Présentation Ifsttar 04012011

French Institute of Science and Technology for Transport, Development and Networks

ITS for adaptive and resilient cities

Hélène Jacquot-Guimbal
June 2011
Towards adaptive and resilient cities

• A urbanised future
  – Today, almost 80% of the population of Europe is living and working in urban agglomerations.

• European cities
  – Livable cities, Entrepreneurial Cities, Connected cities, Pioneer City, Fertile cities…

• Challenges and opportunities
  – Climate change
  – Sustainable energy systems
  – Vulnerability issues of Transport and communication infrastructures…
  – Ubiquitous sensing
Major European supported initiatives

- Europe 2020
- White paper on transport and STTP
- Smart Mobility
- Smart cities
- Urban Europe

• ITS directive sets several priorities:
  - Optimise the use of real time information services
  - Multimodal travel, traffic, road safety, secure parking
  - Cooperative systems & traffic management
  - Interoperable EU-wide eCall
The European initiatives

- **CIVITAS : CIty-VITAlity-Sustainability** to promote and implement sustainable, clean and (energy) efficient urban transport measures
- **Urban Europe (Joint Programming Initiative, June 2010)**
  - sustain and enhance urban areas as a place of vitality, liveability and accessibility.
  - Taking advantage of emerging technologies, assessing their potential and socio-economic impacts, and utilizing them in new urban strategies.

Transport and mobility are major stakes
ITS for resilient and adaptive cities

- Through new and innovative services
  - On-line security systems for vehicles
  - Toll road initiatives & road pricing schemes:
    from ‘Pay-as-you-drive’ to ‘Pay as you move’
  - Integrated vehicle or person navigation systems,
  - Preventive maintenance and warning systems...

Development constraints:

- Interoperable systems (For road, pedestrian, ...)
- Accessible for all
- Respecting equity and privacy
• Created from the merge of INRETS (French Institute for Transport and Safety Research) and LCPC (French Civil Engineering Research institute)
• French State-owned research Institute under the authority of two ministries:
  – MESR: Ministry for Higher Education and Research
  – MEDDTL: Ministry of Ecology, Sustainable Development, Transport and Housing
• 1200 people (incl. 350 researchers and engineers and 250 PhD students) settled in 9 locations in France.

IFSTTAR research and expertise on city and future transport to improve the well-being of citizens.
IFSTTAR competencies and field of studies

- Research, development and innovation activities
  - Urban engineering
  - Civil engineering and building materials
  - Natural hazards
  - Mobility of people and goods
  - Transport systems and means and transport safety
  - Infrastructure, their uses and their impacts

- Multidisciplinary approach:
  - Economic, Technology, Society, Health, Energy, Human Factors

Long term projects, empathy and creativity
IFSTTAR is involved in long term projects

- **European frameworks FP7 & associations**
  - ECTRI, FEHRL, FERSI, OCDE-FIT, ERTRAC…
  - EU projects, COST, Marie-Curie, etc....

- **Networks of excellence**
  - User centered design for ITS development
  - Resilience engineering
  - Safety management helping people cope with complexity under pressure to achieve success

[www.humanist-vce.eu/](http://www.humanist-vce.eu/)

- Cooperative systems for road traffic optimization
  - Enhance road network efficiency and resilience
  - Sustainable & cooperative traffic management

[www.nearctis.org](http://www.nearctis.org)
Ifsttar develops high end infrastructure

- **From sensors…**
  - Equipex Sense-city
    - Provide a test bed for nano sensors evaluation
    - 400m² reconfigurable climate room

- **high level services**
  - Equipex Claire-Siti
    - Next generation Traffic management centre
    - Integration of multimodal data

- **To Electromobility services**
  - Equipex PLIBAT
    - Test equipment to develop, evaluate and optimize systems combining photovoltaic electricity generation & energy management
and a broad range of ongoing research (1)

- In the scope of the Forum of European National Highway Research Laboratories (FEHRL), Ifsttar acts to develop Forever Open Road, the 5th generation road

(Pictures courtesy of forever open road, http://www.foreveropenroad.eu/)
ongoing research (2)

- Development of advanced driver/user assistance systems (HAVEit integrated project, Mobiville project…)
  - more sustainable and active lifestyle
  - improved environmental outcomes
  - improved land use planning and urban amenity
  - Development of pedestrian multimodal information

- Real time traffic information and management
  - Dynamic and cooperative traffic management
  - Multimodal route planner and tools towards electromobility
How to improve research?

- Catalyst 2MI Smart Multimodal Mobility signed by IFSTTAR (AMI Mobilités ADEME)
- Charter between 25 administrations & stakeholders
- Field experimentation, usage evaluation
- Economic & ecological progress
- ITS calls for communication, mutualization, interoperability

Beyond research and demonstration, ITS have reached today deployment & innovation phases.
Conclusion

ITS dissemination will have to take legal organisational, economical aspects and user perspective into account.

• The integrated human centered multidisciplinary approach of Ifsttar is an asset and a catalyst