



STAFFER
EUROPEAN RAIL SKILLS ALLIANCE



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Implementation of Mobility and Training Programmes in the Field of Cross-Border Railway Operation, Communication and Language

DELIVERABLE TASK 6.7



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TABELLE 1 DELIVERABLES IN TASK 6.7

LIST of ABBREVIATIONS/ACRONYMS

MOOG	Massive Open Online Course
BIM	Building Information Modelling
VERA	Virtual European Rail Academy
UIC	Union Internationale des Chemins de fer
TDD	Train Driver Directive
ETCS	European Train Control System
CBR	Cross-Border-Railway
DB	Deutsche Bahn AG
ÖBB	Österreichische Bundesbahn
CTU	University of Praha
SNCF	Société nationale des chemins de fer français
UDI	Université de L'Ingenierie
EACEA	European Education and Culture Executive Agency



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1 EXECUTIVE SUMMARY

The complexity and ambition of Task 6.7 is already apparent from the title of the task, but also from the wealth of possible implementation topics that were developed in work package 4. To structure the challenge, 5 working groups with different focal points were formed in order to be able to consider as wide a range of topics as possible. (A compact overview of the working groups is shown in Figure 1)

The 5 working groups selected the topics to be worked on from the output of the previous work packages and organised themselves independently. Regular working group meetings served to work on the topics, co-leader meetings ensured networking between the working groups and 11 general meetings enabled the involvement of all partners.

The following results were achieved.

Working Group	Nr	Deliverable
Working Group A: Technologies and Digitisation (Lead DB/UDI SNCF)	D-A1:	ETCS qualification concepts for train drivers in Europe
	D-A2:	Importance of BIM for the railway sector in Europe
Working Group B: Mindset and Diversity (Lead ÖBB/DB)	D-B1:	Mentoring Programme Strong Women. Strong Railways
	D-B2:	Video Cross-border train driver freight
	D-B3:	Interviews with female train drivers
Working Group C: Language and Communication (Lead DB/ÖBB)	D-C1:	Survey: Overview language training
	D-C2:	ETCS Translations
	D-C3:	Exchange: language training for train drivers of SNCB
Working Group D: Communication and Networking (Lead DB)	D-D1:	D-D1: Expert exchange programme, example DB/SNCF
Working Group E: Railway Operation (Lead DB/CTU)	D-E1:	Application on basics of pneumatic railway brakes
	D-E2:	Energy Saving Driving Style for train drivers
	D-E3:	Research guide for Energy-efficient train operation

TABLE 1 DELIVERABLES IN TASK 6.7

Based on the available results, concrete examples of previously unutilised opportunities for cross-border cooperation were developed. Once started, more and more ideas and

opportunities for co-operation emerged. Only a few of these could be realised as examples within the framework of the project.

Only the attempt to organise the direct exchange of company personnel failed due to various obstacles - suitable framework conditions must first be created at a higher level, such as a cross-border collective bargaining framework and joint financing.

The need and willingness to network and co-operate in the area of qualification was basically there. However, a low level of active participation on the part of the partners also showed a reluctance that could be due to a lack of resources.

The work showed that there is a lack of resilient networks in the area of qualification of railway personnel. Changing this would be the prerequisite for realising the many identified cooperation opportunities.

2 CORE PART

2.1 Introduction

Task 6.7 is based on the findings of the UIC VERA study that obstacles to the realisation of cross-border transport operations can often be explained by divergent qualifications. On the one hand, this concerns the content, which is strongly nationally characterised, but also the design of the qualifications, which are not recognised across the board even if the content is the same. In addition, the qualifications are in the hands of the individual rail companies, meaning that content is often developed in a redundant and divergent manner. This is questionable from an economic point of view, but also in terms of interoperability. An overarching approach to this problem is difficult, as the tedious and time-consuming work on the TDD shows.

The STAFFER project is attempting to take a different approach: through direct cooperation between the partners involved, the aim is to test where cooperation could be possible and where success can be achieved through "short official channels".

2.2 Aim of Task 6.7

In order to describe the objectives for Task 6.7, it is necessary to take a look at the title of the task:

"Implementation of Mobility and Training Programmes in the Field of Cross-Border Railway Operation, Communication and Language".

The title is based on the idea that the expansion of cross-border transport requires activities in all areas of railway operation and social interaction between companies. Even though it was clear from the outset that the possibilities for realisation were limited and that a blueprint project would be more of an example of how to implement the project, our aim was to develop solutions from as many of the above-mentioned perspectives as possible.

The objective we were working towards was implement as many different examples as possible within the given project requirements specification. For this reason, the available resources were distributed across 5 different work packages. The aim was to implement concrete examples in order to prove that trans-European cooperation between rail employees at various levels is more possible than before.

2.3 Methodology and Approach

The foundations for all content developments were laid in the work packages WP 1, WP 2 and WP 3. The "needs and skills" identified here formed the basis for the development of specific

topics in WP 4. Even though the topics were limited to the target groups of train drivers, dispatching and maintenance (rolling stock and infrastructure), there were still 105 possible activities to choose from. As a result, 5 working groups were formed, each of which would work on several topics.

Technologies & Digitalisation	European Mindset & Diversity	Language	Communication + Networking	Railway Operation
Lead: DB (Reymund Weitzel) Co-Lead: SNCF (Patricia Nieto-Esteban) Core Group: CESI, ÖBB, ESTACA	Lead: ÖBB (Tanja Pfaff-Röders) Co-Lead: DB (Olaf Kittlaus) Core Group: IŽS, UASFHE, FS, SNCF + PKP	Lead: DB (Vanessa Gnoth) Co-Lead: ÖBB (Carine Stirling-Raoul) Core Group: IŽS, SNCF, CESI	Lead: DB (Arpad Domjan) Co-Lead: - Core Group: IŽS, UniRoma, CTU, FS, SNCF, CESI	Lead: DB (Jannik Sielaff) Co-Lead: CTU (David Vodak) Core Group: SNCF, ÖBB, ESTACA
Results: <ul style="list-style-type: none"> • Overview on European ETCS Training Concepts (DB) • E-Learning "What is BIM?" A MOOC on BIM in Railway subjects (SNCF) 	Results: <ul style="list-style-type: none"> • Video: National Railways and European challenges' • Digital Format: What does European Mindset mean to you? • Mentoring Program: female employees in engineering (ÖBB and DB) 	Results: <ul style="list-style-type: none"> • Status quo analysis language training for safety critical staff • Analysis ETCS translation variation and development of general template • Exchange on language training for train drivers (ÖBB and SNCB) 	Results: <ul style="list-style-type: none"> • Blueprint for European cooperation in areas of railway training, joint production and exchange of existing learning media • Exchange event for experts from DB and SNCF (BIM, AI, ETCS) 	Results: <ul style="list-style-type: none"> • Brake simulation in 14 languages and training concept (CTU/DB) • Energy Saving (Survey, Training Concept) (DB) • Research Guide on energy saving within rail sector (CTU)

FIGURE 1 THE DIFFERENT WORKING GROUPS IN TASK 6.7

It is immediately noticeable that only the last three working groups literally correspond to the title of Task 6.7. The reason for this is that during the project and the associated investigations, it has become clear that the topics of "Diversity and European Mindset" and "Technologies and Digitalisation" are of great importance. In order to divide the workload sensibly among the project partners according to their interests and resources, separate working groups were formed for these topics.

The working groups were each to be led by two co-leads from different countries, which was achieved in four working groups. All partners were invited to actively participate in Task 6.7. In the mailing list of around 120 partner representatives, 35 agreed to participate. This group formed the core team and was distributed across the 5 work packages. Regular meetings of the working groups ensured progress. The work status of all 5 groups was shared in a total of 12 Task 6.7 General Meetings. The entire Task 6 distribution list was invited to the general meetings.

2.4 Results and Key Findings

The results were developed in parallel in 5 working groups. This is a small selection of topics from WP 4, which are intended to show examples of the areas in which cross-border cooperation or the use of joint learning concepts and learning media is sensible and beneficial.

2.4.1 Working Group: Technologies and Digitalisation

D-A1: ETCS qualification concepts for train drivers in Europe (Lead DB)

The ETCS train protection system is currently being implemented in Europe and is intended to standardise train protection systems in Europe. Regardless of the technical challenges, it becomes apparent that the opportunity to introduce a standardised qualification concept for train drivers has not been realised.

As a result, all European stakeholders such as railway companies and training providers are investing a lot of energy and money in concepts and training materials. Redundant activities penalise the rail sector economically.

In addition, the uncoordinated approach leads to a loss of comparability of qualifications, so that standardisation of training modules is not possible.

In this working group, an attempt was made to compare European qualification concepts with the following objectives:

- Trialling cross-border cooperation in the field of education
- Transparency on procedures and methods for training ETCS
- Sharing experiences, best practices and problems
- Synthesising existing training concepts and experiences into drafts of learning concepts, as orientation for further implementations

Experience in co-operation:

Most of the partners were willing to co-operate. The reactions ranged from the unbureaucratic and fast delivery of data to a vehement rejection of cooperation due to fears of European paternalism.

The response times of the partners were sometimes very long. Due to a lack of networks, the project partners had to search for a long time to find a contact person within their organisations who could provide information. The lack of networks affected railway companies and educational organisations to the same extent.

The English language is not universally spoken by the specialist contacts, which made processing time and willingness to co-operate more difficult.

There was often uncertainty about the legality of passing on internal information. This slowed down clarification within the organisations considerably or even made it impossible.

Results

A survey of the project partners enabled 15 existing training concepts to be analysed regarding their duration, learning objectives, media and time components. In addition, specific experiences and information on the concepts were recorded.

The use of simulators predominates, but the evaluation shows that training without corresponding simulation systems is also possible. For this reason, two example concepts were created.

In addition to training, the type of testing was also analysed.

The deliveries were anonymised before being documented so that the digital documents do not allow any conclusions to be drawn about the respective company.

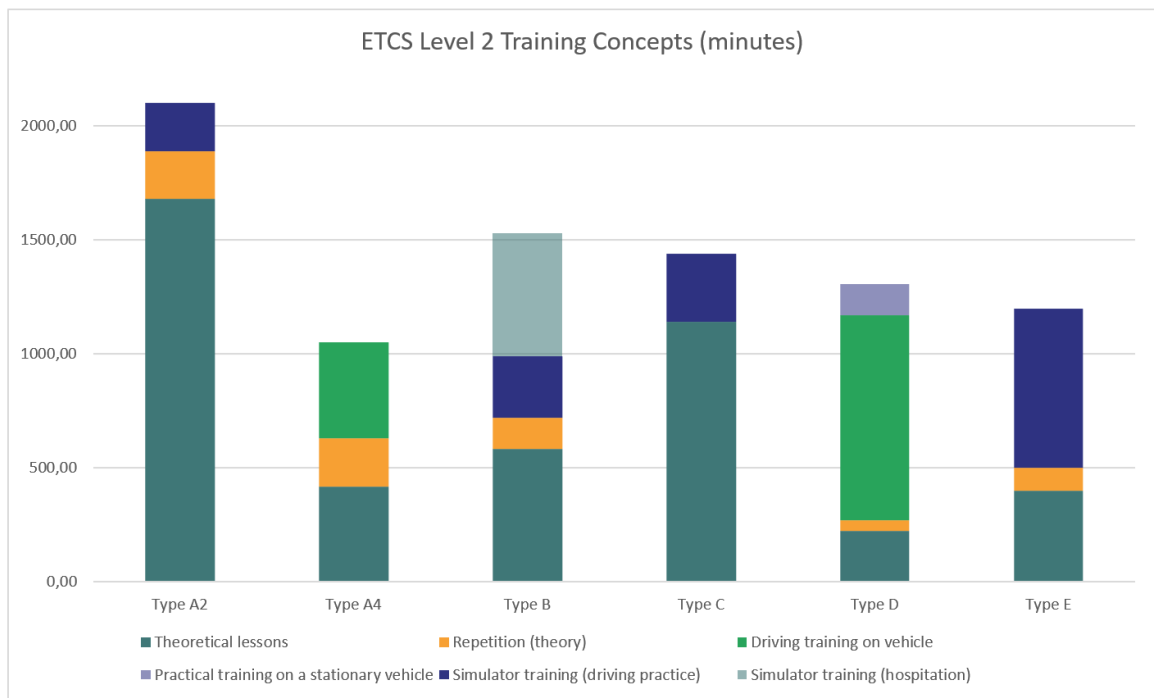


FIGURE 2 COMPARISON OF 6 EXISTING TRAINING CONCEPTS FOR TRAIN DRIVERS

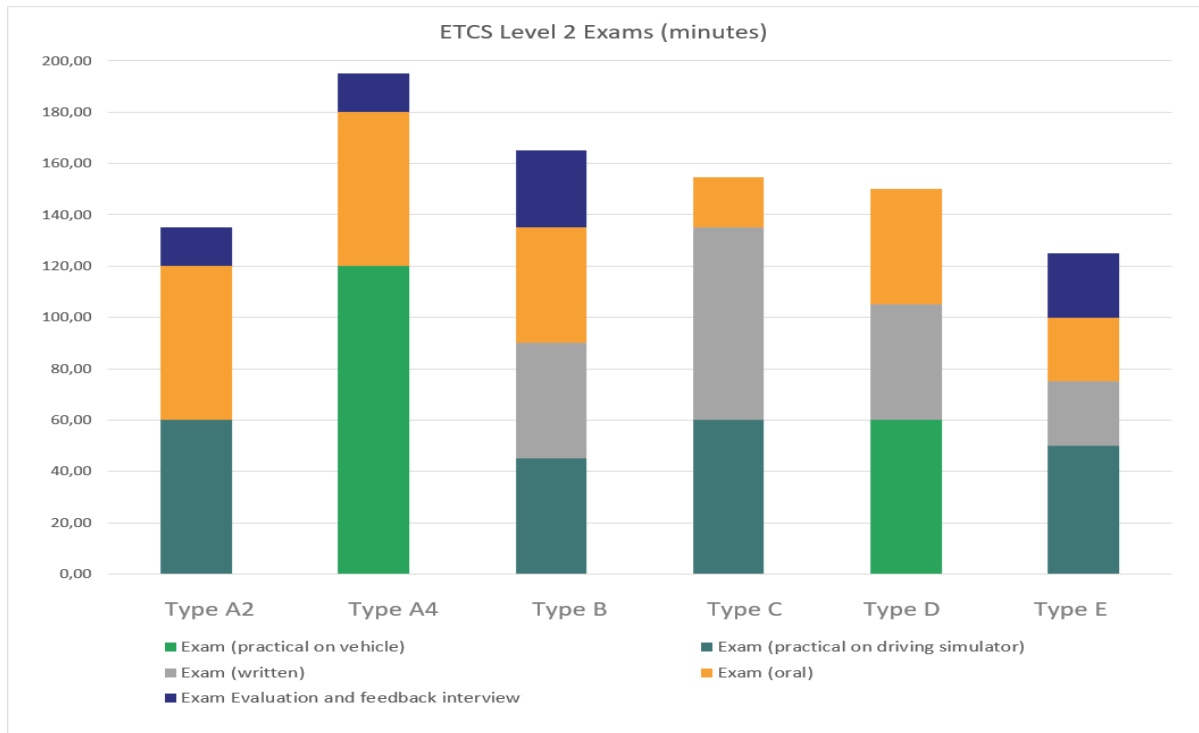


FIGURE 3 COMPARISON OF 7 ETCS EXAMS FOR TRAIN DRIVERS

The final documents for this working group will be:

- **Comparison on European ETCS Qualification Systems (MS-Exel file)**
- **Comparison on European ETCS Examination Concepts (MS-Exel file)**
- **Exemplary concept of synergetic ETCS training with simulators (MS-Word file)**
- **Exemplary concept of synergetic ETCS training without simulators (MS-Word file)**

D-A2: Importance of BIM for the railway sector in Europe (Lead UDI - SNCF)

Right from the start of the STAFFER project, an analysis of the trends and skills needed for the future of the rail industry identified new technologies and digitalization as priorities for the coming years, with BIM at the heart of the matter.

Building information modelling (BIM) is a powerful approach to manage infrastructures from the design phase to the end of their life.

Created in the 70's it has been implemented for in the architectural field and later on in other infrastructure projects.

With a slow adoption in railways industry in the early stages, nowadays BIM is largely used in railway projects. In some UE countries as Denmark or Finland, BIM has become compulsory in the implementation of infrastructure projects from A to Z.

The European Commission has promoted and supported several initiatives and workgroups in order to adopt common definitions, performance levels and shared standards within the EU.

Aware of the work done by other bodies on the technical aspects (standardization, training programs for people who have to use BIM in their day-to-day work, ...),

WP 6.7 took the decision to give an answer to the questions asked by railway employees who don't work with BIM. What is BIM? What's the point? What are the benefits? How is it being implemented in Europe? What are the risks? What is a digital twin?

The WP6.7 deliverable is a 2-hours e-learning course aimed at railway staff who are not currently working with BIM. The aim of this training module is to answer these questions in a non-technical way that is clear to everyone, regardless of their profile. We want to popularize the concept.

This training, which will be available on the Staffer website, covers the following topics:

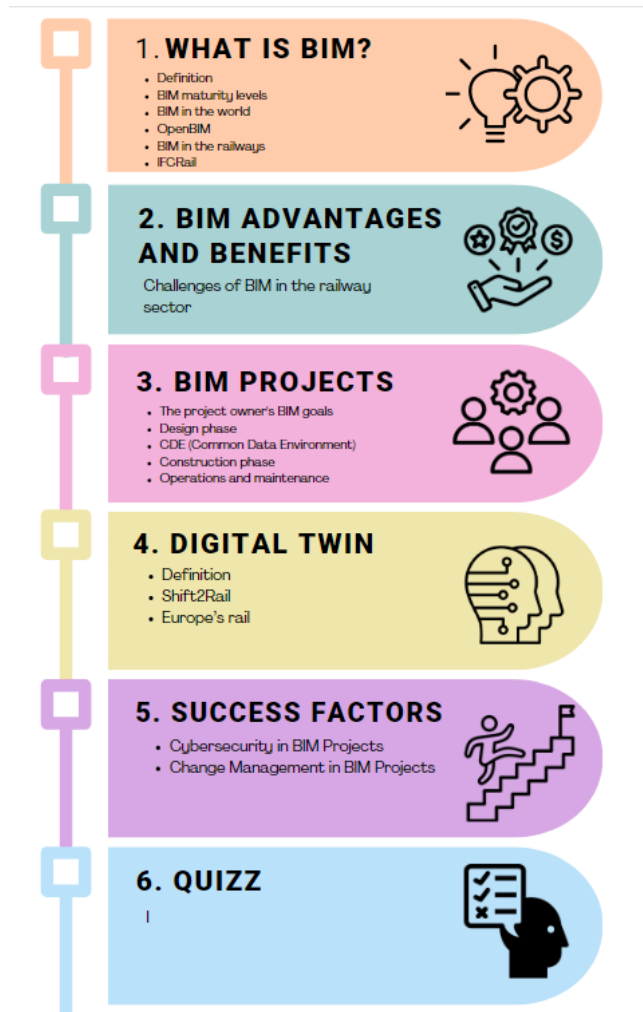


FIGURE 4 CONTENT OF THE MOOC "WHAT IS BIM?"

2.4.2 Working Group: Mindset and Diversity

Diversity and mindset are becoming critical drivers of success in the European railway sector. As the industry faces complex challenges—such as technological advancements, sustainability targets, and a shift towards greener mobility—embracing diversity in the workforce is essential.

In an earlier project phase, the survey submitted in STAFFER work package 2.2 (report 2.2/chapter 7.4 and 7.5) clearly indicated the need for an increased awareness towards diversity – and a European mindset. Particularly, key findings for ‘European Mindset’ included intercultural competencies, openness and stronger engagement in transnational cooperation. Within this context, European Mindset is becoming a relevant factor with the potential to fostering cooperation stronger cooperation in cross border railways along railway corridors, staff mobility in the cross-border and transnational context, activities of exchange and cooperation in transnational focus groups.

Moreover, fostering a European Mindset within the workforce is key to maintaining long-term competitiveness in the European railway sector. The railway industry is undergoing major transformation, with digitalization, automation and smart transportation systems. Employees with a European Mindset are more open to cross-border cooperation, best practice exchanges and joint initiatives. This way, a European Mindset in the railway sector supports adapting to these changes, enabling the sector to thrive towards cooperation and increased efficiency.

By promoting both diversity and mindset, the European railway sector can better innovate, meet customer needs, and lead the way in sustainable and efficient transportation for the future.

The core team was formed by partners from 6 countries; with ÖBB/ Austria lead and co-lead DB/ Germany, the initiatives were shaped and rolled out jointly with active partners from railway undertakings, infrastructure and academic institutes: PKP/ Poland, IZ/ Serbia, FS/ Italy, FH Erfurt/ Germany and CESI / France (SNCF supplying).

In continuous alignment with the lead of work package 6.7. there 4 key initiatives have been taken - and realised:

DIVERSITY & EUROPEAN MINDSET

Initiatives realised

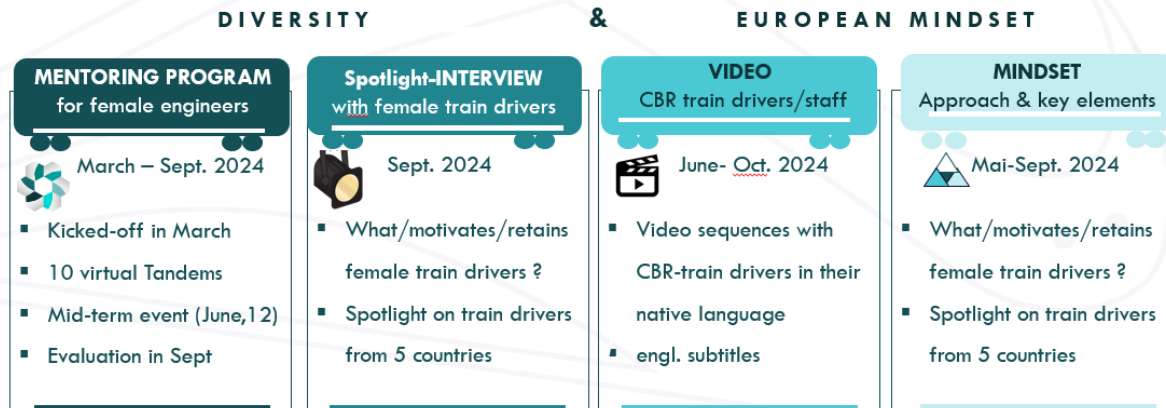


FIGURE 5 AKTIVITIES IN WORK GROUP DIVERSITY & EUROPEAN MINDSET

DIVERSITY (gender diversity)

D-B1: Female Mentoring Programme

The STAFFER Mentoring Program targets female engineers across the European railway sector. With its focus on gender diversity, the program encourages networking and exchange between women in engineering and fosters cooperation between supplier industry, railway undertakings, infrastructure and academic institutes across the European railway sector. By that, the aim is to promote diversity in rail, foster diverse thinking as well as cross-fertilization of ideas and networks. On a more specific level goals and objectives are:

MENTORING PROGRAM FOR FEMALE ENGINEERS IN THE RAILWAY SECTOR



GOALS

The aim is to encourage female employees to sustainably foster female leader- & expertise in the railway sector. In addition to internal programs, this program contributes to **increase the proportion of women in technical management/ expert positions.**

OBJECTIVES

In line with the overarching STAFFER objective, the Mentoring Program supports **targeted encouragement and advancement of qualified women in engineering in the railway sector** as part of preparation for realizing their career plans.



Under the motto 'STRONG WOMEN - STRONG RAILWAYS' 10 Mentoring Tandems have been built based upon guiding criteria with mentors and mentees, nominated by the STAFFER Coordinators/Responsible of 7 countries. The core team prepared matching criteria to proficiently build the mentoring tandems and developed information packages for mentors and mentees, outlining guiding principles and key success factors for the mentoring conversations. The program's set up was 100% virtual, starting with a kick-off event in March. Each mentoring tandem was self-organized in setting their meetings, with a recommendation to meet 3-5 times throughout the program's running time.

The mid-term networking session and joint touchpoint in June included an inspiring keynote by a speaker of the European Commission. The closing event took place in November, taking in feedback and reflections from all participants.

Throughout the program, both mentors and mentees had the opportunity to broaden their understanding on how partner organizations work, explore cross-border collaborations, enlarge their professional network and to strengthen links between railway companies and academic institutes. The evaluation and feedback have shown that mentors in addition highly valued insights and deeper understanding in motivations and mindset of young potentials.

To ensure that the experiences and feedback are utilized in the future perspective after STAFFER projects time, the results and feedback have been handed over to CESI for subsequent approaches and initiatives.

D-B2: Spotlight-Interviews with female train drivers

In the course of the initiative D-B3 ‘Video on train drivers & staff cross-border transportation’ female train drivers have been identified in the railway companies of 5 countries. Taking advantage of this circumstance, this starting point was utilized to put female train drivers in the spotlight in context of gender diversity. The core group has developed and aligned interview questions to gain insights and a general understanding on potential particularities regarding motivation and experiences of female train drivers. Specifically, this initiative targets to identify first reference fields for action to increase the attractiveness as well as retention rates for female train drivers.

**SPOTLIGHT
on
FEMALE
TRAIN DRIVERS**



**STRONG WOMEN.
STRONG RAILWAYS.**



- What are your specific experiences or influences that inspired you to become a train driver?
- What aspects of the job give you the most satisfaction or fulfillment?
- Have you encountered any stereotypes about in your profession? And how have these stereotypes impacted you?
- What’s your advice to female newcomers in this job?
- What’s needed to attract more female train drivers?



WP 6.7./ , Diversity & European Mindset’ (T. Pfaff 15.9.204)

Please note:

At the time this report is consolidated, this initiative is still ongoing. Consolidated results and key findings will be handed over to the work package lead 6.7. as well as CESI for further consideration and respective potential actions.

EUROPEAN MINDSET

D-B3: Video: Operational staff in cross-border railway transportation

As international trade and international travel continue to grow within the European Union, efficient cross-border rail transport becomes vital for moving goods quickly and sustainably between countries. Operational cross border staff in focus are train drivers and attendants and employees in traffic control. They play a key role in ensuring the seamless movement of people

and passengers across borders. Train drivers are essential to maintaining reliable, safe, and comfortable transportation across multiple countries.

In many countries, there is a shortage of skilled train drivers, train attendants and traffic controllers, e.g. due to an aging workforce. This shortage is particularly problematic in cross-border transport where familiarity with different railway systems and safety standards is essential. By promoting these jobs, governments and companies can fill this skill gap, ensuring the future of seamless cross-border train services.

Under the second motto of this working group 'STRONG MINDSET - STRONG RAILWAYS' a video is produced under the organisational and technical lead of DB. The core team elaborated interview guideline for orientation and a set of criteria upon which interview candidates shall be selected. Coordinated by the respective STAFFER coordinators, train drivers and from different countries were identified and provided with guiding questions for a video-take (1 min) in their actual working environment. With this, a defined framework of technical standards was submitted for quality assurance.

Special feature of this video: all people in this video work in cross-border transportation.

Employees from 5 European countries speak in their own language, submitting their message at which border they work, what motivates them and what they like most about their occupation. Subtitles are integrated as synchronized reading text in English.

The video aims to increase visibility of cross border operational staff – and to promote the occupational profiles of train drivers, train attendance resp. Traffic control in cross border railways. Embedded in key messages underlining and emphasizing the increased importance and high relevance of cross-border transportation, cross border staff shares personal insights on motivation – and their mindset.

The cross-border staff promoting video will have a duration of approx. 5 min and can be shared at various occasions, among others: during job orientation events, in railway specific training modules and company internal communication for increased visibility of cross-border staff.



Material required

- Camera (Mobile/Smartphone) with a resolution of FULL-HD (1920x1080Px) or higher
- Wireless Mikrofon



LAMSCAT Wireless Lavalier Mikrofon for iPhone/iOS/Android/USB c/PC, Professional Kabellose Mikrofon for Recording, Streaming, YouTube, TikTok, Noise Cancellation, No APP Needed (Black 1 to 1)
4.3 ⭐⭐⭐⭐ - 34 Sternbewertungen
399€
Freiwillig mit US\$-Kaufkraft von der Lieferadresse kann die US\$-an der Karte variieren. Weitere Informationen.
Coupon: 10 %-Coupon anwenden Weitere Artikel -> | [weitergehen](#)

- Tripod with suitable holder for the camera

Pictures

- At least 4 representative pictures of the country (e.g. flag, capital, railway landmark of the country)
- also other representative pictures

Structure of the driver video (maximum together of 1 minute)

- 1st set
 - o Background with traction unit of the respective company
 - o Foreground with the driver
- 2nd set
 - o Driver in the traction unit (workplace)
- Text with the translation of the national language into English
- Filming in landscape format

**European Mindset/
VIDEO SCHEME
TECHNICAL DETAILS**



Record many films, then select and edit the best ones

Please note:

At the time of this report, the cutting of this video is being finalized, English subtitles are integrated. The final alignment and confirmation run is set for end of September/ beginning October 2024, the video launch and distribution are scheduled for mid of October 2024.

A pre-view of the video 'operational staff in cross-border railway transportation' will be shown at the 'Innotrans' event by end of September.



D-B3: Definition & Survey 'European Mindset in Railways'

With the increased relevance and need for cross-border cooperation, standardization and a shared vision for sustainable mobility. An 'European Mindset' becomes a key factor for successful collaboration. Employees need to work seamlessly with colleagues, systems, and regulations from different countries, making it essential to adopt a broader, European outlook.

A European Mindset of cooperation in railways is essential for creating a more **integrated, sustainable and customer-focused** rail network that serves the needs of both, passengers and businesses across Europe.

While the 'WHY' for a 'European Mindset' seems to find common ground easily, the more concrete 'WHAT' shows a need for exploration and joint discussion.

This initiative aims to gain first insights on:

What concretely contributes to a 'European Mindset' in the railway sector?

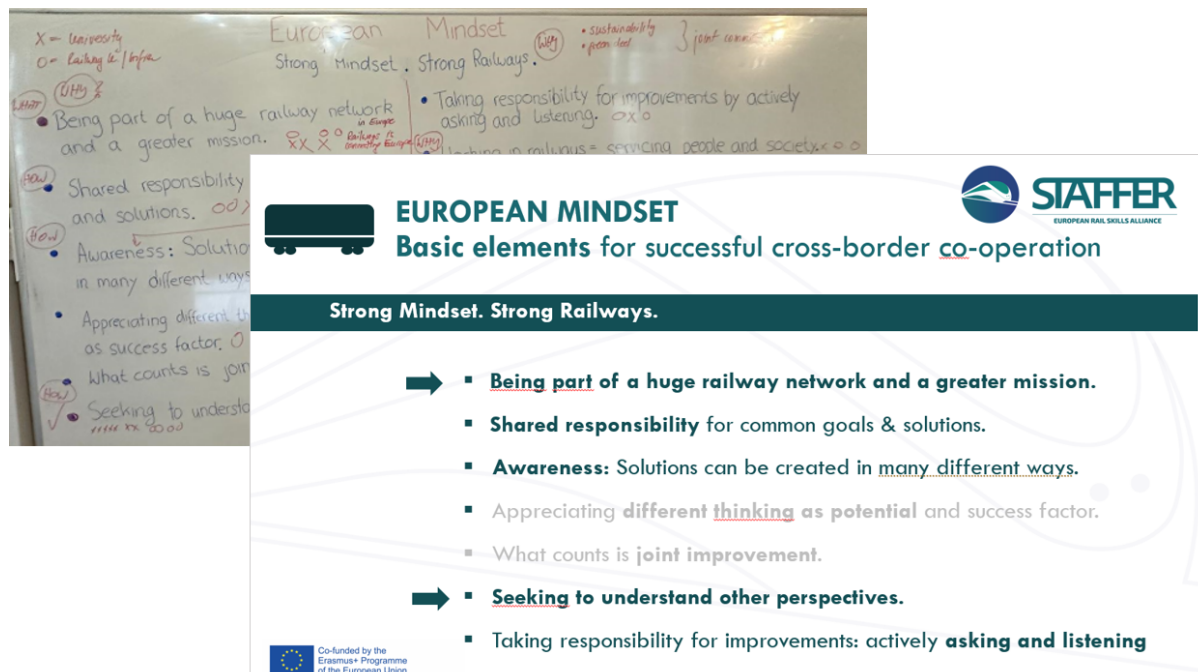
What are key elements?

How can a first definitional framework be outlined?

To approach this topic under the motto of 'STRONG MINDSET – STRONG RAILWAYS', a line of action in 4 steps was agreed in the core team of this working group:

Brainstorm session in the core team to prepare a starting point for further discussions

Interactive Stakeholder session at STAFFER Mid-Term Meeting in Genua



The image shows a whiteboard with handwritten notes on the left and a presentation slide on the right. The whiteboard notes include 'X = University', 'O = Looking at Infra', 'Why?', 'Being part of a huge railway network and a greater mission', 'Shared responsibility and solutions', 'Awareness: Solutions in many different ways', 'Appreciating different thinking as success factor', 'What counts is joint improvement', and 'Seeking to understand other perspectives'. The presentation slide features the STAFFER logo and the title 'EUROPEAN MINDSET Basic elements for successful cross-border co-operation'. Below the title is a dark green bar with the text 'Strong Mindset. Strong Railways.' and a list of six bullet points: 'Being part of a huge railway network and a greater mission.', 'Shared responsibility for common goals & solutions.', 'Awareness: Solutions can be created in many different ways.', 'Appreciating different thinking as potential and success factor.', 'What counts is joint improvement.', and 'Seeking to understand other perspectives.'. The final bullet point is 'Taking responsibility for improvements: actively asking and listening'. The slide also includes a small logo for the Erasmus+ Programme of the European Union.

FIGURE 6 BASIC ELEMENTS FOR SUCCESSFUL CBR CO-OPERATION

Example of consolidated results; interactive working session with stakeholders at the STAFFER Mid-term conference in Genua, May 2024

Extended feedback session on the previous findings within the general meeting 6.7.

As tangible key elements for successful cross-border cooperation were identified:

Seeking to understand other perspectives

Taking responsibility for active asking and listening

Awareness of own bias

Shared responsibility for common goals and solutions

Awareness: solutions can be achieved in many different ways

Constant dialogue!

Survey form submitted to participants of general meeting 6.7. with invitation to spread further for feedback within their organisations.

The Survey on 'European Mindset' is structured in 3 questions:

Organisational: supplier/ railway company/ academic institute?

To which extent do you agree to this definition of 'European Mindset'?

What **key behaviours** are essential to **cultivate a 'European Mindset'**?

The following **definition on 'European Mindset'** for the survey is agreed and aligned with the core team members and part of the survey for feedback:

A European Mindset in Railways

... refers to a set of values and behaviours that align with principles of cross-border cooperation and integration.

...and promotes the seamless movement of people and goods across European countries, sustainability and efficiency – while respecting diversity.

At the time of this report, the survey is still ongoing. Consolidated feedback and result will be submitted to the lead of work package 6.7. and stakeholders during October (prior to final conference).



2.4.3 Working Group: Communication and Language

The core group language consisted of lead by DB, co-lead ÖBB and active partners SNCF and Serbian Railways. Our results are two surveys on language and language training, a general template on ETCS translations and the results of an exchange about language training for train drivers. With this our team paved the way to further shape cross-border cooperation in a needs-oriented and effective manner.

D-C1: Survey: Overview language training (Lead DB)

We have conducted a survey to present an overview of the general conditions, challenges, interests and flanked it with the topic of railways specific training material.

In the survey we determined which target groups receive language training in general and put a focus on those target groups that have the obligation to take language training such as train drivers and safety-critical staff. We were able to use the answers to map the language in which they are trained. This overview is the first of its kind and lays an important foundation for future projects and collaboration.

The following 10 railway undertakings and 1 infrastructure company participated in the evaluation of the cross-border railway cooperation with regards to subject of language.



FIGURE 7 PARTICIPATING COUNTRIES

This enabled us to show the trend that more and more training is being conducted online or in hybrid formats. We have received feedback that the freedom of online training is appreciated.

and digital learning options are a good addition but that the target groups overall prefer face-to-face formats with which they achieve more sustainable learning results.

One of the main findings of the survey was the high relevance of railway-specific material in language training courses. Clear positive results were reported with the use of course-specific material in the language courses. The participants had better access to the language and were more motivated to learn it due to the everyday and job specific material. Both groups were very interested in expanding the use of railway specific training material: those who were already working with railway specific material and those who were not yet doing so. The participants stated that an expansion of international and cross-border cooperation would be very welcome.

A common challenge is to find staff who want to be trained in a foreign language in order to drive cross-border traffic as it involves a lot of time and effort. Once the language has been learned, it often turns out to be a challenge to maintain the language level. Opportunities must be created to speak the language regularly in cross border traffic or independently in everyday working life.

Key Results:

- Everyone is interested in working together for more training materials with railway specific vocabulary.
- Shared problems are:
 - Challenge to find staff that is willing to get language training for CBR.
 - Need for more ways to practice the language to maintain language level.

D-C2: Survey at annual meeting

A second survey was conducted by DB on the annual meeting in Genova on 23.05.24. The participants indicated how much they agreed with some selected statements about languages. These statements laid the foundation for the subsequent discussions on which further development measures should be taken. It became apparent that also the personal positions one has towards the topic of language influenced the choice of further development. It turned out that it is important to talk about attitudes towards language in order to have a mutual understanding.

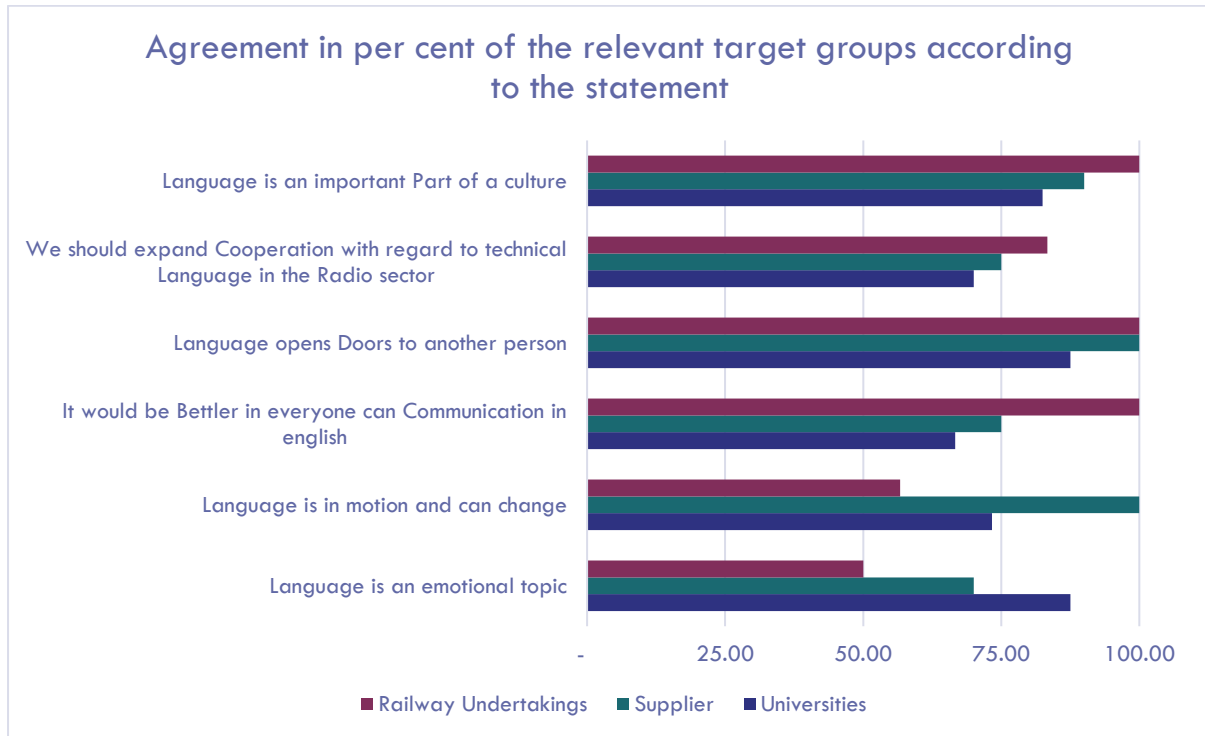


FIGURE 8 RESULTS OF THE LANGUAGE SURVEY

D-C3: ETCS Translations

English ETCS terms are being translated differently by the respective countries, even if they speak the same language, such as German. A project group within the DB assembled German translations from DB, SBB and CFL for 60 terms. The selected terms are basic and common ETCS terms which are especially used by train drivers.

This overview can be used to create transparency and a common understanding of how terms are translated and where the English term is being used. The general template is accessible for everyone.

The template starts with the technical terms on the left side, followed by the main target group who works with these terms and the abbreviations. In the middle the definition for this term based on SRS is given. On the left side there are columns for three countries with the respective explanations. Every participating country can enter their translations and can compare them to other translations. If a term is not translated and being used in its English form, it can be marked with a yellow frame.

ETCS (European Train Control System)

Glossary

Yellow Frame: english term is not being translated



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Technical Term - SRS-SUBSET-023	Target Group TD=Train Driver P=Planner S=Signaller M=Maintenance	Abbreviation	Definition - SRS	Translated Technical Term - Explanation -	
				Country1	Country1
1 Acknowledgement, Driver	TD	ACK	Confirmation by the driver that he/she has taken into account information received through the DMI		
2 Balise group	TD, P	BG	One or more balises which are treated as having the same reference location on the track. The telegrams transmitted by all the balises of a group form a track-to-train message.		
3 Balise, fixed	P, M	/	A balise that transmits data that does not change dynamically according to signalling information.		
4 Balise, switchable	P, M	/	A balise that transmits data that can change dynamically according to signalling information.		
5 Default Value	TD, P	/	Value stored in the ERTMS/ETCS on-board equipment and used if there is no other value available.		
6 Driver identity	TD	Driver-ID	Unique code which identifies a train driver.		
7 Driver Machine Interface	TD	DMI	Train device to enable communication between the ETCS on-board and the driver. (TSI OPE)		
8 Emergency Brake Deceleration Curve	TD, P	EBD			
9 Emergency Brake Intervention Curve	TD, P	EBI			
10 Emergency Braking	TD	EB	Application of a predefined brake force in the shortest time in order to stop the train with a defined level of brake performance.		

FIGURE 9 ETCS GLOSSARY

D-C4: Exchange: language training for train drivers of SNCB

SNCB shared its experience and methods used in language training for their train drivers via ÖBB. The methodology includes the use of various educational technologies such as projectors, smart boards and multimedia resources such as videos and podcasts. These tools allow for a variety of learning methods to suit different learning styles and needs. The use of modern technologies such as Quizlet and Nearpod for revision and MP4s for listening underlines the emphasis on interactive and engaging learning environments.

Lessons are designed to integrate vocabulary and professional contexts to ensure practical applicability. This includes role-playing, simulations and the use of authentic materials such as emails and instructions to reinforce real-world application skills. The training concludes with a simulation of language exams and individual assessments to provide targeted feedback and ensure that the desired level of language proficiency is achieved.

The approach also addresses individual learning needs through small group work, a mix of pair work and plenary sessions to ensure comprehensive coverage of the material and individual remediation where necessary. Cultural competence is also promoted through the inclusion of social conversation, although topics such as religion and politics are avoided.

Key learnings



- **Real-world application:** Lessons must be designed to simulate professional environments to ensure practical relevance and immediate applicability.
- **Interactive tools:** Tools such as Quizlet and Nearpod facilitate better retention and understanding through interactive and engaging methods.
- **Personalized learning:** Small group work and individualized feedback ensure that each learner receives the support they need to achieve their learning goals.

Cultural sensitivity: Inclusion of culturally relevant conversational phrases helps to create a more holistic learning experience, essential in professional contexts.



2.4.4 Working Group: Networking and Communication

A derivation of the results of the previous STAFFER work packages led to the establishment of a “Working + Networking” working group. This working group, led by DB and the core group with representatives from IZS, UniRoma, CTU, FS, CESI and SNCF, agreed to develop a realistic solution that can be implemented within the STAFFER timeframe and that can serve as a blueprint for projects outside of STAFFER.

D-D1: Expert exchange programme, example DB/SNCF

As a result, an expert exchange program between DB and SNCF experts was organized and implemented, which deals with STAFFER-relevant topics such as BIM, digital learning media and the use of AI.



The aim was to implement an exchange at expert level and thus create a platform for the exchange of ideas and best practices. Additionally, an expansion of existing European initiatives for education and training in the rail sector and the creation of European networking opportunities was targeted. The particular linguistic challenge (German/French), which is so typical of cooperation at European level, was consciously addressed.

Implementation & Outcomes

As a first step, a two-day exchange of experts was organized at DB in Frankfurt am Main (Germany) at the beginning of April 2024. Delegations of experts from DB and SNCF (each from cross-group divisions) met in person to discuss the relevant topics. In a second virtual exchange format at the beginning of September 2024, the focus was on the topic of AI. Further expert exchanges in this context are planned, also in the period beyond STAFFER.



Key learnings

As a result, it can be stated that the exchange of experiences, concepts and ideas at European level is described as beneficial by all the experts involved, the members of the working group. However, the language aspect should not be underestimated, so that in-person expert exchange formats have proven to be more effective and are clearly recommended.

2.4.5 Working Group: Railway Operation

D-E1 Application for teaching the basics of pneumatic railway brakes

A basic idea of Task 6.7 is the exchange of cross-border learning media and learning concepts. This idea leads to 2 advantages for the sector: 1. redundant effort is avoided by sharing existing learning media. 2. the cross-border use of learning concepts supports the development of comparable qualifications, which serves to harmonise training.

The idea of developing shared learning media is preceded by the question of whether it is possible to share existing media. The fact that this could be possible was the subject of highly controversial discussion in the project and proof was challenged.

The simulation of a railway air brake is circulating within Deutsche Bahn. Every trainer knows and uses this app, as it is difficult to teach how a continuous, automatic and indirect train brake and its controls work. The idea was that this app could be useful to any training organisation for maintenance staff and train drivers.

The first step was to obtain permission to use the app from the copyright holder.

The app was then presented at the Task 6.7 General Meeting. The app met with general approval. Only a few details, such as the control pressure of the compressed air system, appeared to be different in some countries.

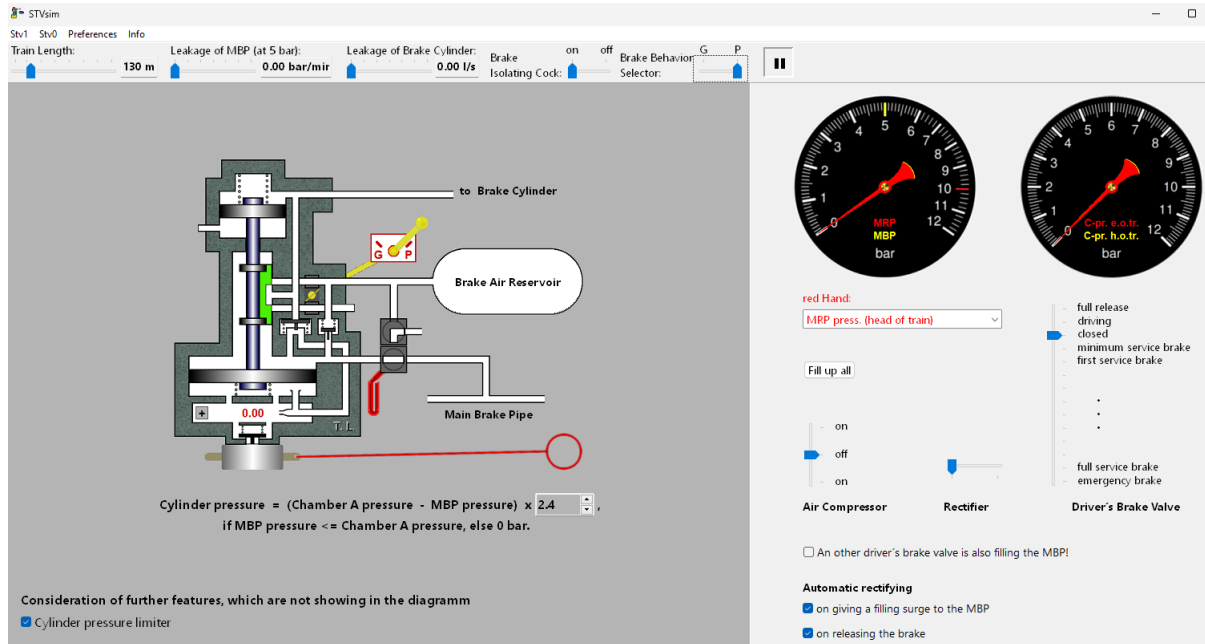


FIGURE 10 BREAK SIMULATION FOR TRAIN DRIVERS AND MAINTANING STAFF

The app was slightly adapted and then translated into 14 national languages:

Language 1 = Austria

Language 2 = Czech

Language 3 = Dutch

Language 4 = Dutch-Belgium

Language 5 = English

Language 6 = French

Language 7 = French-Belgium

Language 8 = German

Language 9 = Greek

Language 10= Italian

Language 11= Luxembourg

Language 12 = Polish

Language 13 = Serbian

Language 14 = Spanish

The translation was carried out by experts from the target country who were able to ensure that the technical terms were used in accordance with the national regulations. In addition, a teaching unit was developed for the use of the app and a catalogue of possible exercise scenarios was created. The app is freely available and can be accessed on any Windows-based PC.

It is now available to every European trainer for free use.

- **The output of this work will be 14 versions of the Break Simulation App for free use!**

D-E2 Energy Saving Driving Style

Furthermore the aim of Task 6.7 is to identify learning concepts and media that are transferable across Europe. Against this background, it made sense to look at the topic of energy-saving train operation, as all countries are subject to the same physical laws and training in efficient operation must be transferable. In addition, the topic of energy saving is a lever to help the railway sector achieve even better economic efficiency.

A survey of STAFFER partners and CER members was carried out as the basis for developing a universal training concept. 10 organisations took part in the survey.

The group of ten participants consists of six railways and four educational institutions. Except for one educational institution, all organisations are state-owned. The participants come from Austria, Denmark, Italy, Germany, Belgium, Switzerland and Slovakia.

It became apparent that the topic of energy-saving driving was handled in completely different ways. The spectrum ranges from high-end training on full-mission simulators to the complete absence of a training concept, which emphasises the need for cooperation.

D-E3 Research guide for Energy-efficient train operation

The aim of this paper is to create a set of areas that will describe possible research opportunities in the field of energy savings in European railway operation. The target group of the document are those who are interested in Ph.D. studies, as the document provides a number of topics that can easily be transformed into the content of dissertations.

Within the document, individual research opportunities are divided into several thematic areas. Within each area, there is always a brief summary of the current state of the given issue, which is followed by a list of individual topics, including their basic description and setting out the research goal.

The paper can be used at technical universities with a transport focus across Europe and can be used not only to promote research on the given issue, but also the research itself.

2.5 Outlook and Recommendation

2.5.1 Fields of action for future cooperation

For all active colleagues, the STAFFER project was the first European project of their occupation. Cross-border cooperation in the area of qualification and cross-border exchanges was also largely new for the participants. This already shows that cross-border co-operation is uncharted territory in many areas. It seems that functioning cooperation is always linked to specific projects, such as the joint operation of a railway line. Structured, topic-related cooperation in the field of education only appears to be in its infancy.

It should become apparent that the lack of a routine in cross-border cooperation brings with it a variety of obstacles to cooperation:

1. the use of resources is a low priority in the project members' companies. The large number of results is due to the personal commitment of those involved. This is feasible in the course of a single project, including a blueprint, but is not currently a basis for the continuous and sustainable development of joint solutions.
2. within the companies involved, STAFFER was only superficially known and there was uncertainty about the legitimacy of the cooperation. This related in particular to the sharing of information or the passing on of documents. This ranged from spontaneous delivery of requested documents to hysterical rejection of cooperation because of fears that even thinking about European solutions for qualification would jeopardise their own autonomy.
3. There was a complete lack of a reliable network of operational experts. The search for specialised experts alone often prevented delivery. In many cases, the experts identified did not speak English, which made the work more difficult.

On the other hand, the collaboration revealed unexpectedly good opportunities for cooperation:

1. The willingness of the STAFFER project members to work on the common cause was palpable throughout the course of the project. There was widespread agreement on relevant topics and the collaboration was a pleasant experience for all partners.
2. It has been shown in all working groups that there is a high overlap of qualifications where an exchange of materials is possible. For example, the digital learning programme on the basic mode of operation of air brakes could be translated into 14 different languages without any effort. At the end of the project, a digital learning

programme for ETCS emerged that can be made available throughout Europe with little effort. The exchange of learning media could save the industry millions of euros in redundant development, improve the quality of training and reduce drop-out rates. In addition, the exchange of knowledge on methodology and didactics could stimulate the quality of teaching and the motivation of trainers.

2.5.2 Recommendations

The following recommendations result from the above

A permanent network of experts must be set up to identify and promote common issues. This network should be steered by an existing international organisation. This organisation provides a framework for cooperation, publication of results, copyright, agreement on anonymity and data protection, which is accepted and communicated by the participating companies.

The requirements for the network are:

- Well-networked trainers or Front-Line Managers who have a small but factually available time and monetary budget.
- These experts must be willing and authorised to travel abroad on a small scale in order to exchange ideas with other experts.
- The experts require knowledge of the English language. Companies should support the development of language skills.

Such a network of experts would be able to increase the quality of training in the railway sector, promote harmonisation and save costs.

Consistent cooperation would give the European railway sector more speed and clout.

We would like to thank all partners involved for their co-operation!