

Note of Workshop on Policy Implications - 14 September 2007

Sub-project No.	1.3	Sub-project Title	DEPN
Topic No.	7	Topic Title	CVIS and Policy
Author(s)	DfT		
Dissemination level PU/PP/RE/CO	PU		
File Name	CVIS_DEPN_NoteofPolicyImpactsWorkshop_14 092007_v1.0.doc		

Abstract	Note of the Workshop on Policy Implications, organised on 14 September in Brussels by Department for Transport (DfT) as leaders in the DEPN sub-project of the topic looking at the policy impacts of CVIS.
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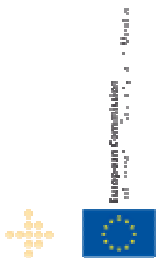
	<p>Project supported by European Union DG INFSO</p> <p>IST-2004-2.4.12 eSafety – Cooperative systems for road transport</p>
Project reference	FP6-2004-IST-4-027293-IP
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1. Welcome and Introduction

Neil Hoose thanked everyone for their attendance and confirmed that he was representing the Department for Transport (DfT) in their participation as leaders in the DEPN looking at the policy impacts of CVIS.

1.1. Background

The capability to 'link' vehicles to the roadside and to each other through seamless communications channels creates many opportunities for far-reaching innovations in the way the road network is used. However, the potential complexity of a CVIS environment will require a corresponding change in policy thinking to meet the significant challenges and accommodate any new institutions and mechanisms that will very likely be needed.

In order to mitigate the barriers for any future CVIS deployment strategy, there will need to be co-ordination of policy initiatives across a wide range of stakeholders, including the policy owners responsible for road infrastructure, vehicle manufacturing, system design and telecommunications to name but a few.

1.2. Scope and Purpose of Meeting

The purpose of the Workshop was to exchange ideas that concern the impact of CVIS initiatives on transport policy and to capture the headline issues relating to the subsequent discussions provided by workshop participants. It was aimed at policy makers seeking to understand where and how CVIS might impact on areas including network management, road safety, environment and sustainability, vehicle and systems approval, driver training, licensing and telecommunications.

The presentation provided the background for CVIS and headlined perceived challenges and issues for policy makers. It broadly reflected areas in the ongoing report that DfT is preparing as part of its contribution as leader in the Policy Deployment Enabler, which is shadowing the wider CVIS Programme initiatives. The presentation was structured to enable an active discussion to explore some of key issues and identify whether there were any omissions.

2. SESSION 1 - VEHICLE POLICY

2.1. Approval of Construction and Use

The approval regime for "construction and use" typically involves the whole vehicle. However, if there were a migration to co-operative systems involving infrastructure and other vehicle dependant applications, this would require system-wide approaches for approvals which do not currently exist in this domain. Furthermore, each of the main system areas, vehicles, information and communications technology and infrastructure IT systems, have their own development life cycles with different timescales.

Questions for consideration were, how might it be possible to approve digital mapping employed as part of a vehicle safety-critical scenario? What would need to be in place happen in the event of a system failure? How might it be possible to realise safe interoperable systems? Also noted:

- A possible international body for road transport ("A Road Transport Safety Agency) was suggested; perhaps sharing similar responsibilities as already exist within the rail and aviation sectors. This could possibly evolve from initiatives in Euro NCAP or with some EC lead although agreeing its objectives would be challenging.
- There are already tried and tested methods for vehicle safety testing which would not readily translate to include infrastructure based testing. The OEMs are cautious of the limitations of testing increasingly complex system-wide applications involving infrastructures, especially if the applications proposed are safety critical.
- Is it possible to test system components and still provide some assurance of overall system integrity?
- There could be a case for an internationally agreed standard for a "test bed" to allow consistent and comparative testing.
- There are ultimately limits on what can be tested.
- Recent developments in the electronic fee collection field and the development of EU directives might provide some models for the way forward.

2.2. Maintenance and Roadworthiness

As increasing functionality and performance is embedded in software, there needs to be consideration into how backward compatibility issues can be managed, to ensure that the vehicle, infrastructure and communication born applications remain viable and compatible across their different lifecycles. The challenges are significant and there might be some useful lessons within the aviation industry.

2.3. HMI

The driver is currently deemed to be fully responsible for having proper control of the vehicle at all times and there are significant concerns about how and whether the

risks associated with some co-operative systems that seek to reduce the 'burden' on the driver can be managed safely.

The concept of 'proper control' is of major interest in legal forums and the challenging liability issues are being led in a dedicated CVIS DEPN forum. Also noted:

- the importance of trust in the information supply chain.
- the potential for 'voice' applications to enhance HMI functionality.

2.4. Telecommunications with vehicles

In a CVIS scenario there are likely to be issues around the responsibility for network management and further competition for telecom requirements against the demands from other sectors (e.g. Military). With the emergence of higher bandwidth, which is certainly seen as an enabler for CVIS applications, there might need to be national institutions to deal specifically with issues like network interference and coverage with robust standards required for 'security' of those systems in a safety critical environment. Also noted:

- Rapid expansion of personal mobile devices also raises issues about who is best placed to provide network management information.
- There are still technical issues around the availability of GPS and 'smart antennae' which are currently being addressed.
- Open access to networks provides its own security issues.

3. SESSION 2 - SAFETY POLICY

The safety context is probably the most important trigger for any CVIS initiative. The current driver task is deliberately driver-centric, but CVIS has the potential to accelerate the existing Advanced Driver Assist Systems (ADAS) which are already emerging with increasing capability and technical complexity; from driver comfort systems, to driver support systems extending performance beyond what is currently capable in an autonomous vehicle.

This raises the issue of potential 'risk compensation' for those vehicles / environments that are not CVIS enabled and whether ADAS on its own has the potential to support public sector priorities for reducing road casualties. Also noted:

- CVIS has the potential to deliver benefits in the context of Intelligent Speed Adaptation (ISA) deployment around schools where flexible approaches to speed could be very beneficial.
- Perhaps there should be more carrots than sticks in the ISA scenario with possible fiscal incentives provided by the insurance industry.
- Dependence on intelligent systems might lead to a loss in driving skills.
- Liability issues cited as a real deployment barrier with some legal frameworks currently preventing any non safety critical information from being displayed.

4. SESSION 3 - EFFICIENCY AND ENVIRONMENTAL POLICY

The potential to improve the reliability of journey times is also seen as a major driver for CVIS. With a rich stream of data available from an increasing population of 'connected vehicles' the possibility for network operators and service providers to better predict and mitigate congestion could be significantly improved. However, there are issues of privacy, as authorities need to determine who should have access to the data and in what form, and for what purpose. There may also be commercial reasons why data might not be readily shared. Also noted:

- The ability for some navigation companies to share a rich source of information with their customers makes good commercial sense.
- Suggested that road pricing could be an enabler for data sharing and other value added services requiring location based information.
- There are a growing number of independent communities that use the internet to share Points of Interest (POI) and traffic information. The public sector needs to recognise these "communities" and develop strategies to work with them in order to maximise the benefits from co-operative systems.
- Government has significant influence on data issues

4.1. Environment and Sustainability / Public Transport

The benefits from vehicle only technologies can provide benefits to the individual driver. These do not necessarily support the potentially wider societal benefits based on vehicle to infrastructure connected solutions. There are different stakeholders involved in both approaches and a lack of co-operation with all sides could lead to conflicting approaches leading to a reduction in the potential effectiveness from various approaches.

CVIS needs to support the better operation of the overall transport network in reducing accidents and should not conflict with policies promoting modal shift and Public Transport priority initiatives.

DfT's earlier research indicated that in the long term CVIS could significantly improve efficient use of the existing road infrastructure leading to possible deferral of new road building programmes and the consequential environmental benefits arising. Also noted:

- The potential for accident avoidance and mitigation.
- Provides options for Access Control and dedicated lanes for road based public transport.

4.2. Freight Transport

is an economic necessity and given the regulatory framework that exists within the

industry, CVIS could have greater potential to deliver benefits in this domain than could be realised for private motor vehicles. DfT's earlier study pointed to benefits from close-following or Electronic Tow Bar technologies resulting in a reduction of fuel consumption for example. Also noted:

- The potential in sophisticated routing and mapping technologies to improve operational efficiency.
- Co-operative systems to enhance safety features of heavy vehicles, e.g. predictive breaking to prevent / mitigate accidents.

5. SESSION 4 - DRIVER POLICY

5.1. *Role of the Driver in a CVIS Environment*

It is clear that the current system of a driver being 'educated' about the functionality of a new vehicle from a vehicle manual would not readily transfer to a CVIS enabled environment. The significance of any additional training requirements is of course dependant on the different levels of CVIS functionality provided and in particular where elements of 'driver control' could be affected.

CVIS has the potential to migrate from a system that provides more and better filtered information where the driver is still fully in control of a series of ADAS systems, to a CVIS scenario where the data being processed (perhaps off-board) could assume some control over the driving task. Even in vehicle-only based solutions, ADAS need to be sufficiently 'intelligent' so as not to conflict with each other (for example at what point should lane-keeping be overridden by another embedded system?).

It might be possible to provide incentives to realise the required levels of additional training, perhaps through insurance mechanisms for example. However, the question of who should provide what training and how this should be regulated to ensure that safety isn't compromised (standardised at international level?), remains a significant challenge.

Should certain CVIS applications require a 'license'? And what would the necessary components of that license need to cover? Also noted:

- Government can influence driver behaviour through better training and enforcement.
- There could be some internet based training.
- At the point where the driver function is starting to be 'controlled' by outside systems, the concept of the vehicle from an OEM perspective no longer looks like a 'car' in the conventional sense.
- Unless more information describing the functionality of the systems (that for the purposes of the workshop have all been described as variations of CVIS), the discussions around the likely prospects and institutional challenges become too blurred and abstract to address in any meaningful way.
- Need to make the driver aware of what systems are controlling the vehicle. This should also include defining when and where a highway becomes "CVIS enabled"
- Risks associated with automated systems 'de-skilling' the driver function.
- There needs to be a link to wider proposals for "smart" electronic driver licenses.

One method to address a number of the issues raised might be to devise a classification system could be devised to provide greater meaning to the spectrum of

safety critical and comfort based CVIS applications. For example a Type 1 system could be "driver fully in control - e.g. navigation system where failure results in driver inconvenience" to a Type "X" system "where sensors are advising / controlling driver/vehicle function and where system failure could result in an accident" might also be possible to marry such a classification system to any driver training requirements.

Louise Barnett thanked all participants for their contributions and especially ERTICO for their warm hospitality in hosting the workshop.