



Deliverable 9.5
Executive Summary

The intermediate "Must have 2030" step and cohesive migration strategy

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The situation in the year 2030 depends on the ongoing societal changes and the question if a huge step in the quantitative challenge is reached within the next years.

Based on the situation today, which is defined by key indicators, the societal changes are depending on key societal drivers. Mega trends (external drivers of change) like the urbanisation, the demographic change and the personal attitudes of the people will affect the overall development. Environmental issues are getting more and more important and resources will be valued more highly than today. In addition to that, technical developments like robotics will also have influences on the reality in 2030. Moreover, ambitious benchmarks have been set in terms of environment and in terms of transport.

The step in the quantitative challenge is mainly depending on the extent to which the identified actions will be set in place. In the light of the ambitious target in 2050, a clear progress has to be achieved already in the year 2030; otherwise the remaining 20 years until 2050 will be too short to make the vision come true. Under consideration of the inert rail system and the very strong market position of road transport (in passenger as well as in freight services), a doubling of the rail freight volume and an increase in passenger transport by the 1.6 fold (both compared to 2010) until 2030 is the least, otherwise the final targets cannot be realistically achieved in 2050. Facing the current or general challenges of the European railway system, this objective is even more ambitious.

Within the period of time 2015 to 2030, actions and strategies are ongoing to increase the capacity for reliable rail services and to improve the whole system. However, these are already ongoing/decided/planned actions and strategies and they are only aligned on the forecasted growth of the transport volume on rail, not taking into account the tremendous volume that is supposed to be shifted to rail and the need to overcome.

In order to correct this imbalance, targeted additional actions have been identified within the SPIDER PLUS action fields infrastructure, technology, rolling stock, market uptake and governance which will be able to realise the biggest part of the modal shift.

Besides the very actions like target terminals or technological innovations that are related to concrete milestones that have to be reached until 2030, appropriate business models in the sense of first applications are presented that give a first outlook on the later implementation. Under consideration of five identified steps that are required for the successful implementation of new technologies and innovations the business models are designed to find first starting points in which the advantages can be tested, proved and highlighted. Experiences gained in these pilot demonstrations will be used to improve the technology and to facilitate the area wide implementation.

Table 1 below gives a very brief overview on the actions with their respective time horizon. The actions belong to the SPIDER PLUS action fields:

- Infrastructure
- Technology
- Rolling stock
- Market uptake
- Governance



Table 1: Actions for intermediate step 2030

Action	Due date
Infrastructure upgrade for 750m trains (corridors in South and Southeast European countries)	2020 - 2025
Infrastructure upgrade for 1,500m trains (CNC in central Europe with significant importance for freight)	2025 - 2030
Selected bypasses (regional investigations)	Until 2020
Selected bypasses (concept for implementation)	Until 2025
Selected bypasses (stepwise realization)	2025 – 2040
Improved bi-/trilateral coordination of HSR upgrading incl. HSR access at airports	Until 2030
“Blueprint” for future stations and Masterplan for implementation	Until 2020
Realisation of the Masterplan	2020-2030
Implementation of the three main types of terminal layouts	Until 2030
Agreement on unified data exchange (ICT based management)	Until 2020
Communication and cooperation of all actors for train path management and rail freight services along the CNCs	Standard until 2030
ETCS Level 3 (Technology development)	Until 2020
ETCS Level 3 (Implementation plan for CNC)	2020-2025
ETCS Level 3 (Implementation on CNC)	2025 - 2040
Further Terminal Automation (Development, pilot projects and “roll-out” plan)	Until 2020
Further Terminal Automation (Stepwise implementation according to the before elaborated “roll-out plan”)	2020-2040
Hybrid locomotives (second generation for freight)	Until 2030
Hybrid locomotives/train sets (first generation for passengers)	Until 2030
ACBC and electric wire (technology development, implementation plan)	Until 2025
ACBC and electric wire (stepwise implementation)	2025 - 2040
Permanent education and training of railway staff	Ongoing until 2030
“Smart-ticketing” and harmonised travel assistance	Ongoing until 2030
Offer differentiation and improved air-rail cooperation (passenger)	Started until 2025
Pushing and fostering of an increased implementation of “offer driven business models” (freight)	Until 2030
Industrialisation based on approved business models (freight)	Until 2030
Procurement and public order policy in favour of double floor trains	Until 2030
Harmonised supporting programmes for all handling facilities	Ongoing until 2030
Elaboration of a holistic implementation concept	Until 2030
Progressing supporting programmes/models for start-up funding and financing	Applied until 2020
Implementation of new technologies and innovations on the basis of before mentioned supporting programmes	2020 - 2040
Coordination/Management of all infrastructure and services/operations related to capacity, quality and standardisation along the CNC	Until 2030

In addition to the considerations of the SPIDER PLUS consortium, directive claims from the workshop with external experts are given in this report in order to keep a strong connection to the market and its stakeholders.

Within the remaining 15 years until 2030, various technological developments and innovations are to be expected. D9.5 contains a brief overview on them from the perspective of a global manufacturer.