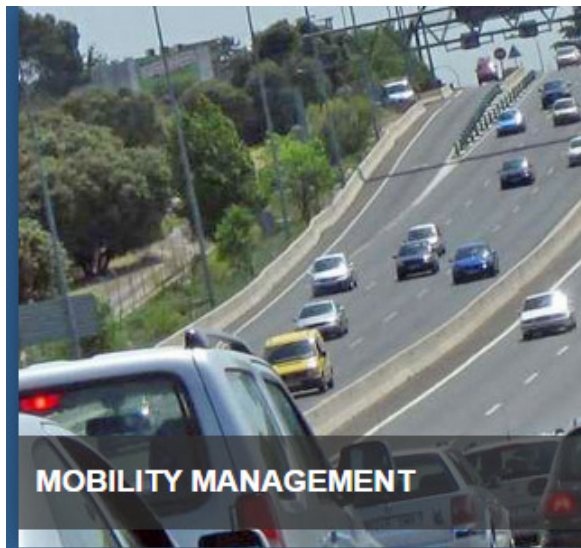




INTEGRATED TRANSPORT  
INTEGRATED TRANSPORT & SPATIAL PLANNING

# Transport Research Center (TRANSYT-UPM)



MOBILITY MANAGEMENT



TRANSPORT ECONOMICS



INTEGRATED TRANSPORT

The Transport Research Centre (TRANSyT) is an organization launched in 2002 by the "Universidad Politecnica de Madrid" (UPM) with the aim of:

- **Generate management capacity and participation** in programs, projects and research within the **transport area**, with special interest in the European Research Area
- **Promote the relationship** with centers of similar characteristics; national, European and worldwide, in order to exchange experiences, advising and the development of prototypes or pilot actions.
- **Transfer technology** to other countries where collaborating tradition is of special importance.
- **Transfer knowledge** to the scientific community and the society as a whole within the transport sector.
- **Serve as a link** among universities and different transport authorities:
- administrations, companies and students and citizens interested in sustainable transportation planning



# Transyt members

## Universidad Politécnica de Madrid y Universidad Complutense

Ingenieros de  
Camino, C.P.  
Ingenieros de  
Montes  
Arquitectos  
Geógrafos  
Abogados  
Economistas

Miembros de TRANSyT		UPM	UCM
		Professors	16
Senior researchers (Dr.)		6	2
Researchers	Assistant prof.	1	0
	PhD Students	17	3
	DEAs / Master	1	0
Other Scholarships		3	0
Project Management		4	0
<b>PERMANENT TEAM</b>		<b>47</b>	<b>11</b>
Professors		4	0
Foreign visitors		8	0
<b>Total Global</b>		<b>59</b>	<b>11</b>

58

# Modelos y tecnologías

- **MARS, Land Use and Transport Interaction Model (Metropolitan Activity Relocation Simulator), calibrado y validado para Madrid**
- **VISSUM, PTV Visum is the worldwide leading software for demand-driven and service-oriented public transport network and supply planning. Spatial and temporal planning of public transport services**
- **Sistemas de Información Geográfica, ARCGIS**

# Materias y ámbitos generales de trabajo

- **Urbanismo,**
- **Ordenación del Territorio,**
- **Transporte y Movilidad sostenible, a escala nacional, regional y local**
- **Economía del Transporte,**
- **Financiación de Infraestructuras,**
- **Modelos de transporte y transporte y territorio**
- **Planificación Sectorial y Territorial,**
- **Medio Ambiente y Sostenibilidad en la Ingeniería Civil,**
- **La aplicación de los SIG a la planificación y gestión urbana, territorial y ambiental**

## Economics

- Infrastructures Financing and PPPs
- Transport Economics
- Freight Transport and Logistics

Responsible:  
José M. Vassallo

## Social

- Urban Transport and Planning
- Mobility Modelling and Intermodality
- Externalities and Energy Efficiency
- Cycling mobility and smart cities

Responsible:  
Andrés Monzón

## Environmental

- Regional Planning and SIG
- Environmental Assessment
- Roads & Landscape

Responsible:  
Isabel Otero & Rosa M. Arce



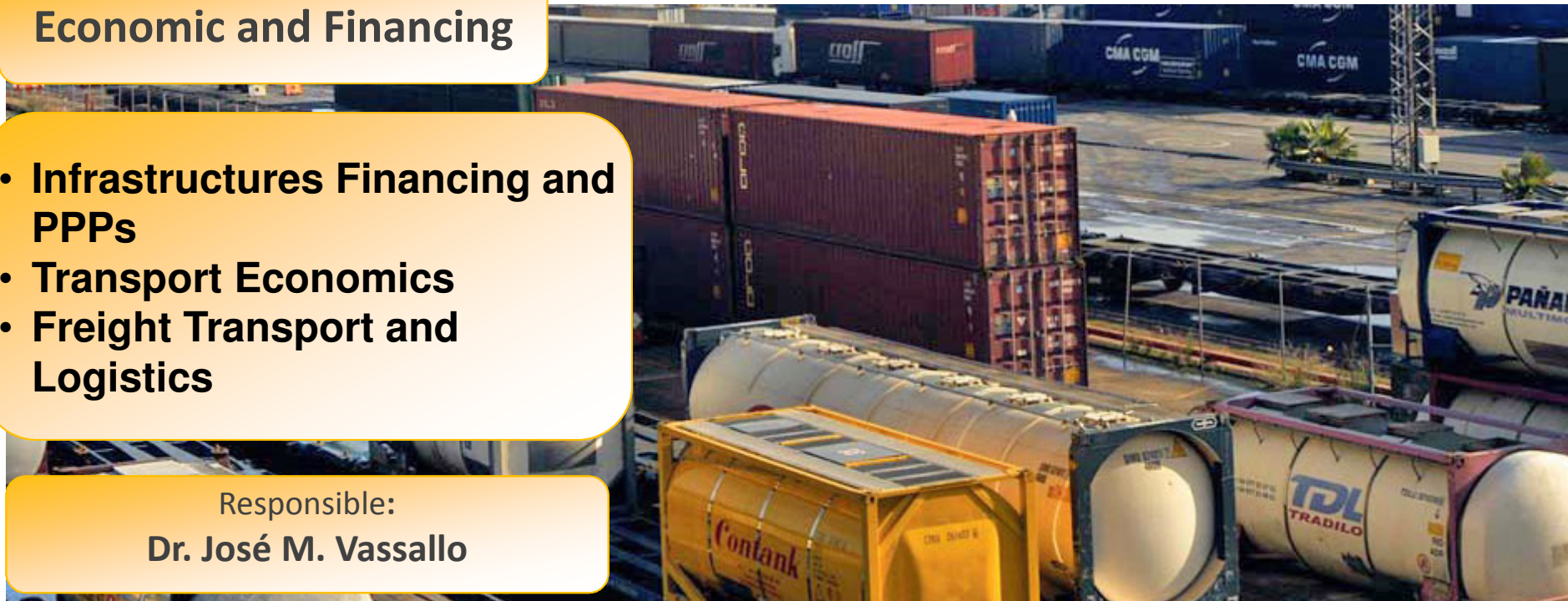
# Sustainable Transport

## Economics

### Economic and Financing

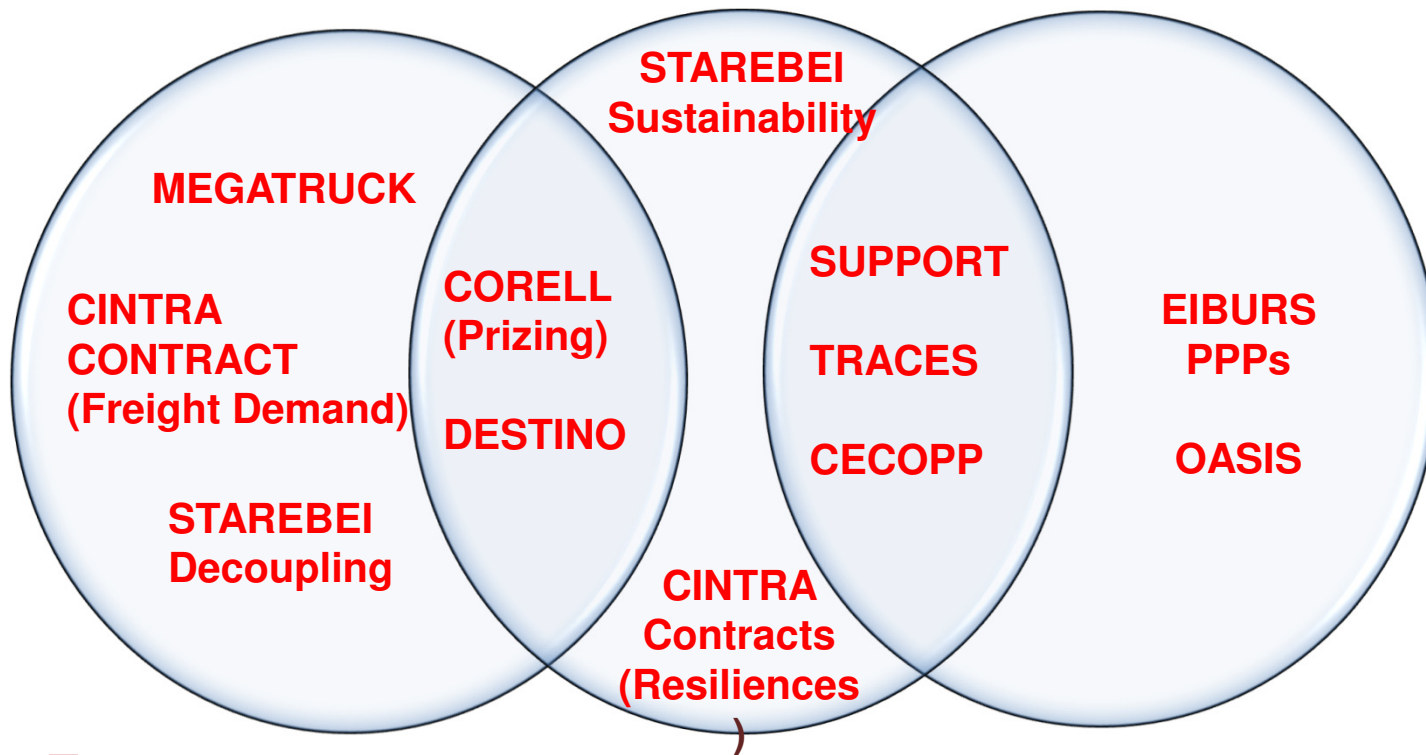
- Infrastructures Financing and PPPs
- Transport Economics
- Freight Transport and Logistics

Responsible:  
**Dr. José M. Vassallo**



**Transport Financing & PPPs**  
**Transport Economics**  
**Freight Transport & Logistics**

**Transport Economics**



**Freight & Transport Logistics**

**Transport Financing & PPPs**



**TRACES**  
(2009-2012)

**Economic study of the Spanish roads  
infrastructure pricing**  
(2011-2012)

**The influence of fuel Price and tolls in  
the inter-urban mobility patterns in  
Spain**  
(2012-2013)

**Design of a methodological  
guide for the prediction of  
traffic in motorway  
concessions**  
(2013-2014)

**Road Infrastructure design for  
optimizing sustainability**  
**STAREBEI**  
(2012-2013)

**Characterization of the national  
economic structure influence in the  
road freight transport**  
(2012-2013)

**Criteria for the fair application  
of road prizings in Spain**  
(2013-2014)  
**Amelio Ochoa Chair**

**DESTINO**  
(2008-2012)

# Proyectos en 2014-2015

- **Understanding Key Drivers for Road Freight Transport Decoupling in Europe.** (Marzo 2014–Febrero 2015). Entidad financiadora: Banco Europeo de Inversiones, Programa: STAREBEI (STAgés de REcherche BEI-EIB)
- **Technology options for the European Electronic Toll Service.** (Noviembre 2013 – febrero 2014). Entidad financiadora: Parlamento Europeo, Steer Davies Gleave.
- **EU Support mechanism to promote public private partnerships for financing transeuropean transport infrastructure.** [TRA2012-36590]. Enero 2013 - diciembre 2015  
Entidad financiadora: Ministerio de Economía y Competitividad
- **Análisis estadístico del riesgo asociado a los costes de operación y mantenimiento de una autopista en concesión.** Abril 2014 – marzo 2015. Entidad financiadora: CINTRA
- **Balance económico, fiscal, social y medioambiental del sector transporte de mercancías en España.** Abril 2014 – septiembre 2014. Entidad financiadora: Fundación Francisco Corell
- **Viabilidad jurídico-económica de la ampliación del plazo de concesión de la autopista de peaje AP-1 .** Diciembre 2014 – marzo 2015. Entidad financiadora: EUROPISTAS
- **Diseño de una guía metodológica para la predicción de tráfico en concesiones de autopistas.** Octubre 2013 – septiembre 2014. Entidad financiadora: CINTRA

# Sustainable Transport

**Social**

## Mobility Management

- **Urban Transport and Planning**
- **Mobility Modelling and Intermodality**
- **Externalities and Energy Efficiency**
- **Cycling mobility and smart cities**

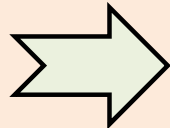
**Responsible:**  
Prof. Andrés Monzón



## INSIGHT-Innovative Policy Modelling and Governance Tools for Sustainable Post-Crisis Urban Development (7 FP)(2013-2016)







ICT + Data Science  
+  
Complexity theory




Formulation and evaluation of urban policies for European cities  
(To achieve economic recovery in the context of sustainable development)



### PARTNERS

UPM { Cedint  
TRANSyT

Nommon Solutions and Technologies 


Centre for Advanced Spatial Analysis  
University College of London

Urban Planning Group  
Eindhoven University of Technology




Instituto de Física Interdisciplinar y Sistemas Complejos



Institut Municipal d'Informàtica  
Ajuntament de Barcelona



## SUPPORTED BY

European Investment Bank, The EIB University Research Sponsorship Programme (EIBURS)

## LINE OF RESEARCH

Smart city development: Applying European and international experience to the Mediterranean region

## TIMELINE

February 2014 – February 2016



ASSESSING SMART CITY INITIATIVES FOR THE MEDITERRANEAN REGION

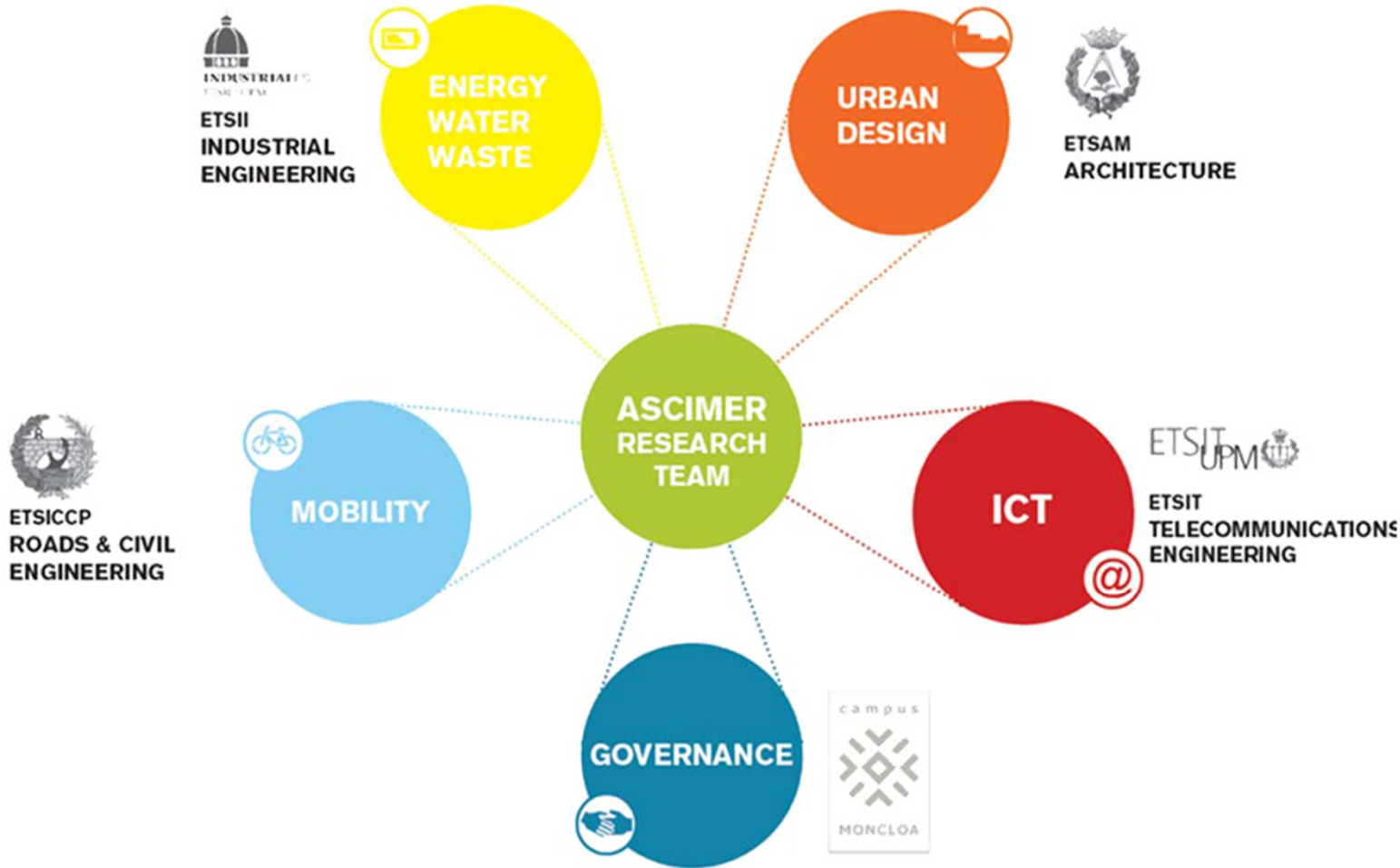
# Assessing Smart City Initiatives for the Mediterranean Region (2013-2016)



## The City of the Future

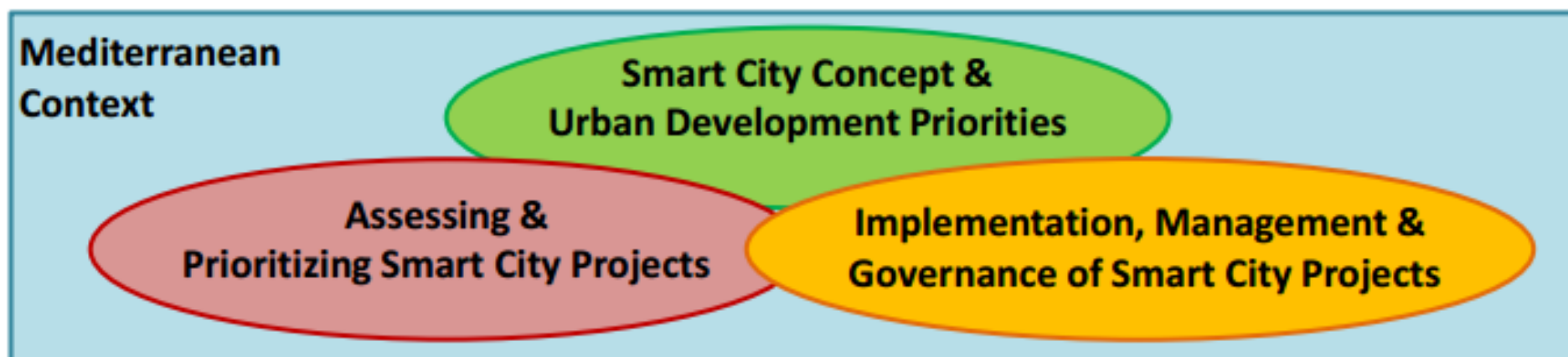
*An open space for new ways and new approaches for cooperation with Industry*

**UPM Institutional long term action in order to convert UPM into a national and international scientific reference for the City of the Future**



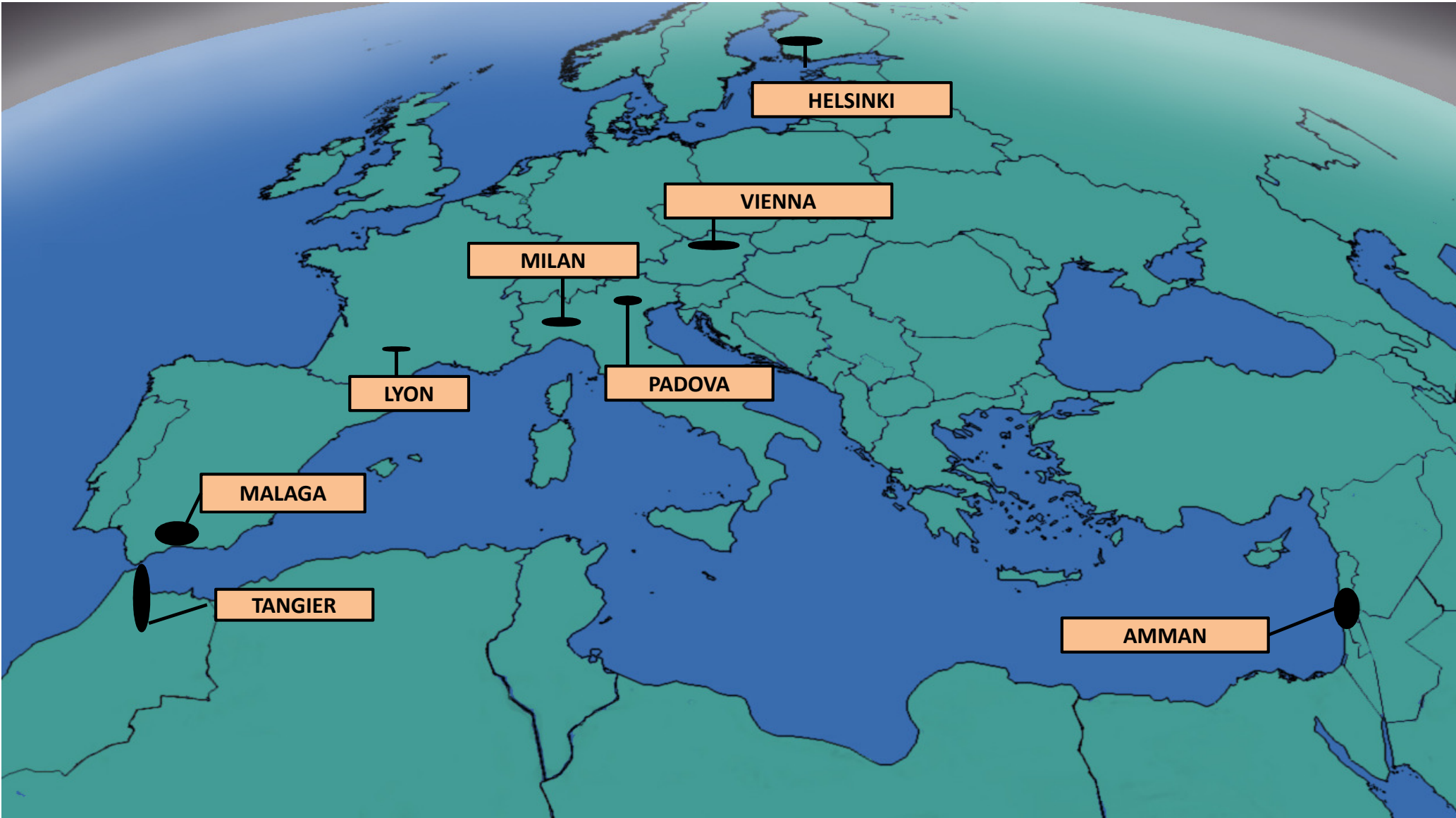
# ASCIMER OBJECTIVES

The overall purpose of this project is **to develop** a comprehensive framework to help public and private stakeholders **to make informed decisions** about **smart cities investment** strategies and to help them to **build the skills to prioritize, implement and develop** those strategies.



At the same time, an on-going goal will be **the characterization** of **Mediterranean City challenges** and the development of a **transferability** strategy of **Smart City projects**

## EXPERTS REFERENCE GROUP







# RESEARCH OUTPUTS

## Best Practices Guide

### Best Practices Guide

- Explanation of the Smart City concept.
- Introduction of Smart City actions in different countries
- Discussion of best/bad practices
- Therefore, anyone who wanted to start a Smart City project could know what are the challenges, conditions and projects that are necessary to consider.

## Smart City Projects Assessment Guidebook.

### Smart City Projects Assessment Guidebook

The main contribution of the project will be the ASCIMER socio-economic methodology for assessing Smart City Projects

## Smart Cities Implementation and Governance Guidelines

### Governance and Implementation Guidelines

Recommendations to better implement Smart City Projects based on the information collected from the stakeholders and cases studies.

# TRANSyT



# RESEARCH PROJECTS

**GESTA  
(2008-2010)**

**UNIBICI (2008)**

**TRANSBICI  
(2011-2013)**



**PROBICI  
(2007-2010)**

**Study of the cyclist  
demand  
(2011)**



# Proyectos 2014-2015

- **INSIGHT. Innovative Policy Modelling and Governance Tools for Sustainable Post-Crisis Urban Development** (septiembre 2013 – septiembre 2016)  
Entidad Financiadora: Comisión Europea. Programa: 7º Programa Marco.
- **3iBS - Intelligent, Innovative, Integrated Bus Systems** (octubre 2012– marzo 2015). Entidad Financiadora: Comisión Europea. Programa: 7º Programa Marco. Priority: Sustainable Surface Transport.
- **City-HUB**. (septiembre 2012 – febrero 2015). Entidad Financiadora: Comisión Europea. Programa: 7º Programa Marco.
- **ICT-Emissions. Development of a methodology and tool to evaluate the impact of ICT measures on road transport emissions** (octubre 2011 – marzo 2015). Entidad Financiadora: Comisión Europea. Programa: 7º Programa Marco.

# Proyectos 2014-2015

- **ASCIMER-Assessing Smart City Initiatives for the MEditerranean Region.** (Febrero 2014-Febrero 2017) Entidad financiadora: Banco Europeo de Inversiones. Programa: EIBURS (EIB University Research Sponsorship). CALL: Smart City Development: Applying European and International Experience to the Mediterranean Region
- **Climate change adaptation in the transport sector. European Topic Centre on Climate Change impacts, vulnerability and Adaptation (ETC/CCA).** (Enero 2014- Diciembre 2014). Entidad financiadora: European Environment Agency.
- **CIME-La Crise et ses Impacts sur la Mobilité en Espagne. Measures, analyses et enseignements pour le cas français** (Mayo 2013–Junio 2014) Entidad financiadora: Direction de la recherche et de l'innovation du Ministère de l'écologie, du développement durable et de l'énergie (MEDDE) et par l'Agence de l'environnement et de la maîtrise de l'énergie (ADEME). Programa: PREDIT-Programme de Recherche et d'Innovations dans les transports terrestres.

# Proyectos 2014-2015

- **Caracterización estadística de la movilidad y su relación con la infraestructura y el riesgo vial en entorno urbano. [SPIP20141457].**  
Diciembre 2014 - Noviembre 2015 Entidad financiadora: Dirección General de Tráfico
- **TRANSFER. Penalización de las transferencias en viajes multietapa: percepción del usuario. [TRA2013-45239-R].** Enero 2014 - Diciembre 2016  
Entidad financiadora: Ministerio de Economía y Competitividad
- **Observatorio de la Movilidad Metropolitana.** Transyt lo elabora

# Sustainable Transport

**Environmental**

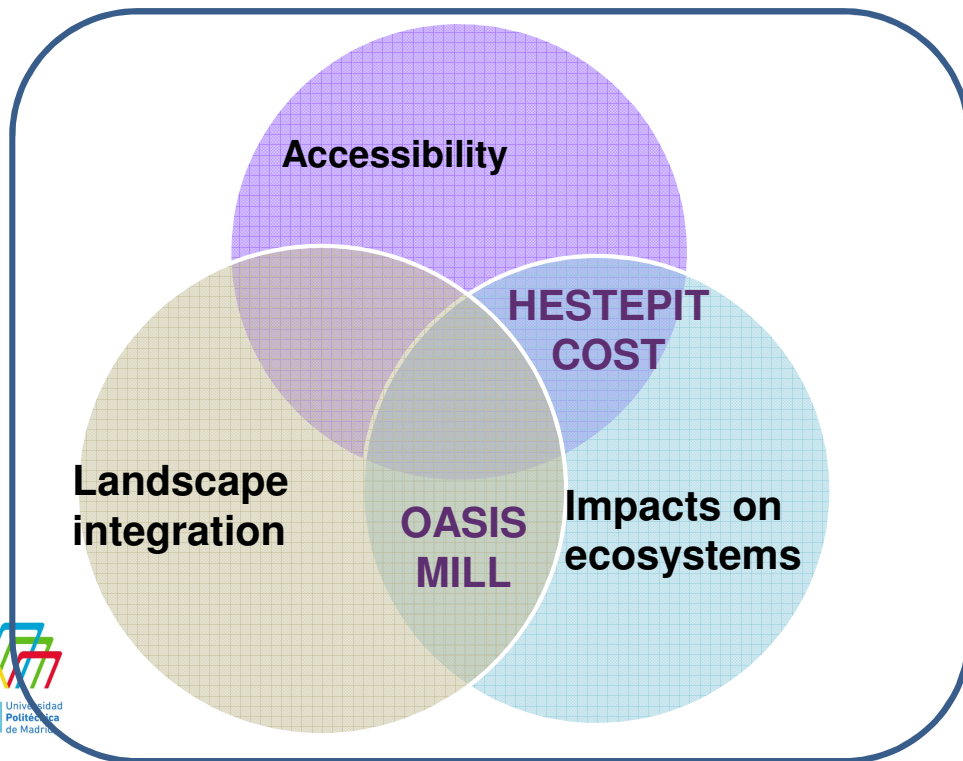


**Integrated Transport Planning**

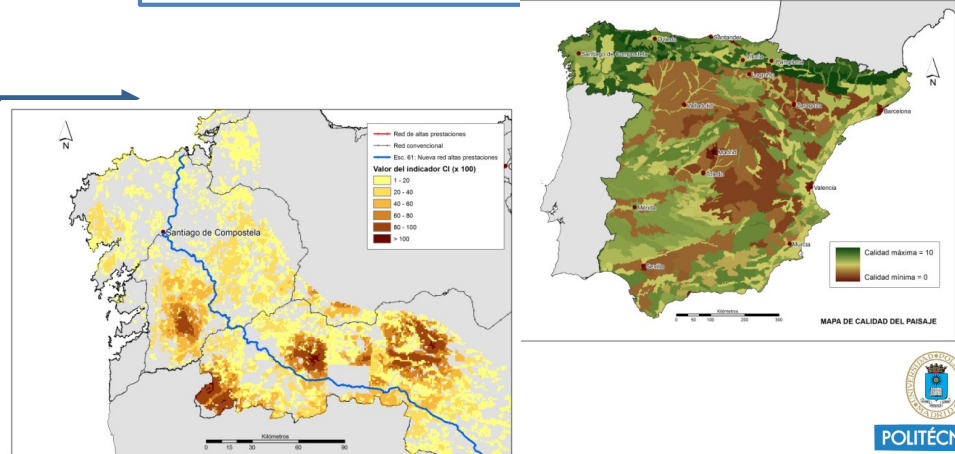
- **Regional Planning and SIG**
- **Environmental Assessment**
- **Roads & Landscape**

Responsibles:  
**Dr. Isabel Otero**  
**Dr. Rosa M. Arce**

- ✓ Identification of key factors that can be improved to achieve a more efficient and sustainable transport planning => Environmental Impact Assessment –EIA- and Strategical Environmental Impact –SEA-
- Improving the territorial accessibility.
- Improving the landscape integration on roads.
- Assess the visual and ecological impacts: compensatory and corrective measures.



**Territorial analysis based on Geographic Information Systems (GIS).**



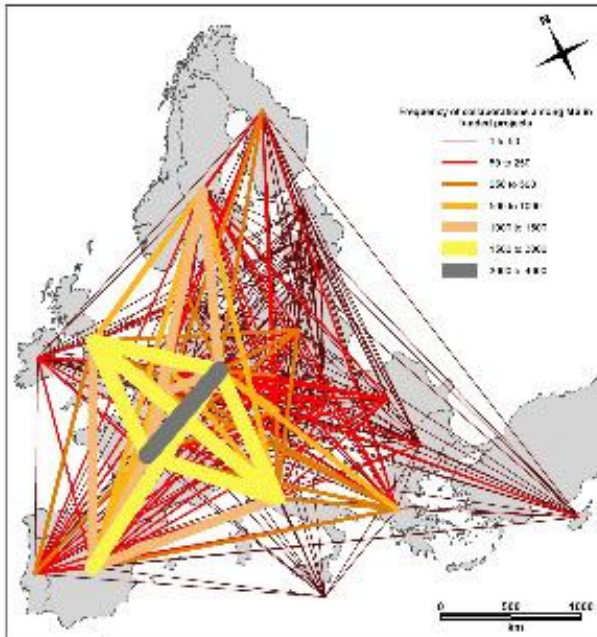




# TRI-VALUE

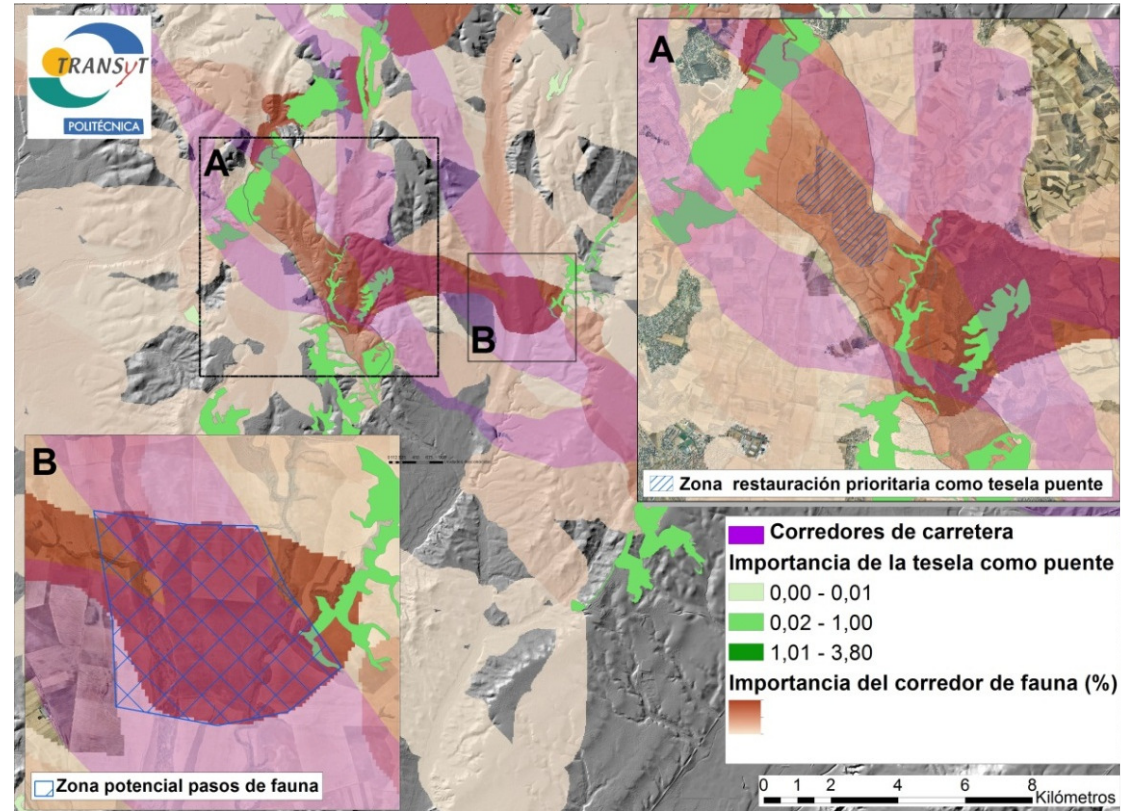
## TRI-Value (May 2013 – May 2014)

Ex post evaluation of Transport Research and Innovation in the FP7 'Cooperation' Programme



- ✓ Reduction of impact during the infrastructure layout phase

# MILL





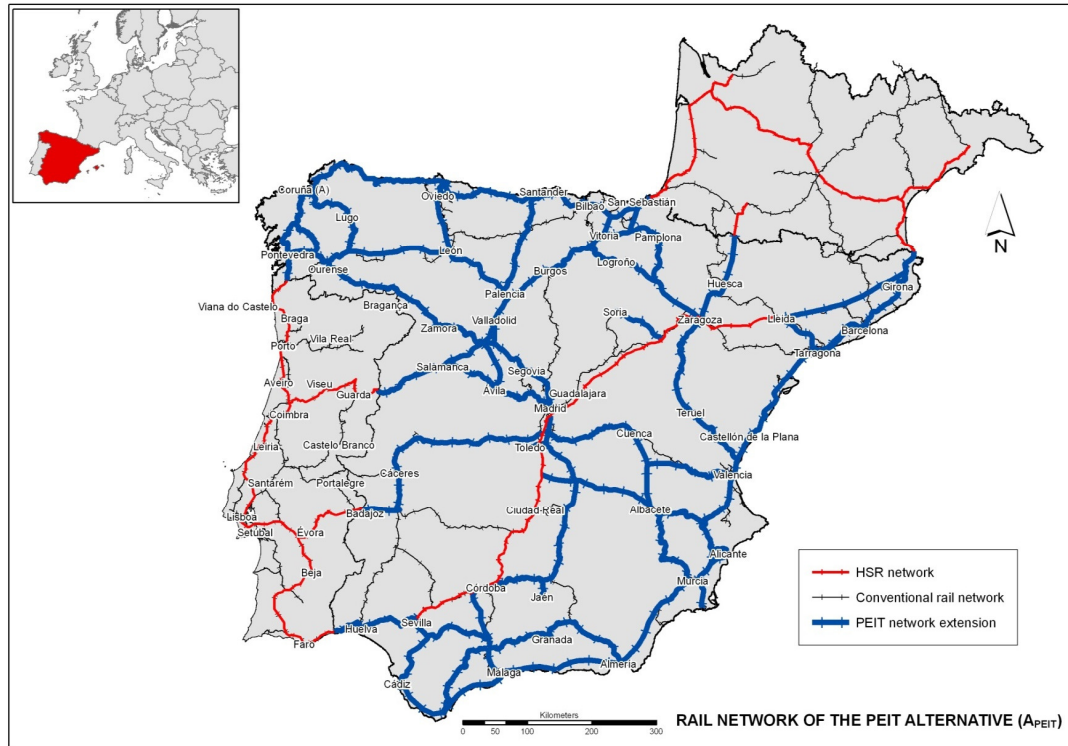
→ METHODOLOGY/ RESULTS:

*Road Operation Footprint software*

*Development of methodologies to estimate the landscape in design.*

## OASIS Project Secure, Intelligent and Sustainable Highway Operation CENIT 2008-2011

## High Speed Rail Network Impact- PEIT



# Proyectos 2014-2015

- **TRI-VALUE. Ex-post evaluation of Transport Research and Innovation in the FP7 ‘Cooperation’ Programme Proposal** (mayo 2013 - septiembre 2014) Entidad financiadora: Comisión Europea. Programa: 7º Programa Marco.
- **SPILLTRANS. Efectos spillover de las infraestructuras de transporte** [TRA2011.27095]. 2012 - 2014 Entidad Financiadora: Ministerio de Ciencia e Innovación
- **CIUDAD 2020: Hacia un modelo de ciudad inteligente y sostenible.** Noviembre 2011–noviembre 2014. Entidad financiadora: C.D.T.I. Programa: INNPRONTA
- **TRANSBICI. Comportamiento y modelización de la demanda ciclista: transición hacia una ciudad ciclable** [TRA2010-17035]. Enero 2011–enero 2014. Entidad Financiadora: Ministerio de Ciencia e Innovación

## Proyectos 2014-2015

- **HABIT. Habit and inertia in mode choice behaviour: a data panel for Madrid.** [TRA2010- 19788]. Enero 2011–enero 2014. Entidad Financiadora: Ministerio de Ciencia e Innovación
- **MILL. Modelo de integración del trazado de infraestructuras lineales en el paisaje basado en GIS.** [TRA-2010-18311]. Enero 2011–junio 2014. Entidad Financiadora: Ministerio de Ciencia e Innovación
- **+ CITIES. Modelo para la evaluación de iniciativas de Smart City en las áreas de movilidad y servicios urbanos.** [TRA2013-45154-R]. Enero 2014 - Diciembre 2016. Entidad financiadora: Ministerio de Economía y Competitividad

## TRANSyT is part of the following networks:

- European Transport Conference of Transport Research Institutes (ECTRI)
- Academic Network – International Association of Public Transport (UITP)
- Network of European Communication and Transport Activities Research (NECTAR)
- The European Road Transport Research Advisory Council (ERTRAC)
- Spanish Forum of Transport Engineering (FIT)



- Madrid Public Transport Authority (*Consortio de Transportes*)
- Francisco Corell Foundation (*Freight Transport Operators*)
- City Council of Madrid
- Spanish Ministry of Economy and Competitiveness
- INECO (*National Transport Consultancy*)
- Spanish Ministry of Transportation
- Spanish Ministry of Environment
- Municipality of Madrid
- Madrid Region





**Thank you for your attention**  
**Gracias por su atención**