Shift2Rail JU Funded IP5 Project

OptiYard

Mid-Term Conference

5 October 2018

UIC / Paris

Detailed Programme & Practical Information

This project has received funding from the Shift2Rail Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement no. 777594

OptiYard

Optimised Real-time Yard and Network Management Technologies

Project Overview

OptiYard will provide decision support tools to Yard Managers that consider the surrounding network, in a view to ensure smooth marshalling that is essential for the global efficiency of the transport chain.

The Commission's 2011 White Paper states that by 2050, rail should substantially expand its modal share over medium and long distances. This is consistent with the Policy goals of expanding rail capacity and cost reduction, both cited in the Horizon 2020 and Shift2Rail (S2R) calls. Considering the ambitious Horizon 2020 Key Performance Indicator (KPI) calling for a surge in the utilisation of capacity within a range of 70-90%, yards, hubs and terminals play a key role in facilitating this step-change by contributing to a competitive, reliable and safe freight transport, thus making Rail the preferred modal choice. As yards are the first and last points of the rail journey, they must be easily accessible and fully adapted to efficient operations.

The Optiyard decision support tool will greatly contribute to meeting the Commission Policy objectives.

Project objectives

OptiYard uses a three-pronged approach to develop an optimised decision support system for yard dispatchers by:

1. Providing enhanced, automated yard management by analysing existing process and operations and developing appropriate optimisation algorithms to improve operations for both single wagon load and block train traffic;
2. Improving information and communications processes between the Yard Management System, the RUs and Network (IM) by analysing data feeds and modelling an enhanced communications environment;
3. Enhancing real-time interaction with the surrounding network, giving the yard dispatcher better visibility of pending perturbations and major disruptions to the yard production schedule.

FACTS AND FIGURES

Total budget:
€1.5 million

Duration:
24 months

Project start Date:
01/10/2017

Project End Date:
30/10/2019

Partners:
13 from 7 countries

Grant Agreement
n°777594

Project coordinator:
International Union of Railways (UIC)

Programme

OptiYard Mid-Term conference

5 October 2018

Venue: UIC, 16 rue Jean Rey, Paris, France

09:30	*Registration and welcome*	
10:00-10:30	**Opening and Introduction** **Introduction to the project, its contextualisation in Shift2Rail (IP5 and TDs involved)**	Mr. Giancarlo de Marco Telese, UIC, Project Coordinator and Mr. Lucas Garvia, Shift2Rail JU
10:30-11:00	**WP2** **Data Analytics** addressing current data handling capabilities as well as identifying new data models needed for the yard management system optimisation • Objectives, methodology and result of WP2 • Overview of EU projects concerning rail freight transport • Description of case studies • Regulation and regulatory requirements for data collection in rail	Ms. Birgit Jaekel, Technische Universität Dresden
11:00-11:30	**WP3** Development of **Specifications** that apply to the new optimisation modules: • Key challenges and objectives • Yard and network processes • Functional specifications • Technical specifications • Data management specifications • An example illustration based on the Trieste case study site	Ms. Ronghui Liu, University of Leeds

11:30-12:00	**WP4** Dual **Modelling** of the yard and network environments • Objectives and deliverables of OptiYard WP4 • Status of the models for the Ceska Trebova and Trieste railway yards	Mr. Riccardo Licciardello, DICEA
12:00-12:30	**WP5** **Process Optimisation** The work progress in four tasks: • Improved information and communication • Improved decision support system at the yard level • Improved decision support system at the network level • Definition of the integrated framework of optimization and simulation	Mr. Joaquin Rodriguez, IFSTTAR
12:30-14:00	*Lunch break*	
14:00-16:00	**Round table, wrap-up** and **conclusions** **Real-life utilisation of OptiYard decision support tool**	

Speakers	Organisation	Position
Ms. Birgit Jaekel	*Technische Universität Dresden*	Research Fellow
Ms. Ronghui Liu	*University of Leeds*	Professor
Mr. Riccardo Licciardello	DICEA	Researcher
Mr. Joaquin Rodriguez	IFSTTAR	Research Director

Ms. Birgit Jaekel is a Railway systems engineer experienced in train run optimization and network flow optimization. She is a Research fellow at Institute of Transport Telematics (”Friedrich List”’- Faculty of Transport and Traffic Sciences). She is responsible for project management and technical lead in a team of 3 researchers, lectures on control theory and optimization, writing of research funding applications, dissemination of knowledge through technical reports, papers and presentations. Her main research area are rail driver advisory systems. She works in diverse projects concerned with modelling and optimization of railway processes.	
Ms. Ronghui Liu is the Professor of Networks and Transport Operations at the Institute for Transport Studies (ITS), University of Leeds. She has over twenty years’ experience in simulation modelling of transportation system and traffic, including simulation analysis of road traffic control and management, public transport network design and reliability studies, as well as railway network simulation and optimisation. She is the developer of the large-scale road network simulation suite DRACULA, and its sister TrackULA dynamic microscopic simulation and optimisation for the railway networks.	
Mr. Riccardo Licciardello has been working as a researcher at SAPIENZA University in Rome since 1998. He also lectured for several years in Transport Sciences and Economics, Vehicle Dynamics, and Transport Safety. Over the years he has been involved in several national and EU projects, addressing topics related to railway engineering, among which vehicle-infrastructure interaction, vehicle authorisation, rail freight transport, railway legislation, rail safety. Recent projects with SAPIENZA address track geometry for freight terminals, rail thermal stress, ERTMS testing, next-generation running gear, simulation of rail yards and network.	
Mr. Joaquin Rodriguez received the Ph.D. degree in computer science at the University of Technology of Compiègne, France, in 1985. He is a Research Director at IFSTTAR. He is responsible for the trafic management team. He has 20 years of experience in coordinating industrial and academic research projects dealing with railway traffic management, capacity analysis, diagnosis, and safety. He has developed several decision support tools in transportation applications: real-time train circulation management in railway nodes, simulation of guideway transit systems, and model-based diagnosis of electronic devices.	

Practical information

Venue: Union Internationale des Chemins de Fer (UIC)

16 rue Jean Rey - 75015 PARIS

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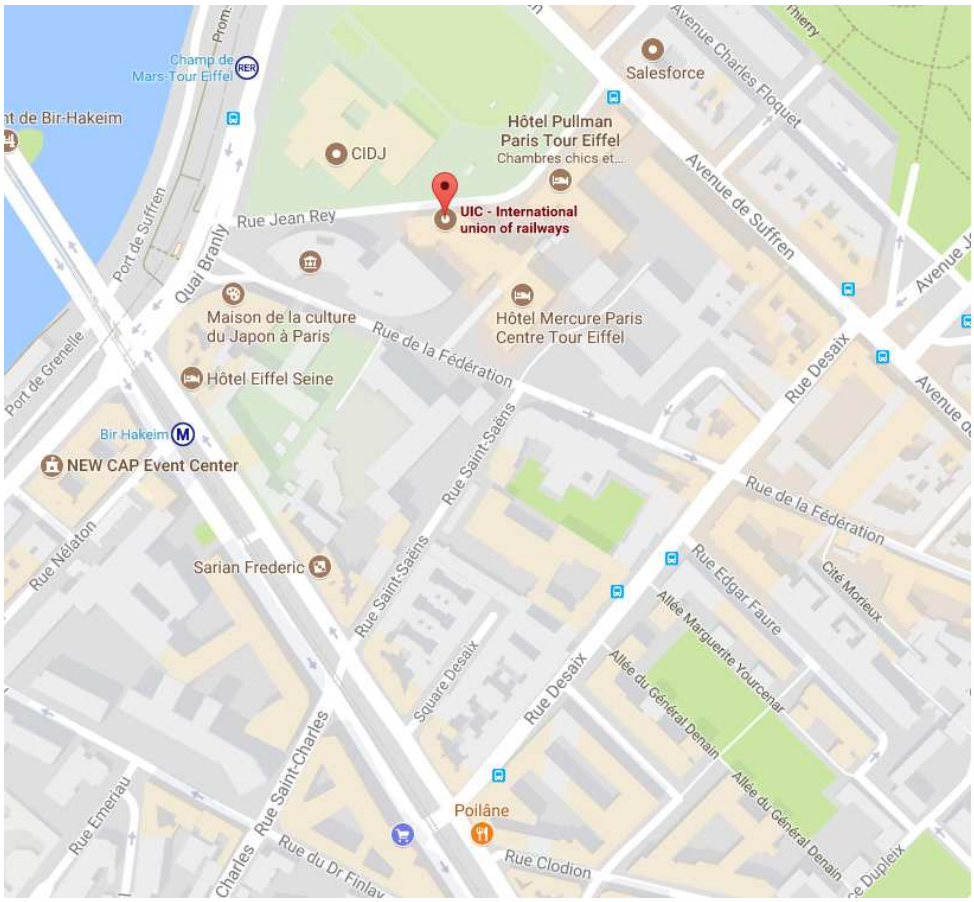
How to get to UIC

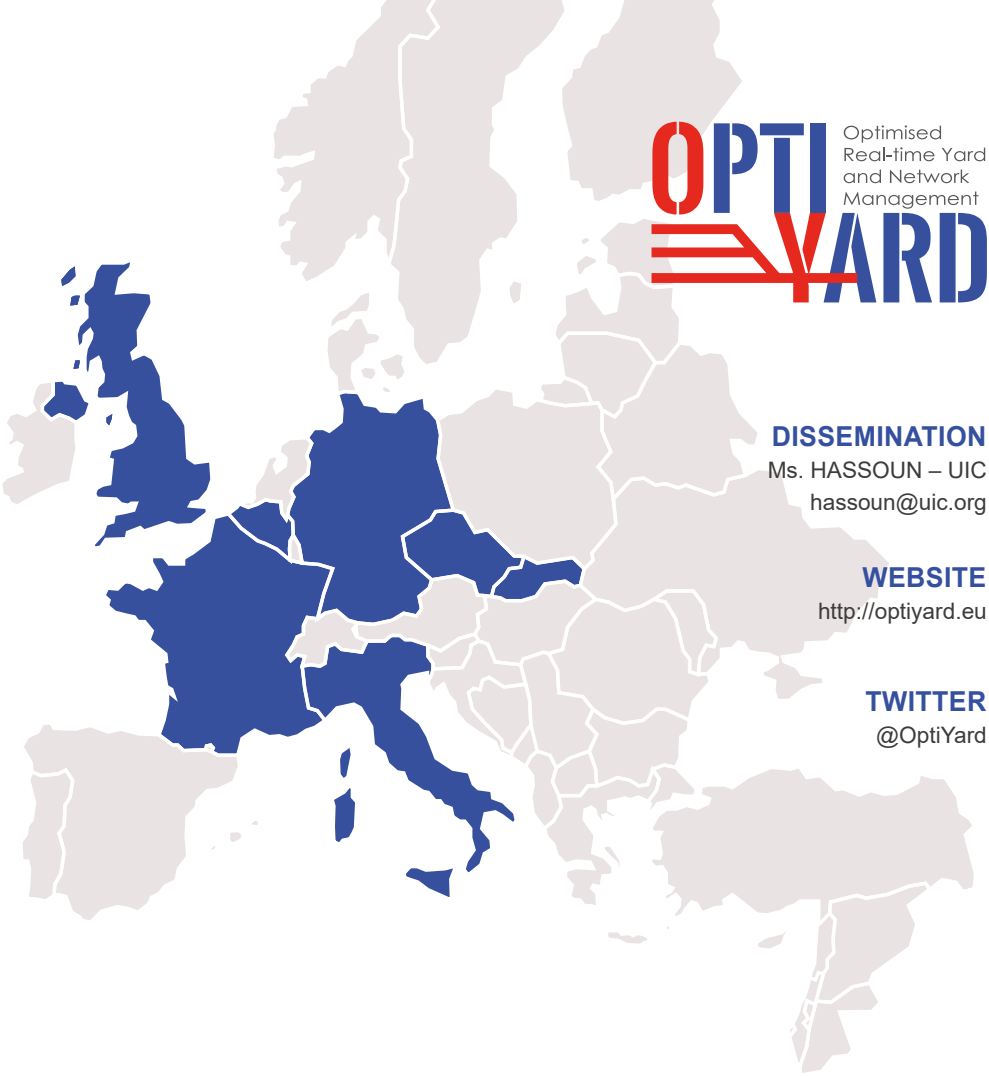
- ✓ Metro: Line 6, Bir Hakeim station
- ✓ RER: Line C, Champ de Mars station
- ✓ Bus: 42, 69, 82, 87
- ✓ Taxi station just in front of UIC
- ✓ « Le Bus Direct » "Tour Eiffel" station: **http://www.lebusdirect.com**



For more information about the project and the conference, please contact Christine Hassoun (UIC) at hassoun@uic.org

CONSORTIUM

1	Union Internationale des Chemins de fer - Coordinator	UIC	France
2	SAPIENZA Università di Roma	DICEA department	Italy
3	Institut français des sciences et technologies des transports, de l'aménagement et des réseaux	IFSTTAR	France
4	Union Internationale pour le transport combiné Rail-Route	UIRR	Belgium
5	University of Newcastle Upon Tyne	UNEW	United-Kingdom
6	University of Leeds	LEEDS	United-Kingdom
7	CD cargo a.s.	CD Cargo)	Czech Republic
8	EURNEX e. V.	EURNEX	Germany
9	Oltis Group	OG	Czech Republic
10	NEW OPERA AISBL	NEW OPERA)	Belgium
11	Simcon	SIMCON	Slovakia
12	Technische Universitaet Dresden	TUD	Germany
13	Adriafer srl.	ADRIAFER	Italy



OPTIYARD

Optimised Real-time Yard and Network Management

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