



# Establishing a Regional Centre of Railways Excellence for the Western Balkans

Results of Feasibility Study

---

August 2025 | Frankfurt am Main

<b>1.</b>	<b>Introduction to the Project and Work Packages</b>	<b>2</b>
2.	Overview of the Analysis	5
3.	Proposal for Scenarios	12
4.	Roadmap towards the Centre of Railways Excellency	20

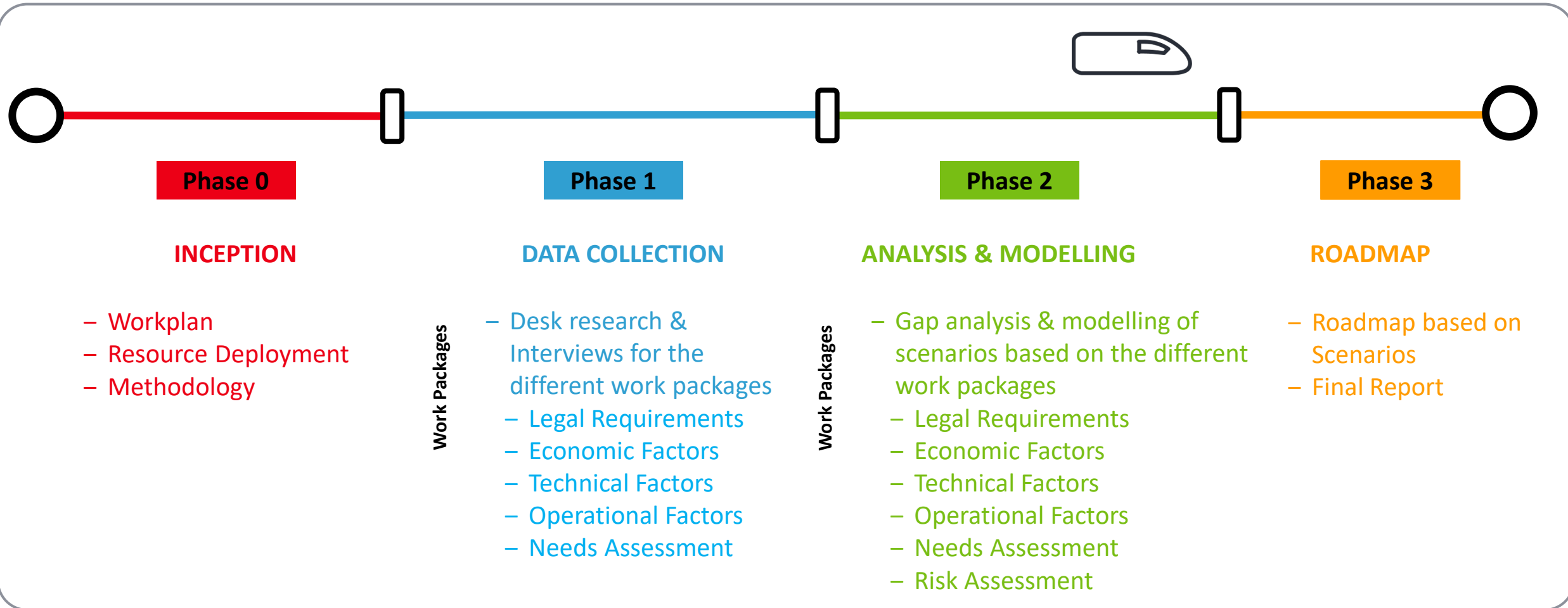
# Establishing a Regional Centre of Rail Excellence for the Western Balkan: “Investment in people is an investment in the future”



- 2023: The **Rail Excellence Summit** in Pristina and Doboj identified the lack of skilled staff and need for modernized training and education as the core challenge for development in the rail transport sector in the region is Focus on capacity building of staff to implement EU standards and norms to develop the rail sector in the region
- 2023: **MoUs** were signed with railway companies, academic institutions and other relevant stakeholder to define the steps towards a Regional Railway Centre of Excellence to contribute to sustainable development of the region
- 2024: **Cooperation with DB Rail Academy** started to develop different Scenarios and a Roadmap for a Regional Academy



The project includes several phases to ensure different perspectives



1.	Introduction to the Project and Work Packages	2
2.	<b>Overview of the Analysis</b>	<b>5</b>
3.	Proposal for Scenarios	12
4.	Roadmap towards the Centre of Railways Excellency	20



# Stakeholder Engagement & Expert Interviews



*By engaging with key stakeholders and experts in different areas, we were able to understand diverse perspectives, identify potential challenges and legal requirements to ensure that all relevant viewpoints are considered.*

- Railway Regulatory Body Kosovo
- Faculty of Mechanical Engineering (Polytechnic University of Tirana)
- Faculty of Traffic and Communications, Doboj (University of East Sarajevo)
- Faculty of Traffic and Communications, Sarajevo (University of Sarajevo)
- Railway Technical School (Belgrade)
- Faculty of Transport and Traffic Engineering (University of Belgrade)
- Faculty of Mechanical Engineering (University of Niš)
- Faculty of Civil Engineering, Ss. Cyril and Methodius University in Skopje
- Faculty of Civil Engineering, University of Montenegro
- Regional School of Public Administration (ReSPA)

## Regulatory and Educational Institutions

## International Experts and Organizations

- Deutsche Bahn AG / DB Training
- European Union Agency for Railways (ERA) / ERA Academy
- STAFFER Initiative
- Rail Cluster for South East Europe (SEE)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- EBRD
- KfW Entwicklungsbank

## Railway Companies and Infrastructure Managers

- Albanian Railways (HSH)
- Albrail
- Railways of the Republic of Srpska (ZRS)
- Trainkos
- Infrakos
- Railway Infrastructure of Montenegro (ZICG)
- Public Enterprise for Railway Infrastructure Macedonian Railway (MŽI),
- Macedonian Transport (MZ Transport)
- Serbia Voz
- Serbia Cargo

# There are several challenges and gaps we identified



## Overarching Challenges

- Challenge to meet complex EU requirements and regulations
- Old infrastructure and fleet
- Lack of capacities and know-how for modernization drive (currently huge investments in railways but limited know-how)
- Different modernization levels & EU alignment and different scope/size of railways network across the region
- Complex history of the region, sometimes limited will for regional cooperation or rather focus towards EU
- Different languages across the region



## Training Challenges

- Lack of specialized railway education: No full railway-specific vocational training (mainly education as technicians), limited specialization on university level
- Specialized training mainly done by railway operators as part of onboarding process. Focus on on-the-job training instead of structured learning and simulation processes (including simulating mistakes and fixing these)
- Train Drivers as the only structured training program by railway operators
- Training very nationalized, no regional certification processes



## Staff Recruitment and Retention

- Aging Workforce
- Railway sector as an unattractive sector for young talents due to “dirty” reputation of the sector and low salaries
- Fluctuation of well-trained staff to rather move to work in an EU country with better salaries

# Key Legal Findings for the Regional Centre of Railway Excellence



- **Task:** Evaluation of legal frameworks for educational institutions and training centers in the Western Balkans & focus on certification requirements for railway occupations.
- **Vocational Education and Training (VET) Systems:** structured to align with national labor market needs and economic development. Different national regulations and authorities overseeing VET in each Western Balkan country & Compliance with EU standards in certain regions.
- **National railway laws aligned with EU directives**, such as for safety and interoperability.
- **Specialized licensing and certification** managed by railway regulatory bodies in each country. Train driver certification validity varies (2–10 years). No recognition of regional certificates yet, fully nationalized

## Conclusion:

- ✓ **Regional Railways Excellence Centre needs to be registered as training centre in the host country.**
- ✓ **Mutual recognition of certificates depends on level of certification and intergovernmental agreements.**
- ✓ **Partnerships with accredited national VET and railway training centers may support establishment of Regional Centre.**

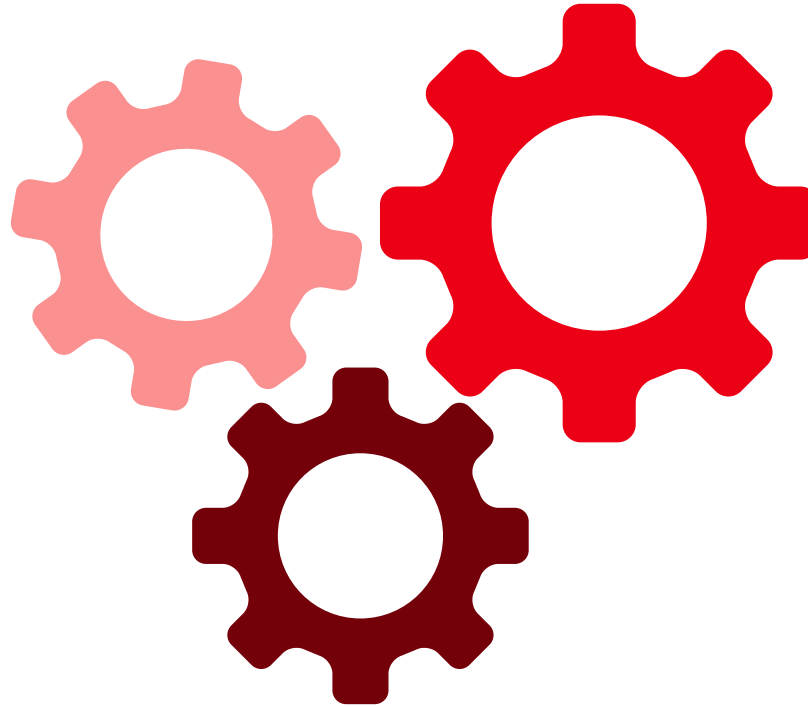


# Key Technical Findings based on the Data Collection Phase



## Training Equipment in the Region

- **Training Infrastructure Varies:** Some institutions have desk based simulators and labs, while others fully rely on theory and on-the-job training. Technical workshops are available, e.g. in some Railway Schools, but often outdated machineries
- **Gaps in Training Equipment:** Lack of modern simulators, test tracks, and maintenance facilities hinders practical skills development.
- **Railway companies focus on on-the-job training,** mostly no testing and simulation equipment



## List of Recommendations for Training Infrastructure

- **Modern Workshops:** Equipped with up-to-date railway-specific tools and machinery.
- **Simulators:** Full-scale and desk-based simulators for train driver training.
- **Electrified Test Tracks:** Enables hands-on operation and maintenance exercises.
- **Digital Training Tools:** Software for railway operations and traffic management.
- **Innovation and Collaboration Spaces:** Supports joint training programs on new technologies and research initiatives.

## Current Status of Railway Education and Training in the Region:

- The region has a diverse range of railway-related educational programs at **vocational and university levels**.
- Universities primarily focus on Civil / Mechanical Engineering, Transport Studies, with railway education mainly **integrated as a module** rather than a standalone discipline.
- Dedicated **railway-focused programs are limited**, specialized railway education remains underdeveloped.
- Vocational and technical schools provide **practical railway training**, particularly for train drivers, technicians, and maintenance staff.
- Many railway schools face challenges such as **outdated curriculum, infrastructure** and a **declining number of students** interested in railway careers.
- **Collaboration with railway operators** enhances practical experience, though infrastructure and training facilities vary across institutions.



## Recommendations for potential Training Programs for the Regional Railway Centre

### ✓ **Innovation & Digitalization**

e.g. AI for Railways; Digital Planning & Construction (BIM); Core Technologies of Digital Railways.

### ✓ **Rail Infrastructure & Rolling Stock**

e.g. ETCS Fundamentals; Interoperability of Overhead Contact Line Systems.

### ✓ **Rail Operations & Maintenance**

e.g. Maintenance Guidelines: Overview of external and internal railway maintenance standards (DIN/EN/ISO) & EU regulations; Principles of EU Railway Operations

### ✓ **Rail Quality, Safety & Security**

e.g. Management Systems & Process Management: Quality, risk, and safety management based on EU standards

*Training programs fully aligned with EU standards*

*Additionally support for curricula update for schools and universities*

# During the Data Collection Phase, several topics were recommended for the Regional Centre of Railway Excellence.



## New Technology/Innovation

- Training on new and modern infrastructure and rolling stock
- Electrification of networks
- Signaling systems, ETCS
- Provision of specialised training tools and equipment that countries don't have on national level



## EU Regulations and Norms

- Training on how to implement EU norms and standards, focus on Safety Management Systems, Accidents Reporting, dangerous goods, certification for ECMs
- Focus on Managers and Supervisors on how to implement EU standards from a managerial perspective (multiplier functions)



## Train the Trainer

- Training local trainers for them to act as a multiplier
- Training in teaching methodology as well as technology, EU rules and regulations
- Support for universities to update their curriculum and offer more practical options for students



## Peer Exchange and Best Practise Learning

- Regional networking
- Exchange of best practise, incl. with EU partners



## Focus on Cross Border Traffic

- Support in implementing EU Interoperability Directive for Technical Specifications for Interoperability (TSI) for infrastructure, vehicles, and signaling systems like ETCS
- Support in train drivers education for more cross-boarder traffic (e.g. language)



## Marketing: Increase Attractiveness

- Joint marketing campaigns in individual languages (TikTok, Instagram etc)
- To have a modern Academy as an incentive for young staff
- Trade fairs, events - show the future of the railway
- Generate qualifications for young talent that are recognised regionally and internationally



## Digital Transformation of the Railway Sector

- Innovation Lab/ Showroom

1.	Introduction to the Project and Work Packages	2
2.	Overview of the Analysis	5
3.	<b>Proposal for Scenarios</b>	<b>12</b>
4.	Roadmap towards the Centre of Railways Excellency	20

Three scenarios were developed as options for the Regional Centre. A phased approach was proposed to start with a Regional Coordination Unit while in parallel planning the long-term solution.



1

### A Regional Coordination Unit

Establishing a training coordination unit at a regional body such as TC

Specialised trainings will be offered at different locations in cooperation with regional universities or online depending on the target group

Focus on upskilling of senior staff of railway operators, regulators and suppliers (multipliers)



Range of **200,000-300,000€** Operating Costs/year, plus 5,000€ Investment Costs

2

### A Regional Institute in Cooperation with a University

A regional facility in close collaboration with a university at/ or close to their campus, utilizing existing training infrastructure and lecturers

Additional cooperation with a Railway School as partner

Selected range of training offers



Range of **500.000 - 1,5 Mio** Investment Costs

Range of **550,000 - 650,000 €** Operating Costs/year

3

### A Regional Railway Academy

Establishing an independent full-fledged academy with its own building and technical workshops

Will be its own legal entity and registered as training centre

Wide range of training offers including long term vocational courses and short courses



Range of **8-10 Mio €** Investment Costs

Range of **2,5-3,5 Mio €** Operating Costs/year

# Scenario 1: A Regional Coordination Unit



	<b>Host/ Management Entity</b>	<p>Hosted by Transport Community, the SEE Rail Cluster or another regional entity. Criteria for hosting entity:</p> <ol style="list-style-type: none"> <li>1. Regional scope</li> <li>2. Registered legal entity</li> <li>3. Registered to receive EU funding as well as have access to other funding sources</li> <li>4. Focus on transport sector</li> <li>5. Established network of educational institutes in the region</li> </ol>
	<b>Choice of country/ place</b>	<ul style="list-style-type: none"> <li>▪ Transport Community: Belgrade, Serbia</li> <li>▪ Office of SEE Rail Cluster: Belgrade, Serbia</li> <li>▪ Regional Cooperation Council (RCC) Secretariate: Sarajevo, Bosnia &amp; Herzegovina</li> <li>▪ Education Reform Initiative of South Eastern Europe – ERI SEE: Belgrade, Serbia</li> <li>▪ Others</li> </ul>
	<b>Partners</b>	<ul style="list-style-type: none"> <li>▪ Host entity partners with a network of regional universities and schools as well as with EU partners as relevant (e.g. ERA Academy and selected EU countries)</li> </ul>
	<b>Training Offer</b>	<ul style="list-style-type: none"> <li>▪ Focus on 1 training topic per quarter on EU regulations, e.g. TSI &amp; Safety Management Systems. These regular trainings are held at one of the local university partners in cooperation with DB RA and ERA Academy (possibly using their trainers and training materials)</li> <li>▪ Focus on peer exchange – organizing networking meetings/ events between universities, railway operators, suppliers on new technologies etc</li> <li>▪ 1 time/ year: study tour to one country for site visits</li> <li>▪ Support for universities to modernize and upgrade their degree programmes and modules</li> </ul>
	<b>Trainer Pool</b>	<ul style="list-style-type: none"> <li>▪ Utilization of professors and lecturers of the university network</li> <li>▪ External trainer pool of regional and EU experts depending on topics</li> <li>▪ Utilization of ERA trainers on EU Regulations</li> </ul>
	<b>Training Venues</b>	<ul style="list-style-type: none"> <li>▪ Only classrooms needed, no infrastructure/ technical workshops</li> <li>▪ At partner universities' facilities, at external event facilities such as conference hotels etc</li> <li>▪ At EU partners facilities, e.g. DB Training Infrastructure</li> </ul>



# Scenario 1: A Regional Coordination Unit



## Target Group

- Supervisor and management level of railway companies, supplier companies ministries, relevant authorities – focus on strategic and regulatory level (Multiplier)
- Relevant faculties/ professors



## Language

- English
- National languages for specialized regional trainings as feasible



## Certification

- Certificate of participation by Hosting Entity or respective Partner University



## Staffing

- 2-3 training and railway experts in the coordination unit, who could also cover some of the trainings
- External Trainers only



## Infrastructure

- Rooms that can be used for training purposes at hosting entity, partner universities and schools
- No technical equipment needed



## Business Model

- EU or other funding and possibly subsidized fees per course by participants
- Main costs items: (1) staff costs for Training Unit; (2) trainer costs; (3) travel costs; (4) curriculum development

## Scenario 2: A Regional Institute in Cooperation with a University



	<b>Host/ Management Entity</b>	<ul style="list-style-type: none"> <li>Hosted by the university or a regional entity depending on national legal framework and options. The host will need to agree bilateral agreements between the host and the relevant ministries to utilize and co-fund the academy</li> <li>Independent physical entity (building on campus or a specific floor at university building)</li> <li>Need to access the exact registrations of potential hosts as international orgs or consultancies, to be registered as a training centre</li> </ul>
	<b>Choice of country/ place</b>	<ul style="list-style-type: none"> <li>University of Belgrade and Railway Technical School, Serbia</li> <li>University of Saints Cyril and Methodius University of Skopje and Vlado Tasevski Railway School, North Macedonia</li> </ul>
	<b>Partners</b>	<ul style="list-style-type: none"> <li>University(ies)</li> <li>ERA Academy (for curriculum and specialized training)</li> <li>DB Rail Academy (for curriculum and trainers,)</li> <li>SEE Rail Cluster (but focus also on Croatia and Slovenia, supplier companies)</li> </ul>
	<b>Training Offer</b>	<ul style="list-style-type: none"> <li>Regular training program every week</li> <li>Fixed courses based on relevant EU regulations and standards, selection of most relevant ISO norms, in collaboration with DB Rail Academy and ERA Academy</li> <li>Regular technical courses on new technologies, digitalisation</li> <li>Trainings on demand by Western Balkan countries</li> <li>Focus on peer exchange – organizing networking meetings/ events between universities, railway operators, suppliers on new technologies etc</li> <li>1 time/ year: study tour to one country for site visits</li> <li>Support for universities to modernize and upgrade their degree programmes and modules</li> <li>Marketing options to make sector more attractive</li> </ul>
	<b>Trainer Pool</b>	<ul style="list-style-type: none"> <li>2 full- time trainers (working on training coordination, training development and conducting trainings)</li> <li>Utilization of professors and lecturers of the university and school</li> <li>External trainer pool of local and international/ EU experts for specialized topics and specific languages</li> <li>Mandatory onboarding for all trainers including training methodology, political sensitivities, overview on EU regulations, technical requirements</li> <li>Utilization of ERA trainers on EU Regulations</li> </ul>
	<b>Training Venues</b>	<ul style="list-style-type: none"> <li>Independent physical entity (building on campus or a specific floor at university building) including classrooms, computer labs and limited technical labs/ workshop (s)</li> </ul>

## Scenario 2: A Regional Institute in Cooperation with a University



### Target Group

- Supervisor and management level of railway companies, ministries, relevant authorities – focus on strategic and regulatory level (Multiplier)
- Engineers of railway operators across different functions
- Technicians for maintenance and operations
- Staff of supplier companies (engineers level)
- Local trainers



### Language

- English
- Local languages on demand and for specialized training



### Certification

- Certificate of participation by University or Hosting Party
- Regional certificate for specific courses if agreed between all political partners



### Staffing

- 1 Head of Academy
- 4 Project Managers/ Training Coordinators
- 2 full-time trainers
- 2 Admin support
- 2 Maintenance of the building



### Infrastructure

- Classrooms
- Innovation Lab
- Signaling and dispatching lab
- Outdoors area (tracks, ETCS, overhead lines etc)
- Utilization of other existing training infrastructure, e.g. at Railway School or Serbia Voz









### Business Model

- Initial external funding for set up and initial few years
- Membership model with different companies OR training levy through Ministries
- All trainings for a fee by customers but subsidized, also offers for private sector for potentially higher fees
- Main costs items: (1) Investment costs in training infrastructure (2) building (shared with university) (3) Staff costs; (4) trainer costs (some trainer costs shared with university); (5) travel costs; (6) curriculum development







# Scenario 3: A Regional Railway Academy



	<b>Host/ Management Entity</b>	<ul style="list-style-type: none"> <li>Independent legal entity</li> <li>To be registered as training centre</li> </ul>
	<b>Choice of country/ place</b>	<ul style="list-style-type: none"> <li>Belgrade – due to level of railway network and railway education in the city for cooperation in education and infrastructure OR Nis for Serbia for accessibility from within the region</li> <li>Podgorica – experience with bilateral agreements, possibly some linkages with ResPa</li> <li>Skopje – accessibility on the new High Speed Corridor line to Greece, good university and railway school as partners</li> </ul>
	<b>Partners</b>	<ul style="list-style-type: none"> <li>University(ies) and local railway school (for infrastructure/ workshops)</li> <li>DB Rail Academy (for curriculum and ToT, international certification, shadow management, organisational development of Academy)</li> <li>Other training facilities in the region and the EU</li> <li>ERA Academy (for EU specialized training)</li> </ul>
	<b>Training Offer</b>	<ul style="list-style-type: none"> <li>Several regular training programme every week</li> <li>Fixed courses based on relevant EU regulations and standards, selection of most relevant ISO norms</li> <li>Regular technical courses on new technologies, innovation</li> <li>Basic courses on introduction to railway/ vocational training</li> <li>Plus additional trainings on demand by TC member states</li> <li>Support for universities to modernize and upgrade their degree programmes and modules</li> <li>Include Marketing options to make sector more attractive</li> </ul>
	<b>Trainer Pool</b>	<ul style="list-style-type: none"> <li>Full-time trainers with different expertise and language skills</li> <li>External trainer pool of local and international experts for specialized topics and specific languages</li> <li>Mandatory onboarding for all trainers including training methodology, political sensitivities, overview on EU regulations, technical requirements</li> <li>Utilization of ERA trainers on EU Regulations</li> </ul>
	<b>Training Venues</b>	<ul style="list-style-type: none"> <li>Stand-alone building in Belgrade (due to accessibility and level of railway system in the country, also have infrastructure that can be used for training purposes incl. simulators), include 1 other option for venue</li> <li>Building to be used for trainings but also TC events, incl. outside area possibly next to railway tracks/ station for training purposes</li> <li>Possibly include accommodation options in the building</li> </ul>

# Scenario 3: A Regional Railway Academy

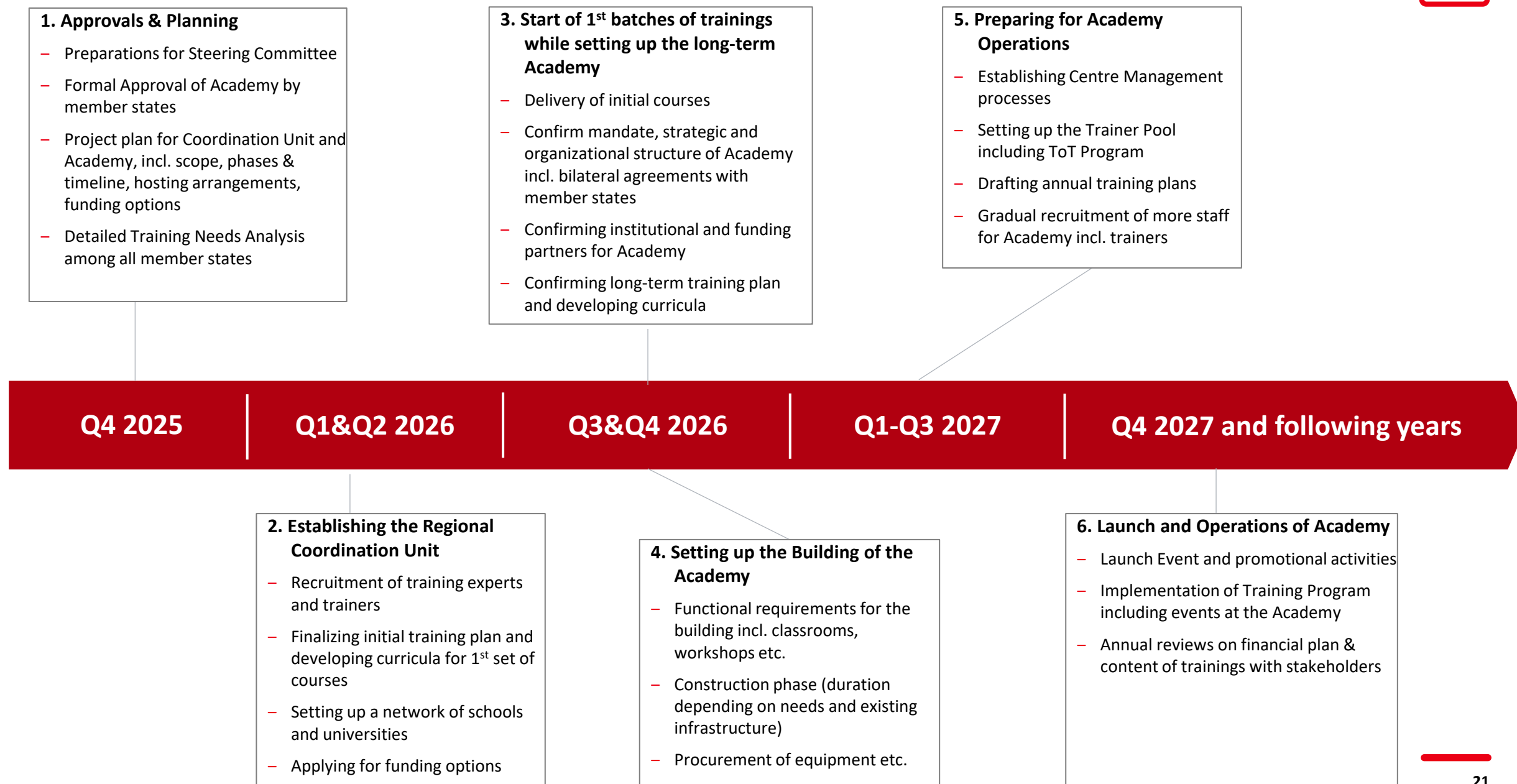


	<b>Target Group</b>	<ul style="list-style-type: none"><li>▪ Supervisor and management level of railway companies, ministries, relevant authorities – focus on strategic and regulatory level (Multiplier)</li><li>▪ Engineers in relation to new technologies</li><li>▪ Technical staff for maintenance and operations</li><li>▪ Other staff related to the railway sector (suppliers)</li><li>▪ Train the trainers</li><li>▪ Local trainers</li></ul>
	<b>Language</b>	<ul style="list-style-type: none"><li>▪ English</li><li>▪ Local languages on demand and for specialized training</li></ul>
	<b>Certification</b>	<ul style="list-style-type: none"><li>▪ Certificate of participation by University or Hosting Party</li><li>▪ Regional certificate for specific courses if agreed between all political partners</li><li>▪ International certification</li></ul>
	<b>Staffing</b>	<ul style="list-style-type: none"><li>▪ Head of Academy</li><li>▪ Administrative unit for running the academy</li><li>▪ Project Managers/ Training Coordinators</li><li>▪ Full-time trainers</li><li>▪ Maintenance of the Building</li></ul>
	<b>Infrastructure</b>	<ul style="list-style-type: none"><li>▪ Classrooms, computer labs, innovation Lab</li><li>▪ Signaling and dispatching lab</li><li>▪ Outdoors area (tracks, ETCS, overhead lines etc)</li><li>▪ Desk based simulators for different locos</li></ul>
	<b>Business Model</b>	<ul style="list-style-type: none"><li>▪ Funded by EU funding and subsidized fees per course by participants</li><li>▪ Contributions by all member states</li><li>▪ All trainings for a fee by customers but subsidized</li><li>▪ High investment costs to be covered by external funding</li><li>▪ Commercial business model including external revenue streams</li><li>▪ Main costs items: (1) Investment costs in training infrastructure (2) building (upgrading of existing building and maintenance); (3) Staff costs; (4) trainer costs (some trainer costs shared with university); (5) travel costs; (6) curriculum development</li></ul>

1.	Introduction to the Project and Work Packages	2
2.	Overview of the Analysis	5
3.	Proposal for Scenarios	12
4.	<b>Roadmap towards the Centre of Railways Excellency</b>	<b>20</b>



# Towards an Academy: Timeline and Core Activities



Do not hesitate to contact us!



**Elvira Kanichay**  
DB Rail Academy  
Manager Consultant

+49 152 3333 1878  
Elvira.Kanichay@db-eco.com



**Isabel Schmidt**  
DB Rail Academy  
Consultant

+49 152 3332 1265  
isabel-jilina.i.schmidt@db-eco.com

The image features a large, bold, red 'DB' logo centered in the foreground. The letters are thick and sans-serif, enclosed within a red rounded rectangular border. The background is a blurred photograph of numerous black graduation caps (mortarboards) with red tassels, suggesting a graduation ceremony. The lighting is warm, with soft bokeh effects from trees and lights in the distance.

**DB**