

Destination: Sustainable Mobility

Thirteen European Companies Working on Future Rail Vision

SPIDER PLUS is a research and development project co-funded by the European Union in the scope of the Seventh Framework Programme. The project aims at developing a passenger and freight mobility vision for 2050 encompassing seamless transportation where electrified rail has a central role.

Within the "White Paper on Transport" the European Commission published two

keywords that are essential for the prospective transport policy: sustainable mobility. That means a massive shift of traffic to rail. In the long-term, more than 50% rail market share are the set goal for both rail passenger and rail freight transport. This is considered a very demanding goal, however, the SPIDER PLUS consortium is

convinced of its achievability. Twelve European companies and institutions provided cross-modal expertise, coordinated by HaCon Ingenieurgesellschaft mbH. Leading industrial players like Siemens or Airbus partic-

ipated as well as market newcomers such as NTV, European universities and research companies. All partners focused on four guiding principles that will put electrified rail in the

centre of sustainable mobility:

- › Industrialisation,
- › Offer-driven business models,
- › Seamless and convenient transport, and
- › Co-modality and sustainability.

All project activities have been allocated to work packages. The content-related work packages include



What does SPIDER PLUS stand for?

Sustainable Plan for Integrated Development through the European Rail network – Projecting Logistics and mobility for Urban Spatial design evolution

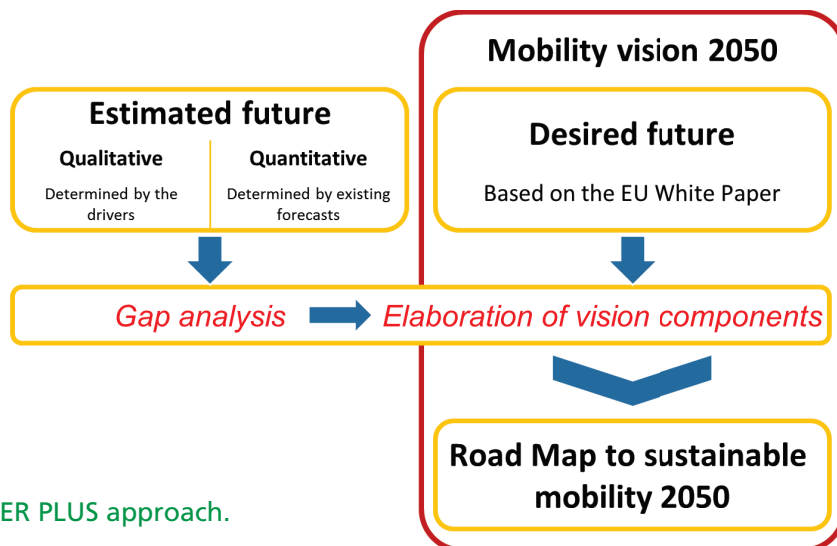
PROJECT KEY FACTS

- › Budget: 4.1 million €
- › EU contribution: 3 million €
- › Duration: 12/2012 – 5/2015
- › Coordination: HaCon
- › Consortium: 13 European research and industrial companies from seven countries
- › Project goals:
 - › Developing a vision for sustainable mobility in 2050
 - › Elaboration of measures to support a modal shift to rail according to the EU White Paper

www.spiderplus-project.eu

the assessment of the "As-is situation" (WP5) and so-called "Drivers of Change" which are continuously influencing the future mobility (WP6). Both work packages serve as input for the components of the vision (WP7). The impact assessment (WP8) allows delivering evaluations and validations concerning the solutions that have been elaborated during the previous work packages. Based on these results a "Road Map" (WP9) and a "Solutions Guide Book" (WP10) have been developed. All (rail) stakeholders have access to the SPIDER PLUS Solutions Guide Book on the public website. Moreover, a detailed decision support tool enables decision-makers to prioritise their actions and to consider temporal dependencies.

SPIDER PLUS approach.



Project Outcomes

The SPIDER PLUS Road Map (WP9)

The Road Map brings together two sides: Possible transport volumes based on the required shift (SPIDER PLUS vision 2050) and the actions that are enabling rail to make the vision come true. A large number of measures have to be coordinated, required preconditions have to be met and the general framework has to be adjusted. Five fields are covered in the SPIDER PLUS Road Map:

The Derived infrastructure development is a main determinant of the rail system evolution. Based on current plans, especially in the scope of TEN-T, the future rail infrastructure is outlined. Moreover, existing and arising gaps and bottlenecks have been identified and strategies/actions for their further treatment are explained. Rail access points for freight and passenger services are paramount, too; their location and design is oriented by traffic attraction zones and state of the art standards.

Huge investments in technology and infrastructure require suitable and resilient framework conditions. Therefore **the Business models, costs, funding schemes and stake-**

holder's role are part of the SPIDER PLUS Road Map. Especially in freight services, a more modern approach is needed to compete with road transport. Logistics service providers (LSP) specialising in the relevant field of rail freight have to become the central actors and rail service providers must define their role more comprehensively than today. The finalisation of the liberalisation process is another important factor in the years to come.

The topic of liberalisation is also related to **the Integration of national systems into European grid**. Seamless cross-border transport is not obvious in 2015 but vital for freight and passenger transport in the next decades. Planned infrastructure measures including European wide standardisation and harmonisation are supporting together with investments in terminals and hubs the merging of the European railway system.

Sustainable transport in 2050 depends heavily on electrified rail, but also requires comprehensive co-modality. Therefore, **the Co-modality implementation in user-friendly**

mobility environment is also part of the SPIDER PLUS Road Map. In this regard, the importance and value of intelligent co-modal solutions is highlighted on the basis of existing good practices.

Because of the long time span until 2050, **the Intermediate "Must have 2030" step and cohesive migration strategy** has been added to the Road Map. In this task a temporal orientation is given and crucial steps are identified that are considered to be mandatory for the achievement of the SPIDER PLUS targets. To achieve the minimum 2030 target, a doubling of the freight volume and a 1.6 fold increase of the passenger volume is necessary to preserve a realistic chance for the fulfilment of the SPIDER PLUS targets.

Long lead times in the railway system (life cycles, planning and construction of infrastructure, etc.) require immediate actions. Together with the creation and implementation of suitable framework conditions a full exploitation of the rail potential is possible in the near future.

But we cannot wait any longer, it is time to act now.

WP 9: Road Map

<u>Task 9.1:</u>	<u>Task 9.2:</u>	<u>Task 9.3:</u>	<u>Task 9.4:</u>	<u>Task 9.5:</u>
The Derived infrastructure development	The Business models, costs and funding schemes	The Integration of national systems into European grid	The Co-modality implementation	The Intermediate "Must have 2030" step

The structure of work package 9.

Project Outcomes

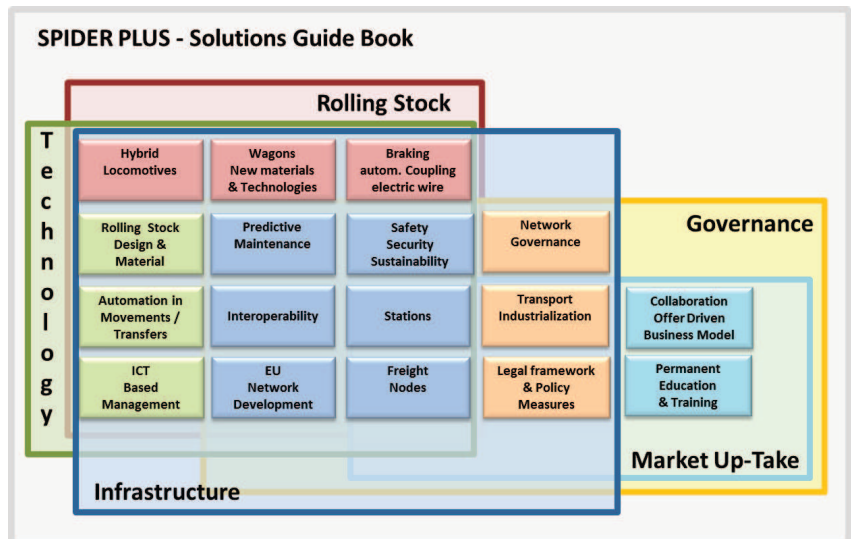
Solutions Guide Book (WP10)

All SPIDER PLUS recommendations together build up the Solutions Guide Book. The essence of all deliverables is summarised and classified in five action fields.

- › Rolling Stock,
- › Technology,
- › Infrastructure,
- › Governance, and
- › Market Uptake.

The interactive **Guide Book** is accessible on the SPIDER PLUS website (www.spiderplus-project.eu) and contains the 17 key elements with the most important topics to be tackled in the years to come. Each key element is described concerning its content and impacts. Important timing milestones are pointed out and related required actions/resources are listed. Last but not least, clear indications are given about the responsible agents for each key element.

In addition to the Guide Book, a **decision support tool** which can be seen as a **dynamic and interactive Road Map**, has been developed. Essential actions and steps have been summarised in a common project management software environment. Finally, this tool also provides information about required steps, temporal sequences and dependencies between various actions.



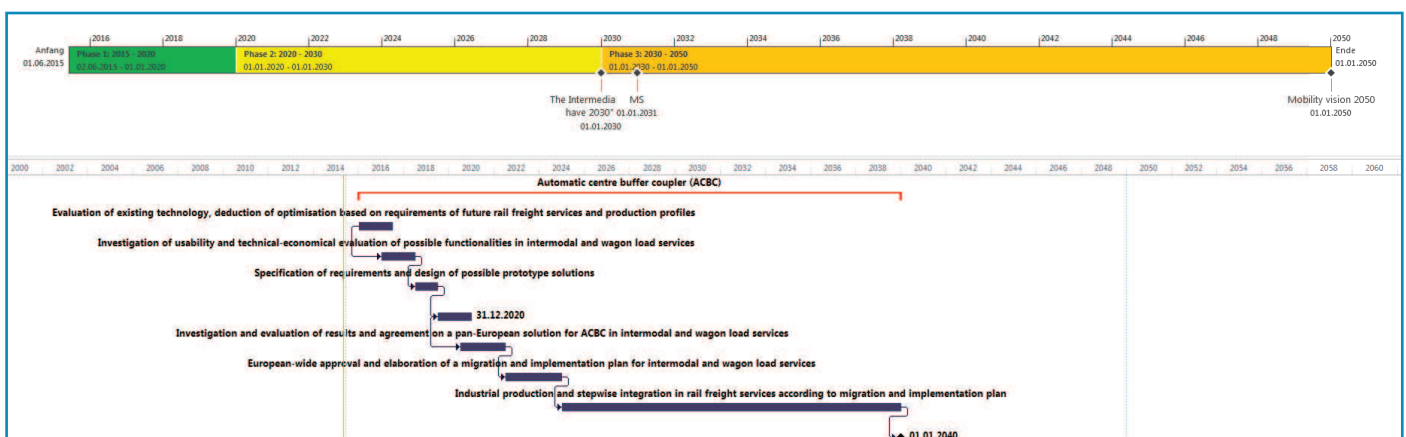
The web-based Guide Book.

Decision makers in politics, industry and business are the main target group for this decision support tool. It allows the creation of scenarios that even show far sighted effects of possible delays. Moreover, it illustrates which processes can be done in parallel and which processes have to be done in sequence. The “critical path” shows the minimum duration for the fulfilment of the SPIDER PLUS vision, thus it indicates if the fulfilment of the SPIDER PLUS vision until 2050 is feasible or not. Important steps are marked as milestones.

For most of the actions in the decision support tool, the required steps are similar. The first one is an analysis of the as-is situation under consid-

eration of potential experiences so far. At the same time the market requirements are assessed and defined. In a second step the planning and development takes place including a technical-economical evaluation. Finally, the stepwise implementation is shown with its launch, prepared by a test phase (pilot projects) and, if necessary, its Europe-wide approval procedure. All actions have to be either standardised on European level or the national actions have to be strictly harmonised.

The whole process is accompanied by continuous controlling with regard to the general framework conditions, and then followed by subsequent success monitoring.



The dynamic Roadmap.

SPIDER PLUS Final Conference in Brussels

According to the motto “Two projects – one goal” the final conference of SPIDER PLUS and its partner project LivingRAIL took place on 23 April 2015, chaired by Michael Cramer (MEP), Chairman of the Committee for Transport and Tourism. The event in Brussels prestigious Library Solvay informed about the two projects, starting with different approaches, focusing on different topics but following the same goal.

More than 100 participants have registered, comprised of EU parliament members, association members, industry sector experts and project partners. Subsequent to the presentations of SPIDER PLUS and LivingRAIL, the meeting gave floor to a panel of high-ranking experts from the railways, passengers, policy and finance. An open and vivid discussion took place and thereby finished the final conference of the successful SPIDER PLUS project.



The final conference took place in the Library Solvay.

Source: HaCon

Network of Expertise

For the elaboration of the SPIDER PLUS results, two expert networks have been established. Thus, the largest possible range of expertise and ideas was included in the development of specific recommendations and measures to be implemented in the coming years and decades by the rail sector and policy makers. One composed of leading transport academy experts who contribute with their newest findings and ideas, the other one composed of railway industry specialists bringing in the latest business news and experiences regarding the feasibility of identified measures. Many experts have participated in SPIDER PLUS workshops and elaborated a vision for sustainable mobility in 2050 as well as guidance on how to get there.

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