



CISMOB

Interreg Europe



European Union
European Regional
Development Fund

CISMOB Policy Framework

Mobility challenges in CENTRO Region

November 15

3rd Regional Stakeholder meeting –
CENTRO REGION – Promoting ICT in public
transport - towards a low carbon mobility
Jorge Bandeira, University of Aveiro



universidade
de aveiro

09:30	Registration
10:00	Opening remarks - Vitor Costa, Director of the Department of Mechanical Engineering (DEM-UA)
10:15	Introduction of Participants
10:20	MUV - Mobilidade Urbana de Viseu (Henrique Domingos, CM Viseu, INTERREG EUROPE InnovaSUMP)
10:40	Novo ecossistema de transportes (NOVABASE)
11:00	INTERREG EUROPE CISMOB - Mobility Challenges - CENTRO Region (Jorge Bandeira, UA)
11:30	Group discussion Understanding stakeholders' perspectives, existing challenges and opportunities; Fostering partnerships between stakeholders and synergies with CISMOB project, designing pilot actions Group 1 - Smart ticketing Group 2 - Real-time public transport information systems Group 3 - Open Data in the transport sector
12:30	Final remarks
12:45	Networking lunch

INTERREG EUROPE SURVEY



Sharing solutions for better regional policies



Survey for the measurement of 'Number of people with increased professional capacity due to their participation in interregional cooperation activities'

Dear Madam/Sir,

You have been actively involved in the learning activities of the CISMOB project. The time has now come to assess to which extent the project has contributed to improve your professional competence. Professional competence refers to the thematic skills gained in the topic of the project. This notion is at the heart of the Interreg Europe programme and we would be very grateful if you could take a few minutes to complete the following questionnaire. This would help us in the evaluation of the project.

* *Compulsory fields*

1. **Project Acronym***: CISMOB
2. **Project Partner sending the survey**: (University of Aveiro)

3. **Your details***

Name and surname:
Organisation:
Country:
NUTS 2:

3. **Your role in the project***:

5. Evaluation of the learning process

5.1 Please indicate to which extent you agree with the following statements*:

	Strongly disagree	Disagree	Agree	Strongly agree
I felt the need to increase my professional capacity before participating in the project.				
During the project activities, I came across interesting practices and ideas from other regions.				

Which project activity did you find the most useful for learning from other regions (only one answer possible)?

- Thematic seminar / workshop
- Study visit
- Peer review
- Stakeholder group meeting
- Staff exchange
- Other
- None

If possible, please indicate which are the practices / ideas you found the most interesting and why (max. 1500 characters):

5.2 Please indicate to which extent you agree with the following statements*:

	Not at all	To a small degree	To a large degree
Thanks to your participation in the project, do you consider that you have increased your professional competence?			

If possible, please explain further how the increased competence impacts your daily work and if it is

Outline

- **INTERREG EUROPE**
- **CISMOB objectives and main vision**
- **Policy Instruments**
- **Centro Region**
 - **Background and relative comparison**
 - **Brief SWOT analysis**
 - **Suggested measures to stakeholders**
 - **Group discussion**

Inter-regional co-operation

Phase 1

Share experience

Set up- regional stakeholder group
Action plan.



April 2016

March 2018

Phase 2

Monitor progress of the implementation

Pilot actions



April 2018

March 2020

€1,044,774.00

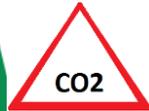
from 1 Apr 2016 to 31 Mar 2020

TOPIC
Low-carbon economy

General statement of the problem



Congestion costs Europe about 1% of GDP;



More than 2/3 of transport-related GHG are from road transport;



Air pollution: Costs to society ~ 2% of the GDP;



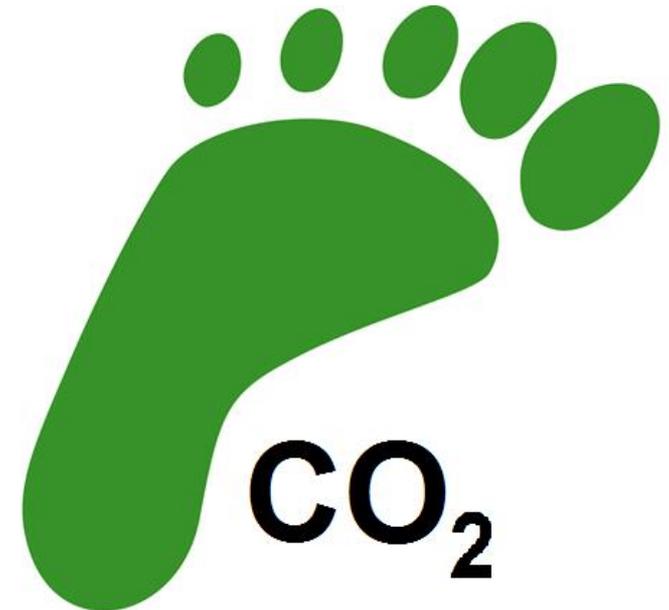
**External costs of noise
(e.g., annoyance, health damage)
> 0,35% of its GDP;**



Liquid hydrocarbon fuels are expected to remain predominant over the next decades.

Main vision

To increase the sustainability by improving the efficiency in the use of urban transport infrastructure through ICT.



Consortium

LP



P2



P3



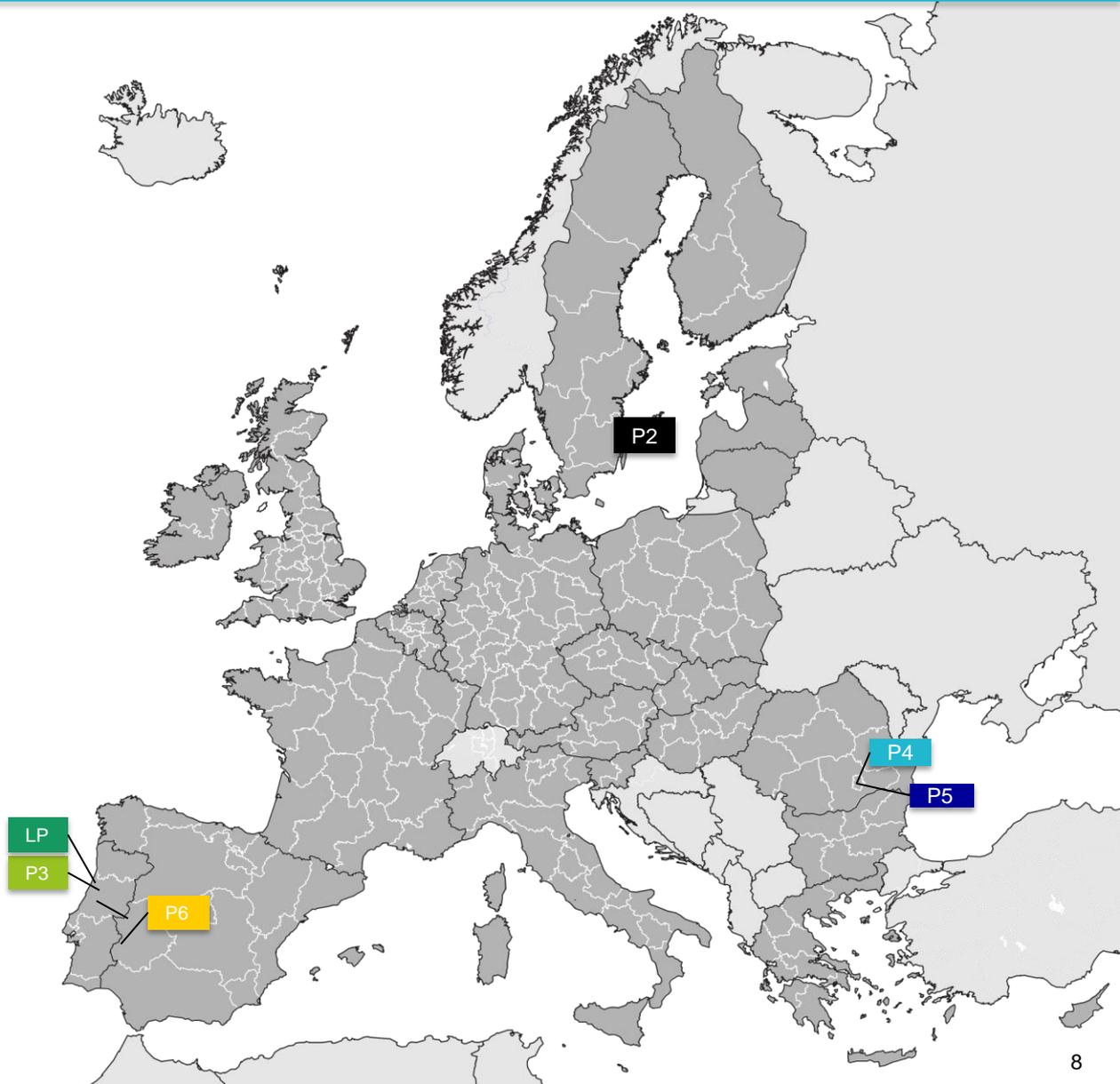
P4



P5



P6



Achieving policy change



3 Thematic seminars
3 Building capacity workshops
12 Staff Exchange program
12 Regional Stakeholder meetings



- **Baseline Assessment Report**
- **12 Technical papers**
- **AGENDA "ICT towards low carbon and sustainable mobility a multiscale perspective"**
- **Best practice database**
- **5 Action plans**

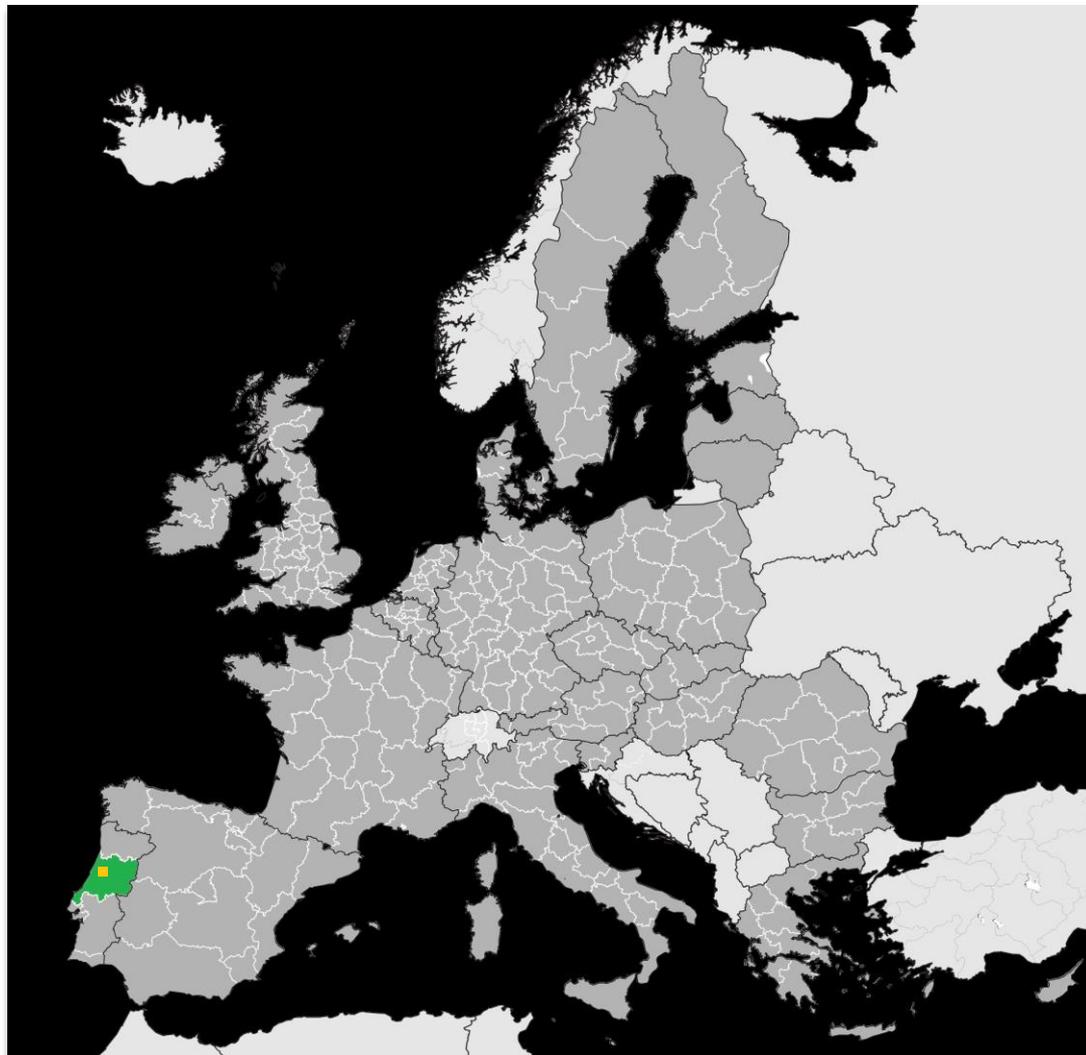
Policy
Change

Policy Instruments (PI PI2)



PI1: Operational Programme for the Centro Region – Centro 2020

PI2: Sustainable Mobility Strategy for the Municipality of Águeda



CISMOB international events



**Smart cities:
How Intelligent
is transport?**

**Stockholm
SEP 2016**

**Explore targeted
policy strategies
to support the
use of ICT and
e-mobility**

**Cáceres
MAR 2017**

**Intelligent
transport
systems
towards a low
carbon mobility**

**Bucharest
OCT 2017**

**ITS
From science to
policy and from
policy to real
world**

**Aveiro, Águeda
FEV-MAR 2018**

CENTRO REGION

MOBILITY CHALLENGES AND
POTENTIAL SUPPORTING
MEASURES

- **Background and relative comparison among CISMOB regions**
- **Brief SWOT analyses**
- **Suggested measures to stakeholders**
- **Group discussion**



Background

Population: 2,3 M

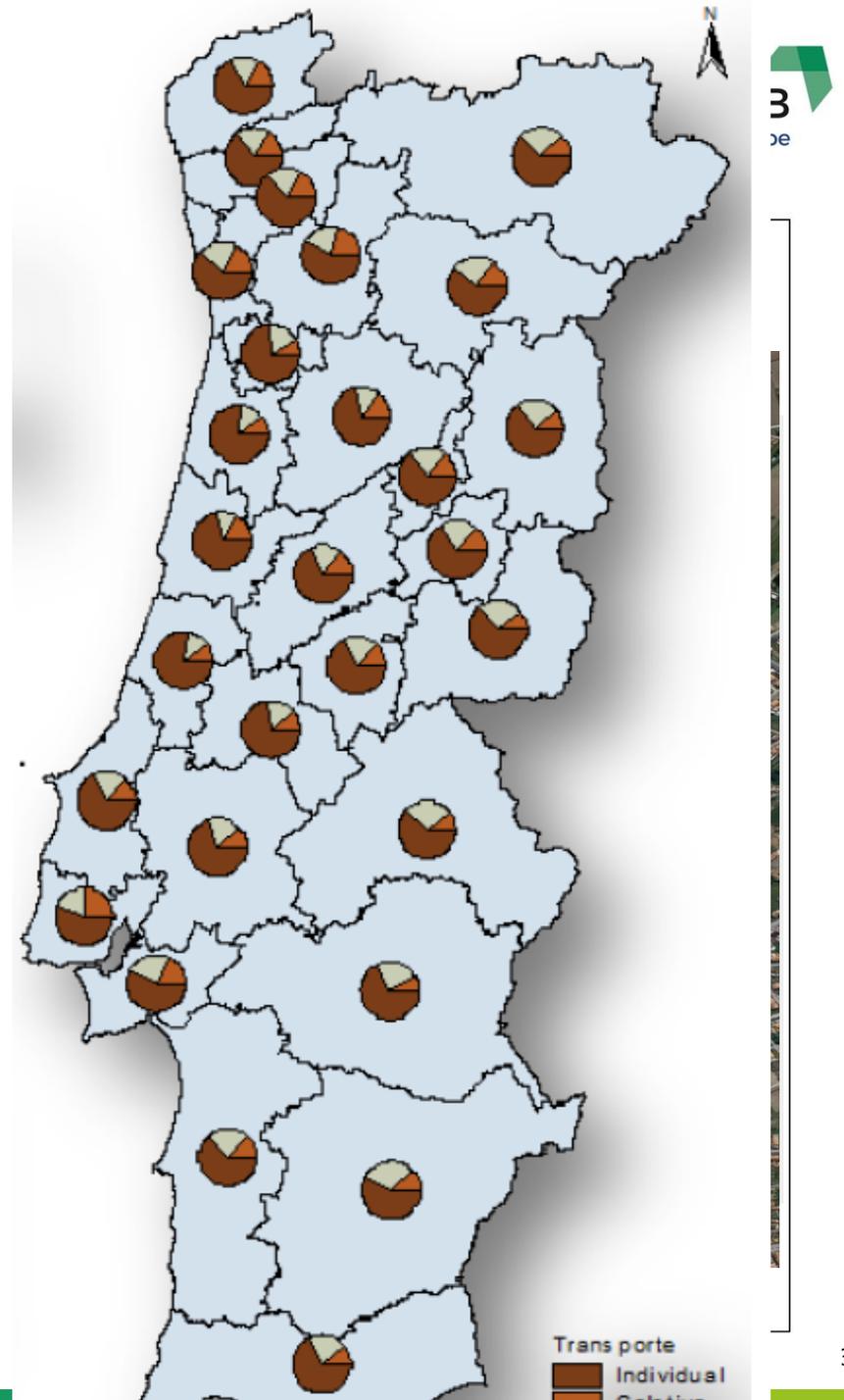
Area: 28 405 km² – 31% PT

Density: 75 inhab/km²

SUMP NUT III

Polycentric urban structure

Private car used in 70% of commuting trips – 62% PT



Monetization of annual Traffic related environmental externalities

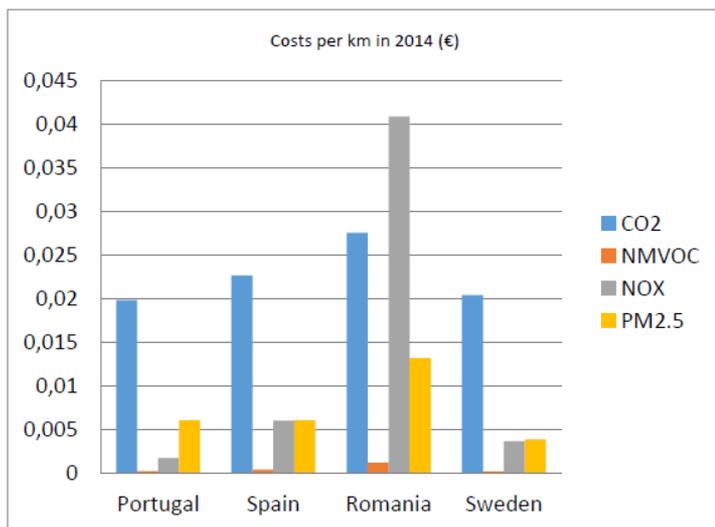


Figure 3. Costs per km for each country specified by pollutant, in Euros.

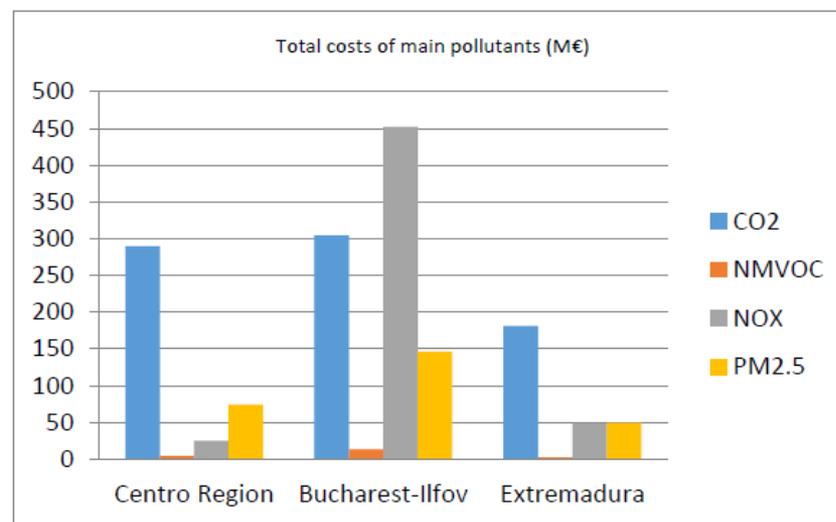


Figure 5. Total costs for main pollutants by region (M€).

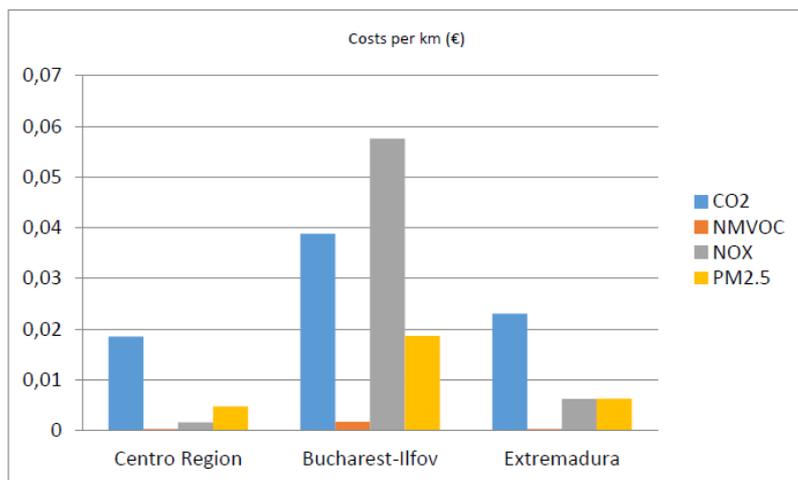
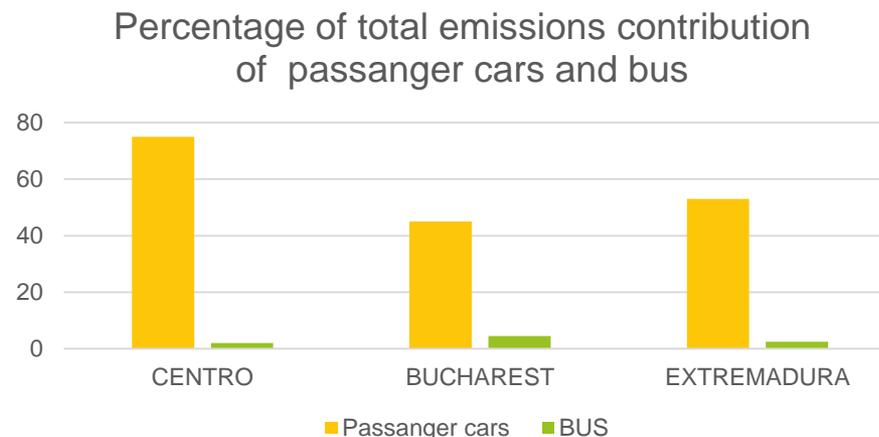


Figure 6. Costs per km in each region (€).



Strengths

Road network

Bike sharing

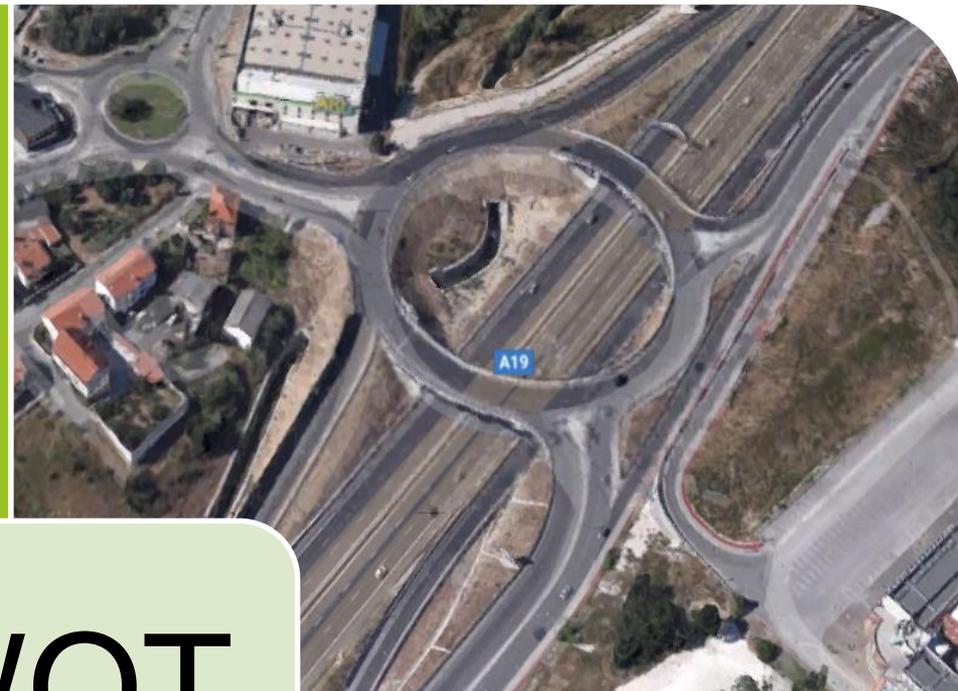
New transport on demand

Good **primary** rail connections

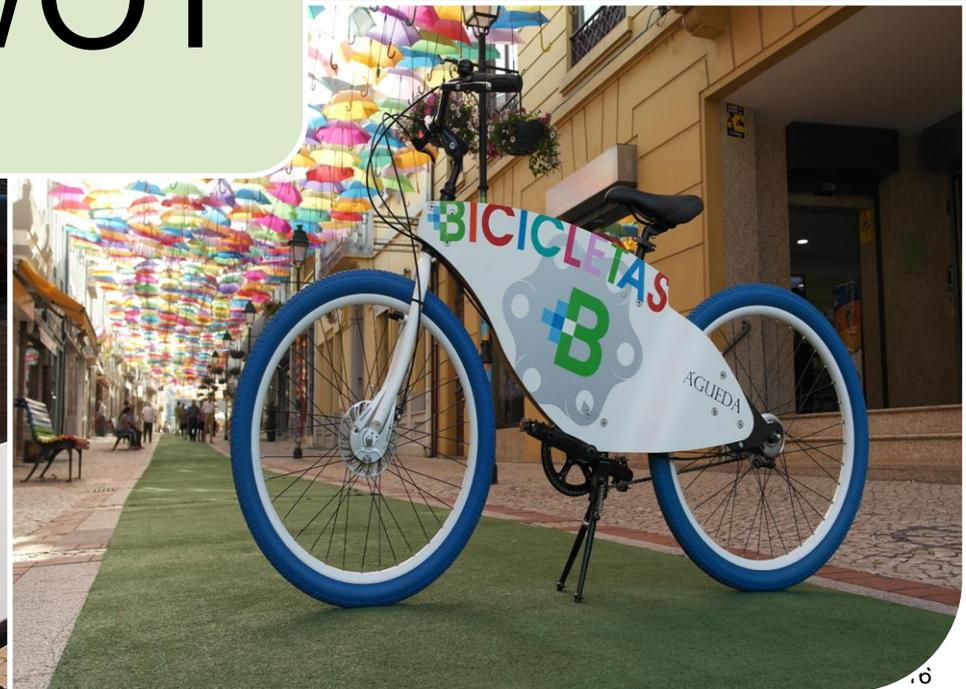
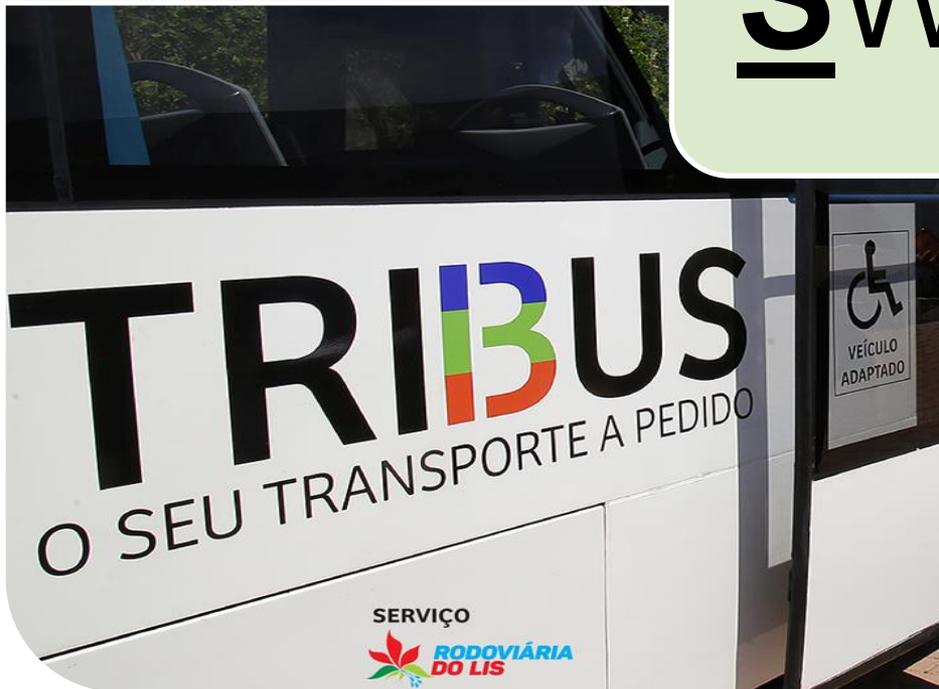
SUMPs

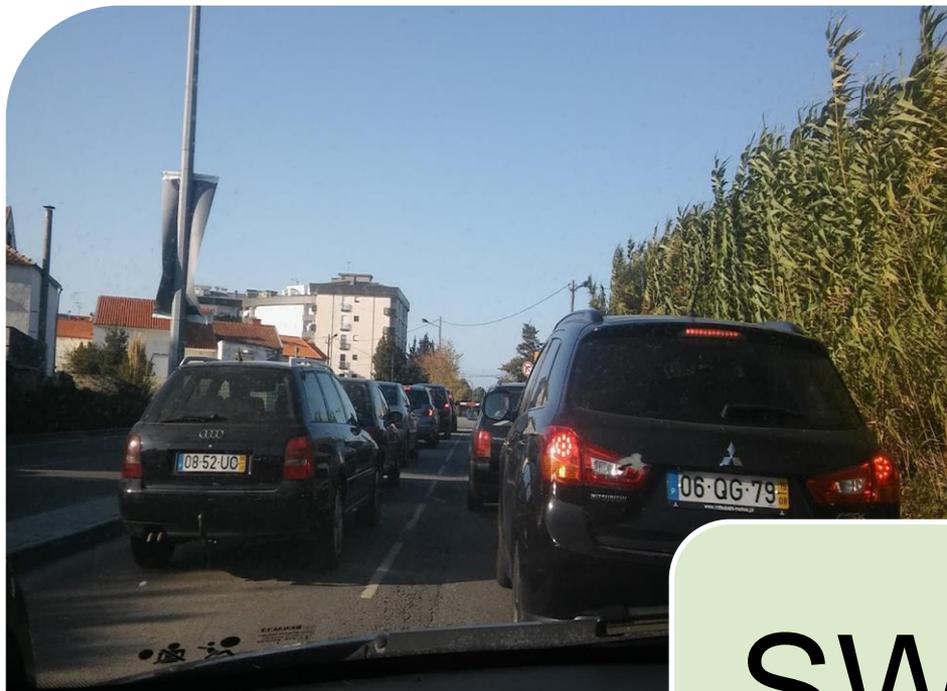
Research units

Bicycle industry cluster (Portugal is the biggest exporter in the EU)



SWOT





Opportunities

High Potential for modal transfer

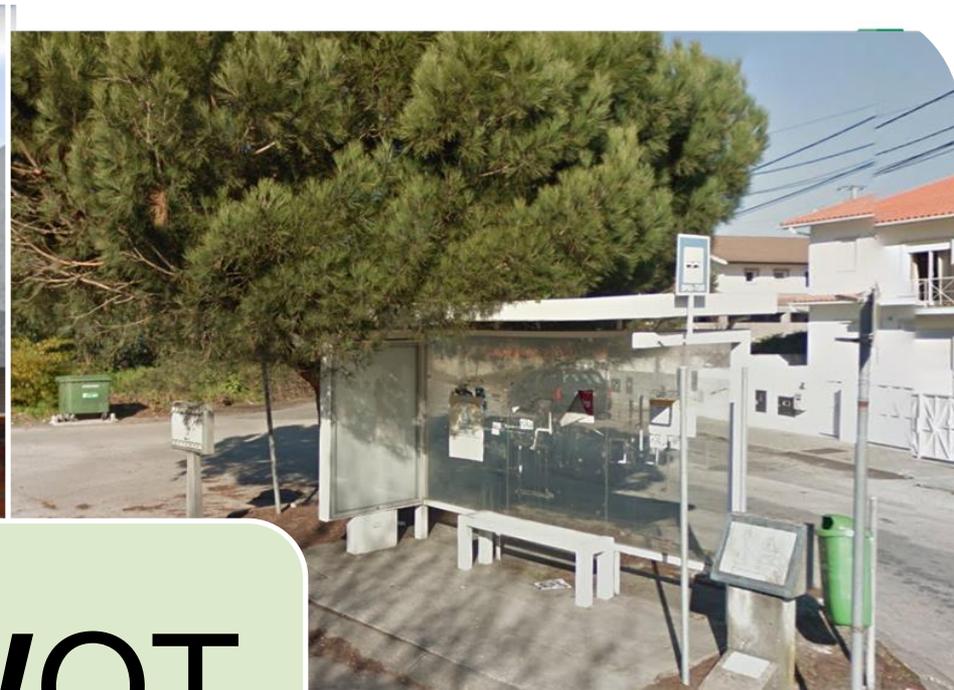
High qualified staff research Institutions (urban planning, transport and environment, ICT)

Regional Policy Framework committed to CO2 reduction

SWOT



CENTRO
2020

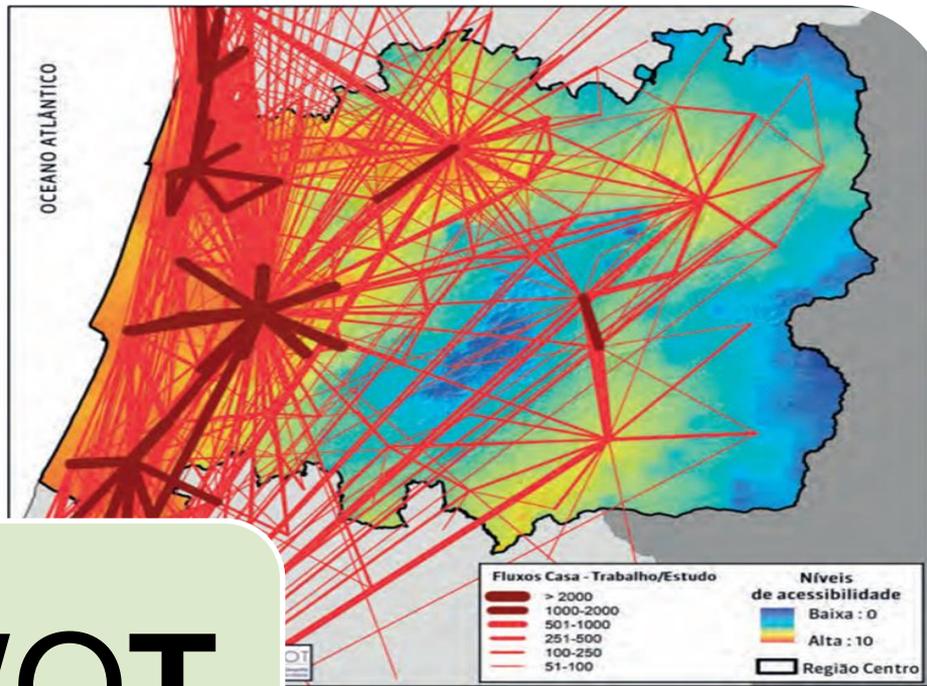
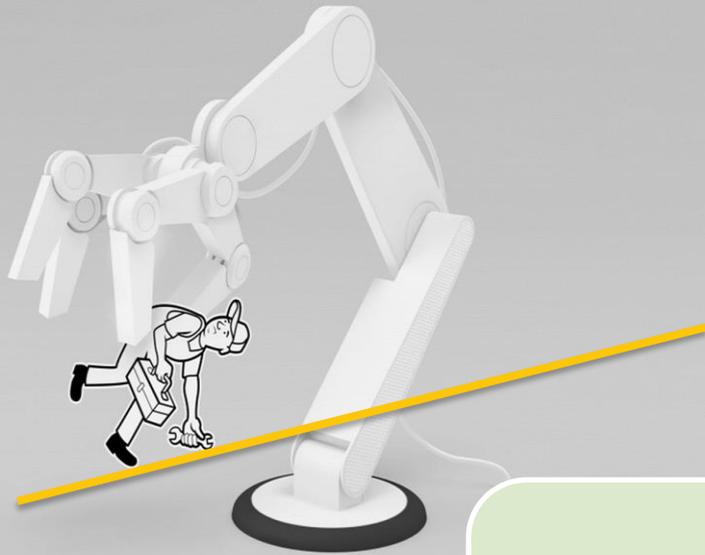


SWOT

Weakness

- Urban sprawl – Poor urban planning in suburban areas
- Lack of intermodal physical and soft platforms, Integrated ticket systems**
- Inefficient road pricing schemes
- Road safety
- Regional (INTER NUT III) strategic planning**





SWOT



Threats

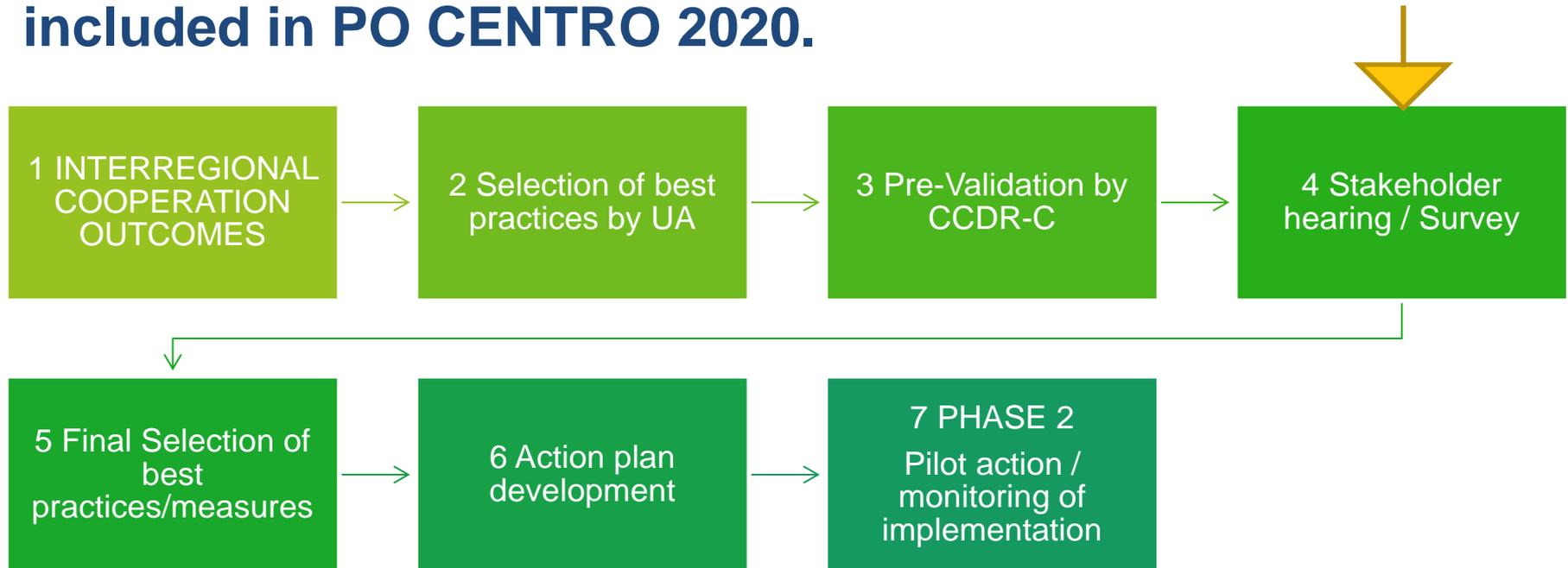
Critical thinking / Population ageing in several areas

Territorial dispersion - Low density - desertification

Lack of integrated regional planning

New potencial measures for AP

CISMOB regional process for selection new areas to be included in PO CENTRO 2020.



Areas for potential intervention

- 1 – Smart and Connected Mobility**
- 2 – Corridor management**
- 3 – ICT - Electric / shared Mobility**
- 4 – Real-Time Transit Information Systems**
- 5 – Assistive Technology**

Smart and Connected Mobility

Motivation:

Anticipate new requirements on 5G networks, including ITS applications.

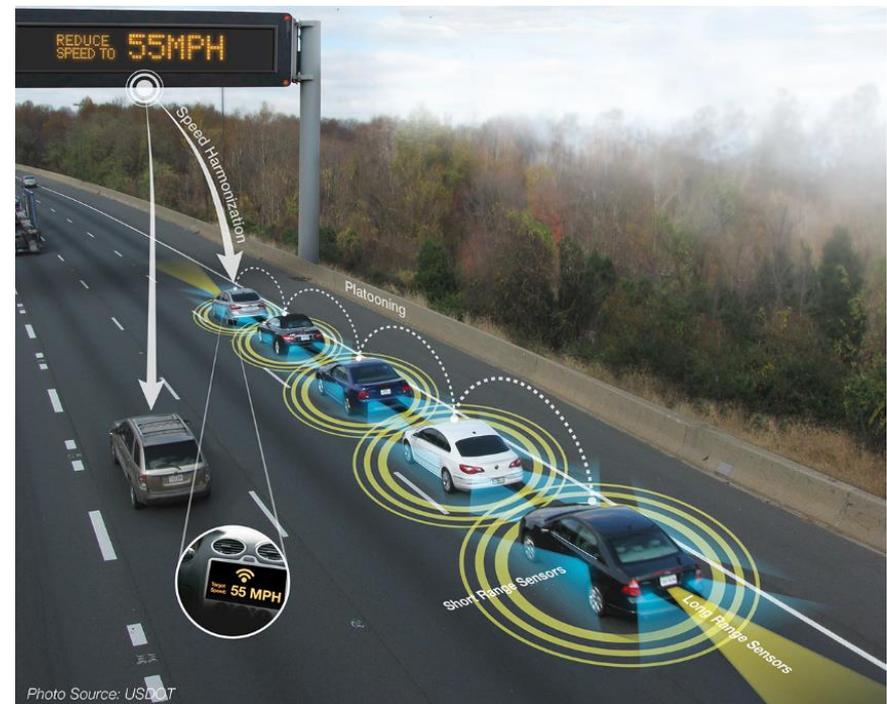
Accommodate the short term Market penetration of connected and automated vehicles (CAVs) and Cooperative Intelligent transport systems (CAVs).

1. Smart and Connected Mobility

1.1 Support the **creation of centers / research platforms arena** for inclusion of early prototypes of 5G technology.

BEST practice:

<https://www.ericsson.com/en/industries/intelligent-transport-systems>



Smart and Connected Mobility

1.2 Supporting connected mobility plans for CENTRO Region

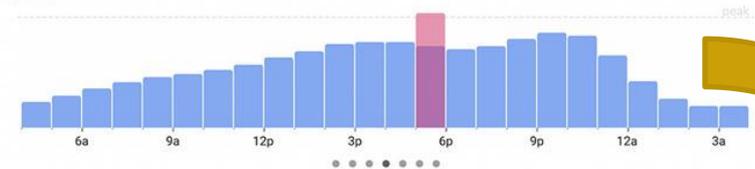
- identification of investment priorities to support connected and automated mobility
- identification of congestion and pollution critical hotspots, **public transport demand** and vulnerable areas based on **crowdsourcing information**, innovative environmental sensors and development of holistic assessment plans for responding to the questions: **What (to minimize)? Why? When? Where? And how?**

Table 15: Damage costs of main pollutants from transport, in € per tonne (2010)

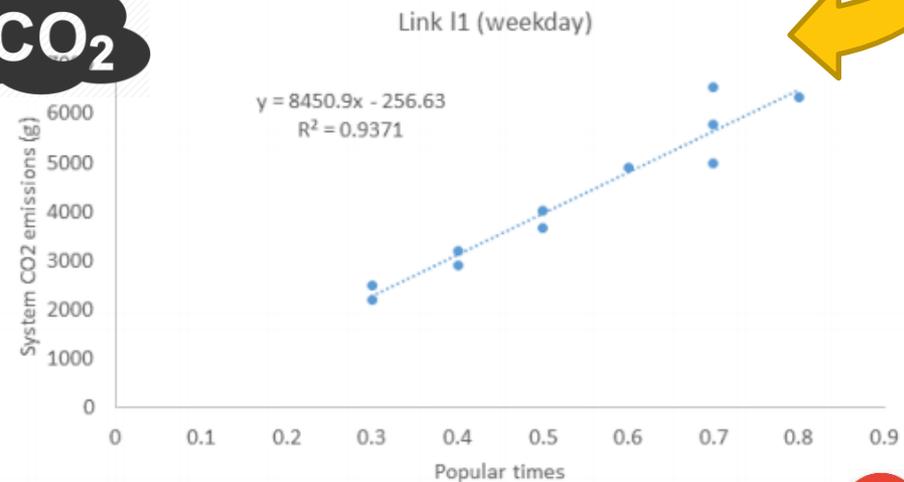
Country	PM _{2.5}			NO _x	NMVOC	SO ₂
	Rural	Suburban	Urban			
Austria	37766	67839	215079	17285	2025	12659
Belgium	34788	60407	207647	10927	3228	13622
Bulgaria	34862	65635	212875	14454	756	12598
Croatia	31649	61539	208779	15149	1819	12317

Popular times: Wednesday

LIVE Busier than usual



People typically spend 20 min here



Smart and Connected Mobility

1.3 Support for development of **strategic plans** to determine necessary **investments on infrastructures and vertical/horizontal signalization** to accommodate **CAVs**

1st European Conference on Connected and Automated Driving

3-4 APRIL 2017
European Commission
Charlemagne Building, Brussels

Side Events
Exhibitions
Conference Pictures

Organised by
European Commission

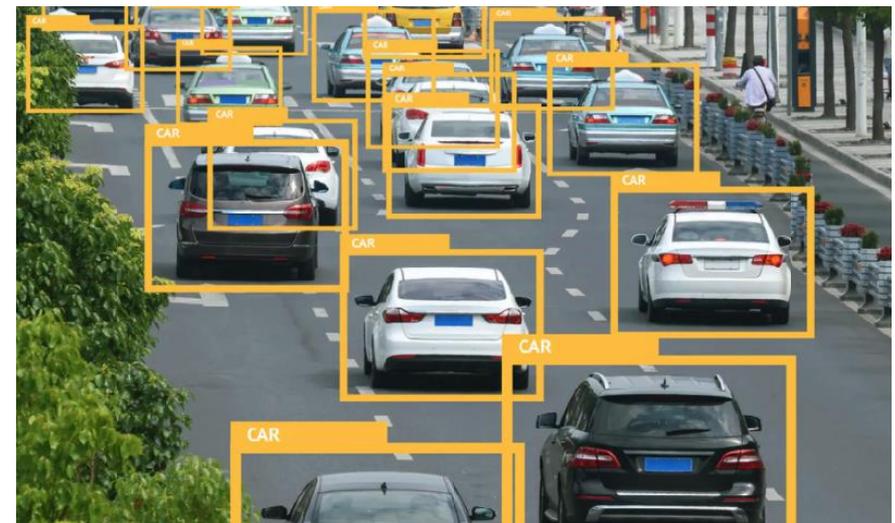
The **Spot Weather Impact Warning** application will alert drivers of unsafe conditions on the road, including fog, ice, and flooding, by relaying information from roadside equipment to vehicles.

The **Eco-Approach and Departure at Signalized Intersections** application alerts drivers of the most eco-friendly speed for approaching and departing signalized intersections, which would minimize stop-and-go traffic and idling. Drivers would be provided with speed advice as they approach a signalized intersection.

Roadside equipment (RSE)

Vehicle interface examples

- Warning icons: FOG, Ice, Snow
- Vehicle interface showing "ECO-SPEED 20 mph"



2. Corridor Management

Motivation:

Geographic location + polycentric network of medium-sized cities => High demand Interregional – intercity traffic

Traffic diversion from tolled motorways to regional roads (with no tolls) => important negative externalities (safety, congestion, pollution, GHG)

Poor coordination between inter-urban transport and urban transport services => use of public transport on interregional travel less attractive.

2 Corridor management

2.1 Supporting of **strategic plans /pilot experience** to minimize traffic-related costs associated with traffic road flows (e.g., **variable message systems, dynamic and intelligent toll systems, public transport smart pricing, efficient logistic platforms and traffic control systems**).



2 Corridor management

2.2 Intelligent regional Public transport

Supporting the creation of intelligent and integrated **intermodal travel planning** and **smart/integrated ticket systems**. New **synergies between regional/national and local operators** (win-2-win) for both users and operators.



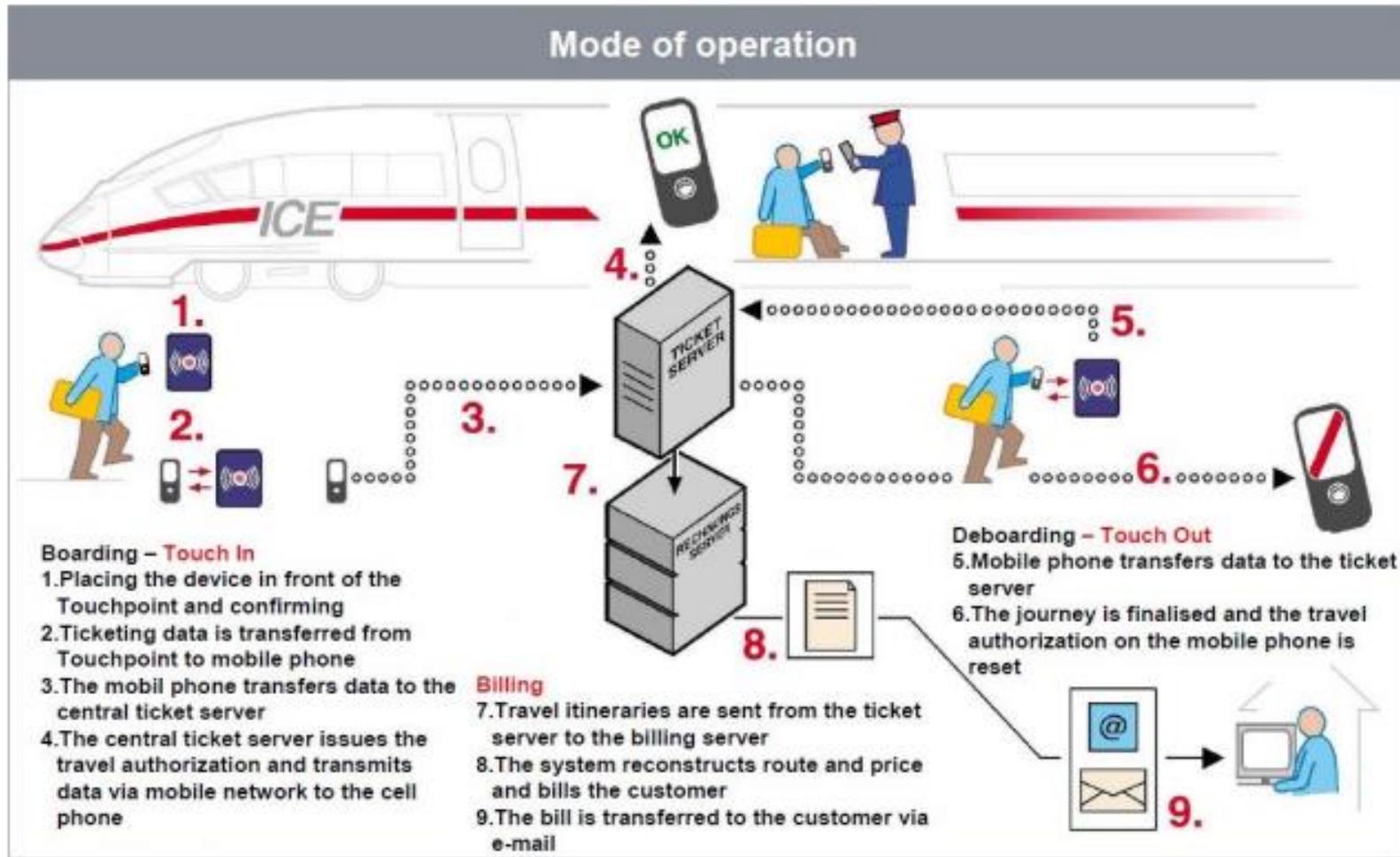
Sveriges största biljettsamarbete

Resplus är ett biljett- och resesamarbete som binder ihop Sveriges kollektivtrafik med över 4 000 orter. Detta är möjligt tack vare en unik samverkan mellan så gott som alla Sveriges trafikföretag, som jobbar tillsammans för att göra resan så smidig och enkel som möjligt för resenären.

Samtrafiken laddar trafikdata och lägger upp hållplatser och linjer i databasen som är kopplad till nationell försäljning. De sträckor som därmed blir sökbara kan kombineras med varandra till resekedjor som innehåller olika trafikslag och flera operatörer. Resekedjorna blir försålda via ett nationellt bokningssystem och distribuerade av ett flertal webbsajter, av ombud och resebyråer.



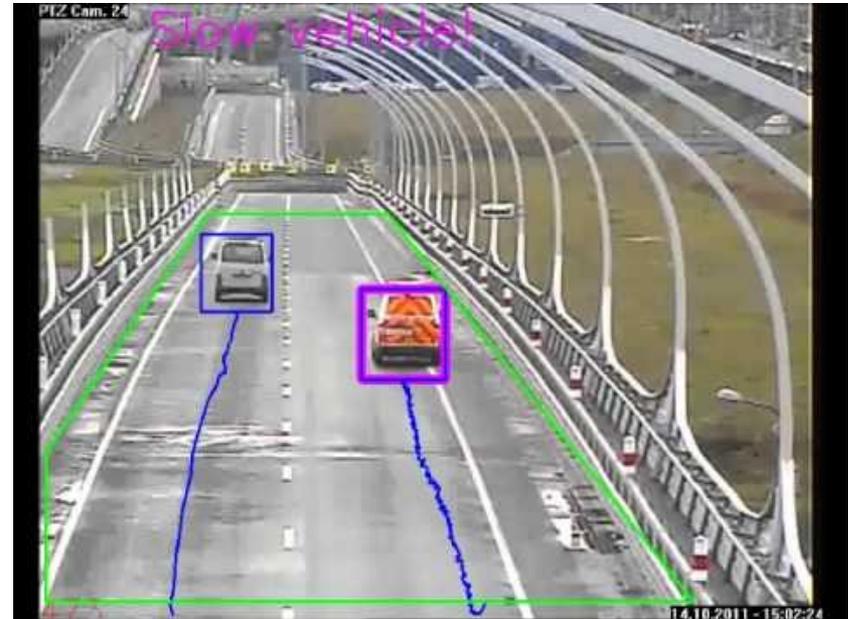
NFC pilot in DB



2 Corridor management

2.3 Automatic Incident Detection (out of motorways)

The use of AID systems in transport systems can enhance road safety and improve traffic flow, by tracking vehicles' position immediately and informing transport authorities to deal with the situation.



3. Electric Mobility

The lack of information and notion of the real autonomy of electric vehicles, as well as **the awareness on the overall distance** of the actual journeys are still conditioning factors for the adoption of these types of vehicles.

The policy instrument could be adapted to promote the developments of awareness plans about e-mobility, new applications to increase awareness about charging points, planning trips and support shared e-mobility.



4. Real-Time Transit Information Systems (RTTISs)

Motivation:

Most valued information by PT users => related to vehicle location.

Smartphone applications => preferred mode for receiving information followed by Internet/websites and dynamic message signs.

The main handicap for providing or improving Real-Time Transit Information Systems (RTTISs) was found to be funding.

Real-Time Transit Information Systems (RTTISs)

4.1 New exclusive investment priority be focused on RTTIS.



BP (RTC) in Quebec City



Coimbra Portugal

Live bus information on your smartphone

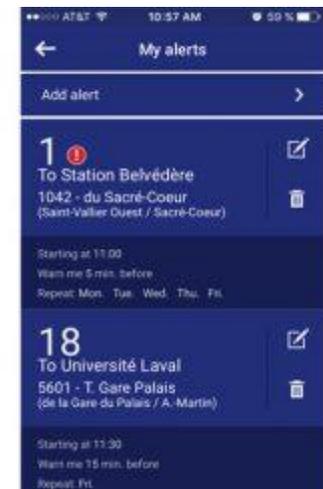
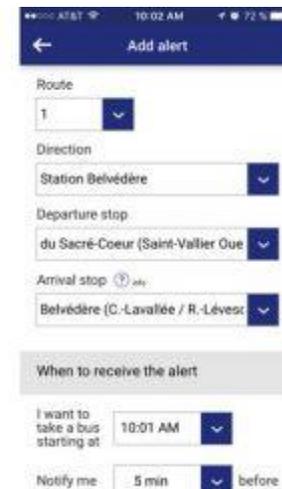


NY, USA



QR: Use your app to take a photo.

NFC: Hold your phone over the logo.



5. Assistive Technology

Motivation:

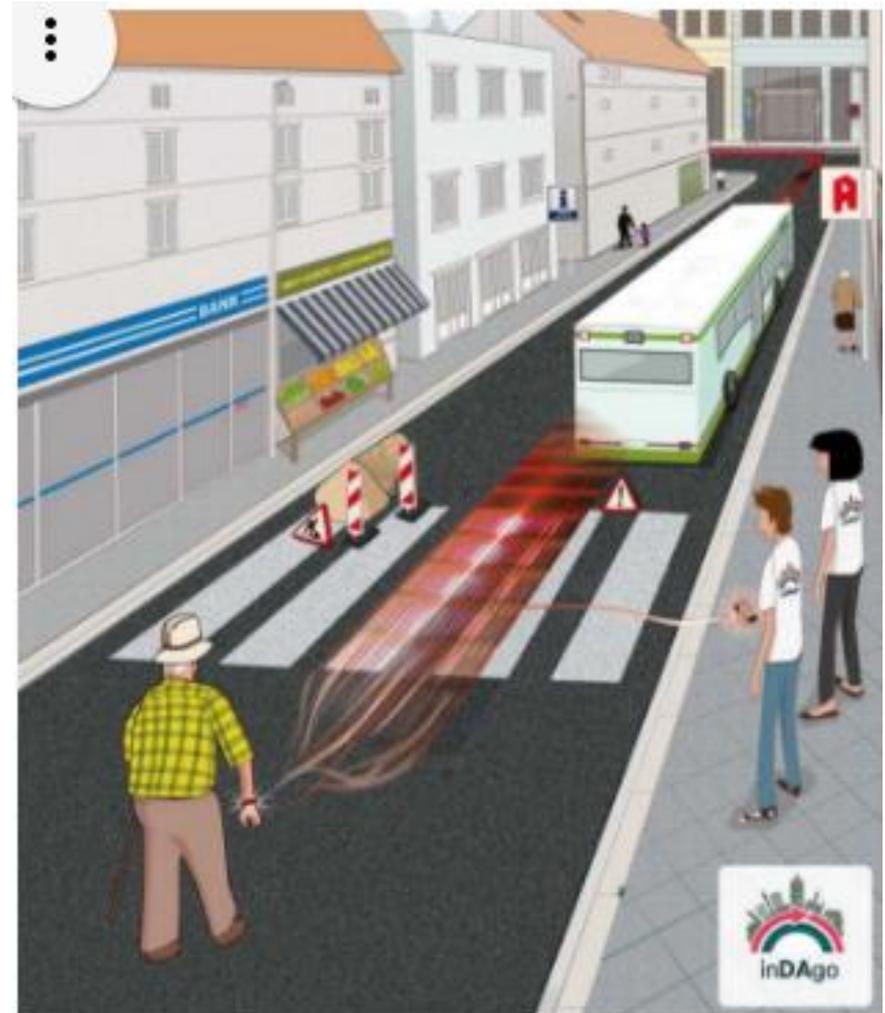
In the last decades, the demographic change in Europe has becoming evident, with an ageing trend.

In CENTRO Region => 22,5 % of the population is older than 65 => This age group is particularly affected by the increasing complexity of modern public transit systems.

Assistive Technology

Some funding could be redirected to perform an **exhaustive user evaluation, identify suitable interface choices** (during the process, some systems that were considered obvious in initial assessments could be excluded). Increased confidence in the use of public transport by an increasingly significant proportion of the population can contribute to the reduction of carbon emissions.

Source: INDAGO project



PO CENTRO 2020

4e - "Supporting the transition to a low-carbon economy in all sectors" and the investment priority 4e - promoting low-carbon strategy for all types of territories

CISMOB will encourage synergies between European Structural funds, Horizon 2020 and other research programmes.

Increase incentives for inter-municipal cooperation, namely by supporting the development of green mobility projects based on ICT beyond the scope of sustainable mobility plans to be financed.

Your expertise Your ideas

Grupo 1 Sistemas de Bilhética Inteligentes

Objetivos:

- 1) Conhecer o ponto de vista dos intervenientes sobre como tornar os **transportes públicos mais eficientes**, confortáveis e atrativos através da implementação de **sistemas de bilhética inteligentes e integrados** (ex. Cartões sem contacto válidos em vários modos e operadores, sistemas passivos via smartphone / tecnologia NFC, via verde, bilhete eletrónico integrado)
- 2) Debater eventuais melhorias necessárias nos instrumentos políticos associados,
- 3) Estabelecer sinergias entre stakeholders e **desenhar esboço de potencial ação piloto a submeter** até ao final da primeira fase (31 Março 2017),



Your expertise Your ideas

Grupo Sistemas de Informação em tempo real

Objetivos:

- 1) Conhecer o ponto de vista dos intervenientes sobre como tornar os transportes públicos mais eficientes, confortáveis e atrativos através **da implementação de informação em tempo real** (ex. informação em paragens através de painéis e monitores interativos de planeamento de rota, sistemas NFC e QR para *smartphone* sobre o sistema de TP, informação em tempo real dentro **do transporte público (próxima paragem e conexões – autocarros e/ou comboios, e/ou sistema partilha de bicicletas)**; **sistemas descentralizados como aplicações de smartphone para planeamento de viagem e alertas de próximos serviços**);
- 2) Debater eventuais melhorias necessárias nos instrumentos políticos associados,
- 3) Estabelecer sinergias entre stakeholders e desenhar esboço de potencial ação piloto a submeter até ao final da primeira fase (31 Março 2017),



Your expertise Your ideas

Grupo 3 Planeamento e gestão de dados abertos

Objetivos:

- 1) Conhecer o ponto de vista dos intervenientes sobre como Fomentar a abertura responsável e consistente de dados de mobilidade para estimular a inovações e empreendedorismo, nomeadamente o desenvolvimento de ferramentas, soluções e avanços tecnológicos que utilizem informação do sector público ou privado e conduzam ao aumento do uso do transporte público em detrimento do sector privado,
- 2) Debater eventuais melhorias necessárias nos instrumentos políticos associados,
- 3) Estabelecer sinergias entre *stakeholders* e desenhar esboço de potencial ação piloto a submeter até ao final da primeira fase (31 Março 2017),



Quadro de respostas

1	3	5	7
2	4	6	8



CISMOB

Interreg Europe



European Union
European Regional
Development Fund

II Pilot Action



Project smedia

Pilot actions (objective)

Test good ideas discovered during phase 1 in a given region before being rolled out.

If this testing requires funding and the ‘importing’ region does not have this funding for different reasons, the project may apply to the Interreg Europe programme before the end of phase 1 to carry out a pilot action.

Pilot action (procedure)

Submit a revised application before the end of phase 1, justifying why programme funding is required for implementation.

Additional partners may be involved

Justify why programme funding is required for implementation.

Pilot Action (example adapted)

Example 1: Following the extensive experience of the Swedish stakeholders Traffik lab (which have host a CISMOB technical visit) in promoting innovative and collaborative ICT applications (traffiK lab) for citizens in their public transport system, the Portuguese and Romanian partners would like to develop new measures for open innovation, and smart integrated ticket systems.

Since the participation of civil society and transport operators is relatively new in these regions, CISMOB partners needs to carry out a pilot action to test the reaction of their citizens and consequent impacts on transport externalities. It is really important to test these new approaches before deciding to finance it through the ERDF regional operational programme.

The pilot action consists of applying new methods for collecting citizens' reactions to the development of new services/ prototypes by local companies. In particular, a consultation web-based tool will be developed and several workshops, and modelling of the transport system will be organised with representatives of the four helices (i.e. public authorities, private companies, research institutes and customers/ citizens)



Pilot Action (example adapted)

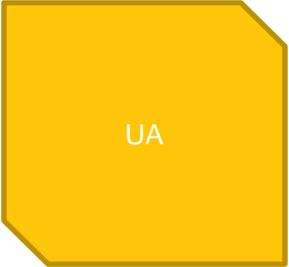
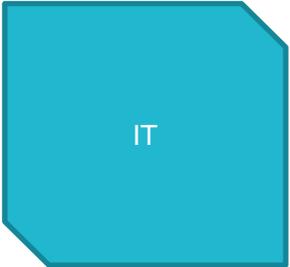
Example 1: Following the good practice identified by PP6 (AGENXE) which reported as good practice the smartphone application “CACERES BUS” for helping Caceres bus users, the Portuguese partners UA and the municipality of CENTROCITY would like to test a similar approach in this city.

Given the different socio economic context, the participation/reaction of users, acceptability transport operators and municipalities is still unknown. CISMOB partners and the new partner X and Y needs to carry out a pilot action to test the reaction of their citizens and consequent impacts on transport externalities. By demonstration the success of this system in a small case, it can be determinant to encourage the implementation of an exclusive measure for such systems in the ERDF regional operational programme CENTRO 2020 pi 4e1.

The pilot action consists of applying new methods for collecting citizens' reactions to the development of new services/ prototypes by local companies. In particular, a consultation web-based tool will be developed. We will also model the transport system evaluate consequent impacts on CO2 emissions. Several workshop about the topic will be organised with representatives of the four helices (i.e. public authorities, private companies, research institutes and customers/ citizens)



Ação Piloto – Grupo _____

Parceiro	Parceiro / Stakeholder tecnológico	Gestão Local/Regional	Ideia
 <p>UA</p>	 <p>IT</p>	 <p>CIM Aveiro</p>	
 <p>CM-AGUEDA</p>			Variáveis

Other Examples to CISMOb?

Integrated ticket system in Sweden to be tested in CENTRO, ROMANIA, BUCHAREST?

**Congestion charging in Stockholm to Bucharest? (modeling)
Smart traffic lights from Stockholm to Bucharest?**

**Open data from Águeda to Badajoz?
Air quality sensors from kista, Sweden to Águeda?**

**Eco-routing from Aveiro to Extremadura?
Electric mobility in Portugal to Extremadura?**

Crowdsourcing (technical papers) to predict road traffic-related impacts



Criteria to be eligible

To be eligible for support from the programme, pilot actions need to fulfil the following three conditions:

Relevance: The pilot action needs to clearly contribute to the policy instrument tackled in the region where it is proposed. *As such, it should be part of the action plan of that region.*

Interregionality: The pilot action needs to clearly derive from the cooperation.

Pilot actions need to be clearly related to the interregional learning process.



Action plan Timeline

1. The background (description of the lessons learnt from the project that constitute the basis for the development of the AP)

1 Action (description of the actions to be implemented)

1st draft 07 December

2. Players involved (list and role of the organisations in the region who are involved in the development and implementation of the AP)

1st draft 07 December

3. Timeframe ●

4. Costs (if relevant)

5. Funding sources (if relevant):





CISMOB promotes innovative ways of reducing carbon footprint and increasing the sustainability of urban areas through efficient use of urban transport infrastructure with the help of information and communication technologies (ICT).

www.interregeurope.eu/cismob

An interregional cooperation project for improving low-carbon economy policies

Project Partners

Extremadura Energy Agency (ES)
Municipality of Avelas (PT)
University of Avelas (PT)
Bucharest Metropolitan Transport Authority (RO)
Intelligent Transport Systems Romania - ITS Romania (RO)
Stockholm University (SE)

Thank you

jorgebandeira@ua.pt

<http://www.interregeurope.eu/cismob/>

