Smart Mobility –
A tool to achieve sustainable cities
Infrastructure is becoming more and more connected, intelligent and automated

1.0  Brick and steel infrastructure

2.0  Semi automated infrastructures

3.0  Intelligent infrastructures

4.0  Fully integrated and intelligent infrastructures

The 4 stages of infrastructure development
Smart City Concepts go beyond technologies and need to integrate also social and political aspects

A city can be defined as ‘smart’ when social capital, traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life

(Adapted from Caragliu et al. 2009)
Smart Mobility is a tool to achieve sustainable city development

Smart Mobility
Allows seamless, efficient and flexible travel across various modes

Environment
Resource efficient transport

Sustainability Triangle

Economy
Higher productivity

Society
Higher Quality of Life
Smart Services are based on Intelligent Infrastructures

Benefits and cost of service

- Efficiency
- Competitiveness
- Quality of life
- Ease of doing business
- Opex/Capex reduction

Smart Applications

- Smart Living
- Smart Society
- Smart Governance
- Smart Mobility
- Smart Economy
- Smart Environment

Intelligent Infrastructures

- Buildings
- Transp.
- Utilities
- Security
- ... (missing)

Connectivity

- ICT
- ... (missing)

Automation & Control

- ... (missing)
More than 1,200,000* people die globally each year in traffic, most of them pedestrians and bikers

*as of 2010, WHO Global status report on road safety 2013
In Germany, already 5% of all land is sacrificed to satisfy transport demand.
Car drivers in Europe loose more than 33 hours per year in congestion (63 bn EUR in total damage)
Smart mobility is a paradigm shift to a more flexible and multi-modal transport system

From a “mono-modal” transport system …

… to a multi-modal system with high flexibility and convenience
Hassle-free usage of multiple modes of shared and public transport will be key for inner city areas

**Morning**

**Planning**
You use your smartphone to calculate the best route and book the trip

**Next One**
At the station, your smartphone lets you know that your train is 2 minutes late

**Metro**
You take the automated metro to work and read a popular book during the ride

**Afternoon**

**Advanced parking**
You spend no time looking for a parking spot since you booked on-street parking in advance

**Evening**

**Billing**
After your return to your home, you get one bill sent to your phone for modes you used

**New bus service**
You had a couple of drinks so you take the new flexible bus service to return to your home

**Car2X Communication**
Your eCar gets information about speed limits directly from the infrastructure

**Car2X sharing**
You take a shared eCar for a short trip to a customer
Next One as a proximity based service shows information when passengers really need it.
Automated and electrified metro allows short headways and very high capacity

Source: http://upload.wikimedia.org/wikipedia/de/thumb/6/6b/U3-nuernberg-rr2.jpg/1280px-U3-nuernberg-rr2.jpg

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Advanced Parking allows efficient management of multiple on-street parking spaces with one sensor.
Virtual street signs can be directly linked with the car
Kutsuplus trial in Helsinki offers transport service between the taxi and bus lines
Integrated Mobility Platform as information broker allows seamless travel across transport modes
Smart Mobility will see the emergence of new business models such as Mobility-as-a-Service

**My Mobility Package**

**Congestion charge**
- Premium parking
- 120 min. car sharing
- 120 min. driver service

*300 EUR/month*

**Public transport**
- 10 days bike sharing
- 2 days weekend car sharing

*70 EUR/month*

**My Mobility Package**

**Public transport (family)**
- 180 min. city parking
- 240 min. car sharing
- 21 days car rental p.a.

*170 EUR/month*
Challenges and opportunities
More than 4.9 million people are working in road freight and road passenger transport in Europe
More convenient trips allow longer travels - the average commute in Germany is already 14.5 km long.
The current transport system is built mainly around many cars.
Smart Mobility is a powerful tool to achieve a more sustainable future

- More time for important things in life by spending less time in traffic
- Flexibility to use the best-fitting transport mode
- Safer transport system
- Lower cost for the individual and the society
- Better utilization of transport assets
- Lower consumption of resources such as land and fuels
In 1898 the first international urban-planning conference was conducted in New York.

Source: fineprintnyc.com