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Interreg Europe

European Union
European Regional
Development Fund

DETERMINING AND CHANGING USER BEHAVIOUR

Nassos Kolyvas

Transportation Engineer

Municipality of Nicosia

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Thematic Workshop on Sustainable Mobility

Partners of InnovaSUMP

- **Nicosia (Lead partner)**
- **Prague**
- **Exeter**
- **Ravenna**
- **Kordelio - Evosmos**
- **Iasi**
- **Vilnius**
- **Viseu**
- **Aristotle University of Thessaloniki**

Travel behaviour determination

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How to determine travel behavior?

Consultation processes

Travellers express their problems, needs, ideas on certain issues regarding mobility

Public Surveys

Determination of travel habits (customer satisfaction, stated preference surveys, origin-destination surveys) →Preference on trip modes and routes, number of daily trips, Kms travelled etc.)

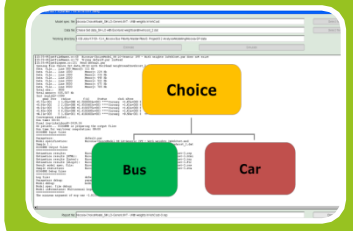
IT applications

- Travel Patterns
- Service demand
- Traffic characteristics-parameters (traffic delay, queue length, etc.)

Nicosia - Key Questions

Identification and prioritisation

- On which corridors should we focus?



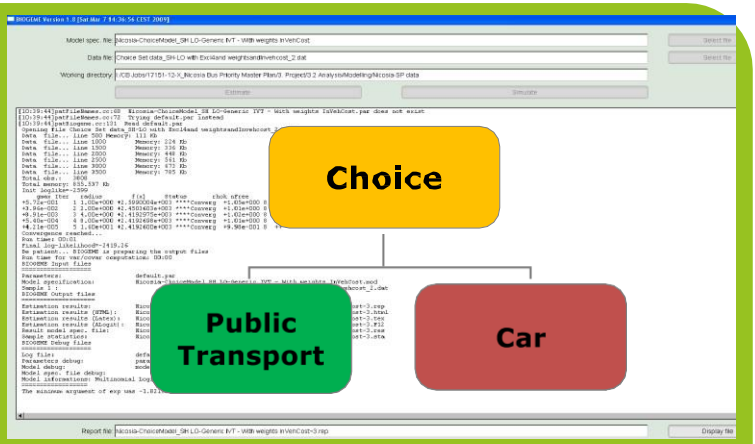
Transport mode choice

- Under which conditions do people switch mode of travel?

Potential bus priority measures

- What measures will improve the bus journey times?

Transport mode choice



Under which conditions do people switch mode of travel?

Factors Affecting Choice of Mode – Public transport versus Car

Factors
Public transport and car journey time
Access to public transport stop
Frequency of service
Type of service and comfort
Public transport fares
Parking charges
Parking space availability

Stated Preference Surveys (SP)

What is Stated Preference?

SP studies are concerned with measuring and understanding the preferences underlying individuals' choices based on how they respond to hypothetical situations in which realistic alternatives are introduced for a defined trip.

Why?

SP surveys are beneficial in collecting responses for policies which are new, for example, introducing a new mode of transport or road pricing.

How?

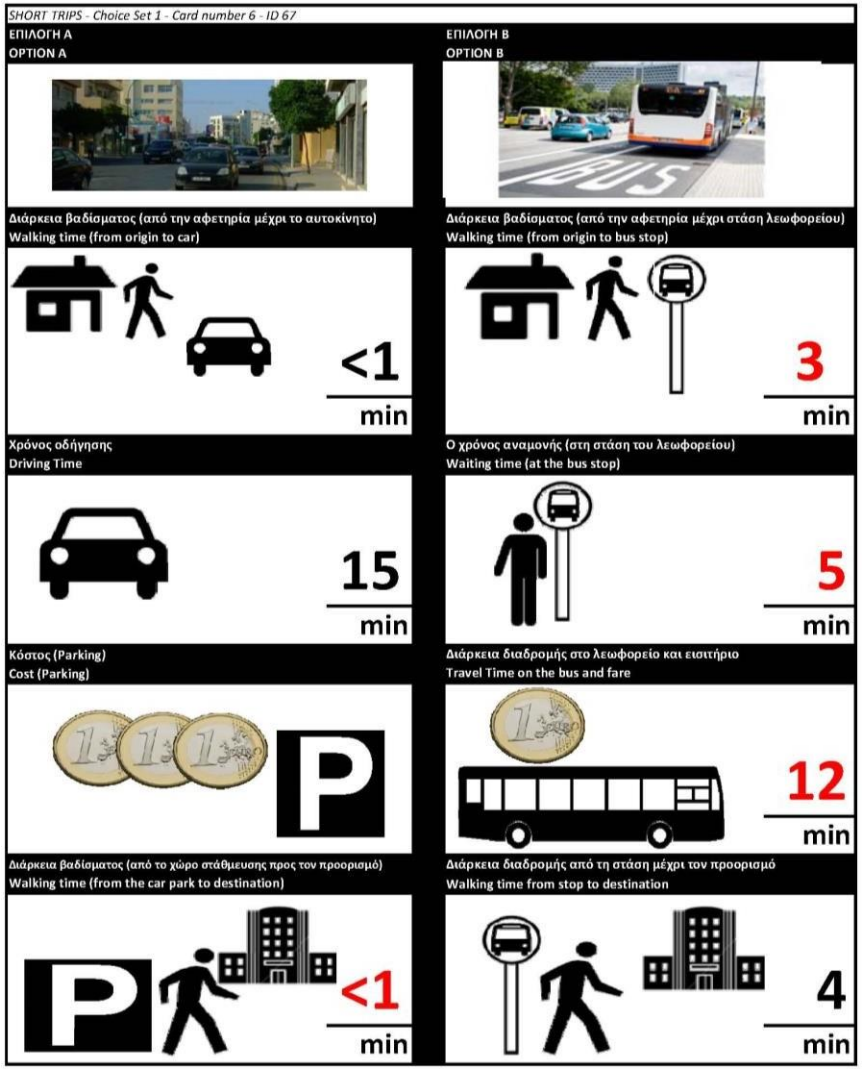
Respondents are asked to state their modal preferences for a defined journey as the choices available and their characteristics are varied in a systematic way.

Who is the end user?

How these affect his behavior?

- **Man or Woman?**
- **Is (s)he young or old?**
- **Rich or poor?**
- **Captive or not captive?**
- **Positive or negative?**
- **Willing to change?**

Stated Preference Questionnaire Design



Potential bus priority measures

Bus lanes (with-flow and contra-flow)

Potential bus priority measures

Bus detection at signals and bus pre-signals / bus gates

Determing and changing travel behaviour - PRAGUE

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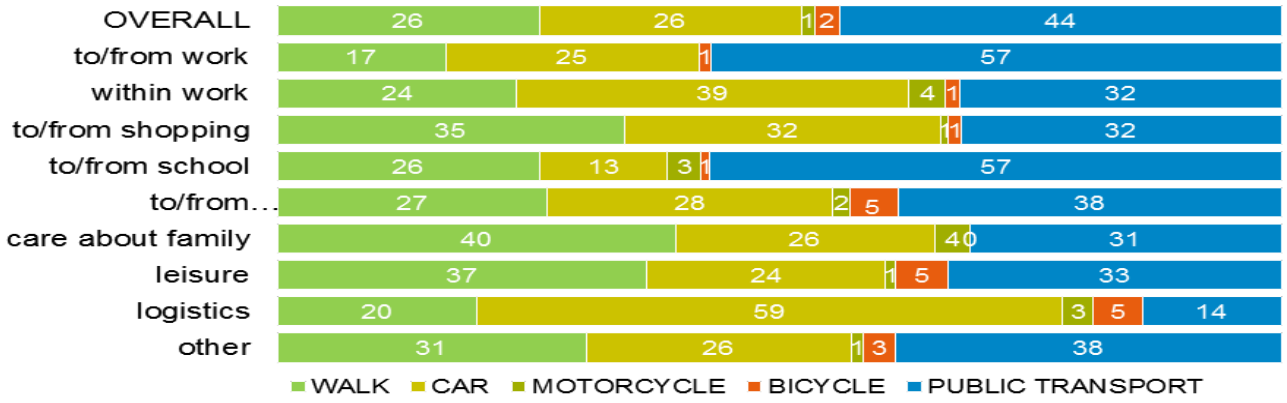
What we know about travel behaviour of residents of Prague agglomeration?

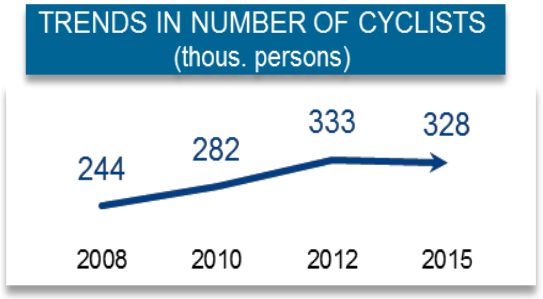
- Differences in travel patterns between urbanites and suburbanites
- Suburbanites travel more often by car
- The share of car on modal split continuously increases
- The share of bike is marginal (about 1 %)



PRA HA
PRA GUE
PRA GA
PRA G

Findings

- **Cycling has strong potential in Prague**
- **Cycling is not seen as important in general**
- **Users perceives many barriers**
  - Safety
  - Conditions at work/school
    - bike parking
    - hygiene
- **Strong demand for connection with public transport**
- **Summer / winter differences**
- **Maps and navigation for cyclists**



Main Results:

- Travel time of public transport has the highest effect on car choice
- The effect of price regulation on car demand is lower than proportional *(middle time price elasticity for Prague -0.59)*
- Improvement of road infrastructure (to make car trips faster) leads to higher attractiveness of car compare to other travel modes *(e.g. 50% travel time reduction → ~17 % induced car demand)*
- Regulation measures based on pricing increase inequality (here we model average effects, in reality pricing affects more low income households)
- Short time effects (are proportionally higher) than long time effects

Future Challenges:

- New travel alternatives:
  - Car-sharing
  - Bike-sharing (e-bike sharing)
  - Light e-mobility (e-bikes, e-scooters)
- Travel services (*transport-as-a-service*)
  - On-demand transport
  - Uber-like services
  - Autonomous mobility
- Shifts in shopping patterns
  - Shopping delivery services

Travel Behaviour Research- EXETER

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Aim to reduce congestion through **encouraging behavioural change** towards more sustainable modes of transport

A unique approach

- **Collaboration** between social scientists and statisticians

Indepth **survey** based on social science insight

→ **Advanced statistical** analysis of survey

→ Expert social scientist lead **citizen workshops** for detailed insight

↓

Evidence based intervention design

← **Advanced statistical** analysis of intervention effectiveness

Engagement with businesses

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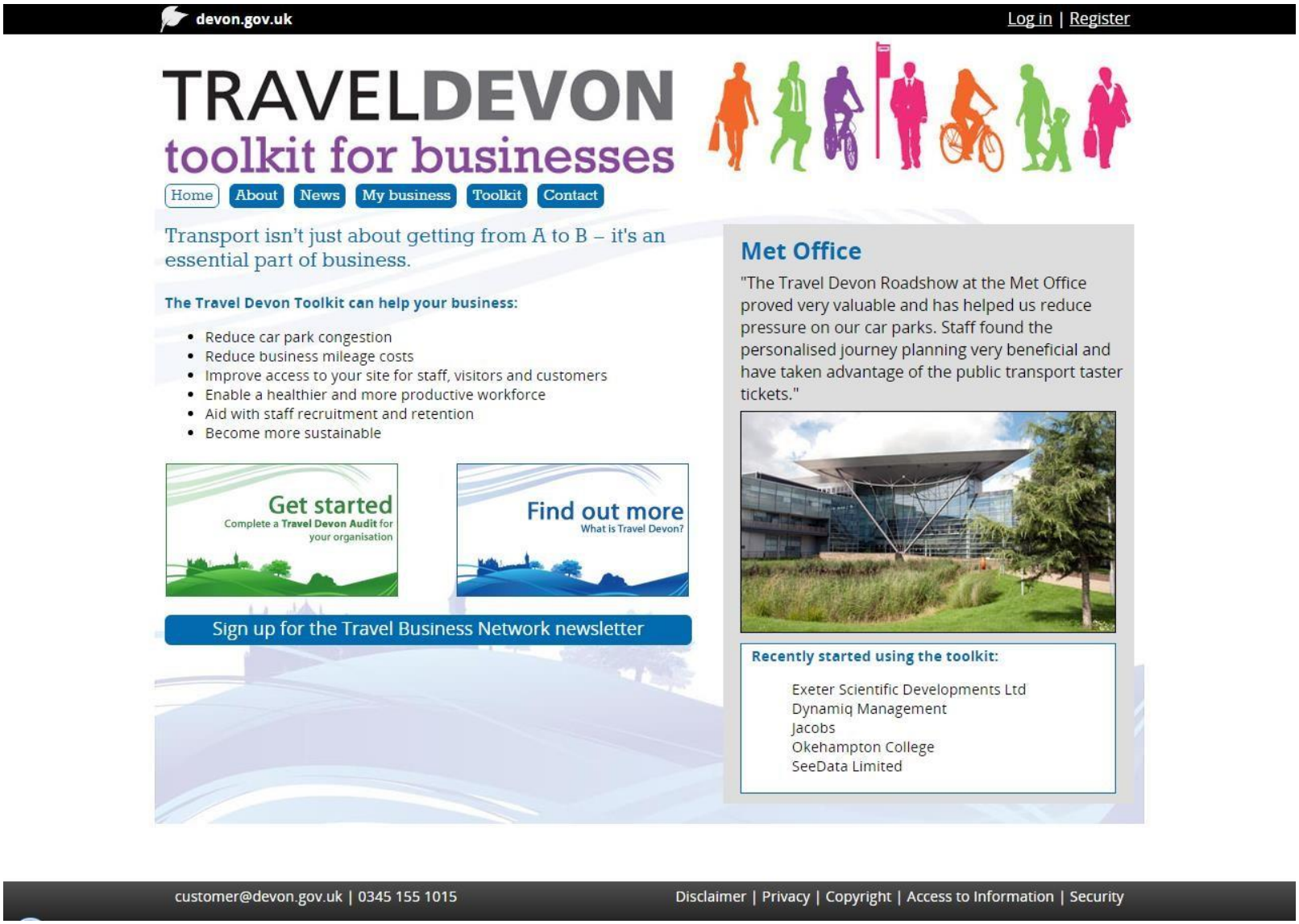

Engagement with schools

St Leonards Primary School

Mode	2007	2014
Walk	45%	67%
Cycle	5.3%	6.7%
Single occupancy vehicle	42%	20%

Social marketing

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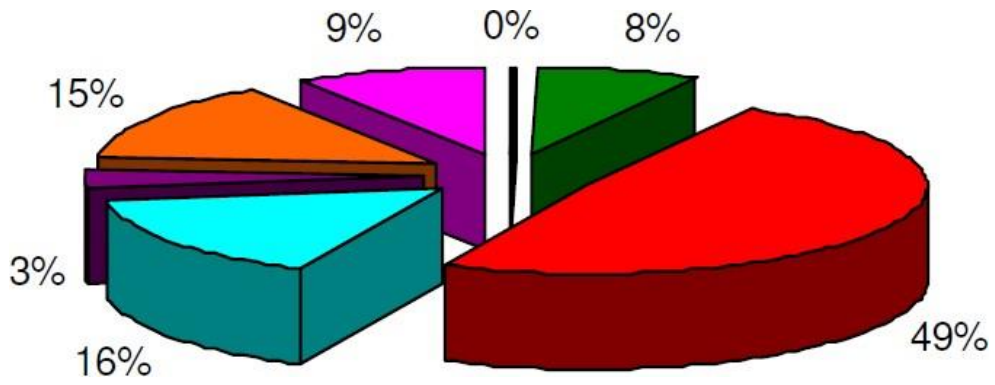
Determing and changing travel behaviour - RAVENNA

Mobility information

Modal split – Journeys inside Ravenna, general view (2011):



- Train
- Bus
- Car (driver)
- Car (passenger)
- Motocycle
- Cycling
- Walking

PT + Walking + Cycling = 32%

From Topics to Actions for Travel Behaviour Change

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Topics + Data → Actions

- Public transport
- Parking policy
- Pedestrian areas
- Safety
- Electric mobility
- Cruise port related mobility
- Urban freight
- Accessibility for disabled
- Cycling
- Traffic calming
- New infrastructures

45%
of journeys are inside the chief city

70%
of car journeys inside the chief city are comprised from 0 to 5 km

A Free parking + free bus

B Limited Traffic Zone

C Parking subscription

D Project with students

E. Traffic light timing

F. Job ticket

G. Tests with citizens

Actions for Travel Behaviour Change- RAVENNA

Actions / Topics	A Parking + free bus	B Limited Traffic Zone	C Monthly Parking subscription	D Project with students	E Traffic light timing	F Job ticket	G Test with citizens
Public transport	✓	✓				✓	✓
Parking policy	✓	✓	✓	✓		✓	✓
Pedestrian areas		✓					
Safety	✓	✓		✓	✓		
Accessibility (disability)		✓	✓				✓
Cycling		✓		✓	✓		✓
Traffic calming	✓	✓	✓	✓	✓	✓	
New infrastructures				✓			

Mobility measures for changing behaviour
Kordelio-Evosmos

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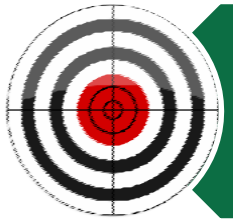
Current measure planning approach

Problem	
No service availability	Low infrastructure quality

Solution	
Need for new service supply	Need for redesign/repair



Attraction of new users

Mobility measures for changing behaviour

Kordelio-Evosmos

Actions towards sustainable mobility

Walking

- Development of green space (parks, green parklets, etc.)
- Upgrade of sidewalk infrastructure

Cycling

- Development of cycling infrastructure
- Introduction of bike sharing system infrastructure

Vulnerable users

- Redesign and reconstruction of sidewalk infrastructure

Motor-vehicle measures

- Construction of off-street parking infrastructure
- Road repair/resurfacing

Mobility measures

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Cycling promotion



Sidewalk reconstruction, vulnerable user infrastructure


Mobility measures for changing behavior- IASI

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Alternative mobility

Pedestrian areas

-300 m of a central avenue have been transformed in pedestrian area on 2012

-new area need to be identified at least in the historical area of the city and near the schools

Cycling

- low use – see image below

-14km of bicycles lanes have been made on EU funds during 2010-2014 – insufficient for the city and poorly connected

-1-2 renting centers only during summer

-Lack of specific signs, indicators, parking places

Solutions:

-An integrate project “Velo city” including permanent renting spots, parking and tiketing, new regulation for ciclying on the entire Metropolitan area

Mobility measures for changing behavior- IASI

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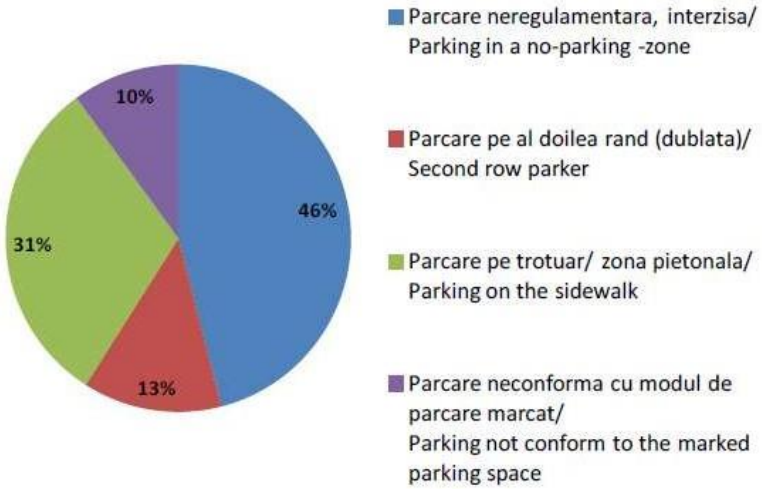
Parking and parking management

Problems:

-Lack of parking places

-Parking on not permitted/ inappropriate places



Solutions:

-Clear regulations for parking

-installing of parcometers

-developing of applications for phone to identify empty parking in the area

-Parking area connected with public transport

Main components for a successful transport system - overview

Updated & well documented Transport Plan (SUMPs)

Highly Qualified Professionals

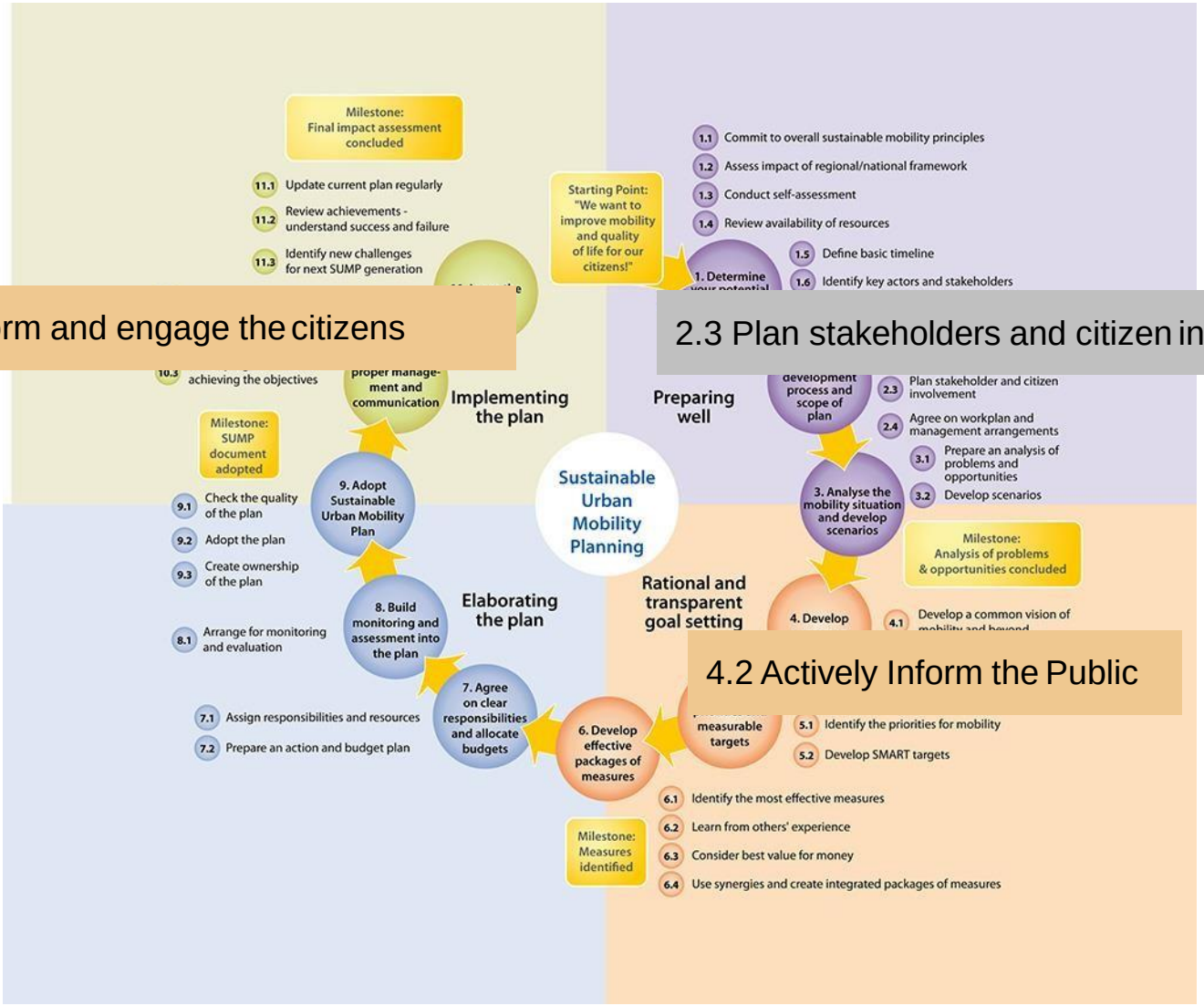
Funding

Coordination/cooperation between stakeholders

Support by politicians

Benchmarking-Monitoring-Standardization Procedures

Even SUMPs are stressing the need to look at the user..



The role of the “a-priori” preferences

Car Bus Motorbike Bicycle

	Car	Bus	Motorbike	Bicycle
Travel Time (in vehicle)	10	15	9	27
Travel Time (out vehicle)	1	5	1	0
Cost	2	0,80	1,00	0

The role of the “a-priori” preferences

- **Consumers’ choices are not always based on objective criteria**

- **Criteria:**

  Directly measured: Time, cost, fare, parking fees etc.

  Not directly measured: Comfort, safety, reliability etc.

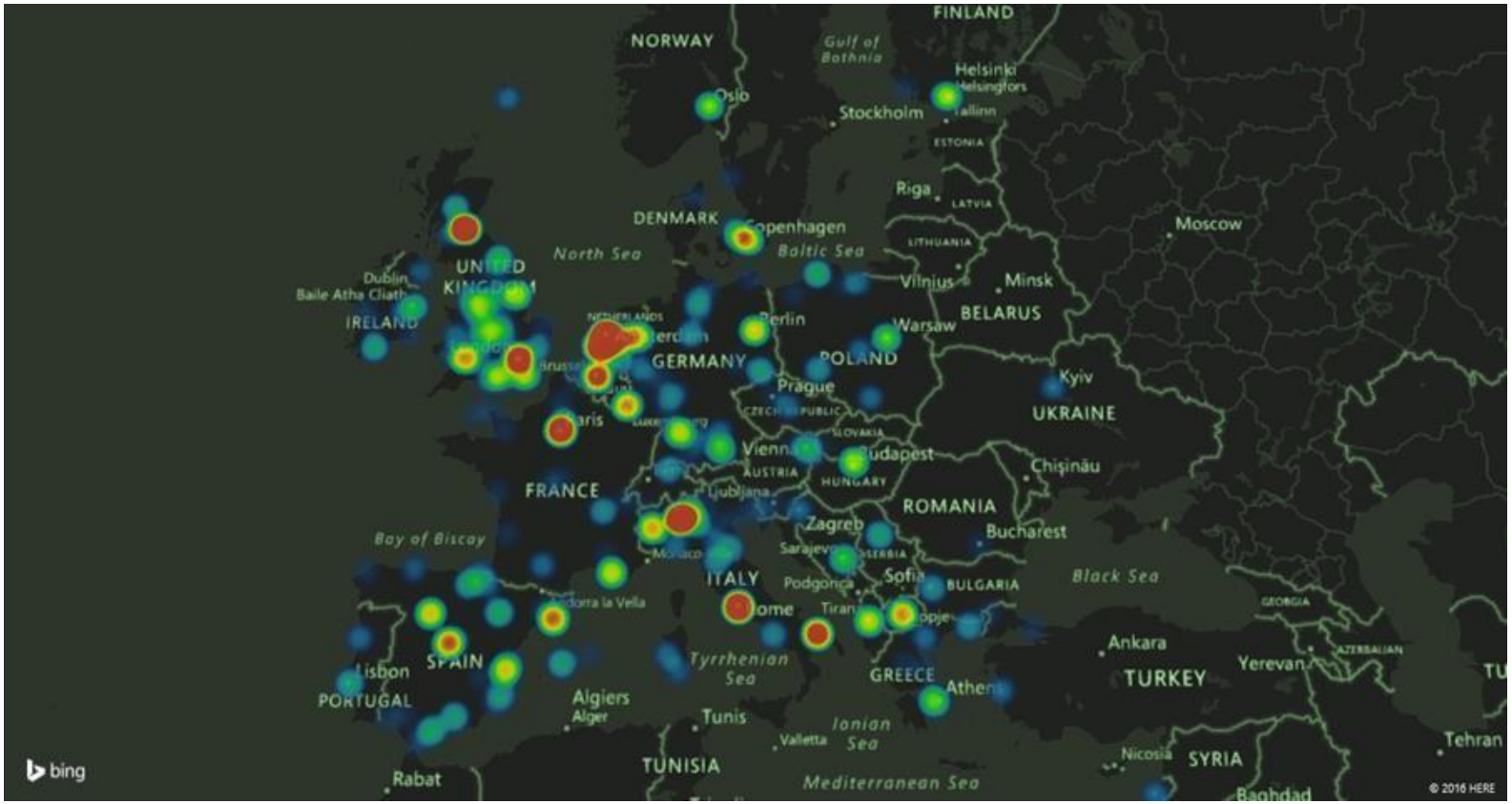
- **All these being equal, the consumer might have an “a-priori” preference**

  Measure -> error measurement -> error in predictions!

The Behavioral Stage for Change

- ✓ **Wide use in social sciences, easily to measure**
- ✓ **can help in understanding how aware a person is about a problem examined (e.g. thoughtless smoking, eating or using his car),**
- ✓ **Formulate policies of changing the current behaviour**
- ✓ **Ignore may lead to interpretation errors of behavior**

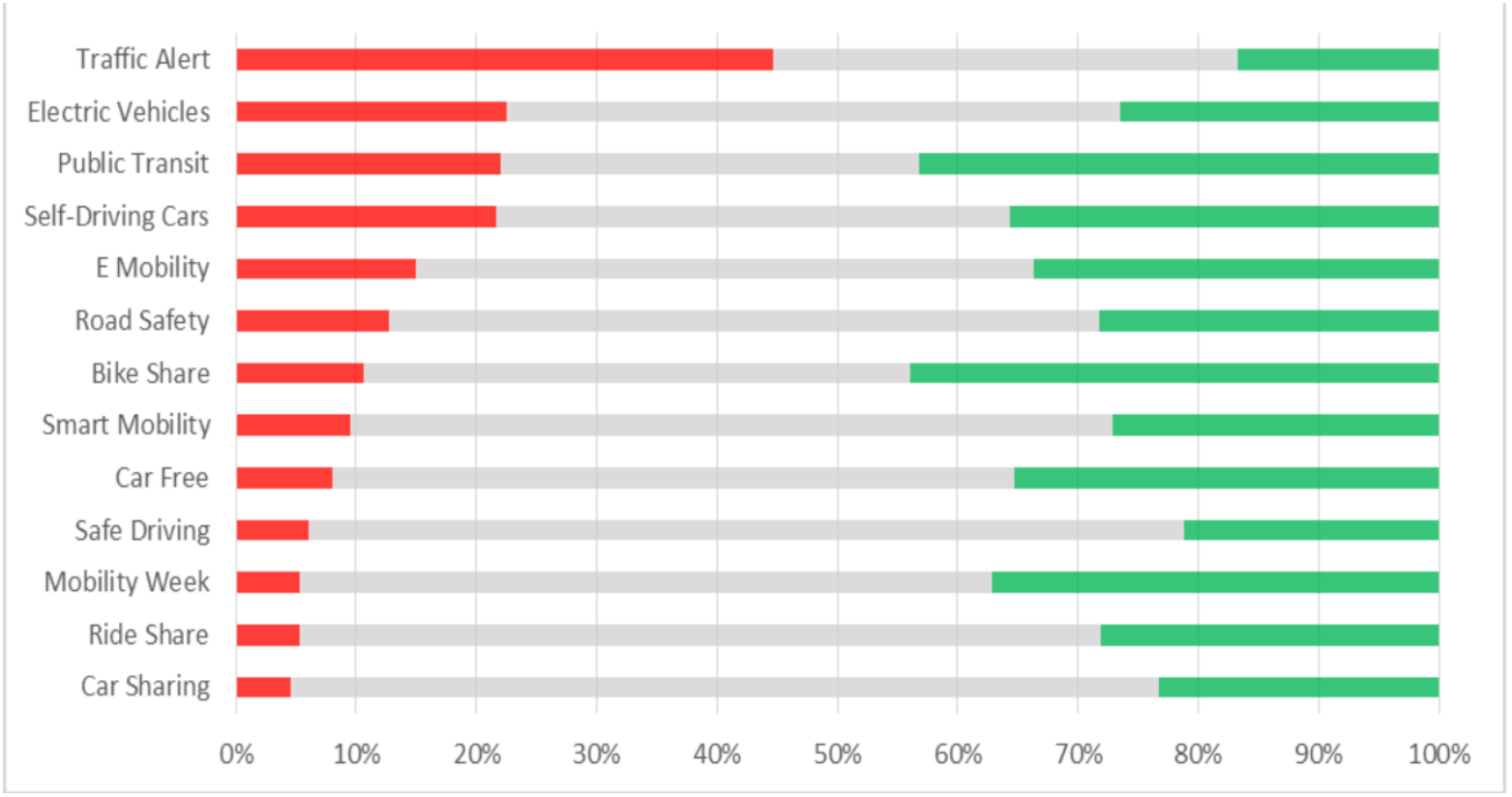
New trends on User Understanding



Tweets for Mobility Week 2016

Pouliasis & Politis, (2016)

New trends on User Understanding



Sentiment Analysis (68000 tweets)

5 (+1) thinks to Remember…

1. **Consider trip as a service and not as a good…**
2. **Put the end user in the game**
3. **Focus on decision making process and not on the "final" choice**
4. **Segmentation of the population may works**
5. **Multidisciplinary approach**
6. **Last but not least…….**


IF YOU
CHANGE
NOTHING,
NOTHING
WILL
CHANGE
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