Japan-Portugal
Cooperation Seminar on Smart Communities

SMART MOBILITY – SMART COMMUNITIES

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GOVERNO DE PORTUGAL

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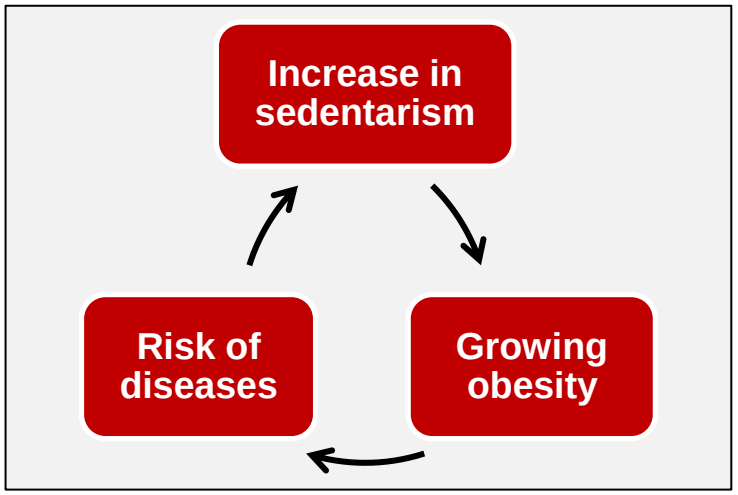
1. Which problems ?

Urban (de)Structuring

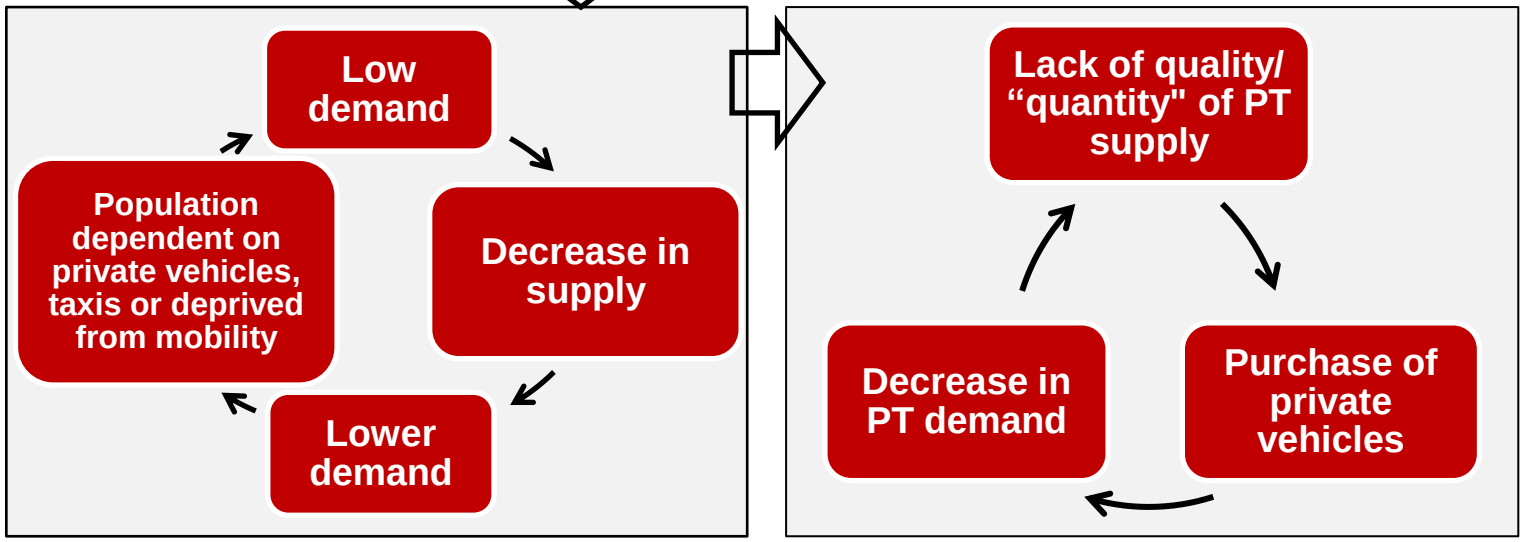
- **Dominant features of urban development:**
  - Peripherization / discontinuity /urban disconnection
  - Excentric location of equipments and services on urban outskirts – lower cost land
  - Monofunctional new centralities
  - Predominance of new urbanization *versus* rehabilitation
  - Decline of city centres where urban tissue is more compact and where public transport and walking are viable
  - Increasing distance of displacements

Consequences on sustainable mobility

- **Predominance of car travel** (energy consumption; increase in CO_2, noise, congestion, accidents)
- **Loss of weight of "walking"**
- Competition of IT generates **Public Transport with no economies of scale** and promotes the purchase of vehicles



Vicious Cycles of Mobility

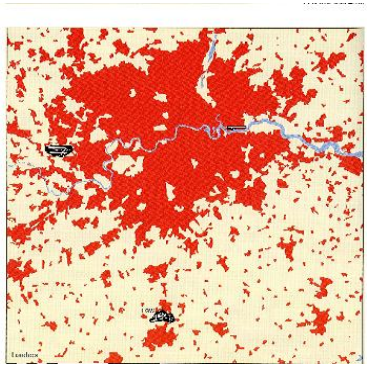


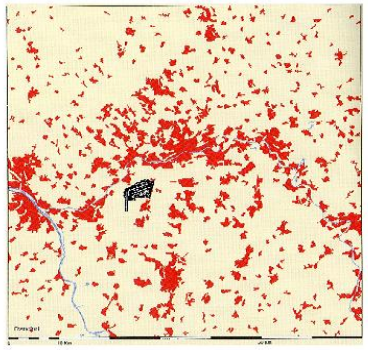
Poor quality of urban life

- Deterioration of urban public spaces – excessive public space taken by roads and parking
- **High volume of traffic** in main urban routes, **high speeds**, congestion, pollution, accidents
- Common problems – **lack of parking spaces, circulation of vehicles looking for parking, double and disorderly parking, chaotic loading and unloading operations**
- In areas of greater demand **parking is frequently not expensive** which favours the use of IT
- **Waste of space – street taken from pedestrians and other modes; unsafe environment** specially for the **most vulnerable**
- **Unqualified walking solutions:**
  - Narrow sidewalks, blocked by cars and “urban garbage”
  - Pedestrian’s routes discontinuity and lack of comfort
- **Lack of alternative, non-polluting, silent and cheaper transport solutions, such as bicycles**

1. Which answers?

Portuguese situation – prioritary questions - 2020





Where do changes in cities take place?

1. To develop **centrality networks** articulated with accessibility conditions;
2. To control **urban sprawl** (“oil stains”) by structuring fragmented urban territories;
3. To structure and integrate **low density occupation areas** (rural, peri-urban and touristic areas) into the transportation networks by articulating them with centrality networks;
4. To densify urban use in areas of **(potential) high accessibility;**
5. **To recuperate “proximity urbanism ”**
6. **To promote a sustainable mobility**

•Planning, Urban Management and Public Space Design

• Planning and Mobility Management

are the keys to these challenges

Sustainable Mobility

Sustainable mobility is a **concept** which assumes that to citizens, either living in cities, towns or villages, are offered conditions that provide **journeys** which are / have:

- **Safe**
- **Comfortable**
- **Acceptable journey and waiting times**
- **Accessible costs**
- **Energy efficient and with reduced environmental impacts**

To put in place this concept, in our country, IMTT has developed **the "Mobility Package".**

What is the Portuguese Mobility Package?

A set of documents which support
planning and mobility management

The components of the Mobility Package

I. NATIONAL DIRECTIVES ON SUSTAINABLE MOBILITY AND TRANSPORT

II. GUIDELINES FOR ACCESSIBILITY, MOBILITY AND TRANSPORT ISSUES IN LAND USE PLANNING AND MANAGEMENT INSTRUMENTS

III. SUSTAINABLE MOBILITY AND TRANSPORT PLANS GUIDE

IV. SET OF BROCHURES FOR TECHNICAL SUPPORT ON SUSTAINABLE MOBILITY

V. GUIDE TO COMPANY'S (and large and medium-sized trips generators/attracters) MOBILITY PLANS

THE *DIRECTIVES*

The *Directives* provide guidance / principles for mobility policies ("policy oriented") and aim at establishing:

1. Guiding principles to be followed
2. Goals and targets to be reached
3. Instruments / plans / programs for its implementation and corresponding contents
4. Territorial coverage and obligatoriness
5. Development, approval and public participation processes
6. Duration of the instruments
7. Conditions applicable to monitoring and revision

Eleven Guidelines

Guidelines

1. To define and ensure adequate levels of **ACCESSIBILITY** offered **TO ALL CITIZENS** by the transport system
2. To establish **an EFFICIENT CONFIGURATION** of the accessibility system
3. **ECONOMIC SUSTAINABILITY** as a guarantee of "offer stability"
4. To improve citizen's quality of life by **REDUCING THE NEGATIVE IMPACTS** of mobility (social, environmental and economic)
5. To create **GOOD CONDITIONS FOR NON-MOTORIZED MODES**, particularly for pedestrians
6. To promote a **RATIONAL USE** of motorized individual transport modes
7. To ensure **GOOD QUALITY PUBLIC TRANSPORT SERVICES** endowed with technical characteristics which meet the demand
8. Integration of **TRANSPORT AND LAND USE POLICIES**
9. To promote **PHYSICAL, FARE, LOGICAL AND INSTITUTIONAL INTEGRATIO**N of the different components of the mobility system
10. To **IMPROVE INFORMATION** available to citizens on the transport system and mobility
11. To ensure **PUBLIC PARTICIPATION** in decision-making processes associated with mobility

Promotion of urban renewal

- **Restructure the centrality / proximity models**
- **Selectively** (and strategically) **locate new areas of trip attraction** (hospitals, universities, business, services, shopping centres, PT interchange ...)
- **Making lively streets** (day and night) and implement policies regarding the localization of facilities in neighbourhoods

Lisbon suburban area

Lagoas Business Park (Oeiras)

Pedestrians in public space

Fórum Aveiro Inner city (a good practice)

Promotion of Smart Mobility

Intelligent Mobility in the "Mobility Package" bases itself on achieving the **balance of modal share** and **the reduction of impacts from present motorization patterns**, through **four main goals**:

- **Limit and rationalize the use of individual transport**
- **Promote and generalize innovative and sustainable energy sources and powering systems**
- **Promote the use of public transport**
- **Increase the use of soft modes**

- Smart management of parking
- Smart management of traffic flows
- Strengthening of Public Transport quality
- Mix of integrated transport means, modes, services and systems, enhanced by new technologies and information / communication systems
- New organization of society (work and lifestyles)
- Engagement of institutional players and other sectors of activity (transport, energy, telecommunications..)
- Information and participation of citizens

Smart management of parking

Use parking policies (rates, fares and duration) to:

- reduce the use of IT, especially where there is PT offer
- Improve the quality of urban life in cities

- A car needs at least 20m^2 to park or circulate
- The parking invoice can reach 20% of the monthly cost with rented facilities

Smart management of traffic flows

woonerf in Rijswijk, Netherlands Example

- Use traffic calming solutions such as 30 km Zones, Residential / Home Zones, Coexistence and meeting Zones
- Traffic volume and speed reduction
- Improve conditions for soft modes – walking and cycling
- Change behaviours
- Control urban space design

France

Germany

Netherlands

United Kingdom

Switzerland

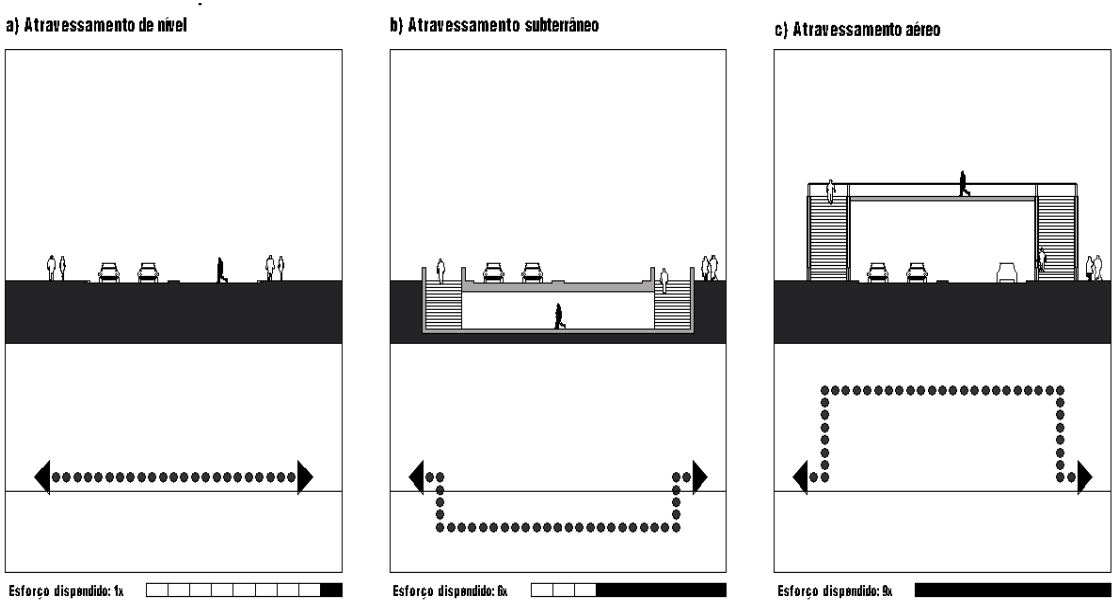
Example of traffic calming road signs

Promotion of Soft Modes (I)

- **Requalify public space**
- **Ensure continuity (safety and comfort) to pedestrians and bikers**
- **Promote mixed use pedestrian streets**
- **Eliminate barriers**

walking

cycling



Promotion of Soft Modes (II)

- **Promote cycling not only in leisure trips, but in (daily) short-distance trips**
- **Ensure intermodality Bicycle + public transport**
- **Create facilities and services for cyclists (next to interfaces, workplaces .....)**

First solution to consider

Last solution to consider

Planning - the hierarchy of decision

Reduction of motorized traffic

Speed reduction

Intersection / crossing and traffic management

Redistribution of motorized vehicles space

Implementation of Cycle paths/ lanes

Conversion of footpaths into shared space between pedestrians and cyclists

Coexistence

Visual separation

Physical separation

Delivery and urban services

- Organize urban freight distribution (micro-urban logistics)
- Use smaller, lighter and more specialized vehicles in urban services

Local urban delivery

Security services

Garden mantenance

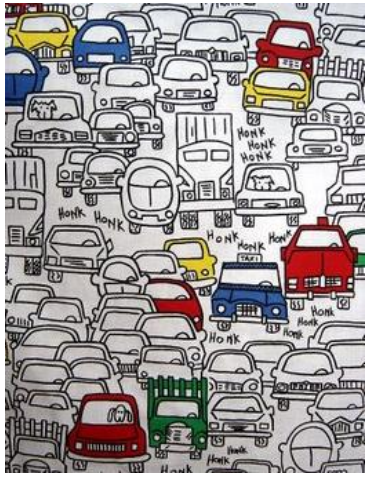
Post delivery

Mix and combination of Transport Means and Modes

"transport has to use less and cleaner energy"
In Transport White Paper (EC – 2011)

TARGET – White Paper
Reduction of 60% of GHG by 2050

1. **Reduce in 50%** the number. of **conventional fuel vehicles** in urban transport, **by 2030;**
2. **Phasing out of these vehicles** from urban environment **by 2050**



Large scale expansion of green vehicles

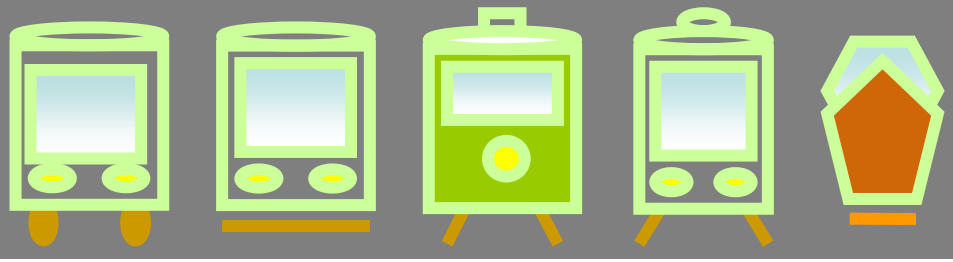
EV: Light duty vehicles (cars, two/ three-wheels); Heavy duty vehicles (passenger and freight transport)

Individual use, private fleets and public service fleets; urban services (waste collection, delivery vans)

+

Associação Portuguesa do Veículo Eléctrico

Public transport means and soft modes



Mix and combination of Transport Means, Modes + Services and Systems

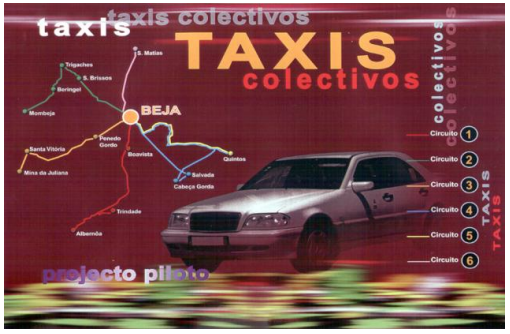
Parking for carpoolers

- **Carpooling**
- **Carsharing**
- **Bikesharing**

- **Eco-driving**
- **Vehicle-to-vehicle communications**
- **Vehicle-to-infrastructure communications**
- **Trafic Management**
- **Parking Management (supply/demand)**

mobilis
CIRCULAR URBANA DE LEIRIA

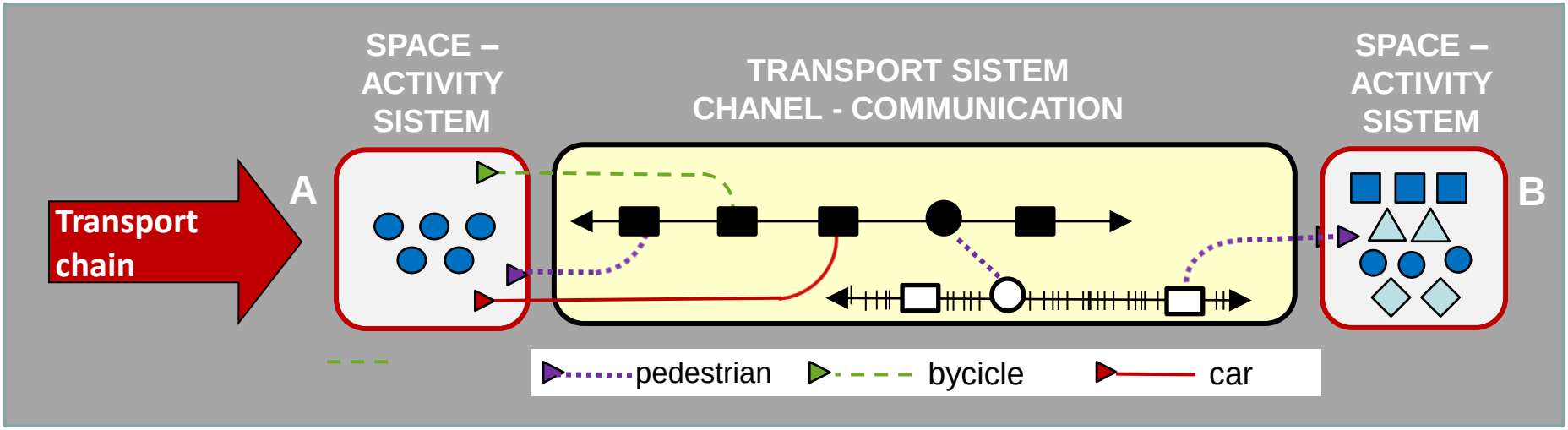
- **Small urban buses**
- **Flexible Transport solutions**
- **Demand Responsive Transport (DRT)**
- **Shared taxi**



Integrated management (I)

Intermodal and multi - modal travels

- Requires the establishment of conditions **promoting optimized transport / mobility networks**
- Calls for **ITS,** as a way of optimizing mobility, and the concept of ***"Seamless Travelling"***, that is to say a 'free-from-disturbance' journey from origin to destination, enabled by a proper **physical / spatial, scheduling, pricing and information integration.**



Adapted from Bovy, PH.H - Lausanne

Integrated management (II)

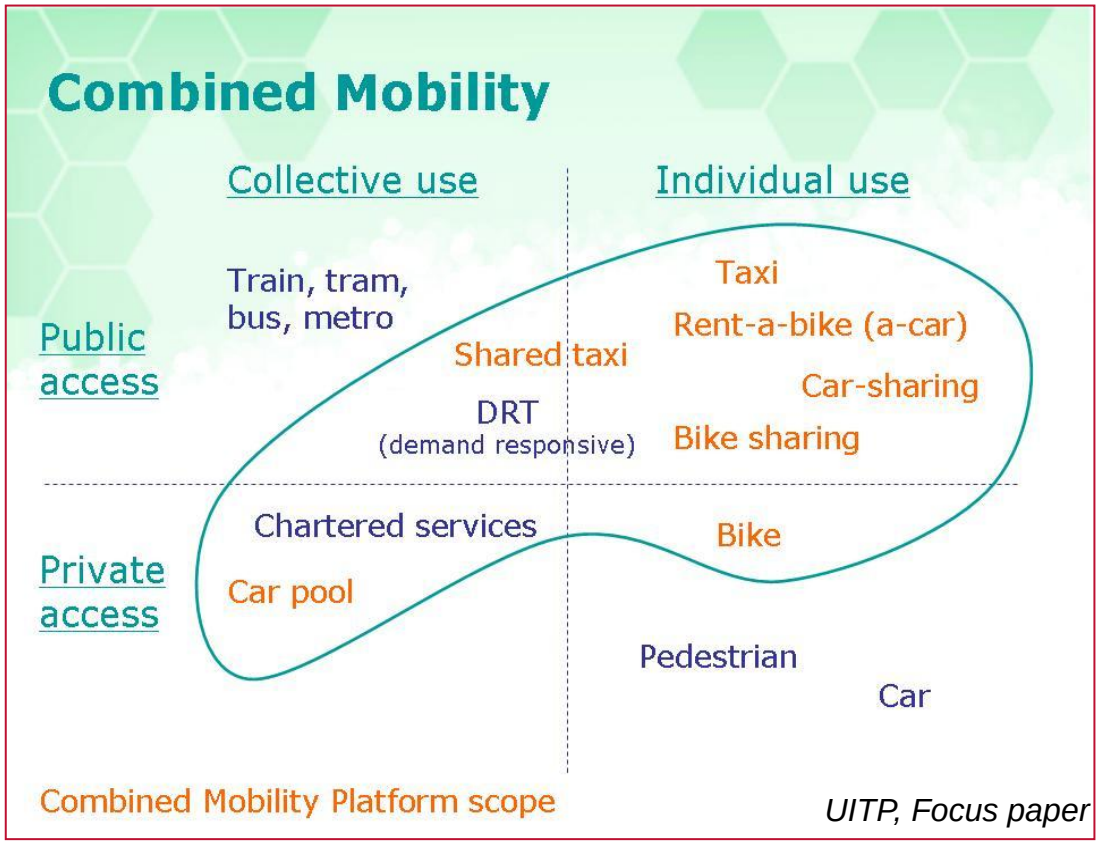
- **Combined Mobility - New concept of modern mobility organization**

It combines classic transport services with previously determined itinerary, schedule and stopping points with innovative and flexible transport services, thus ensuring a thorough and coherent mobility supply

"Combined mobility" derives from the **recognition that some cities** are **"open" 24 hours a day, 7 days a week**, to meet citizens' needs.

It assumes a **key concept, "modal switch"**, which allows customers to choose between modes of transport (or combination of modes) on a daily basis according to the most suitable solution in view of their agenda.

Organization and management is based on **ITS** and on the concept of **intelligent mobility integrated platform.**



UITP, Focus paper

A new organisation of society (work and lifestyles)

- Online and real time information
- Journey planners
- Electronic booking and payment systems
- Parking and traffic management guidance

- Flexible schedules
- Video-conference
- Telework

Mobility Management

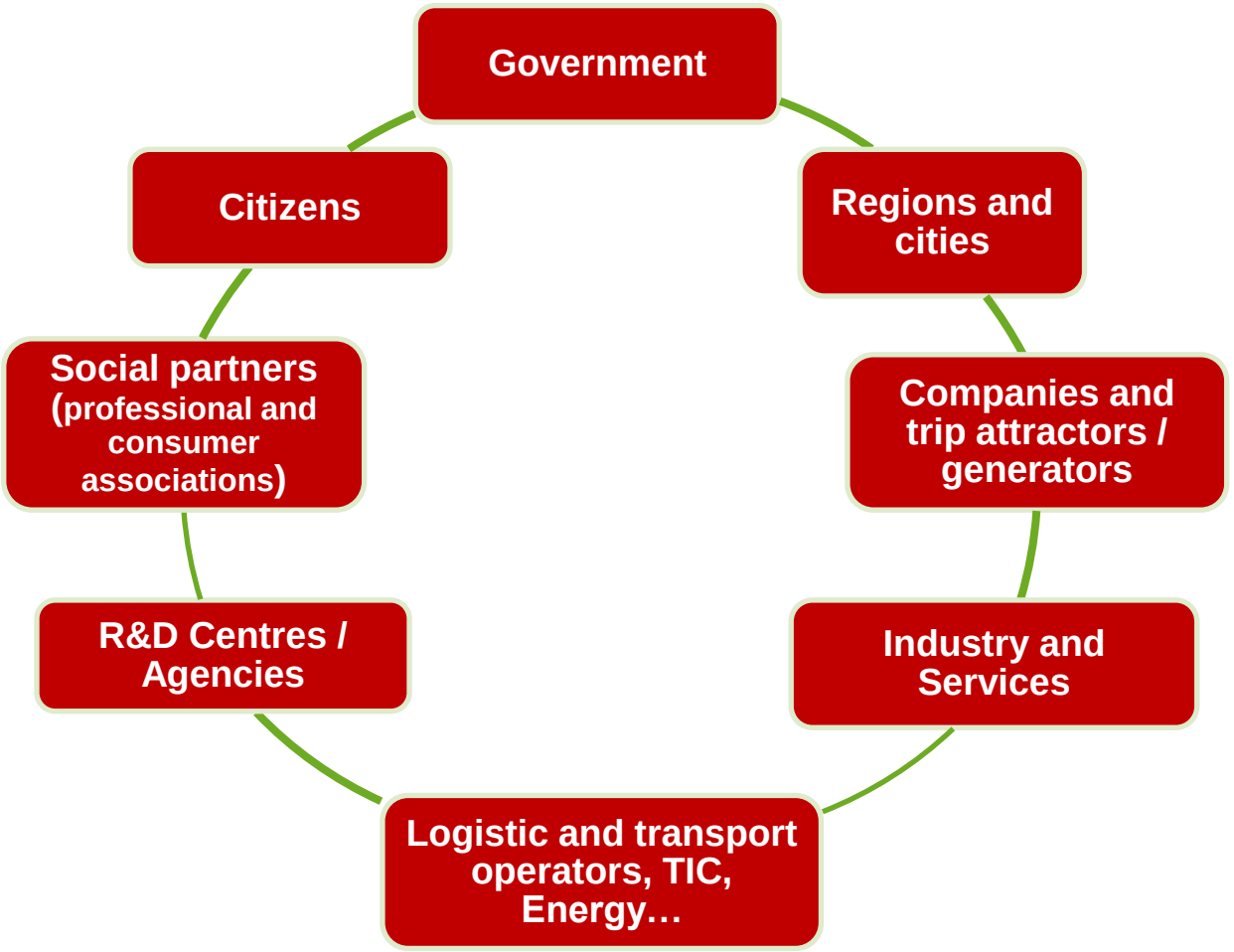
- Mobility Management (MM) is a concept to promote sustainable transport and manage the demand for car use by changing **travelers' attitudes and behavior**.
- At the core of Mobility Management are **“soft” measures** like information and communication, organizing services and coordinating activities of different partners.
- “Soft” measures most often **enhance the effectiveness of “hard” measures** within urban transport (e.g., new tram lines, new roads and new bike lanes).
- Mobility Management measures (in contrast to “hard” measures) **do not necessarily require large financial investments** and may have a high benefit-cost ratio.
- Typically, **MM measures are rarely isolated**, instead they often come as a bundle of measures, i.e. information campaigns combined with infrastructure, pricing policy or regulations.

(EPOMM – European Platform on Mobility Management)

Smart Mobility Chalenge
Involvement of Players and Society

- **Engaged and pro-active players –** from businnes sector and other sectors of activity (transport, energy, telecommunications..)

- **Informed and engaged citizens**



Final remarks

- **Right to mobility** is presently recognised as a **citizenship right** which **requires**, in return, **an adaptation of individual behaviours to meet collective interests.**

- **It is necessary to change the paradigm of city governance.** Such shift undoubtedly implies the update of technical skills, but it depends, above all, on **gaining politicians and citizens for a "New culture of mobility".**

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