

ICT-DRV:

Preparing and keeping professional drivers qualification up-to-date for their changing job requirements with multimedia-based learning

Final Report

Public Part

Project information

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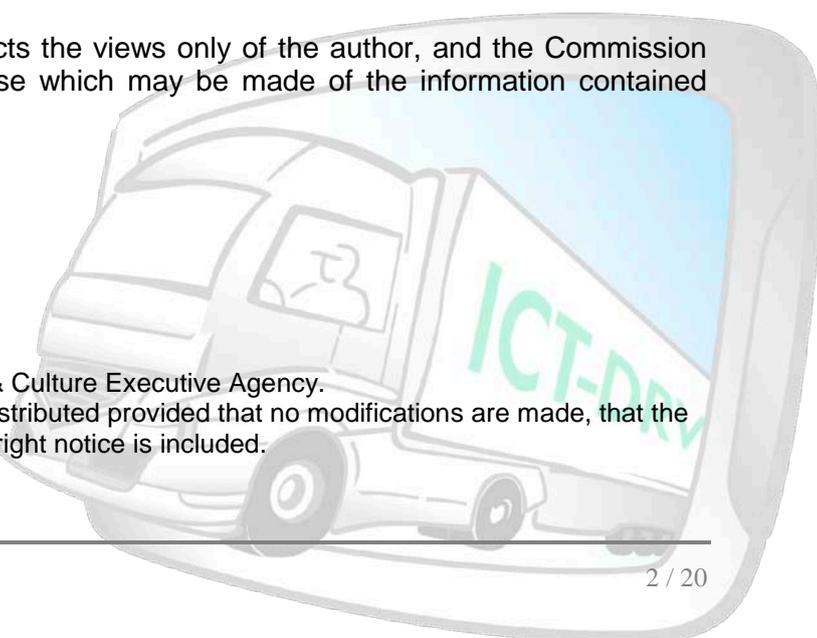
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Executive Summary

The occupation “professional driver” ranges in Europe under the top ten jobs employers are having difficulty filling with qualified employees. At the same time this occupation is characterised by a fundamental increase of qualification requirements during the past decades. This situation is especially challenging due to the rather low level of professional qualification within this occupation. However, the qualification of professional drivers is considered an important factor regarding road safety with high relevance for all EU member states and DG MOVE introduced directive 2003/59 that regulates common basic and continuous training for professional drivers EU-wide. This assigns the challenging task to prepare the numerous professional drivers for the jobs requirements and to keep them qualified for their job once they entered into the labour market on initial and continuous VET in Europe. ICT-based training offers additional opportunities to fulfil this task.

But a widespread integration of ICT-based learning into professional driver training is hindered by strong scepticism of involved actors towards technology-supported learning and by legal regulations still applying an input orientation with a focus on traditional training settings. Both barriers are based on missing trust into ICT-tools and their appropriate application within VET for drivers with their special needs and characteristics. ICT-DRV lays ground for the formation of trust and therefore a widespread acceptance of ICT-based learning within professional driver training in Europe by developing indicators and recommendation for a high-quality integration of technology-based training into professional driver VET and by facilitating a culture of quality improvement and innovation at all levels of professional driver VET and with regard to the integration of ICT-based learning.

This report provides information on the ICT-DRV projects implementation after 30 months of project work. The projects work has been devoted to exploring the current landscape of professional driver training with regard to technology-supported learning in the participating project countries, to the development of innovative learning technology solutions for professional driver training based on instructional design principles and findings, the development and exploration of quality indicators for the integration of learning technology into professional driver training and for laying ground for continuous stakeholder dialogue on technology-supported training for professional drivers.

The report contains information on the projects aims and objectives as well as on its overall implementation approach, on the project results and outcomes, on the project consortium, on steps planned after the projects conclusion in order to make further use of the project results and the contribution the project makes to European policies.

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1. Project Objectives

It has been the overall aim of this project to enhance professional driver I/CVET in Europe with means of ICT technology in order to meet the labour market needs in terms of the urgent need for well qualified professional drivers and to make VET for professional drivers more responsive to the special needs and characteristics of the target group “professional drivers” especially when applying multimedia tools.

The project therefore explored opportunities, limitations and requirements to enhance professional driver training in the framework of and beyond directive 2003/59/EC with the means of ICT-based training. In order to reach this aim the project ...

- explored and systemised existing research results on ICT-based training within (professional) driver training,
- explored the application of ICT (primarily simulators and CBT) in professional driver training related to directive 2003/59/EC but also beyond this framework in the countries represented in the consortium and identified examples that can be considered as emerging practice in this field,
- identified elements of professional driver training that can benefit from the use of driving simulators in order to facilitate the participants learning and the transfer of learning results into praxis and defined conditions that need to be complied with in order to ensure a high quality training with multimedia tools,
- developed, tested and evaluated pilot/prototype computer and simulator based training elements for professional driver training based on the state of the art in instructional design that can be used as examples for further developments and in order to demonstrate the conditions for ensure (pedagogical) quality within the application of computer and simulator based training within professional driver training and the conditions in order to comply with legal requirements,
- explored and defined competence requirements on trainers facilitating multimedia based training within professional driver qualification and drafted and tested a training offer to address these requirements,
- developed recommendations for the high-quality application and integration of computer- and simulator-based training in the implementation of training related to Directive 2003/59/EC under consideration of the different legal requirements in the participating countries and made recommendations for the

improvement of existing legal regulations with regard to pedagogical quality within professional driver training and multimedia use.

- established a sound basis for and stimulated a continuous dialogue among developers of computer- and simulator-based training, trainers/facilitators working with such technology, public bodies involved in the implementation of directive 2003/59/EC and other stakeholders involved on the use of computer and simulator based training in profession driver training such as public institutions and researchers and
- exploited and disseminated the different project results with adequate means at national and European level and to the appropriate target groups in order to facilitate the application of the results from operational up to policy level in a national and a European context.

These objectives directly referred to the gaps and deficits identified with the initial research conducted prior to the projects start. They are completed with additional elements as the allocation of emerging practice examples of ICT use in professional driver training to support the realisation of the overall aim of the project. In order to reach the projects aim to enhance professional driver training in Europe, the project likewise addressed stakeholders at policy – authorities and policy makers at European and national level - as well as at operational – VET providers and educators - level of professional driver training in order to ensure the necessary impact to facilitate real change of the current situation.



2. Project Approach

In order to reach its aim and objectives the ICT-DRV project applied a multidimensional approach that equally included research, consultation with stakeholders and dialogue based development of innovative solutions. It furthermore included the investigation of the current situation of technology-based training within professional driver qualification, the development of instructional design improved pilot demonstrators and the drafting of quality standards for the successful and learning oriented integration of e-learning and simulator-based learning into professional driver training in Europe. This, furthermore, led to concrete policy recommendations for the integration of such learning tools/ approaches in the context of EC Directive 2003/59/EC currently investigated also with regard to such multimedia tools.

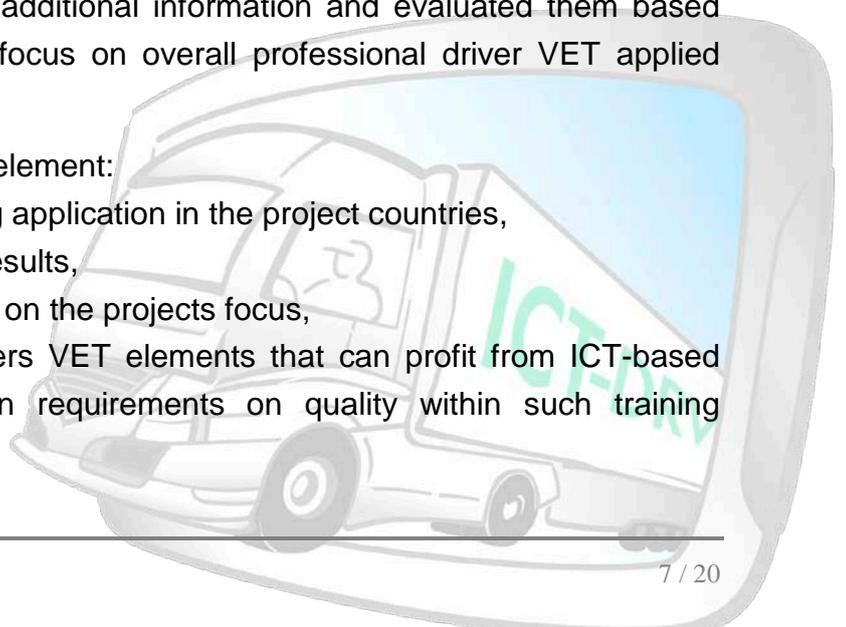
The methodological approach applied led through three elements that interrelate with each other:

Research and analysis

It has been the major goal of this element to identify quality indicators for the learning oriented integration and implementation of multimedia-based learning elements into professional driver training (WP5). The majority of relevant information has been available already through scientific research and project results as well as practical experiences in the countries investigated in WP 1 and 2. This information has been reviewed and analysed in terms of the projects focus. Cost-benefit-considerations have not justified the implementation of an own study in order to determine elements that might not be covered in this way especially because other project results can and have been used as basis for this analysis work. ICT-DRV systemised and complemented these results with additional information and evaluated them based on the more global approach to focus on overall professional driver VET applied within ICT-DRV.

Milestones reached in this project element:

- review of ICT-based training application in the project countries,
- review of previous project results,
- review of scientific literature on the projects focus,
- report on professional drivers VET elements that can profit from ICT-based training application and on requirements on quality within such training settings.



Development and testing

This project element aimed to dive deeper into high-quality application of computer- and simulator-based training. Pilot training prototypes/ demonstrators have been developed based on instructional design principles (WP3) and requirements on trainers working with such tools have been identified and addressed with a pilot training scheme (WP4). The results of these development and testing activities further enriched the development of conclusions for computer- and simulator-based training in professional driver training (WP5).

Milestones reached in this project element:

- development of four pilot training element demonstrators/ prototypes and their evaluation,
- identification of requirements on trainers working with CBT and simulators,
- conclusions on opportunities, limitations and requirements to further enhance professional driver training to labour market and target groups needs with means of driving simulators and CBT.

Exploitation and sustainability

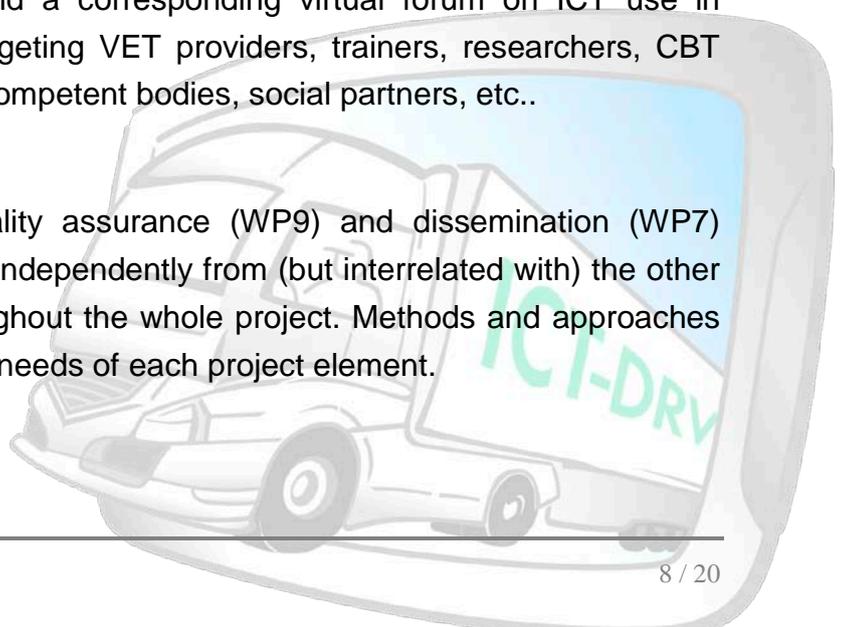
Exploitation and sustainability of project results has been the major aim of this project element. This has been implemented by drafting and disseminating recommendations on adequate integration of ICT specifically for the implementation of Directive 2003/59/EC (WP5) and the facilitation of sustainable dialogue among key players in the field (WP6).

Milestones reached in this element:

- recommendations on simulator and CBT application within directive 2003/59/EC on professional driver qualification in Europe,
- national workshops for mixed groups of stakeholders,
- a European conference and a corresponding virtual forum on ICT use in professional driver VET targeting VET providers, trainers, researchers, CBT and simulator developers, competent bodies, social partners, etc..

Cross-cutting elements

Project management (WP8), quality assurance (WP9) and dissemination (WP7) activities have been implemented independently from (but interrelated with) the other project elements above and throughout the whole project. Methods and approaches applied have been adjusted to the needs of each project element.



3. Project Outcomes & Results

Major outcomes and results are:

[Report on e-learning and simulator-based learning in professional driver training in selected countries incl. a collection of emerging practices in the field](#)

Moncef Semichi, AFT (FR), February 2014

This report contains the results of stakeholder interviews and consultations as well as desk research on the topic of computer- and simulator-based training in selected European countries. The conducted study addressed the situation in France, Germany, the UK, Spain, Finland, Hungary, Austria and Poland and has been enriched by information from Canada. It analysis the scope, the frequency as well as the acceptance of CBT and SBT application within professional driver qualification in the selected countries and investigates the strength, weaknesses, opportunities and threats associated by different groups of stakeholders with such technology-supported training methods.

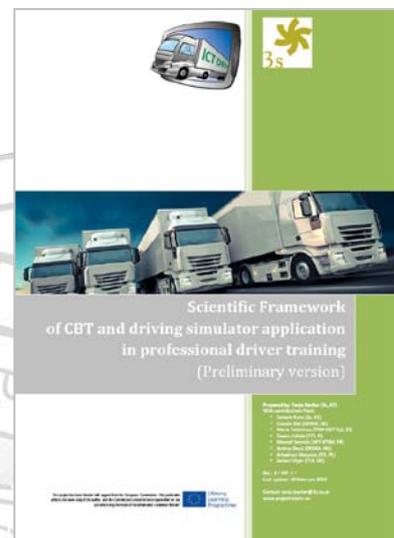
Furthermore the report contains a summary of emerging practices in Europe related to the integration of technology-supported training methods within professional driver training across Europe.



[Report on the scientific framework of e-learning and driving simulator application in professional driver training](#)

Tanja Bacher, 3s research laboratory (AT), February 2015

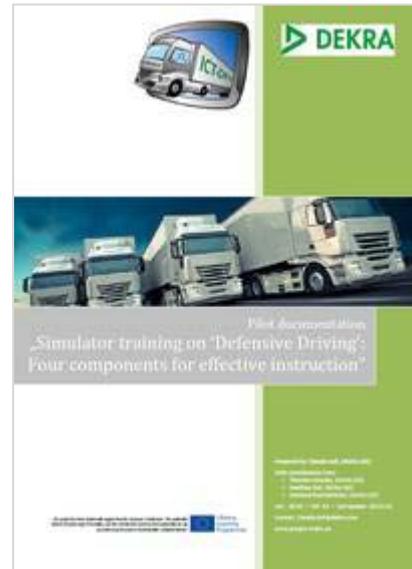
This report describes and discusses existing research results related to technology-based learning in the context of professional driver training. It especially describes instructional design considerations to be undertaken in order to ensure a high-quality implementation of e-learning and simulator-based learning with a special focus on the facilitation of learning. The paper intentionally



does not focus on technical parameters of technology-supported training but only focuses on the learning perspective.

Four reports on innovative training solutions with technology support as well as an evaluation report summarizing the findings from testing of the innovative solutions

- [Simulator training "Defensive Driving": Four Components for Effective Instruction](#)
Claudia Ball, Thorsten Straube, Matthias Ball & Reinhard Buchsdrücker, DEKRA Akademie GmbH (DE), December 2014
- [Safety and Comfort Assurance: Instructor-led Driving Simulator Training for Professional Bus Drivers](#)
Moncef Semichi, AFT (FR) & Arkadiusz Matysiak, ITS (PL), January 2015
- [E-learning on "Load Security": Work-based Learning with Distance Support](#)
Claudia Ball & Matthias Ball, DEKRA Akademie GmbH (DE), June 2015
- [Simulator training "Defensive Driving": Different Simulators for Different Learning](#)
Teemu Lähde, Jussi Virtanen & Aigar Arusaar, TTS (FI), November 2014
- [Evaluation report on the four ICT-DRV pilot courses](#)
Claudia Ball, DEKRA (DE), May 2015

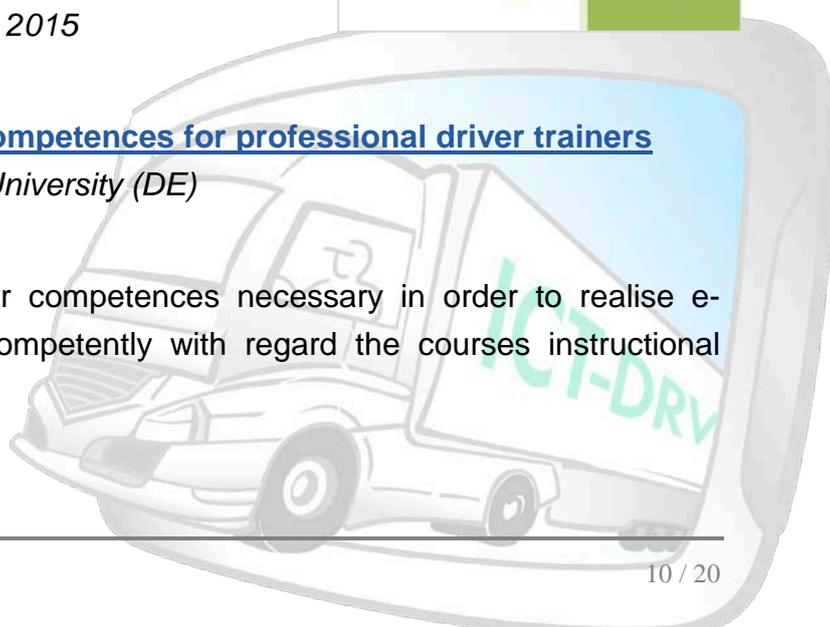


Essential instructional design competences for professional driver trainers

Helmut M. Niegemann, Saarland University (DE)

February 2014

This report summaries the trainer competences necessary in order to realise e-learning and simulator training competently with regard the courses instructional design.



This set of essential competences has been extended with a guideline on the selection of simulation tasks within professional driver training:

- [Selection of simulation tasks within professional driver training](#)

*Helmut M. Niegemann, Saarland Universität (DE);
November 2013*

Based on those essentials an introductory course into instructional design has been prepared. Access to the actual learning platform and the prototype material can be provided on request. Please contact the project coordinator for further information. The course evaluation has been summarised in a short report regarding the acceptance of such web-based courses.

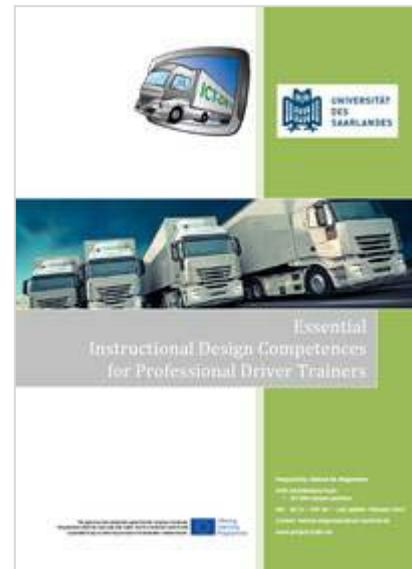
- [Evaluation report on pilot web-based course for trainers working with CBT and simulators in professional driver training](#)

Helmut M. Niegemann, Saarland Universität (DE), May 2015

[On the way to high-quality technology-supported training for professional drivers: A synopsis of ICT-DRV project results, conclusions and recommendations](#)

Claudia Ball, DEKRA Akademie GmbH (DE) and the ICT-DRV project consortium; May 2015

The ICT-DRV project synopsis „On the way to high-quality technology-supported training within professional driver qualification” provides a synoptic overview about the results of this European project implemented by partners from all over Europe and Canada on the realisation of e-learning and simulator training within professional drivers’ vocational education and training in Europe. It provides a summary of the status quo with regard to technology-support in training as well as the related scientific fundamentals and describes the major practical examples worked on during the project realisation in order to test different instructional design approaches for technology-supported training in practice.

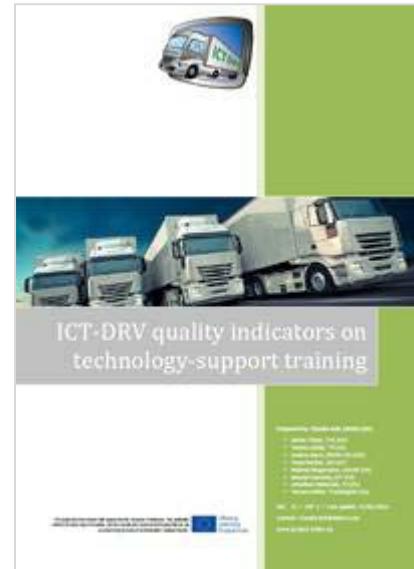


Finally a number of policy recommendations are introduced with regard to a high-quality integration of e-learning and simulator training into regulated professional driver education and training such as under EC Directive 2003/59.

The ICT-DRV quality indicators on technology-supported training within professional driver qualification

Claudia Ball, DEKRA Akademie GmbH (DE) and the ICT-DRV project consortium; January 2015

The definition of indicators for a high-quality integration of technology-support into professional driver training has been the major aim of the ICT-DRV project. The set of indicators presented in this paper is therefore a result of the different steps implemented by the ICT-DRV consortium incl. research of the status quo of technology-support within professional driver training, investigation of the scientific landscape in this field, analysis of competence requirements on trainers and the implementation of pilot trainings applying and testing instructional design principles on the target group professional drivers.

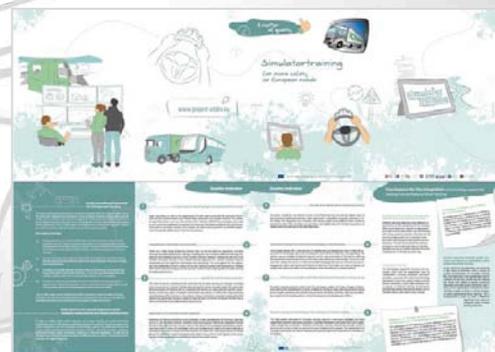


The ICT-DRV quality indicators are directed to all groups of stakeholders involved into professional driver training. This includes vocational education and training (VET) providers, drivers themselves and their representatives, employers, social partners, e-learning and simulator/ software developers, researchers in this area, authorities and policy makers. They are meant as a tool in the development and in the (self-) evaluation of (existing) structures and approaches to realise technology-support within professional driver training.

Recommendation brochures/posters

The quality indicators and recommendations on the integration of technology-supported training into professional driver training have been summarised in two brochures/posters:

- [E-learning for well-qualified professional drivers ... a matter of quality](#)
- [Simulator training for more safety on European roads: a matter of quality](#)



National scenarios on the (possible) realisation of the ICT-DRV quality indicators in selected European countries

The ICT-DRV project partners prepared national scenarios in order to reflect on the (possible) realisation of the ICT-DRV quality indicators within their national contexts and as far as possible based on already existing structures and systems. The national scenarios have been prepared for:

- [National scenario for Austria](#)
- [National scenario for Germany](#)
- [National scenario for Finland](#)
- [National scenario for France](#)
- [National scenario for Hungary](#)
- [National scenario for Poland](#)
- [National scenario for Spain](#)
- [National scenario for UK](#)



ICT-DRV project and conference proceedings: Technology-supported vocational education and training for professional drivers ... a matter of quality

The ICT-DRV gathers the major results of the overall project as well as key contributions to the ICT-DRV conference in in Potsdam (DE) in February 2015 in one publication.



[ICT-DRV experts area on e-learning and simulator use within professional driver training](#)

The ICT-DRV expert area is a common point of reference with regard to e-learning and simulator-based training within professional drivers vocational education and training. It provides background information as well as a platform for exchange and discussion on related topics for all those concerned by professional driver training incl. social partners, VET providers, e-learning and simulator developers/ constructors, public authorities and researchers.

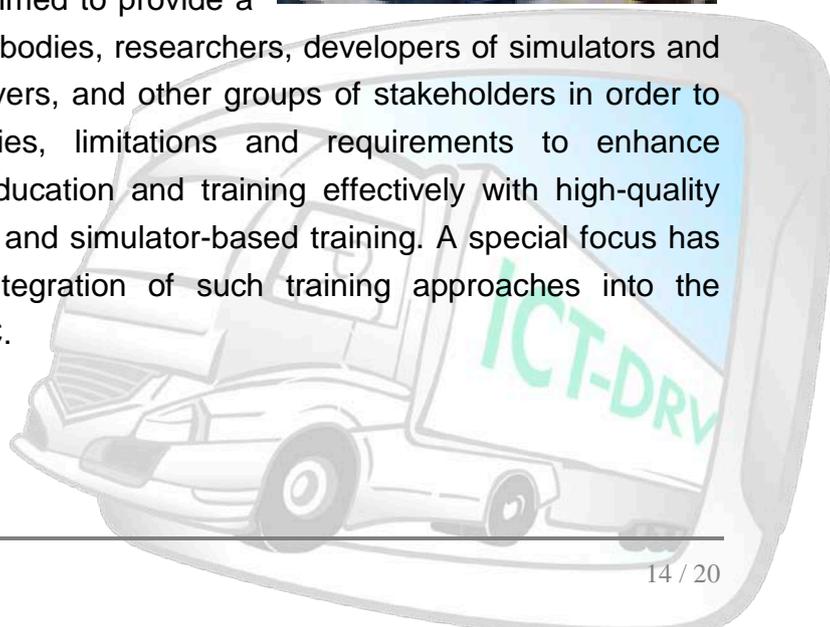


[ICT-DRV conference on "Technology-supported vocational education and training for professional drivers ... a matter of quality"](#)

12/13 February 2015, Potsdam (DE)

The ICT-DRV conference provided an inside view into the current situation of computer-based distance learning and simulator-based professional driver qualification and discussed a number of questions related to a high-quality and learning oriented integration of such training approaches into professional driver training praxis in Europe.

This interdisciplinary conference aimed to provide a platform for VET providers, public bodies, researchers, developers of simulators and e-learning, social partners, employers, and other groups of stakeholders in order to explore and discuss opportunities, limitations and requirements to enhance professional drivers' vocational education and training effectively with high-quality computer-based distance learning and simulator-based training. A special focus has been placed on the expedient integration of such training approaches into the framework of Directive 2003/59/EC.



Input to public EC consultation on Directive 2003/59/EC

*Claudia Ball, DEKRA Akademie GmbH (DE),
October 2013*

The ICT-DRV project coordinator DEKRA (DE) provided a first input from the ICT-DRV project to the public EC consultation on Directive 2003/59/EC. The project input covers the overall approach and findings of the European projects ICT-DRV and ProfDRV. The consultation contribution resulted into an introduction speech into the learning outcomes approach and the related European tools EQF and ECVET at the Stakeholder conference on the Review of Directive 2003/59/EC on 6 March 2014 in Brussels.



All final products are available on the ICT-DRV project website (www.project-ictdrv.eu) within the results section. Summaries of the major project products above are also translated into the project languages.

The following outcomes/ results have been produced/ developed for **dissemination** purposes:

- A **project website** at www.project-ictdrv.eu
- **Project facebook sites** primarily targeting drivers and their trainers:
_EN - www.facebook.com/pages/ProfDRV_EN/352963398053819?sk=wall
_DE - www.facebook.com/ProfDRV
- A **twitter account** (https://twitter.com/ICT_DRV)
- The project dissemination package incl. a **project flyer**, a **project business card**, a **project poster**, **press releases**, **news messages** and the **project newsletters**



4. Partnership

The project has been implemented by a trans-disciplinary partnership representing different areas of expertise for the implementation of the overall ICT-DRV workplan and major key players with regard to professional driver qualification in Europe.

The ICT-DRV partnership has therefore been composed of vocational education and training providers, competent bodies, associations, research institutes and a publishing company based in eleven+ European countries (incl. those represented by associated partners) and Canada:

- DEKRA Akademie GmbH, DE

DEKRA has been the project coordinator in charge of overseeing and leading the overall project implementation. As coordinator DEKRA have been in charge of supporting all WP leaders in their work, ensuring interfaces between the WPs as well as of the overall project monitoring. They have in addition contributed the German perspective to the project and led the major development WP on piloting innovative training tools and approaches.

- 3s research laboratory, AT

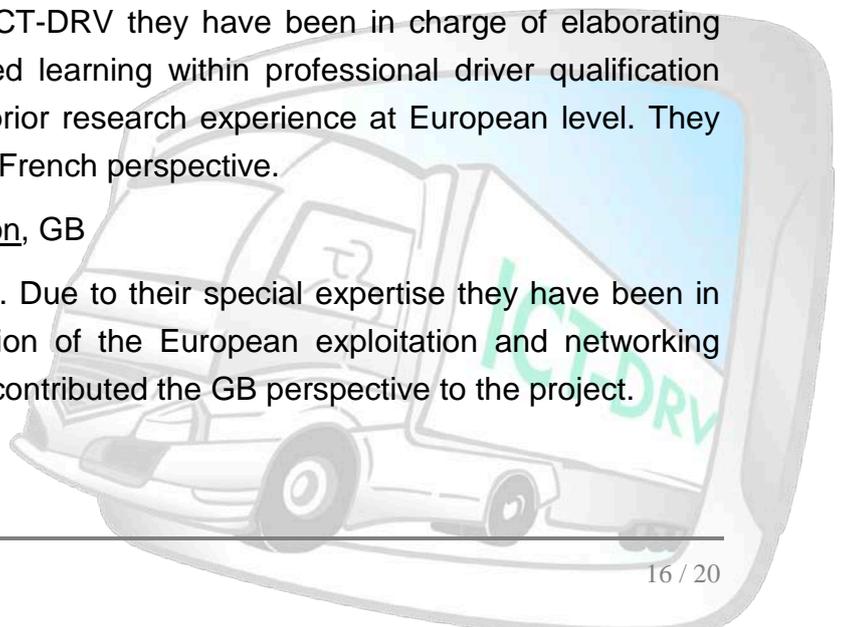
A research institute specialised in European education research incl. EQF and ECVET. They have been in charge of providing the Austrian perspective on the project topics, research the scientific framework of technology-based training for professional drivers and provide overall support and guidance to the other partners throughout the implementation of the project.

- AFT, FR

The AFT is the leading organisation for training in transport, logistics and tourism in France. Within ICT-DRV they have been in charge of elaborating the status quo of ICT-based learning within professional driver qualification based on the outstanding prior research experience at European level. They furthermore contributed the French perspective.

- Freight Transport Association, GB

FTA is a trade organisation. Due to their special expertise they have been in charge of the implementation of the European exploitation and networking activities in the project and contributed the GB perspective to the project.



- SMC-UGT, ES

SMC-UGT is one of the most representative trade unions at national level in transport sector with great experience in the field of European training project within transport. They contributed the Spanish situation and perspective to the project.

- TTS, FI

TTS is a research, development and training institute in Finland implementing among others training for professional drives. TTS furthermore contributed the Finnish perspective.

- DEKRA Akademie Kft., HU

DEKRA Akademie Kft. implements among others training for professional drivers in Hungary. They contributed the Hungarian situation and perspective to the project and led the project quality assurance measures.

- Saarland University, DE

Saarland University contributed its special expertise with regard to instructional design by leading the trainer competences workpackage and by providing support and guidance to all other WPs related to instructional design and didactical considerations being the projects focus.

- ITS, PL

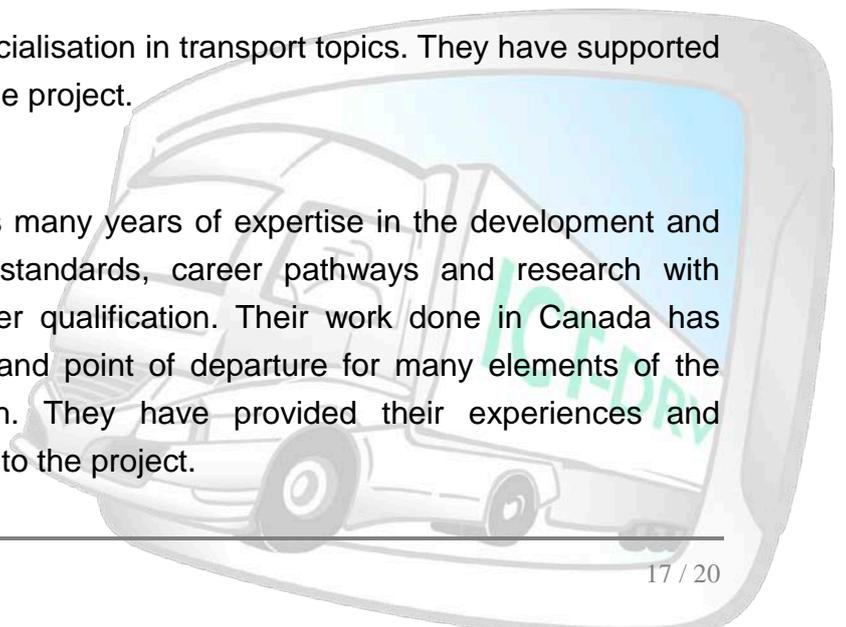
ITS is a research institute dealing with road transport and traffic issues among others also with simulator-based training questions. They contributed the Polish perspective to the project as well as their research expertise and experience in the field of simulator-based training.

- EuroTransportMedia, DE

ETM is a publisher with specialisation in transport topics. They have supported dissemination work within the project.

- TruckingHR Canada, CA

TruckingHR Canada boasts many years of expertise in the development and promotion of educational standards, career pathways and research with regard to professional driver qualification. Their work done in Canada has been a major contribution and point of departure for many elements of the ICT-DRV project approach. They have provided their experiences and expertise gained in Canada to the project.



5. Plans for the Future

Since the project results have a strong component to support policy makers with regard to professional driver qualification in Europe, it will be a major project activity now after the projects end to continuously inform the relevant stakeholders about the results and their implications for the current revision process of EC Directive 2003/59 in order to place the project results in the different relevant contexts. This is a very immediate and ongoing plan for the future under consideration of the upcoming launch of the EC road package in 2016.

Besides those activities at a policy level the ICT-DRV project already led to a number of spin-off projects and ideas for further realisation during the next years. The e-learning course prototype that has been developed in the framework of WP 3 for instance raised major interest among stakeholders and is planned to be further explored and developed in several contexts and projects. Also the simulator pilot courses on the combination of different kinds of simulators and other training approaches already led to a number of follow up projects and activities in order further explore and exploit the findings of the ICT-DRV project in this regard. One of them is intended to be submitted as a research project under HORIZON funding in 2016/17.

Two spin-off projects from ICT-DRV have already been submitted for funding under the ERASMUS+ programme. This is on the one hand a project dealing with the recognition of non- and informal learning among others in the context of the driver CPC (RPLweb) which is – from the understanding of the ICT-DRV and ProfDRV project – the basis in order to integrate e-learning but also other kind so learning such as work-based learning appropriately into the driver CPC training. On the other hand this is a project intended to facilitate career prospects of professional drivers (CareerDRV) among others also based on e-learning/ blended learning approaches (taking up the ICT-DRV project findings) for horizontal and vertical progression of professional drivers.

Further plans and opportunities have been brainstormed by the project partners. Those include among others the application of the approaches tested within ICT-DRV also in the context of other training topics, the internal use of the quality indicators in order to further develop the own quality assurance systems, the commercialisation of developed training offers or the usage of the project results within marketing, sales and lobbying activities and argumentations.

6. Contribution to EU policies

The ICT-DRV project builds upon the very successful work of the ProfDRV project with regard to its contribution to EU policies. Its overall approach builds on the implementation of the learning outcomes approach in the context of the *European Qualifications Framework* and its integration – as currently considered by DG MOVE – into the implementation of *Directive 2003/59/EC* on the qualification of professional drivers. The project therefore contributes to the implementation of both European initiatives. First very concrete results are already available in this regard. ICT-DRV submitted together with its predecessor project ProfDRV an input for the EC consultation on Directive 2003/59/EC proposing the learning outcomes approach as a possible way to overcome the weaknesses of the Directive identified within ProfDRV and ICT-DRV but also other projects and initiatives. DG MOVE took the project results strongly into consideration and invited the ICT-DRV and ProfDRV coordinator to talk about the learning outcomes approach and its implications with regard to the practical implementation of professional driver training at the EC stakeholder conference on the consultation in Brussels (BE) in March 2014.

Since the consultation and review process of Directive 2003/59/EC is currently under way and will also look into the *high-quality integration of e-learning and simulator-based learning within professional driver training*, ICT-DRV has been and will be able to provide valuable input for the sound integration of such approaches into the overall decision making process at European level and in the Member States by offering its results to decision makers and stakeholders. This has, of course, also a direct impact on the improvement of quality within VET related to professional driving.

Furthermore the ICT-DRV project strongly contributes to the “*New skills for New jobs*” initiative due to the overall characteristics of the occupation professional driving and especially the alarming shortage of qualified professional drivers in Europe. Also in this context a number of initiatives are currently implemented at European level such as a DG MOVE initiated study on skill shortages within transport and logistics that can strongly benefit from taking the ICT-DRV project results into consideration with regard to the implementation of *high-quality e-learning solutions* for logistics workers. This additionally directly targets *ET2020* with its aim to support professional driver’s employability in Europe by enriching their VET with computer- and simulator-based training that corresponds with labour market needs and by supporting lifelong learning of workers in an occupation that was long time considered being a job for low-skilled.

