

The REMEDIO project

**Horizontal Condominiums
as living labs for renewals
of high congested roads in
*M*editerranean cities**



Francesca Liguori

ARPAV, Regional Agency for Environmental
Protection in Veneto Region
Lead Partner REMEDIO

Anastasia Poupkou

Aristotle University of Thessaloniki
Transferring Leader REMEDIO

West Road in 1962



The way (road) we were

West Road in 2016



The every day traffic jam

West Road in 1962



The way (road)

*West
Road
Future*



The vision we have

West Road in 2016

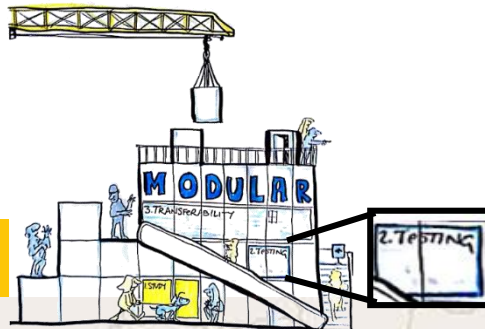


day traffic jam



REMEDI

REgenerating mixed-use **MED** urban communities congested
by traffic through **I**nnovative low carbon mobility **sO**lutions



REMEDIO: a testing project



**REMEDIO
Pilot-Areas**

Loures

158 km²
205'000
inhabitants

Treviso

56 km²
84'500
inhabitants

Scientific Support



Split

79 km²
179'000
inhabitants

Thessaloniki

1,455 km²
1,110,312
inhabitants

#1

GOVERNANCE PILLAR

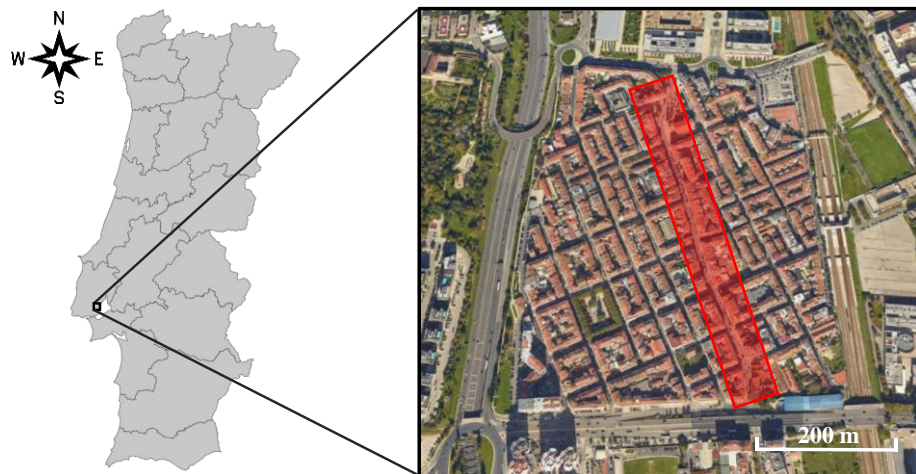
a new participative governance model for
roads of middle sized Mediterranean cities,
based on "horizontal condominium"

Strategy

Giving identity, visibility and
voice to urban communities
congested by traffic



Pilot area Loures, Portugal



Loures Municipality

&



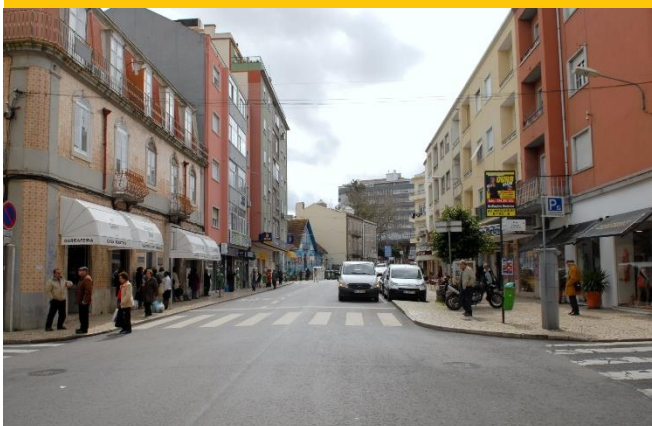
**Instituto Superior Técnico
of University of Lisbon**

Type of intervention

Urban renewal for a better walkability and cycling
giving back its vocation for being a town

Pilot area Loures, Portugal

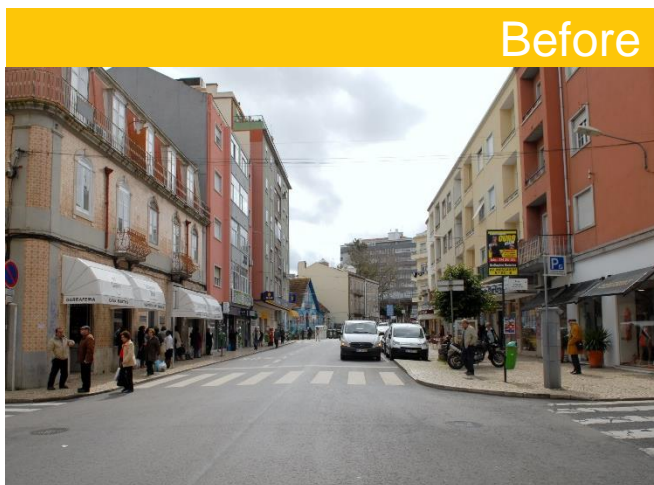
Before



After



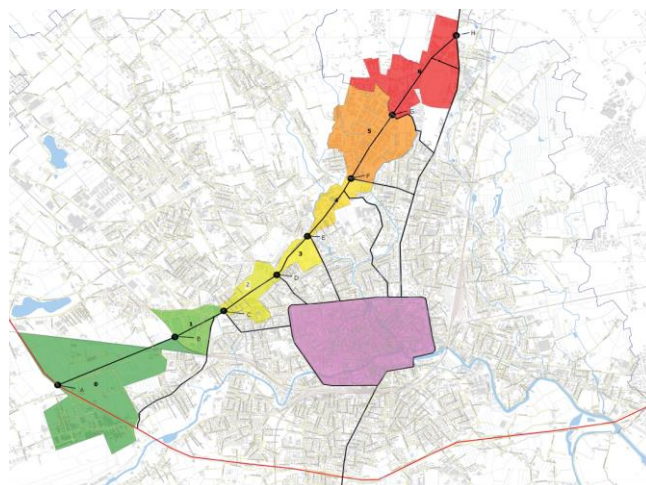
Pilot area Loures, Portugal



Making the city more livable for everyone

by improving one main street with wider
sidewalks, street furniture, green spaces and
security for everyone to enjoy their city and to
improve quality of life of citizens

Pilot area **Treviso, Italy**



Treviso Municipality



ARPAV

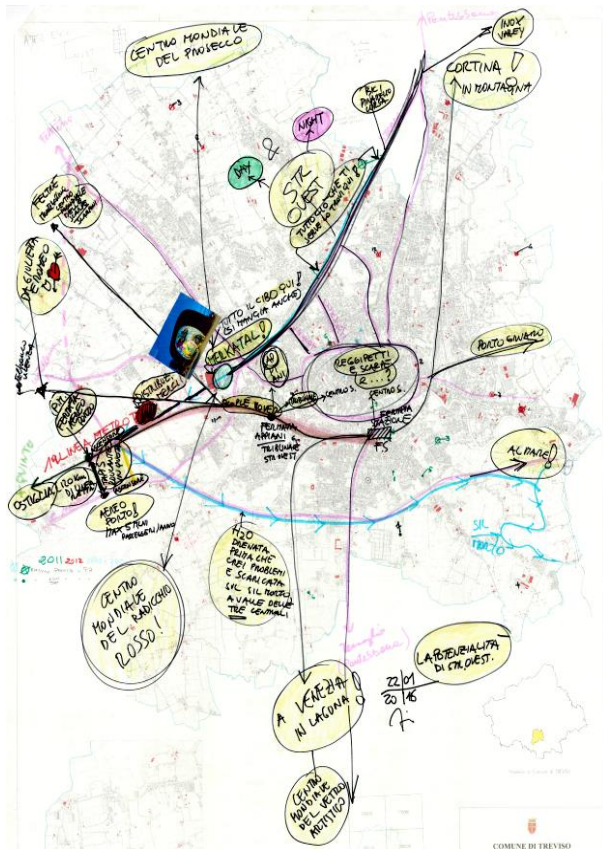


Agenzia Regionale per la Prevenzione
e Protezione Ambientale del Veneto

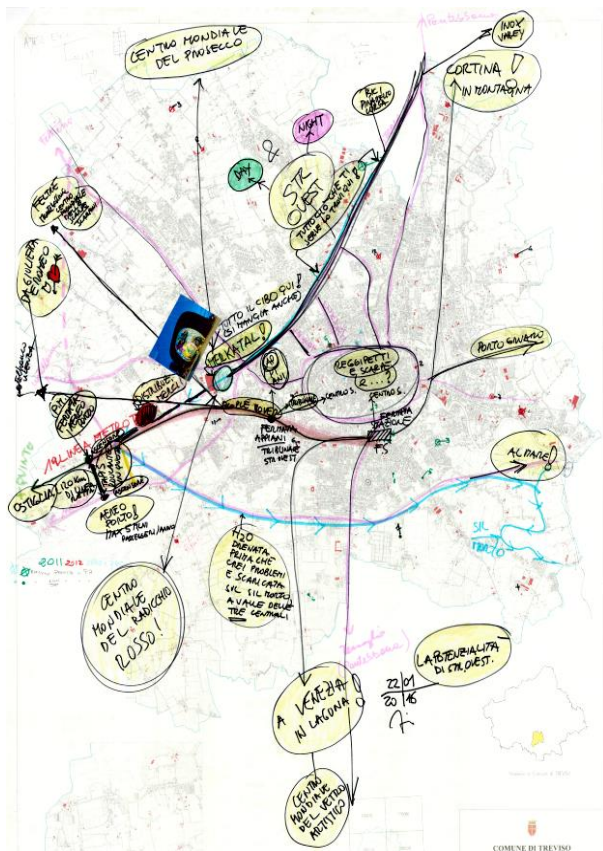
Type of intervention

Stimulating a lobbying activity and sharing ideas by local
business reality for the renewal and improvement of the road

Pilot area Treviso, Italy



Pilot area Treviso, Italy



Pilot area Split, Croatia



GRAD SPLIT

City of Split

Type of intervention

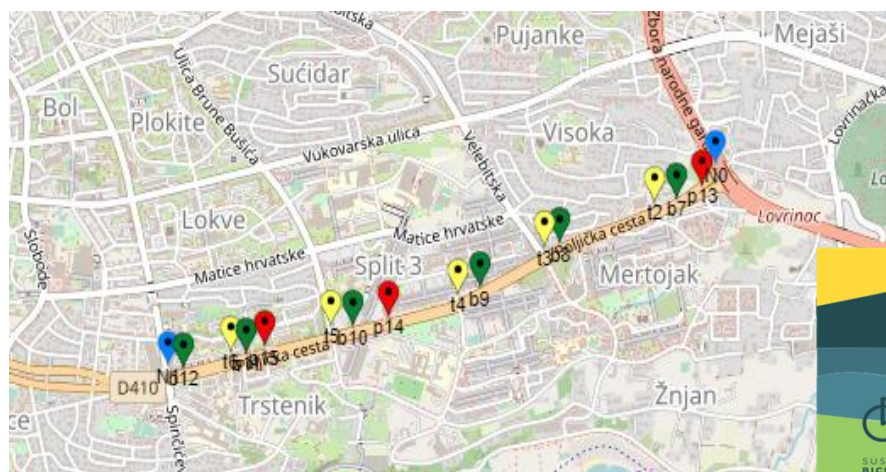
Implementation of public mixed electrical and traditional
bike system by a strong participative approach

Pilot area Split, Croatia

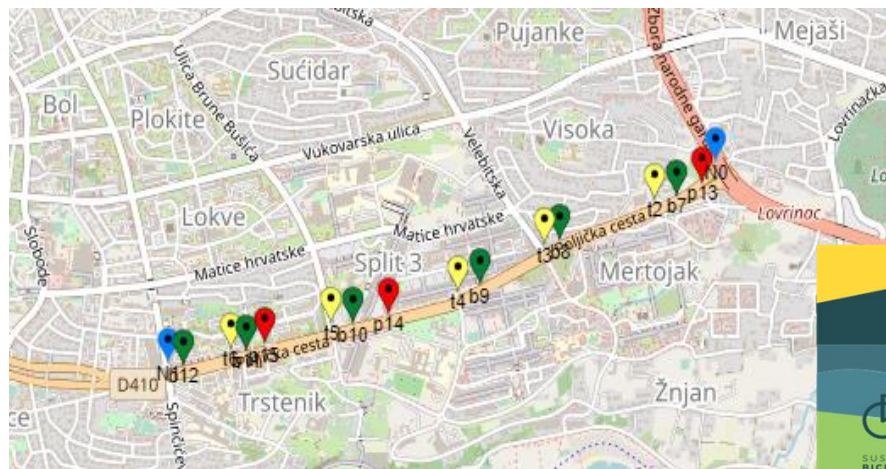


GRAD SPLIT

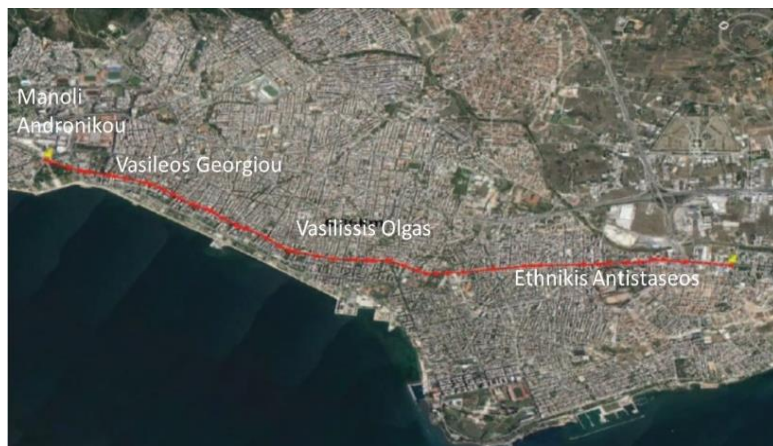
City of Split



Pilot area Split, Croatia



Pilot area Thessaloniki, Greece



**Major Development
Agency Thessaloniki S.A.**

&



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

**Aristotle University of
Thessaloniki**

Type of intervention

Redesign/upgrade of an urban axis based on the
principles of SUMP with a high-participatory approach

Pilot area Thessaloniki, Greece



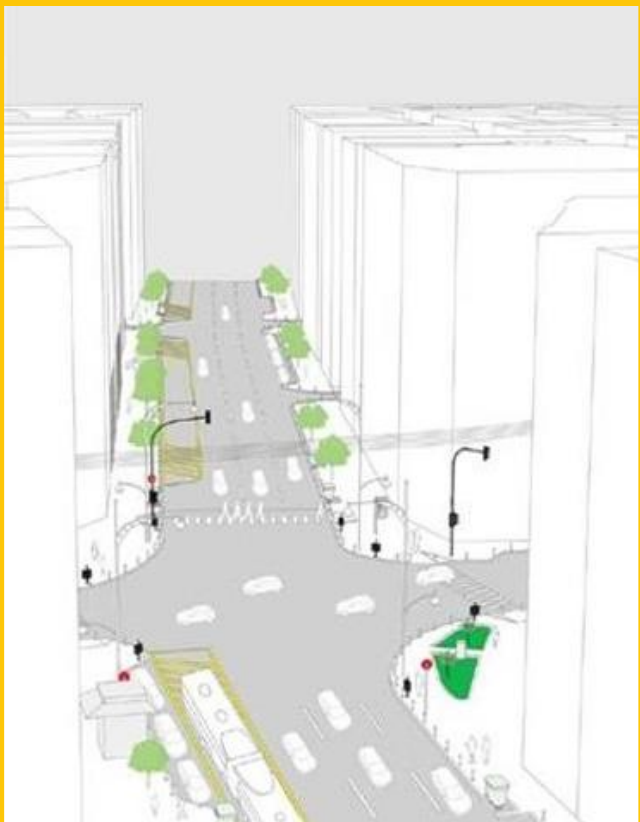
Type of intervention

Redesign/upgrade of an urban axis based on the principles of SUMP with a high-participatory approach

Pilot area Thessaloniki, Greece



Current situation of the axis



Proposed redesign



Pilot area Thessaloniki, Greece

Current situation of the axis



Proposed redesign



#3

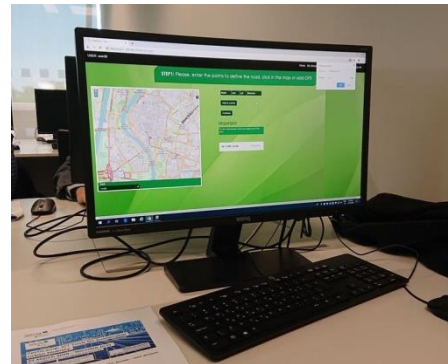
SOFT PILLAR

an Integrated Modelling Tool (IMT) to
evaluate low carbon mobility actions to be
implemented in highly congested roads

Strategy

Assessment of urban solutions for
congested roads

**Integrated
Modelling
Tool
(IMT)**



Integrated Modelling Tool #3 Soft Pillar

➔ Customized modelling tool to assess the environmental-related performance of low carbon mobility actions at local street level

➔ A Decision Making Tool

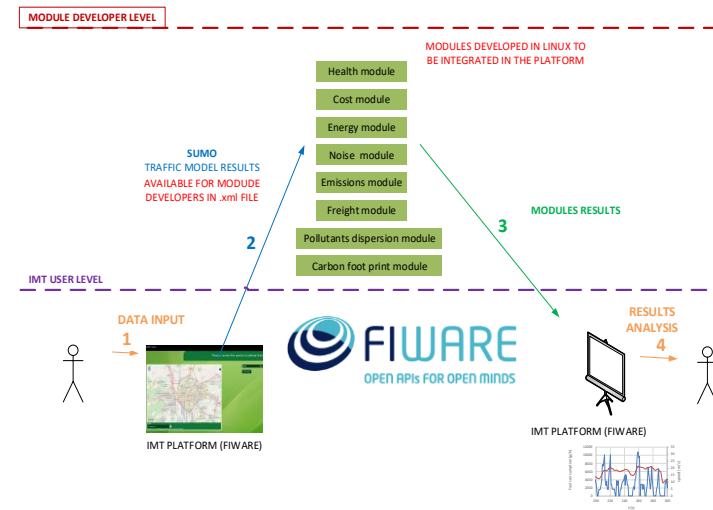
Integrated Modelling Tool #3 Soft Pillar

➔ Customized modelling tool to assess the environmental-related performance of low carbon mobility actions at local street level

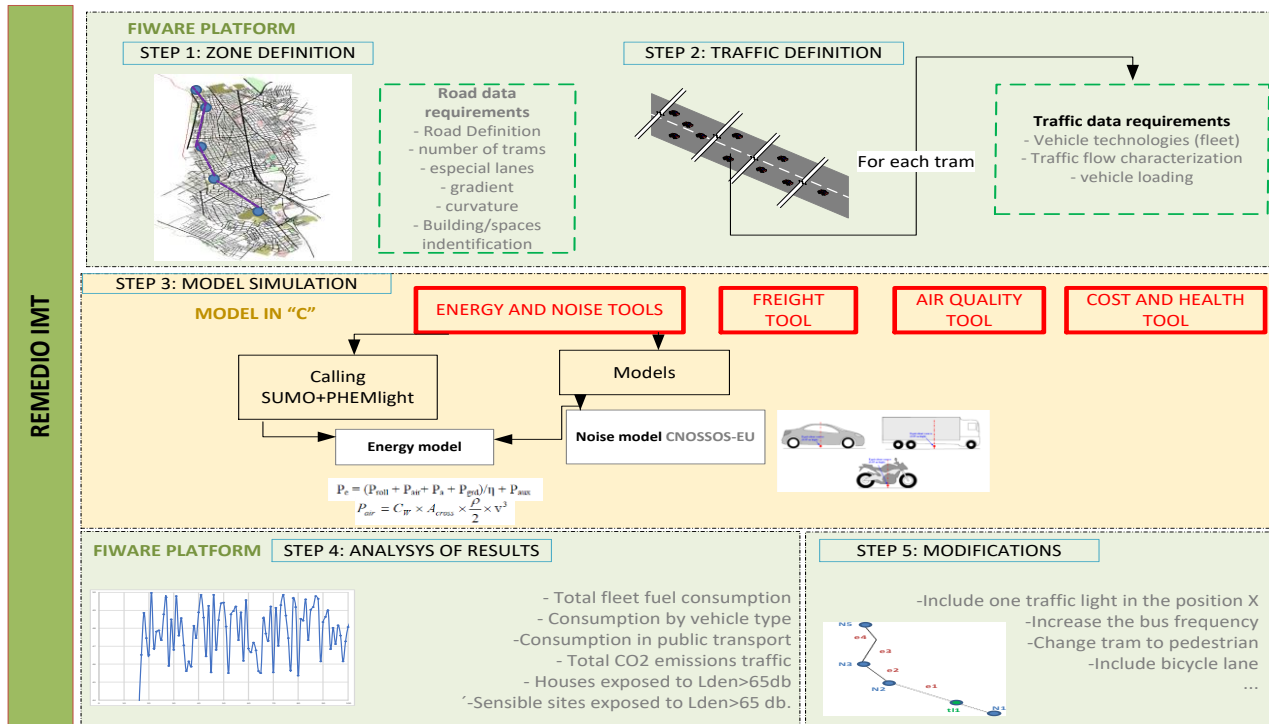
➔ A Decision Making Tool

➔ IMT integrates the following **Modules** for the estimation of traffic related impacts:

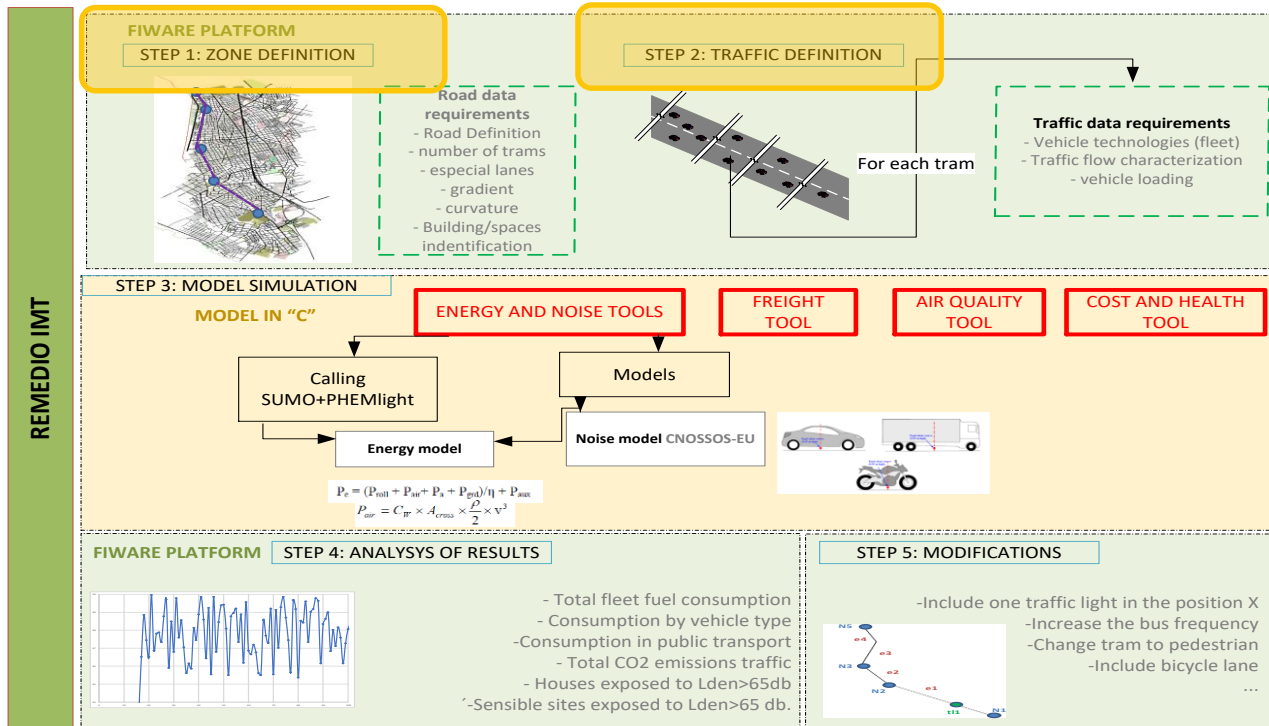
- Pollutant Emissions
- Carbon Footprint
- Atmospheric Dispersion
- Energy Consumption
- Traffic Noise
- Health Events and related Costs



Integrated Modelling Tool Conceptual Modelling Approach



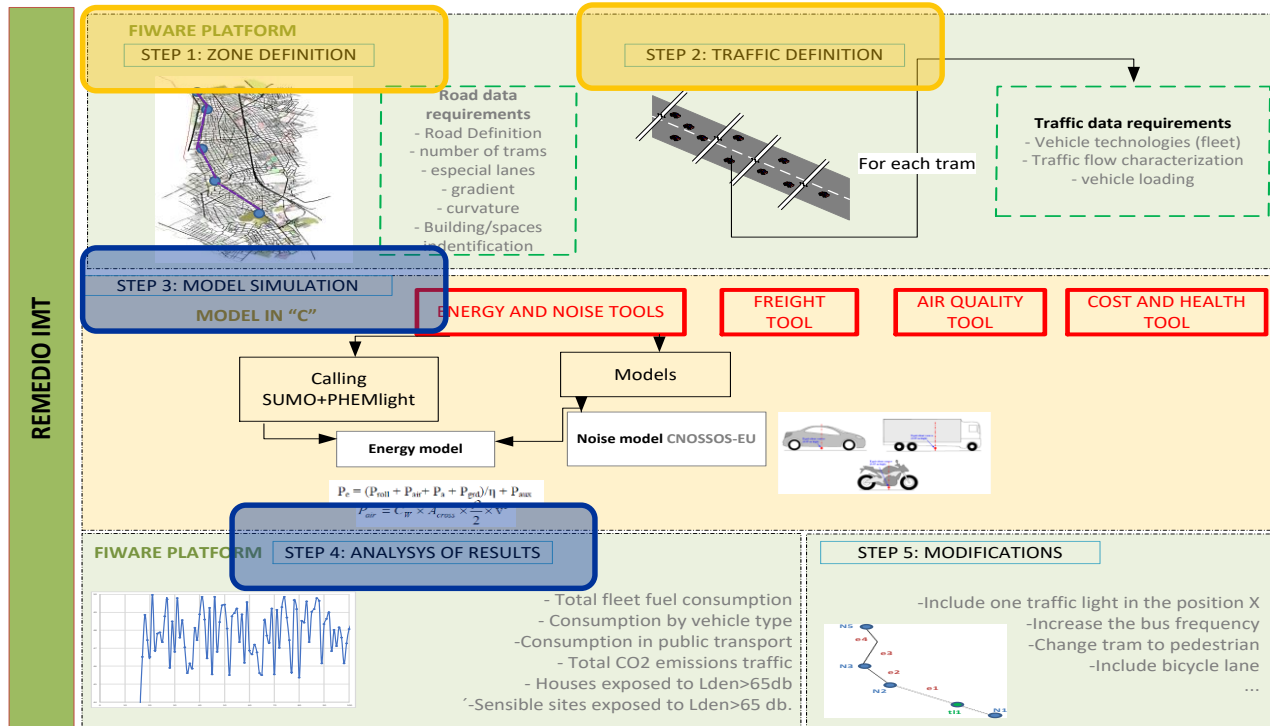
Integrated Modelling Tool Conceptual Modelling Approach



Steps 1 and 2

- ❖ **Input data:** Road description, Traffic data, Buildings dimensions, Meteorology, Air quality data

Integrated Modelling Tool Conceptual Modelling Approach



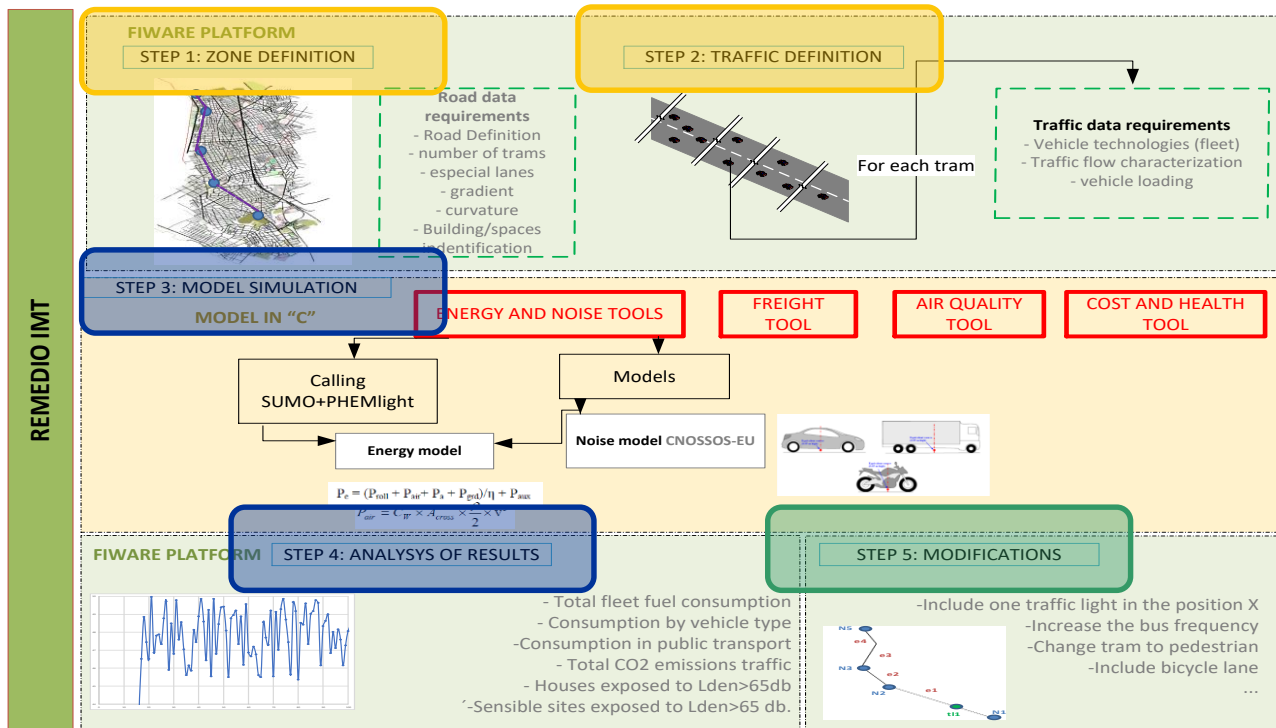
Steps 1 and 2

- ❖ **Input data:** Road description, Traffic data, Buildings dimensions, Meteorology, Air quality data

Steps 3 and 4

- ❖ **Application of modules**
- ❖ **Output data:** Raw data, Graphs, Maps
- ❖ **Data analysis**

Integrated Modelling Tool Conceptual Modelling Approach



Steps 1 and 2

- ❖ **Input data:** Road description, Traffic data, Buildings dimensions, Meteorology, Air quality data

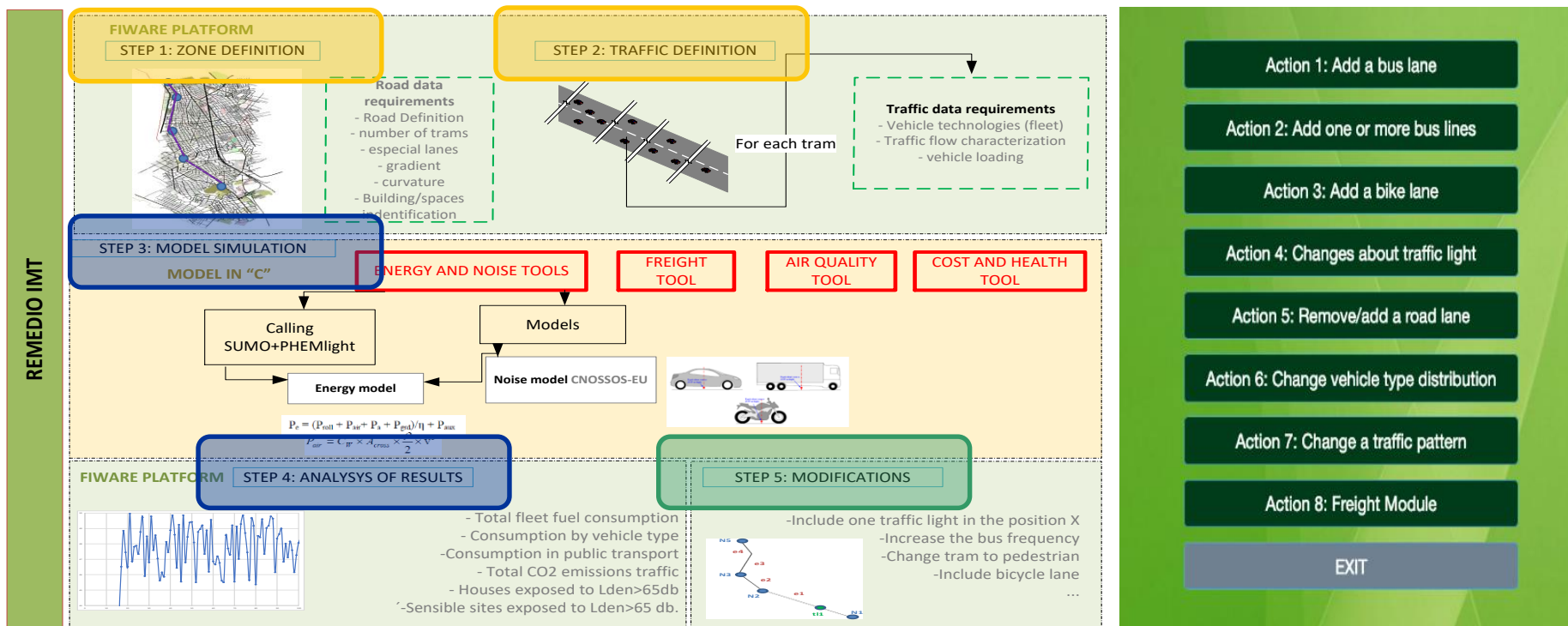
Steps 3 and 4

- ❖ **Application of modules**
- ❖ **Output data:** Raw data, Graphs, Maps
- ❖ **Data analysis**

Step 5

- ❖ **Traffic scenarios building**

Integrated Modelling Tool Conceptual Modelling Approach



Steps 1 and 2

- ❖ **Input data:** Road description, Traffic data, Buildings dimensions, Meteorology, Air quality data

Steps 3 and 4

- ❖ **Application of modules**
- ❖ **Output data:** Raw data, Graphs, Maps
- ❖ **Data analysis**

Step 5

- ❖ **Traffic scenarios building**

Integrated Modelling Tool Environmental Assessment of Mobility

Actions in Treviso: The West Road

Expanding the Bike
Sharing System

Implemented

Integrated Modelling Tool Environmental Assessment of Mobility

Actions in Treviso: The West Road

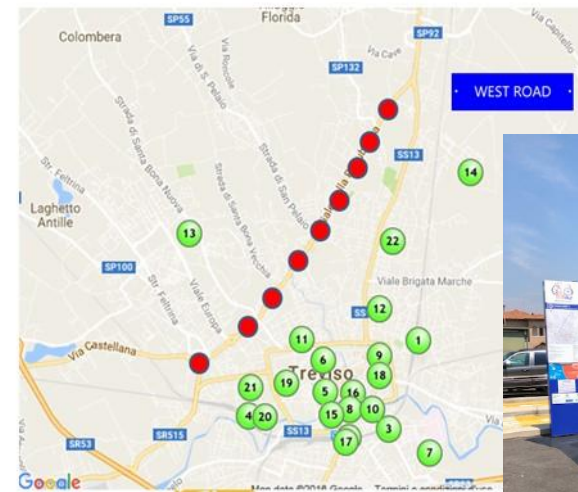
Expanding the Bike
Sharing System

Implemented



● Bike sharing – West Road
9 new station - 50 bikes

● 22 existing stations - 120 bikes



Integrated Modelling Tool Environmental Assessment of Mobility

Actions in Treviso: The West Road

**Expanding the Bike
Sharing System**

Implemented

**Replacement of 6
traffic lights with
roundabouts**

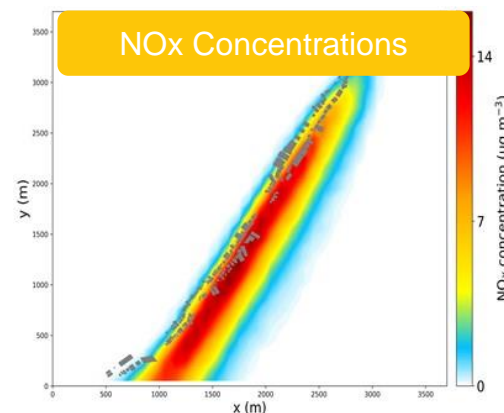
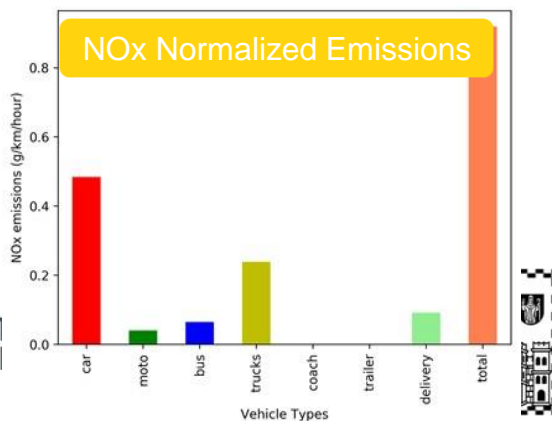
Scenario

Integrated Modelling Tool Environmental Assessment of Mobility

Actions in Treviso: The West Road Impacts on Energy, Emissions, Air Quality - Roundabouts scenario -

Environmental Variable	Reduction
Fuel Consumption	5%
CO, CO ₂ , PM _x Emissions	10%
NO _x Emissions	20%
HC Emissions	30%

Pollutant	Max Concentration* Reduction
CO	33%
PM _x	17%
NO _x	8%
HC	57%



**spatially unpaired*

Integrated Modelling Tool Environmental Assessment of Mobility

Actions in Treviso: The West Road Impacts on Health and Related Costs



What if... daily concentrations of NO_2 , PM_{10} , $\text{PM}_{2.5}$ were reduced by 10% due to the implementation of measures to mitigate congestion?

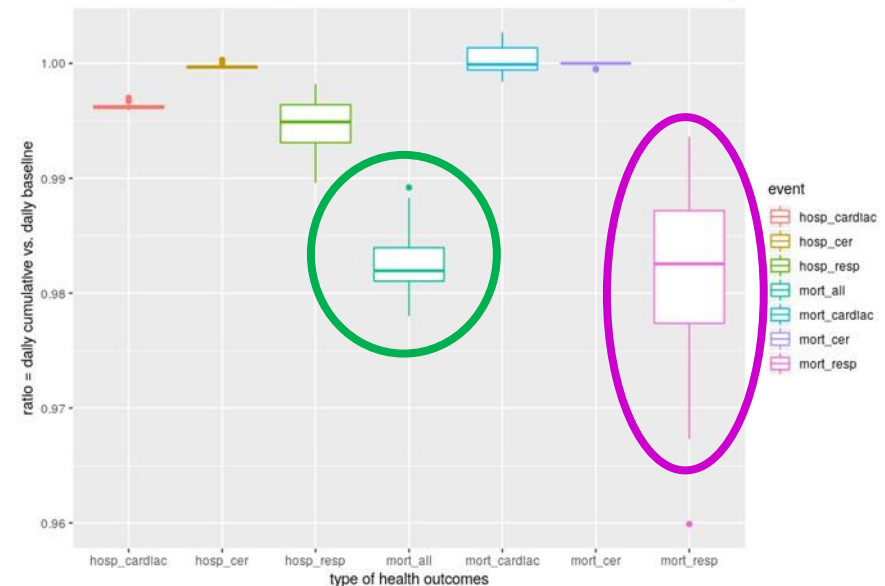
Integrated Modelling Tool Environmental Assessment of Mobility

Actions in Treviso: The West Road Impacts on Health and Related Costs

- ❖ ~ **1.7% reduction** of the median of:
 - **Mortality from Respiratory Causes**
 - **Mortality from All Causes**

- ❖ ~ **0.5 % reduction** of the median of:
 - **Hospitalization costs for Respiratory**
 - **Hospitalization costs for Cardiac Causes**

Boxplot of Hospitalizations and Deaths by Cause



REMEDIO Take home message

Strategy and tools

REMEDIO Take home message

Strategy and tools

#1

GOVERNANCE PILLAR

a new participative governance model for
roads of middle sized Mediterranean cities,
based on "horizontal condominium"

#3

SOFT PILLAR

an Integrated Modelling Tool (IMT) to
evaluate low carbon mobility actions to be
implemented in highly congested roads

REMEDIO Take home message

Strategy and tools

#1

GOVERNANCE PILLAR

a new participative governance model for
roads of middle sized Mediterranean cities,
based on "horizontal condominium"

#3

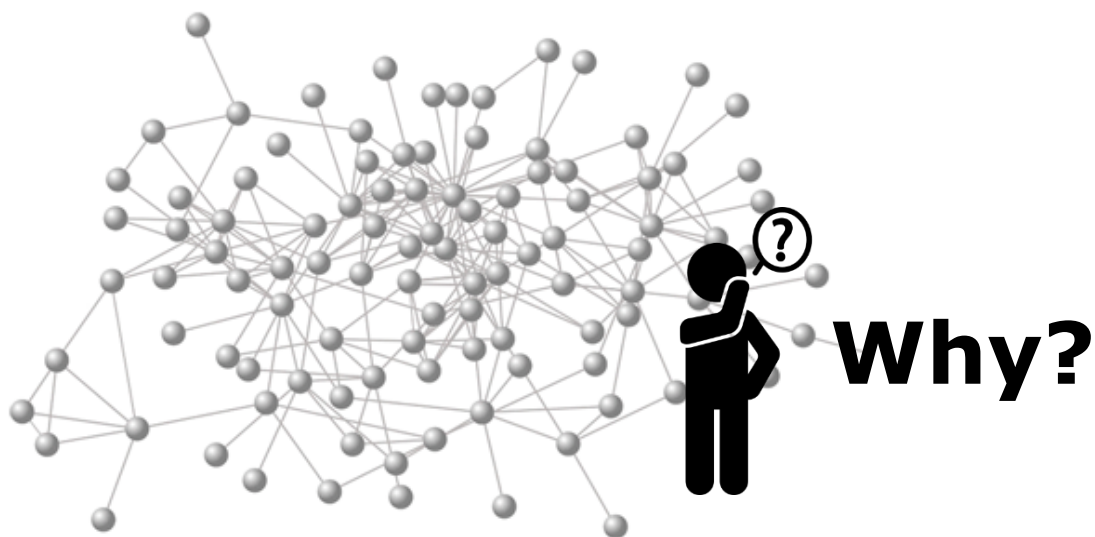
SOFT PILLAR

an Integrated Modelling Tool (IMT) to
evaluate low carbon mobility actions to be
implemented in highly congested roads



Why?

REMEDIO Take home message



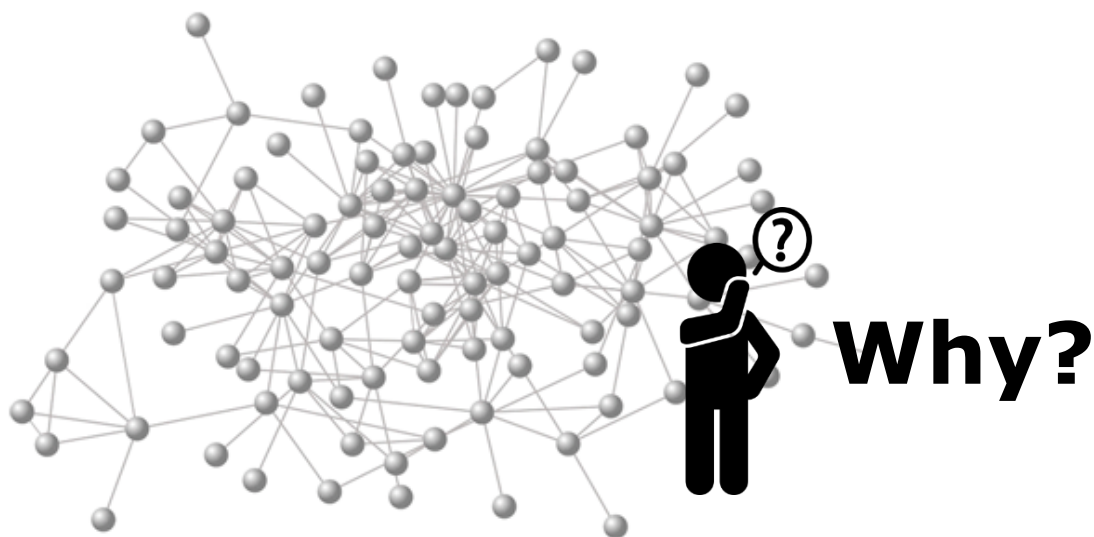
REMEDIO Take home message

A local human ecosystem of knowledge

Citizens, users, experts, stakeholders, organisations, local authorities

Collective intelligence and participatory actions

4P effect: Place – People – Participatory Policy



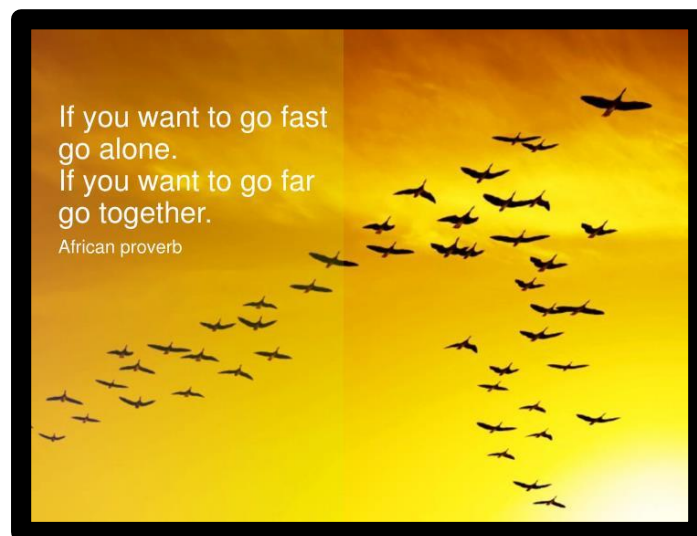
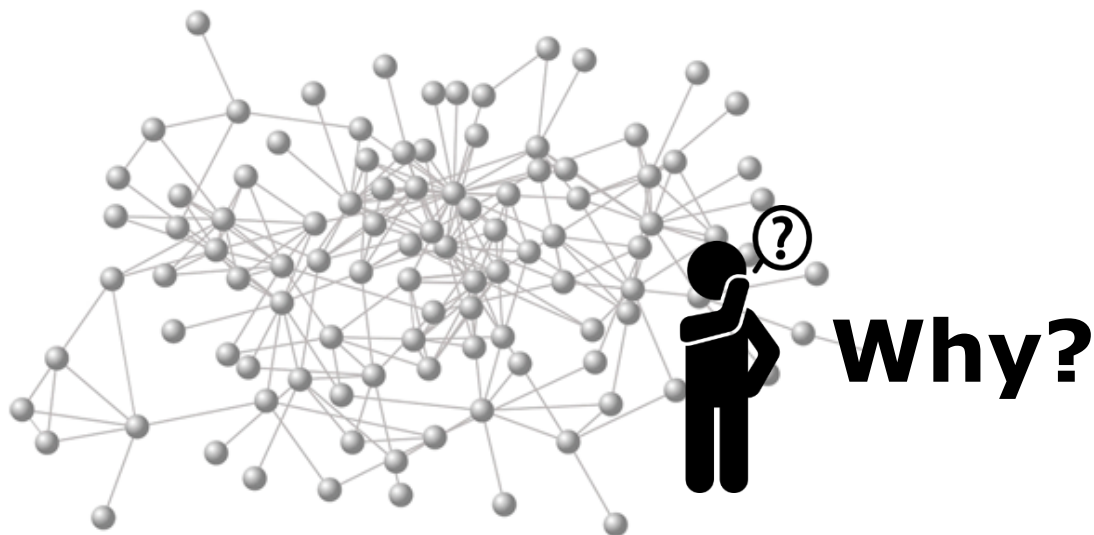
REMEDIO Take home message

A local human ecosystem of knowledge

Citizens, users, experts, stakeholders, organisations, local authorities

Collective intelligence and participatory actions

4P effect: Place – People – Participatory Policy



This presentation is the outcome of a
cooperation among all REMEDIIO partners



/remediomed



remedio.interreg-med.eu/



remedio-med@ctn.tecnico.ulisboa.pt

Territorial partners

- Municipality of Treviso
- Metropolitan Development Agency of Thessaloniki
- City of Split
- Municipality of Loures

Scientific Institutions

- Environmental Agency of Veneto Region
- Aristotle University of Thessaloniki
- Instituto Superior Técnico of University of Lisbon
- University of Seville