Wednesday 30th March 2011

Barcelona 2011

Session 1

The Barcelona conference opened with a welcome address from IMPACTS President Francesc Narvaez Pazos.

Ian Johnson delivered a welcome from the Secretariat and chaired the first session, Setting the Scene - The ITS Directive 2010/40/EU.

Hermann Meyer, CEO of ERTICO - ITS Europe gave the Keynote address “Setting the scene - The ITS Directive 2010/40/EU”

ERTICO was founded in 1991 by the European Parliament member states to promote the development and deployment of ITS. It now has 100 partners and hosts a network of ITS organisations in Europe. IMPACTS Europe is one of these organisations.

The ITS Directive and Action plan are part of the Europe 2020 Strategy, having 3 main connected priorities: Smart growth (Economic); Sustainable growth (Environmental); and Inclusive growth (Society)

An EU White paper was published in March with a long term vision from the EU of how transport should develop in the future. ITS is in important theme throughout the paper.

An Action Plan on Intelligent Transport Systems was published in 2008 and in 2010, the EU agreed a Directive which provides a framework for coordinated and effective deployment and use of ITS over the next 7 years. These measures were considered necessary to give a push to get new technologies into the market and to make transport more sustainable.

Julio Garcia Ramon, President of ITS Spain gave an overview of Spain’s response to the directive.

Mobility encompasses the movement of people and goods regardless of the mode of transport used. Mobility parameters include safety, sustainability, efficiency and comfort amongst others.

ITS is the information and technology applied to mobility, this is divided into 7 sectors:

- On Urban Traffic - Traffic Control Management, Access Management & Control, Enforcement
- On Inter-urban traffic - Traffic Management, Enforcement
- On Railway - Management Control Centre, Information Systems, Ticketing, ERTMS
- On Goods Transport - Fleet Management Systems, Load Identification, Digital Tachograph, Load and Unload Management, Hazardous goods systems
- On vehicle - Navigation Systems, Cooperative systems, Safety and Security Systems

- On Public Transport - Fleet Management, Traveller Information, Ticketing, Interface with other modes

On Infrastructure - Electronic tolling, Parking, tunnels

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The priorities of the ITS Directive for Spain are firstly to optimise the use of road, traffic and travel data, to ensure continuity of traffic and freight management ITS services, to develop road safety and security applications and finally to link vehicles with the transport infrastructure.

The priority actions are to provide EU-wide multi-modal travel information services; to provide EU-wide real-time traffic information services; provision of and access to safety and traffic information, free of charge to users; the harmonised provision for an interoperable EU-wide eCall; The provision of information on safe and secure parking places for trucks and commercial vehicles; the provision of reservation services for these parking places. The deadline for transposition is 17th February 2012, with up to seven years to implement the directives.

http://ec.europa.eu/transport/its/road/action_plan_en.htm

Ian Johnson, IMPACTS Secretariat gave a presentation on the European perspective of the ITS Directive and the ITS Action Plans.

Ian began with the history of the Directive, beginning with the Action Plan in 2008. This was introduced because ITS was fragmented geographically and there was no interoperability between systems preventing wide scale deployment.

The Action Plan of 2008 provided 24 specific measures and 6 priority areas; optimal use of road, traffic and travel data; Continuity of traffic and freight management ITS services on European transport corridors and in conurbations; Road safety and security; Integration of vehicles into transport infrastructure; Data security and protection, and liability issues; European ITS cooperation and coordination.

In 2009 the Action Plan on Urban Mobility introduced a programme of 20 actions to support sustainable mobility in cities and regions, action 20 addressed ITS for urban mobility which included assistance on ITS for urban mobility and interoperability of smart ticketing.

In December 2010, the Commission inaugurated the Urban ITS Expert Group to support cities and their partners to promote the deployment of ITS in urban areas and to work on exchanging best practice and elaborating guidelines for key applications in urban areas. Ian encouraged IMPACTS members to follow this group.

Directive 2010/40/EU set out four priority areas for development of specifications, these were:

- Optimal use of road, traffic and travel data;
- Continuity of traffic and freight management ITS Services;
- ITS road safety and security applications; and
- Linking the vehicle with the transport infrastructure.

He went on to list the six priority actions (listed in Julio's presentation).

The key deadlines are: National Activities in each priority area have to be reported to the Commission by 27 August 2011, the Directive has to be Transposed into national law by 27 February 2012, and the National plans for 2012-2017 have to be reported to the Commission by 27 August 2012.

Ian made it clear that ITS systems or services are not required to be implemented, but where they are deployed, they must respect the specifications. He also raised the issue of funding, with the current economic situation. The EC has launched a consultation study to explore the funding of ITS.

Angel Lopez Rodriguez, Barcelona's Mobility Director gave Barcelona's response to the Directive.

Angel began by listing the four priorities of the Directive:

I. Optimal use of road, traffic and travel data - Barcelona's data collection is based on different technologies from different manufacturers. This technology includes; Electromagnetic loops; Infrared detectors; Artificial vision; Bluetooth. All the data collected is accessible to citizens. They can obtain information about traffic status, travel time through many channels including website, TV, radio and smartphones.
The Mobility Department is working with Google to implement the traffic layer on the area of Barcelona. Traffic information is shared with the standard format DATEX2. The main barrier to achieving this is that Google needs speed information in every street and the Mobility department works with levels of service, that are difficult to extrapolate to a speed.

II. Continuity of traffic and freight management ITS services
Barcelona shares traffic information with the regional government, so the user has continuous traffic information from Barcelona to other regions of Catalunya.
For multimodal information, the user has access to public transport information (train, subway, tram, buses and bicycles) but separately from private vehicle information. Unfortunately it is not possible to compare alternatives to private vehicle in a simple model.
BICING is the public bicycle system of Barcelona. This service is available in the city of Barcelona but it would be interesting to extend it to other cities of the metropolitan region to allow interurban trips.

III. ITS road safety and security applications - Barcelona has different tools for safety these need to be integrated into a European compatible system. Barcelona has different tools for discipline enforcement: FOTO-ROJO. An infraction detection system of vehicles crossing when the red light is on.
RADARs to control vehicles speed. These also need to be made compatible with a European fining system.

IV.Linking the vehicle with the transport infrastructure - Barcelona has special circulation plans for emergency trucks controlled both from the Control Centre (activation) and the fire trucks (deactivation).
It would be important to extend this system to the neighbouring towns, therefore it is necessary to have compatible equipment.
Barcelona and the metropolitan region are implementing HOV-lanes to promote the use of public transport and high-occupancy vehicles as part of this initiative, an automatic control system is needed for exchange of data between vehicles and infrastructure.

Rainer Mueller, TINA VIENNA Urban Technologies & Strategies, was next to speak on the implementation of ITS Action Plan topics in the Vienna Region.

Vienna has a Graph Integration Platform (GIP) called "A nach B". This platform provides a common GIS network for the ITS Vienna Region, the traffic administration of Vienna, Lower Austria and Burgenland. It is also being extended to Styria, Carinthia, Salzburg and Tyrol. All systems use a common basic model and software development and can be updated from different locations, Vienna, Lower Austria and Burgenland. These areas have different

databases, but they can be synchronised when needed. E-Government applications are able to collect incident records for traffic management.

The system handles all modes of transport, and can produce graphical outputs for official documents. It is integrated with e-Government systems and stores historical data. It can also be used for transport planning studies.

The system provides advantages for cities and communities including door to door route planning for business trips, leisure trips, tourists and emergency services. These services are free, unlike commercial navigation systems. The route planning includes cycle routes. The data is available to everyone on the internet.

Outputs from the system can be exported to VISUM or DIVA to form a basis for transport modelling.

The aspiration is to develop different services, accessed at different levels of detail, GIP.at will contain a common intermodal graph for traffic data throughout Austria, the budget is about €2 million. GIP.gv.at will assist with keeping e-Government processes up to date again the budget is about €2 million. Licences will be provided for all public sector bodies throughout Austria.

GIP.gv.at will hold all basic data for traffic control and traffic information to assist e-Government processes. It will be capable of detecting provisional and definitive measures. The information stored on the system will include a database of traffic signs and markings, a crossroad editor showing common road cross sections, construction sites and events, review of traffic logic and integration of administration processes (e-government).

Visnja Bedenko, from the Office of Strategic Planning, Zagreb gave Zagreb's perspective on the Directive.

The benefits of ITS are to provide safer, more efficient, competitive, sustainable and secure transport. ITS achieves this by applying information and communication technologies including telephone, satellite and computer to transport. ITS is the joining of innovation and knowledge in transport to facilitate smart travellers, smart cargo, smart infrastructure, smart vehicles etc.

Smart Travellers have personalised support prior to their journey consisting of reliable details of the route from departure to arrival covering different modes offering comfort and accessibility.

Smart Infrastructure allows for communication between vehicle and infrastructure, it facilitates intervention from transport managers to improve efficiency and optimise capacity. It includes sensor systems for operation and maintenance, dynamic traffic data collection and provision of this information. It can also be used for planning future developments. Smart Vehicles can communicate with each other, they have improved autonomous safety, increased comfort, energy efficient driving. They include car sharing schemes, e-Vehicles and hybrid vehicles.

Smart Cargo is the operation of freight traffic with inter-modal tracking and tracing, reduction of deadhead (unprofitable trips). It can link weather, logistics and traffic information.
There are existing frameworks for air traffic (SESAR), river traffic (River Information Services), Shipping (SafeSeaNet), and rail (European Rail Traffic Management System). ITS in Road transport is inconsistent and is not integrated and the ITS Action Plan aims to improve the situation across Europe, mainly in Road transport, but including interconnectivity with other transport modes.

The benefits of implementing the Action Plan will be faster, better coordinated and integrated use of ITS resulting in more efficient, cleaner and safer transport. The action taken by EU will secure seamless deployment and reliable exchange of information across borders.

Although Croatia, is not yet a member of the EU, it is in the negotiation phase of joining and as a candidate, has to implement EU legislation.

Croatia has an association responsible for ITS, the Intelligent Transport Systems Croatia Association. It is a member of Network of National ITS Associations and is a founding member of ITS World Forum. Croatia provides university courses in Intelligent Transport Systems and Logistics, and has a Directorate for Electronic Communications and Postal Service within the Ministry of Sea, Transport and Infrastructure.

Croatia's motorway infrastructure has applied ITS technology for maintenance systems and tunnels. In urban areas, through the CIVITAS initiative, Zagreb has firstly promoted Electronic PT Ticketing by introducing an electronic ticketing system as a step towards a unified tariff system for all PT providers. Secondly, Zagreb has undertaken a study on congestion charging within the historic core and explored pricing options, comparing it to managing vehicles with parking regulations. And finally, has investigated Public Transport Priority by creating a simulation model exploring the increase in speed of public transport vehicles by granting them priority on "intelligent crossings".

Claude Dargent, City councillor talked about the key performance indicators for ITS in Europe
Paris has set challenging mobility travel plan goals for 2020 to enable "the right to sustainable mobility for everyone". The goals include reducing disruption caused by adverse weather conditions and pollution, and improving mobility for all Parisians in the "Ile de France". The short term goals for 2013, measured against 2001 statistics include; increasing public transport by 20%; reducing motorised traffic in Paris streets by 26%; increasing freight transported by rail by 60%; and increasing freight transported by water by 40%.

The longer term goals for 2020 are; to increase cycling trips by 300%; to reduce motorised transport in Paris streets by 40%; to increase freight transported by rail by 110%; and to increase freight transported by water by 75%.

By improving the sustainability of mobility in Paris, this will have a positive effect on the environment. Greenhouse gases (CO2 emissions) are targeted to be reduced by 25% by 2013 and 60% by 2020. In terms of Air quality, by 2013, 50% of Paris streets will be below the threshold for Nitrogen Dioxide, rising to all streets by 2020.

The City of Paris has participated in several institutions and projects for many years. At a national level, PREDIM and ATEC ITS France, European projects include; CONDUITS, EVA, CIVITAS I, SUGAR, E-SUM, Heaven I….; and on an International level; POLIS and IMPACTS.

The City of Paris encourages the deployment of European systems, particularly ITS which lead to open system architecture, urban innovations - for example intelligent urban furniture, and networking between ITS actors.

Paris has large scale ITS deployment, with a central traffic control system giving priority to Trams and buses. Users obtain information from a GIS server via matrix signs, radio, onboard terminals (VISIONAUTE - on board public transport, and CARMINAT onboard private vehicles), the internet (SYTADIN) and on their mobile telephones.

Velib, Paris' cycle hire system which opened in 2007, now comprises 1250 terminals, 40,000 bike racks and 24,000 bikes. Over 100 million trips have been made using the system. The Information Systems which manage the system are the key to its success. Each terminal is monitored for the number of available cycles and the available stands. Maps of the cycle rack locations are available in real time on mobile internet and Iphone, and on the Velib web site.

Autolib is Paris' car sharing system will operate from autumn 2011. The fleet consists of 3,000 4-seater 3-door electric cars with a maximum speed of 130 km/h. They have Sat Nav guidance systems and a 250km range. They are located at 1,100 stations. The system allows new users to sign up at customer reception points in each district or borough, in less than 10 minutes. Users can book a vehicle and even a parking space at their destination.
A traffic management system allows for real time traffic supervision. It makes it possible to develop a strategy to handle special events, provides information for users, with intervention it can restrict overloading, improve safety and reduce waiting times.

Over the next 5 years, Paris aims to continue to deploy current tools to address the climate plan goals for 2020; promote intermodality and transport interoperability; Develop new "intelligent" mobility over a large area integrating new features and progress of ITS; develop new payment methods adapted to new services and users requirements; ITS Directive contribution, making information more accessible and adopting EU standards.
The main obstacles are inconsistent information from various local authorities; system standardisation; cost of new equipment and maintenance in the current economic situation; recognising users needs; promotion of new technologies to the general public.

Patrick Lefebvre, Conseiller scientifique et technique - DVD, City of Paris shared some experience from the CONDUITS Project.

CONDUITS is the Coordination Of Network Descriptors for Urban Intelligent Transport Systems. The key partners are the cities of Brussels, Rome, Paris and Istanbul; POLIS; the universities of Imperial College London, Technic University in Munich and the Israeli Institute of technology. The study office is in Rome hosted by ISIS (Institute of Studies for Integration of Systems.

The 2 year project runs from 2009 -2011 and cost 950,000 € with an 80% subsidy from the EU.
The main goals of the project are to give an overview of ITS technologies used by EU cities and to assess their future deployment. The project set up a database of KPI's to measure the benefits of ITS applications.

The outputs were a coherent set of Key Performance Indicators for urban traffic management and ITS objectives. These KPI's were then evaluated to create a framework for identifying best practice and technologies. These applications were tested in Paris, Rome and Barcelona.

Traffic efficiency was a key KPI, measured by accessibility, mobility, operational efficiency and system condition and performance. Traffic safety was another key KPI relating to safety related ITS and measured by accident reduction; the direct impact of intervention in critical situations; the indirect impact by prevention of dangerous traffic conditions; and influencing driver behaviour by providing driver assistance. The other two KPI's were social inclusion and pollution reduction.

The green paper on urban mobility contains the challenges and objectives used to generate the EC Action Plan on Urban Mobility. The plan is illustrated by a Roman ruin with sustainable urban mobility supported by five pillars, four policy pillars; Free flowing cities;

Greener Cities; More accessible; and Safer transport; and one of ITS tools to support these policies called Smarter Transport.

The main objective of the plan is to ensure that transport systems meet society's economic, social and environmental needs whilst minimising their undesirable impacts on the economy, society and the environment.

Free flowing cities can be supported using ITS applications for; urban traffic control; public transport priority; fleet tracking; service regularity; loading bay monitoring; taxi monitoring; parking guidance; parking availability and traffic guidance. Safer cities can be supported by Public transport video surveillance; speed alert; pedestrian management; and incident management. Greener Cities can be supported by; access restrictions; park-an-ride; bike-and-ride; car sharing; bike sharing; car pooling; freight delivery access/time slot monitoring; and other traffic management systems. ITS applications to support the "more accessible" pillar include; information for PT passengers on the ground; pre-trip information on fixed devices; Information for PT passengers on-board; Pre-trip information on mobile devices; VMS information on-board; on-trip information on mobile devices; on-trip personalised information; parking booking; PT Ticketing; parking payments; alternative service payments; and services for disadvantaged people.

Future ITS applications will move towards enhancing the current urban traffic control system and public transport prioritisation technologies to cover broader urban areas and more complex public transport networks. New systems will address parking availability and will be managed by mobile phone. Future applications for safety will focus on dynamic systems for incident management and automatic detection tools on tunnels and other hot spots. In general the growing use of information and communication technology will improve parking management policies, travelers information and transport safety.

Fabio Nussio, Head of International Cooperation, Rome Mobility Agency presented a presentation on the Use of Indicators in Rome and outcomes from CITEAIR II Project on Mobility Indicators

Mobility has an impact on air pollution and climate change. EU cities and regions have a common aim to develop and implement emissions reduction plans. There is a wealth of knowledge and good practice, offering a wide range of opportunities for collaboration. There was a need for a simple, updatable platform for comparing information available to everyone. The solution is CITEAIR II - Common Information to European AIR. The project is funded under the INTERREG IVc programme and is the second part of a previous CITEAIR project. It runs for three years from October 2008 to September 2011 and has 11 partners from eight member states.

CITEAIR is a web-based portal giving an overall picture of air quality in European cities, two indices are used, background situation and roadside situation. This information is updated every hour and includes more than 90 European cities. It is available in 9 different languages.

The main aims of the project are to identify good practice by sharing literature, partners' expertise, through workshops and working groups; testing and implementation of good practices and sharing of information on the website; getting feedback from users in the community; production of a guidebook to facilitate the transfer of good practice.

Some tools are being developed including; an indicator to measure the level of sustainable traffic; The integration of Greenhouse gases in emission inventories, so that reduction measures can be identified and measured; a three level forecast of the common air quality indices which were developed in the previous CITEAIR; further development of the

www.airqualitynow.eu website by adding new cities, integrating PM2.5 into the indices, and adding additional languages.

The objective of the Mobility indicator was to benchmark the traffic situation in urban agglomerations and to describe its impact on the environment. The data used to calculate the indicator needed to be simple and easily available. The first inputs needed are traffic speed and flows measured by time, scale, spatial scale, and transport mode. In order for this data to be collected, the link being measured needs to have an ITS measure present. Transport modeling can then be applied to estimate the traffic on the rest of the network.

This data is then evaluated to provide a mobility index, this is then compared to the number of cars exposed to an air quality state (Exposure) and the related emissions X tons of CO2, NO2, VOC, PM (Traffic Emission Stress).

Traffic indicators are then used to calculate mobility indicators. These indicators are:

1. NAS National Average Speed
2. NSI Network Speed Indicator
3. VAS Vehicles Average Speed - road sections with low traffic flows will not weigh as much as those with high traffic flows
4. VSI Vehicles Speed Indicator - relates speed measured with free flowing speed (Free flowing speed VSI=1, traffic jam VSI=0)
5. NTI Network Time Indicator represents the time spent on the network compared with time spent at ideal free flowing speed (Ideal travel time NTI=1, Double travel time NTI=2, Triple travel time NTI=3)
6. NDI Network Delay Indicator
7. ATT Average Trip Time

The mobility indicators have been tested in Paris and Rome, the preliminary results show that you get different results from real data as opposed to modeled data. It is also very difficult to make direct comparisons between cities as the different characteristics have a large influence on the results.

A single indicator is not enough to fully describe the mobility in urban cities.
The mobility indicators can be accessed on the website, it is planned that this site could be used to determine how much pollution a road user might expect to be exposed to on a certain journey at a certain time of day or day of the week.

The next steps are to complete the Paris and Rome applications, apply the methodology to other cities, inform citizens and to finalise the guidebook of good practices.

Fabio went on to ask some open questions to the IMPACTS community; Are you using traffic indicators in your city, if yes which ones? What should a traffic indicator be used for? Should polluting agents be included in the calculation? Who will use the information?

Comprehensive Information - a Prerequisite for Traffic Management. The new VIZ in Berlin - Friedemann Kunst, Head Department for Transport, Berlin

The public administration in Berlin is responsible for the Traffic Control Centre (VKRZ) it controls traffic dynamically using traffic lights, motorway and tunnel control systems and manages incidents. It also coordinates state visit traffic and provides a traffic warning service. It is supported by a service partner Traffic Information Centre (VIZ) which monitors the traffic situation, provides traffic forecasts, traffic news and information services.

The traffic Control Centre controls 2050 traffic lights at junctions, four motorway control systems, six tunnel control systems, 5.2km of dynamic lane assignment, five variable

message signs and 33 dynamic information panels. It uses 800 detectors and 300 cameras on motorways, 370 measurement points and 40 video cameras on major roads to monitor the traffic situation.

VIZ provides Improved information services by providing news on the current situation to the Traffic Control Centre, traffic and environmental data to the Administration, a daily traffic forecast to the media, comprehensive mobility information to the general public via the VIZ website www.viz-info.de, information for car drivers via information panels, and an incident and information management system for the airport.

Berlin are using the information help monitor PM10, No2 and noise levels and to help them to meet EU-limit values. The Quality Management System for major roads in Berlin is a prerequisite for environment oriented Traffic Management. The system includes a monitoring system for real time traffic information, air pollution and noise; and a planned situation adapted traffic management strategies for critical situations and hot spots.

Berlin-Brandenburg International Airport an incident and information management system called (AIRVIS) The system facilitates intermodal planning and monitoring of door to door trips to the airport. Information services available include booking facilities, trip planning, trip monitoring at both city and regional level, monitoring transfer and monitoring air traffic. The system incorporates prepared routines in the event of an incident, so that the information gets to public transport operators and traffic control centres so that they can pass on relevant information to the users.

The final presentation of the conference was entitled London's Intelligent Transport System from Keith Gardner, Transport for London.

This presentation will demonstrate some of the developments we've made towards a more integrated and intelligent traffic system. The first phase of work has been focused on maximizing the use of our existing data asset.

Previously, data was not treated / valued as a business asset. We've now seen the value that can be added to our business by capturing, storing, processing and analyzing data more effectively.

The tools demonstrated in this presentation are helping us to achieve data fusion and bring true operational business intelligence into both real-time and strategic decision making.
TfL is responsible for the integrated management of London's transport system.

We are responsible for operating the London Underground which carries around 3 million passengers every day. We run the trains, stations, control centres, as well as collecting fares revenue. We also work with private companies responsible for the long term maintenance and renewal of the Tube's assets.
We are also responsible for managing London's bus fleet. London has around 9,000 buses, which carry almost 6 million passengers each day. But there is more to TfL than just the bus and Tube.
We are also responsible for licensing London's 22,000 strong black cab fleet and overseeing the content of the knowledge test - a stringent test for all new taxi drivers. TfL is also responsible for the management of several other public transport modes including rail services, tramways, our brand new cycle hire and ferries. However, it is important to note that we are not just a public transport organisation. Our responsibilities extend to private vehicles and the promotion of walking and cycling as well.

TfL manages 580km of London's most important roads along with all of London's 6,000 traffic signals.

We also run London's Congestion Charging Scheme - a scheme which has seen daily traffic levels drop by some 20 percent.

We are also responsible for promoting walking and cycling in London. With considerable investment both to raise the profile of cycling and to provide crucial infrastructure, cycling has increased by over 100% since 2000. Today more than half a million trips are made each day in London by bike.

In financial year 2009/10 TfL will spend £9bn including Crossrail and Metronet.

Proposal 30 of the Mayor's Transport Strategy states that "'TfL will introduce measures to smooth traffic flow to manage congestion (delay, reliability and network resilience) for all people and freight movement on the road network' by moving away from reducing congestion, moving towards improving reliability and resilience, and people movement, and recognition of freight."

With no scope for new road building and limited budget for big road projects, ITS technology plays a key roll in achieving this objective.
The traffic directorate has an intelligent traffic system programme. The programme addresses critical issues, delivers objective data-led decision making, savings through efficient & reduced duplication, effective operations to meet increased demand and modernisation to ensure systems remain fit for purpose.

The ITS Strategy is to focus on key areas including congestion management areas and corridor management, prioritise improvement of modelling capabilities using ONE Model - VISSUM (highway traffic allocation model), better management of the network using lane rental & forward planning and using SCOOT to manage traffic, and improving journey information.

The London Streets Traffic Control Centre manages what it can see, so the network of CCTV is a critical resource. 1400 CCTV, including Highways Agency and borough sharing, which has helped us to expand the CCTV networks with minimal investment. Disruptions are controlled by; Central access to 3,000 traffic signal junctions, of which 2,200 are on SCOOT;Can write to 131 VMS; reciprocal agreement with the Highways Agency to use their signs; and close liaison with travel broadcasters.

Co-location with Control room for the traffic and transport arms of the Metropolitan Police (MetroComm) and the London Buses control centre (CentreComm) has brought about a 20% improvement in the identification of incidents through more rapid information sharing. The centre is also facilitating new capability in transport and traffic management. A recent example is the "Snow Desk"; cross-model and agency and improved responses and mutual