



Capacity for Rail

WP3.4.2 Data notation development

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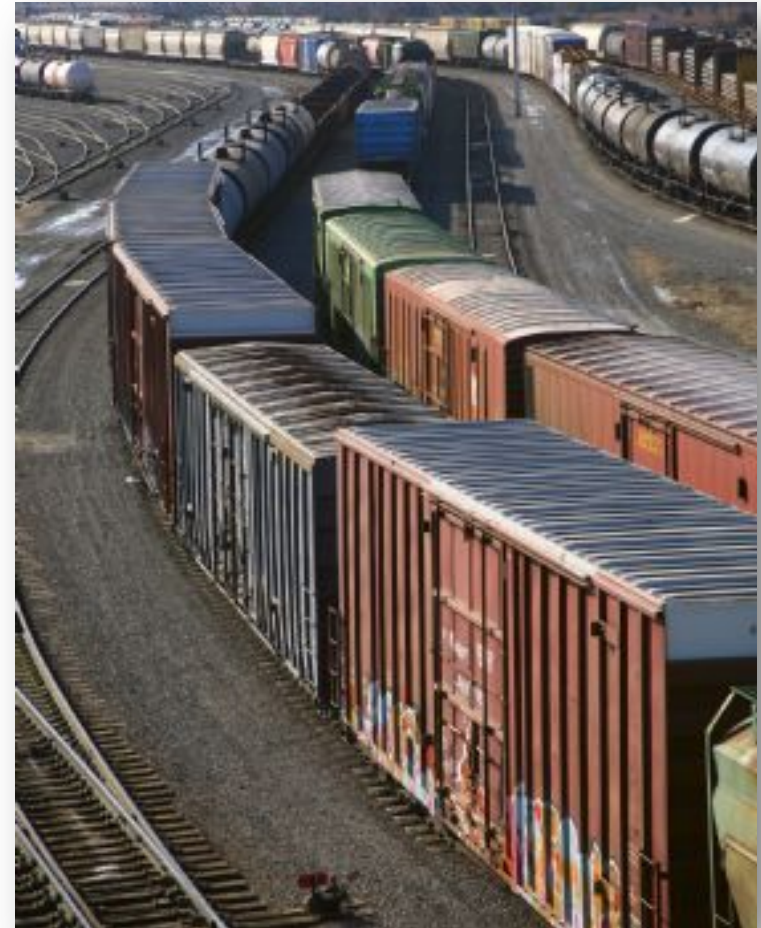
Introduction and Background

- EU vision

In 2011, the White Paper on European Transport reasserted how fundamental transport was for society, for the mobility of European citizens and for the growth and vitality of the European economy.

- C4R objectives

CAPACITY4RAIL will also look towards 2030/2050, by proposing guidelines for future deployments in the mid-term, recommendations for technologies to be developed and deployed in the long term



SP3: Operations for enhanced capacity



The project should pave the way for an **affordable** railway infrastructure (low maintenance and rapid construction) and operations concept that is **resilient** to extreme weather and other hazards, designed for **automated** maintenance and operations (e.g. automated coupling, brake testing), and **adaptable** to different route characteristics including (very) high speed.

At the same time, it should contribute to an **increase of capacity** of freight transport.

- **WP3.1 – Capability trade-offs**

Review of planning and operational approaches in order to develop and test appropriate strategies for capacity enhancement

- **WP3.2 – Models and simulation**

Development of a framework for modelling and simulation that will allow the evaluation of new operational concepts of the railway which delivers resilient, high speed, high capacity, passenger and freight networks

- **WP3.3 – Optimal Strategies (Extreme Situations)**

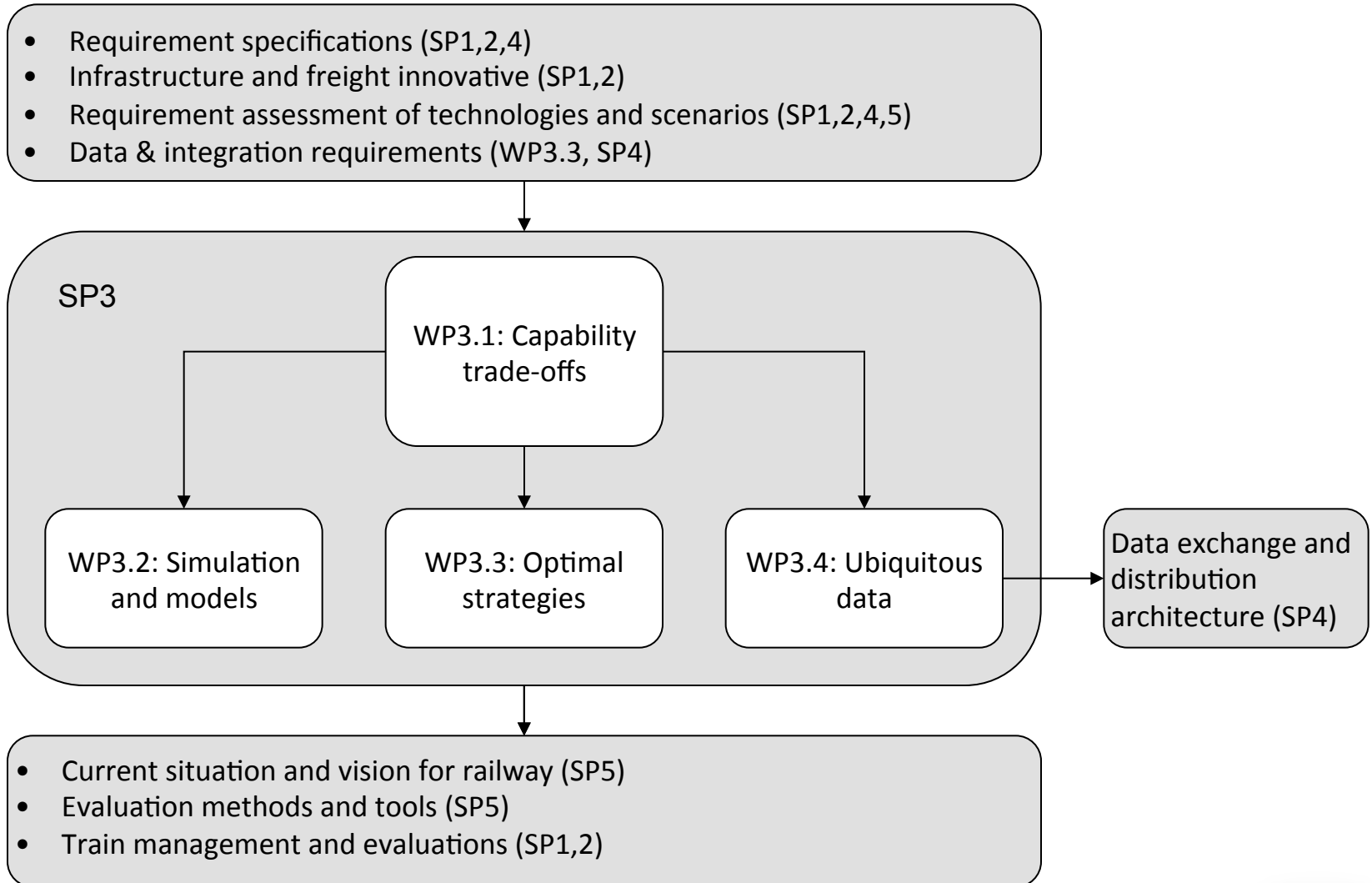
Review of operational strategies in use or being developed and the outcomes when different strategies are employed

- **WP3.4 – Data Modelling and Architecture**

Development of data models and supporting data architecture based on previous requirements for the collection, integration and management of data in operational decision making.

- **D3.4.1: Requirements and use cases for data integration**
- **D3.4.2: Data notation and modelling**
- **D3.4.3: Data architecture**

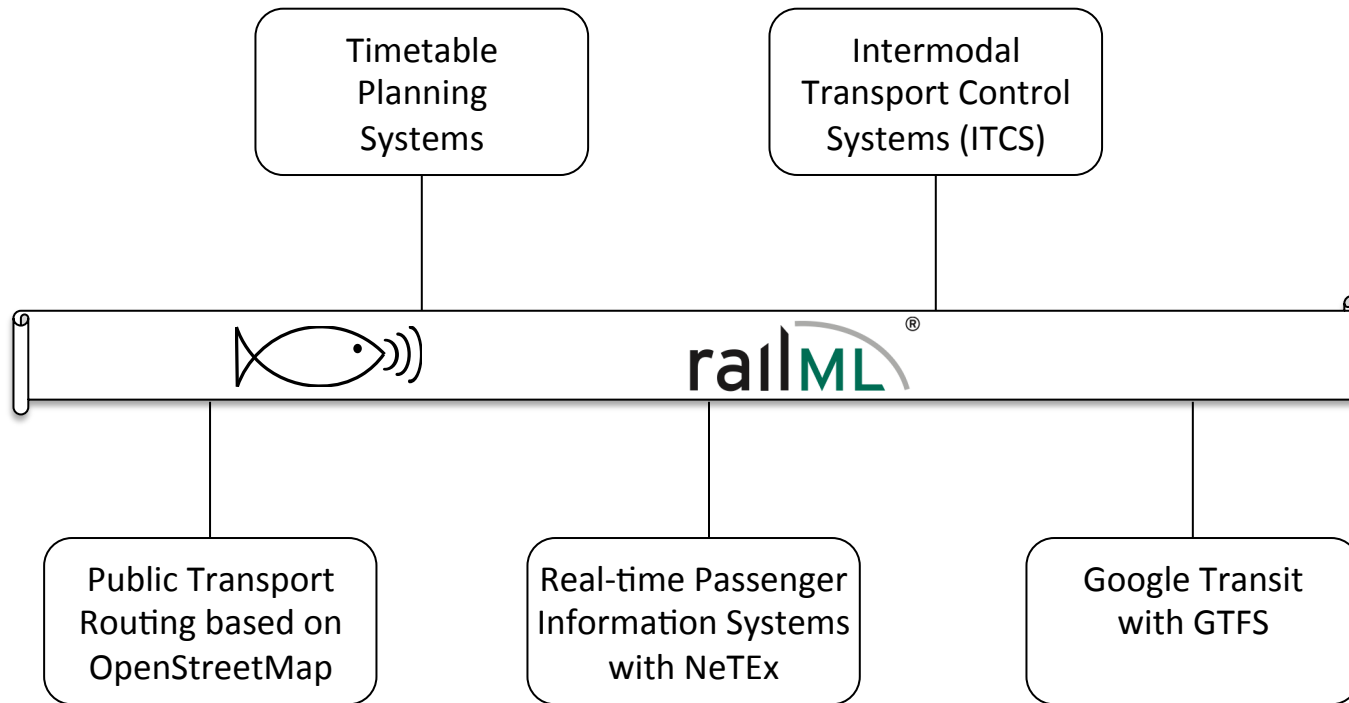
Interactions with other sub-projects



- **Extend existing data notation (e.g. railML)**
to allow the exchange of system data to support future railway operations and other system wide decision making functions
- **Develop a data model**
that can be used to support autonomous data exchange and reasoning
- **Research and develop appropriate architecture frameworks**
for distributed processing for railway operations (e.g. multi-agent approaches)

The high-level aim is to develop a data architecture that is able to provide ubiquitous data for railway operations and supporting applications. It will enable the railways to harness and effectively use large and diverse sources of data to extract meaningful information and knowledge to support operational strategies.

Increase passenger train occupation



Priority areas for modelling activities in C4R should include:

- Infrastructure models that support interactions with other transport modes;
- Models that capture industry business logics and processes;
- Semantic data models that allow contextual information to be added to condition monitoring data.

Thank you for your kind attention

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