



Center for Innovation in Transport

CORPORATE PRESENTATION





WHO WE ARE

The Center for Innovation in Transport (**CENIT**) is a research group of the prestigious International Centre for Numerical Methods in Engineering (**CIMNE**), a consortium of the Catalan Government and UPC-BarcelonaTech with the cooperation of UNESCO, and Severo Ochoa Center of Excellence.

CENIT was created in 2001 as a partnership between the **Catalan Government** and the **Polytechnic University of Catalonia (UPC-BarcelonaTech)** to centralize expertise in transportation innovation. In 2017 CENIT became a member of CIMNE.

Our mission at CENIT is to build the next generation of solutions in global transport.

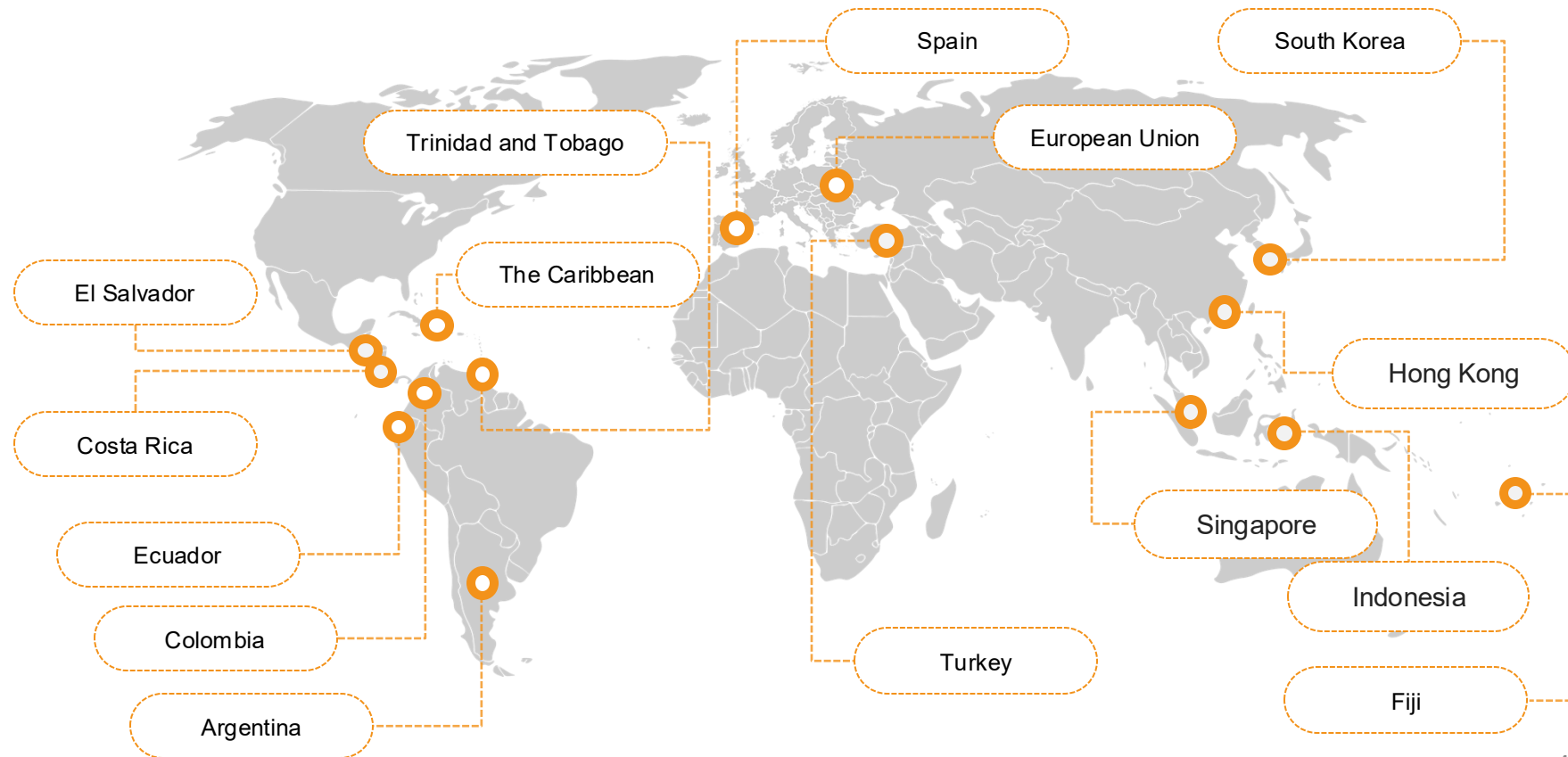
Our team is comprised of a diverse and experienced group of multilingual researchers including civil engineers, economists, computer engineers, naval architects and mathematicians.



Consortium of:









HOW WE WORK

RESEARCH

 THINK TANK	 EDUCATION	 RESEARCH
Seminars	School of Civil Engineering of Barcelona	Research Reports
Reports		
Media	Collaboration in Masters	Ph.D. Thesis
Collaborations with institutions	Short courses	Scientific publications

INNOVATION

 INNOVATIVE SOLUTIONS	 PROGRAMS IN INNOVATION	 TECHNICAL SUPPORT
Companies and public bodies	Involving public bodies and companies	Companies and public bodies
Examples: new network bus of Barcelona City, simulation model for terminal container, etc.	Leading projects and proposals	

CENIT offers a **scientific perspective** to analyzing the problems affecting the day-to-day operations of transportation systems, logistics chains and mobility plans.

We use Big Data, Econometric modeling and Operational Research to provide **innovative solutions** for transport challenges.

RESEARCH AREAS

TRANSPORT ECONOMICS

We are focused on the particular problems encountered by transport authorities and companies involved in the management of transport systems.

Our various fields of study and analysis include:

- Cost-benefit analysis
- Charging systems
- PPP concession systems
- Financing
- Impact of transport investments

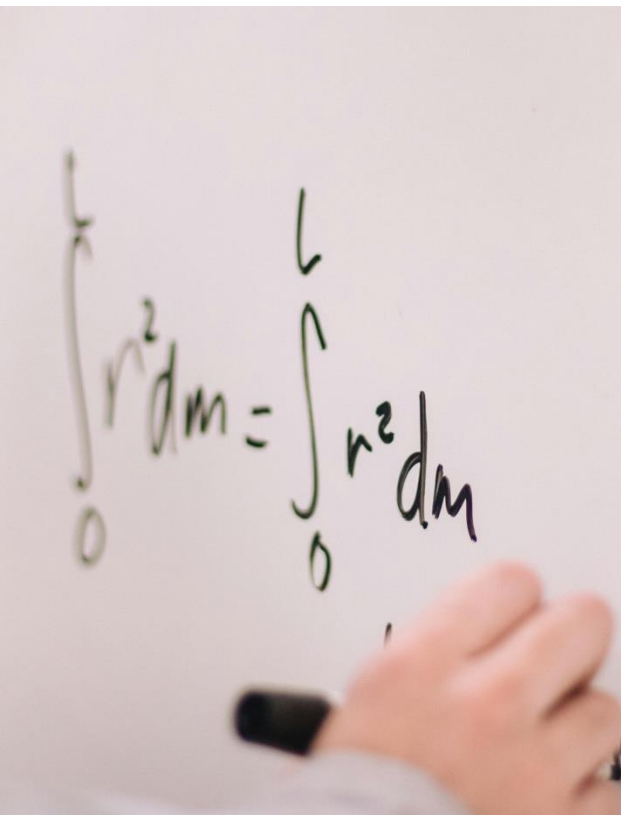
References:

Electric-Mobility for Public Transport in the Metropolitan Area of San Jose, Costa Rica. Technical report. World Bank

SAIT- Handbook for transport investment appraisal
Technical report. Regional Government of Catalonia

Investment Analysis in the Latin American Transport Sector for 2040
Technical report. Corporacion Andean de Fomento - CAF

Pilot Project Study on Innovative Ways of Sustainably Financing Public Transport
Technical report. European Commission - DG MOVE





PUBLIC URBAN TRANSPORT

We offer advisory services for public transport operators to improve operational efficiency.

Our various fields of study and analysis include:

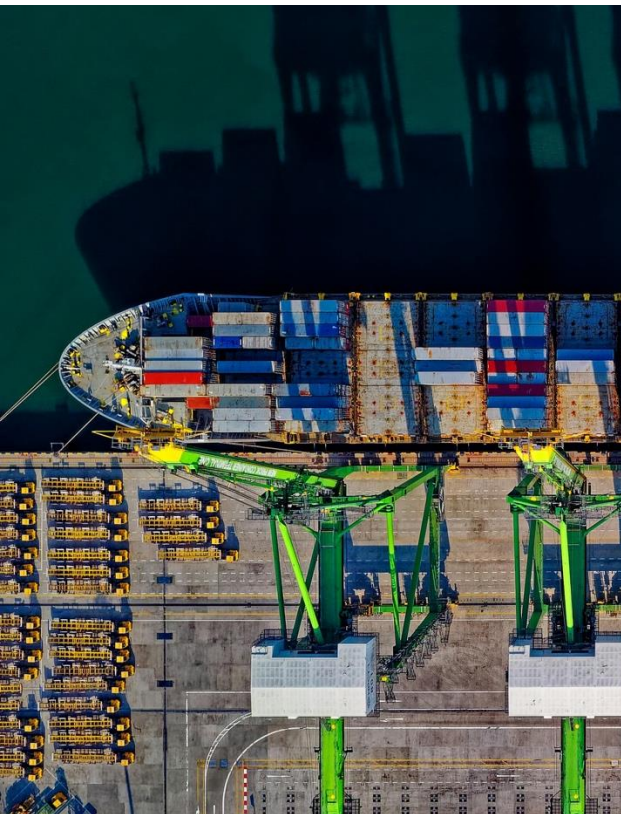
- Public transport network design
- Implementation of the electric bus
- Efficiency analysis of public transport
- Optimization of operations
- Demand analysis

References:

Sustainable Urban Mobility Plan (SUMP) of Ankara
Ministry of Transport of Turkey and European Commission

Route Prioritization for Phasing in of electric buses in Fiji
Technical Report. Global Green Growth Institute (GGGI)

Analysis and implementation of new Tramway Project of Daejeon City
Korea Railroad Research Institute



PORT LOGISTICS AND MARINE TRANSPORT

We advise the public sector, port services operators, stevedoring and shipping companies on:

- Port operations and optimization.
- Cost analysis
- Demand analysis.
- Green ports
- Impact of technologies

References:

Zero-carbon bunker fuel production, storage, supply, and/or export in Colombia.
Pre-feasibility Study. World Bank

Study of the effects of EU ETS regulation in the distribution of container traffic in Spanish ports.
Research. Ports of Spain

Analysis of recent trends in EU shipping and analysis of policy support to improve the competitiveness of Short Sea Shipping in the EU
Technical Report. European Commission – DG MOVE



LOGISTICS AND URBAN FREIGHT DISTRIBUTION

Our main research area is urban freight distribution with specific expertise in last-mile delivery.

Our work includes:

- Designing routes for freight delivery,
- Solutions for the environment,
- Use of electric vehicles for freight distribution,
- Location of electric charging stations

References:

Study of Freight Flows and Logistics Costs in Northeast Argentina. Development Bank of Latin America (CAF)

Location and deployment proposal of electric, gas and hydrogen charging points for land freight distribution vehicles. Generalitat de Catalunya

NOVELOG New cooperative business models and guidance for sustainable city logistics. H2020 Research Project. European Commission



TRAFFIC MODELLING

Involving some of our most prominent projects which include:

- The analysis of speed on urban highways.
- Use of dynamic signage and estimated travel time.
- Simulation models for cities
- Traffic light optimization
- Improvement of urban mobility

References:

Mobility Simulation Tool for the City of Barcelona and traffic light optimization
Research and simulation model. Barcelona City Council

Tramway Extension Project
Research and simulation model. Barcelona City Council

Impact of the speed limit on traffic management
Technical Report. Catalan Agency of Traffic Management



SMART CITIES AND URBAN MOBILITY

SmartCity solutions for better urban mobility. The approach includes both operational level and policy-making and urban development strategy.

- Assessment of new modes of transport in cities.
- Balance of all transport modes in an urban setting.
- Traffic simulation models for cities
- Urban mobility policies
- Financing new mobility solutions

References:

Sustainable Urban Mobility Plan (SUMP) of Ankara
Ministry of Transport of Turkey and European Commission

Smart Mobility Implementation Toolkit for Bank Operations
Research and simulation model. World Bank

Mobility Simulation Tool for the City of Barcelona and traffic light optimization
Research and simulation model. Barcelona City Council

GrowSmarter – Transforming Cities for a Smart Sustainable Europe
Research. EU Horizon 2020 Project

SCIENTIFIC PRODUCTION

CENIT, as a research center, is committed to analyzing the problems affecting the day-to-day operations of transportation systems, logistics chains/nodes and general mobility from a **scientific point of view**.

For this reason, CENIT boasts an experienced and diverse team of PhDs and PhD candidates with a high level of **scientific production**. Our work is published in books, articles and conference papers on a regular basis.

In this way, we **add value** through support and advisory services to public and private sector entities by developing tools and methodologies that can be applied in different fields of transport and logistics.





PUBLIC RESEARCH PARTNERSHIP

One of the founding goals of **CENIT** was to provide scientific support to the public sector on topics related to transport and mobility. For this reason, we created the Public Research Partnership, which aims to develop joint doctorates on strategic themes between CENIT and public entities.

To facilitate knowledge transfer between the two entities, PhD students spend some days working together with the staff of the public entity and other days in the offices of CENIT.

Current partnerships with: Port of Barcelona and ATM



Emerging trends and their impacts on ports.
Port Vision 2040
E-commerce in port business
Energy transitions in ports
E-mobility and ports



Urban Public Transport Financing

RESEARCH COLLABORATION PARTNERSHIP

CENIT is developing research alliances with other research institutions to promote the interchange of experiences and knowledge between cities and regions.

Current partnerships with:

CENTRE for
LiveableCities
SINGAPORE



ASTRI

Hong Kong Applied Science and
Technology Research Institute
香港應用科技研究院





CENIT EDUCATION

Training is one of the objectives of the **CENIT**. Currently, some of the researchers at the CENIT are teaching at the UPC in undergraduate and master's degree courses. CENIT also participates and sometimes organizes in short courses.



CURS ONLINE ESP

Modelització de la mobilitat

Anàlisi amb models de previsió i simulació avançats

Del 23 de març al 4 de maig
Dimecres, de 16:00 a 18:00 h (GMT+2)
12 hores lectives
www.camins.cat

camins[X] PTV GROUP Mccrit cenit



Inicio | Información | El curso | Objetivos | Estructura | Metodología | Contacto | **INSCRIBETE**

Soluciones innovadoras, casos de éxito y últimas tendencias:

FORMACIÓN SOBRE DISTRIBUCIÓN DE ÚLTIMA MILLA

La distribución de la última milla es uno de los principales problemas de las ciudades. Con este curso obtendrá los conocimientos y las herramientas necesarias para mejorar la logística de última milla en las ciudades.

INFORMACIÓN **INSCRIBETE**



Gestió i operació de sistemes ferroviaris

Del 13 d'abril al 29 de juny del 2018

camins.cat

Amb el suport de:

FGC Ferrocarrils de la Generalitat de Catalunya | cenit | TRAM | TMB Transportes Metropolitanos de Barcelona | Camins.cat





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A member of:

CIMNE[®]

