



Capacity for Rail

Wrap up and Conclusions

27th April 2017, Olomouc, Czech Republic

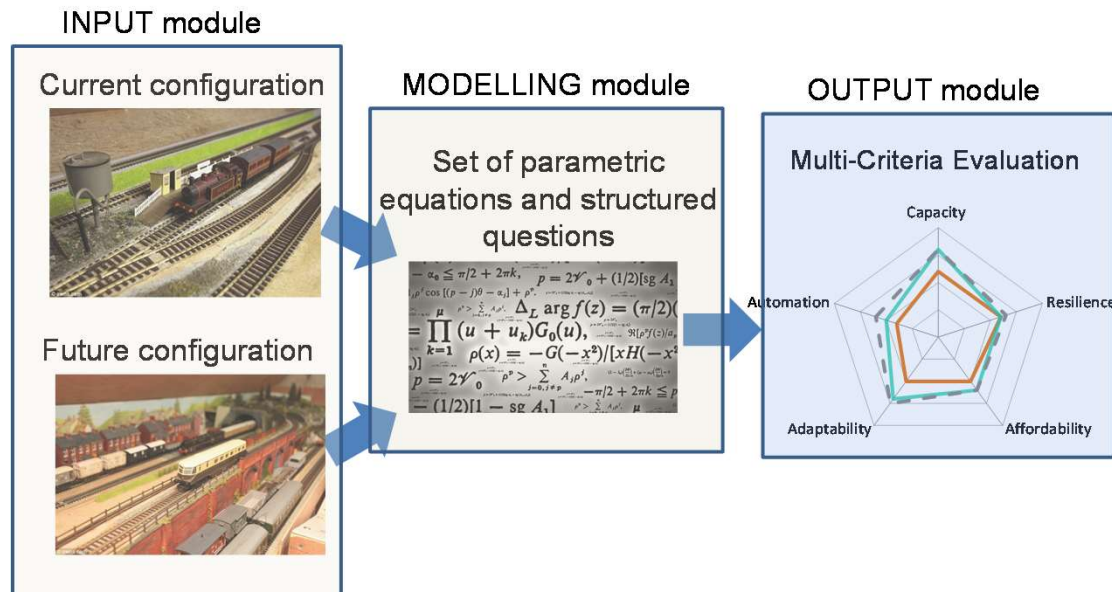
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SP3 Leader



WP3.1 – Achievements and Conclusions

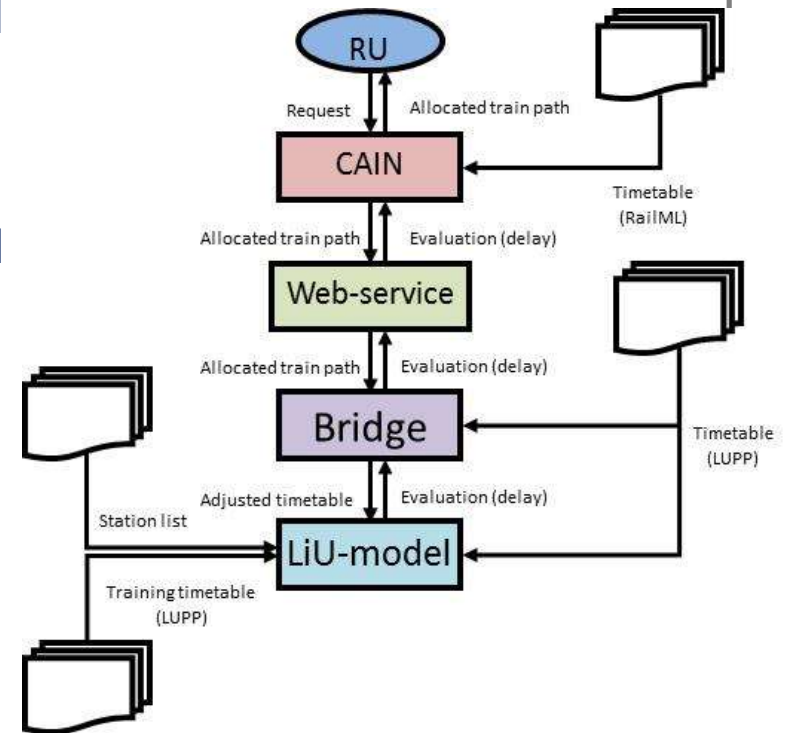
- An automatic tool to support strategic investment decisions on infrastructure enhancements, operational strategies and technology deployment
- Impacts are assessed considering a “whole-system” approach which looks at trade-offs among different capabilities.
- The use of such a tool is expected to bring significant savings to complex long term planning processes.



WP3.2 – Achievements and Conclusions



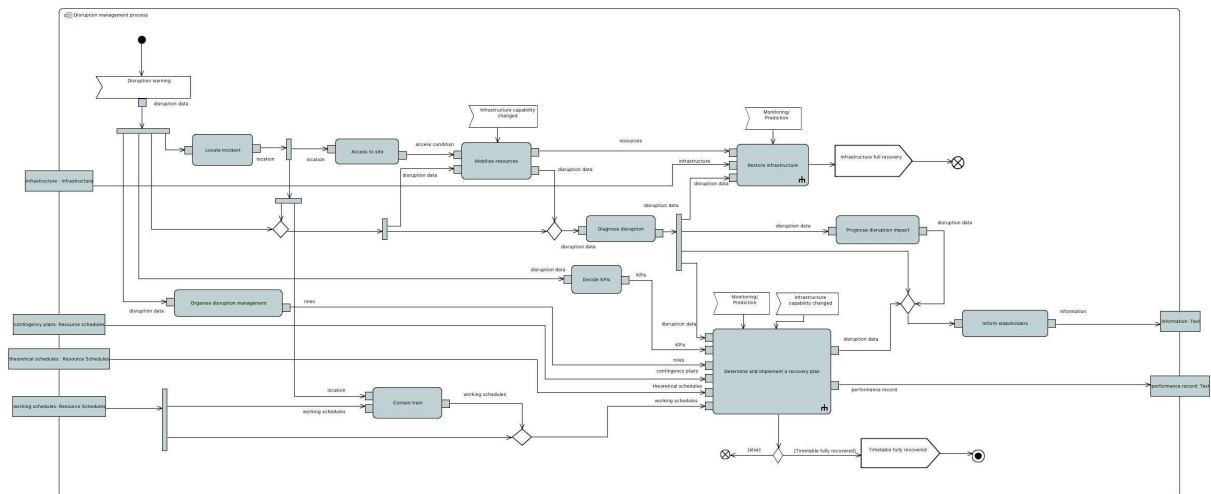
- Tactical and operational planning are integrated in a tool for the optimised scheduling of extra train paths in already existing timetables.
- Medium-term insertion of freight train paths and short-term insertion of extra pax trains (in case of large disruptions) is possible minimising delay propagation.
- The uptake in real-life operations would ease the insertion of extra train paths, mitigating delays which could lead to more revenues for IMs in the long term and more flexibility during emergencies.



WP3.3 – Achievements and Conclusions



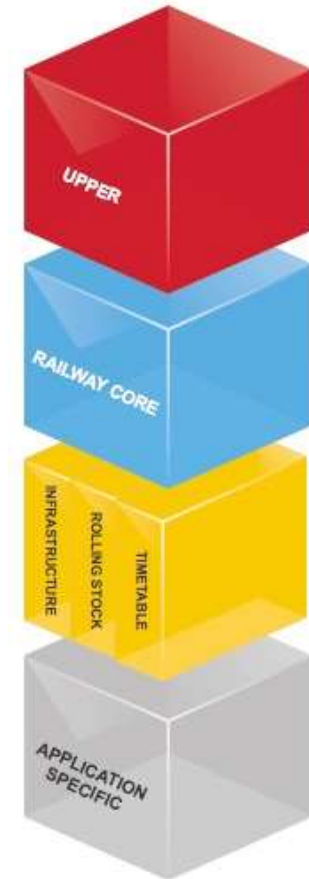
- SysML schematisation of current disruption management processes highlighted the need of automating communication/coordination and of using optimised decision support tools.
- A roadmap for increasing levels of automation in European Railways has been provided and validated, showing that automation is more effective when applied in groups and not incrementally.
- Real-life applications of an automated delay prediction tool (based on neural network) provides an example of how automation could improve quality of decisions to solve disruptions.



WP3.4 – Achievements and Conclusions



- Recommendations on data extensions to be used in different operational contexts
- Requirements for exchanging and integrating data coming from different sources including customers and other modes of transport.
- A web-based data architecture based on ontologies has been designed to collect and semantically combine data from different sources and in different formats.
- The adoption of ontology-based data architecture definitely represents the way forward to enable automation of railway operation, advanced information systems and cross-mode data communication.



How to bring forward these innovation to the industry?

IMs usually reluctant in adopting new systems if not already used and validated by another IM.

How to go out of this loop?

Would cooperation between two or more IMs for a shared deployment of new technologies (not R&D project) help?

**What's
your
opinion
?**

Future directions of R&D in Europe?

EC H2020 funds
for railway
research

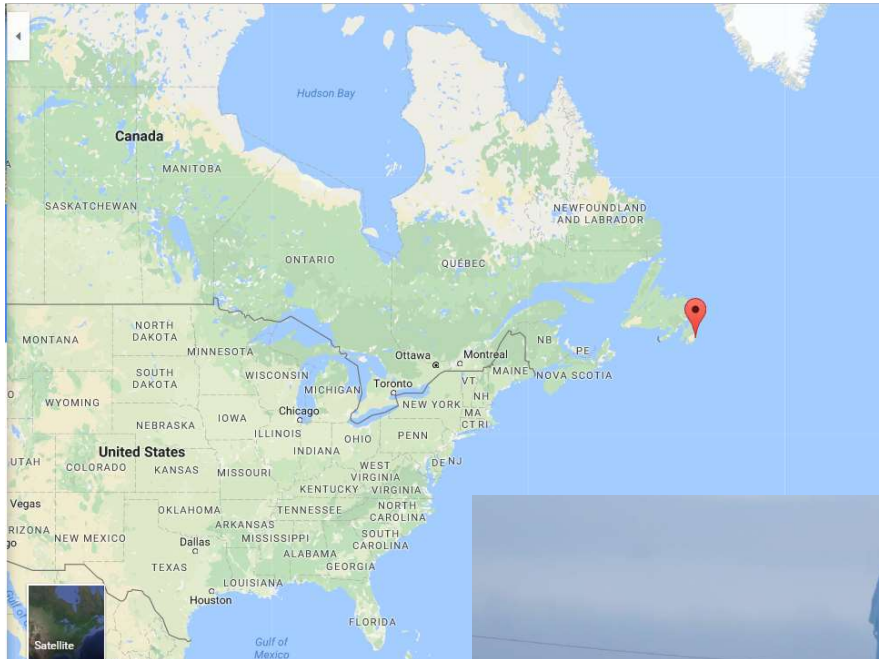


- ✓ Not really future thinking (conservative)
- ✓ Not flexible in the structure
- ✓ Tangible risk of disregarding outcomes of previous EU projects

How are we going to cut emissions by 60% without cutting down air traffic and make railways a substitute to aviation?

Future directions of R&D in Europe?

19th April 2017, Newfoundland, Canada



How can we stop this deadly process if we don't think about alternatives to the airplane, which produces 30 times more CO₂ than a HS train?



Future directions of R&D in Europe?

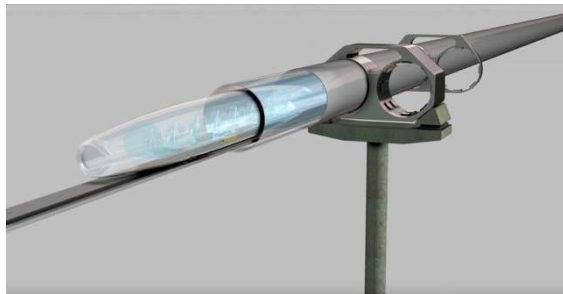


What about:



Optimised algorithms for automatic traffic control?

Maglev integration with conventional railways?



Possible studies on the hyperloop?

Q&A

