REGIONAL CONFERENCE ON TRANSPORT RESEARCH AND EDUCATION

POSSIBLE RECOMMENDATIONS ON TRAINING FOR TECHNOLOGICAL AND SUSTAINABLE CHALLENGES

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ESCAP, 22-23 September 2021
UIC is keen and will be dedicated to support its members for

- the creation and the development of their National Railway Standards

- the development of sustainable railways in Asia-Pacific

- the development of human capital with training programmes (with an emphasis on safety)

- the digitalisation of railways in Asia-Pacific and the World

Through its activity on Talent and Expertise Development and development of a training programme
UIC TALENT & EXPERTISE DEVELOPMENT ACTIVITY

Nathalie Amirault, UIC Head of Talent & Expertise Development unit
Agenda

1. Brief introduction to the activity

2. Exchange of best practices in HR and training (TEDP, WCRT, Permanent observatory on people management trends)

3. Co-operation between academia and railway undertakings (TrainRail, Quality Expert group, Train Rail hackathon)

4. Possible training program topics for sustainability and innovation challenges by UIC
Organization Level

Talent & Expertise Development Unit
UIC HQ, Nathalie Amirault

Talent & Expertise Development Platform (TEDP)
Chair: Miguel Viana, IP

Co-operation
industry-academia
TrainRail

Regional Networks of Training centers
Corporate HR Departments & HR Business partners

Project Level

Permanent Observatory
HR issues, skills, new L&D schemes

WCRT, TALENT project, Hackathon, Quality criteria Expert group, ERTMS Basic training, SDG and operational/HR practices, partner in EC funded projects (Automisation, digitalisation and impact on Human Capital

www.uic.org/expertise-development-training/ www.railtalent.org

Evgeniy Zarechkin, RUT

Nathalie Amirault, UIC Miguel Viana, IP
Missions & Challenges

To enhance policies and practices of Railway workforce management facing:

- X,Y generations
- Disruptive new technologies
- New professions, competences
- Need for new L&D schemes & technologies
- Innovation/New partnerships

UIC Work Programme (2020-2022) highlights international rail training and education needs and opportunities, based on the role and use of UIC IRS for the creation and development of National Railway Standards.
Activities:
Talent & Expertise Development Platform (TEDP)
World Congress on Rail Training, Talent & Development
WCRT 2022 is a unique gathering

For education, training and 200 HR professionals to learn and exchange around:

- Best practices in education, training and human resources development,
- **New and innovative technologies, systems and methods** to promote effective learning, particularly in time of pandemic situation

As well as:

- Expand and reinforce international networking within training and development professionals and organizations
- Enhance cooperation with rail educational & vocational institutions, in order to showcase the different initiatives towards youth
Permanent Observatory on people management trends

Permanent Observatory mission is to conduct **global and regional studies** on **people management** strategic challenges for railway sector companies

- To provide in depth perspectives for key HR topics and best practices to enable leaders drive future business success and increase organisational effectiveness.
- To work collaboratively with all railway sector stakeholders to define challenges, solutions and actions for better people management policies and practices.
- To emphasize the impact of **digitalization and digital transformation** on the future of work and jobs in railways sector.
- To apply strong scientific methods to collect and analyse results.
- To share and openly discuss results across railway companies, public administration, industry, education institutions and expert consultants.

**through Survey** and **Case Study**
TrainRail vision general objectives

A one stop shop for education, training and learning resources

- Labour attractiveness of rail sector
- Reduce gaps between employers’ need and education offers
- Better Quality of rail education and training worldwide
- Direct access through academia to focus groups
- Cooperative ventures to identify market’s need in terms of labour workforce
- Pooling of resource to develop recognized education & training programs, identify new & innovative learning & development schemes.
Core activities

➢ Set criteria for excellence of education and training programs based on international best practices and benchmarking.

➢ Develop UIC recognized and joint programs meeting the needs of members based on set criteria of excellence.

➢ Make railways attractive for the younger generation and develop young rail professionals through networking, exchanges and contests.
Quality Expert Group: Needs addressed by the project

- Following the quick developments undergone by the railways, training should meet new challenges, hence the necessity to develop new approaches to its quality, and to develop training quality criteria.

- Rail training courses are developed worldwide.

- Railway companies and academia need a reference, comparable scale to understand how a course correspond to the needs and quality criteria commonly set by the international professional community.

- Development of UIC and international courses requires common approaches and terminology as well.

- Quality criteria that meet the needs of UIC as railway community should be set.

Core targets

- Common Quality criteria for trainings for UIC members
- Ensuring reliable and trusted competence development criteria
- Appropriate methods to ensure learning success
- Preparing draft UIC International Railway Solution (IRS)
Create a synergy between academia and railway industry with the aim of supporting the attraction and retention of the best talents in the railway industry

https://railtalent.org/train-rail-hackathon-2022/
Objectives

- Raise awareness among younger generations of the correlation between the development of rail transit and the United Nations Sustainable Development Goals (SDGs).
- Improve their understanding of the spirit of innovation.
- Develop their skills by working with people from diverse backgrounds, which will thus prepare them to become world leaders and thinkers contributing to a sustainable world.
- Strengthen cultural exchanges between their countries, laying the foundations for the future development of international relations.
- Support the challenges of railway companies and education and training establishments with creativity
- Promote startups, Mobilize the best internal and external talents, Turn an idea into reality
UIC areas for training

Meryem BELHAJ-CLOT
Head of International Training Programme Development

Regional Conference on Transport Research and Education, 22-23 September 2021
UIC activities

**PASSENGER**
- Commuter & Regional
- High-Speed
- Passenger Railway Stations
- Passenger Services Group
- Rail Tourism (TopRail)

**FREIGHT**
- Dangerous Goods
- Wagon issues (+Loading rules)
- Train Operation
- Corridors
- Combined Transport
- Freight Forwarders
- Quality
- IT
- Exceptional Consignments

**SAFETY**
- Global Level Crossing Network / ILCAD
- International Railway Safety Network
- Human and Organisational Factors
- Occupational Health & Safety
- System Safety Management
- Safety Performance Group / Safety Database
- Trespass and Suicide Prevention

**SUSTAINABILITY**
- Air Quality
- Energy efficiency and CO₂ emissions
- Noise and vibration
- Sustainable land use
- Circular economy

**RAIL SYSTEM - TECHNICAL ACTIVITIES**
- Rolling Stock
- Energy Management
- Track & Structure
- Train-Track Interaction
- Control
- Command Signalling
- Telecommunications
- Operation & Maintenance
- Asset Management
- ERIM Database
- ERTMS
- GSM-R
- FRMCS
- RailTopoModel

**RESEARCH**
- IRBB
- ERRAC
- WCRR
- Research Awards

**EXPERTISE DEVELOPMENT**
- WCRT
- Staff development
- Regional Training Centres
- Railway Talents

**SECURITY**
- Human factors
- Strategy
- Technology

**SUPPORT ACTIVITIES**
- Digital
- Statistics
- IT / eBusiness
- Economics
- Finance
- Terminology

**STANDARDSATION**
- International Railway Solutions (IRS)
- Leaflets/IRS Numbering Correlation Table

**SPECIAL GROUPS**
- UIMC
- ATTI
- CTG
- RIC/A
- RailData
- FIP group
- TrainDy
Railway Digitalization & Sustainability - Concrete Examples

• FRMCS: 5G Introduction in Railway Operations
  ▪ Improvement of capacity through new signalling technical possibilities
  ▪ Higher quality of service: availability, punctuality
  ▪ New services: real-time information, remote applications
  ⇒ Better services and customer experience, increasing railway attractivity and then modal shift

• Digital Modelling
  ▪ Representation of all dimensions of railway system: static (assets), functional and dynamic
  ▪ Higher efficiency for construction, projects and simulations
  ▪ Mechanical reduction of costs of ownership
  ⇒ Improvement of general railway competitiveness to facilitate modal shift, by opposition to other modes
2. Freight

Combined transport
- Codification of lines, units and wagons to ensure time to market operation
- User guide/reference guide on codification and certification for unaccompanied combined transport

Corridor management set up

General Contract of use for wagons

Loading Guidelines
- Provisions for loading conditions and securing goods during shipment
- Loading guidelines for specific types of product types

Dangerous Goods

Contingency Management
- RU's Handbook for International Contingency Management
- Essential element of an RU's risk management and business strategy
3. Passenger & High speed

- Commuter & regional train services
- Stations
- High speed

INTEROPERABILITY
- Ticketing
  - Interoperability of ticketing systems (layout & security)
- UIC MERITS
  - Timetable & location data
  - (Data user & data provider)
EXAMPLES FROM THE PASSENGERS DOMAIN
Training on high-speed systems lev. 1 and lev. 2

Since 2004 UIC has successfully organised the annual UIC Training Session on High-Speed Systems (THSS) which has been attended by more than 300 trainees to date.

The program is aimed at professionals already involved in any of the processes of High-Speed Rail (HSR) or who will be in the near future, whether working for Railway Companies or Ministries, Local Authorities, Universities, Advisory Bodies, Agencies or Associations: Managers, Strategy Experts, Decisionmakers, Economists, Banks, Industry, Engineers...
Training Session 2022 on Railway Passenger Service based on IT Technology & DIGITALISATION

The goals of the program are to share knowledge and best practices of railway passenger service in Asia-Pacific, to discuss on quality service and to find ways to cooperate.

The main themes are:

• Overview of the rail ticket distribution: from concepts to databases
• Rail Ticket Digitalisation: the barcode solution from mass transit ticket to high-speed ticket
• Artificial Intelligence: to serve the customer at the train station AIRobot
• UIC IT solution for Rail Passenger Control. Paperless ticketing
• UIC PRM Assistance Booking Tool: how to guaranty assistance for the impaired passengers (Wheelchairs...)

Postponed 2\textsuperscript{nd} half of 2022
4. Security

- Security by design
- Insider threat
- Rail Security for Major Events

Security of stations
Crisis management & Communication
Feeling of security

Security Platform
Thematic Groups

EU H2020 Projects

Special Group
COLPOFER

The main purpose of COLPOFER is the promotion of measures to improve rail security at European level by securing rail transport which is public and secure for all citizens. It is conducted through open and collaborative cooperation between the European member states.
Security Trainings with an impact on Sustainability

• Increase resilience of Rail transport against security threats

• Protection of stations and trains against terrorist attacks

• Prevention of intrusions on railway premises (including level crossings)

• Crisis management and communication in case of a security incident

⇒ All these would contribute to an overall better public perception of the railway transport (safe and secure), better quality of service (less disruptions and delays), faster recovery from crises, and eventually an increase railway passenger and freight market share.
Safety Trainings as a fundamental for organisational changes

- Support partners to enhance railway safety with particular approach on global and systemic based-risk approach (including sustainability): integrated safety
- Assist in harmonisation of regulatory frameworks, with emphasis on « integrated » safety oversight and accident investigations
- Promote uniform legal and technical interoperability, through application of international legal instruments
- On demand, technical assistance and support on specific areas
- Raise awareness on the benefits with the approach on safety/interoperability from railway organisational changes (ex: the 4th railway package in Europe)

⇒ All these would contribute:
  - Increase awareness and use of SMS
  - Better understanding of risk management concepts and risk assessment methods
  - Collection on reporting on rail accidents (inc. data)
  - Improve organisational learning and promotion of a safety culture
6. Sustainable development
Last example: How to make railway more resilient facing major environmental crisis

TARGET:
Officials
Staff in transport and railway sector

OBJECTIVES:
To share knowledge & best practices
To discuss for better solution
To find ways to cooperate
# UIC strategic themes for training

## OVERVIEW OF TOPICS

### Digitalization
- Predictive maintenance
- Infrastructure subsystem & Rolling stock/ sustainable development
- Braking performances
- Track maintenance
- Climate change adaptation
- Noise
- Vegetation management
- Sustainable land use
- Energy efficiency/ SFERA

### High speed & Passenger
- High speed
- Commuter & regional train services
- Stations

### Security
- Insider threat
- Security by design
- Security of stations
- Cyber security
- Suicide /Intrusion

### Crisis Management & communication
- Feeling of Security
- Rail Security for Major Events

### Interoperability
- Operations
- Network Performance
- Ticketing
- Interopérabilité des systèmes de ticketing (layout & security)

### UIC MERITS
- Timetable & location data (Data user & data provider)
- Asset Management
- Contingency Management
- Combined transport

### Dangerous Goods
- General Contract of use for wagons (GCU)
- Loading Guidelines

### CCS & signalling
- ERTMS
- ETCS
- GSM-R
- FRMCS/5G
- Automation

### Safety
- Safety Management System
- Risk Based Approach
- Safety Leadership/decision makers
- Accident Investigations
- Safety Culture
- Human & Organisational Factors
- Occupational Health & Safety

### Other topics
- Network Performance
- ERTMS
- GSM-R
- FRMCS/5G
- Automation
- Safety
- Safety Management System
- Risk Based Approach
- Safety Leadership/decision makers
- Accident Investigations
- Safety Culture
- Human & Organisational Factors
- Occupational Health & Safety
Stay in touch with UIC:

www.uic.org

#UICrail

Thank you for your attention.