REFINET

REthinking Future Infrastructures NETworks

Newsletter No.4

December 2016

Project coordinator

Partners

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INDEX

PRESENTATION

This is Newsletter No.4 of REFINET CSA funded by EC within MG 8.1 Mobility for Grow at H2020. CSTB (coordinator), Arup, D'Appolonia, Dragados, FEHRL, PTEC, Tecnalia and UIC are partners of this CSA.

The dissemination and communication activities with experts and stakeholders of the REFINET network are coordinated by PTEC.

Till the end of REFINET in April 2017, some dissemination activities are planned as the following ones:

- News at REFINET web www.refinet.eu and at REFINET LinkedIn group

  https://www.linkedin.com/groups/8464241
- Publication of two newsletters, in December 2016 and April 2017, respectively.
- A workshop with REFINET partners and experts in March 2017.
- Two public events in January 2017 at TRB in Washington and in April 2017 at FIRM in Brussels, respectively.

This Newsletter includes four sections:

- **REFINET progress** in WP 3 on Defining the Strategic Implementation Plan by Tecnalia, in WP4 on Deploying the Strategic Implementation Plan by D'Appolonia and in WP5 on Transport infrastructures session at ECTP conference (Brussels, November 17th, 2016) by PTEC.
- Innovation activities on transport infrastructures within **REFINET community**, with contributions from UIC, member of REFINET, and from three participants in the REFINET workshop (Rome, October 26th, 2016): Aiscat Servici, DLR and CFR-SA.
- **Coordination with projects and networks** on ENCORD Council by Dragados and on FOX & USE-iT activities by FEHRL.
- **News** on R&I in transport infrastructures.

Jesús Rodríguez
Dissemination Manager
director@plataformaptec.es

Alain Zarli
Project coordinator
alain.zarli@cstb.fr

REFINET PROGRESS

Defining the Strategic Implementation Plan

Following the objective of creating a common understanding among REFINET network members about blueprint and characteristics of the multimodal European transport infrastructure network of the future and the consequent R&I demands to evolve the current European transport networks, the Strategic Implementation Plan SIP has already been elaborated.

Based on the selection of best practices and the catalogue of technologies for infrastructure as state of the art, REFINET has already defined its SIP, containing four priority areas and specific actions at different TRL levels according to previously defined REFINET multi-modal transport infrastructure model/Framework.

REFINET has defined the following Vision:

> By 2050, a new European multimodal transport infrastructure network will ensure efficient transport of goods and passengers through the High Level Service Infrastructure concept spread out by urban mobility, multimodal hubs and long-distance corridors with the performances of GREEN, COST-EFFICIENT, SOCIAL/INCLUSIVE, RESILIENT and SAFE/SECURE, based on advanced and development of technologies and by means of systemic approach perspective, considering GOVERNANCE, COMMUNICATION, FINANCIAL/ECONOMIC, LEGAL/STANDARDS and RISKS/INTERDEPENDENCY aspects.

The REFINET Strategic Implementation Plan has been structured into four priority areas following the Transport 2050 Roadmap and the REFINET MMTI framework, as follows.

Priority area A: urban mobility

Infrastructure networks support a high quality of life in sustainable European cities by ensuring a continuous and safe circulation of life, water and food and by providing the physical means for mobility to live and work.

Priority area B multimodal hubs

Infrastructure networks support European social and territorial cohesion. Infrastructure networks are integrated, efficient and well-connected, thanks to multimodal hubs that constitute essential nodes of the integrated transport systems. They guarantee Europe´s integration with the international and intercontinental market, while complying with the principle of sustainable development.

Priority area C: long distance corridors

Infrastructure networks support a competitive European economy by providing fast means to develop European trade in a sustainable way between city centres and along major routes connecting Europe with rest of the world.

For long-distance travel and intercontinental freight, air travel and ships will continue to dominate. New engines, fuels and traffic management systems will increase efficiency and reduce emissions.

Priority area D: systemic approach

Infrastructure networks provide a core and comprehensive multimodal transport system at Europe level through the development of TEN-T corridors. The systemic approach perspective for efficient management of multimodal transport system should be

considered accordingly to the different transport modes and infrastructure.

PRIORITY AREA A, B and C:		ID	Scope	Impact	Specific Challenges	Investment Level	Priority Level	Geographic Scale
RESEARCH TRL<5	GREEN	R1.1						
	COST-EFFICIENT	R2.1						
	SOCIAL / INCLUSIVE	R3.1						
	RESILIENT	R4.1						
	SAFE / SECURE	R5.1						
INNOVATION 6<TRL<8	GREEN	I1.1						
	COST-EFFICIENT	I2.1						
	SOCIAL / INCLUSIVE	I3.1						
	RESILIENT	I4.1						
	SAFE / SECURE	I5.1						
DEPLOYMENT TRL>8	ALL	D1						

PRIORITY AREA D: SYSTEMIC APPROACH		ID	Scope	Impact	Specific Challenges	Investment Level	Priority Level	Geographic Scale
RESEARCH TRL<5	GOVERNANCE	R1.1						
	COMMUNICATION	R2.1						
	FINANCIAL / ECONOMIC	R3.1						
	LEGAL / STANDARDS	R4.1						
	RISKS/INTERDEPENDENCIES	R5.1						
INNOVATION 6<TRL<8	GOVERNANCE	I1.1						
	COMMUNICATION	I2.1						
	FINANCIAL / ECONOMIC	I3.1						
	LEGAL / STANDARDS	I4.1						
	RISKS/INTERDEPENDENCIES	I5.1						
DEPLOYMENT TRL>8	ALL	D1						

RESEARCH & INNOVATION NEED # 13			
PRIORITY AREA	URBAN MOBILITY	PERFORMANCE	GREEN
TRL LEVEL	INNOVATION 6<TRL<8	ID	I1.2
TOPIC DESCRIPTION			
Specific Challenges			
Delivery of new technology is uncertain. Relying on one technology can mean that unintended consequences are difficult to mitigate and therefore a holistic system approach should be taken. Pilots may not be successful in demonstrating value/performance of the technologies Commecialisation: there may be high costs associated with these materials and their deployment It may require higher upfront investment for new build and renewals. There will be increased pressure to demontrate efficiency Uncertainty linked to climate impact over the long life span of transport infrastructure			
Scope			
Small scale demonstration projects of advanced materials and processes e.g. selfhealing materials, durable, sustainable, multifunctional,...			
Expected Impact			
Self healing, durable and sustainable materials can reduce the amount of maintenance as asset must undergo during its life cycle. These qualities, as well as multifunctional materials, all fit into the idea of the circular economy i.e. keeping materials and resources in use and retaining their value rather than consuming and disposing of them. In addition it reduces risk of people being put harms way when maintenance needs to be carried out.			
Required Level of Investment	High	Priority Level	medium term
Geographic Scale	National		

After defining the four priority areas of this REFINET Strategic Implementation Plan document, the different specific Research and Innovation needs has been gathered following the REFINET MultiModal Transport Infrastructure (RMMTI) framework.

The specific actions have been structured in the two previous tables; providing information about different fields: specific challenges, scope, impacts, required level of investment, priority level and geographic scale. In the third table, an example of an identified specific R&I action is presented.

The REFINET follow-up in WP 3 will be done until the end of the project by refining / fine-tuning the SIP with the REFINET network of stakeholders.

Jon Aurtenetxe
TECNALIA
jon.aurtenetxe@tecnalia.com

Deploying the Strategic Implementation Plan

As part of the work done by the REFINET consortium in the context of the deployment of the future Strategic Implementation Plan (SIP), two main action were completed in the last months, under the coordination of D'Appolonia.

- REFINET Workshop on Strategic Implementation Plan and its deployment, Rome, October 26, 2016
- Deliverable D4.1 "REFINET Strategy for the Deployment of the SIP"

The workshop was the occasion to discuss the deployment strategies with a number of experts including Infrastructure Managers and Operators, from Italy and Romania. Feedback gathered during the workshop in dedicated interactive sessions enabled to start co-creating this strategy and to link it to effective case study to be used as pilot to assess its viability and effectiveness.

During the workshop, the following topics were deeply investigated:

- Use of the REFINET Multi-Modal Transport Infrastructure (RMMTI) Model in supporting the identification of priorities in innovations for Transport Infrastructure (TI) networks
- Use of the REFINET Platform in supporting strategic planning decisions as well as type of data or information or parameters would be needed to be available and exploited by the platform to support this.
- Use of financial instruments such as Pre-Commercial Procurements (PCP) and Public Procurement of Innovation (PPI) could facilitate the deployment of existing or incoming technologies in TI networks.

The workshop has brought forward a number of insights which will be taken into account in drafting the SIP Roadmap (Deliverable D4.2)

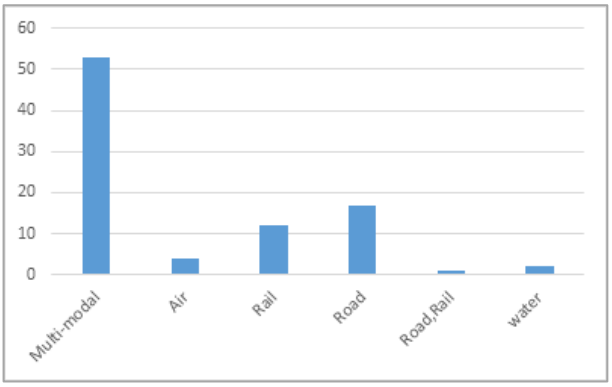
This Deliverable D4.1 is structured in a way to focus on the following two main activities:

A) Preparing to deploy the SIP. This has been based on the exploitation of the following REFINET Solutions:

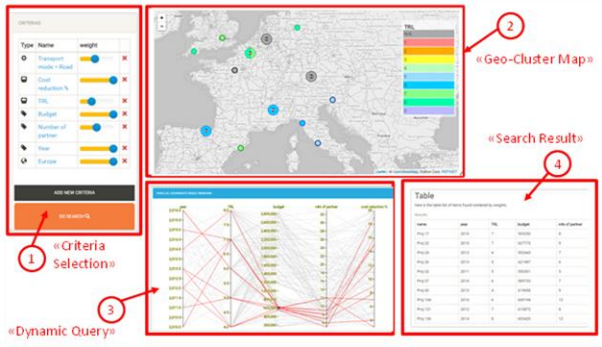
- The REFINET Multi-Modal Transport Infrastructure (RMMTI) model
- The Catalogue of Best Practice
- The Catalogue of High-Potential Technologies
- The Catalogue of R&I Project Innovations from the monitoring of R&I projects (H2020/FP7)
- The Geo-Clustering REFINET Platform
- Identification of Future R&I priorities

Moreover, the preparation of the deployment strategy took advantage as well as on the basis of the analysis carried out in:

- Understanding the current performance of TI in the EU28
- Mapping Financial Tools Enabling TI Modernisation and identification of main financial programmes



Distribution of Identified R&I Project Innovations per Transport Mode



REFINET Geo-Clustering Platform Functionalities

B) Deployment Strategy, including the following actions:

- Supporting TI Managers (Short to Medium term approach) – two cases study identified (i.e. Italy and Romania)
- Supporting Policy Makers (Medium to long-term approach)

More information on the effective inclusion of case studies in the project deployment activities as well as in the definition of the REFINET Roadmap will be provided in Newsletter No.5 (April 2017).

Clemente Fuggini
D`APPOLONIA
clemente.fuggini@dappolonia.it

Sessions on the transport infrastructure of the future (ECTP conference)

REFINET organised two parallel sessions at ECTP conference (Brussels, November 17th, 2016) in collaboration with ECTP Infrastructures and Mobility committee on "The transport infrastructure of the future". The organisation of those sessions was coordinated by PTEC and it was chaired by Miguel Segarra from Dragados as chairman of ECTP I&M committee with Alain Zarli from CSTB as REFINET project coordinator.

The sessions included two presentations on REFINET CSA:

- **Introduction on ECTP I&M strategy and REFINET**, by Jesús Rodríguez, managing director of PTEC and REFINET dissemination manager. This presentation summarises ECTP initiatives and collaborations on innovation in transport infrastructures since 2004, including some reference to reFINE roadmap, roadmap for cross-modal transport infrastructure, TRA conferences, Infravation EraNet on Road infrastructures, Innovation Programme IP3 within Shft2Rail on railways infrastructure and Strategic Transport Research and Innovation Agenda STRIA under development by EC.

  Then, ECTP priorities for H2020 (2017-2020) were presented and REFINET CSA

was introduced with comments on the scope, the dissemination activities and the network of stakeholders and experts at REFINET, FOX and USE-iT complementary CSAs. The presentation finished with some thoughts on the planned actions to promote R&I in transport infrastructures to be carried out through the ECTP I&M committee.

- **REFINET answers to the need on innovation in transport Infrastructures** by Clemente Fuggini from D'Appolonia and coordinator of REFINET WP4. The target audiences of REFINET are transport infrastructure managers and Policy makers, Public Bodies and MS Authorities. This presentation summarised REFINET CSA including the vision and roadmap, the multi-modal transport infrastructure model, the collection of best practices and the catalogue of technologies and the identification of R&I priorities. The presentation finished with some comments on the clustering of technological demands and the development of a REFINET platform.

Besides, there were three presentations made by European Commission:

- **Transport Infrastructures - R&I Priorities and H2020** by Torsten Klimke, Deputy Head of Unit on Innovation & Research, DG Move. He presented the policy goals, the main priorities at H2020-2016 on integrating urban nodes in TEN-T corridors, resilience to extreme events, optimisation of TI including terminals and the port of the future. He finished his presentation with some comments on WP 2018-20 and STRIA (Strategic Transport R&I Agenda) roadmap.
- **Innovation at transnational transport infrastructure networks** by Andreas Bochen, Head of Department, CEF. He presented the role of INEA on implementing EU funding for transport, energy and telecommunications. Then, the Connecting Europe Facility CEF for the realization of the Trans-European Transport Network including road, rail, maritime, inland waterways, air and co-modality was summarized. It includes the TEN-T corridors and innovation priorities on ITS, Motorways of the Sea and Traffic management systems such as SESAR. He finished his intervention with some project examples as FAST-E, Connect2LNG, LNG masterplan for Rhine-Mai-Danube, Cleanport and EAS-HyMob.
- **The impact of climate change on transport infrastructures. What lies ahead** by George Paunescu, Adaptation Unit, Climate Action DG. He presented the impacts of extreme weather events on European infrastructures and the EU Strategy on adaptation to climate change.

He made some comments on standardization request to CEN & CENELEC to contribute to building and maintaining a more climate resilient infrastructure and on the guidance on integrating climate change and biodiversity into environmental impact assessment. He finished his presentation with some examples of funded actions at EC and working with the Members States.

Finally, these sessions included four presentations with the vision on innovation in transport infrastructures by a designing company, a construction company, an association of toll motorways and a research organization:

- **Designing future transport infrastructures**, by Terry Hill, Arup Group, Non-Executive Director Crossrail and REFINET member. He presented the experience with Crossrail's Innovate18 programme that involved owners, designers and builders at Crossrail project.
- **Upgrading of existing transport infrastructures** by Norbert Pralle, Head of Research and Innovation at Strabag. He presented some examples on connecting mobility and immobility, integrating photovoltaic elements as road cover, geothermal energy from tunnels, etc. He finished his presentation with some thoughts on the built environment that is turning intelligent.
- **Operation of transport infrastructure in the future** by Kallistratos Dionelis, ASECAP General Secretary, covering design, construction, maintenance and financing of motorway infrastructures.
- **Knowledge for improved transport infrastructures**, by Willy Peelen and Henk Miedema from TNO. It included considerations about ageing infrastructures, monitoring and inspection techniques, interpretation and prognosis models for forecasting service life. The presentation finished with the example of van Brienenoord bridge.

The conclusions of this parallel session together with the results from REFINET CSA, that will have finished in April 2016, will conform the agenda of ECTP I&M committee for 2017-2018.

Jesús Rodriguez
PTEC
director@plataformaptec.es

REFINET COMMUNITY

UIC international Union of Railway

UIC is the worldwide organisation for international cooperation among railway stakeholders at a global level. Founded in 1922, it currently gathers 200 members from all 5 continents, among them railway operators and infrastructure managers. The mission of the association is to promote rail transport at world level with the objective of optimally meeting current and future challenges of mobility, interoperability and sustainable development.

Foster Railway Innovation

One of the main goals of UIC is to propose innovative ways to improve the technical and environmental performance of rail transport. Through the coordination of working groups and internal projects, UIC aims at supporting its members in their efforts to prioritise and coordinate their research and innovation activities, in particular the IRRB (International Railway Research Board) which is a platform for sharing output on transport related research and innovation themes. UIC is also involved in European collaboration initiatives for research and innovation such as the railway European Technology Platform, ERRAC, and the **SETRIS** project **(**EU funded project) which aims at strengthening transport research and innovation in Europe.

Innovative solutions for Railway infrastructure

Infrastructure being a key component of the railway system, UIC is thus involved as participant or coordinator in international projects promoting and developing innovative infrastructure solutions:

NETIRAIL (EU funded project) aims to support society by improving the productivity and economic viability of rail transportation through intelligently tailored infrastructure solutions, linked with the business and financial case to evaluate the overall net benefit to society.

Among other objectives, **CAPACITY4RAIL** (EU funded project) aims to develop a transversal approach for infrastructure solutions for conventional mixed traffic and very high speed, integrated monitoring and power supply, reduced maintenance, new concept for highly reliable switches and crossings.

ARISCC (UIC project) focuses on an integrated management of weather and climate related natural hazards to improve railway infrastructure performance and avoid or minimize damage to railway infrastructure assets. It includes innovative good practices on natural hazard management under today's weather conditions and develops solutions and strategies to prepare for the changed climate and weather conditions of the future.

Coordinated by UIC, **FOSTER RAIL** (EU funded project) assists ERRAC in defining research needs in order to achieve the objectives of the ERRAC Roadmap 2050 strategy and further for a competitive and resource efficient future transport system. One of the ten technology roadmap for research and innovation developed by the project was dedicated to railway infrastructure.

Data for Innovation

In order to foster innovation in the field of railway infrastructure, it is essential to picture the current state of existing infrastructure. UIC collects and analyses on yearly basis data from railway infrastructure managers to undertake benchmarking, identify trends over time and gather best practices. In this prospect, UIC participates actively in the development of the **RailTopoModel** (UIC project) which is a logical

object model that has been designed to standardize the representation of railway infrastructure related data.

http://netirail.eu/
http://www.capacity4rail.eu/
http://www.ariscc.org/
http://www.errac.org/foster-rail/
http://www.railtopomodel.org/en/

Johan Marigny
UIC
marigny@uic.org

Aiscat Servizi

Aiscat Servizi is a consulting engineering company founded in 2005 as subsidiary of AISCAT, (the Italian Association of Toll Motorways and Tunnels Concessionaire Companies) with the aim of supporting the Associates, by providing added-values services in the fields of road engineering and transport economics.

Since its establishment, Aiscat Servizi provided its expertise to both national and international partners, by carrying out many assignments aimed at supporting private companies and public entities in improving management and operation policies of transport infrastructure.

It can take advantage from the largely recognised experience and expertise of AISCAT (www.aiscat.it) gained in 50 years of activity in the field of planning, design, construction, and daily operation and maintenance of toll motorways and tunnels.

It is also strongly connected with the IBTTA (www.ibtta.org), the International Bridge, Tunnel and Turnpike Association.

In this context, the Company develops research projects in the transport sector, providing properly tailored services with added value in:

- *Mobility & Infrastructure* (National Plans; Feasibility studies of motorway and multimodal systems; Traffic surveys and studies; Project Financing, and Concession Frameworks; Economic and Financial Plans of transport companies; etc.);
- *Transport Engineering* (Innovative processes and products for transport services; Development and management of programs to improve motorway service levels; Development and implementation of ITS; Research projects in road safety and maintenance; Analyses on road charging and toll systems; etc.);
- *Technical Assistance* (Capacity building of road entities; development of policies for promoting infrastructure investments; Technical and institutional support for legislative revision; Advising on preparation of PPP frameworks; Support during tender procedures and contract negotiations; Training activities; etc.)

Among our R&D activities, we can cite the IOP (InterOPerable) project regarding the tolling system in Italy.

That project will be able to integrate more than 20 different systems and technological equipment of the Italian concessionaires in a unique innovative ICT platform, which will manage data coming from the 5.900 km-long Highway Italian Network.

The Italian IOP Central System can indeed handle a big data ecosystem (traffic flows, financial data, real-time vehicle path information, cross-border enforcement) so as to effectively interact with each concessionaire company's ICT center.

The project includes the development, implementation, management and maintenance of an IOP "Central System" to record and manage big data along the interconnected motorway network, together with an integrated platform to share information in real time.

Federico Di Gennaro
AISCAT SERVIZI
federico.digennaro@aiscatservizi.com

DLR

DLR is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. DLR is also the umbrella organisation for the nation's largest project management agency. DLR has approximately 8000 employees at 16 locations in Germany.

Aeronautics research at DLR is based on the European Vision 2020 and its Strategic Research Agenda, agreed upon at the European level. As part of ACARE, DLR has been involved in the European aviation strategy process since the beginning including but not limited to contributions to Flightpath 2050 and the current Strategic Research and Innovation Agenda. The core research objectives are: greater performance capabilities of the air transport system, improvement of the cost-effectiveness of development and operations, reduction of airborne noise and noxious emissions and a better quality of air transport and flight safety. A key factor in this research agenda is the recognition of the paramount need for an integrated view of the air transport system.

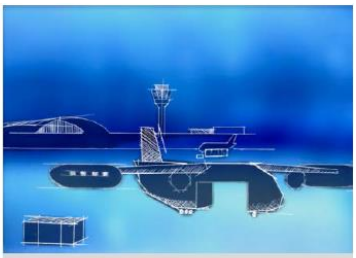
In order to reach the above mentioned goals, DLR aeronautics research is subdivided into the following programmatic areas: fixed-wing aircraft, rotary-wing aircraft, propulsion systems, air traffic management and flight experiments. These competence areas feed into six product oriented guidance concepts:

- Long-range Aircraft Short-range Aircraft,
- Unmanned Freight,
- SAR Helicopter 2030
- Efficient Air Transport
- Virtual Product.

In transport research the aim of DLR's work is to help devise meaningful solutions to relevant traffic problems that will also help to ensure the mobility of people and goods in the future, to protect the environment and natural resources, and to increase transport safety standards without losing sight of the need for cost-effectiveness. With these guidelines in mind, this research area invests its resources in the fields of terrestrial vehicles, traffic management, transport systems and systemic electromobility.


Long-range Aircraft


Short-range Aircraft


Unmanned Freight


SAR Helicopter 2030


Efficient Air Transport


Virtual Product

On the topic of transport infrastructures DLR is presently involved in many research projects, i.a.:

- PASSME: Personalised Airport Systems for Seamless Mobility and Experience, EU Horizon 2020
- UFO: Unmanned Freight Operations and Integration of UAV in the airspace infrastructure, DLR-internal+
- WW ATM: Worldwide Air Traffic Management in the airspace infrastructure, DLR-internal
- Optimode.net: Intermodal Traffic Management, DLR-internal
- Galileo: Research and operations for the European satellite navigation system as a global traffic infrastructure, EU

Because of its wide spread research related to transport infrastructures, DLR participated on October 26th at the REFINET-Workshop in Rome as a representative of ACARE, thereby joining the REFINET community for the first time.

Klaus Lütjens. DLR
Klaus.luetjens@dlr.de

Romanian Railways

The reform of the Romanian Railways started in 1998 through the institutional separation of the railway undertakings and infrastructure manager from the former SNCFR - the Romanian National Railways Society. The public Railway Infrastructure on the Romanian territory belongs to the Romanian State and is assigned in concession to the National Railway Company "CFR" SA in its capacity as Infrastructure Manager. The access to the Romanian Railway Infrastructure is granted in accordance with the legal regulations.

CFR-SA

"CFR" SA manages the second railways network in Central and East Europe by length of track. The UIC Statistics places the passenger traffic on the CFR network on the 8th place in the European Union and the freight traffic on the 10th place in the European Union. On the CFR network, operate both state-owned and private undertakings in the freight

and passenger transport. In 2015, CFR SA concluded railway infrastructure access contracts with 4 passenger undertakings, 21 freight undertakings and 3 mixed undertakings. The freight or passenger transport may be performed by Romanian and foreign railway undertakings which hold: - a railway transport license; - a Safety Certificate; - an access contract signed with CFR; - Train Paths allocated for the transport route.

CFR-SA is the railway Infrastructure manager of Romania. The State's public or private Railway Infrastructure includes the infrastructure that can be connected to the trans-European Railway Infrastructure as well as the infrastructure that cannot be connected to this, as follows:

- The Interoperable Railway Infrastructure;
- The Non-Interoperable Railway Infrastructure.

CFR-SA can rent to other legal entities parts of the public Non-Interoperable Railway Infrastructure to be managed with a view to organising the public freight and passenger transport.

At present, the rail transport is facing major challenges – an inter-modal competition with the road transport, an intra-modal competition at the level of the national and international routes, a loss of traffic that has occurred over the last 20 years. The amounts allocated from the State Budget are used to cover the public railway infrastructure investments, repairs, modernization and developments necessary for the performance of the projects of national importance ensuring Romania's integration in the European transport system.

CFR-SA must ensure the carrying-out of the railway traffic under safe conditions and perform the works in accordance with the European programmes of investments, rehabilitation and repairs.

The Ministry of Transport allocates through its annual budget, during the validity period of the Performance Contract, the funds from the State Budget, from foreign loans and from European grants necessary for performing the public railway infrastructure repairs and for preventing its technical degradation.

CFR-SA ensures on annual basis that its income covers the repair works on the privately owned railway infrastructures.

Connecting Europe Facility

The *Regulation 1316 of the Connecting Europe Facility (CEF)* aims to accelerate the investments in the trans-European networks, and to attract funding from both the public sector and the private one.

The concept of corridors of the core network is a tool facilitating the coordinated implementation of the core network, and defines the modernization priorities.

Romania is crossed by 2 railway corridors belonging to the core network, i.e. the Orient/East Med Corridor and the Rhine – Danube Corridor.

The railway infrastructure modernization projects are carried out on the northern branch of Corridor IV, part of the TEN-T core network and of the Rhine-Danube corridor, along the seven sections.

The stage of completion varies by date of contract signing and commencement of works. The most completed section is that on the Western border, whereas the last section on which the works began is Simeria - Vintu de Jos. The works comprise the modernization and construction of new embankments and railway superstructure, the construction of new tunnels, bridges and culverts, the

modernization of platforms, canopies, the provision of uneven pedestrian access to the platforms, the modernization of the electrification systems, the provision of electronic signalling systems, the implementation of ERTMS Level 2 and GSM-R communication system.

At present, CFR-SA's infrastructure development projects also focus on three main areas, namely:

A. Modernization of railway stations, which currently focuses on the completion of 15 stations situated in main cities.

B. Railway bridges, culverts and tunnels rehabilitation works …

C. Traffic safety projects.

In A area, the objective is represented by the rehabilitation and modernization of 15 railway stations: Giurgiu, Slatina, Piteşti, Râmnicu Vâlcea, Reşiţa Sud, Sfântu Gheorghe, Târgu Mureş, Vaslui, Botoşani, Piatra Neamţ, Bistriţa, Zalău, Brăila, Călăraşi, Slobozia

In C area, the projects aiming to increase the traffic safety are:

- Modernization of the electromechanic interlocking systems.
- Modernization of the level-crossings
- System for detecting hot axle boxes and blocked brakes

Over the last years, CFR-SA has proposed for PPP financing a Projects portfolio related, in general, to the intermodal transport. This Project Portofolio includes the following List of Projects:

- Modernization of the Gara de Nord railway station
- Connecting Gara de Nord Railway station with the main airport in Romania and the largest in Bucharest, the Henri Coanda Bucharest Airport
- Modernization of the Bucharest belt railway line;
- Construction of intermodal terminals in the locations set down in the new Intermodal Transport Strategy prepared by the Ministry of Transport.

Horizon 2020

Regarding the innovation and research in railway infrastructure sector and its European financing instruments for the current programming period 2014-2020, CFR-SA has been evaluating its capacity for entering into projects with roles such as an end-user for testing various solutions in Consortia of multi-national private and public partners especially focused on aspects of safety and security. CFR-SA would also be interested in pilot projects with new solutions which, if successful, could be applied by CFR-SA at a large scale.

CFR-SA has currently in implementation various technical assistance projects and has also daily collaborations with advisory services such as BEI / JASPERS and with technical assistance such as BEI/PASSA for the preparatory and implementation project management.

CFR-SA has been deemed eligible on various Horizon 2020 Axes on innovation and research such as: *a/ MG-9.1. Transport societal drivers1; b/ MG-8.4 a. Smart governance, Network resilience and Streamlined delivery of infrastructure Innovation; c/ MG-6.3. Common communication and navigation platforms for pan-European logistics applications* and others. CFR-SA found it challenging to comply with all the eligibility criteria especially difficult being guaranteeing the number of partner countries and sectors involved in creating the

capacity for such a large scale collaboration for project preparation and implementation.

Since the launch of the Horizon 2020 Program, CFR-SA services have consistently increased their database with national, European and international stakeholders interested in collaborating with CFR-SA on research and innovation projects.

Concomitantly, CFR- SA has been following the Call for proposals for CEF Innovation and for the Junker Plan/ EFSI 1.0 and 2.0 Funding to verify their capacity for multi-funding projects combining innovative solutions as project sub-actions (ERTMS).

Roxana Proca
The National Railways Company
Roxana.Proca@cfr.ro

COORDINATION WITH PROJECTS & NETWORKS

REFINET collaboration with ENCORD

On November 25th-26th, a Council Meeting of ENCORD was held at the Technical University Eindhoven in the Netherlands. The meeting host was the ENCORD member AutoDesk and the University facilitated the meeting venue.

The first day of the Council meeting was dedicated to some administrative issues plus a series of discussions among relevant themes for the future of construction. Among these subjects, the current status of the REFINET CSA in which DRAGADOS participates on behalf of ENCORD was debated.

The main topic for the day was about "The impact of digitalization in construction: Sharing views" and several speakers from organizations not belonging to ENCORD were invited.

During the day, different subjects related to the main theme topic were introduced by ENCORD members or the external invited speakers and discussed with the Council. It is worth mentioning that these subjects are in direct relation to the topics of interest within the REFINET CSA. Among these subjects there were the following:

- **The need to evaluate the future impact of Information and Communication Technologies in the construction sector and the built environment**. Two invited speakers from the Joint Research Centre, the European Commission's science and knowledge service, were attending the meeting and presented the subject. There was a further discussion with the Council members on this important issue and the potential collaboration between JRC and ENCORD
- **Open BIM – Creating a Universal Approach.** The Chief Executive of buildingSmart International was invited for this subject in which he presented the importance of universal digital standards among other issues. This has been a theme of long standing interest for ENCORD and the discussion followed about the leading role of ENCORD in this area.
- **Research work with a focus on Digital Construction.** For this subject, there was a presentation by the TNO research organization of The Netherlands in which the competence of the centre in digital construction technologies were presented, specifically in the areas of industrialization, BIM and robotics, and how this would impact the future of construction technology.
- **Innovation Strategy in the Construction Industry**. This was the last topic of the session and was introduced by Deloitte's Director Innovation Growth Services. The discussion centred around the construction innovation and potential for disruptive technologies, about the trends in technology and the challenges and opportunities for the sector. Finally, it was discussed how to achieve the vision and what are pragmatic pathways for building and construction companies to realizing it.

The second day of the Council meeting was dedicated to a tour to 3 different organisations carrying out research in the area of 3D printing for construction, namely the TU Eindhoven University, Cybe (3d Concrete printing) and MX3D (3D Steel printing).

Miguel Segarra
DRAGADOS
mjsegarra@dragados.com

FOX and USE-iT CSAs

Second USE-iT and FOX stakeholder workshop

The second USE-iT and FOX stakeholder meeting was held on Thursday 15th September at the Diamant Center in Brussels, Belgium for some 50 stakeholders. The morning session comprised of presentations from the project Consortuim about the projects, as well as from Cristina Marolda of the European Commission who outlined their Strategic Transport Research & Innovation Agenda (STRIA).

Thierry Goger, FEHRL Secretary General, gave a welcome and overview of the projects and each Work Package (WP) leader then outlined their transport concepts developed for the seven areas of Construction, Inspection, Maintenance, Recycling & Reuse, Energy & Carbon, Safety & Security and User Information.

After lunch and a briefing for the afternoon sessions by Project Officer, Migle Paliukaite, delegates spilt up into two parallel sessions where they could give their input to the work carried out within the seven technical areas. Each 90-minute session comprised of:

- Short introduction about the WP/poster by the moderator
- Input/feedback from the experts about the challenges and research areas
- Funding allocation: each participant received 10 dots and need to determine which research areas should be prioritised.
- Brainstorming in groups of 2-3 people about how to put research into practice "From implementation to the main goal"
- Wrap up of the session

Five REFINET partners attended this workshop in order to improve the interaction between the partners of REFINET, FOX and USE-iT CSAs.

Second USE-iT and FOX webinar on 8th December

Click here for the upcoming second FOX and USE-iT Webinar on 8th December 2016 from 14:00-15:00 (CET), which aims to brief key stakeholders on the progress of FOX and USE-iT projects, the state-of-the-art and what was presented at the second Stakeholders Workshop on 15th September 2016 (also read more about this below). This link also provides details of the agenda .

The first webinar was held on 30th June to cascade the information given at the invited session at TRA 2016 in Warsaw on "*Increasing the Performance of Multimodal Transport Infrastructure through stakeholder engagement and European-wide shared vision*". Click here for more details.

Catherine Brickner. FEHRL

catherine.birkner@fehrl.org

NEWS

Evaluating the Connecting Europe Facility – Commission launches open consultation

The European Commission has launched a public consultation as part of its mid-term evaluation of the Connecting Europe Facility (CEF).

The CEF is a unique European funding programme set up to support the development of high-performing, sustainable and efficient interconnected trans-European networks in energy, telecommunications and transport.

The CEF – which makes €30.4 billion available in grants and financial instruments – aims to contribute to the achievement of the Europe 2020 strategy, by boosting investments to stimulate smart, sustainable and inclusive growth. It also aims to enable the European Union to reach its sustainable development targets by 2020.

Nearly three years after its launch in January 2014, the CEF will be evaluated for its relevance, effectiveness, efficiency, coherence and EU added value in achieving its objectives.

A key element of this evaluation is a consultation open to the public which will not only help to assess the various aspects of the programme, but also shape its future. The survey addresses both the general objectives of the CEF as well as the specific objectives set for each of its three sectors. The public consultation will close on 27 February 2017.

Link to the CEF public consultation https://ec.europa.eu/inea/en/connecting-europe-facility/cef-mid-term-evaluation

Source TRIP

SHIFT2RAIL grant agreement 2105/2016 and call for proposals 2017

The Shift2Rail Joint Undertaking (S2R JU) is delighted to announce that the last grant agreement related to 2015/2016 calls has been signed. All projects are now operational and working together towards delivering innovative solutions.

In June 2016, following two open calls for proposals, the S2R JU has awarded 27 grants.

The level of response to the call for proposals has been high; thanks to the commitment of all parties involved, the grant agreement process was conducted in the most effective manner to allow projects to kick-off rapidly. It is important to see these projects as an integrated component of the unique S2R Programme (the MAAP). “Together with its Members and stakeholders, the JU will ensure that projects will work jointly, in a spirit of strong collaboration, to leverage results and resources available”, confirms Carlo Borghini, Executive Director or the S2R JU1.

The 27 S2R JU Other Members submitted project proposals to cover all 13 call topics open to them. The value of activities to be performed by the S2R JU Other Members during the next three years, amount to 142 M€ that will be co-funded by the S2R JU up to 63 M€. These projects, which started on 1 September are well on their ramp up phase.

The applicants o the Open call for proposals for non-JU Members covered 14 out of 15 topics open to them. The value of the activities to be performed by the awarded consortia amount to 25M€ and will be financed by the S2R JU up to 100% of the eligible costs. These projects have started between 1 October and 1 November 2016.

With its first calls for proposal the S2R JU launched 167 M€ of complementary R&I activities and plan to grant 88 M€ for their completion. A total of 454 participants applied to the different topics available under both the open calls and the calls designated for Members, of which 25% are SMEs. In the open calls funded projects only, more than 30% of the participants are SMEs.

Shift2Rail is the first European railway Public Private Partnership tasked with developing strategically-focused research and innovation (R&I) and market-driven solutions, integrating these to create the railway system of the future. With a total value of 920M€ for the period 2014-2020, Shift2Rail is promoting the competitiveness of the European rail industry and ensuring the attractiveness of rail as a safe and sustainable low carbon transport mode. S2R JU is expected to meet the changing transport/mobility needs of EU citizens and the economy.

The Shift2Rail initiative successfully started over a year ago with the kick-off of four "lighthouse" projects with 52M€ of research paving the way for the main programme.

In addition, since the beginning of 2016, the S2R JU members have been able to implement additional activities in support of the S2R JU work programme, which will add leverage and driving force to the Shift2Rail initiative.

Additionally, The Shift2Rail Joint Undertaking has announced the **Information Day – Open Calls for Proposals 2017:**

Date – 17 January 2017 from 10:00 to 17:00

Venue – Auditorium of the Royal Flemish Academy of Science and Arts in Brussels

The registrations for the Information Day will open soon.

Please note that places are limited due to logistics constraints. We will confirm your participation by email after the closing date for registrations which will grant you access to the event.

It will be possible to submit proposals to the Call as from **10 January until 30 March 2017 (17:00 Brussels time)**.

Full details of the Shift2Rail Call for Proposals are available through the S2R website or the H2020 portal.

For your information, here are indicative dates of Shift2Rail Regional Information Days (subject to confirmation):

- 2 December 2016 – Paris
- 13 December 2016 – Brno
- 24 January 2017 – Athens

Source SHIFT2RAIL

Transport Scoreboard 2016: the EU at work to strengthen the internal market

The European Commission has published the 2016 edition of the "EU Transport Scoreboard", a benchmark which compares how Member States perform in 30 categories covering all aspects of transport.

The objective of the Scoreboard is to help Member States identify areas requiring priority investment and action. It shows how the EU further deepens the internal market in transport and promotes the shift towards low-emission mobility, two priorities of the Juncker Commission.

EU Commissioner for Transport Violeta Bulc said: ”My objective is to have a high quality, decarbonised, fully integrated and efficient transport system”. The scoreboard serves as a road sign on this journey, pointing the way and indicating the distance still to be covered. It is a useful tool for us, for Member States, and for stakeholders, to identify where we do well and where further investment and actions are needed. It is particularly encouraging to see that the efforts of this Commission to bridge the investment gap in the transport sector are starting to bear fruit."

The Netherlands tops the Scoreboard for the third year running with high scores in 15 categories, followed by Sweden, Germany and Austria. While they have different strengths, they all share a solid framework for investment, good transport safety scores, and a good record of implementing EU law.

The main findings:

Low emission mobility

There is progress across the EU towards more sustainable and environmentally friendly mobility (for example in the share of renewable energy for transport and in the number of new cars using alternative fuels). However, levels are still low and the fact that some Member States are clear front-runners shows the potential to accelerate the shift towards low-emission mobility. To this end, the Commission adopted a European Strategy for low-emission mobility in July 2016

Infrastructure

Investment in transport infrastructure takes time to show effects. However, some positive effects of investment can be seen in the perceived quality of transport infrastructure. This will become more pronounced in the coming years with additional investment, especially through the Connecting Europe Facility and the Commission's Investment Plan for Europe

The Scoreboard brings together data from a variety of public sources (such as Eurostat, the European Environment Agency and the World Economic Forum). It can be consulted either by country or by topic (Internal Market, Investment and Infrastructure, Energy Union and Innovation, People).

The scoreboard is available at http://ec.europa.eu/transport/facts-fundings/news/2016-10-27-transport-scoreboard-2016-eu-work-strengthen-internal-market_en

Source TRIP