

## SUMMARY OF THE 2016 EUROPEAN ITS CONGRESS IN GLASGOW

The Congress headline was “Delivering future cities now”. This wording was chosen to illustrate how ITS products and services can be deployed now by cities and urban conurbations to lay a strong foundation for population increases and growth in demand for mobility. Glasgow was organised around five key topics

- 1) From standalone to connected to automated
- 2) Bringing services to users
- 3) Transport applications of satellite technologies
- 4) Sustainable transport for people and goods
- 5) ITS and climate change

Topic 1 was one of the most popular possibly as a result of the Commission’s publication of the Cooperative ITS Platform earlier this year. A number of papers and discussion sessions dealt with the use of C-ITS for improving traffic information and warnings; network operation and traffic management; congestion mitigation; and many other services. We heard a lot about new techniques for monitoring and sensing, data and content management, and of course safety. The territory covered by “From standalone to connected to automated” is a data-rich but software-reliant world so there was much discussion regarding the associated challenges such as privacy and cybersecurity. The strong movement towards highly automated – perhaps fully autonomous – vehicles meant that legal, institutional and human factors issues were also discussed.

Under the two Topics of “Bringing services to users” and “Sustainable transport for people and goods” we considered “Who is really the user?” because many papers looked primarily at services for policy purposes rather than the benefits for the actual consumer. Mobility as a Service, MaaS, also featured generously. The key questions were whether it could work outside very large cities and on the nature of the business model – would it always require considerable funding support and a radically different commercial approach? Unfortunately we are not quite there yet with MaaS deployments so many of the questions could not have full answers. We achieved a better definition of the problems and questions and there were extensive MaaS discussions during the Congress. With the MaaS Alliance officially formed by a number of stakeholders it was clear that the different initiatives are getting aligned to enable some real implementations soon.

Sessions under Topic 3 emphasised that while positioning using satellites is well established other aspects of satellite technologies (communications, earth observation etc) have yet to be fully exploited. Mixing terrestrial and satellite connectivity creates resilient and seamless communications delivering a comprehensive picture of transport conditions (eg network usage, traffic flows) and environmental impacts (eg Greenhouse gases monitoring, weather prediction). Satellite technologies are a compelling value proposition for countries, like Scotland, with a large land mass, a substantial roads network, and rural communities in remote areas.

Glasgow saw more about freight than ever before and more session time involving maritime passenger and freight transport. This was particularly timely as both cities and the corridors between cities, railheads, ports and airports have a mix of passenger and freight traffic that doesn’t always co-exist and cooperate to the maximum possible extent. There was much discussion about the scope for time and resource savings here with agreement that the freight sector could be one of the first to show real gains from Cooperative ITS solutions.

ITS and Climate Change was a new topic for a European Congress. Papers and sessions covered how ITS applications can be used to counter the impact of climate change; the key areas of focus were air quality management, congestion management, and traffic signal optimisation. It’s still proving difficult to quantify anti-congestion measures and an associated reduction in GHGs confirming that we need to put more effort into standardising the evaluation of ITS contribution to CO<sub>2</sub> reduction.

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We heard about the progress Glasgow and other state-of-the-art cities have made in integrating transport, energy, waste and water, telecoms, planning and many social services to create a Smarter City. They also told us about some consistent causes of concern – finding viable business models; knowing costs and benefits for ITS; and the need for more, and better, cooperation between all kinds of stakeholders a point frequently mentioned in the Mayors' Summit. Widespread digitisation, the growth of the Internet of Things, connected vehicles, the concept of Mobility-as-a-Service, multiple data sources *etc* are all making it vital to develop this cooperation.

The Exhibition and the linked demonstrations gave us clear evidence that we have a lot of well-proven products to choose from. If we know where we want to go – what policies to follow, what services to provide – then we have a mature market that is ready to work with us to deliver.

Glasgow showed that ITS is now at an interesting crossroads. We have a path to a world of electric vehicles, unknown taxation and energy regimes; perhaps road user charging instead of fuel duties and levies on ownership. Another path leads to Mobility as a Service with an enhanced information world embracing both Big Data and Open Data; perhaps some radical changes in vehicle design and ownership; and more use of services derived from satellites. A third path leads to Smarter Cities and the integration of transport, energy, waste and water, telecoms, planning and many social services and the last one leads to a world of both connected and highly automated vehicles – perhaps even driverless, but with unknown impacts on congestion, air quality, energy use, even safety.

The correct choice isn't obvious and they all have problems. A frequent complaint heard at the Congress was insufficient cooperation between stakeholders, fragmentation of effort and silo thinking prompting calls for actions to ensure interoperability such as platforms for integrating data and services. Many ITS standards exist and suppliers follow them but all stakeholders, and especially cities, have been struggling with proprietary solutions and the lack of Europe-wide interoperability platforms. This restricts the realisation of the potential of all the data that will be collected in the near future and the smart ITS solutions that are developing.

The way forward isn't about simply applying technology to modes of transport. Rather, it is understanding how transport as a whole can be managed differently thanks to technology and new business models, and so tailored much more towards the personal needs of travellers. The technology is largely there; it just needs to be understood, procured, deployed, maintained, and integrated into other systems and services. The various 'elements' of ITS – Infrastructure, Vehicles, Travellers and Drivers – are a community of data sources, communicating and informing each other's behaviour. They are a system that needs mutual cooperation to operate most effectively.

Looking ahead to our next European Congress in Strasbourg we should expect firstly to see a focus on mobility services where the current supply model is changing rapidly driven by 24/7 connected users, the move towards connected and highly automated cars, the loosening of regulatory regimes and a focus on the wider concepts of accessibility and mobility for all. Technology is no longer limiting development of new ideas for services – are we ready for a new paradigm? The new transport offerings make it easier to plan for mobility that is not based on owning, and single occupancy use of, a vehicle but many services remain separate with little integration. Who will integrate the offerings to users and provide Mobility as a Service and how will they organise it?

Second, the next generation of goods delivery. City growth is putting increased pressure on networks, with demands not just for more people movement but also for the carriage of goods inward and waste *etc* outwards. However city infrastructure management represents a compromise between the demands of the different sectors. Are we at the optimal point of coexistence for people and goods movements? Can we improve on the current equilibrium and overcome its constraints?

The third key area is the evolution of network management. Managing road networks is difficult because the demand is not easily predicted and reliable information on travellers' origins and destinations is rare. Will the emergence of new data sources, the deployment of connected vehicles, the availability of the Internet of Things and Open Data policies bring new opportunities or just a set of new challenges? To what extent will future management regimes depend on closer integration of urban and inter-urban networks?

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Glasgow's most popular topic, connected and automated transport, is likely to feature strongly in Strasbourg. Developments in technology are supporting the introduction of higher levels of automation that promise to transform transport systems everywhere with impacts on vehicles, infrastructure, mobility needs management and services for users. Major steps towards implementation are happening now with pilot projects, individual testing, and the setting up of Living Labs in many places. In the longer term we expect benefits for safety, traffic flow, emissions, fuel use and comfort. Nevertheless the path towards highly automated vehicles is unclear with many questions to answer and challenges to overcome.

Space technology deserves to be a Strasbourg topic with the emphasis on taking the benefits. Today's travellers expect connected services to be available 24/7 not only everywhere within a country but also whenever they cross borders. Satellite technologies can deliver such seamless and affordable connectivity for both infrastructure and vehicles and supply the essential robustness, reliability and scalability needed by the positioning and navigation elements of autonomous vehicles. Environmental and infrastructure monitoring have never been easier when powered from space.

In Strasbourg we can review the whole spectrum of how ITS can be used to minimise the environmental impact of surface transport and how to improve resilience to extreme weather events. This topic includes traffic management and routing techniques to cut emissions and noise; parking systems which minimise search times and hence fuel consumption, and examining how ITS can support more rigorous vehicle performance measurement in "real-world on-road conditions".

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