

International Scientific Conference on Mobility and Transport
"Transportation Systems of the Future"
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Shaping the mobility in university campuses throughout ICT solutions



E. Campos Diaz¹, M.T. Tormo Lancero¹, P. Valero Mora¹,
P. Papantoniou², E. Vlahogianni³, G. Yannis³

¹University of Valencia, ²Technical University of Munich

³National Technical University of Athens

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Outline

- **Background**
- **Objectives**
- **Survey Methodology**
 - Interview
 - Questionnaire
- **Surveys Results**
- **E-core model**
 - Scope
 - Structure
- **Conclusions**



Background

- **Sustainable Urban Mobility Plans (SUMPs)** define a set of interrelated measures designed to satisfy the mobility needs of people
- A **University Campus** is similar to an urban model and it could be used as a test area for mobility policies and tools
- Information and communications technology **(ICT) tools** concern a collection of useful applications, services and tools for mobility areas



Objectives

- To **analyze University Campuses** in order to obtain a defined state of art of data, policies and ICT tools concerning mobility from/to and inside Campus
- To evaluate the use of specific **ICT tools** on University Campuses from both experts as well general population
- To propose an integrated **ICT platform model** including Data-warehouse, DSS, ITS, enabling data collection, planning, management and monitoring



Methodology

- A **survey** has been developed and implemented within the framework of **CAMP-sUmp** (CAMPus sustainable University mobility plans in MED areas) project
- A survey has been developed consisting of a **questionnaire** and an **interview**
- The following **Universities** participated
 - Magna Graecia Foundation Catanzaro University
 - National Technical University of Athens
 - University of Malta
 - University of Valencia
 - University of Split
 - University of Cyprus
 - University of Bologna



Questionnaire

Questionnaire topics:

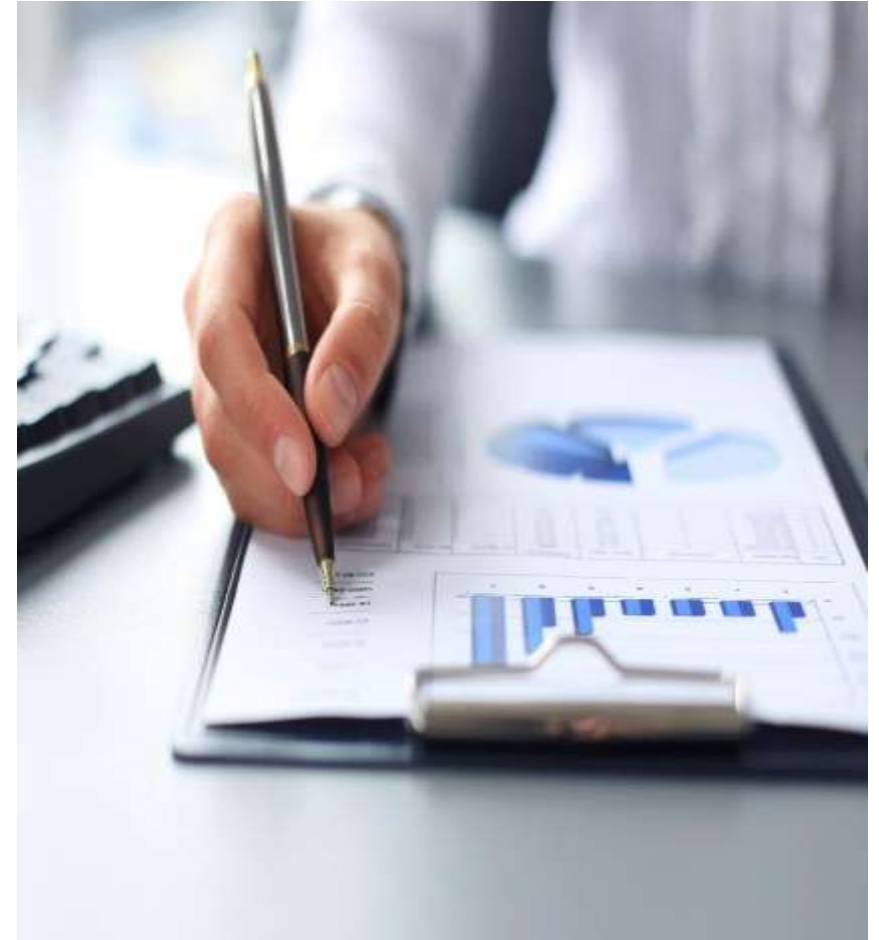
- **Current mobility** - to present current mobility of the participants both regarding mobility from/to and inside the Campus
- **Desired Mobility** - to present the desired mobility of the participants both regarding mobility from/to and inside the Campus
- **Mobility problems** - to identify the mobility problems both regarding mobility from/to and inside the Campus.
- **Proposed measures/policies/tools** - to evaluate specific measures, policies and tools that are already implemented regarding the mobility from/to and inside the campus
- **Participant information**



Expert's interview

The **interview** aimed to collect qualitative data (experts' views) of each University regarding the following thematic areas

- **Soft modes** Infrastructure
- **Public** transport
- **Car** related issues
- **Road infrastructure**
- **Environment** and energy
- **Mobility management**
- **Freight Infrastructure** and Management
- Information and communications technology **(ICT) tools**
- Sustainable Urban Mobility Plans **(SUMPs)**

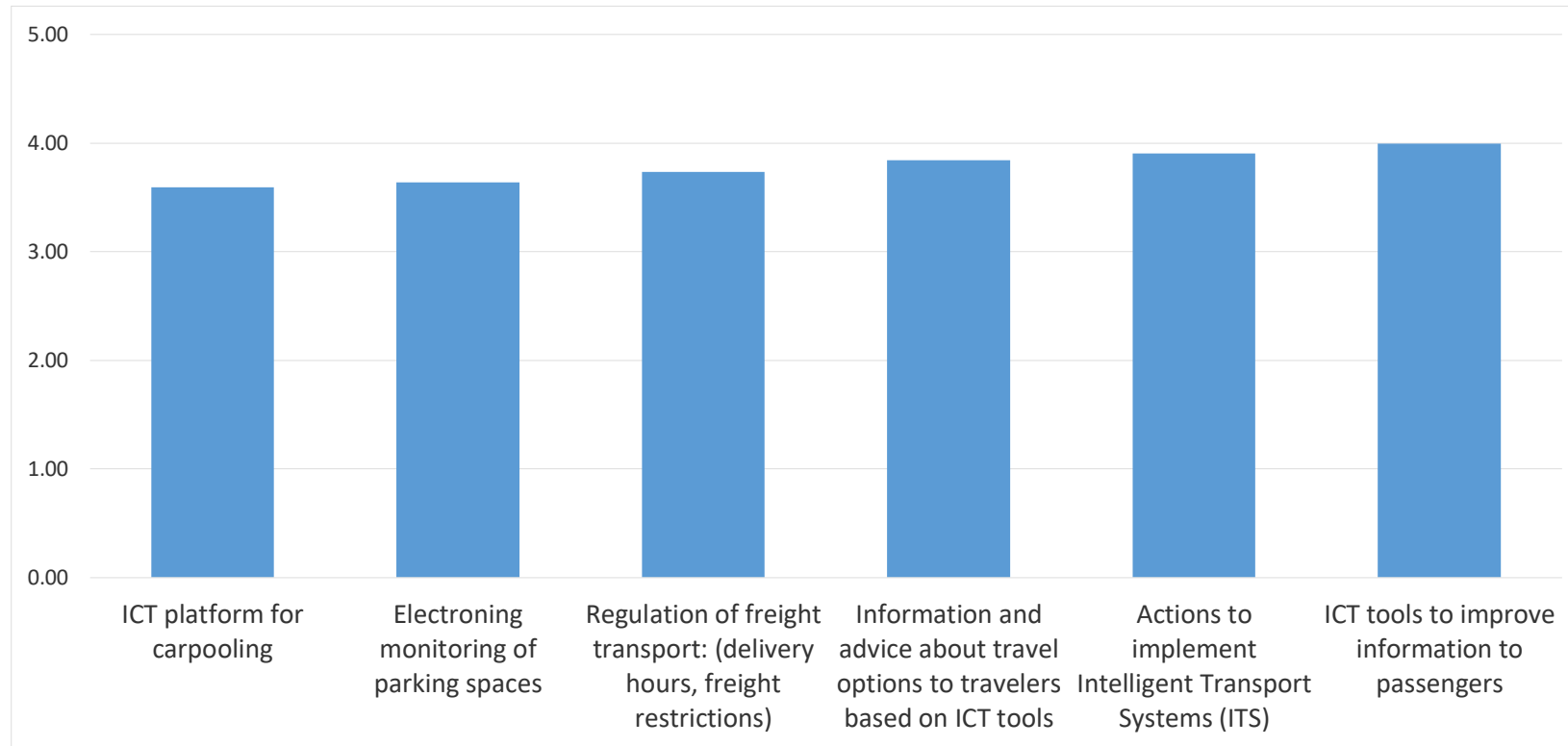


Survey characteristics

	University	Location	Area (m ²)	Students	Personnel	Questionnaires	Interviews
1	University of Catanzaro	Outside	260,000	11,000	500	104	9
2	National Technical University of Athens	Outside	1.000.000	13,500	3,400	124	8
3	University of Malta	Inside	194,452	11,500	600	250	2
4	University of Valencia (1 campus)	Outside	1,000,000	10,000	2,000	227	3
5	University of Valencia (2 campuses)	Inside	400,000	35,000	5,000	100	3
6	University of Split	Inside	245,000	24,000	1,500	100	6
7	University of Cyprus	Outside	1,200,000	7,000	1,100	85	5
8	University of Bologna	Outside	6,570,023	85,000	3,000	100	9

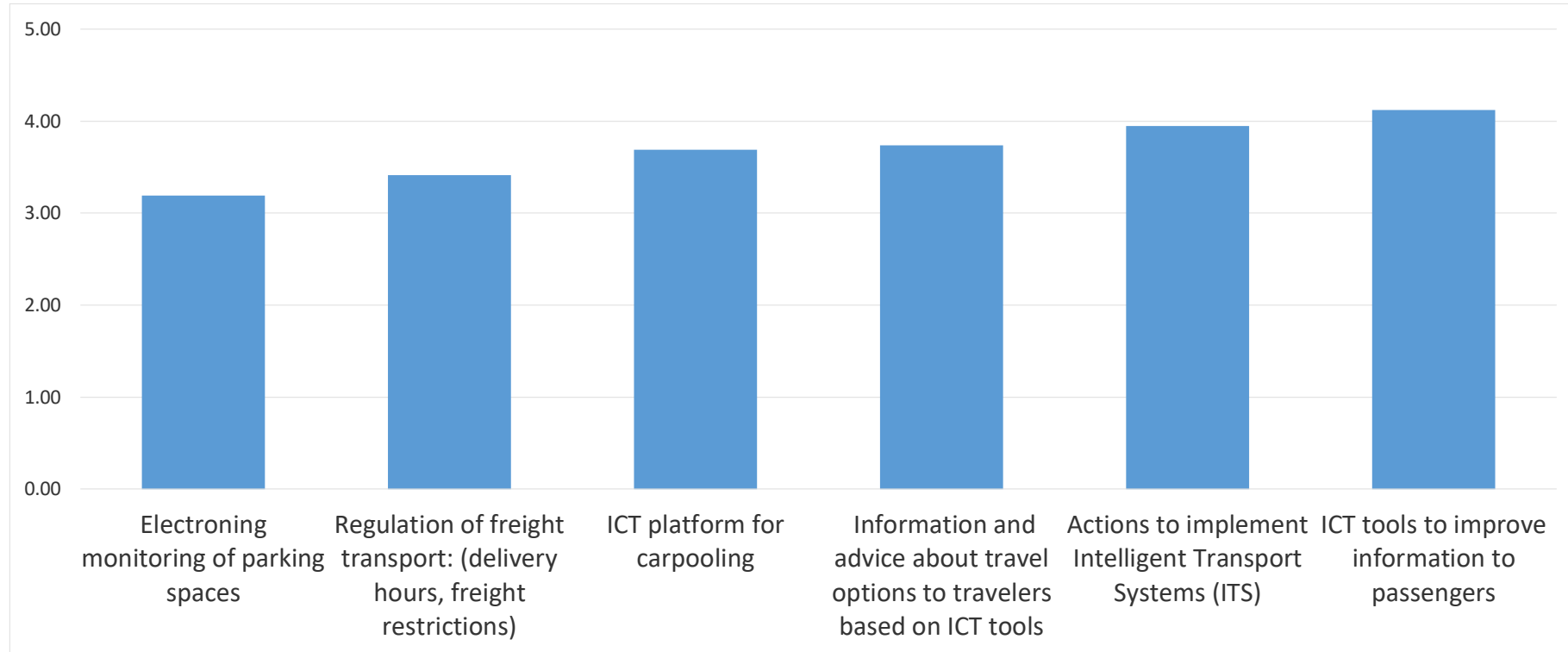
- **5** campuses were located **outside** the city centre **3** are located **inside** the city
- **1.078 Questionnaires** and **36 expert's interviews** were collected

ICT tools for campuses located inside the city



- The most important type of measures is **“ICT tools to improve information to passengers”**
- The lowest importance occurs in an ICT platform for **car-pooling**

ICT tools for campuses located outside the city

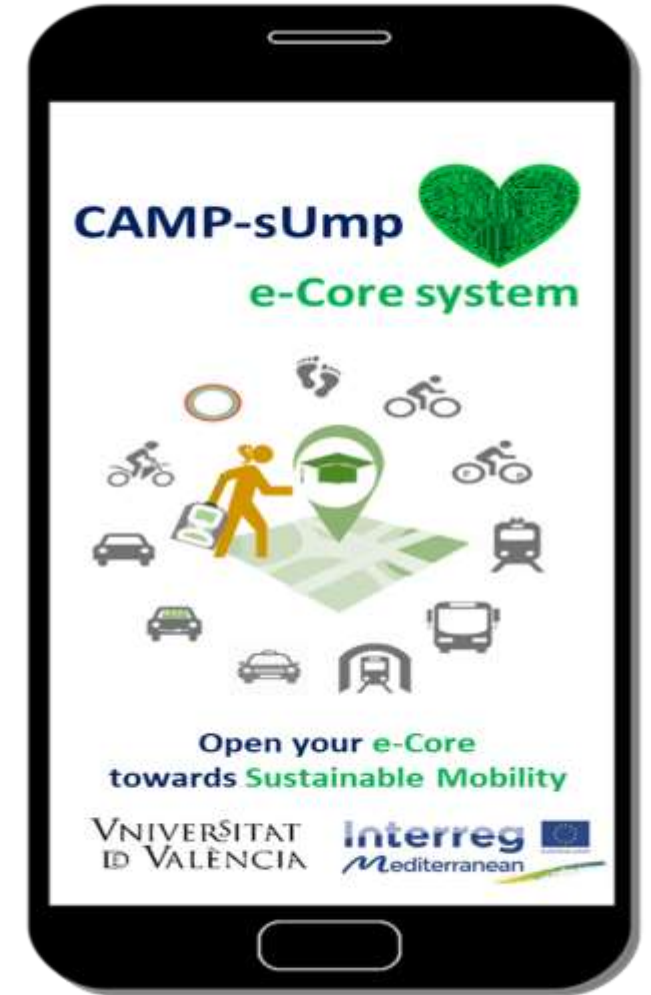


- The most important type of measures is **“ICT tools to improve information to passengers”**
- The lowest importance refers to **“electronic monitoring of parking spaces”**

E-Core system scope

The e-Core System describes the integration of many **independent and self-contained nodes** to satisfy needs and purposes of sustainable mobility at Universities

- a set of **top-level assumption**, variables, actors, stages and nodes
- a **strategic plan** for designing an integrated sustainable mobility system
- a **top-level approach**
- **technology independent**



E-Core system architecture

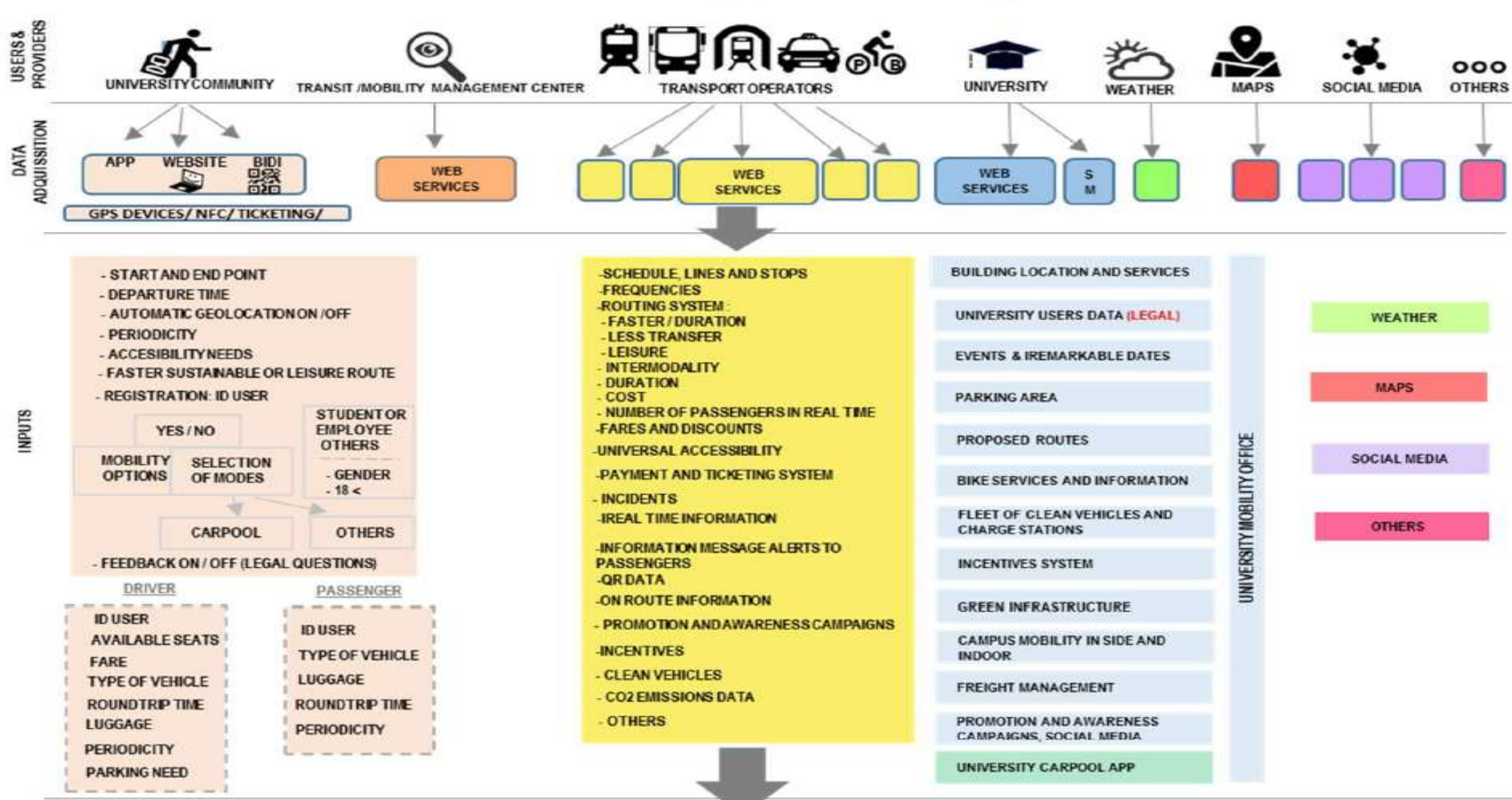
The e-Core System consists of 6 phases

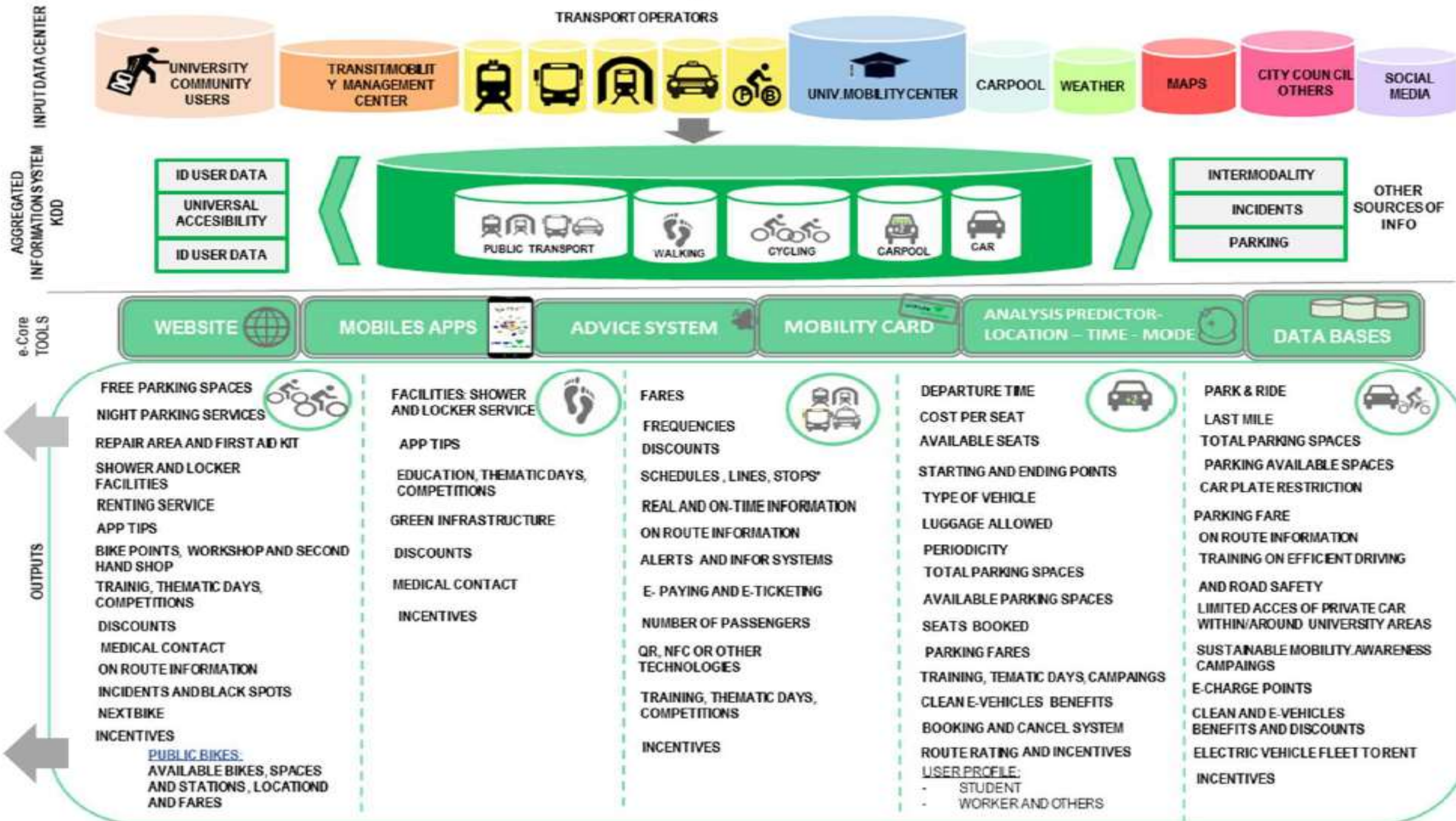
1. **Users/providers** (diverse profiles which provide vital information to the system)
2. **Data Acquisition** (how the providers can provide the information to the System)
3. **Input** about mobility options
4. **Aggregated Information system** (data are aggregated gathered and organized in different blocks)
5. **Dissemination tools** (website, mobile apps, mobility card)
6. **Output** based on transport mode





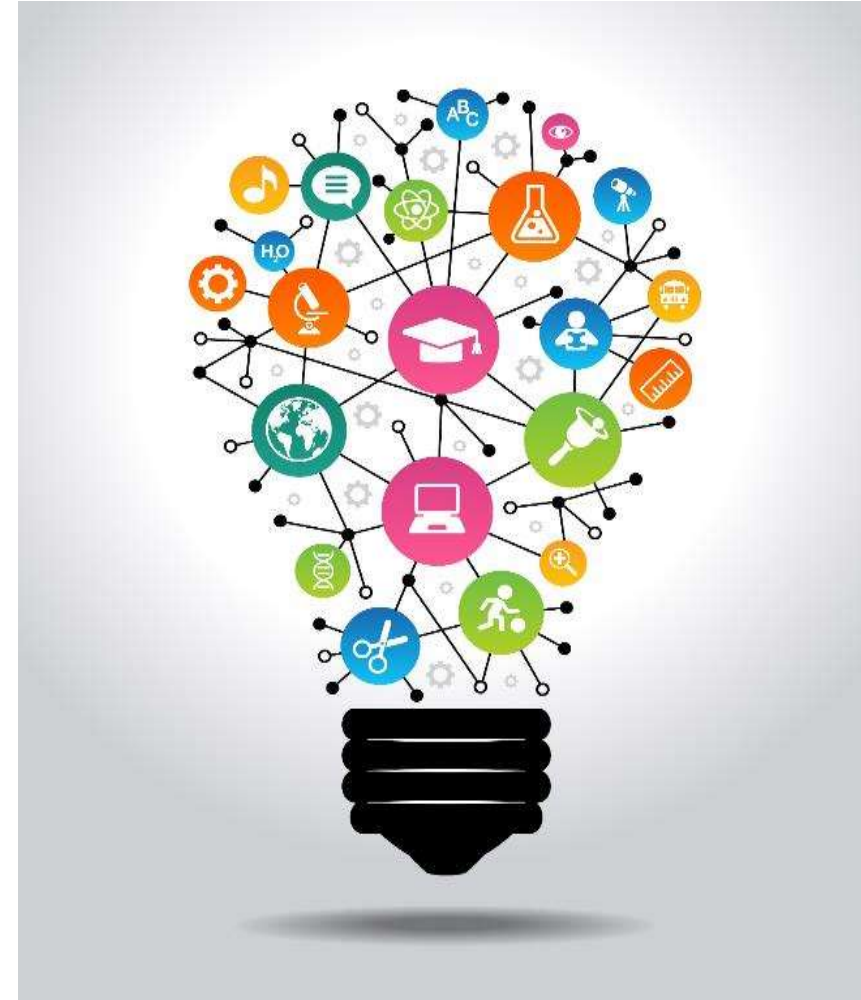
CAMP-sUmp e-Core system

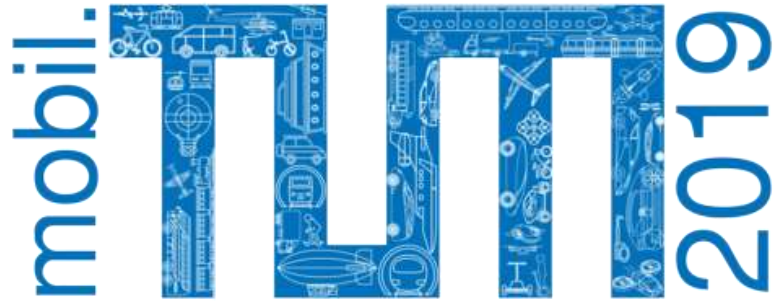




Conclusions

- **ICT tools** apply in almost all thematic areas and play a crucial role for every campus sustainable mobility plan
- Campuses have different mobility **gaps/needs** based on their location (inside/outside the city)
- The tools that provide **information to passengers** were found to be the most important based on the questionnaire
- The **architecture** of the proposed System is based on European frameworks for standardization and ITS design
- **E-Core system** is an integrated ICT platform model enabling data collection, planning, management and monitoring





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