C4R

Capacity for Rail

# Overview of SP3 and links with other SPs

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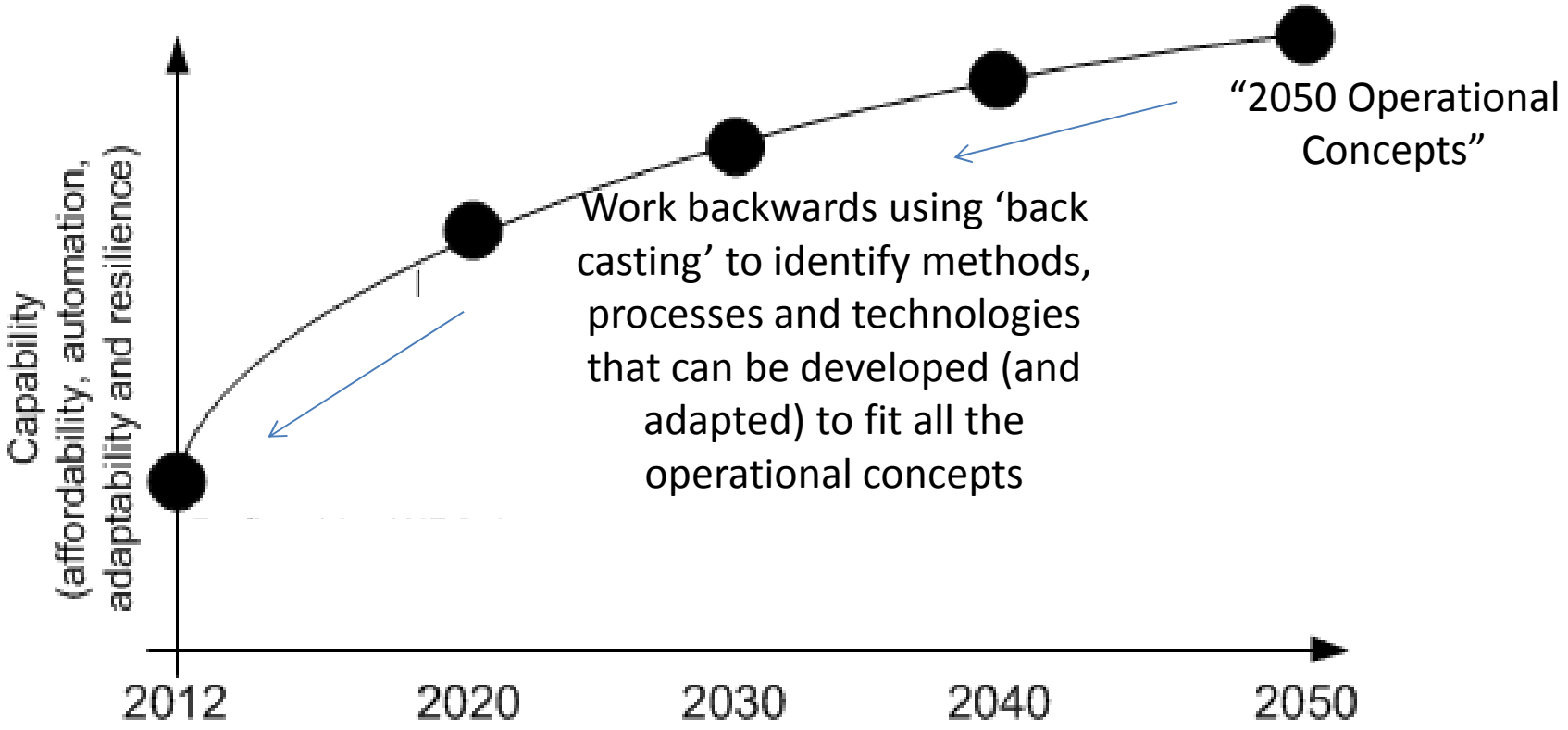
SEVENTH FRAMEWORK PROGRAMME

# *Developing a vision for Operational Concepts*



# *SP3 Objectives*

1. Provide **strategies for traffic management** which increase the capacity of the network
2. Derive joint requirements and testing for **incident management plans**, e.g. in extreme weather and other hazards
3. Analyse and classify network topologies and traffic characteristics and thereby **identify and characterise system bottlenecks** and vulnerability of system elements
4. Identify optimal strategies for resilient operations of the identified classes of system bottlenecks and traffic types and develop a **roadmap for automation strategies** in rail traffic management
5. Specify **requirements for** reliable and cost effective **collection of real-time data** on train operations and delay monitoring

# An Overview of SP3

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Capacity for Rail

SP3 will contribute to the project by paving the way for:
1. Operations that are **resilient** to extreme weather and other hazards;
2. **Automated** maintenance and operations;
3. **Adaptable** solutions for different route characteristics including (very) high speed;
4. An increase of **capacity** of freight transport.

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| **WP1 Capability trade-offs** To test appropriate and **adaptable** strategies for **capacity** enhancement (Links with SP1, SP2, SP5) | **WP2 Models and simulations** Understand the implications of different operational strategies on **resilience**, **capacity,** potential for **automated** solutions and requirements for **adaptability** (Links with all SPs) | **WP3 Optimal strategies** Development and testing of new strategies for **resilient** operations. Solutions for **automated** operations. (Links with SP4, SP6) | **WP4 Data modelling and architecture** Development of data management and integration approaches that support information flow in **resilient** operations, **automated** maintenance and operations (Links with SP4) |
|---|---|---|---|

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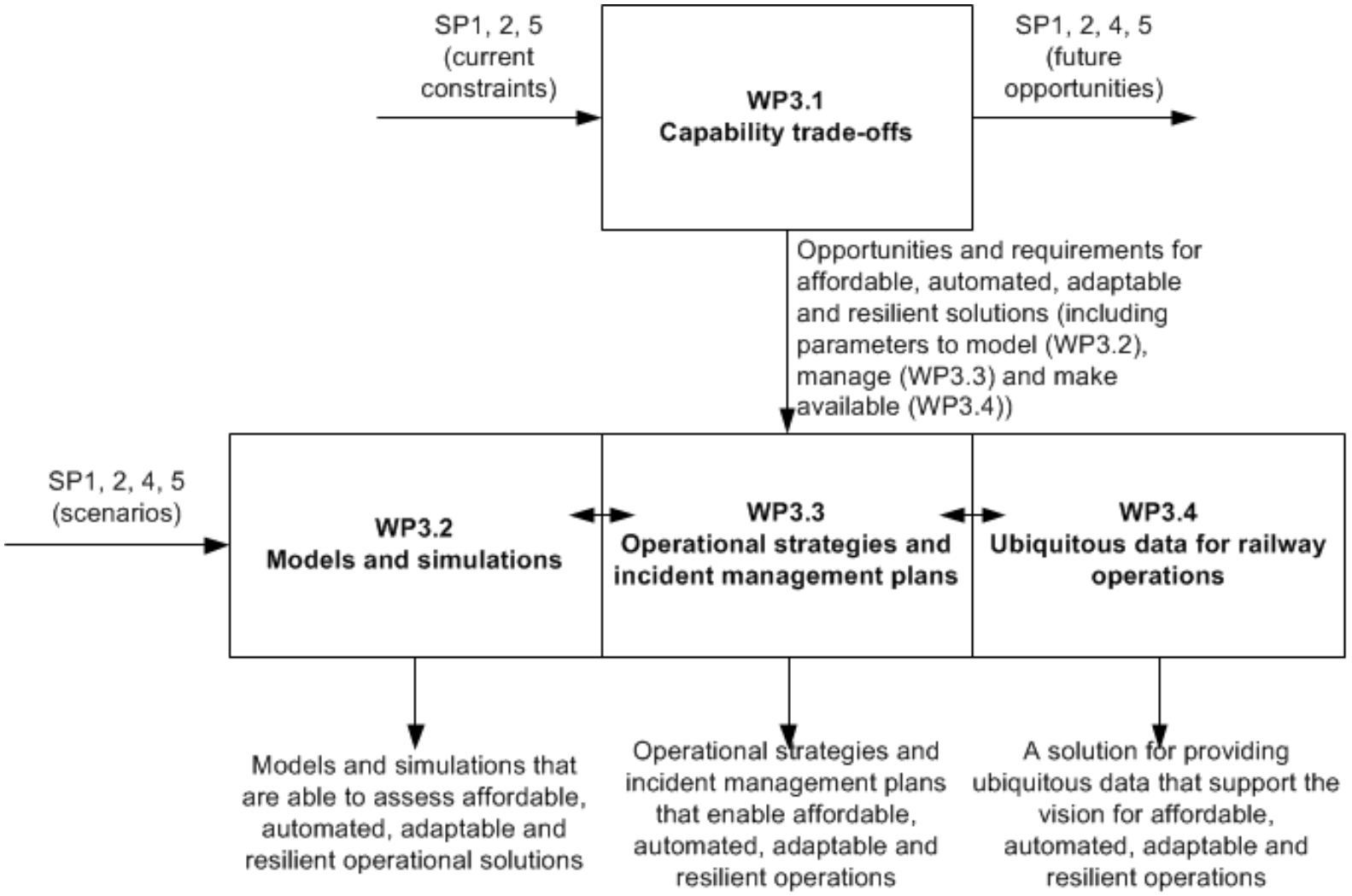
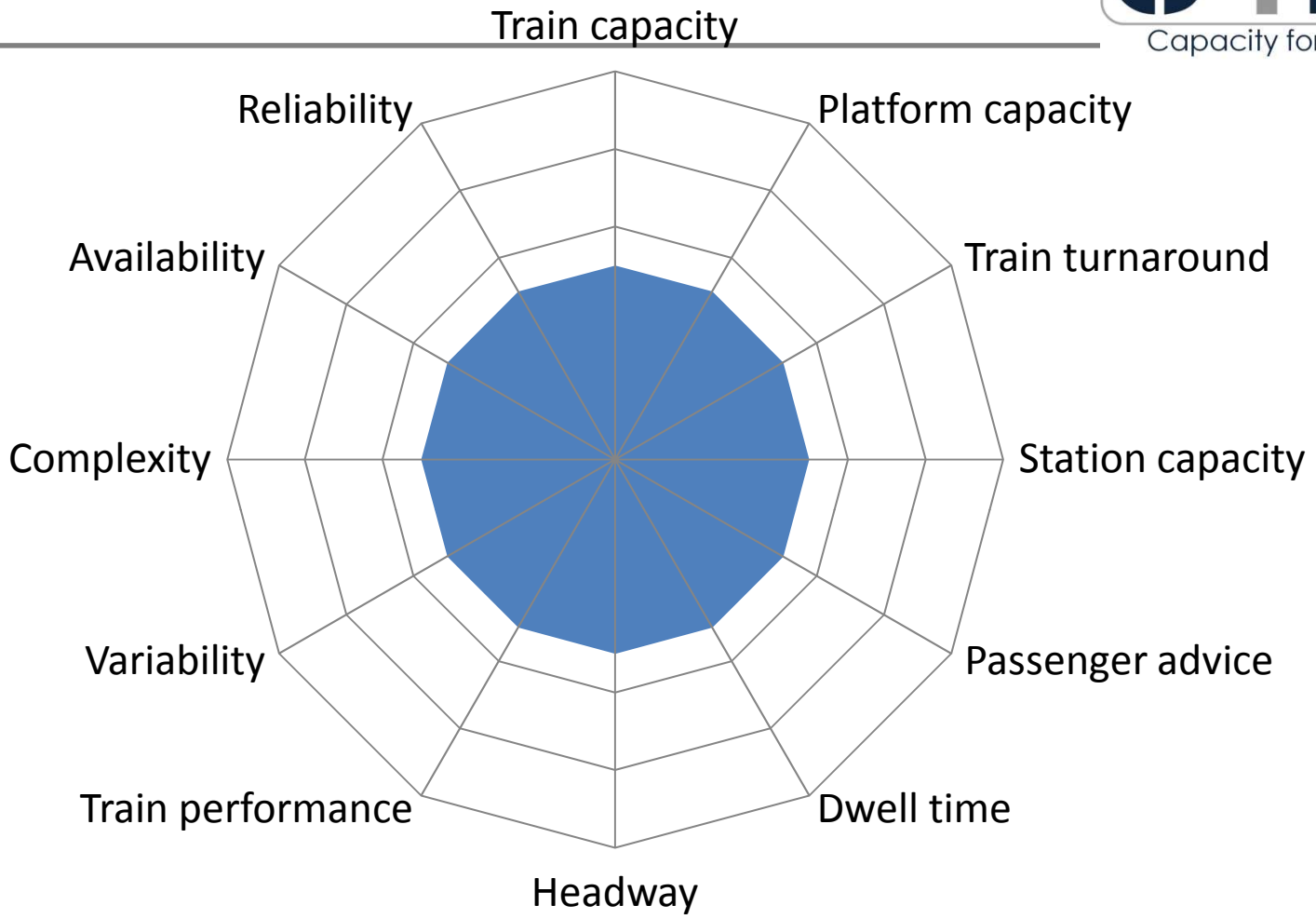
Development of innovative and cost effective technologies for collecting real-time data on the train operation (**WP4**)
Development of innovative solutions for traffic capacity computation for freight and passengers based on data gathering, analysing and utilising processes (**All**)
Determination of data requirements and models to improve rail punctuality and level of service (**WP2**, **WP3**, **WP4**)
Longer trains and/or high-speed freight (**WP2**)
Development of joint requirements and testing for incident management plans (**WP3**)

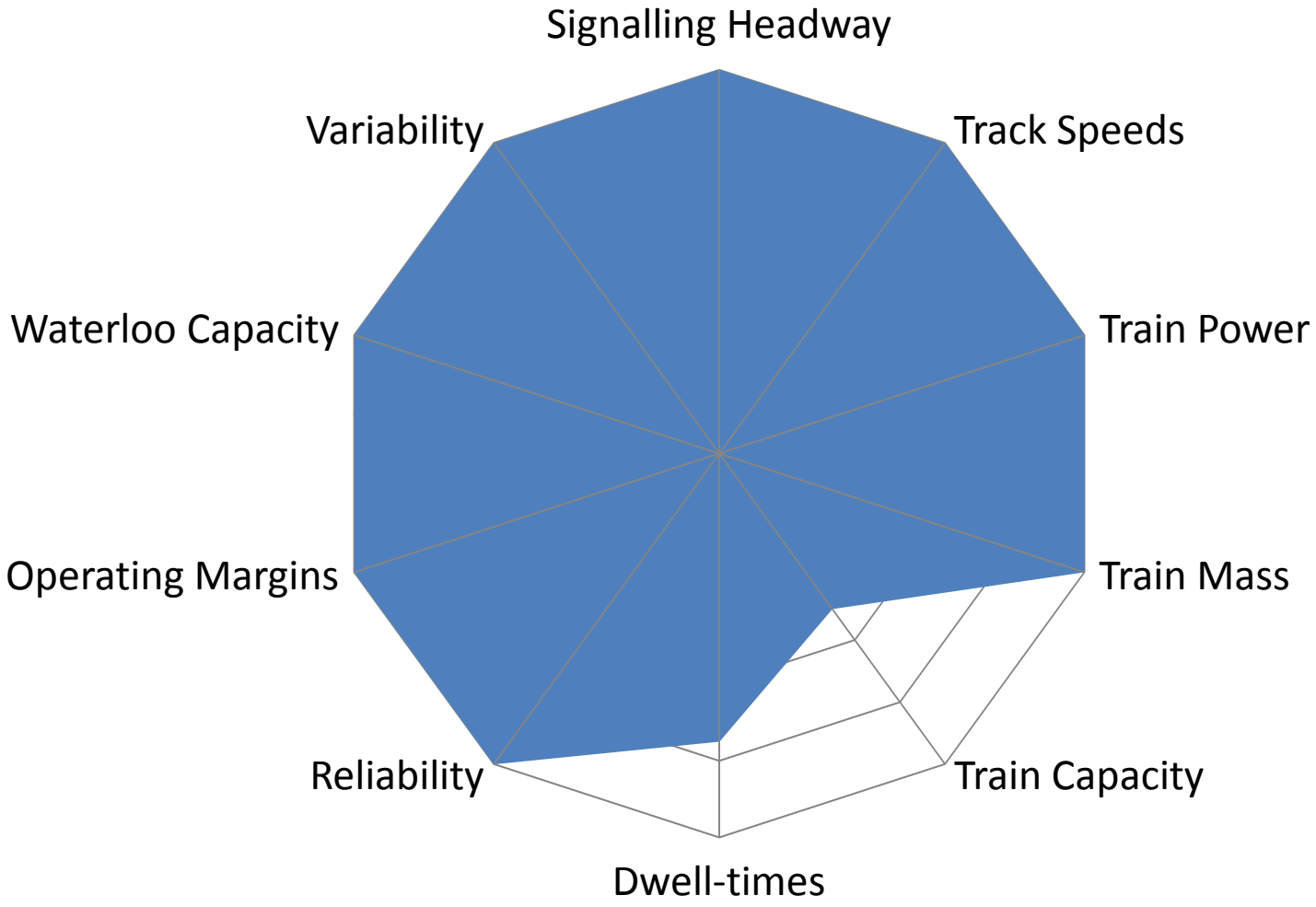
# *Sub-project 3 in Context*



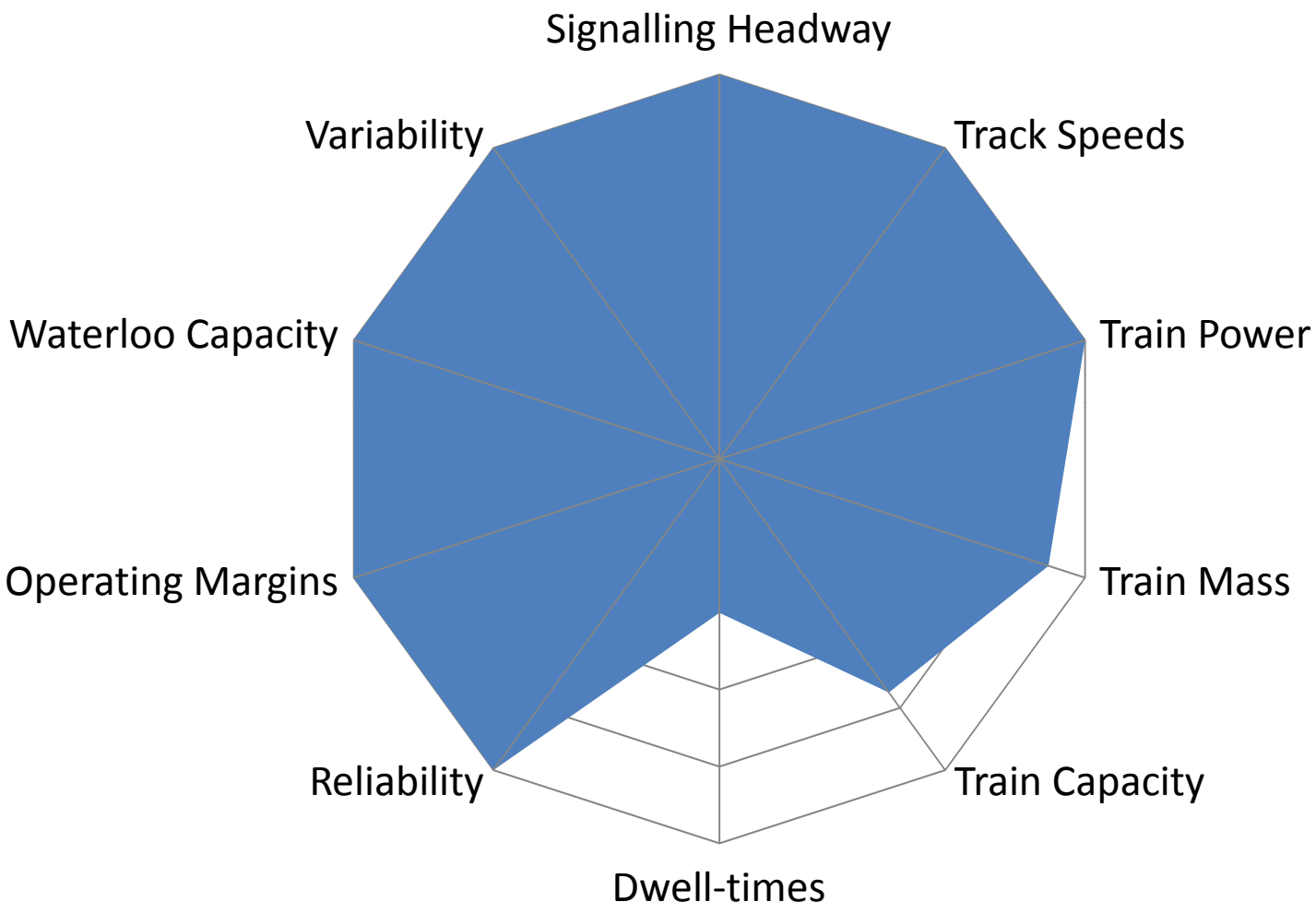
# *Approach to Trade-off Studies*



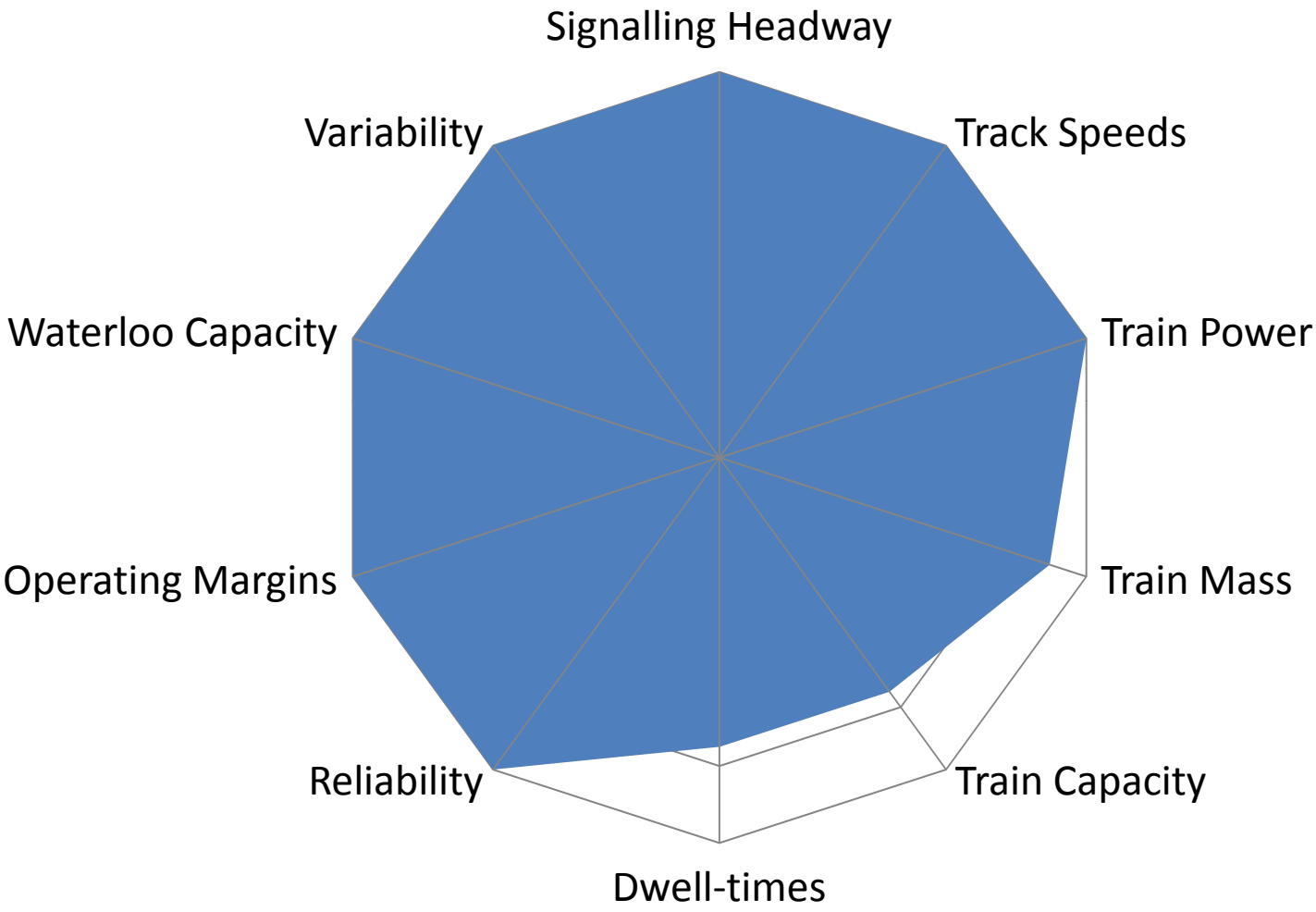
# *Optimised Operation*



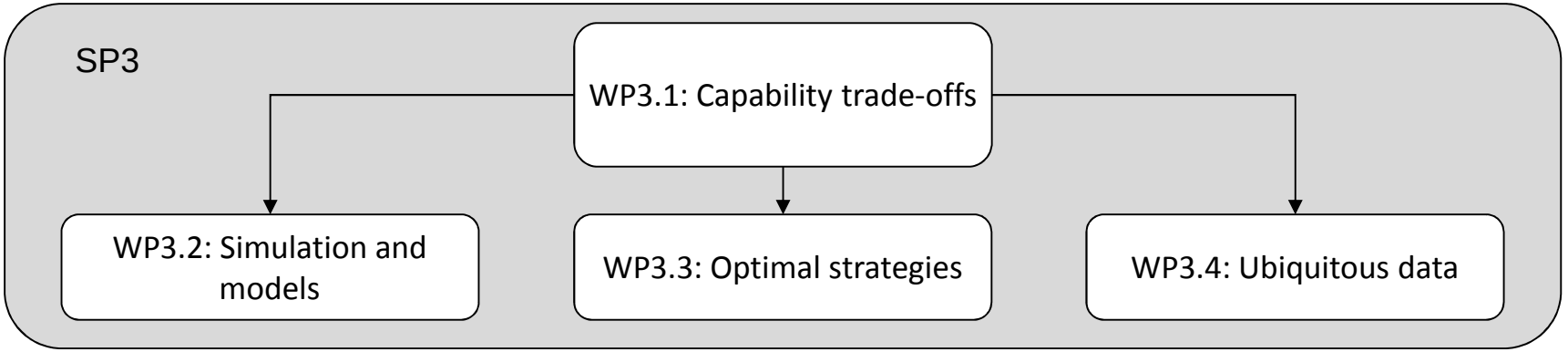
# *Passenger Friendly*



# *More Connected*



# *SP3 Input from ON-TIME*




**T3.3.3**
Input **ONT-WP4**
„Improved methods for perturbation handling in the operational process"

Simulation

XML-Scheme in railML

Development of ON-TIME data model
Open source simulator
- Framework description (prepare specification)

Optimal operational strategies
- Reactive (e.g. results ON-TIME)
- Preventive (e.g. T3.3.1 et al. )

ON-TIME XML-Scheme
Mapping of
- reactive & preventive strategies in railML? (Vision 2050)
- cargo tracking (IM → RU) & application of train path (RU→ IM)?
- …

# *C4R tasks*

**T3.3.2**
Classification of network topologies and traffic characteristics including connectivity to other transport networks (Rail as part of European Transport System)

- Topology
- Traffic characteristics
- Intermodality
  → Preparation for T3.3.4

**T3.3.3**
Optimal operational strategies for traffic management and incident management

- Reactive strategies
- Preventive strategies

→ Vision 2050:
Formal evaluation of recommen-dations, Emergency plans

**T3.3.4**
Strategies for information and automation

- Traffic state information
  e.g.: IM → RU: communication of strategy
- cargo tracking (IM → RU) & ad hoc application of train path (RU→ IM)
- Intermodal transport chain (passenger & freight)

# *Next steps*

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- Framework
- Data Architecture
- Scenarios
- Automation
- Prototypes

*Thank you for your kind attention*

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