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Understanding the User

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Main components for a successful transport system

Updated & well documented Transport Plan (SUMPs)

Highly Qualified Professionals

Funding

Coordination/cooperation between stakeholders

Support by politicians

Benchmarking-Monitoring-Standardization Procedures

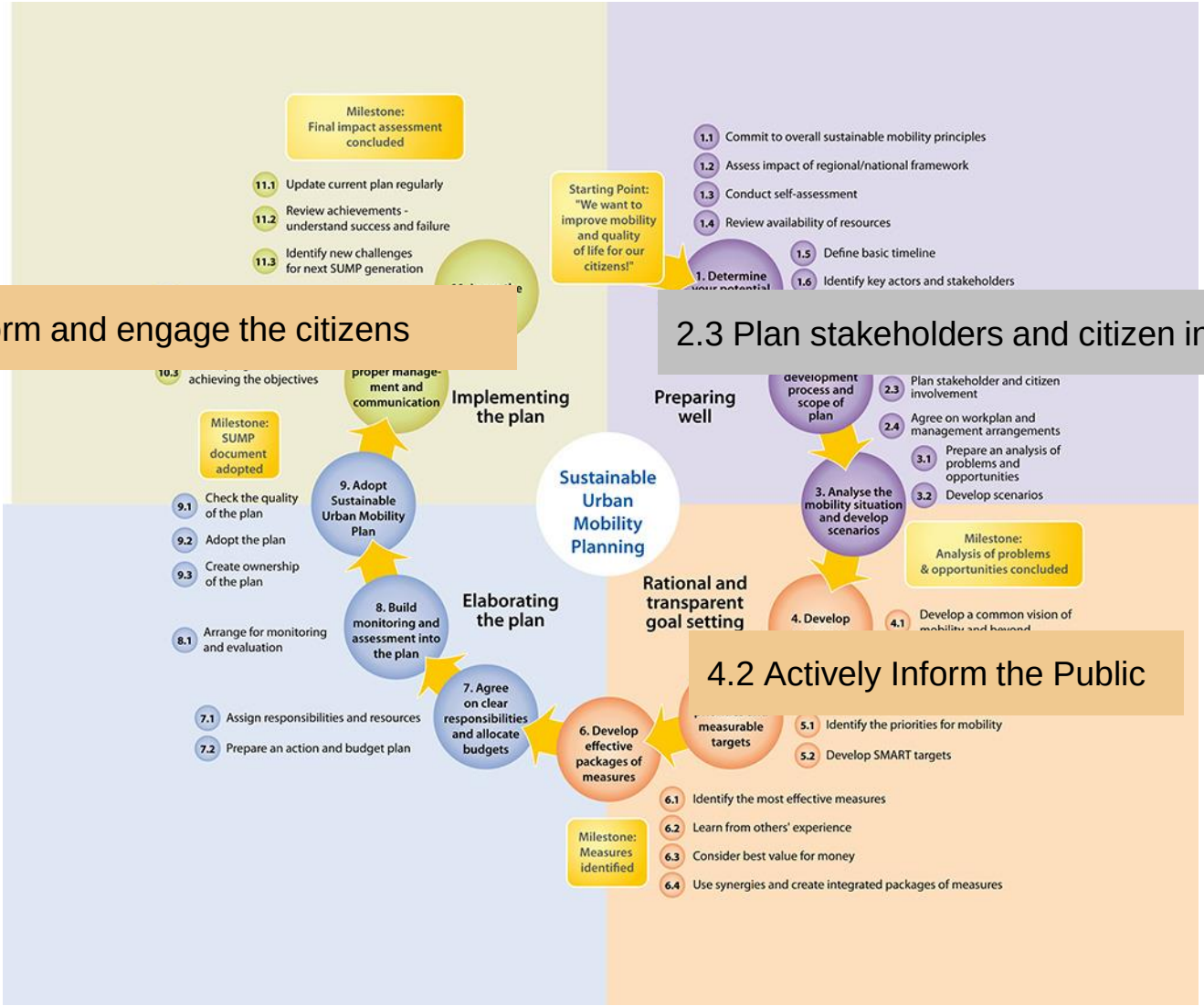
Main components for a successful transport system

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?**

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

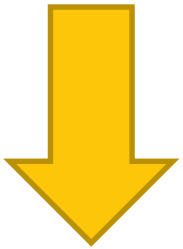


10.3 Inform and engage the citizens

2.3 Plan stakeholders and citizen involvement

4.2 Actively Inform the Public

Predicting behavior in traditional transportation planning exercises



Will the new transport system attract passengers?

Traditional transportation planning approach

Behavior Prediction - > Demand Estimation

Demand Estimation - > Choice Dilemma Problem

Econometric theories of maximization of individual "utility" are used

Individual takes the <u>best</u> decision for him

Fact #1: Trip is not a consuming good……

Destination
Point B

Origin
Point A

Fact #2: The role of the “a-priori” preferences

The role of the “a-priori” preferences

DESIGN		
Dimensions	4.87 x 2.31 x 0.30 inches (123.8 x 58.6 x 7.6 mm)	5.38 x 2.78 x 0.34 inches (136.6 x 70.6 x 8.6 mm)
Weight	3.95 oz (112 g) the average is 4.9 oz (141 g)	4.69 oz (133 g) the average is 4.9 oz (141 g)
Materials	Main body: aluminum	Main body: plastic
DISPLAY		
Physical size	4.0 inches	4.8 inches
Resolution	640 x 1136 pixels	720 x 1280 pixels
Pixel density	326 ppi	306 ppi
Technology	IPS LCD	Super AMOLED
Screen-to-body ratio	60.82 %	65.82 %
Colors	16 777 216	16 777 216
COST	500 euros	300 euros

Smartphone A **vs** **Smartphone B**

The role of the “a-priori” preferences

vs

iphone 5

Samsung Galaxy S4

The role of the “a-priori” preferences

Internet Explorer

vs

Firefox

vs

Google Chrome

The role of the “a-priori” preferences

	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.

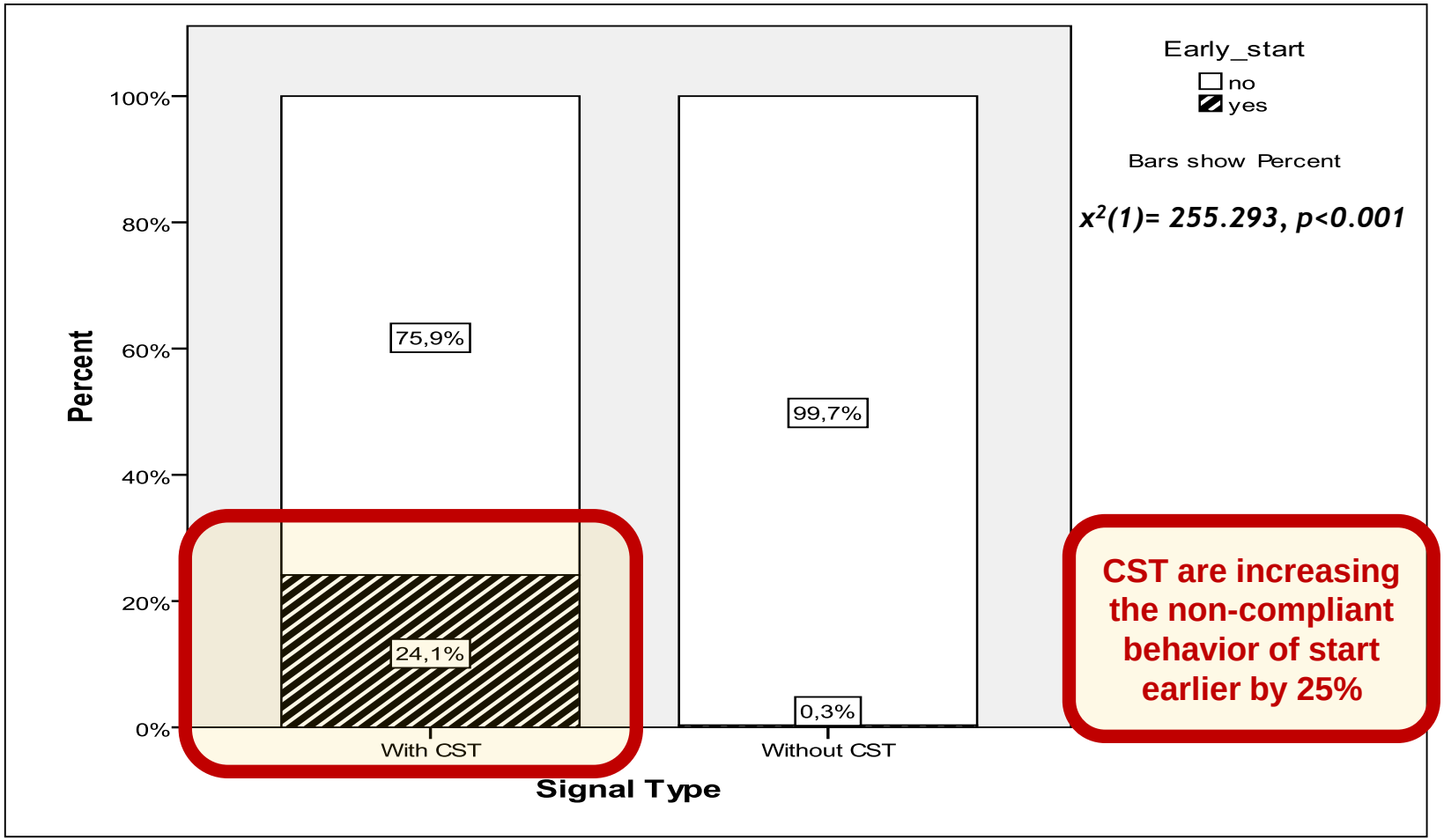
- **All these being equal, the consumer might have an “a-priori” preference**

  Measure -> error measurement -> error in predictions!

Fact #3: It is not only the issue of “choice” that matters….

Indicative list of transport policy challenges nowadays……

- **Q#1: Is it good to install Countdown Signal Timers (CST) at Intersections?**



Papaioannou & Politis (2014)

Indicative list of transport policy challenges nowadays……

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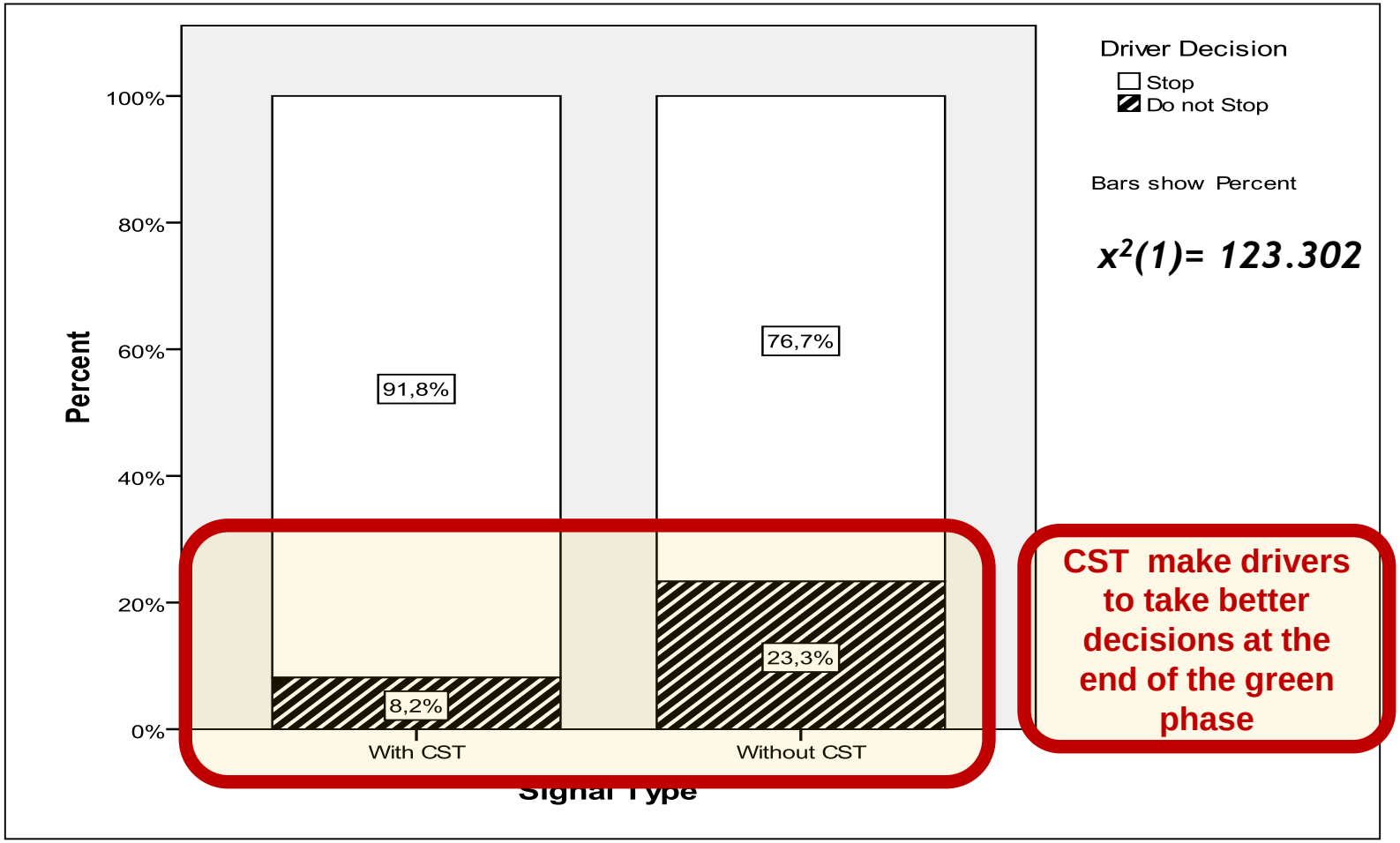

Papaioannou & Politis (2014)

Indicative list of transport policy challenges nowadays……

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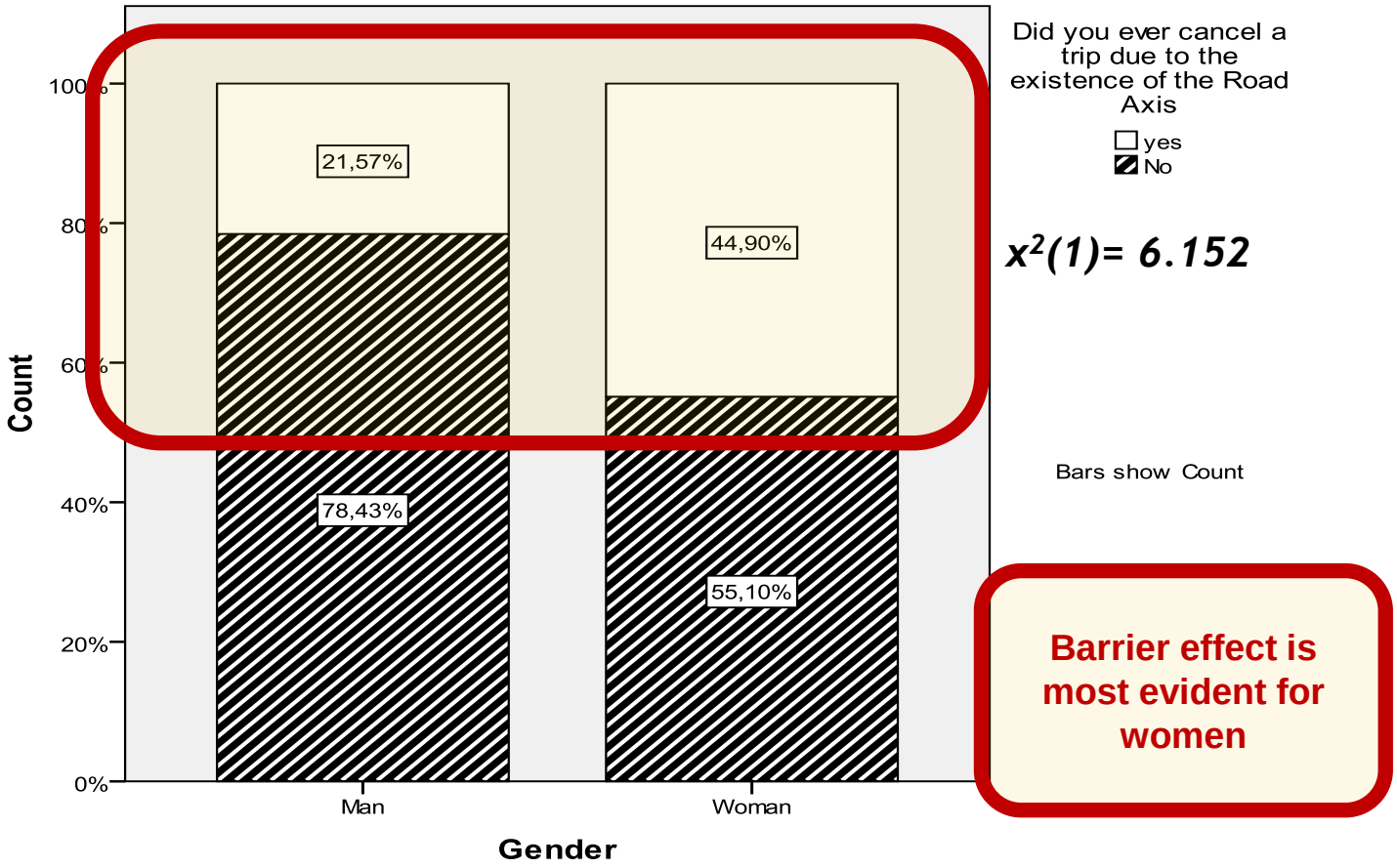
- **Q#2: Will barrier effect make people cancel a trip?**



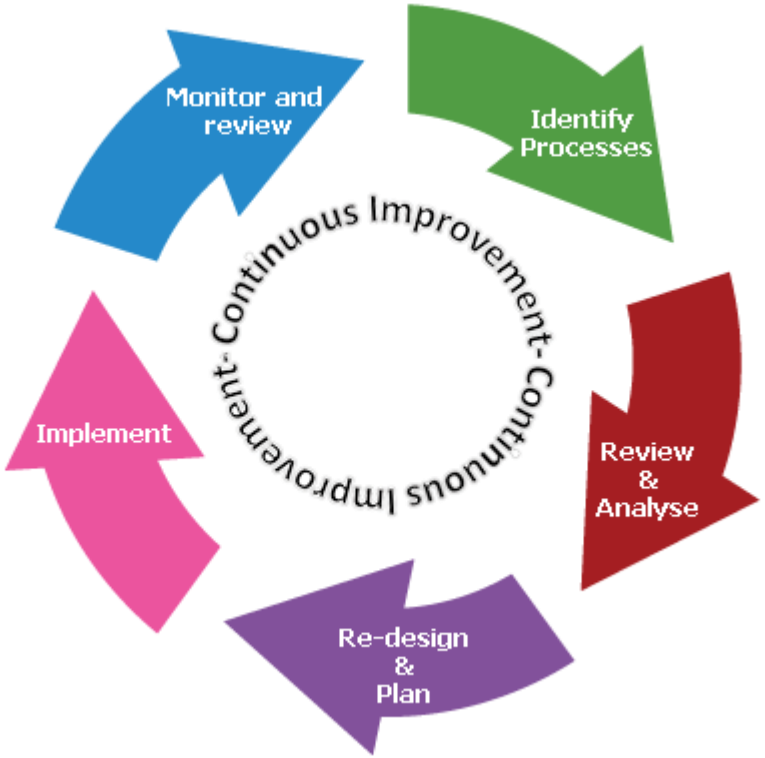
Emmanouilidis, Basbas & Politis (2015)

Indicative list of transport policy challenges nowadays……

- **Q#3: Introduction of a LEZ scheme will turn people buy hybrid cars?**
- **The possibility for someone who <u>does not support</u> the LEZ scheme, to buy a hybrid car is 9,8%**
- **The possibility for someone <u>who does support</u> the LEZ scheme, to buy a hybrid car is 89%**
- **In general, supporters of the LEZ scheme are 8.6 times more likely to buy a hybrid car**

Basbas, Kladias, Kouvatas & Politis (2015)

Robust Predictions are made when we focus on the decision making process and not in the "final" choice



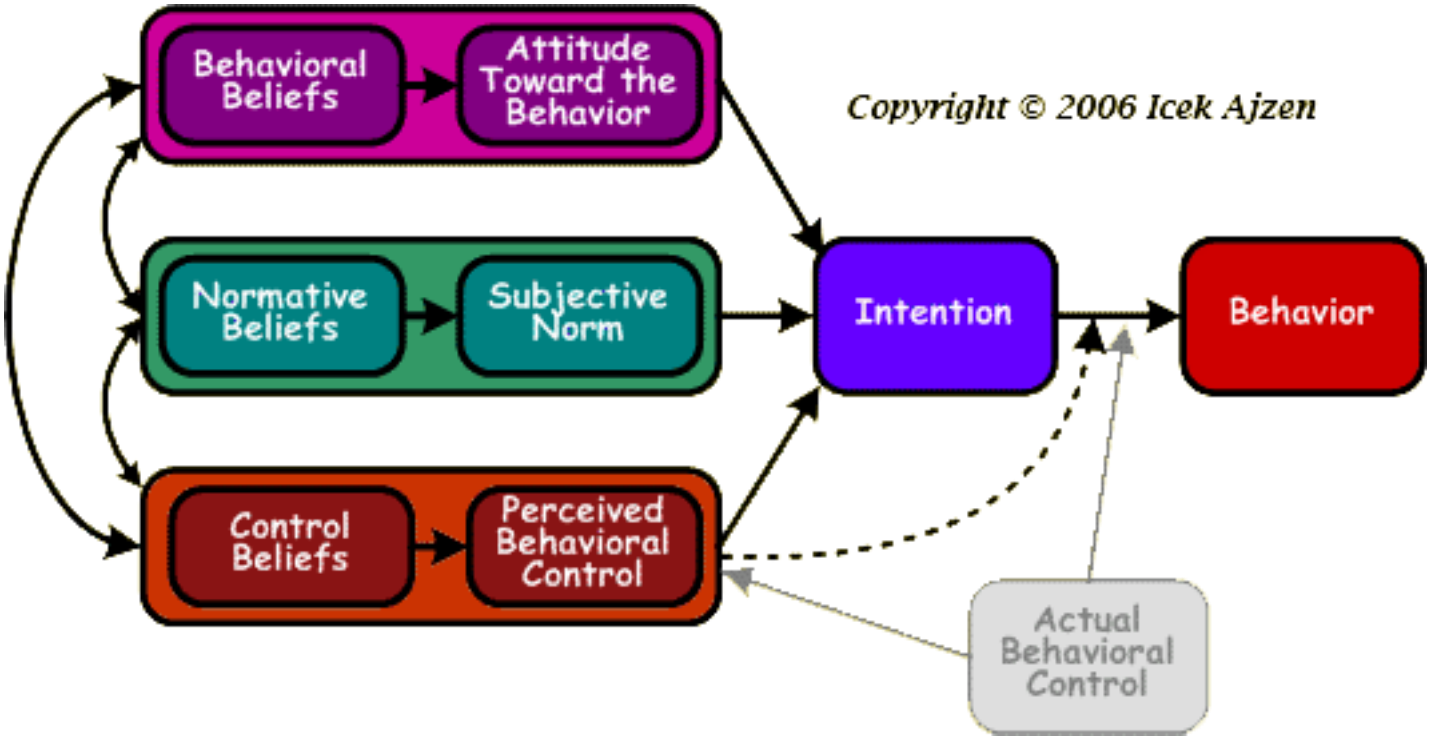
Here comes psychology to interpret ……

- **Well known Behavioral Models**

- ✓ **Theory of Planned Behavior (TPB),** ***(Ajzen, 1988)***
- ✓ **The Transtheoretical Model (TTM),** ***(Prochaska & DiClemente, 1983)***
- ✓ **The Norm Activation Model (NAM),** ***(Schwartz,1977)***
- ✓ **The Need Opportunity Ability Model (NOAM*),(Vlek, Jager,Steg, 1997)***

Here comes psychology to interpret ……

- **Theory of Planned Behavior (TPB), *(Ajzen, 1988)***



Here comes psychology to interpret ……

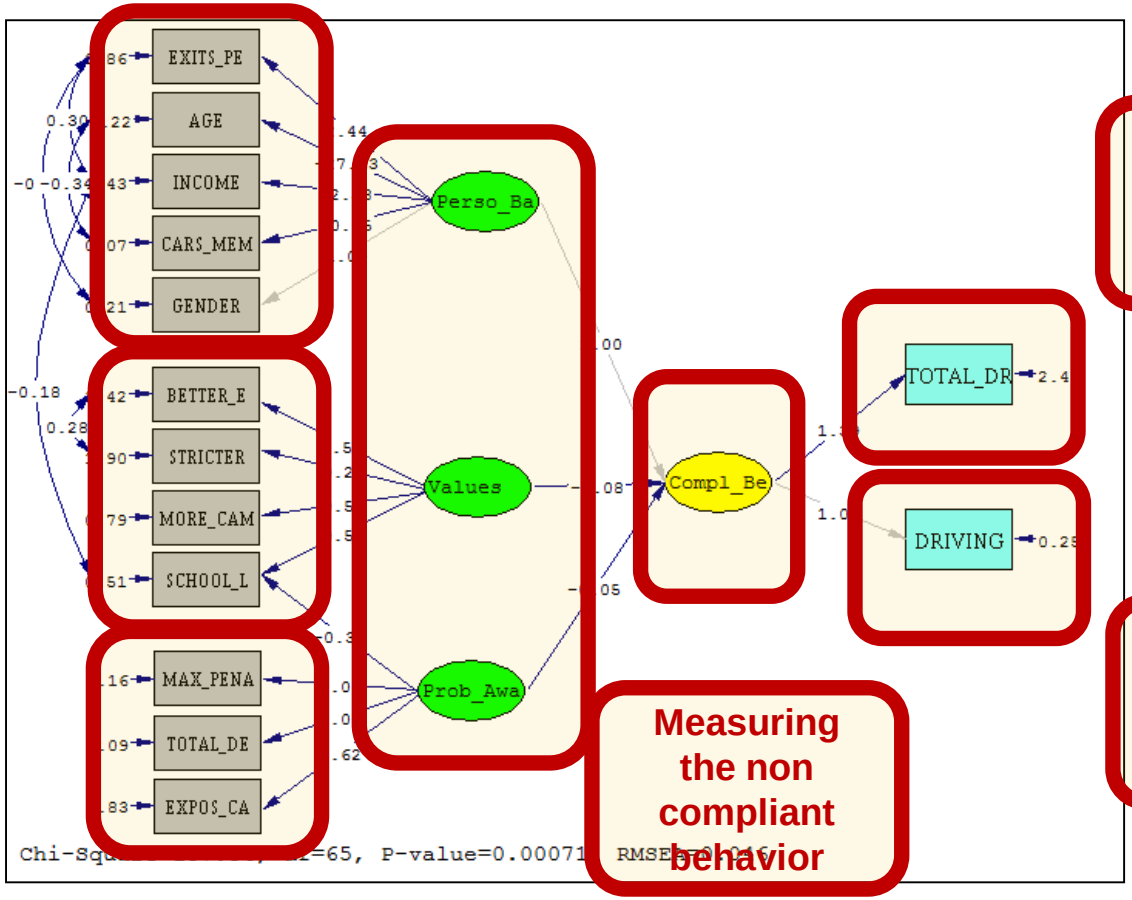
❑Example #1: Drinking & Driving Interpretation

Measurement Indicators of behavior

Personal Background

Personal Beliefs

Awareness of the Problem



Number of drinks consumed per night

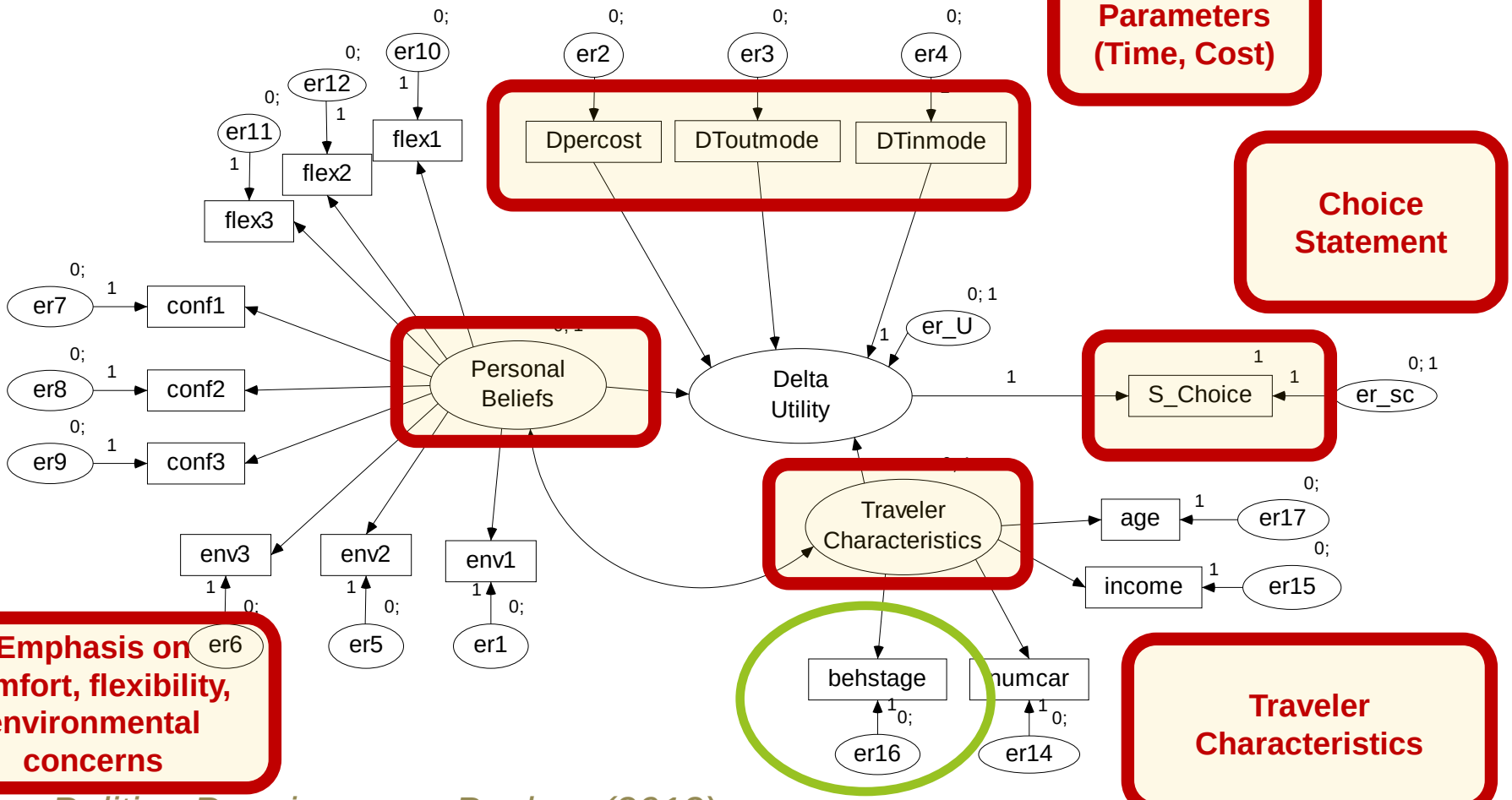
Measuring the non compliant behavior

Driving after drinking

Politis , Basbas, Papaioannou (2013)

Here comes psychology to interpret ……

- **Example #2: Mode Choice Interpretation**



Politis , Papaioannou, Basbas (2012)

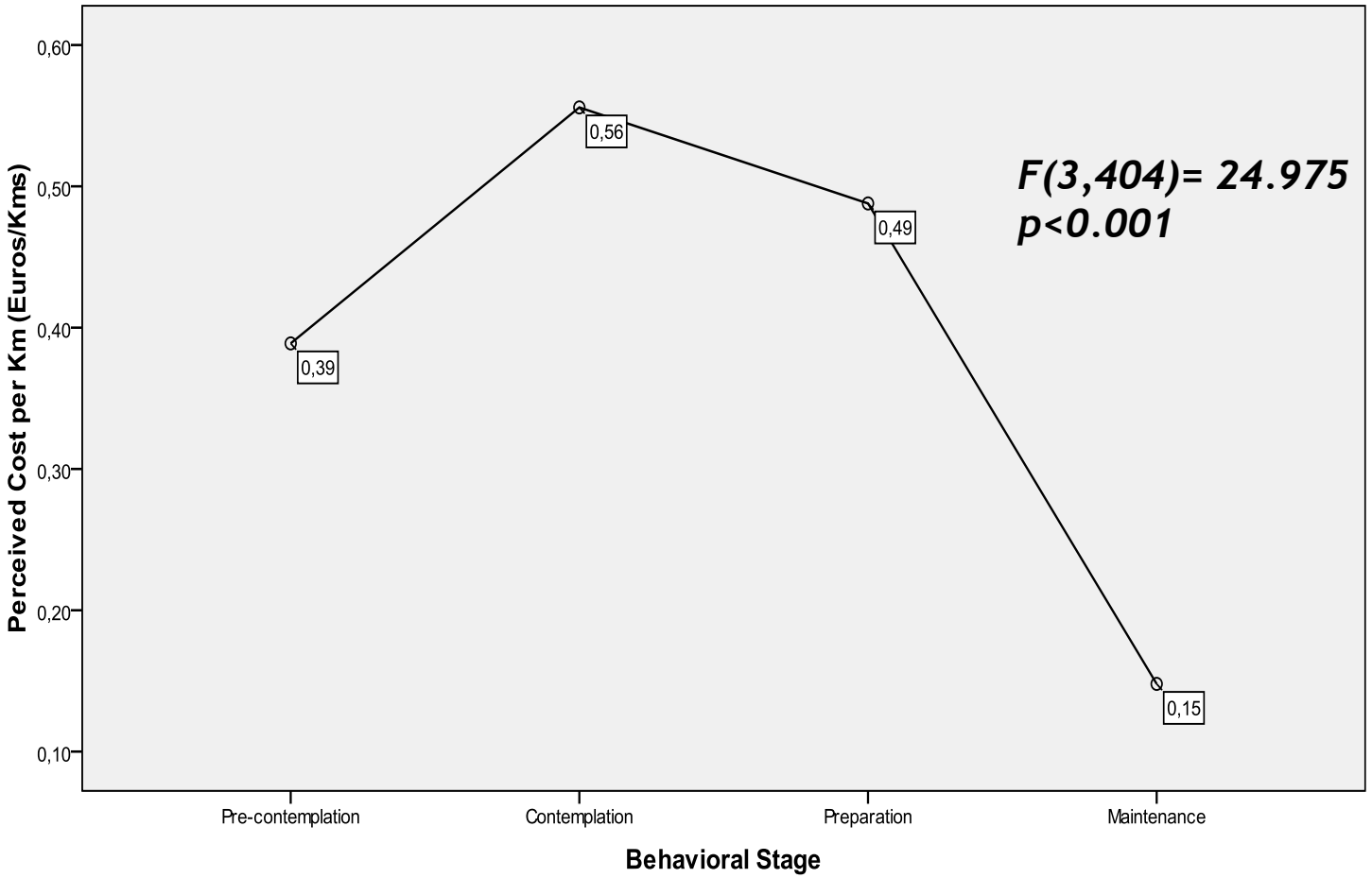
The Behavioral Stage for Change

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**

The Behavioral Stage for Change

- ✓ **People in different stages have different perceptions**



Politis , (2010)

The Behavioral Stage for Change

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✓ **People in different stages have different values**

Population Clusters

Statements (Values)

	All (n=450)	Pre-contemplation (n=163)	Contemplation (n=31)	Preparation (n=49)	Maintenance (n=207)	Test	Result
Values							
Car usage is the most important factor for air pollution	3.62	3.40	3.74	3.39	3.84	Wilcoxon	<0.001
Main reason for car usage reduction is environmental improvement	3.79	3.87	3.74	3.65	3.77	Wilcoxon	<0.001
Hybrid and electric cars well reduce the environmental problems in 10 years	3.77	3.79	3.77	3.76	3.76	Wilcoxon	<0.001
It is important for me to use a comfort mean of transport	4.17	4.19	4.13	4.14	4.16	Wilcoxon	<0.001
It is important for me to use a travel mode that relaxes me	4.30	4.26	4.06	4.22	4.39	Wilcoxon	<0.001
I want to be able to read a book or text during my commuting trip to work	2.98	2.82	3.06	2.76	3.14	Wilcoxon	<0.001
It is important for me to use the shortest path to reach my travel destination	4.17	4.12	4.16	4.06	4.24	Wilcoxon	<0.001
I want my travel mode to be available any time	4.20	4.22	4.23	3.90	4.26	Wilcoxon	<0.001
I want to use the travel mode independently of the weather conditions	4.37	4.39	4.45	4.27	4.36	Wilcoxon	<0.001

Statistically Confirmed

Politis , (2015)

The Behavioral Stage for Change

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✓ **People in different stages have different "a-priori" preferences**

beta	All				Pre-Contemplator Stage				Contemplator Stage				Preparation /Action Stage			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	b	p	b	p	b	p	b	p	b	p	b	p	b	p	b	p
ASC	0,374 (1,94)	0,000	0,567 (4,91)	0,000	-0,483 (-2,44)	0,015	-0,874 (-4,09)	0,000					0,785 (2,19)	0,029	1,499 (3,27)	0,001
β_2													0,079 (1,78)	0,075	0,096 (1,95)	0,051
β_4																
β_5																
β_6																
β_7											1,465 (2,39)	0,017				
β_9											066 ,59)	0,000			1,658 (4,08)	0,000
β_{10}							0,888 ,87)	0,000			51 5)	0,000				
β_{11}			0,666 (3,75)	0,000							-0,486 (-4,72)	0,000				
β_{12}																
β_{14}																
N																
R2																
Adj R2	0,004		0,092		0,018		0,075		0,086		0,613		0,024		0,266	
-2LL	1667,152		1584,542		1105,652		1070,134		207,165		120,880		290,363		243,344	
*L**	82,610				35,518				86,285				47,019			
LR test	sig. dif. at 99% confidential level				sig. dif. at 99% confidential level				sig. dif. at 99% confidential level				sig. dif. at 99% confidential level			

Without Segmentation

Pre - Contemplators

Contemplators

Preparation/Action

a-priori preference to Collective TAXI

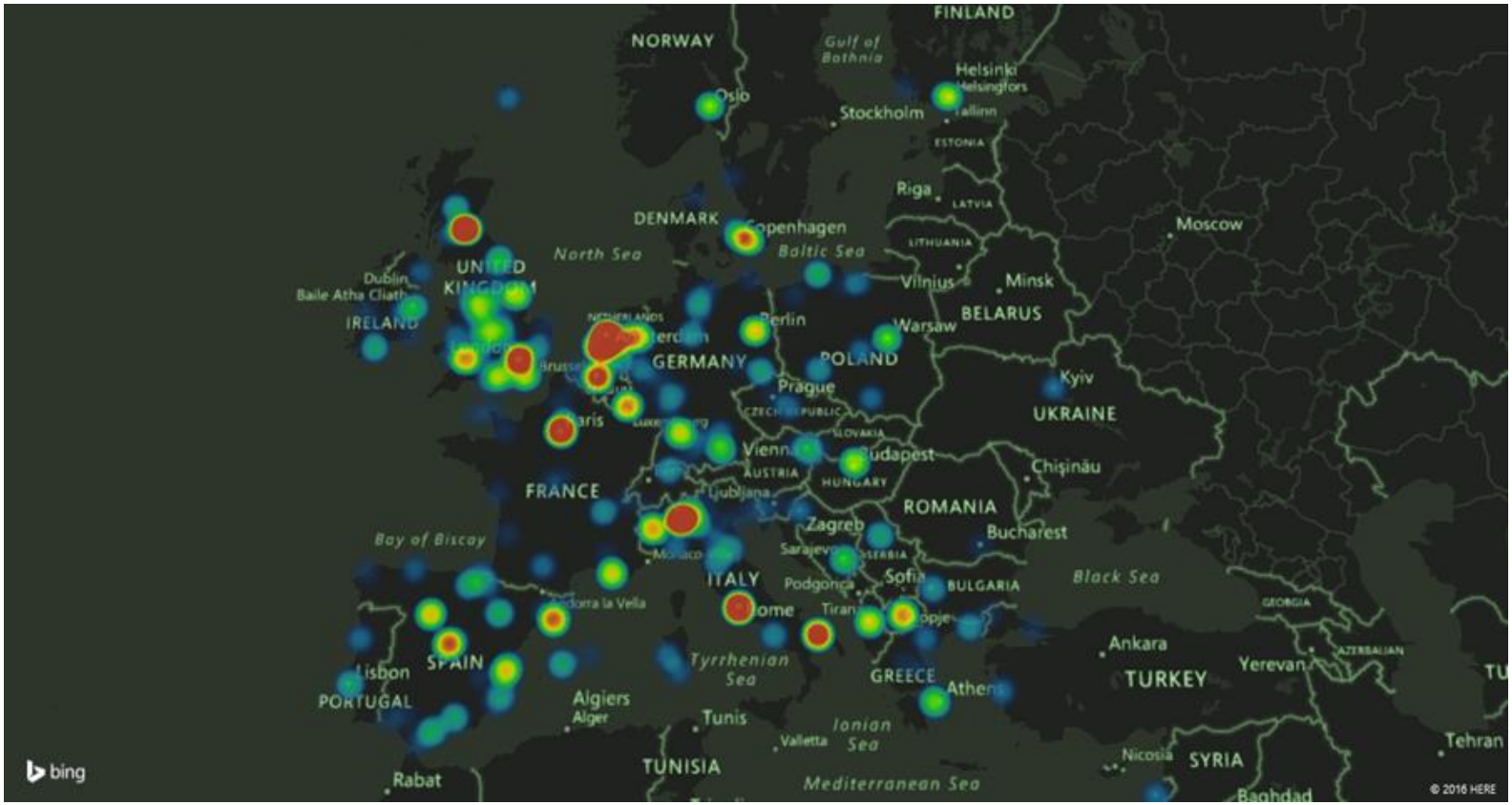
a-priori preference to Private Car

No a-priori preference

a-priori preference to Collective TAXI

Politis , (2015)

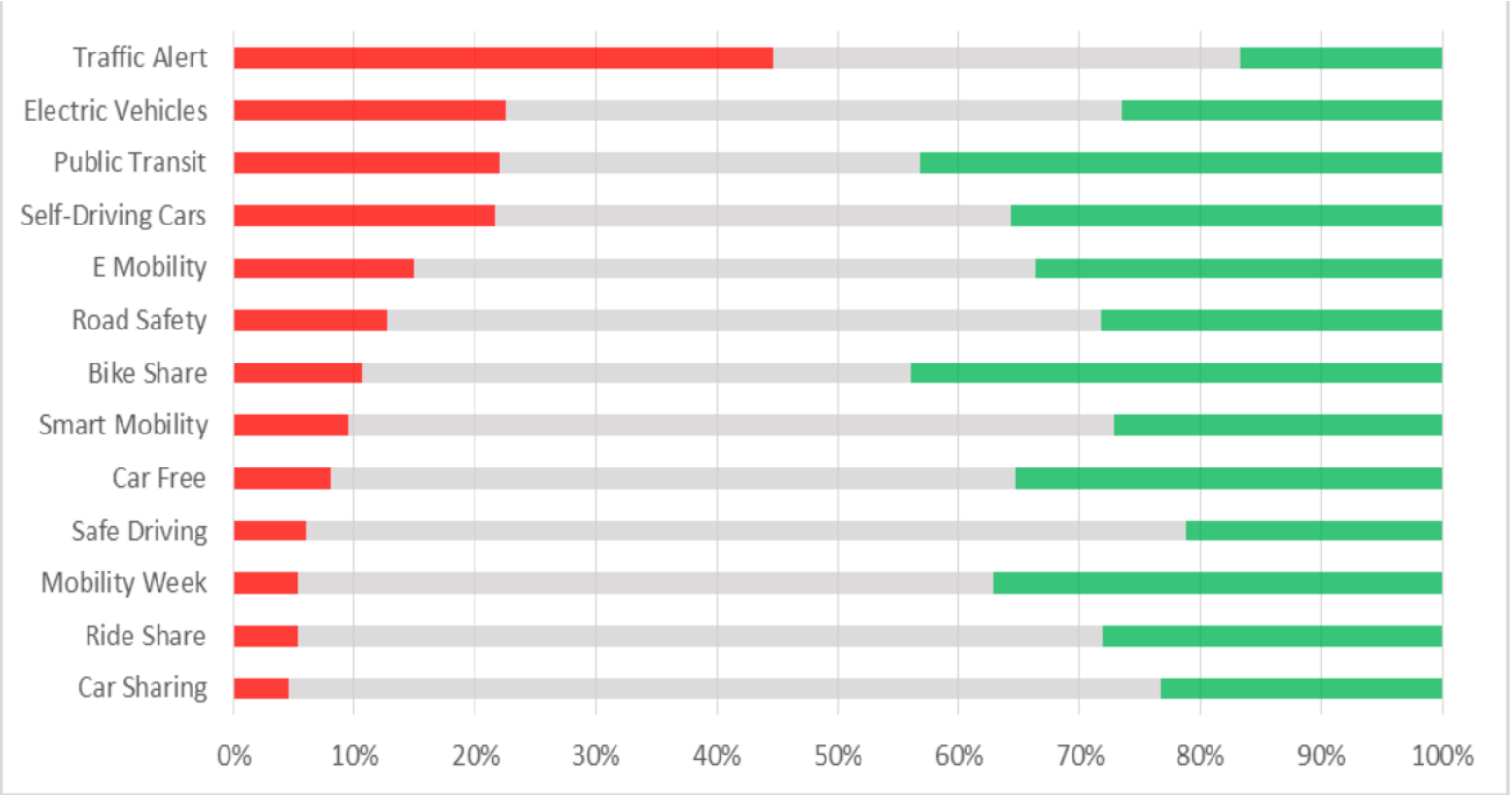
New trends on User Understanding



Tweets for Mobility Week 2016

Pouliasis & Politis, (2016)

New trends on User Understanding



Sentiment Analysis (68000 tweets)

Pouliasis & Politis, (2016)

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
©mobijo
WILL
CHANGE

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✓**Pouliasis & Politis "Social Media tweets on transport sector) Master Thesis (unpublished)**

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Thank you!

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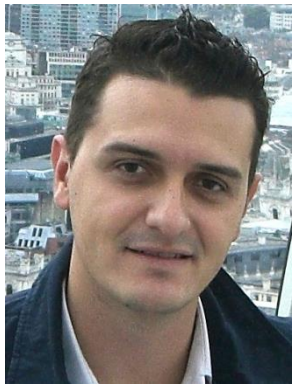
Questions welcome



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