		User devices, interfaces & applications, including mobile phones	Increased value and further development of existing assets	Integrated network management	Open systems and data
Network management strategy	**Interoperability**				Development of European standards for traffic communications, building on UTMC and OCIT among other existing traffic protocols and user communiities as well as accepted industrial protocols. Benefits would be to expand the supplier base for all member states and avoid single supplier lock in.
	Financial aspects of ITS		Studies on the value of streetspace - economics of parking. It is widely acknowledged that the future of urban transport is demand management; there is therefore a need to understand this better and have tools to help local authorities make demand management decisions.		Studies to understand the value of information, covering cost-benefit analysis of data, whole life costs, the value of information perceived by users and quality assurances.
			Risk assessment and dependency audits: guidelines on how to identify the most important systems (hardware, software, communications and human resources) against what is discretionary in order to prioritise maintenance, upgrades and investments.		
	Planning, legal and organisational aspects	Understanding the users' dependance on ITS and what happens in case of failure (ADAS, journey planner, sat. nav).	Use of Chipcard data to understand people movement for use in transport planning, notably in planning public transport	Good practice and recommendations on co-operation between planning authorities: integrated urban and regional planning.	Define set of minimum information (in relation to ITS Directive) that should not be required to be shared, eg, related to network priorities.
		Guidance for local authorities on the mutual roles of the public and private sectorin the area of travel information services (especially personalised services).		Creating a new vision on transportation to make it more efficient - stimulating cooperation between road opearators, public transport operators, etc to make multimodality/co-modality easier.	Cost-effective (IT) tools for the publication of new/amended road regulations and similar updates, eg, Dutch platform (to meet the ITS Directive).
	ITS and society	Studies on the safety of mobile phone usage for all modes, not just car drivers.	Socially-responsible travel planning: understanding the role of incentives to influence travel behaviour and as a precursor to wider demand management measures.		Tools to convert social media information into a data source for traffic management and travel information.
		Developing the potential of social media to engage with users through, for instance, building up communities around common trip patterns.	New systems and services for an ageing society.		
		How effective will it be for a city to promote usage of advanced communication devices (tele-presence) in offices/homes instead of building a new tram line for commuters?			

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Network management tactics	**Decision support**		Development of better tools and models to generate the real-time traffic situation on the road network.	Development of multi-modal modelling and simulation tools and methodologies in order to understand the impact of a measure implemented for one mode on all other modes.	
			ITS predictive analytics – Real-time data fusion to realise a common operating picture, visualised through GIS web mapping, which can feed into predictive traffic models to support operational decision making.	Cost-effective technologies enabling the gathering of data on all modes, especially non-car modes such as cycling and walking.	
			Development of online/offline decision support tools utilising modelling and data fusion techniques for both real time and scheduled data. The front end must be GIS based and linked to network dashboard / performance reporting.	Development of tools (technological and methodological) enabling environment response traffic control.	
			Network management tactics menu: Development of a menu of tactics for network management, including (i) Management by Exception – suitable for stabilised networks, where interventions are focussed on abnormal events, and based on Key network locations, junctions, breach of key thresholds, key alerts (security, safety etc.) or key events (ii) Management by Objective – suitable for network re-configuration, where actions are based on Key Performance Indicators, dashboard etc. (iii) Management Tactics for Closed networks – where security, safety, evacuation, information etc. is central.	The development of automated strategies to improve network performance when dealing with (un)planned events.	
	Performance monitoring, evaluation and impact assessment	Studies on the impacts of real-time information provided by third party service providers (such as satnavs) on traffic system.	Improved understanding of the performance of ITS in relation to transport policy objectives, notably air quality (In line with 20-20-20 goals of the EC) through, for instance, the development and uptake of CONDUITS key performance indicators for traffic management and ITS.		
		Developing the potential of near-field communication for mobile services, including mobile payment. Need to understand reactions from the market and the user and consider data processing. What are the benefits for local authorities. A pilot between two major cities with substantial people traffic could be useful.			

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management operations	**Legacy**		Managing legacy systems: developing guidance to local authorities on (i) how to assess when systems are "end of life" "out of date" etc. , including a database of "current industry-supported systems" etc. (ii) how to migrate from single-contractor/supplier dependency to tendered service provision (iii) when and how to invest in refurbishing old ITS systems.		
	Public transport and new mobility services	Technologies and applications to make passenger transport more attractive through real-time information, mobile payments, use of mobile phone data, etc. Cooperative systems could play a role in the development of improved/new services.	Harnessing social networks to develop innovative mobility services, such as real-time car pooling	The role of ITS to improve the efficiency of interchanges, notably through integrated information and payment systems	
	Individual (motorised) transport	Driver information applications, enhanced interfaces and use of social media to enable effective demand management and modal shift.		Parking and ITS: (i) Integration of metropolitan traffic management with ITS for parking (e.g. parking guidance, using dataflows from on and off street facilities, including sms based parking payments) (ii) Integration of parking information in the cooperative environment and services, including GNSS based systems (iii) Technologies for monitoring and enforcement (iv) Integration of parking payment systems with electronic tolling schemes.	Certification (or guaranteed quality level) of data from external sources (GSM, navigation systems) for use in traffic management.
	Goods transport	Good practice and knowledge transfer on ITS and freight (notably the findings of projects such as Freilot).	The potential of ITS to prioritise goods vehicles depending on cargo or engine type (electric, emissions standard).	Tools and methodologies (i) to manage new types of distribution vehicles in city centres and (ii) for night-time distribution without the need for shop staff New solutions for goods distribution in cities (including parking) especially in historical and/or heavily pedestrianised city centres.	

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Network	**Multimodality**	Personalised services for the user providing relevant personal, temporal and spatial journey data only. Building up profiles based on personal data will require clarity on institutional and data relationships, ie, how far can a public authority go in using personal data for delivering personal services?	ITS technology development in the field of video analytics (Image Recognition and Incident Detection suite of applications) for additional detection including pedestrians and cyclists, enabling safety considerations to be enhanced and promote modal balancing.	Development of inter-agency communication standards and protocols to enhance inter-urban traffic management cooperation through ITS.	Certification of GNSS data (ie, EGNOS and Galileo) for use in (public sector) transport management
		Guidance for local authorities on the mutual roles of the public and private sector as regards travel information services (especially personalised services).	Development of a common urban transport dashboard to obtain a synthetic overview of the traffic situation for traffic control purposes. This would require commonality across all users, ie, all seeing data in same format, common descriptions, agreed KPIs, etc.	Good practice and knowledge transfer on integrated traffic control and information centres (bringing together traffic operators, public transport operators, transport police and other emergency services) to enable a coordinated approach to traffic management/ information, especially in the event of an incident.	
			Demand management measures and ITS to improve traffic management and crowd management during large events, especially in the event of an incident requiring emergency services.		