

Congress Conclusions
8th ITS European Congress
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Introduction

Intelligent Mobility: ITS for sustainable transport of persons and goods in urban regions

Lyon's Congress was organised around 8 major themes addressed by multiple sessions (Executive Sessions, Special Sessions, Technical / Scientific Sessions and Interactive Sessions) where high-level industry executives, public officials and international experts shared their perspectives and rich experience on various ITS related topics, encompassing policy, strategic, economic, technical, organisational and societal aspects of ITS.

The European Programme Committee (EPC) appointed a reporter for each theme with the mission to capture key messages and summarise outcomes of the Congress.

1. Co-modal urban transport management by Roger Pagny, Ministry of Ecology, Sustainable Development, Transports and Housing, France
Co-modality (i.e. connection and cooperation amongst several transport modes) in large conurbations is no longer an option but a must, and ITS is a key enabler to promote such co-modality.

2. ITS for ElectroMobility by Jean Christophe Beziat, Renault, France
Prediction and connectivity will be the key ITS enablers for ElectroMobility which is the best option for sustainable, multimodal and urban transport.

3. From cooperative systems to integrated mobility services by Paul Kompfner, ERTICO - ITS Europe
The increasing maturity of the technologies shows that cooperative systems are close to implementation with increasing focus on interoperability, business model, services and deployment.

4. From smart concepts to successful implementation by Laurent Jacques, Volvo Technology, France
The EC ITS Directive provides the necessary legal framework to support development and deployment efforts made by ITS stakeholders through multi-sector cooperation.

5. Governance and business issues by Richard Harris, Logica, United Kingdom
Doing more for less is the "mission impossible" that ITS can achieve for modern transport by means of appropriate governance between public and private sectors and viable and sustainable business models.

6. Information and communication - providers and users by Kees Wevers, NAVTEQ, The Netherlands
New data sources and innovative information

provision channels create new opportunities for the exchange of real-time, historic and predictive information between public and private sectors.

7. ITS for adaptive and resilient cities by Michael Sena, Michael L. Sena Consulting AB, Sweden
Considering the impact of transport in the prosperity of cities and urban regions, ITS should provide concrete solutions for multimodal, clean and safe mobility with fair and equal access to all modes of transport by all citizens.

8. Urban freight by Eric Louette, Ministry of Ecology, Sustainable Development, Transport and Housing, France
ITS is one of the best solutions to optimise urban freight with respect to the requirements and needs of cities, logistics providers, drivers and transport users.

Mr Gilles Vesco, Vice-President in charge of "new urban mobility", Grand Lyon, France, was invited by the EPC to act as the General Reporter and to moderate the Congress Recommendations session. Mr Vesco shared his views and the experience of Grand Lyon on strategies for successful implementation of ITS in cities and urban regions.

Vincent Blervaque, Chairman of the EPC 2011 Lyon ITS Congress
Director of Development & Deployment,
ERTICO - ITS EUROPE



Co-modal urban transport management

ITS: a key enabler to promote co-modality in large conurbations

Now, co-modality (i.e. connection and cooperation amongst several transport modes) in large conurbations is no longer an option but a must.

First, a multimodal transport network is needed to promote co-modality, including seamless connections and efficient coordination between several transport operators:

- Buses, tramways, metros, urban railways and urban motor ways will still be the cornerstones of any multimodal network but, in addition, urban planners will also have to **reallocate public or private spaces for parking areas, car sharing, car pooling, electric vehicles, bicycles and walking paths**. Special attention will also have to be given to the **delivery of goods in cities**
- A multimodal transport network must also be fitted with **multimodal connections where it's easy to leave one mode for another mode of transport**. At these **multimodal interchanges areas, effective guidance services** using GPS GALILEO outdoors and Wi-Fi indoors will help travellers reach any means of transport chosen
- This multimodal network should be managed through strong coordination between operators, something that requires an **extensive use of ITS for managing traffic**. Each operator must be informed in real time of the situation on his network and be able to communicate **and coordinate with other operators**. Interoperability and a central coordinating service equipped with relevant transport management tools can help.

Second, you have to provide multimodal information and an **easy ticketing service**

- Real-time is the key word for multimodal information. The modern traveller wants to know the arrival time of the next bus or train at the connection place but also before they leave home. A special effort should be made to detect disruptions as soon as possible and propose **reliable alternatives to users**
- the success of geo localised mobile devices will help to keep in touch with the user in crisis situations and facilitate the e-ticketing
- **geo localised mobile devices** will also provide for good guidance, outdoor and indoor, for pedestrians during the last miles of the trip
- don't forget to offer reliable information to people with special needs: the elderly, handicapped or visually impaired travellers

Finally, as the high level objective of co-modality is to limit the transport related carbon foot print, it's necessary to promote and facilitate environmentally friendly behaviour by users:

- By providing information on the **carbon footprint for each trip**. All journey planners could provide this information.
- By introducing tariffs for each means of transport not compatible with the environmental objectives. A good example was given by Grand Lyon. For the drivers who take public transport at the entrance of the city, the parking is free.

Conclusion: The development of co-modality in large conurbations as well as in small and medium cities has to overcome a set of challenges. ITS can greatly help operators and users by managing traffic in real time, optimising transport offerings with effective coordination between modes, detecting disruptions and informing the traveller through their Smartphone. Buying an e-ticket on smart phones should become easy.

Smart phones or any nomadic devices equipped with GPS, GALILEO or Wi-Fi positioning sensors and permanently connected on the Internet **will completely change the relationship between transport operators, public authorities and travellers**. They enable more comfort for the traveller and they challenge operators and public authorities which have to provide real time information. These devices enable efficient delivery of goods in towns but should not increase driver distraction when they are used in cars and trucks..

Roger Pagny, Ministry of Ecology,
Sustainable Development,
Transports and Housing, France



ITS for ElectroMobility

ITS: a key enabler to support the deployment of sustainable electromobility

Electromobility, the best option for sustainable, multimodal and urban transportation will benefit from ITS systems and services.

First, ITS will connect the user to the charging infrastructure, which is a key element for reassuring the consumer with respect to driving range. This implies the ability to find a charging spot, to know which charging spots are available and to book a charging spot from his HMI. It also implies that the HMI ought to predict the vehicle's energy needs according to topology, driving conditions, and adjust the route according to charging spot availability. Of course, the billing system will have to be interoperable between different energy providers and different countries.

Second, ITS will connect the user to the whole transport system. Electric vehicles are very well suited for car-sharing systems. ITS will allow a customer to book a shared car at their train destination from their smartphone. Once driving the car, the connected eco-driving device will allow them to use real-time data from the road infrastructure to optimize their route, saving energy, time, and improve driving range.

Finally, ITS will connect the vehicle, when plugged in for recharging, to the energy grid: from simply delayed charging to avoiding peak-hours, to vehicle-to-home energy transfer and ultimately vehicle-to-grid concepts.

Conclusion: Prediction and connectivity will be the key ITS enablers for electrified vehicles to improve the energy efficiency of transport systems:

- giving the customer reassurance with respect to their driving range
- reducing the environmental footprint of the whole transport system.



Jean Christophe Beziat,
Renault, France

From cooperative systems to integrated mobility services

This Congress and the accompanying exhibition presented growing evidence that cooperative systems are close to being a mature group of technologies able to support many kinds of applications for traffic safety, transport and energy efficiency, sustainability and traveller convenience. First commercial products will be available this year. However, implementation of real services using these systems still seems to be hesitating before a number of obstacles.

A number of Congress sessions explored some of the reasons behind the market hesitation. The dedicated Executive Session featured presentations from some key sectors:

The **automotive sector** has high expectations that cooperative systems will deliver safe, efficient and green driving, as well as allow vehicle manufacturers to offer a rich selection of customised user services

Road operators - both public-sector and private - have agreed which would be their top priority cooperative applications & services to help deliver safe and sustainable mobility for road users... but these systems are not yet their top priority for actual deployment, however they continue to carefully monitor progress

Mobile network operators are keen to support the connected vehicle, creating extra value beyond existing services offered via users' mobile device; they can support wide-area connectivity via embedded machine-to-machine data services, as a complement to vehicle-to-vehicle communication

Other sessions explored the issues around cooperative system and service deployment.

Interoperability - this is evoked almost universally as the first and foremost pre-requisite for Europe-wide deployment of cooperative systems and services. The foundations of the "standards stack" are already built, ensuring that vehicles can reach out to other vehicles and to roadside systems. Many believe that harmonised European on-board and roadside units are needed for in-vehicle and infrastructure use. Standards are also needed to define the language of V2V and V2I communication, and even to define the structure and content of the cooperative dialogue

Business model - a common refrain is "where is the business model?", but some think that services such as e-Call or breakdown call, or else some commercial vehicle applications, could trigger deployment using the common platform mentioned above; in this case multiple services could share the platform, at almost no additional cost per service added. Road operators might start the ball rolling

by building out a network of "ITS spots" (as in Japan) to collect vehicle-sourced traffic data and to deliver infrastructure-based safety and guidance information

Services - as of now there is no common view of an "integrated cooperative mobility services" offer. An interesting question (not yet answered!) is whether any new types of service provider might appear that see business opportunities in delivering cooperative services. There is also a question mark over the future role of road operators and public authorities as providers of services for individual drivers and transport businesses, and over how such services could be organised

Deployment - could begin progressively, following the path "broadcast - cellular - short-range communication", reflecting existing network availability. Besides assured interoperability, a framework needs to be in place including solutions for data security and privacy; product and service liability; service quality... A number of people spoke about the need for some "European deployment platform" to coordinate the many actors and stakeholders, that should agree on a common roadmap for implementation, and cooperate to draft deployment guidelines and tools. A coordinated public policy framework was needed, also arrangements for certification. Conclusion...watch this space, with significant progress likely in the next year or two...



Paul Kompfner, Head of Sector
- Cooperative Mobility,
ERTICO - ITS Europe

From smart concepts to successful implementation

We strongly believe that Intelligent Transport Systems can significantly contribute to cleaner, safer and more efficient transport solutions. During the congress, we have seen and heard through the different sessions and in the exhibit hall so many and interesting technologies & services with different levels of maturity and deployment. Some of them are on the market today and used by consumers and some are still in an experimental or implementation phase. We expect to see much more in the coming months and years.

To accelerate the deployment of these innovative transport technologies across Europe, a legal framework was adopted middle of 2010 by the European Commission.

The European Commission ITS Directive is an important instrument for the coordinated implementation of ITS in Europe. It aims to establish interoperable and seamless ITS services while leaving Member States the freedom to decide which systems to invest in.

An **Action Plan** is also associated with the goal to create the momentum necessary to speed up market penetration of rather mature ITS applications and services in Europe. In some respects, ITS has a certain level of complexity, associating multiple goals, actors, stakeholders and different entities from public and private sectors as well as different cultures and interest groups.

To manage this, **cooperation between actors is key**: vehicle manufacturers, road and telecommunication operators, suppliers, phone manufacturers and public authorities. Creating frameworks for cooperation between stakeholders helps to experiment, evaluate and consolidate business models. We have seen various presentations of field operations tests and pilots that enable to consolidate and stimulate ITS cross Europe at this congress.

We also see that more and more data is shared and available now (real time, historical and predictive) and the value of the information is increasing. It demonstrates that the **business model** elaboration and consolidation between different actors is of major importance: who is the owner of the information, who is the user, who is processing

it, who is selling what to whom and how the user can contribute to the community by providing some of his/her own data.

Another aspect is the importance of having **interoperable systems**, especially in order to enable deployment on a European scale. One of the main success stories of ITS deployment is RDS TMC. It succeeded some years ago because it was available as a standard and it was possible to use and implement at low cost. This technology is still reaching new markets in the world.

Laurent Jacques,
Volvo Technology, France



Governance and business issues

All Intelligent Transport Systems have one thing in common - they change the way we work. They impact on organisational and institutional responsibilities and operations. Achieving appropriate governance of ITS is a major factor in wide scale deployment and is vital for securing the full benefits of ITS and maximising return on investment.

The new economic reality means that we have to **do more for less** and drive value from technological applications. Investment in new transport infrastructure is set to continue to fall, while at the same time, economic recovery will demand increased transport efficiency. Intelligent Transport Systems are able to be deployed more quickly and more effectively and reverse the trend of deteriorating network performance and indeed, improve safety, efficiency, comfort and environmental compatibility.

To unlock the benefits of ITS we need new thinking and **more reliable and robust political leadership** and support. The European Commission ITS Directive is already putting ITS on the agenda for Member States and has raised expectations for a breakthrough in pan-European deployment.

However, there are still issues to be addressed. These include the need for clarity of the roles and responsibilities between public and private sector; more structured and consistent funding models for ITS; and tackling fragmented public sector organisations and institutions to help achieve joined up thinking and services.

To move ITS from demonstration schemes or isolated services into a suite of interconnected applications demands investment justified through viable and sustainable business models. These need to be based on reliable, accessible **evidence on the benefits of ITS** and will require stable standards and regulations to enable interoperability, information exchange, acceptable conditions and reassurances covering liability and privacy.

Other challenges which impact governance and business cases include the rise of the **use of social network media**

which challenge operational assumptions and the need to interface and integrate with legacy systems (new methods need to be fairly well established and offer long term solutions to justify investment decisions when existing services may already be regarded as adequate). Finally ITS offers the prospect of increasing **cross jurisdictional cooperation** through harnessing the capabilities of shared services and cloud computing. These offer the prospect of services for numerous jurisdictions over a much wider geographic area at reduced costs when compared with each individual authority building, operating and maintaining their own resource centre.

Richard Harris, Logica,
United Kingdom



Information and communication: providers and users

Not many new developments were seen in this area, a large amount was about concepts and technologies already seen and presented before. This has much to do with the fact that these concepts are now in an implementation and roll-out phase.

Ongoing trends are that the road side comes into the car and the car becomes a sensor, but it is clear that harmonised deployment is a real challenge. Real-time and also historic dynamic information become more and more important, which relates to vehicle information (especially traffic information, but also other types), but also extends to multi-modal dynamics. For all this, harmonisation of access and exchange, as well as timely availability, needs serious attention. The ITS Directive and the ITS Action Plan clearly point the way to achieve a harmonised pan-European deployment of communication technologies for vehicle safety, efficiency and mobility.

A **new paradigm for data provision** is the increasing use of community inputs. Also called crowd sourcing, the experience is that a large user community (crowd) for a specific topic can be built rather quickly, taking full advantage of the modern communication infrastructure and possibilities.

Historically the public sector has had a large stake in traffic information provision. This is shifting, increasing the role of the private sector, especially for delivery. Business models, however, are thin and need serious attention. The government still has an important role in collecting traffic related information from traditional sources such as loops. In various countries there are **ongoing initiatives to centralise and improve data processing and storage**. These initiatives seem to have their own specific direction without much harmonisation; nor do these always include new sources (probe data). Opposing views were heard concerning the future role of the authorities in this type of data provision. One country representative stated that the full chain, including provision, is a task of the government, while in other countries the vision implied a shift to the private sector.

The **ADASIS Forum**, which is the custodian of the ADAS Interface Specification, has made a major step forward by developing version 2 of the specification. ADASIS is a protocol for transmitting the ADAS Horizon (AH) or

Electronic Horizon in-vehicle over the CAN bus. The horizon is a small forward looking moving map extract with relevant geometry and attributes for ADAS applications. It is generated by an AH Provider from a central map database, and reconstructed by ADAS applications using an AH Reconstructor. The first version of the protocol was generally considered to be too heavy, and not adequate for implementation by OEMs. The new version has been well received; it solves the issues with the previous version and is currently in the implementation phase by OEMs. The new version of the protocol is expected to provide a major contribution to increased ADAS deployment. The Forum has developed a reference AH Reconstructor for implementation. The specification is an industry standard.

For ADAS applications, **up-to-date safety map attributes** are of primary importance. The **ROSATTE** project has developed and demonstrated technology for an organisation of continuous, harmonised availability of updates concerning road attributes from public authorities. As they make the changes, they are clearly the most efficient source for such updates. A ROSATTE Forum is currently being created to support and promote a pan-European roll-out of this concept. Euro NCAP is discussing including a voluntary Intelligent Speed Assistance (ISA) system in its rating protocol. Highly up-to-date speed limit data in digital maps are a prerequisite for such systems, which may be enabled in future by the ROSATTE concept. Incremental updating of the in-vehicle map is not yet there, but on its way, and the new Navigation Data Standard may help foster this.

Kees Wevers, NAVTEQ,
The Netherlands





ITS for adaptive and resilient cities

With a few exceptions, such as Washington DC, Brasilia and Canberra, our cities exist as a result of commerce. Over the course of their histories, they have expanded as their commercial fortunes increased, and contracted as their positions diminished relative to competing cities. Free and unhindered mobility has proven to be a necessity to support commerce and increase a city's ability to adapt to changes that can affect its ability to prosper. In order for ITS solutions to assist in making cities adaptive and resilient, they need to account for both the sources and symptoms of problems. The main reason for traffic congestion is that population and commercial activities in a city have grown faster than its transport infrastructure. Managing growth is as much a part of resolving the congestion problem as managing the flow of vehicles on roads and rail. ITS solutions should therefore be:

Regional - transport planning must be performed on a regional basis. Local solutions to traffic disturbances simply move the problem to a neighbouring community. Solutions that are applied unilaterally, within a core city that serves the surrounding region's communities, without taking the effects of its actions on those communities into consideration, could result in severe damage to the commercial viability of both the core city and its neighbouring communities.

Account for Complexity - solving a problem in isolation, like stopping through traffic on a shopping street, can have negative effects on real estate values, the viability of shops on the street and eventually the liveability of the entire neighbourhood. Building housing complexes, office parks and shopping centres in fringe areas of a city simply increases dependence on personal mobility.

Clean and Safe - clean means both physically clean (i.e. free of graffiti and rubbish) and environmentally clean (i.e. limited emissions). Safe means both physically safe as well as free from criminal threats. Governments should provide the pre-conditions for both types of clean and safe travel. Citizens must be able to use any mode of travel in a safe and secure manner. Walking and cycling must be part of all transport policy initiatives and no roads should be built that do not have a safe and parallel pathway for walking and cycling.

Multi-modal - all modes of transport must be optimised. Public transport policy needs to maximise the advantages of all transport modes, not favour one over another. This applies especially to cars, which are today the principal choice for personal mobility and have made life more comfortable and enjoyable for the elderly and handicapped, often their only mode of transport. The relationships between transport modes need to be further developed so that true intermodality is possible.

Fair and Equal - everyone should have equal access to all modes of transport. Individuals should not be disadvantaged because of age, income or working circumstances; a certain class of individuals should not be advantaged simply because they can afford to pay. Persons whose lives are made more enjoyable or productive through the use of a car should not be forced out of their cars because they cannot afford to pay for the right to own and drive a car, or because the paying of congestion charges is beyond their reach.

Based on Incentives - citizens should be encouraged, not punished, to reduce the negative impacts of their travel. It is not the individual citizen who has created the preconditions for traffic congestion, it is their governments. There is a clear trend toward providing rewards to citizens for choosing the most environmentally sustainable mobility alternatives. Incentives to consider the best mode of transport from a combination of financial, safety, comfort and environmental factors are proving to be more effective than simply initiating regressive taxes on road usage.



Michael Sena,
Michael L. Sena Consulting AB,
Sweden



Urban freight

72% of Europeans live in urban areas and 85% of GDP is generated by cities. As a result, mobility of goods, socially and economically is essential, it has an impact on urban traffic (10-20% equivalent veh*km) and represents one of the major contributions of CO² emissions (25% of total emissions from vehicles in cities), air pollution and noise..

Cities face the **challenge of making transport sustainable yet competitive**. They become laboratories for technological and organisational innovations, changing patterns of mobility and finding new funding solutions. This is mainly thanks to ITS: European FP projects, national programmes and local initiatives.

proposals of solutions (BESTUFS, CITYLOG, FREILOT, SMARTFREIGHT, ..). But one of the key barriers is the current lack of open/shared data between urban freight stakeholders.

The integration of the social benefits of ITS in the calculation of payback time is a real issue due to the fact that financial gains are too often overlooked.

ITS enables **predictability, reliability and stability** as well as facilitating the development of public policies (for example, one of the solutions would be a “pay as you pollute” regulation, possible thanks to embedded tools developed by a European company).

Finally, ITS is able to optimise the circulation of waste in a hugely positive way.

To reach these points, efforts must be made to get results and to work on experiences (implementation & evaluation) on an European scale, to understand the possibilities and potential of ITS in urban areas, such as the benefits brought by **integrating traffic management systems with freight distribution systems**.

Urban freight transport knowledge: how to optimise urban freight with respect to the requirements and needs of the city, logistics providers, drivers and transport users (receiving/sending cargo)? ITS is one of the best solutions, more specifically for small and medium-sized cities, due to lower costs in building and maintenance (no need for specific infrastructure).

New ICT solutions and technology knowledge: a framework architecture describing open interfaces supporting the needs for freight in urban areas, integration with traffic management systems and implementation in European cities with existing family of standards and

**Eric Louette, Ministry of Ecology,
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