



BUSINESS CASES AND DEMONSTRATION ACTIVITIES

25th September 2019

BUSINESS CASE 1 – CESKA TREBOVA (CZ)

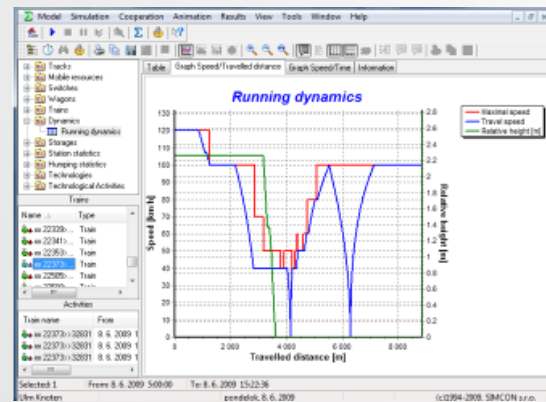
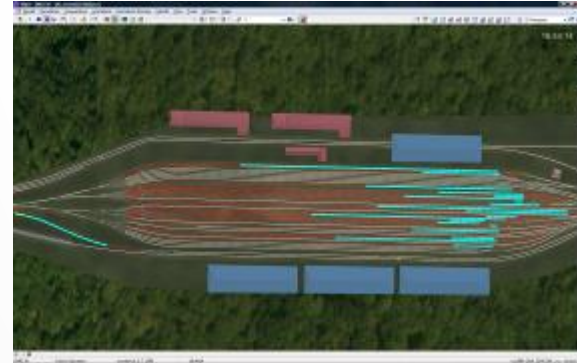
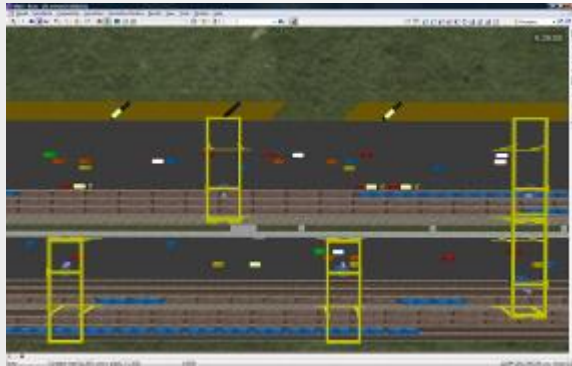
- **Localisation:** centre of the Czech Republic - junction RFC 7 and RFC 9
- **Capacity:** around 700 wagons in 24 hours
- **Throughput:** 82% conventional - 18% intermodal wagons - 30 domestic and international destinations



ROLE OF DEMONSTRATORS

- As **'input provider'**
 - (1) a state-of-the art description on how the operating/shunting processes are currently performed and on how the data are currently managed in real-time
 - (2) a catalogue of functionalities and requirements of the simulation environment
 - (3) An inventory of the necessary static and dynamic data of all the operational processes for the development of the models and a first validation of the tool
 - (4) an evaluation and prioritization of the optimization possibilities and capabilities in order to develop the right and industry-driven optimization algorithms
- As **'output validator'**,
 - (1) test and validation of the developed simulation software for marshalling yard and network with the aim to assess if the model – in a non-optimised ecosystem - is 'fit for purpose'.
 - (2) test and validation of the optimisation modules based on pre-defined demonstration scenarios

VILLON AS THE SIMULATION SOFTWARE



<https://youtu.be/xlGmu062Sxc>

BUSINESS CASE SCENARIOS

- Simulation in **a non optimised environment**
(based on a reference scenario)
 - Selection of a standard week based on standard operations (no significant occurrence affecting operations during this week – for example unavailability of several tracks/shunting locomotives);
 - Identification of the traffic volumes in this standard week (number of inbound/outbound trains...)
 - Detailed process description on the organisation of shunting operations, allocation of resources (tracks, shunting equipment and personnel) and information flows (contacts with terminals for example)

BUSINESS CASE SCENARIOS

- Simulation in **an optimised environment**
 - **Scope & KPIs:** (1) minimising the total delay of outbound trains and (2) minimising the time in the marshalling yard
 - **Demo 1 – Optimisation in a nominal mode**
 - No changes are introduced (reference scenario)
 - Test and validate the optimization algorithm, impacts on KPIs
 - **Demo 2 – Optimisation in degraded modes**
 - Some changes (broken locomotives, additional trains, delayed trains and broken track) are introduced in the reference scenario
 - Test and validate the optimization algorithm, impacts on KPIs

QUESTIONS

Thank you for your attention!

25/09/2019