies for training and evaluating in improving safety and security in the surface transports, in your opinion;
- Q53. Are specific quality rules and normative applying in the training processes?  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name of them.....
- Q54. What are the national rules that apply regarding quality in the training processes?
- Q55. Please provide a short description of the quality management processes that apply in the educational / training components of your transport company.
- Q56. Please provide your opinion regarding the value of the performance indicators (QEP, TWE, RP) in the effects towards improving the educational process in your company.
- Q57. Which is the national normative that apply regarding the evaluation of quality in the educational process in your company, if any?
- Q58. What are the international standards regarding quality that apply in your company?
- Q59. What are the internal rules regarding quality that applies in your company?
- Q60. What role do you think the certification methodologies should have in improving safety and security in surface transports?
- Q61. Do you have or propose any new innovative evaluation and certification strategies and methodologies for improving the quality of the educational processes?
- Q62. Please propose any new training targeted policies for improving the quality of surface transport in terms of safety and security;
- Q63. What would you consider the impact of implementing compulsoriness to speak a foreign language in safety and security?
- Q64. Are there any other criteria taken into consideration for enlistment of urban public transport drivers in terms of safety and security (e.g. religion, hobbies, temper, physiology etc.);  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name of them.....
- Q65. The PTV drivers receive training at work? If not, please specify location and type of institution;  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the name of the institution.....
- Q66. Please specify if there are any other procedures for examination except the above;
- Q67. Is the feed-back of the training analyzed? If yes, please specify procedures;  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the procedures.....
- Q68. Does your company have dedicated safety and security information campaigns? If yes, please specify periodicity and procedures;  
YES:.....NO:.....I do not know:.....  
If the answer is YES please write down the periodicity and procedures.....
- Q69. Please specify the contents of the actual curricula used for the initiation of urban public transport drivers in terms of safety and security, for specific PTV categories apart;
- Q70. Please specify the contents of the actual curricula used for the improvement of knowledge thru periodical training of public transport drivers, for specific PTV categories apart;
- Q71. Please describe the methods employed for:
- Training;
  - Ongoing evaluation (Performed while the module is ongoing);
  - Final evaluation (Final evaluation is done at the end of the module).

## **9.2. Annex 2 Innovative Certification Methodologies Questionnaire**

1. Local procedures. In your country:
  - a. Please describe briefly the ownership and hierarchy for the public transport company training entity (e.g. Municipality -> Public Transport Company -> Training Department)
  - b. Is the public transport company performing training for public transport vehicles drivers?
  - c. Are specific Safety and Security modules presented, too?
  - d. Is the training institution/department accredited (meaning does it have to undergo an accreditation process performed by an authority);
  - e. Do the curricula have to undergo a certification process?
  - f. How frequently are the trainings held?
2. Standards and normative. In your country:
  - a. The training institution/department is certified ISO?
  - b. Which are the main standards (if mandatory ones) that are to be observed in the training for bus drivers process? Please, if possible, specify if these are international, EU, national or local ones.
  - c. Do the graduates receive a certificate?
  - d. Are the graduates obtaining external or any type of recognition?
3. Quality control. In your country:
  - a. Does the public transport company receive quality control? If yes, who is performing it (internally or externally); what is the period when the control is repeated?
  - b. Does the training for the public transport drivers receive quality control?
  - c. How are evaluated the results of the public transport company, in terms of quality?
4. Any other comments related to WP4 and S&S Training?

## 10. REFERENCES

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## 11. GLOSSARY

TERM	MEANING	EXPLANATIONS
ACA	Accreditation and Certification Authority	A body (third party) that is responsible with accreditation and certification
DOPS	Department Oriented Problem Solving	
HB	Human Behaviour	A specific KPI
IAC	Internal Audit Committee	A specific commission charged with the assessment of the conditions regarding the compatibility with quality standards for a training department
ISO	International Organisation for Standardisation	ISO is the world's largest developer and publisher of International Standards. ISO is a network of the national standards institutes of 162 countries, with a Central Secretariat in Geneva, Switzerland, that coordinates the system. ISO is a non-governmental organisation that forms a bridge between the public and private sectors.
ISQA Form	Instructor Selection, Qualification, and Authorisation (ISQA) Form	
KPI	Key Performance Indicators	A set of indicators designed to best illustrate the work, safety and security performances of a surface public transport company
KPIE	Key Performance Indicators in the Educational process	
KPSI	Key Performance Sub-Indicators	A sub-set of key performance indicators
MS	Management System	A specific KPI
PTE	Professional and Technical Education	
QEP	Quality of the Educational Process	A specific KPSI
S&S	Safety and Security – in this document they refer to the safety and security of the surface public transport (vehicle safety, passenger's safety and security etc.)	<i>Safety</i> – a term signifying all measures undertaken in all phases (from design to exploitation) for the purpose of ensuring hardware/software reliability and low incidence percentage for collisions and/or unwanted events, with the minimisation of risks. <i>Security</i> – a term signifying all measures undertaken especially in the exploitation phase, intended to reduce the risk and impact of the actions intentionally oriented against the safety and reliability of public surface transport
SPC	Statistical Process Control	A control process that needs to be continuously undertaken
TE	Training Environment	A specific KPSI
TOPS	Team Oriented Problem Solving	
TQM	Total Quality Management	A method by which the management and the employees can become involved in the continuous improvement of the services
TWE	Training and Working Environment	A specific KPI
VE	Vehicle Equipment	A specific KPI
WP	Work Package	

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