

# Intelligent Mobility

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# Evolutions from transport to mobility

## Complexification

**ITS before ITS : 1970-1990**

**Management of Networks :1994-2004**

**ITS as supports of public policies**

**Sustainable mobility in the information society**

## Interoperability between organizations

**Governance**

**Knowledge**

**Why to build a national ITS ecosystem in the world family of ITS ?**



# Intelligent transport systems of the first generation: automation

**The projects launched between 1970 and 1990 were based on centralized control**

- Management of traffic lights on crossroads (Gertrude system in Bordeaux since 1981)**
- Traffic forecasts on main highways (Bison fûté 1976)**
- Driverless metros (VAL Lille 1983)**
  - Adapt the capacity to the transport demand**
  - Flexibility in real time for quality of service**
  - Every system is owned and used by a single organization. These closed systems have a high level of availability.**

# **ITS of second generation: networks management**

- **Operating assistance were presented in the 1st World ITS congress in Paris 1994**
  - **Traffic information, tracking of busses and information of passengers**
  - **Smart cards for public transport (Valenciennes 1996)**
  - **Electronic Toll Collection**
  - **Tracking of commercial vehicles**
- **Optimise the available capacities of the roads and in the vehicles, exchange of data between control centres**
- **Industrial standards on equipments, limited interoperability for the end users**

# 3d generation: ITS are used as support of public policies

- **Enforcement of European legislation on rest and driving times of professional drivers (2006), speed limits enforcement (2004) , emergency calls (2005)**
- **Complexity of decision processes (meaning difficult to make forecasts on content and date of decisions), European interoperability, security of information systems, protection of personal data.**
- **The acceptability of the public policy itself is not completely obvious in the beginning of the project, which is, partly, a change management project.**

# 4th generation: ITS in the information society

- **The end users of transport means, participate more and more to social networks where opinions and information about mobility are circulating. Persons in mobility are active users of communication devices.**
- **The cars are entering in the Internet of things. A road specific Wifi system (802.11p called G5) has been standardised recently by CEN and ETSI. There is also more and more SIM cards (3G, 4G) in the vehicles.**
- **Field tests are now under preparation in several European countries, including France, for this totally new system involving cars and roads**

# 5th generation: new mobility for intelligent cities

- **Acceleration of the innovation process: New modes of transport are invented under our eyes: sharing of vehicles ( bicycles, vans, electric cars... ), car pooling (various use cases) are based on ITS, for maintenance, operation, information, reservation, navigation, parking places, client relation management, payment...**
- **The consequences of a global interoperability of an ever increasing number of systems has to be anticipated in terms of efficiency, security, risk management, protection of personal data**
- **Governance of mobility services is under final discussion in the French Parliament**

# Interoperability

- **During the 20 past years, the evolution of existing systems to create the conditions of cooperation between them was a very slow process. Is it possible to imagine some kind of “industrialization” to improve efficiency and reduce the delays**
  - **Secured interfaces based on standards**
  - **Labelling (or certifying) the use of the interfaces**
  - **Managing evolutions (new use cases, new technologies, new risks, new security policies..)**
  - **Improve public procurement methods, for services covered by specifications of interoperability**
  - **Protect and give value to intellectual property rights and responsibilities**
  - **Avoid the emergence of monopoles.**



# Knowledge management

- **Increasing the volume of data is not systematically a positive factor for intelligibility .**
- **Many actors of transport have developed their business in a context where the protection against their competitors was associated to restrictions on data sharing.**
- **Inter modality, interoperability are not “genetic” for them nor for many of their clients, reluctant to change their habits**
- **Many progress are still to be done in the minds, by developing shared knowledge on innovations, evaluation and good practice.**

# Governance

- **The number of people participating in the decision processes is rapidly increasing: public and private actors, with very different points of views and interests**
  - **Cooperation between actors has to be developed, through concrete projects, to increase comprehension of stakes and risks**
  - **Responsibilities of public bodies to maintain the priority of long term collective interests have to be reconfirmed regularly**
  - **Interoperability is not given automatically by standards and universal goodwill. It is build on juridical obligations based on public rules and private conventions. It is a perennial process needing a continuous management.**

# A national ITS ecosystem ?

- **Transport activities provide more than 1 million jobs, with a large diversity of competences. Transport companies have clients in all the sectors and have a role to play to build an efficient, innovative and sustainable and inclusive society.**
- **The way to achieve it is highly dependent on culture, laws and organisation of territories, whose evolution is relatively slow when compared to technologies.**
- **Developing French projects and consolidating French know-how and innovation is a necessary complement to European and international cooperation.**
- **Deployment projects could be a good way to mobilize all the actors: Connected cars, multimodal information and ticketing integrated systems, urban logistics...**