



# EU funded project Capacity4Rail FINAL CONFERENCE

Towards an affordable, resilient, innovative and high-capacity European Railway System for 2030/2050

21 & 22 September 2017

FFE - Palacio "Fernán Nuñez" / CEDEX Assembly Hall Madrid, Spain

Detailed Programme & Practical Information





# **EU funded Capacity4Rail Project Final Conference**

21 & 22 September 2017- Madrid, Spain





# An event co-organised by:







MINISTERIO DE AGRICULTURA, ALIMENTACIÓN Y MEDIO AMBIENTE







#### **EU funded Capacity4Rail Project Final Conference**

21 & 22 September 2017- Madrid, Spain

On behalf of the FP7 EU-funded project Capacity4Rail we would like to invite you to the

# Final conference of the Capacity4Rail Project

#### to be held on 21 & 22 September 2017 in Madrid

The Capacity4Rail project is a 4-year collaborative R&D project co-funded by the European Commission within the FP7. Placed under the coordination of UIC, it brings together a wide range of stakeholders, in an ambitious partnership. The Capacity4Rail (C4R) project aims at bringing today's railway system to this future vision for 2030/2050.

With this vision, Capacity4Rail main scope has been to offer an affordable increase of capacity, availability and performance to the railway system by developing a holistic view on the railway as a system of interacting technical components driven by customer demand.

This public event is open for experts from all across Europe's rail infrastructure industry and academia.

#### **Conference highlights**

#### Infrastructure

 New reliable slab-track solutions targeted to the actual and expected railway use and much lower maintenance. Innovative concepts for resilient Switches&Crossings and ground-breaking methods for Very High Speed. Upgrading of infrastructure in order to meet new operation and market demands

#### Freight

 Market development and requirements, Innovations in wagons design and technique, connectivity, terminal design, capacity improvements and operations development to meet the changing needs of the logistic market leading to the future freight train of 2030 and the vision for 2050.

#### **Operations**

 Step-changes for strategic, tactical and operational planning to meet future challenges such as increased capacity, optimized management of emergencies, enhanced information sharing and greater levels of connection between rail and the other transportation modes.

#### Advanced monitoring

 Innovative concepts, based on innovative sensors, low-current technologies, energy harvesting for power supply and wireless networks, for railway structural and operational monitoring developed to enhance the availability of the track, combined with automated maintenance forecasts and a prediction of the structural lifetime.

#### System Assessment and Migration to 2030/2050

 Technical and economical assessment of technologies developed, roadmaps and migration scenarios, necessary to meet the target affordable, adaptable, automated, resilient and high capacity railway system for 2030/ 2050.





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# Join us! It will be a fantastic time for looking at the future scenarios

## for railways in 2030/2050 and of course, to boost networking

#### Register online at:

http://www.capacity4rail.eu/capacity4rail-to-hold-its-final-conference-on-21-22-september-2017-in-madrid-28

Registration is mandatory and free of charge but only a limited number of participants can be welcomed on a first-come-first-served basis



FFE- Palacio Fernán Núñez

**CEDEX-Track Box** 

## An event co-organised by:







MINISTERIO DE FOMENTO MINISTERIO DE AGRICULTURA, ALIMENTACIÓN Y MEDIO AMBIENTE







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Moderators: Ms. Christine Hassoun/Mr. Álvaro Andrès

# **Programme**

# 21 September – Welcome in Madrid

08:30-09:10	Registration and welcome		
09:10-09:40	Opening and introduction		
		Ms. Christine Hassoun/Mr. Álvaro Andrès	
	Welcome	Mr. César López, Spanish Railways Foundation General Manager	
	The challenge of the European Railway Sector on research	Mr. Jean-Pierre Loubinoux, UIC General Director	
	0 1: 1 1: 040	Mr. Laurent Schmitt, SNCF	
	General introduction on C4R	Mr. Álvaro Andrès, UIC	
	SP1 – Infrastructure		
	New slab track design and bench testing for dense traffic and high speed	Mr. Pierre-Etienne Gautier, Systra	
	Track Design Optimization for Very High Speed"	Ms. Patricia Ferreira, Instituto Superior Técnico	
09:40-10:40	Dynamic response of bridges on very high speed lines	Mr. Raid Karoumi, KTH Royal Institute of Technology	
	Innovative concepts and designs for resilient S&Cs	Mr. Arne Nissen, Trafikverket	
	(including, 10:25-10:40 Q&A)		
10:40-11:10	Coffee Break		
11:10-12:10	SP4 – Advance Monitoring		
	Introduction;	Mr. Björn Paulsson, University of Chalmers	
	Monitoring Strategies and evaluation, Algorithms		
	Monitoring Technologies & Sensors; Migration of innovative technologies to existing structures	Mr. Mani Entezami, University of Birmingham	
	Implementation in new structures	Mr. Francisco Javier Morales, Cemosa	
	(including, 11:55-12:10 Q&A)		





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	SP2 – New concepts for efficient freight systems			
12:10-13:10	Introduction to SP2	Mr. Micael Thunborg, Trafikverket		
	Requirements toward the freight system of 2030-2050	Mr. Bo-Lennart Nelldal, KTH Royal Institute of Technology		
	Novel rail freight vehicles for a relaunch of Rail Freight transport	Mr. Armand Toubol, New Opera		
	Rail-Road, Rail-Sea, Marshalling Yards: Enhancement of Interfaces	Mr. Stefano Ricci, DICEA Sapienza University Rome		
	Rail Freight Systems of the Future with Analysis of Market up-take	Mr. Dewan Islam, University of Newcastle		
	(including, 12:55-13:10 Q&A)			
13:10-14:10	Lunch break			
	SP3 – Operation for enhanced Capacity	Ms. Nadia Hoodbhoy, Network Rail		
	Simulation and models	Mr. Magnus Wahlborg, TrafikVerket		
	Optimal strategies to manage major disturbances	Ms. Paola Pellegrini, IFSTTAR		
14:10-15:10	Data architectures, notations, models, and the use of open data	Mr. John Easton, University of Birmingham		
	Demonstration of the Capacity trade-off tool developed in SP3	Ms. Vijay Ramdas/Mr. Aaron Barrett, Transport Research Laboratory		
	(including, 14:55-15:10 Q&A)			
	SP5 – System assessment and migration to 2030/2050			
	Introduction to SP5	Mr. Burchard Ripke, Deutsche Bahn		
15:10-16:10	Roadmaps to 2050	Ms. Vijay Ramdas, Transport Research Laboratory		
	Assessment of scenarios	Mr. Paulo Teixeira, Instituto Superior Técnico		
	(including, 15:55-16:10 Q&A)			
16:10-16:30	Coffee break			
16:30-16:50	Shift2Rail prepares the way into the future for Railways in Europe  Mr. Georgios Patris, Shift2Rail Joint Undertakin			
16:50-17:30	Round table, wrap-up and conclusions			
17:30	End of the meeting			
20:15	Dinner at Posada del León de Oro			
	C/ Cava Baja 12 - 28005 Madrid			





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# 22 September – Technical visit

Venue: CEDEX Assembly Hall - Madrid, Spain

	•	
09:30-10:00	Remote monitoring, assessment and control of railway bridges	Mr. Pablo Díaz Simal, Head of Studies and Inspection of Structures Area
10.00 - 10.30	CEDEX Railway Interoperability Laboratory (RIL). Mr. Jorge Iglesias Díaz, Railway Interoperability Main activities and tests performed Director	
10.30 - 10.50	Coffee Break	
10.50 - 11.20	Activities of the CEDEX Geotechnical Laboratory in Railway Engineering	Mr. Fernando Pardo de Santayana, Geotechnical Laboratory Director
11.30 - 13.00(*)	Technical visit in CEDEX facilities focused on "CEDEX Track Box: Activities on Track and Infrastructure Testing and Assessment. C4R Prototypes testing and assessment"	Mr. José Estaire, Head of CEDEX Track Box

<sup>(\*)</sup> If there are more than 50 participants, we can organise a second visit that will end at 13.30





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# **Speakers**



**Pierre-Etienne Gautier** has been Director of Innovation for **SYSTRA** since July 2012 where he organises, manages and undertakes large innovation projects to support tangible achievements. He is a Professor at the Ecole Centrale Paris and member of Scientific Council of IFSTTAR, policy committee for civil and urban engineering network of IREX.

From 2007 through 2011, he was Scientific Director at the Directorate of Research Innovation at SNCF, for which he developed research activities on mechanics of infrastructures and railway transport system (acoustics, aerodynamics, in particular crosswind, train-track interaction and railway behaviour, pantograph-catenary behaviour).

He has edited and supervised numerous collaborative projects in the fields of STAIRRS (acoustics) INNOTRACK, TRIOTRAIN DEUFRAKO crosswind and Capacity4rail. He is Chairman of the traintrack interaction sector of UIC.



Patrícia Ferreira is an Assistant Professor at Instituto Superior Técnico (IST), University of Lisbon, teaching courses of Transportation and Transportation Infrastructures, since 2001 and being responsible for some rail related courses existing in different MSc. Degrees in the Civil Engineering Department. She has a MSc. in Structural Engineering (Structural Dynamics thesis) and a PhD (2010) in Railway Engineering, focusing on dynamic modelling of the train/track system.

Since 2002 she has been participating as researcher in several rail related international research projects, and has worked as a consultant for different railway institutions and administrations. She has been invited to participate in several PhD juris, technical committees and scientific papers revisions. She has also supervised many MSc. Dissertations and she authored more than 20 papers on railway engineering, mainly related to railway track design and train-track dynamic modelling.



**Raid KAROUMI** is a professor of bridge engineering and head of structural engineering and bridges division at *KTH Royal Institute of Technology*, Stockholm, Sweden. He has developed methods for analysis of bridge-vehicle interaction and traffic induced vibrations on bridges. His research activity incorporates also instrumentation and monitoring of bridges, development of methods for evaluation of traffic loads from measurements as well as life-cycle assessment of bridges. He has been responsible for instrumentation and monitoring of several bridges in Sweden.

Mr. Karoumi has authored and co-authored more than 90 papers, reports and books.



Arne Nissen, took Master of Science in Material Science at Luleå University in 1985.

He has been working at a research institute for powder metallurgy and ceramics for 5 years and been lecturer at Luleå University of Science for 10 years. Since 2008 he has been working at **Trafikverket**. The first research studies was done on S&C and led to a PhD in maintenance in 2009 in the subject Life Cycle Costing of railway turnouts.

He is now working with Life Cycle costing as well as condition monitoring and analysis of railway superstructure. Arne Nissen has also been involved in the European research projects Innotrack and In2Rail.





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**Björn Paulsson** is a senior researcher managing projects at **Chalmers University of Technology** supporting implementation of results from research and development projects. He holds an MSc from Lund University, degree in Economics & IT from Stockholm University and a PhD from Luleå University. Björn joined Skanska in 1974 where he ended as head of an advanced design unit. He then became the Head of the Track & Structure Department at Banverket and was actively involved in promoting railway and structures research. He is a member of the European Road and Railway Construction Technology Platform. He led Banverket's participation in other EC funded research projects, such as Sustainable Bridges and INNOTRACK.

In 2006, he joined UIC where he led EU-projects such as INNOTRACK and was responsible for Track & Structures and Train Track Interaction groups. From 2012 to 2016 he was a senior advisor at Trafikverket leading EU-projects including MAINLINE & D-RAIL, working with EU-projects like Capacity4Rail, preparing Shift2Rail & In2Rail and implementing result from research and development projects.



**Mani Entezami** is a researcher in railway condition monitoring systems at the Birmingham Centre for Rail Research and Education, **University of Birmingham**. He is involved in several condition monitoring projects and has developed novel techniques in condition monitoring systems that have successfully been delivered to rail and wind industries. His current research portfolio includes projects to use acoustic and vibration signals for condition monitoring systems, low-power and energy harvesting wireless sensor networks, high speed microcontroller and FPGA based embedded systems for data logging and signal processing, and novel computational platforms and their use within distributed monitoring architectures.



**Francisco Javier Morales-Gamiz** holds an MSc in Civil Engineering (2010), a Master Degree in Geotechnical Engineering (2011) and a Master Degree in Structural Engineering (2012) at the University of Granada. He worked as a researcher in the Geophysics Institute of Andalusia until he joined **CEMOSA** in 2013. As a member of R&D department, he works as a specialist in the field of transport infrastructure and has been involved in several projects in the FP7, H2020 and others national programs. Currently, his research is focused on the analysis of the structural health in critical infrastructures and in the development of methodologies for the performance based design of structures.



Micael Thunborg is a National Planner at Trafikverket with focus on railway investments and rail freight trends. Previously at Trafikverket, he was Key Account Manager at the Marketing and Sales Department and was also responsible for communication and legal issues between Trafikverket and the cargo railway undertakings operating in Sweden. Micael has earlier held sales/marketing positions in several forwarding companies conducting air, ocean and railway freight. He has a B.Sc. in Business Administration from the University of Gothenburg, a Global Executive MBA from Copenhagen Business School in cooperation with the universities of Los Angeles, Shanghai and Buenos Aires. He is the leader of SP2 and coordinates the work within the C4R project for Trafikverket.



**Bo-Lennart Nelldal** is Professor Emeritus in Railway Traffic Planning at **Royal Institute of Technology (KTH)** in Stockholm and has also worked at Swedish State Railways. His competence is on market, operation, capacity and economy of transport systems. He has been supervisor for several PhD-students. He has also been project leader for many investigations of transport systems as high speed rail in Sweden, EU-projects about freight corridors and inter-modal systems. In Capacity4Rail he was project leader in SP2 for WP 2.1 Progress beyond State of the Art on Rail Freight Systems and for Task 2.3.1 Conceptual terminals design methodology for different markets. He also participated in WP 2.2, WP 2.4, SP3 WP 3.2 and in SP 5.





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**Armand Toubol,** Vice President of **New Opera**, has earlier served as the Chairman, Chief Executive Officer and Managing Director of SNCF Freight and SNCF Participations, S.A. He has also worked within the transport sector in various positions related to rail and sea transports.

He is the leader of WP 2.2.



**Stefano Ricci** is an associate Professor at **Sapienza Università di Roma - DICEA Department**. Chair of Transport Engineering Education Area. Teacher of Railway Engineering, Maritime Transport, Science and Economics of Transports. Responsible of research groups on rail and maritime transport systems. Editor in Chief of Ingegneria Ferroviara international scientific journal. Author of about 170 scientific publications.



**Dewan Islam** is a Senior Research Associate at NewRail, Newcastle Centre for Railway Research, at the **University of Newcastle upon Tyne**. He is the Fellow, the Chartered Institute of Logistics and Transport, UK. He is a member of the European Conference of Transport Research Institutes, Transport Logistics group and the member of Editorial Board of the European Transport Research Review journal. Currently he leads NewRail research team for Capacity4Rail project. He sits on the Executive Board of C4R project. He authored and co-authored many peer-reviewed journal and conference papers and book chapters. He also teaches International Logistics for postgraduate courses.



Magnus Wahlborg is responsible at Trafikverket Planning & Operations for co-ordinating research in Railway capacity and punctuality. He is also responsible for traffic simulation Railsys and Railsys Scandinavian user group. He is part of Trafikverket Shift2Rail core group IP/TD leaders. Magnus is also part and Trafikverket contact person of the research group KAJT which leads railway capacity research in Sweden. Magnus has been/is active in EU projects as ON-Time, Capacity4Rail, In2Rail and current projects Plasa, ARCC and FR8Hub.



Paola Pellegrini has been a researcher at IFSTTAR since 2011. She is an expert in railway planning and operational management who has been working in the field of artificial intelligence and mathematical optimisation in the railway transportation context. She has contributed to projects with industrial partners like SNCF and RFI and in the EC funded FP-7 ON-TIME and Capacity4Rail projects. Her current research field covers the development of optimization approaches to effectively exploit railway infrastructure capacity, aiming to the automation of the processes at both the tactical and the operational level.



John Easton, University of Birmingham, is a Lecturer in software engineering with the Birmingham Centre for Railway Research and Education. His current research interests centre on methods for the storage, processing and display of railway related datasets; in particular data representation and exchange via ontologies, data commoditisation using blockchains, and parallel, semi-autonomous processing by software agents. John has worked on a wide-range of UK and EU-funded projects, including INTERAIL, AUTOMAIN, On-Time, Capacity4Rail and In2Rail. In 2012, he was part of the team who were joint winners of the Stephenson Award for Engineering Innovation at the National Rail Awards, for their work on 3rd rail condition monitoring. On a day-to-day basis, John is heavily involved in the Centre's £1.65 million Strategic Partnership with Network Rail on the theme of data management and integration. He is currently the deputy chair of the IET's Rail Technical and Professional Network executive team.





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Vijay Ramdas, Transport Research Laboratory (TRL), with over 25 years' experience gained in the transport area, Vijay has a vast knowledge and understanding of the UK railway industry and in the successful delivery of technical and strategic programmes of research and advice for the Department for Transport and other public and private sector organisations. She is an experienced scientist and manager with associated problem solving and analytical skills with a keen focus on developing innovative solutions and implementation plans to realise benefits of completed research and contribute to a step change in the industry. In C4R, she has led the development of the Capability Trade-offs Analysis tool in SP3 and also the development and mapping of C4R contribution to the 2050 Railway Roadmap in SP5.



**Aaron Barrett** is a researcher in the Technology Development & Quality Assurance division of **TRL**. Aaron has 6 years expertise in primary research, experimental design, implementation, data collection and data analysis. He has worked on a range of rail-based research projects including for the Department for Transport (UK) and two EU projects; Destination Rail and Capacity4Rail. He has worked closely with Oltis Ltd to develop and implement the specification for the Capability Trade Offs tool and in testing the application of the tool.



**Paulo F. Teixeira**, Ph.D. in Civil engineering, is Assistant Professor at **IST University of Lisbon**, where he is responsible for railway engineering and rail transport courses of the different M.Sc. Degrees in the Civil Engineering Department. From 2004 to 2008 he also headed the Railway Division of the Center for Innovation in Transport of Catalonia Technical University. He has been a member of several railway scientific committees and expert groups, such as the UIC High-Speed Committee, EURNEX Pole Infrastructure and the Railway Experts Council of the Spanish Railway Foundation. He authored more than 100 papers in railway transport and supervised 9 Ph.D. theses and over 25 M.Sc. dissertations. He led and participated in several research projects, funded by the EU, the Spanish and the Portuguese governments. He has also worked as a consultant in different railway entities and administrations in the areas of railway infrastructure design, maintenance management, planning and pricing.



**Pablo Díaz Simal**, heads the **CEDEX** Bridges&Structures Division devoted, among other activities, to assess the condition of the existing Spanish-bridge-stock, covering road&railways' networks. Prior to his current job, he's held distinct positions as Project Manager in infrastructure works related to construction and maintenance of bridges and structures in the private and public sectors, both in this country and overseas.



Jorge Iglesias is the current Director of the CEDEX Rail Interoperability Lab which is the first lab in Europe dedicated to test ERTMS. After working several years at Cedex in the areas of Energy and Power Electronics, he was charged of creating this lab in 2000. After creating it he joined ADIF in 2007 as R&D Director where he promoted the participation of ADIF in European Projects. In 2013, he went back to Cedex to increase the role of the Lab in the process of placing in service ERTMS lines.





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**Fernando Pardo de Santayana**, holds a Ph.D. in Civil Engineering by the Universidad Politécnica of Madrid and a Master of Science by the University of California at Berkeley, in Geotechnical Engineering. He joined the Geotechnical Laboratory of **CEDEX** in 1986, where he carried out research and technical assistance works and studies related to geotechnical problems of roads, use of marginal materials, development and standardization of geotechnical tests, and pathology of foundations. He has been researcher at the Laboratório Nacional de Engenharia Civil of Lisbon, where he worked on issues related to geotechnical engineering of earth and rockfill dams, sanitary landfills and soft soils deposits. He leads the Geotechnical Laboratory of CEDEX and is Director and Professor of the Master of Soil Mechanics and Geotechnical Engineering organized every year by CEDEX and UNED. He is also President of the Spanish Society for soil Mechanics and Geotechnical Engineering (SEMSIG).



**José Estaire** is the current Director of the **CEDEX** Track Box which is a testing facility dedicated to the Geotechnical Engineering of Railway Tracks.

He has developed his professional life in the Laboratorio de Geotecnia in CEDEX where he has worked as a consultant engineer in projects related with geotechnical engineering of roads, ports and dams and was the Head of the Laboratory Test Department. He is the current Secretary of the Spanish Committee devoted to the Eurocode 7.





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# **Practical information**

#### Venue

1st day, 21st September 2017, at FFE (Palacio de Fernán Nuñez)

Calle de Santa Isabel, 44 28012 Madrid - Spain Tel 00 34 91 151 10 02

Web: http://www.ffe.es/palacio/principal.htm#sthash.Bzpsc8we.dpuf

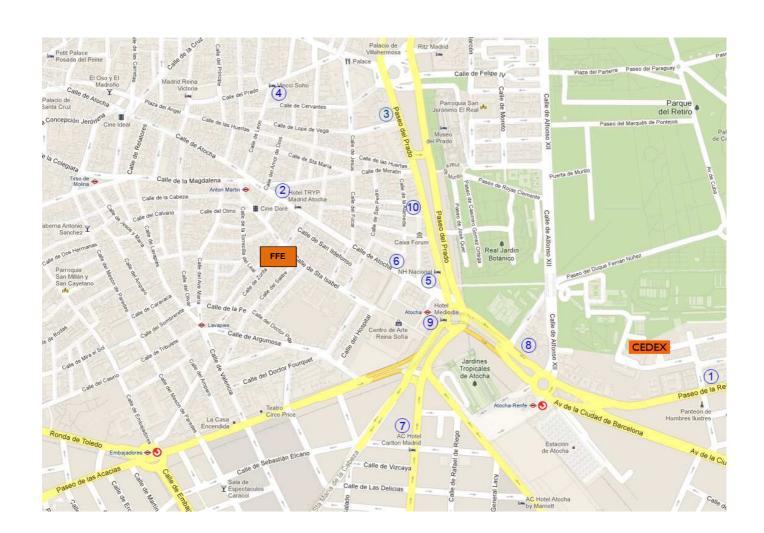
Dinner at Posada del León de Oro

C/ Cava Baja 12 28005 Madrid – Spain

Web: www.posadadelleondeoro.com

2nd day, 22<sup>nd</sup> September 2017, at CEDEX Assembly hall

C/Juan Valera S/N Madrid - Spain







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# Hotels located in the surroundings of the venue

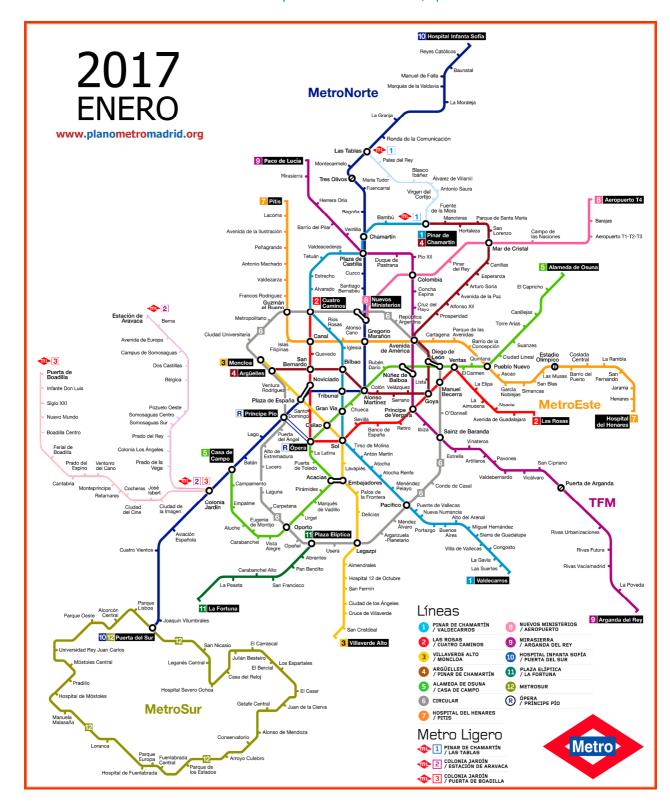
Νº	Hotel	Contact
	Hotel Agumar ****	http://www.h-santos.es/hoteles/Hotel-Madrid-Agumar/
1	Paseo de la Reina Cristina, 7	Email: hotelagumar@h-santos.es
	E-28014 Madrid	Tel. (34) 91 552 69 00 - Fax (34) 91 433 60 95
2	Tryp Madrid Atocha Hotel ****	http://www.tryphotels.com/es/hotel-tryp-atocha-madrid-espana.html
	Calle de Atocha, 83	Email: tryp.atocha@solmelia.com
	E-28012 Madrid	Tel. (34) 91 3300500 - Fax (34) 91 4201560
3	Hotel Lope de Vega ****	http://www.hotellopedevega.com/
	C/ Lope de Vega, 49	Email: lopedevega@hotellopedevega.com
	E-28014 Madrid	Tel. (34) 91 360 00 11 - Fax (34) 91 429 23 91
4	Hotel Vincci Soho ****	http://www.vinccihoteles.com/Hoteles/Espana/Madrid/Vincci-Soho
	C/ Prado, 18	Email: soho@vinccihoteles.com
	E-28014, Madrid	Tel. (34) 91 141 41 00 - Fax (34) 91 141 41 01
5	Hotel NH Nacional ****	http://www.hotelnhnacional.hotelsearch.com/index.es.html
	Paseo del Prado, 48	E-mail: info@hotelnhnacional.com
	E-28014 Madrid	Tel. (34) 91 429 66 29 - Fax: +34 91 369 15 64
	Husa Paseo del Arte ****	http://www.hotelhusapaseodelarte.com/
6	C/ Atocha, 123	Email: paseodelarte@husa.es
	E-28012 Madrid	Tel. (34) 912 984 800 - Fax (34) 912 984 850
	Hotel Carlton Madrid ****	http://www.marriott.com/hotels/travel/MADCA-AC-Hotel-Carlton-Madrid
7	Paseo de las Delicias, 26	Tel. (34) 91-539 71 00 - Fax (34) 91-527 85 10
	E-28045 Madrid	
	Hotel El Prado ***	http://www.pradohotel.com/
8	C/ Prado, 11	E-mail: hotelprado@pradohotel.com
	E-28014– Madrid	Tel. (34) 91 369 02 34 - Fax (34) 91 429 28 29
	Hotel NH Sur ***	http://www.nh-hoteles.es/nh/es/hoteles/espana/madrid/nh-sur.html
9	Paseo Infanta Isabel, 9	E-mail: nhsur@nh-hotels.com
	28014 Madrid	Tel. (34) 91 539 94 00 - Fax: +34.91.4670996
10	Hotel Mediodía Madrid **	http://www.mediodiahotel.com/
	Plaza Emperador Carlos V, 8	E-mail: info@mediodiahotel.com
	E-28012 - Madrid	Tel. (34) 91 527 30 60 - Fax (34) 91 527 30 66
11	Hotel Mora **	http://www.hotelmora.com/
	Paseo del Prado, 32	Tel. (34) 91 420 15 69 - Fax (34) 91 420 05 64
	E-28014 Madrid	





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#### **Information and contact:**

To know more about Capacity4rail, visit: <a href="http://www.capacity4rail.eu/">http://www.capacity4rail.eu/</a> For more information on the conference, please contact:

FFE:
Aida Herranz
Eduardo Prieto
aherranz@ffe.es
eprieto@ffe.es

**CEDEX:**Jose Estaire Gepp
<u>Jose.Estaire@cedex.es</u>

UIC: Christine HASSOUN hassoun@uic.org



# Towards an affordable, resilient, innovative and high capacity

European Railway System for 2030/2050



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# The Consortium



Co-funded under the 7<sup>th</sup> Seventh Framework Programme for research, technological development and demonstration of the European Commission, Capacity4Rail is bringing together a range of 46 stakeholders from 13 nations in an ambitious partnership: infrastructure managers, railway undertakings, logistics developers, research institutes and universities, industrial equipment providers, engineering companies, end-users...

#### Facts and figures:

Total budget: € 15 million (€9.9 M€ funded)

Duration: 48 months

Project start date: 01/10/2013 Project end date: 30/09/2017

Partners: 46

Grant agreement: n° 605650

# **Project coordination: International Union of Railways** 16, rue Jean Rey, 75015 Paris, France **Coordinator: Álvaro ANDRÉS ALGUACIL** andres@uic.org wwww.capacity4rail.eu





































vessloh









































