

TALENT & EXPERTISE DEVELOPMENT AT UIC

Learning for the future



INTERNATIONAL UNION
OF RAILWAYS





EXPERTISE DEVELOPMENT STRUCTURES

The Expertise Development Platform

- Rail Training Centre meetings in different training facilities each time – open to all members
- A Steering Committee meeting at least twice a year or more, as required by workload
- ERTMS Basic training working group
- Future of work & Training working group
- Ad hoc working groups at members' request



OUR PARTNERS

- Regional Networks of Rail Training Centres under the aegis of the Expertise Development Platform

ENRTC

European Network of Rail Training Centres

APNRTC

Asia Pacific Network of Rail Training Centres

MERTCe

UIC Middle-East Railway Training Centre



TrainRail



IRaTCA

International Railway Training Centre for UIC Asia and RUT (MIIT)-Russian University of Transport



RUSSIAN UNIVERSITY OF TRANSPORT (MIIT)

MENRTC

Middle East Network of Rail Training Centres

The Expertise Development Division

- Acts as permanent point of contact
- Leads the platform together with the Chair Person
- Coordinates the regional networks of Rail Training Centres (ENRTC, APNRTC/IRaTCA/RUT, MENRTC)
- Ensures information and news about international developments are shared within UIC and among UIC members
- Designs and co-ordinates training sessions
- Manages the TALENT project and its corollary actions
- Organises training & networking events, study visits
- Issues benchmarking reports and best practice guides
- Facilitates exchange of knowledge

COOPERATION PROJECTS

ERTMS basic training

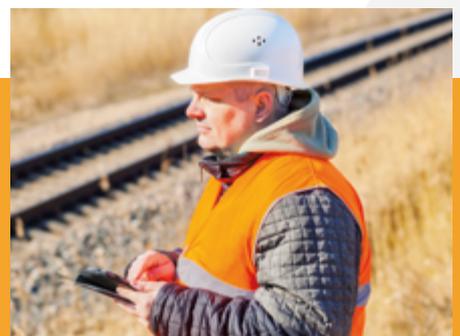
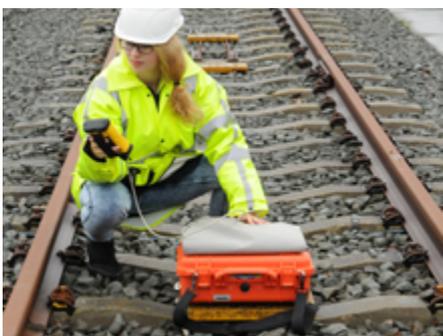
ERTMS is worldwide considered, implemented or already in use as a key component of modern command, control and signalling. In parallel, advanced Traffic Management systems, ATO or at least Driver Advisory Systems are a topic of consideration in many countries.

Some countries have sector wide covering programs. Like Digital Railway program in the UK and Smartrail 4.0 in Switzerland.

This means the sector is fundamentally changing towards digital, leading to a demand for a huge regeneration in skills and knowledge. This will affect thousands of people working in the railway industry to a greater or lesser extent.

UIC provides a free publicly accessible e-learning course about ERTMS. The first module, explaining the [basics of ERTMS](#), is on line since April 2018. In 2019 the launch of two additional in detail modules are foreseen. This concerns ERTMS from the perspective of the Train Driver and from the perspective of the Infrastructure Manager.

The plans are to develop two other modules in 2020, ERTMS from the perspective of the Dispatcher and Rolling Stock. We would highly appreciate if you provide the UIC TEDP ERTMS workgroup (contact details on website) with topics should be addressed for those two last modules.



Future of Work & Training in the Railway Industry

We are living disorienting times: we enjoy the longest ever life expectancy, but we are worried about our ability to live it in wealth conditions and in economically sustainable way. We enjoy the goods of globalisation, but we are worried about immigration and diversity. We enjoy the fruits of the new technologies, but we are worried about a jobless society. In disorienting times it's more important than ever, to better understand and look into the future.

Especially about the technology that is neutral and could be used for good or bad effects. New (digital) technologies will probably effect also the Railway Industry with a strong impact on jobs and training needs.

With this framework in mind (explore the future working scenarios to better prepare for it) , UIC started in 2019 a new research with the aim to explore the "Future of Work & Training in the Railway Industry". Railway Companies from eight countries are currently Team Partners of the Working Group. The main idea in exploring the future working conditions is to use as driver the notion of "division of labour".

In the past the key factor in improving the productivity was the "division of labour" between mainly humans employees (Adam Smith with the "pins" factory, Taylor, Ford and so on). In the future the key factor in improving the productivity will be the "division of labour" between Humans and AI/Algoritmes.

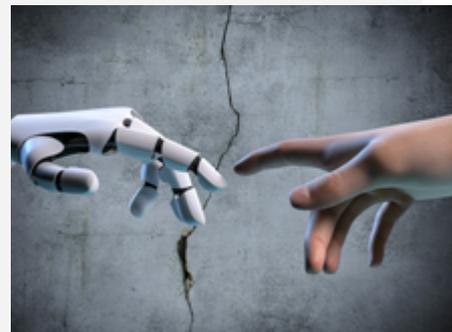
In the future there will be probably tasks operated by:

- Only Humans
- Humans and Machine/AI separated
- Humans and Machine/AI integrated
- Only Machine/AI

The working group decided to focus in the first phase in describing the possible future implementation of new technologies in the following railways processes:

- Infrastructure Maintenance
- Traffic Control
- Driving
- Train Assistance

The main scope of the research is to describe future railway work scenarios, make forecasts of impact on jobs and match the best L&D- Learning Technologies to train the necessary future workforce. The methodology of the first phase (to be completed before the end of 2019) is based on in-depth interviews with Line Managers and HR Managers and by collecting comparable data with standard templates.





GLOBAL NETWORK OF RAILWAY TALENTS (TALENT PROJECT)

Railway Talents is a UIC project set up in order to help UIC members, and more largely the railway and transport community, to address the challenges posed by the talent crisis. Today, the industry is facing the following major problems:

- Around the world, populations are ageing: developed countries will face a smaller percentage of active working population and in developing countries economic growth is already outpacing talent development, leading to serious skills shortage.
- Transportation and logistics companies, including rail, will have a harder time employing workers with the needed skills, in the right place, at the right time.
- Transportation and logistics is a growing market which needs more people in a higher complex world.

In order to tackle these different challenges, the UIC has set-up a "Global Network of Railway Talents". This project which addresses different stakeholders (SIAFI Alumni, experienced workers and new recruits in railway-related organisations and research, academia, etc.) is united around six core principles and values: innovation, attractiveness, creativity, performance, responsibility and openness.

TrainRail:

The main objectives of TrainRail include reducing the gap between education offers and employer's needs as well as to identify, support and boost, at the international level, initiatives towards youth to raise the attractiveness of rail jobs & professions.

Possible activities include:

- Visibility of future competences and skills and the drafting of appropriate learning & development schemes and tools "Permanent UIC Observatory on the future of work and training"
- Set criteria for excellence of education and training centres and programmes based on international best practice and benchmarking
- Make railways attractive for the younger generation and develop young rail professionals through networking, exchanges and contests
- Implement the recommendations of VERA (Virtual European Rail Academy) study and other international studies



New!

- New Board for rail universities and training centres: from RailUniNet (Network of Railway universities) towards TrainRail.
- TrainRail is a new initiative in the frame of TALENT to create a board including all stakeholders having an interest in Rail Learning & Development.
- TrainRail is a world-wide effort to offer all railway stakeholders a 'one-stop-shop' for education, training and learning resources, as well as pool expertise and resources at a worldwide level.



www.railtalent.org

Learning TALENT

According to a report published by the European Transport Research Alliance in 2014, "The multidisciplinary nature of the Transport industry requires competencies from multiple bodies of knowledge, matching with the multidisciplinary character of mobility systems."

After having identified a number of specific challenges, the report makes a series of recommendations, one of them calling for the creation of:

- "New courses and programs (more flexible and not focusing on fundamental disciplines only).
- Specialization courses offering higher flexibility, tailored contents, operational and practical subjects; and through offering well designed and coordinated at European level.
- Lifelong Learning and Vocational Training courses."

RAILWAY TALENTS is an initiative that will redefine the sense of what's possible for talent development and virtual working in the global rail industry. It will prepare a new generation of railway talents working on domestic and international challenges. Several initiatives are taken in this direction, such as the current work to develop a (virtual) international mentorship within the Talent network to foster success in rail careers-, along with the design of on-line training courses.

How to provide these new courses and programs in a sector which is in constant evolution? How can we make these learning opportunities accessible to all, whether full time students or busy professionals? To address those challenges, the TALENT project is currently exploring the potential of online learning (exploring different training tools and methodologies: online learning, group and team learning, communities of practices, informal learning & recognition, assessment, self assessment, peer assessment, case studies, simulation, open badges) as a means to attract and develop talents in the rail sector. The TALENT team is currently designing a learning environment with the goal to providing learning opportunities that are:

FLEXIBLE

Different paths are available to achieve one's own learning objectives.

SELF-PACED

Learn at one's own pace and in one's own time

AUTHENTIC

Develop competencies through challenging and meaningful learning activities

COLLABORATIVE

Benefit from the collective intelligence of a community of practice

REFLECTIVE

Connect learning to previous learning and future actions

EVOLUTIVE

The course grows over time through the contributions of the participant

RECOGNISED

Credentials (Open Badges) enrich participants' professional profile. An Open Badge is a visual representation of a verifiable claim related to someone's competencies, interests, affiliations or achievements



PROJECT FUNDED BY THE EUROPEAN UNION



SKILLFUL Skills and competences development of future transportation professionals at all levels

The transportation sector employs over 10 million persons in the EU today, accounting for 4.5% of total employment, and representing 4.6% of GDP. At the same time, transport, as a rapidly developing and changing sector, is facing problems to develop, attract and retain appropriate staff. This is partly due to the increase in automation and electrification which means the sector will depend more and more on specialized equipment and products. The implication is that future transport related jobs will require new and advanced skills in engineering as well as in back office operations, but at the same time, the growing interdisciplinary elements of transport activities will also require transport professionals with developed skills in areas such as safety, logistics, IT, behavioral sciences, marketing and economics. As a consequence a new paradigm needs to be developed in training and education cross-fertilizing the disciplines and combining traditional training methods (e.g. face-to-face classrooms etc.) with alternative methods and learning systems (e.g. web-based training etc.) addressing the different needs of the various skill levels (from low skilled workers to high skilled managers/researchers) and incorporating lifelong learning aspects for the professionals in all transports areas.

The SKILLFUL project will tackle the issues raised above by identifying the skills and competences needed by the transport workforce of the future (2020, 2030 and 2050 respectively) and defining the training methods and tools to meet them.

The project's aims

The project's aims are:

- to critically review the existing, emerging and future knowledge and skills requirements of workers at all levels in the transportation sector, with emphasis on competences required by important game changers and paradigm shifters (such as electrification and greening of transport, automation, MaaS, etc.);
- to structure the key specifications and components of the curricula and training courses that will be needed to meet these competence requirements optimally, with emphasis on multidisciplinary education and training programmes;
- to identify and propose new business roles in the education and training chain in order to achieve European wide competence development and take-up in a sustainable way. The skilful project started in October 2016 for a 3 year period.





World Congresses on Railway Training (WCRT)

UIC World Congresses on Railway Training are major events for academic and rail training institutions. Organised every two years since 2011, it gathers on average 200 participants from over 30 countries. The four previous congresses were respectively organized in Madrid, Vienna/St Pölten, Lisbon and Berlin/Potsdam. The fifth edition of WCRT will be held in October 2019 in Rabat (Morocco).

The key congress aims are to:

- share best practices in education, training and human resources development;
- raise awareness in new and innovative technologies, systems and methods to promote effective learning;
- expand and reinforce international networking within training and development professionals and organisations; enhance cooperation with rail educational & vocational institutions, in order to showcase the different initiatives towards youth;
- help training and development professionals design and implement training and development programs that contribute to increase organisational effectiveness.

The Congress is targeted at:

- training Directors, executives and experts;
- human resources and human performance and development professionals at all hierarchical layers in the organisation;
- rail Educational and vocational institutions.





2016-2018 PROJECTS RESULTS

GENERIC COMPETENCE FRAMEWORK FOR TRAINERS

Website: https://uic.org/IMG/docx/generic_competence_framework_for_trainers.docx

PILOT STUDY FOR SIGNALLING ENGINEERING TRAINERS

Website: https://uic.org/IMG/zip/pilot_study_for_signalling_engineering_trainers.zip

ERTMS ON LINE:

Website: <https://ertms.railtalent.org/module-1>

RAM ON-LINE:

Website: <https://www.railtalent.org/courses>



One of the dimensions of the sustainable strategy is the social dimension. The Social Pillar, including training and education issues, is one of the three key pillars of sustainable development, along with environmental and economic issues. Training, education and workforce development have a key role to play to accompany and anticipate the transformations that are happening in many industries, including the rail sector.

Demands on railway organisations are changing: liberalisation, internationalisation/global market and supply chain, technical harmonisation and new technologies, as well as increasing service expectations, new social frameworks, demographic challenges and the loss of corporate knowledge.

It is of utmost importance for railway employers to attract and retain the best talents available in the job market.

Railway need talents able to operate on the global stage and to collaborate across functions as well as cultures. An important aim of our activity is to facilitate the process of knowledge, values and experience sharing between different cultures and generations of railway people.



EXPERTISE DEVELOPMENT AT UIC

Author: Nathalie Amirault, Head of Talent and Expertise Development Unit

English editor: Helen Slaney, UIC Communications Dept.

Design: Marina Grzanka

This brochure is a publication of the INTERNATIONAL UNION OF RAILWAYS (UIC)
16 rue Jean Rey, F - 75015 PARIS

Nathalie Amirault, amirault@uic.org

Tel. : +33 (0) 1 44 49 21 47

Fax : +33 (0) 1 44 49 21 49

www.uic.org

www.railtraining.org

UIC Expertise Development Platform

Chair: Esther Marconi (FS)

UIC Expertise Development Division

Nathalie Amirault (UIC)

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