Mobility Plans for University Campuses

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Background

- **Sustainable Urban Mobility Plans** (SUMPs) define a set of interrelated measures designed to satisfy the mobility needs of people.
- SUMPs aim to improve the **mobility** and **accessibility** of urban areas and to provide high-quality and sustainable modes for mobility and transport
- A **University Campus** is similar to an urban model and it could be used as a test area for mobility policies and tools.

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Objectives

Each campus will analyze its framework site in order to obtain a defined state of art of data, policies and planning instruments with regard to mobility to/from/inside the Campus and its integration with urban mobility

Key Outputs

- two action plans
- a road map for decision makers
- an ICT model

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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

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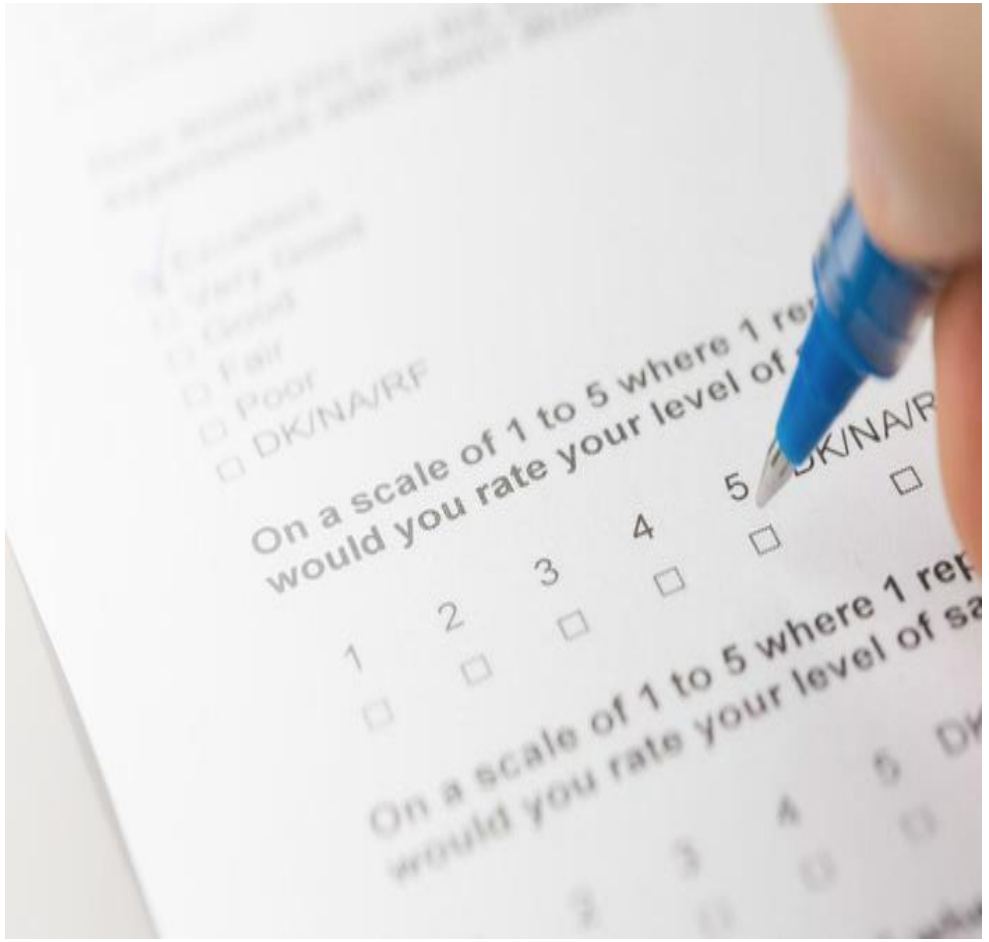
Questionnaire

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**



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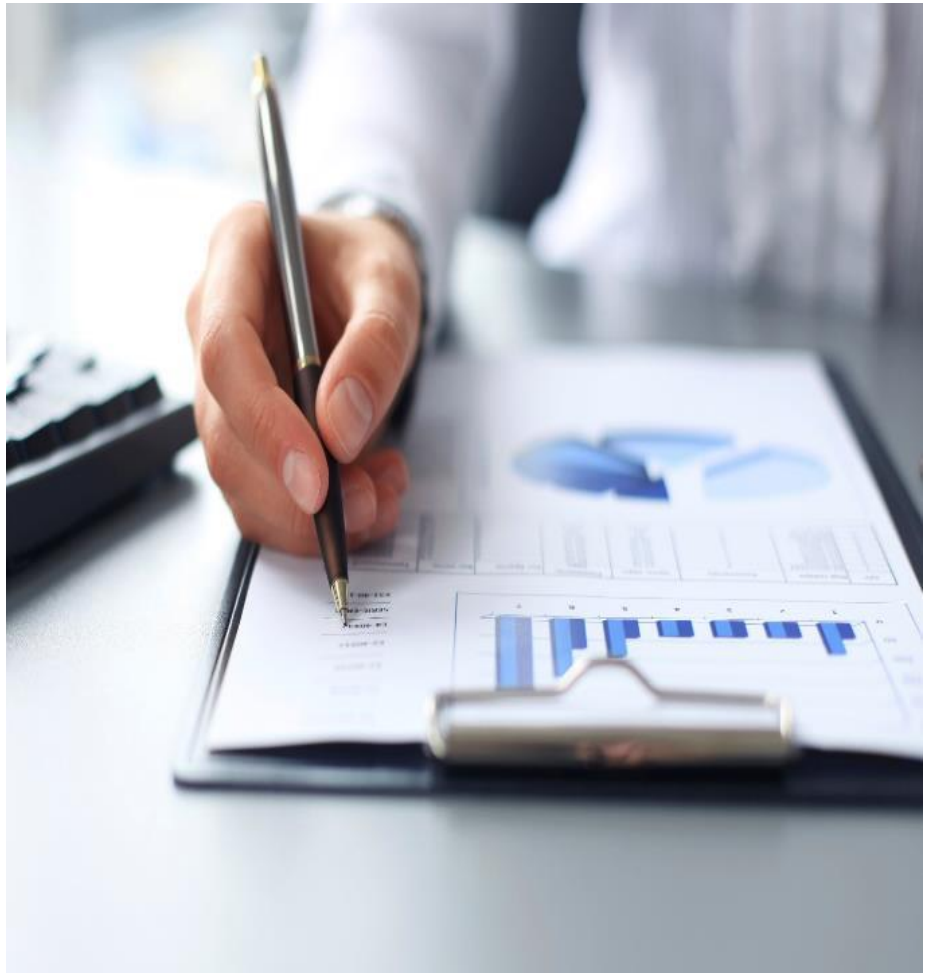
Expert's interview

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)**



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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

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Action Plan

Two **Action Plans** have been produced:

- Action Plan for University Campus **inside Urban areas**
- Action Plan for University Campus **outside Urban areas**

Action plans will be the reference framework of a unique model and future tailored **Sustainable University Mobility Plan** (SUMP) adaptable to different MED University Campuses

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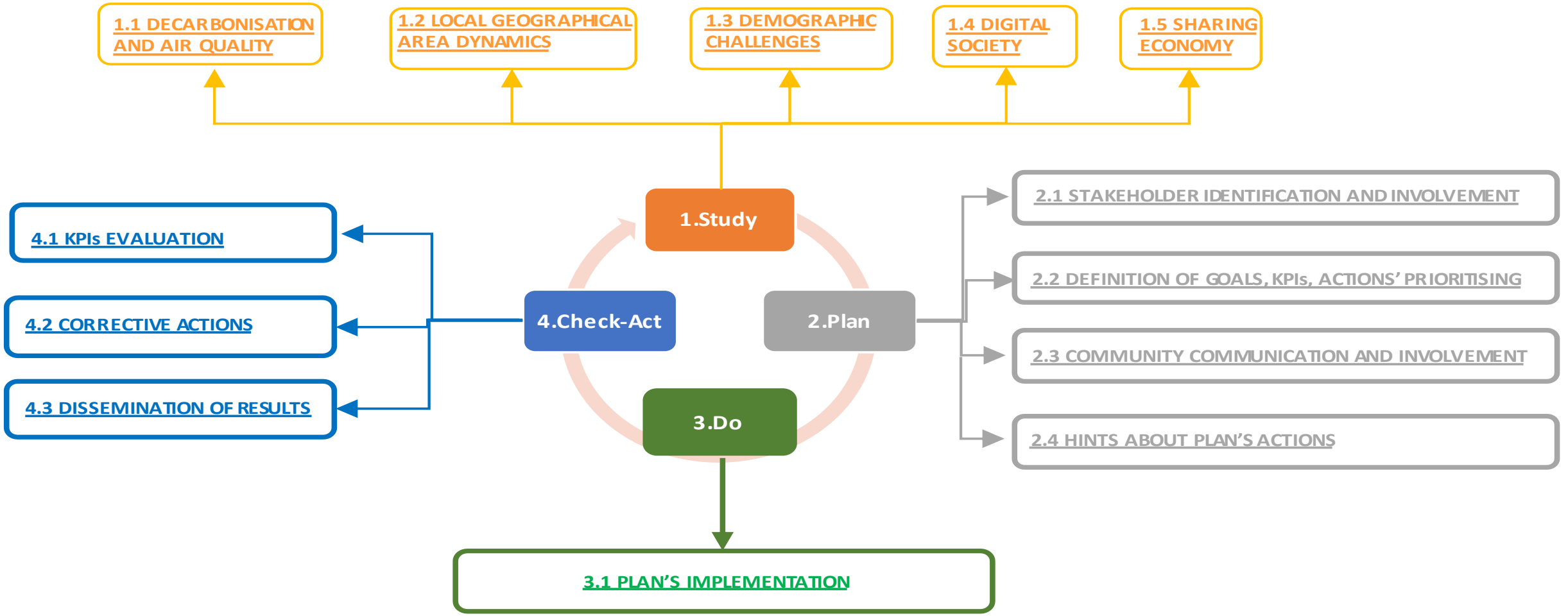
Action Plan Template



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Action Plan timeplan

The following **time estimations** are meant to guide the University mobility planner towards achieving the final plan

- **Study** section is the most time consuming part with an expected duration of 10 months equally distributed between the different activities
- **Plan** section should last about 8 months
- **Do** action should last about 4 months
- **Check &** Act section is comprehensive of the whole duration of the action plan, since the activities involved are highly integrated with different parts of the Action Plan

In total the proposed Action Plan has an estimated duration of **22 months**

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Road Map

The Roadmap is divided into two sections

- A **strategic** part that provides a global and sequential vision of the objectives and measures to be developed in the SUMP
- A **detailed** part: in which the specific measures and other aspects to be taken into account for each strategic line of sustainable mobility are indicated

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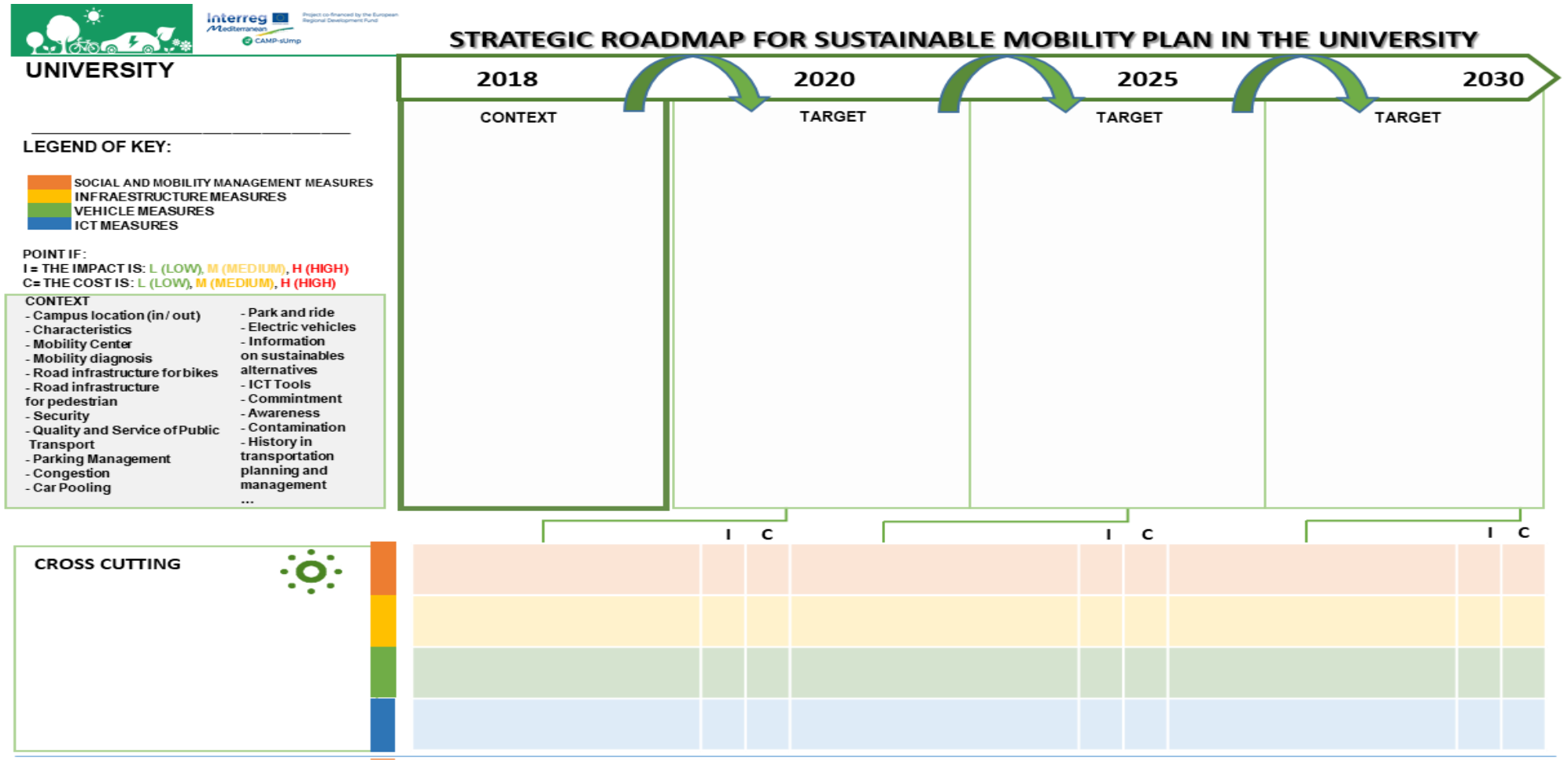
Road Map – Strategic part



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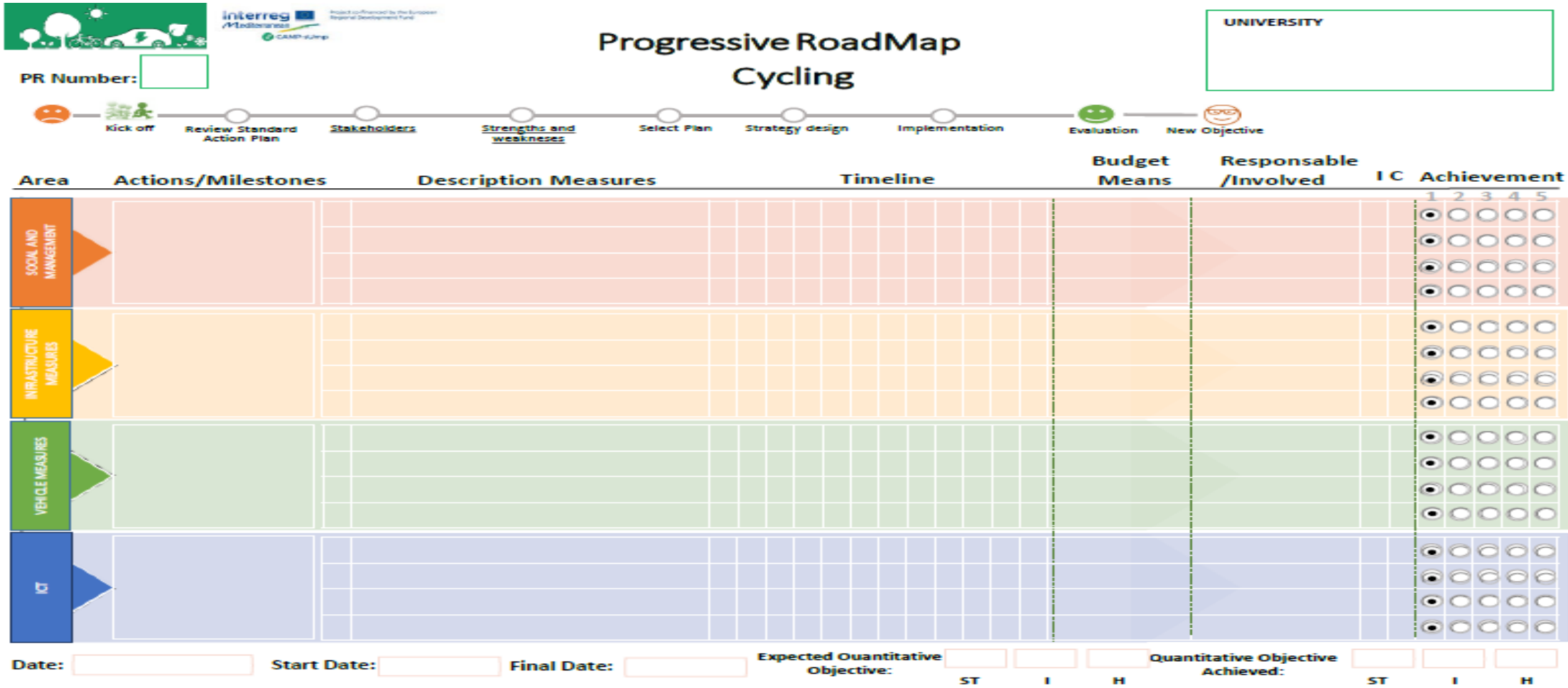
Road Map – Detailed part



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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**

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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

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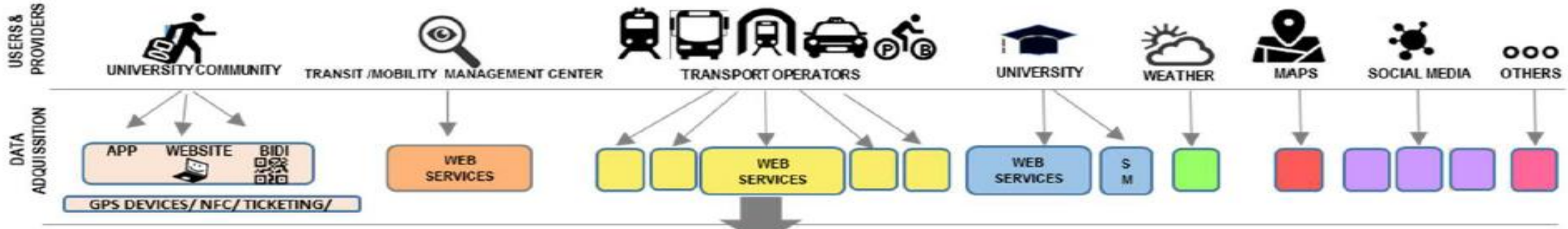
CAMP-sUmp e-Core system



INPUTS

- START AND END POINT
- DEPARTURE TIME
- AUTOMATIC GEOLOCATION ON /OFF
- PERIODICITY
- ACCESIBILITY NEEDS
- FASTER SUSTAINABLE OR LEISURE ROUTE
- REGISTRATION: ID USER

YES / NO

STUDENT OR EMPLOYEE OTHERS

- GENDER
- 18 <

MOBILITY OPTIONS

SELECTION OF MODES

CARPOOL

OTHERS

- FEEDBACK ON / OFF (LEGAL QUESTIONS)

DRIVER

ID USER
AVAILABLE SEATS
FARE
TYPE OF VEHICLE
ROUNDTRIP TIME
LUGGAGE
PERIODICITY
PARKING NEED

PASSENGER

ID USER
TYPE OF VEHICLE
LUGGAGE
ROUNDTRIP TIME
PERIODICITY

-SCHEDULE, LINES AND STOPS
-FREQUENCIES
-ROUTING SYSTEM :
- FASTER / DURATION
- LESS TRANSFER
- LEISURE
- INTERMODALITY
- DURATION
- COST
- NUMBER OF PASSENGERS IN REAL TIME
-FARES AND DISCOUNTS
-UNIVERSAL ACCESSIBILITY
-PAYMENT AND TICKETING SYSTEM
- INCIDENTS
-IREAL TIME INFORMATION
-INFORMATION MESSAGE ALERTS TO PASSENGERS
-QR DATA
-ON ROUTE INFORMATION
- PROMOTION AND AWARENESS CAMPAIGNS
-INCENTIVES
- CLEAN VEHICLES
- CO2 EMISSIONS DATA
- OTHERS

BUILDING LOCATION AND SERVICES

UNIVERSITY USERS DATA (LEGAL)

EVENTS & IREMARKABLE DATES

PARKING AREA

PROPOSED ROUTES

BIKE SERVICES AND INFORMATION

FLEET OF CLEAN VEHICLES AND CHARGE STATIONS

INCENTIVES SYSTEM

GREEN INFRASTRUCTURE

CAMPUS MOBILITY IN SIDE AND INDOOR

FREIGHT MANAGEMENT

PROMOTION AND AWARENESS CAMPAIGNS, SOCIAL MEDIA

UNIVERSITY CARPOOL APP

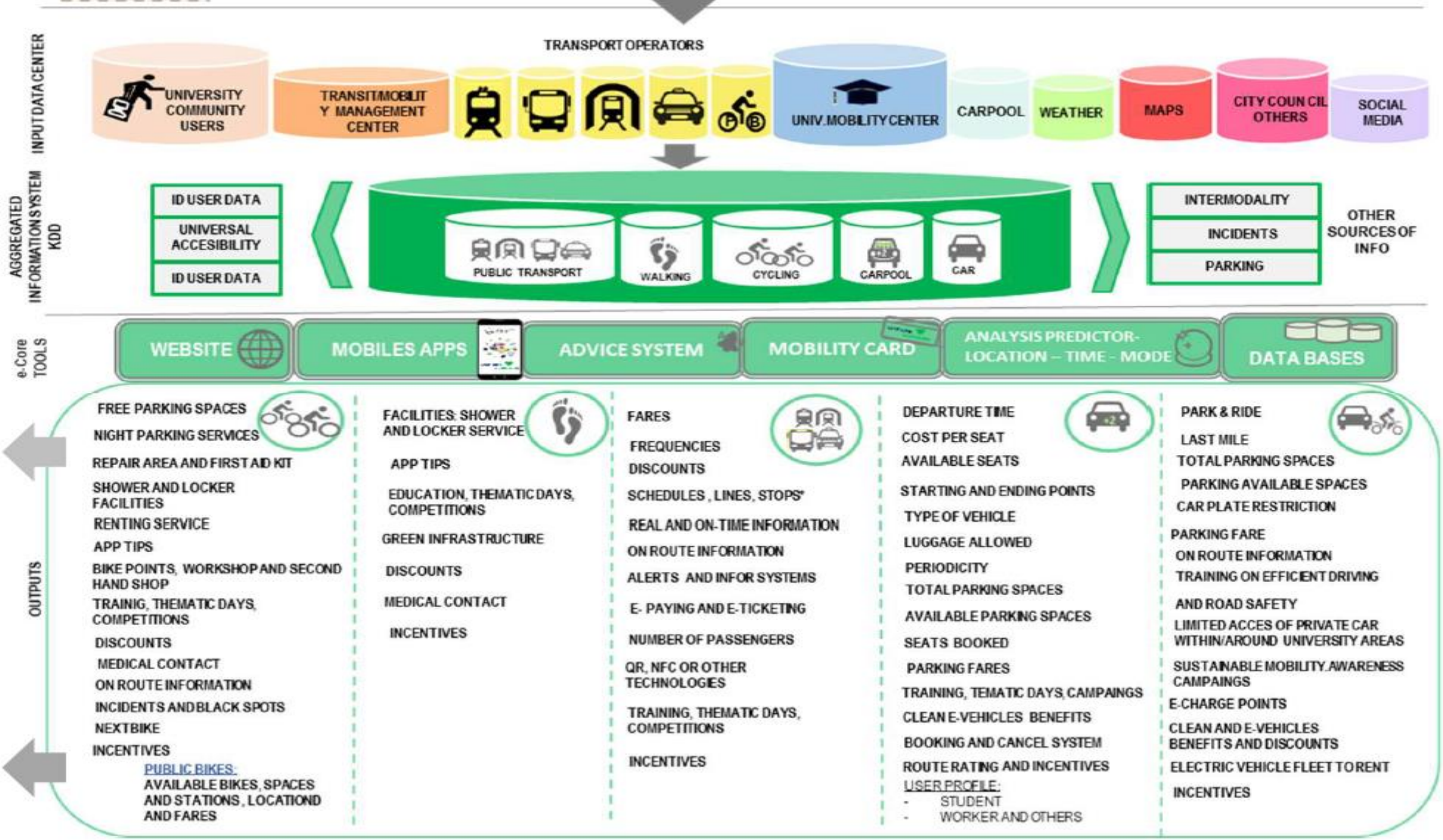
UNIVERSITY MOBILITY OFFICE

WEATHER

MAPS

SOCIAL MEDIA

OTHERS


INPUT DATA CENTER
UNIVERSITY COMMUNITY USERS
TRANSIT/MOBILITY MANAGEMENT CENTER
TRANSPORT OPERATORS
UNIV. MOBILITY CENTER
CARPOOL
WEATHER
MAPS
CITY COUNCIL OTHERS
SOCIAL MEDIA
AGGREGATED INFORMATION SYSTEM KDD
ID USER DATA
UNIVERSAL ACCESIBILITY
ID USER DATA
PUBLIC TRANSPORT
WALKING
CYCLING
CARPOOL
CAR
INTERMODALITY
INCIDENTS
PARKING
OTHER SOURCES OF INFO
e-Core TOOLS
WEBSITE
MOBILES APPS
ADVICE SYSTEM
MOBILITY CARD
ANALYSIS PREDICTOR- LOCATION – TIME - MODE
DATA BASES
OUTPUTS
FREE PARKING SPACES
NIGHT PARKING SERVICES
REPAIR AREA AND FIRST AID KIT
SHOWER AND LOCKER FACILITIES
RENTING SERVICE
APP TIPS
BIKE POINTS, WORKSHOP AND SECOND HAND SHOP
TRAINIG, THEMATIC DAYS, COMPETITIONS
DISCOUNTS
MEDICAL CONTACT
ON ROUTE INFORMATION
INCIDENTS AND BLACK SPOTS
NEXTBIKE
INCENTIVES
PUBLIC BIKES:
AVAILABLE BIKES, SPACES AND STATIONS, LOCATIOND AND FARES
FACILITIES: SHOWER AND LOCKER SERVICE
APP TIPS
EDUCATION, THEMATIC DAYS, COMPETITIONS
GREEN INFRASTRUCTURE
DISCOUNTS
MEDICAL CONTACT
INCENTIVES
FARES
FREQUENCIES
DISCOUNTS
SCHEDULES , LINES, STOPS"
REAL AND ON-TIME INFORMATION
ON ROUTE INFORMATION
ALERTS AND INFOR SYSTEMS
E- PAYING AND E-TICKETING
NUMBER OF PASSENGERS
QR, NFC OR OTHER TECHNOLOGIES
TRAINING, THEMATIC DAYS, COMPETITIONS
INCENTIVES
DEPARTURE TIME
COST PER SEAT
AVAILABLE SEATS
STARTING AND ENDING POINTS
TYPE OF VEHICLE
LUGGAGE ALLOWED
PERIODICITY
TOTAL PARKING SPACES
AVAILABLE PARKING SPACES
SEATS BOOKED
PARKING FARES
TRAINING, TEMATIC DAYS, CAMPAINGS
CLEAN E-VEHICLES BENEFITS
BOOKING AND CANCEL SYSTEM
ROUTE RATING AND INCENTIVES
USER PROFILE:
- STUDENT
- WORKER AND OTHERS
PARK & RIDE
LAST MILE
TOTAL PARKING SPACES
PARKING AVAILABLE SPACES
CAR PLATE RESTRICTION
PARKING FARE
ON ROUTE INFORMATION
TRAINING ON EFFICIENT DRIVING AND ROAD SAFETY
LIMITED ACCES OF PRIVATE CAR WITHIN/AROUND UNIVERSITY AREAS
SUSTAINABLE MOBILITY AWARENESS CAMPAINGS
E-CHARGE POINTS
CLEAN AND E-VEHICLES BENEFITS AND DISCOUNTS
ELECTRIC VEHICLE FLEET TO RENT
INCENTIVES

Conclusions

- The produced **action plans** represent a unique model and future tailored templates adaptable for different Universities
- The **road map** model for the implementation of the action plan describes steps and tools and ensures commitment for decision makers, consistency and viability
- The **E-Core system** is an integrated ICT platform model enabling data collection, planning, management and monitoring.

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