



XX Asamblea de la Plataforma Tecnológica Ferroviaria Española

Madrid, 11 de noviembre de 2025

Tejiendo la red del conocimiento ferroviario europeo: Academics4Rail

Europe's Rail Joint Undertaking

Mluisa Mtz Muneta luisa.mtzmuneta@upm.es

Javier Gómez Fernández jgomezf@upm.es

UNIVERSIDAD POLITECNICA DE MADRID



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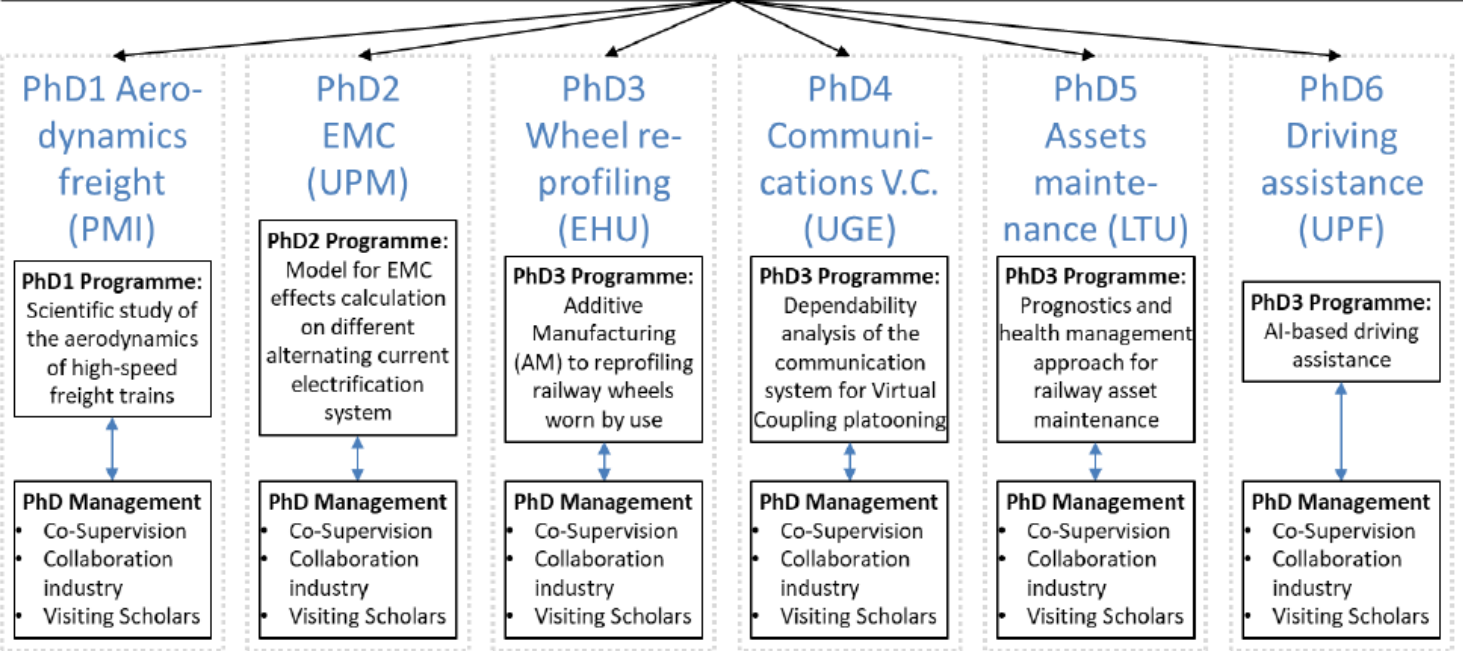
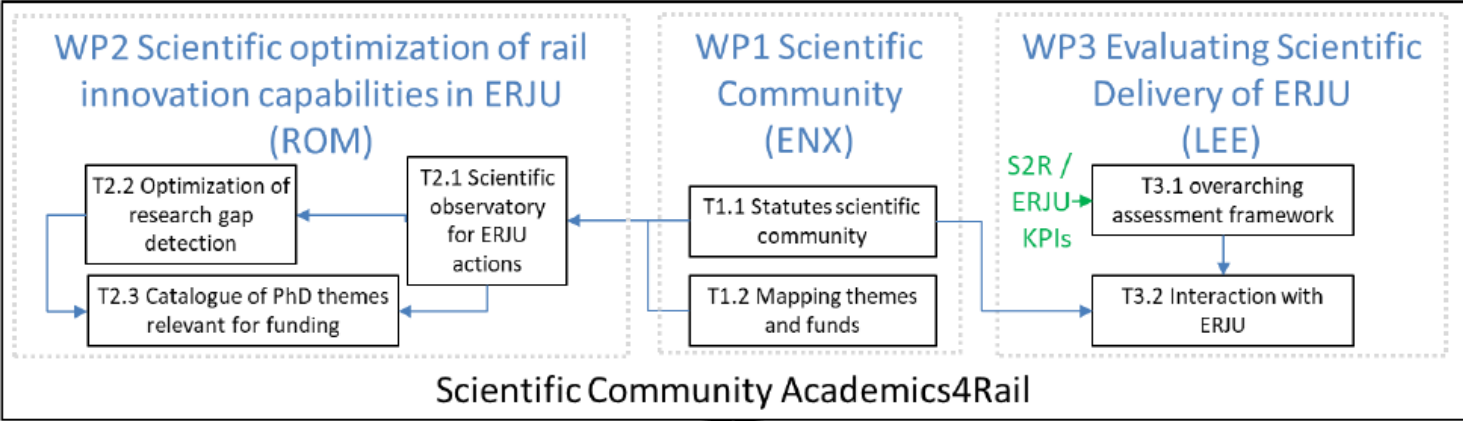


20 años

CONTENIDOS

- Sobre Academics4Rail
- WP3
- WP5
- Preguntas

Sobre Academics4rail



Sigla	Nombre Legal	País
ENX	EURNEX e. V.	DE
UGE	UNIVERSITE GUSTAVE EIFFEL	FR
BUT	VYSOKÉ UCENÍ TECHNICKÉ V BRNĚ	CZ
ZAG	ZAVOD ZA GRADBENISTVO SLOVENIJE	SI
PAR	UNIVERZITA PARDUBICE	CZ
VG TU	VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETAS	LT
LTU	LULEA TEKNISKA UNIVERSITET	SE
ROM	UNIVERSITA DEGLI STUDI DI ROMA LA SAPIENZA	IT
ZIL	ZILINSKA UNIVERZITA V ZILINE	SK
CERTH	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXI	EL
UPM	UNIVERSIDAD POLITECNICA DE MADRID	ES
EHU	UNIVERSIDAD DEL PAIS VASCO/ EUSKAL HERRIKO UNIBERT	ES
UPhF	UNIVERSITE POLYTECHNIQUE HAUTS-DE-FRANCE	FR
KTH	KUNGLIGA TEKNISKA HOEGSKOLAN	SE
TUB	TECHNISCHE UNIVERSITAT BERLIN	DE
PMI	POLITECNICO DI MILANO	IT
UNIGE	UNIVERSITA DEGLI STUDI DI GENOVA	IT
DLR	DEUTSCHES ZENTRUM FUR LUFT - UND RAUMFAHRT EV	DE
RLN	RAILENIUM	FR

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Sep 2023

3,5 años

No.	WP/Task Title	Lead	From	To	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
WP1	Rail excellence scientific community for ERJU	ENX	M1	M6		MS1												
Task 1.1	Continuous process for the construction of a European rail excellence scientific community	ENX	M1	M6		D1.1												
Task 1.2	Mapping European (incl. National) rail research themes and funds	CERT H	M1	M6		D1.2												
WP2	Scientific optimisation of rail innovation capabilities in ERJU	ROM	M1	M20														
Task 2.1	Scientific observatory for the ERJU actions	ROM	M1	M12				D2.1										
Task 2.2	Optimization of research gap detection	KTH	M10	M20							D2.2							
Task 2.3	Catalogue of PhD topics relevant for funding	HUD	M12	M20							D2.3							
WP3	Evaluating Scientific Delivery of ERJU in the Context of the European Green Deal	LEE	M1	M36				MS4										
Task 3.1	Development of an overarching assessment framework	LEE	M1	M36				dD3.1	D3.1		D3.2							
Task 3.2	Interaction with ERJU	LEE	M1	M36												D3.3		
WP4	PhD1 Scientific study of the aerodynamics of high-speed freight trains	PMI	M1	M42		MS2						MS3						
Task 4.1	PhD1 Programme: Scientific study of the aerodynamics of high-speed freight trains	PMI	M1	M39								D4.1						D4.1
Task 4.2	PhD1 Management	PMI	M1	M42														D4.2
WP5	PhD2 Model for EMC effects calculation on different alternating current electrification system	UPM	M1	M42		MS2						MS3						
Task 5.1	PhD2 Programme: EMC	UPM	M1	M42								D5.1						D5.1
Task 5.2	PhD2 Management	UPM	M1	M42														D5.2
WP6	PhD3 Additive Manufacturing (AM) to reprofiling railway wheels worn by use	EHU	M1	M42		MS2						MS3						
Task 6.1	PhD3 Programme: Additive Manufacturing (AM) to reprofiling railway wheels worn by use	EHU	M1	M42								D6.1						D6.1
Task 6.2	PhD3 Management	EHU	M1	M42														D462
WP7	PhD4 Digital communications for virtual coupling	UGE	M1	M42		MS2						MS3						
Task 7.1	PhD4 Programme: Dependability analysis of the wireless communication system for Virtual coupling of automatic trains – The case of platooning	UGE	M1	M42								D7.1						D7.1
Task 7.2	PhD4 Management	UGE	M1	M42														D7.2
WP8	PhD5 Prognostics and health management approach for railway asset maintenance	LTU	M1	M42		MS2						MS3						
Task 8.1	PhD5 Programme: Prognostics and health management approach for railway asset maintenance	LTU	M1	M42								D8.1						D8.1
Task 8.2	PhD5 Management	LTU	M1	M42														D8.2
WP9	PhD 6 Driving Assistance	UPF	M1	M42		MS2						MS3						
Task 9.1	PhD6 Programme: Driving Assistance	UPF	M1	M42								D9.1						D9.1
Task 9.2	PhD6 Management	UPF	M1	M42														D9.2
WP10	Dissemination and Management	ENX	M1	M42														
Task 10.1	Development of the Plan for Exploitation and Dissemination of Results (PEDR)	ENX	M1	M6		D10.1												
Task 10.2	Project Communication and Dissemination activities	ENX	M1	M42														D10.4
Task 10.3	Financial and administrative project management	ENX	M1	M42	D10.3													
Task 10.4	Project monitoring and risk assessment	ENX	M1	M42	D10.2													



MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES



Fundación de los FERROCARRILES Españoles



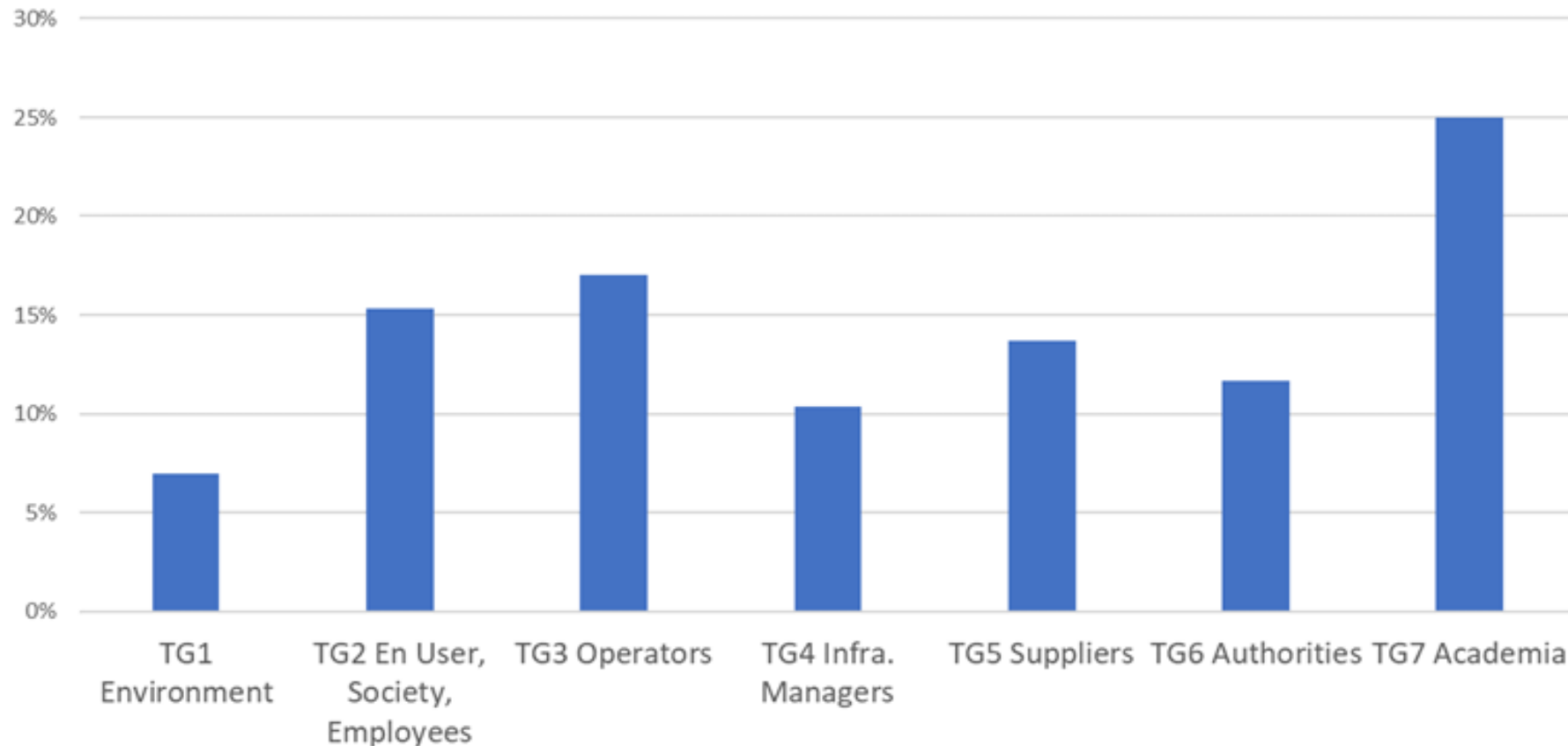
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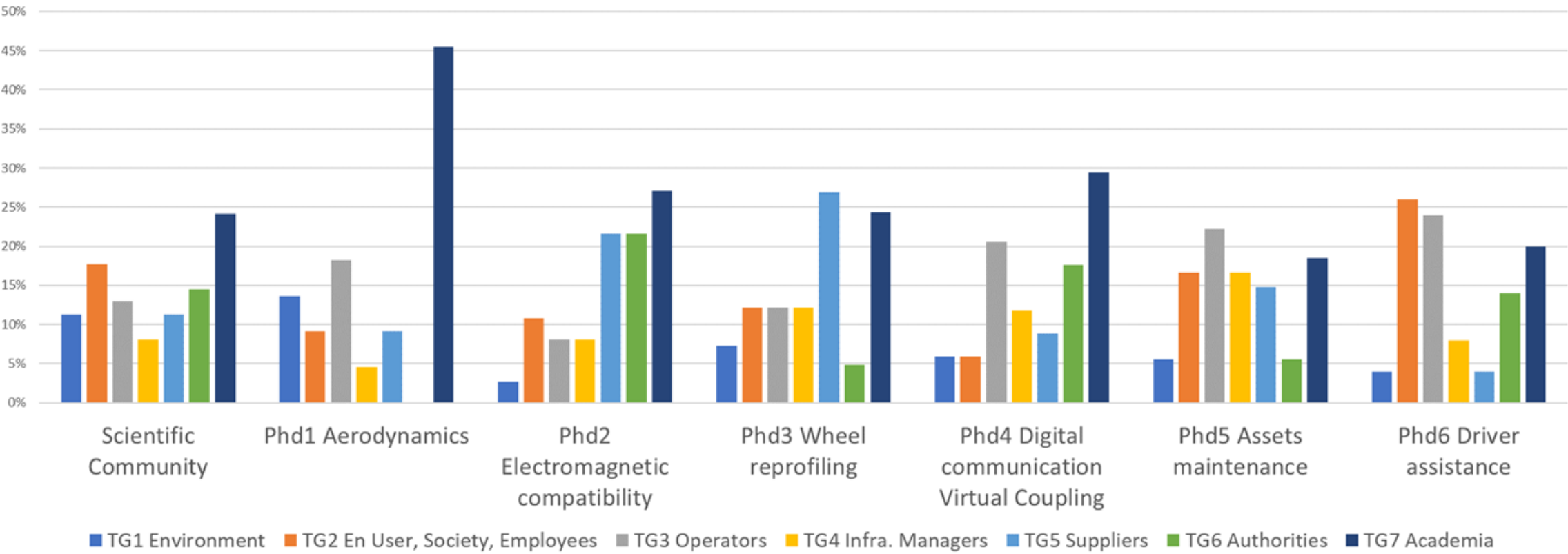
PTR2024-002890

25 años

Relative benefit of Academics4Rail among stakeholders



Relative impacts of each outcome per target group



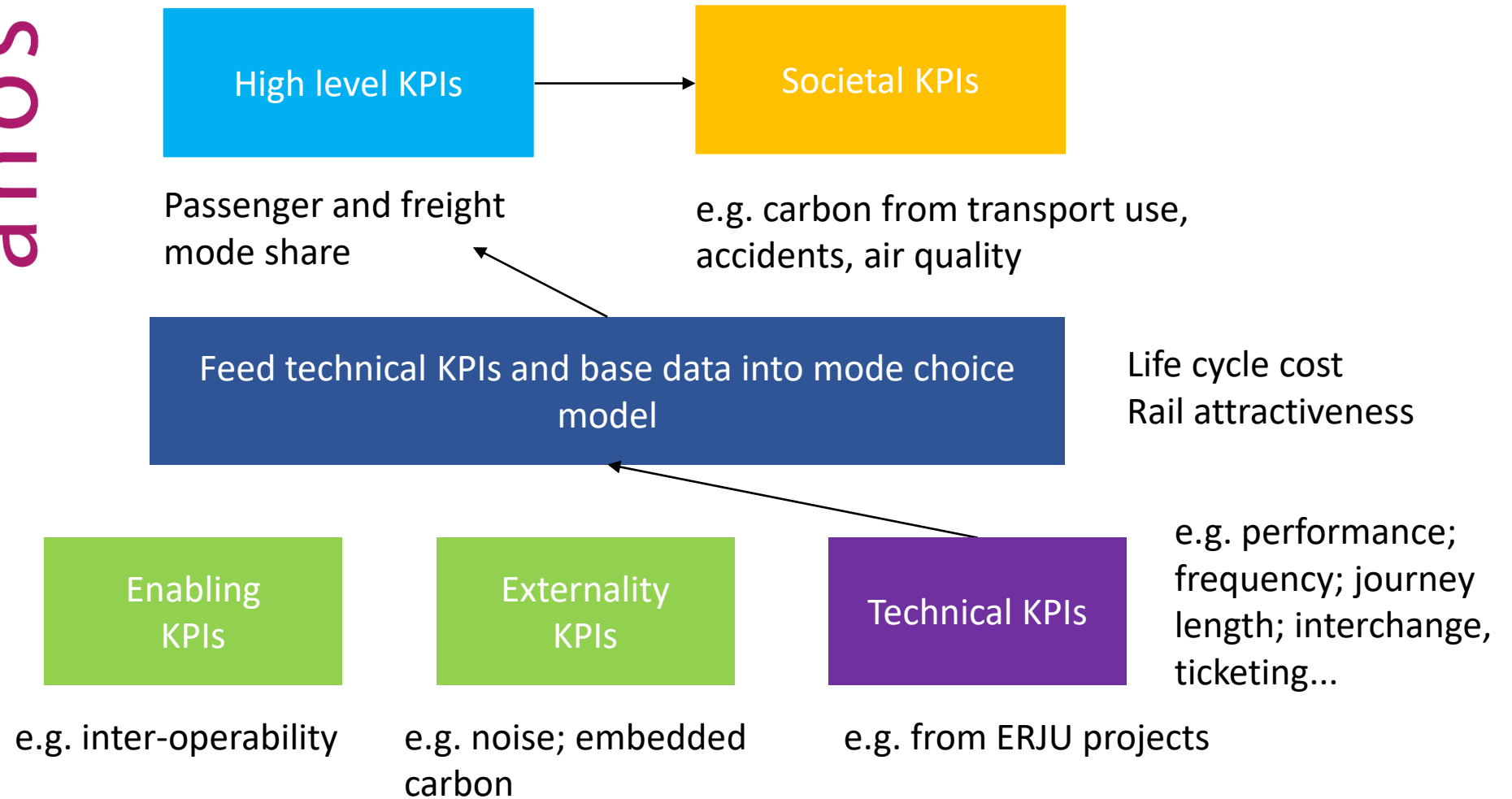
Objetivos de Academics4Rail WP3



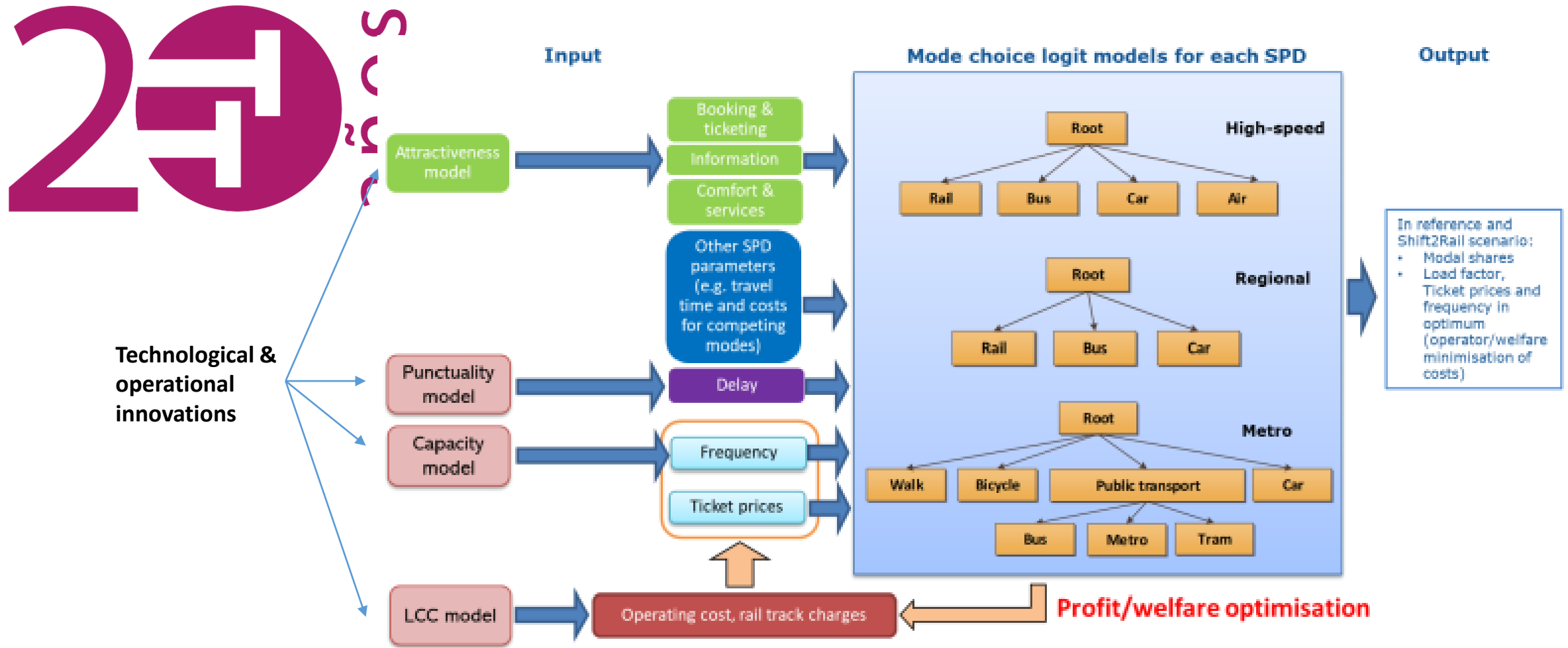
1. **Desarrollar un marco integral de evaluación** que respalde una metodología de evaluación basada en la evidencia, fundamentada en un conjunto multinivel de indicadores clave de rendimiento (KPI), para evaluar cómo las actividades de ERJU están cumpliendo con sus metas y objetivos.
2. A través de la interacción con ERJU durante el desarrollo del proyecto, proporcionar evidencia sobre **cómo estos KPI y el marco general pueden incorporarse en las convocatorias de financiación** y el programa de investigación global (Pilares de Sistemas e Innovación y la investigación exploratoria) para hacer **seguimiento del progreso de los proyectos de la UE en curso y ayudar a orientar la investigación hacia el cumplimiento de los objetivos de ERJU.**
3. Comprender mejor **las barreras y los factores que facilitan la implementación de innovaciones** técnicas ferroviarias. Este objetivo es importante porque la implementación es el propósito final de la investigación de ERJU y porque puede ayudar a seleccionar los KPI correctos

Desarrollo del marco de trabajo

25 años



Mode Choice Modelling - IMPACT studies/Ernst & Young





Technical KPIs – Datos

INFORMACION INICIAL

- Procedente de los diferentes KPIs de cada flagship area de acuerdo con ERJU's Multi-Annual Work Programme (MAWP)

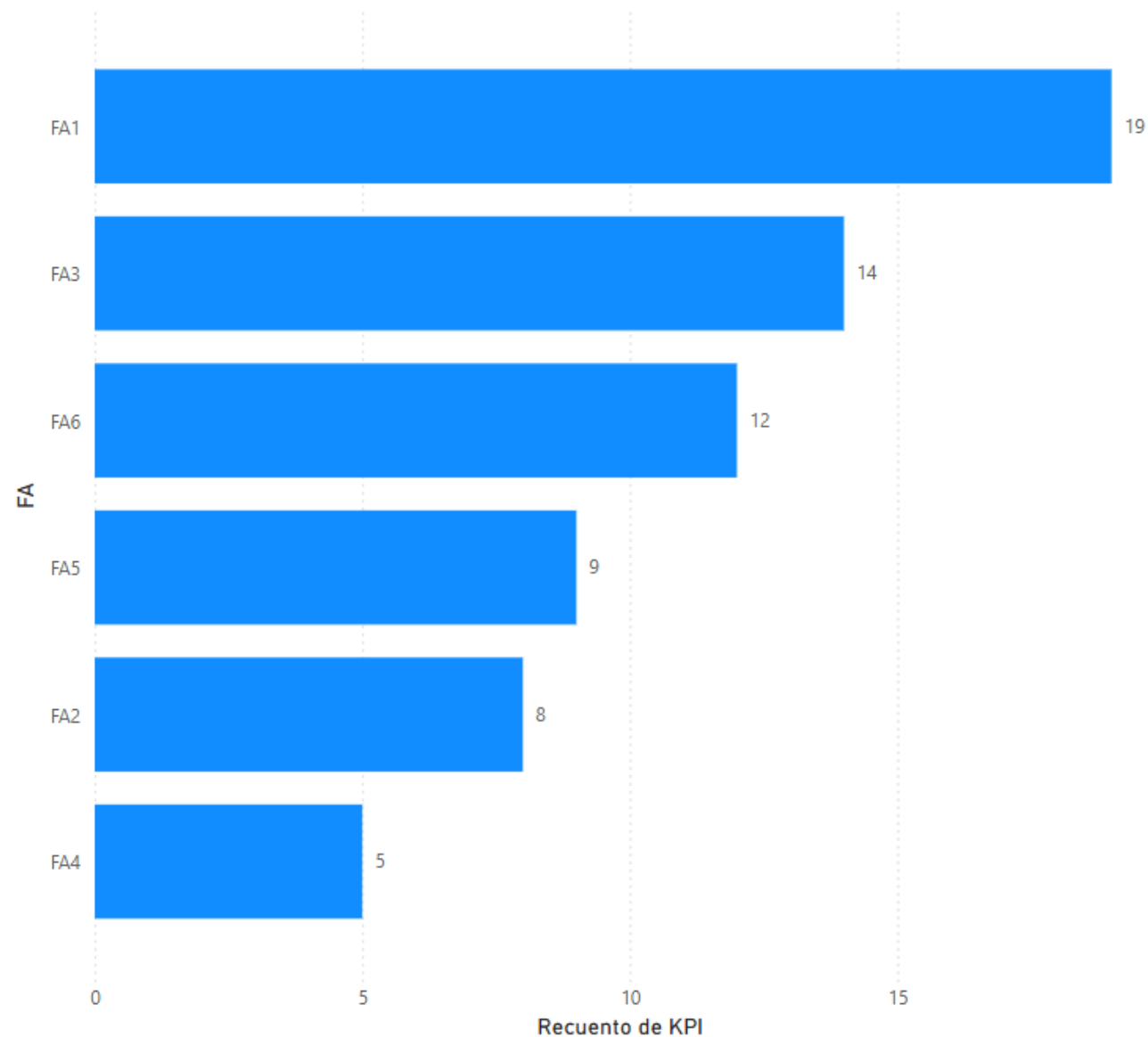
INFORMACIÓN DESEADA PARA CADA FLAGSHIP AREA

- Lista actualizada de KPIs incluyendo su definición y unidades
- Target para cada KPI (por ejemplo mejora en X%)
- % de mejora prevista por el Proyecto así como la línea de tiempo para implementarla
- Estructura o forma de los datos y cuando será obtenida
- Reuniones con las diferentes Flagship Areas para conocer los datos, modos de cálculo, problemas encontrados, etc

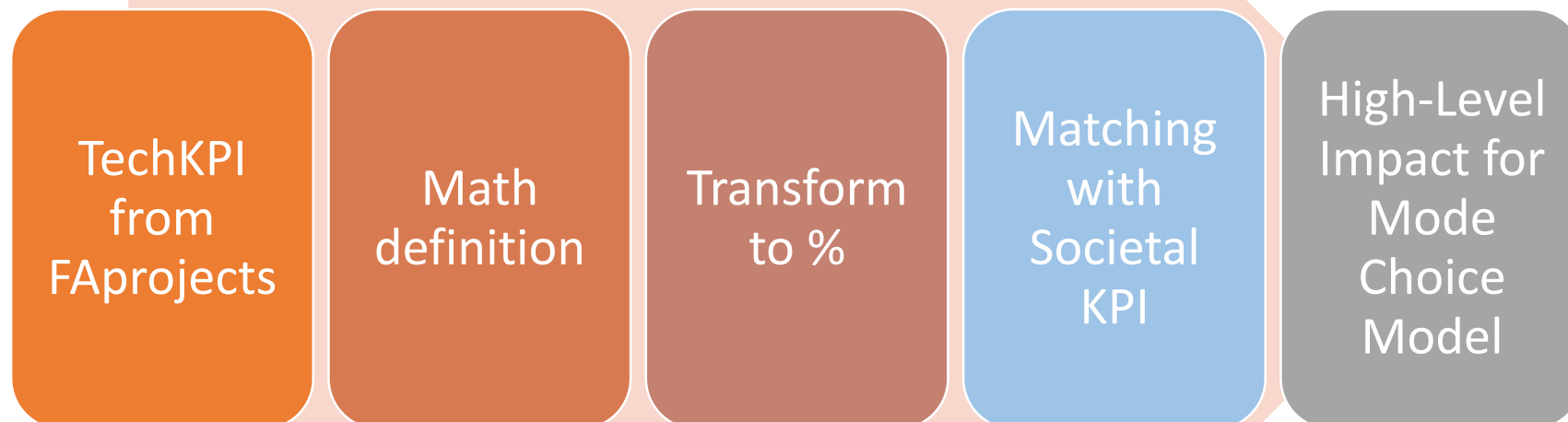
20 años

68 KPI de FA

Recuento de KPI por FA

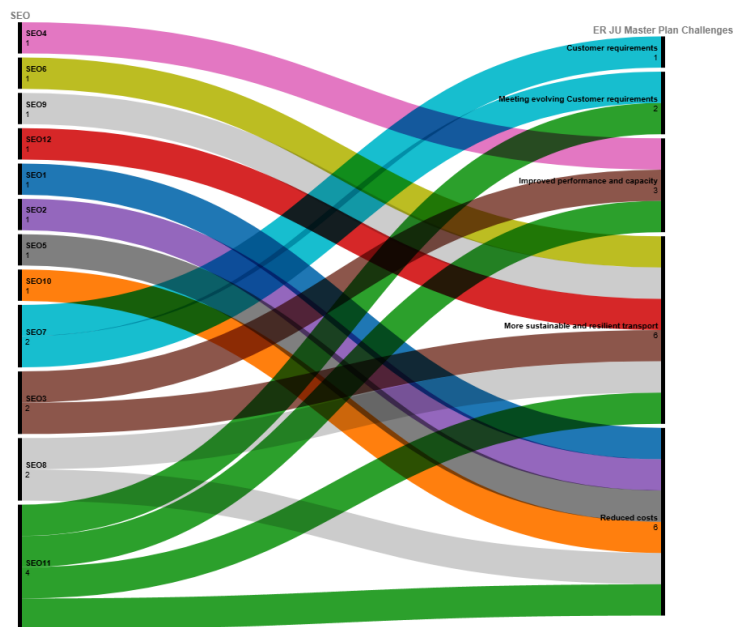


25 años



25 años

TechKPI from FAprojects



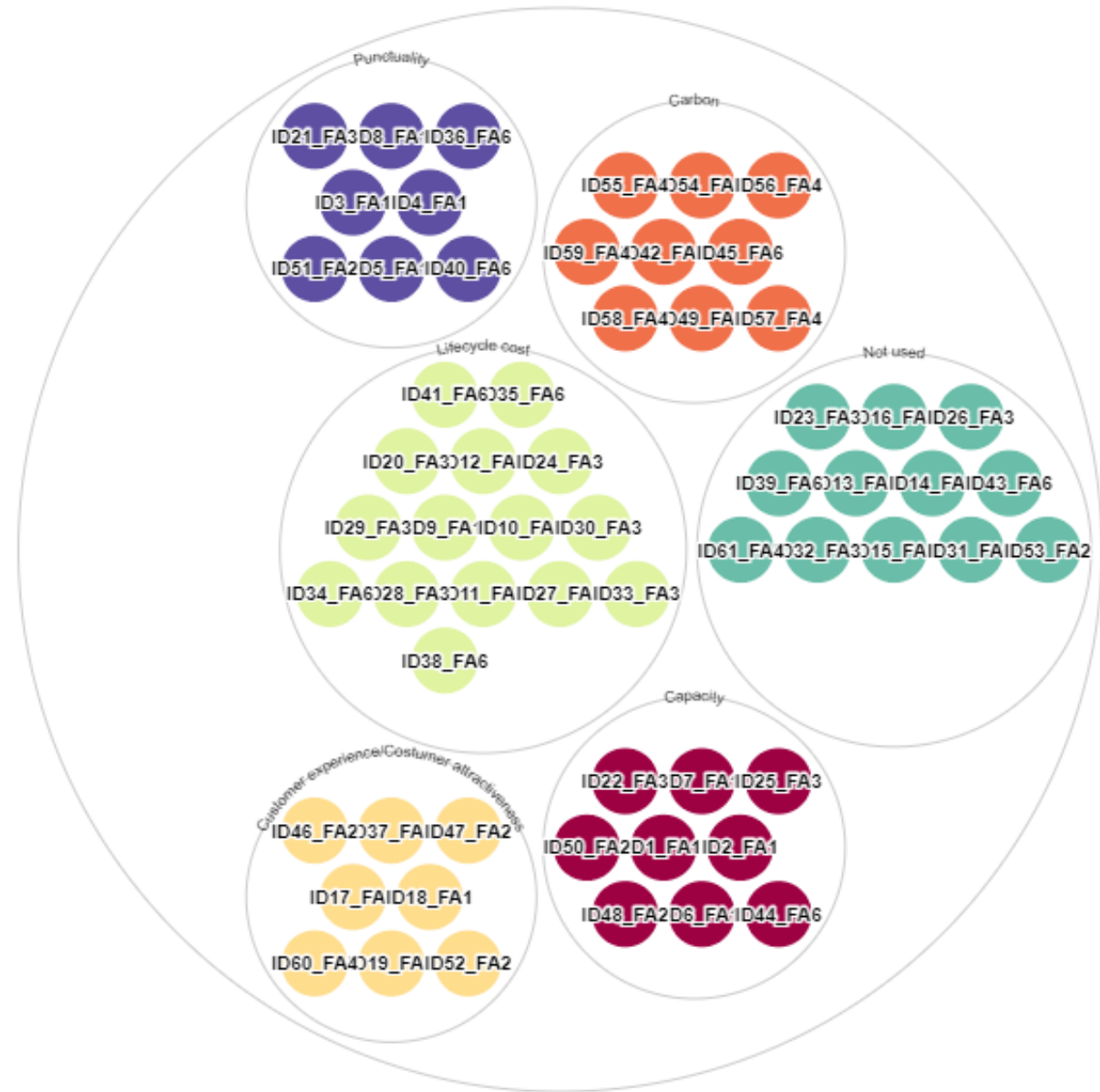
- Se han realizado reuniones con los coordinadores y participantes de los diferentes FA Projects (para entender su modelo de KPIs)
- Todos ellos han hecho su relación con MAAP_KPI
- Algunos además han hecho la relación con los indicadores diseñados por EY pero de una forma cualitativa
- La mayoría de los KPI de los FAProjects KPI se presentan como % (mejoras o reducciones respect de un escenario de referencia). Algunas son cuantitativas y otras son opinions de un experto.

A	ID	ID_KP	KPI	Definition	Units	Threshold	SKPI	Formulae
A1	ID4	ID4_FA1	Prediction Quality as the basis for decision quality in Traffic Management:		min	percent of the predicted timing shall not deviate from the actual more than 5 minutes	Punctuality	
A1	ID5	ID5_FA1	Prediction performance as the basis for in-time decision making in Traffic Management:		sec	Less than 120 seconds in a typical set of 100 trains running in a 2h interval ahead of actual time	Punctuality	$\sum_{i=1}^{100} (ObtainedRunningTime_i - ActualRunningTime_i)$
A1	ID6	ID6_FA1	ATO Journey Profile provision cycle time		sec	down to 30 secs	Capacity	?????
A1	ID7	ID7_FA1	Achieve 50% precision in the average forecast 1 week in advance; Achieve 65% precision in the forecast at 1 hour.		%	Achieve 50% precision in the average forecast 1 week in advance; Achieve 65% precision in the forecast at 1 hour.	Capacity	$\sum_{i=1}^7 \left(\frac{NumberTrains \times ObtainedRunningTime_i - NumberTrains \times ActualRunningTime_i}{NumberTrains \times ActualRunningTime_i} \right)$
A1	ID8	ID8_FA1	Achieve 60% reaching planned travel time of passengers. Improvement of the matching of demand with supply.		%	Achieve 60% reaching planned travel time of passengers.	Punctuality	Time threshold??? Perday, week, year
						Track assets as the rails, frogs, tongues or switch		$\frac{NumberofVirtualInfrastructureInspectionFinal - NumberofVirtualInfrastructureInspectionInit}{NumberofVirtualInfrastructureInspectionInit}$

25 años

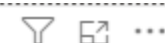
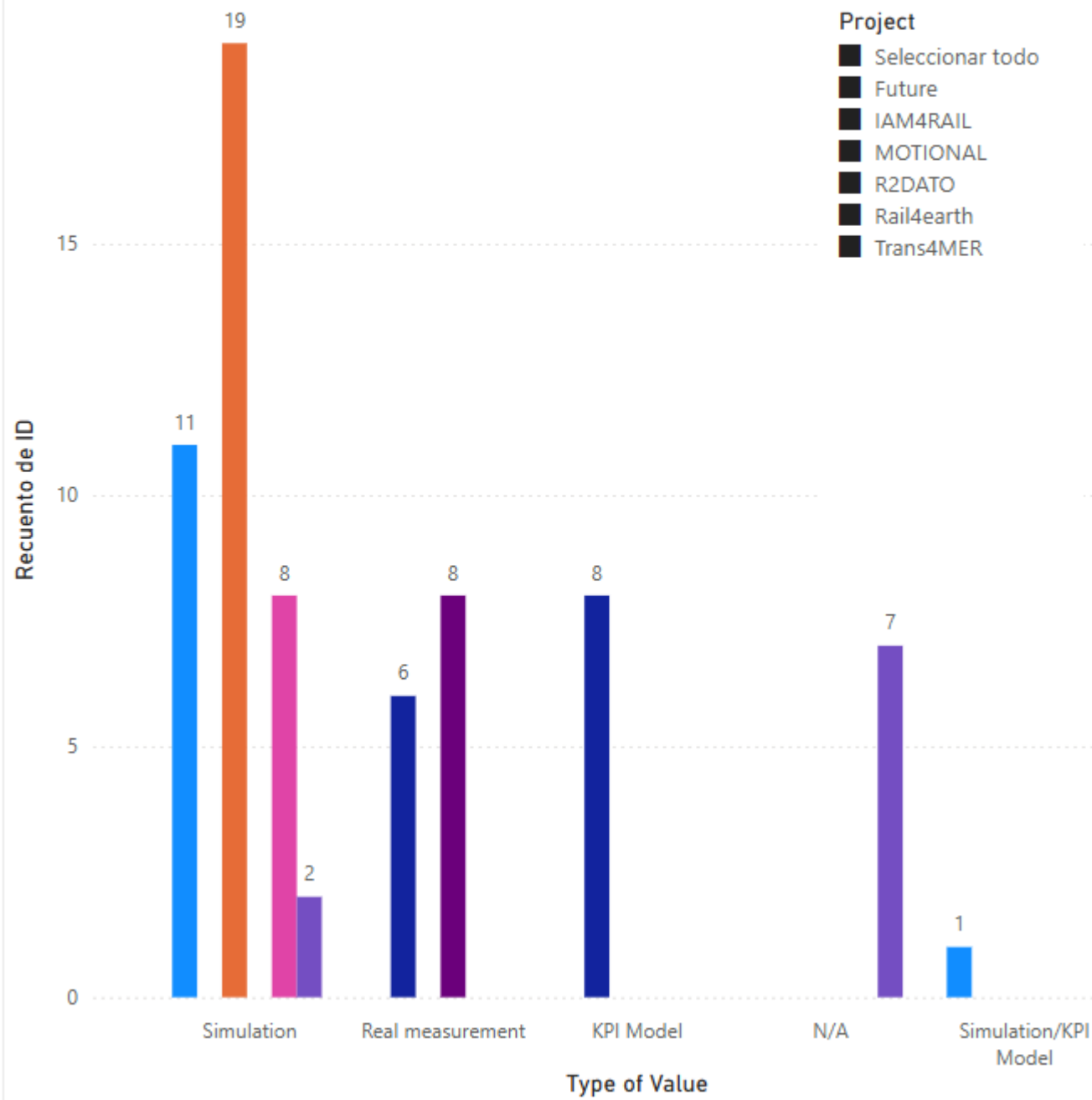
Documentación referente al WP3

- D 3.1 - Assessment Framework of ERJU (final Diciembre 2024)
- D 3.2 - Final Assessment Framework of ERJU (Julio 2025)
- D 3.3 - Barriers and enablers of implementation of rail technical innovations (Septiembre 2026)



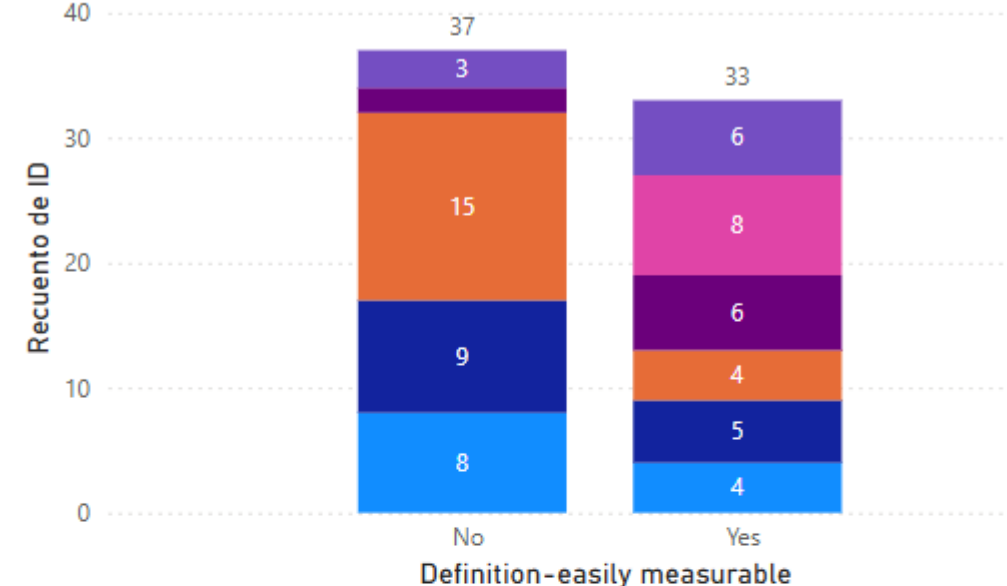
Recuento de ID por Type of Value y Project

Project ● Future ● IAM4RAIL ● MOTIONAL ● R2DATO ● Rail4earth ● Trans4MER



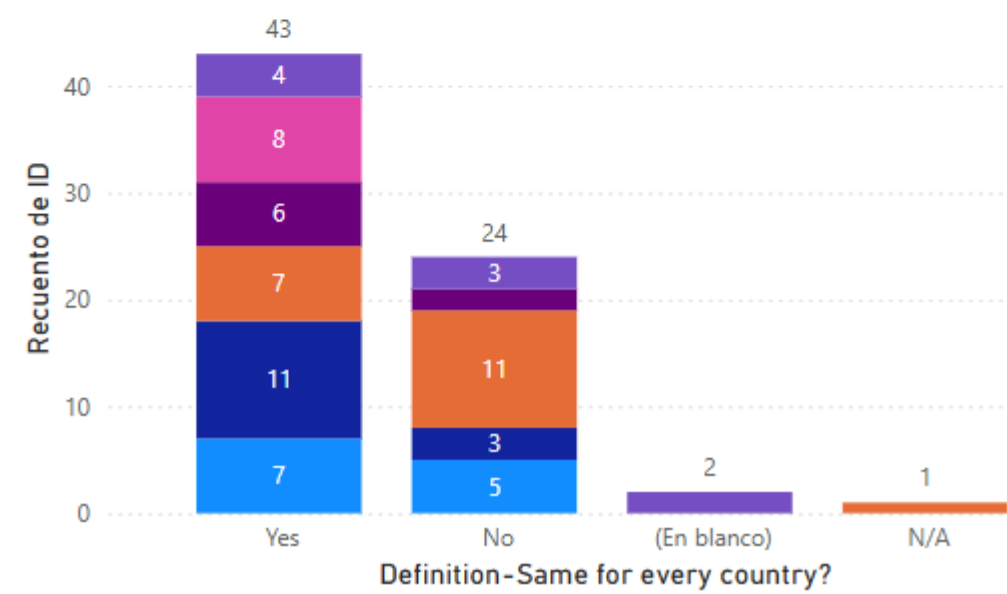
Recuento de ID por Definition-easily measurable y Project

Project ● Future ● IAM4RAIL ● MOTIONAL ● R2DATO ● Rail4earth ● Trans4MER



Recuento de ID por Definition-Same for every country? y Project

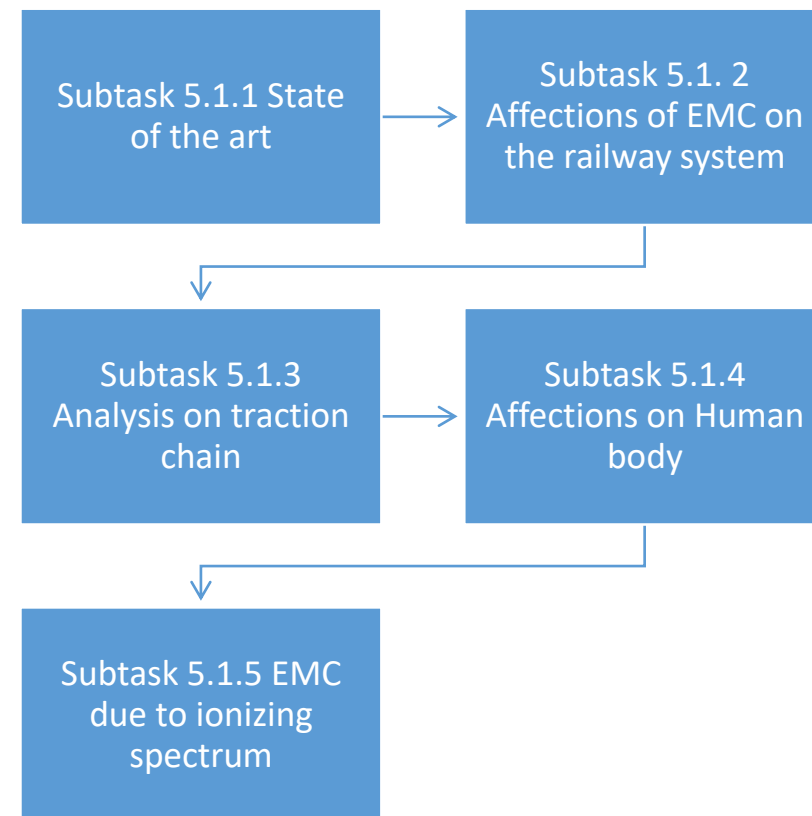
Project ● Future ● IAM4RAIL ● MOTIONAL ● R2DATO ● Rail4earth ● Trans4MER





WP5:PhD2 Model for EMC effects calculation on different alternating current electrification system

- Afecciones del campo electromagnético sobre otros sistemas.
- Análisis de las afecciones y efectos electromagnéticos sobre la tracción.
- Afección electromagnética sobre el cuerpo humano.
- Emisiones debidas al espectro ionizante sobre los sistemas de radio y comunicación.
- Objetivo principal: modelo para el cálculo de los efectos de la compatibilidad electromagnética en diferentes sistemas de electrificación de corriente alterna.



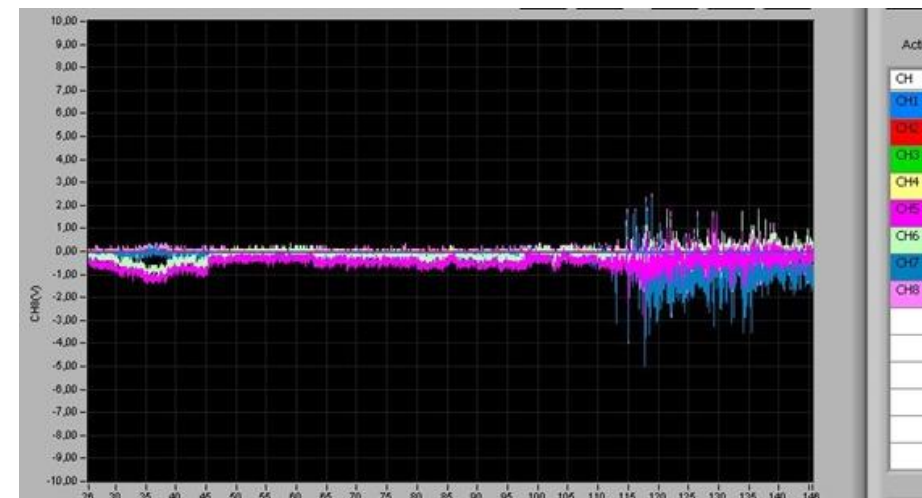
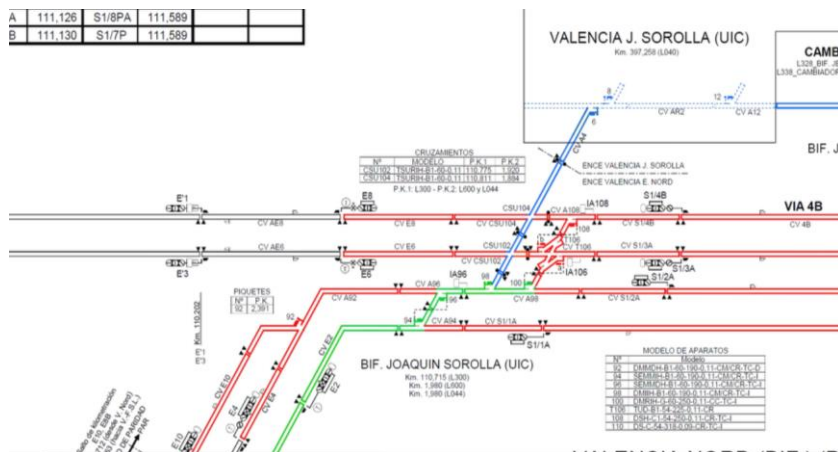
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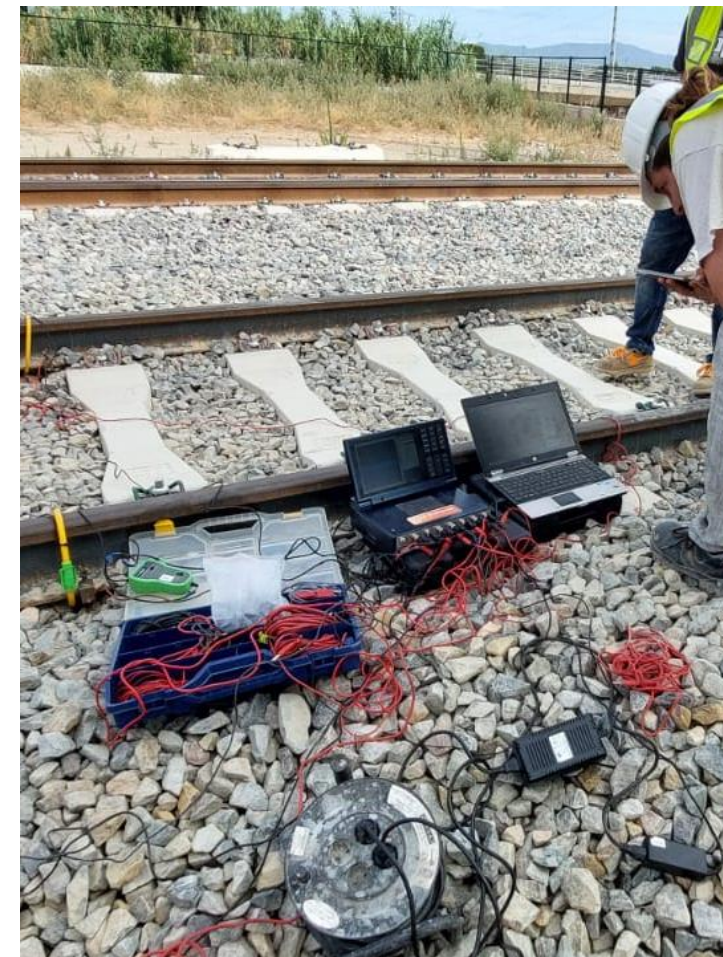
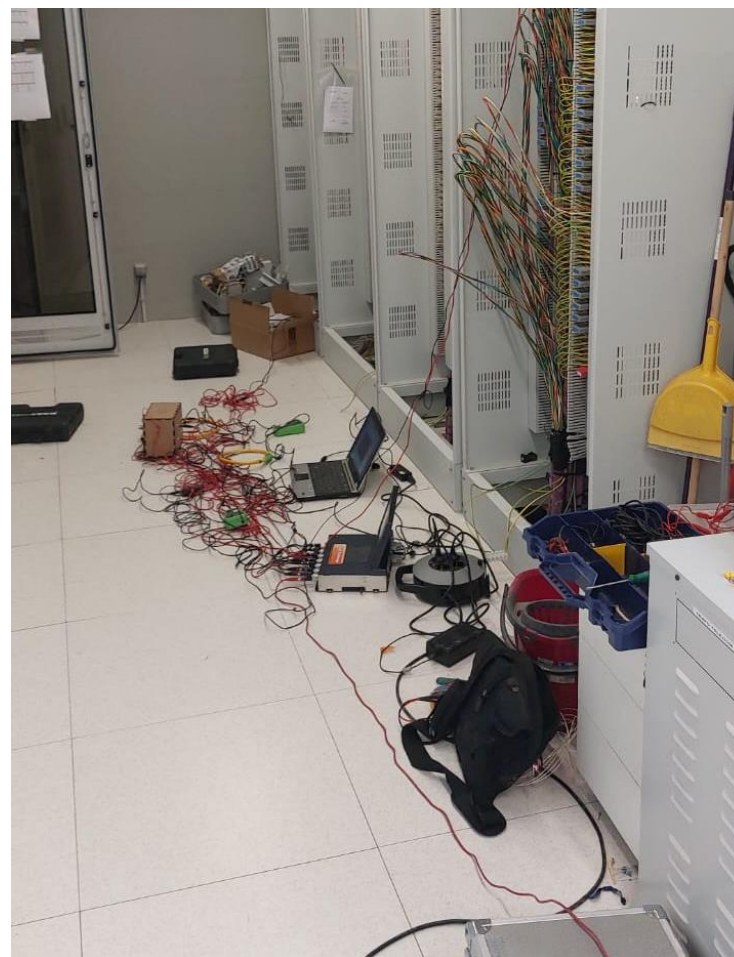
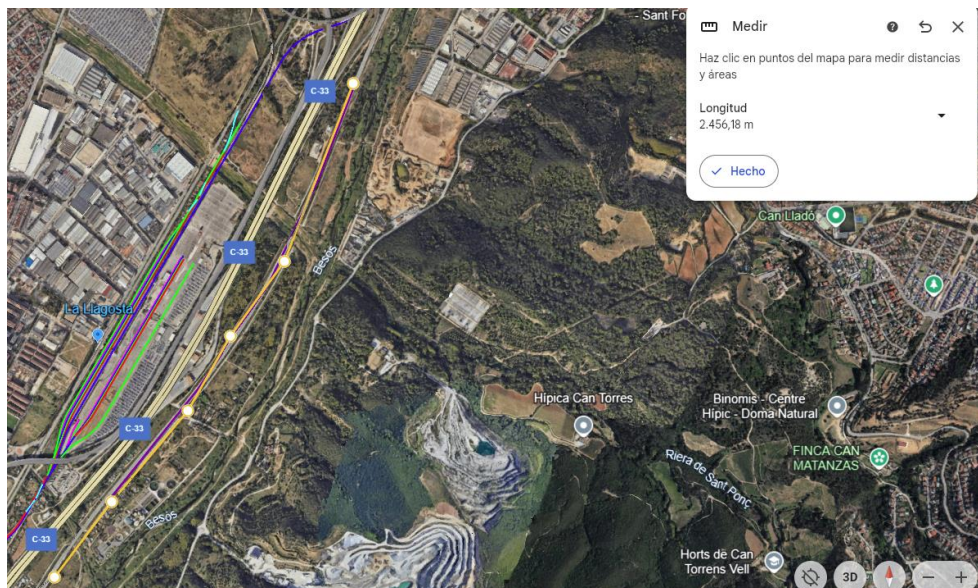
Subtask 5.1. 2 Affections of EMC on the railway system

- Modelo preliminar en marcha a falta de definir unas pantallas amigables para el usuario para la entrada de datos
- Data collection campaign carried out in Valencia
- Data collection campaign carried out in Barcelona (terminal La Llagosta)



25 años

- Barcelona (terminal La Llagosta)





CONTACT INFORMATION

Project coordinator:

Armando Carrillo Zanuy
EURNEX e.V.

European Rail Research Network of Excellence
Hardenbergstraße 12
10623 Berlin
Germany



Email Address: Acarrillo@earnex.eu



Website: www.earnex.eu



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Muchas gracias por su atención.

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