

# PROFESSIONAL STANDARDS FOR DRIVERS AS A FUNDAMENTAL MEASURE FOR SAFER ROAD OPERATIONS

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## ABSTRACT

Professional standards for drivers were worked out this year following to the order by National Road Administration for the first time in Russia. This project was implemented within the framework of National Traffic Safety Program. The standards were worked out per vehicle categories pursuing the format - 3 dimension matrix covering level of qualification, main functions of a driver (per level) and competencies (per function at each level). The standards are to be the only base for Driving Training Curricula to get 'safe drivers' i.e. the only suitable for safer transport operations as well as for road authorities. In addition these standards (as they are a systematization and classification of transport operators' requirements including safer road operations) give an input to effective and innovative methodology which road authorities could use for pre evaluation of road safety interventions. Standards are to be considered as the priceless part of the legal framework to facilitate road safety strategies.

## 1. BACKGROUND, CURRENT SITUATION

Around 200 000 road accidents occur in Russia annually (that is around 50 per 10 000 vehicles), average number of injured is about 180 per 100 000 citizens and each 10 of 100 injured die (severity rate was 10.6 in 2010).

Low traffic safety rates urged Russian authorities to adopt National Traffic Safety Program (2006-2012) consisting from 254 measures with total budget of 1.5 billion Euro. Unfortunately only 3% of the measures were devoted to drivers (just opposite to the fact that 75-85% road accidents occur due to drivers' malfunctions).

As we proved by our researches [1, 2] the background of this situation has its origin in the non-system gist of driving training (there are no of 3C evidences of system -: completeness, coherence, consistency). Namely, the gist of current driving training has the following features:

- qualification requirements were not changed over 15 years and were not adapted to modern traffic as well as to economical and social priorities of road users that changed much after perestroika (privatization)
- fitness to drive never was evaluated
- both the content and the duration of training in the driving training curricula were independent on intention of trainee – to work as a professional driver (i.e. for hire or rewards) or to drive only for own needs (we call them in Russia as non-professional drivers)
- both National Road Transport Associations (for domestic and international transport operators) underlined that there were 3 (as minimum) essential disadvantages in driving training:
  - requirements of employers were not taken into consideration
  - drivers were trained insufficiently for professional activities

- there is a shortage of high qualified drivers whom could be given credence for modern vehicles as well as for freight (which became more and more expensive).

At the first stage of research we brought to light that a reform of driving training came to maturation in economical as well as in political sense and the Government had to declare its necessity. The reform is to be executed because a great gap between quality level of driving training and the demand of labor market puts any employer in position either to invest into additional training of employed drivers on the spot or to bear losses waiting for a long time while a driver would acquire a professional level. In addition any person without any training (if by chance passed through exam) could get driving license and therefore could be employed by transport operator. Actually these are the key stones of poor traffic safety in Russia.

Economical changes in Russia have an impact on the status and bindings in system 'driver-vehicle-road' and should lead to relevant changes in requirements to modern drivers. It means that driving training is to be attuned properly and the base for this tuning is to be a system of employers' requirements formatted as the standards for safe drivers.

## **2. ORIGIN OF THE MAIN IDEA**

Everybody knows how to train drivers. It is phrased not by me but the President of Czech Traffic Safety Academy. He came to this finding pitifully on the base of his long term experience: vehicles (in opposite to planes, trains, boats, etc.) became just a part of day-to-day life therefore most of people think that they know surely what and how are to be learned by trainee drivers. At the same time less of people ask themselves: what driver is wanted by a modern employer, what is a safe driver, how much and how often the requirements to drivers are to be changed, what is a minimum content of these requirements (minimum standards), what competences a driver should acquire to be quite good (that is – efficient and safe).

During international events we have discussed this issue with members of European Federation of Driving School Associations as well as with top management of associations of transport operators from different countries almost all around the World. The majority of them confirmed that the core of driving training in their countries was just formed 'historically' i.e. on the base of practical 'feeling', experience, trial and error, corrections adopted by politicians from time to time using the results of scientific researches. For the moment it is quite obviously that in Russia as well as in many other countries the system approach to the content of driving training has not been implemented.

The report [3] gives the system analysis of measures devoted to traffic safety in different countries. Among all there are 13 measures devoted to driving training in addition to traditional measures devoted to legislation (14 measures), roads and traffic regulation (50 measures), vehicles (32 measures). Given evaluation of influence of systematic measures on traffic safety brings to light that researchers as well as practical experts could consider professional standards for drivers as one of the fundamental measure for safer road operations. From the traffic safety point of view it is unreasonable (as minimum) to train future drivers on the base of curricula which is independent on requirements of employers.

During the analytic stage of our research we opened up that professional standards for drivers exist in Russia neither at all nor per vehicle categories. Moreover analysis of experience in EU as well as in USA and Canada showed that professional standards of

national level do not exist (there are only several professional standards for drivers of corporate level, f.e. considered by logistic association in UK, Canadian trucking alliance, etc.). Therefore the development of national professional standards for drivers per vehicle categories became a pilot project not only in Russia.

### **3. THE CONCEPT**

The concept of professional standards for drivers was based on competence approach that is the development of standards was based on requirements of employers including enhance of transport operations security and traffic safety.

To assure system characteristics of standards (3C evidences of system - completeness, coherence, consistency) we need to find out the full list of drivers' functions firstly. Then these functions are to be classified i.e. split into groups of main (compulsory, as minimum) functions which are linked but not repeated each other. At the last stage the full list of necessary competences of drivers are to be revealed per function.

Accordingly to system approach professional standards for drivers are to be created depending on each vehicle category (A, B, C, D) and subcategories which were adopted in Russia in compliance with UNECE Vienna Convention. Standards are to be variable (i.e. to have modular structure and content) depending on type of vehicle, kind of carriage, using of vehicle for own needs or professional needs (for hire or reward), regional conditions for driving (f.e. professional standard for intercity bus driver working in mountain area should include additional competencies assuring traffic safety and passenger security on roads with complicated curves).

Purposive approach needs that working group of experts developing standards includes different specialists dealing with drivers in many aspects – transport operators, traffic safety and security advisors, scientists, traffic policemen, trainers, examiners, professional drivers with good traffic safety rates and great experience in domestic as well as international carriage, etc. Obviously the membership and structure of the expert group are to be representative in multiply aspects – regional, kind of carriage, traffic safety, transport security, etc.

### **4. THE METHODOLOGY**

The first draft of professional standards for drivers was worked out by the focus-group consisting of representatives of employers - both National Road Transport Associations, regional associations, enterprises of different size (from large to small) and ownership including private, and members of driving school associations, scientists, traffic safety advisors and professional drivers.

Firstly the focus group asked professional drivers to describe in details their typical functions, then the focus group worked out draft list of compulsory (as minimum) functions, after that the focus group discussed the list in accordance with brain storm method. The result - the first draft list of necessary functions - was disseminated to wide range of external experts, then their replies (proposals, commentaries, etc) were collected and discussed by the focus group, then amendments were incorporated and after that the entire iterative algorithm was repeated several times. After the finalization of the list of functions (i.e. after achievement of quite enough rate of concordance, nonrandomness and

rate of consistency) the same algorithm was carried out to reveal competencies which drivers have to acquire for proper implementation of each function.

This methodology - multistage process, rotation of focus group and external expertise by representative groups from different regions, iterative algorithm – enabled to get convergence of procedure and development of components of standards which were adopted by majority of experts (confidence probability of 90%).

At all levels of algorithm the querying was representative, experts groups represent all of 7 districts in Russia as well as all type of transport operators – from individual businessmen engaged in domestic carriage to large amalgamations of international transport operators. Therefore the result (professional standards for drivers) reproduces typical requirements of modern employers in total.

Practical implementation of the methodology is a long process. Actually it is 8-level algorithm for consequent development of all components of standards per vehicle categories per type of carriage (iterative algorithm with filtration and rejections/complements). The final (it takes an average 8 iteration per component till good statistical coefficients) – 8<sup>th</sup> draft of professional standards was submitted to competent state agencies (dealing with driving training): Ministries of transport, education, internal affairs (traffic police), health, military and civil defense. We've got replies (mostly related to official/legislative terminology) which were taken into consideration to develop the final version of documents.

## **5. PROFESSIONAL STANDARDS FOR DRIVERS**

Requirements of modern employers to drivers were revealed and systemized for the first time ever in Russia therefore now it is quite clear how and what drivers are to be trained, what subjects to be learned and practiced including psychology of road users. It means that well-grounded base for driving training curricula was created and this base is modular per vehicle categories, type of carriage, kind of driving purpose (for own need or for hire or reward).

During the analytic stage of our research we systemized separate components of standards for drivers (which were in force before the research), namely – so called qualification characteristics and grades for drivers. We revealed essential contradictions within total legislation related to drivers. Moreover existing regulations dealing with these components of standards became archaic; they did not correspond with market conditions as well as with current traffic and new challenges for safer transport operations.

During the synthesis stage of our research we worked out the format of the standard – this is 3 dimension matrix connected consequently:

- main functions of a driver
- their classification per level of drivers' qualification
- compulsory competencies (per function at each level) – knowledge, skills, aptitude and attitude, self consistency in making decision, responsibility for passengers/freight and vehicle, foresight, resistance, stress tolerance, etc.)

The core of the standard is the list of functions divided per level of qualification (different for professional and non-professional drivers) and list of competences per each level and function (what drivers have not only to know but understand as well as have not only skills but be able to use them in practice). Logic of standards is maintained – professional

standard (the cross-matrix) is formatted as a document that defines the minimum requirements for a driver in terms of his/her functions assuring efficiency and safety.

In fact professional standards for drivers become a logical base for development of driving training curricula, giving the answers on the following questions:

- what kind of drivers are required by any employer actually
- what functions, kind of work , activities are to be implemented by drivers
- what competencies should acquire a driver in order to be in correspondence with requirements of an employer including assurance of traffic safety (know and understand, has skills and be able to use them, etc.)
- what psychophysiological features are necessary for any driver (monotony and stress tolerance, response rate, etc.)

Professional standards are constructed in accordance with modular principle - basic standards for non-professional drivers are to be filled up with 'professional' modules depending on increase of complexity of vehicle category (f.e. small lorry – truck – haulage truck with trailer/semitrailer). This creates the base to develop driving training curricula on logical modular principle too.

## **6. PRE APPROBATION**

Developed professional standards for drivers are considered for the moment by both National Road Transport Associations with a purpose to adopt them as corporate standards.

Modules curricula were developed consisting of universal module (suitable for all type of vehicles, all category, etc.; this module includes general subjects – like traffic rules, etc.) and compulsory modules per vehicle categories plus additional modules for professional drivers plus additional modules per kind of carriage. The curricula were put into force since March 1, 2011 (date of introduction into force vehicle subcategories in Russia to get harmonization with UNECE Vienna convention).

We mentioned about pre approbation implemented by competent state agencies in item 4 above. Developed professional standards for drivers are not intended for use per se in the sphere of carriage for special needs – like military, fire, etc., but these standards could be used by relevant state agencies as a base for development of proper standards for drivers engaged in special carriage (just to develop and add modules covering these kinds of carriage). 'Forceful' ministries (internal affairs, military and civil defense) consider standards for professional drivers as a base to develop curricula to train drivers for their special needs.

Anyway the standards need a comprehensive approbation taking into account that the sphere of their application is rather wide. Professional standards for drivers could be used:

- by employers

- to evaluate level of qualification of drivers (that is the readiness to quality and safe implementation of functions)
- in employment management:
  - to develop encourage (incentive) schemes for drivers
  - to implement vocational selection and to nominate drivers per kind of carriage

- to implement voluntary certification of drivers
- by authorities, associations of transport operators, trade unions
    - to work out and to maintain unified requirements to quality of professional activities, to maintain unified condition on the driving employment market
    - to develop and to put into force a reasonable base for driving training (and certification of drivers) to pursue requirements of transport operators
    - to legalize these requirements to driving training system including curricula and administration (who and how can train drivers, who must regulate training of professional and non-professional drivers)
  - by drivers
    - to get motivation to higher qualification
    - to keep up confidence that the accordance with standards gives benefits on employment market
  - by education and qualification agencies for drivers
    - to state professional requirements to driving training system
    - to work out driving training curricula
    - to elaborate educational standards for driving training.

## **7. FINDINGS AND PROSPECTS**

We are now at the beginning of an approbation process. We shall monitor traffic safety rates and evaluate benefits from new curricula when quite enough number of drivers would be trained in pursuance with new curricula based on professional standards for drivers. Nevertheless for the moment employers, drivers, competent state agencies and scientists recognized that benefits from the standards are in the creation of the base for system (i.e. complete, coherent and consistent) content and structure of driving training curricula. Professional experts acknowledged that standards became eventually one of the key stone in the building of reasonable legal framework for traffic safety.

Professional standards for drivers are more than a set of qualification requirements (on which 'old' curricula were based) due to three reasons:

- firstly, standards were worked out on the base of analysis of respondents' replies (the total group of which consisted of modern transport operators)
- secondly, the total group was made up of representative groups at each of algorithm stage and the querying was implemented strictly in line with mathematical statistics rules (including evaluation of representativeness, concordance, nonrandomness, etc.)
- the last, but not the least, standards are the systematic presentation of threefold aspects related to drivers – their functions, qualification level and competencies.

This is a pilot project for entire World due to the national level of these standards (versus corporative level of such standards in some countries). The standards are to be the only base for Driving Training Curricula to get 'safe drivers' i.e. the only suitable for safer transport operations as well as for road authorities.

In addition these standards (as they are a systematization and classification of transport operators' requirements including safer road operations) give an input to effective and

innovative methodology which road authorities could use for pre evaluation of road safety interventions. Standards are to be considered as the priceless part of the legal framework to facilitate road safety strategies.

As well known Russia has a vast territory with quite different road conditions in regions, therefore the developed standards of national level could also be a base to work out standards at provincial level.

Obviously these standards (giving a base for driving training and voluntary certification of drivers) can not settle all traffic safety problems. To do this we need not only adoption of professional standards for drivers but harmonized activities of state agencies as well as associations of transport operators.

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