

**European standardization in
Intelligent Transport Systems
A proposed European
Programme**

Status: Final - taking into account the views of the Open Meeting and approved by RTTTSC by correspondence (deadline of 2 August 2002 passed with no comment).

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Executive summary

The European Commission and EFTA have requested the European Standards Organizations, CEN, CENELEC and ETSI, to draw up a new common programme of work in Road Transport and Traffic Telematics (RTTT). This area is now more often referred to as Intelligent Transport Systems (ITS).

The work was assigned to a Project Team working under the supervision of RTTT Steering Group (RTTTSC), which is a group established by the ICT Standards Board – the body representing the three European Standards Organizations (CEN, CENELEC and ETSI) and 11 other ICT specification providers. The members of the Project Team and of the RTTTSC are listed in Annex A.

The programme covers major market needs for standards up to the end of the decade and addresses ten¹ key areas of activity. It was validated at an Open Meeting held in May 2002. The conclusions of the Open Meeting, and other comments received, have been taken into account in preparation of a final draft programme, which is now submitted to the ICTSB and to the European Commission and EFTA. The programme will then be referred to and needs to be accepted by the organizations, identified as potentially leading the work, before the activity can start.

In summary the recommendations are as follows:

1 Multi-modal requirements

The existing CEN TC278 work programme should be re-examined to ensure that due account is taken of multi-modal requirements, by amending work items and drafts in progress where that is appropriate. CEN TC 278 should also provide the telematics interface between road transport and other modes of transport in a multimodal environment.

2 Continuous communications

Provision of CALM-based standards for continuous communications with vehicles using generic communications methods.

3 Architecture and Architecture related issues

Further development (through the existing projects (e.g. FRAME) and through standardization) of the European Architecture drawn up by the KAREN Project.

¹ A tenth recommendation on ADAS was derived from the original nine considered by the Open Meeting.

4 Integrated Electronic Payment Systems

As a long-term issue, provision of standards to provide comprehensive integrated payment systems.

5 Traffic Management Standards

Provision of standard interoperable information to support extended data dictionaries, location referencing etc.

6 Safety and Emergency Standards

Communications links, command and control systems and databases.

7 Human Machine Interface

Standards for the presentation of travel guidance information in order to avoid confusion (to take account of user interfaces for home, mobile, PDAs, work systems).

8 Traveller Journey Assistance

Common message sets, coding schemas, and location referencing schemas that are consistent with legacy systems but allow for open applications using coding schemes such as XML.

9 Standards to support Enforcement

Standards to support pan-European recognition devices and measures for cross-border enforcement.

10 Advanced Driver Assistance Systems (ADAS)

Provision, mainly through ISO, of human factors standards for the safe design / evaluation of display and control of information (what information to present, how to present it, how to design and locate controls, how many simultaneous tasks can the driver safely handle).

A full report of the Open Meeting on 24 May is attached at Annex F. Major conclusions of the meeting included an endorsement of the proposal in section 9, for a High Level Strategy Group to monitor progress, ensure adequate co-ordination between the different groups involved, and take an overview of new strategic

developments. The meeting also emphasised the need for the provision of more spectrum for ITS applications such as CALM, safety projects and others.

1 Introduction

Europe has undertaken a considerable effort since the early 1990s to provide a set of standards in the field of electronic systems for road transport and traffic management. The European Commission and EFTA have provided extensive support to this activity, which has been complemented by EEA-funded research and pilot projects supported under various programmes. They have requested the European Standards Organizations, CEN, CENELEC and ETSI, to draw up a new common programme of work for. in Road Transport and Traffic Telematics (RTTT). This area is now more often referred to as Intelligent Transport Systems (ITS). The request was made by means of a mandate (M/270).

The mandate notes that the information society is fast-moving, and no more so than in this sector, where the increasing pressures of traffic are encouraging new developments. It is appropriate therefore for the standards effort to be planned, in the medium and long terms, to match this. The mandate goes on to say: “Road Transport Telematics will benefit individual citizens by making driving safer and easier with fewer delays. It can help transport service providers and fleet managers by providing logistical and management support. Road operators can use RTT to manage traffic more effectively and reduce congestion, and by allowing a more efficient use of infrastructure, RTT gives in many cases policy makers an alternative to road building. RTT can also have a positive effect on the environment by encouraging the use of public transport, helping to secure a more balanced and improved modal mix, reducing pollution and securing a more efficient use of energy sources. At the same time market opportunities for industry and “added value” service providers will be created as part of the growing Information Society”

The present draft report represents a set of proposals for future work to be carried out in this domain as a standardization programme. It has been endorsed by a representative Steering Committee, on the basis of draft proposals produced by a Project Team of paid experts in the various technologies and market requirements for public consultation. The membership of the Steering Committee and Project Team is listed in **Annex A**.

This activity follows an earlier effort to take an overview of market developments in this sector. For this purpose, and as the first Phase of the mandate from EU/EFTA on this topic, CEN TC278 commissioned EUROLUM, a consultancy company, following an open call, to produce a report. A copy of the TC’s final report, including the EUROLUM findings, is available at <http://www.cenorm.be/iss/TC/eurolum.zip>.

The title of the work is “European standardization in Intelligent Transport Systems - A proposed European Programme”. This does not constitute a definitive programme of

work, which shall be carried out by the European Standards bodies. It consists of a number of proposals, sometimes involving modifications to existing work (in CEN/TC278) and sometimes identifying new work using new mechanisms (e.g. CEN/ISSS Workshops). These proposals need to be accepted by the organizations, identified as potentially leading the work, before the activity can start. The European Standards Organizations have specific procedures for adding new work items to programmes of work of their Technical Committees or to establish new Workshops.

The proposed programme is submitted for public consultation. Following this, the proposed programme will be revised to take account of the observations made by participants in an Open Meeting and in response to an invitation on the web. It will then be submitted for endorsement by the European Standards Organizations for submission to the European Commission and EFTA. The final proposed programme will be published on the web, together with a background document, containing a wealth of fine detail on the subjects proposed for the work programme, that was used by the Project Team as the basis of the report.

2 Background

CEN, CENELEC and ETSI are the three European Standardization Organizations, recognized under Directive 98/34/EC. Between them, their activities cover the full range of subjects for standardization. The Directive provides a certain formal status to European Standards (ENs), especially the requirement that the adoption of an EN automatically requires the withdrawal of conflicting national standards, and “standstill”, which means that when a European Standard is under preparation, work at national level on the same subject should stop.

As regards division of responsibilities, CENELEC is responsible for the electro-technical sector, ETSI for telecommunications and related areas, and CEN is multi-sector, dealing with other issues including IT applications.

Currently, CEN and CENELEC have 20 National Members from the EU and EFTA countries, plus the Czech Republic and Malta (and others are likely to join soon). Sometimes, CEN and CENELEC National Members are the same organization, but this is not always the case. ETSI is structured differently, having a direct membership structure (currently about 900 member organizations) – any organization with an interest in the subject matter may join – but in the case of European Standards, ETSI has “national standards organizations” that fulfil the necessary functions, covering the full range of member countries of the CEPT (European Conference of Posts and Telecommunications).

The three European Standards Organizations have certain co-ordination arrangements for areas of common interest. The basic principles of co-operation apply also to ITS. At the working level, this is achieved for this project under the

auspices of the ICT Standards Board, which is a collaborative committee including also members from other organizations such as the European DVB Consortium, the European Broadcasting Union, W3C, etc. (further details are at <http://www.icts.org>).

The interaction of formal standards bodies at international, European and national level is illustrated by the following diagram.

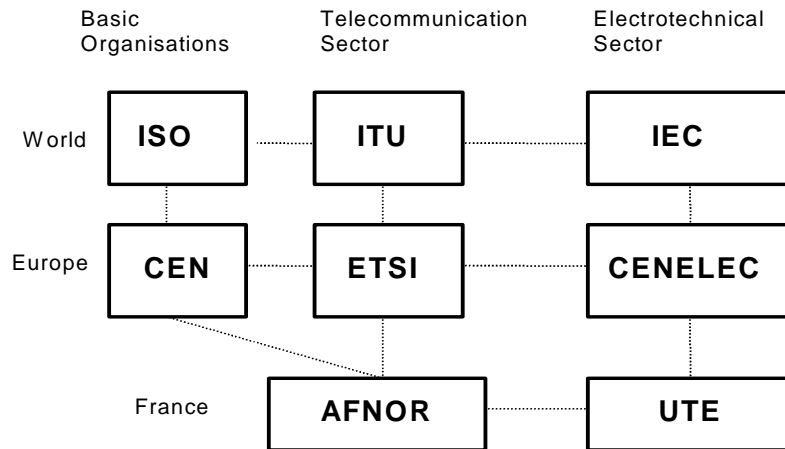


Figure 1 : Interrelationship between national, European and international standards bodies. As an example of national organizations, France is chosen.

In the overall field of this report, work began in the early 1990s, on the basis of a request (known as a “mandate”) from the EU and EFTA. The three European Standards Organizations set up a Transport Expert Team (TET), whose report, drawn up over 1991-1993, formed the basis for standardization work for road transport informatics in Europe for the past decade. The report provided the basis for the creation of CEN Technical Committee 278 and its work plan.

The involvement of the other two European Standards Organizations has been relatively limited. This is because in general terms, the required standardization activity has not been specific to the road transport sector, but rather that general horizontal standardization needs to take due account of requirements in the sector. CENELEC established a Technical Committee 114 (later 214) in this area, but it has remained dormant since the outset, in case of demand for particular standards, such as for infra-red solutions. ETSI has dealt with some issues in its Technical Committee Radio Equipment and Systems (now named EMC and Radio Spectrum Matters (ERM)); there have been specific work items related to the standardization of Digital Short-Range Communications for ITS purposes. This requirement is related to the fact that the radio transmitter specifications need to meet European regulatory requirements for such devices, and these are drawn up in standards from ETSI, in co-operation with the European Radiocommunications Committee of the CEPT.

There is also standardization activity on Intelligent Transport Systems at the international level. CEN works in collaboration with ISO under the “Vienna Agreement”; ISO TC204 “Transport information and control systems” has its own work programme in this area, and the Vienna Agreement arrangements ensure full synergies between the European work and that carried out at international level. ISO TC22 “Road vehicles” is also relevant (<http://www.iso.org>).

It should be noted that a number of other Technical Committees in CEN and ISO may have work that is relevant to standardization in this area. Wherever possible, this other standards work needs to take account of specific requirements in relation to Intelligent Transport Systems, and, conversely, ITS-specific work should not seek to re-invent the wheel if the general standards solutions are adequate.

The current title of CEN TC278, the major body concerned in this area of standardization, is “Road Transport and Traffic Telematics”. However, the increasing convergence of technologies and improvement in technological capabilities, as well as public policy considerations, for example in encouraging multi-modality, mean that many of the future standards requirements need to be of a multi-modal character. This is reflected in our usage of “Intelligent Transport Systems” (ITS) to describe the overall activity required, and in some of the specific recommendations.

Finally, standardization in this field necessarily has links to regulatory and enforcement issues. Whilst these are not the responsibility of standardizers, regulatory requirements may have an impact on standards content, and, conversely, standards issues may impact regulatory ones. The report therefore contains some recommendations towards the European Commission, national administrations and enforcement authorities.

3 Objectives and Mission

3.1 Objectives

The proposed European ITS standardisation programme will support and facilitate the development of the ITS markets and services in the first quarter of the 21st century.

From the current perspective, these prospective developments will take place along the following major axis:

- Interoperability of services on a pan European basis, services are available without frontier, anywhere at anytime
- Intermodality integrating seamlessly road, rail, water and air travel
- Increased synergy between the different infrastructure and services management systems to provide more efficient persons and goods transport
- Easy multimodal, multioperator, multiservice cashless payment
- More intelligent vehicles with intelligent support from the road infrastructure

- systems for more efficient and safer travel
- Increased safety using Information and Communications Technologies for accident prevention and emergency management
 - Large deployment of generic continuous multimedia mobile communications technologies
 - Personalised and ubiquitous traveller information
 - More reliable, diversified and user friendly Public Transport
 - High quality and cost effective freight and fleet management

3.2 Mission statement

The proposed mission statement for European ITS standardisation is:

“To provide a family of Standards and related specifications, interoperable on a pan European basis, that will enable services to be provided to travellers (be they drivers, pedestrians or users of Public Transport); to provide services to transport and infrastructure managers and operators; to commercial fleet managers and commercial service providers, utilising information technology to maximise efficiency, safety and the quality of services provided.

To ensure that such standards provide the best global commercial opportunities for businesses from European countries and do not disadvantage the businesses from European countries against actors from other lands.

This will be done by working within a commonly agreed high level framework to utilise, wherever possible, subsets of international and regional standards for Information and Communications Technologies as interoperable deployed platforms to provide ITS services and, where such platforms do not exist, to co-operate with appropriate Standards organisations or, if this is not practicable, develop ITS specific platforms.

To build, within a common architecture, a family of interrelated Standards for application services based on information provision and exchange between actors, equipment and infrastructure, using common and/or shared data and common, interoperable means of data definition and presentation, to achieve the goals of efficiency, safety and high quality service provision.”

4 Interfaces with European projects and programmes

European-supported projects, in the research and application areas, can often have a significant interest in, and possible contributions to, standardization. The European Commission services and CEN TC278, share the view that the involvement of project partners in the relevant standards work should be made as effective as possible. The benefits can be two way, both ensuring that projects do not “re-invent the wheel”, but

instead use standardized approaches, and making standards groups more aware of the technology “state of the art”.

Some efforts have been undertaken in relation to specific areas other than ITS – for example, CEN/ISSS is currently running the C-ECOM “cluster project” under Key Action 2 of the IST Programme (see below), the role of which is to bring projects into closer touch with the appropriate standardization groups, whether these are in CEN or elsewhere (including key global standards consortia). This has already been successful in enhancing participation, and has led to new standardization activities. In relation to the forthcoming Sixth Framework Programme, the ICT Standards Board is embarking on discussions with the European Commission services concerning a more systematic approach to this issue, perhaps following the C-ECOM model.

Having said this, the existing ITS standardization activities have had some interfaces with particular programmes, starting with the Telematics Application Programme, which highlighted many relevant areas that are now included within the overall **Information Society Technologies** (IST) programme, and run by DG Information Society.

The European Commission’s Directorate General for Energy and Transport (DG TREN) uses trans-European Transport network (TEN-T) programme funds too assist in the deployment of ITS throughout Europe. The TEN-T programme aims to establish appropriate interconnections, interoperability, and accessibility between services, both on long-distance routes and, where appropriate, around conurbations, thus completing missing links and promoting pan-European services. The TEN-T guidelines are currently being amended, but the proposed revision will reiterate as a priority area of activity the deployment of interoperable intelligent transport systems to optimise the capacity of existing infrastructure and improve safety.

Between 1995 and 2000, DG TREN promoted the development of ITS on the trans-European road network by contributing over 125 million Euros of TEN-T funding to road traffic management projects. In 2001, the Commission supplemented the annual programme of TEN-T funding with a Multi-Annual Indicative Programme (MIP). Indicative figures within this programme suggest up to 192 million Euros could be made available for road traffic management projects between 2001 and 2006.

The key objective of the TEMPO programme concerned with ITS in the road sector is to stimulate a harmonised and synchronised deployment of ITS systems and services on the trans-European road network (TERN) and to contribute to convergence between national/regional planning and the overall implementation of the Information Society in the field of road transport in Europe.

The projects funded through TEMPO are designed to address a series of "Priority Actions":

- the implementation of high quality **road monitoring infrastructure** for reliable ITS

services

- the establishment of a **European network of traffic centres**
- the removal of bottlenecks and easing of traffic flows through **traffic management and control** measures
- the deployment of easy access to high quality **traveller information services**, including the interface with other modes of transport
- the enhancement of safety and efficiency of freight transport through **fleet and freight management** systems
- the development of easy and efficient **electronic fee collection systems**
- the promotion of road safety and efficiency through **incident and emergency handling**

In addition, a series of horizontal issues have been identified as being of European importance in taking forward projects within the TEN-T guidelines. These are: system architecture, evaluation, enforcement, organisational and legal aspects, convergence and interoperability, human machine interface and co-ordination.

The GALILEO satellite radionavigation programme is an initiative of strategic importance which brings together the European Community institutions and the European Space Agency and that will highly impact the future of ITS.

Galileo heralds the development of a new generation of services: automated vehicle guidance systems to reduce traffic jams and cut the number of accidents, oil prospecting, conservation of the ecosystem, management of scarce resources such as water, financial transactions, and safety of persons and property.

Satellite radionavigation will set off such a revolution that the European Union needs to have control of this technology vital to running the society of tomorrow.

Galileo will complement GPS and will provide for a higher degree of precision than the GPS today

- more reliable than GPS at all latitudes
- real public service guaranteeing continuity of service
- suitable for different types of user: general public, commerce, public services, search and rescue, etc.)

The programme's definition phase has already been completed. The GALILEO programme now comprises the following phases:

- 1- The development and validation phase (2001-2005):
 - Development of satellites and ground-based components;
 - Validation of the system "in orbit".
- 2- The deployment phase (2006-2007):
 - Construction and launch of satellites;
 - Installation of the complete ground segment.
- 3- The commercial operation phase (from 2008).

The **eEurope** initiative was launched by the European Commission in December 1999 with the objective to bring Europe on-line. eEurope has a number of specific target areas, including Intelligent Transport Systems, that provide a focus for EU-supported activities. Indeed, the preparation of the present draft report was supported financially by the EU (and EFTA) under the “eEurope Standards Action Plan” – further details are at <http://www.eeurope-standards.org>.

A significant part of the overall EU policy objectives are already in the current Work Programme of the ESOs, indeed, some have already been met by European Standards. As regards the recommendations for new activities, most, if not all, have some relevance to these overall policy goals, but there is not necessarily a linear relationship between the recommendations and a single programme aspect.

A list of relevant EU current projects is provided as **Annex B**.

5 The objectives for standardization in ITS

There are a number of reasons why ITS standards are appropriate :

To ensure interoperability of applications and equipment

- a) To provide interoperable or compatible frameworks, interfaces and communications platforms to enable the market place:
 - *Compatible – will be able to be substituted but may need some form factor adaptation (cf. electric plugs), i.e. will work at the interface;*
 - *Interoperable - is capable of seamless substitution.*

To ensure a non-monopolistic market and enable efficiency of the marketplace

- a) freedom of supply
- b) standards create the debate that ensures that a process is only developed once.

To ensure a pan-European (global) market, and support of International Trade Agreements

- a) support International Trade Agreements
- b) economies of scale
- c) mutual problem solving

To improve Safety and Law Enforcement

- a) to reduce road casualties
- b) to meet EC and Government commitments to the disabled and disadvantaged
- c) to enable enforcement of EU agreed Safety Provisions for the Transport Sector
- d) to enable enforcement of EU agreed Regulations for the Transport Sector
- e) to protect EU regulation to protect Privacy

To bridge the gap between propriety systems and public system for the point of view of efficiency

- a) to reduce the number of interfaces
- b) to reduce the complexity of interfaces

In providing these views the following observations are made:

- It is reasonable to expect the marketplace to bear the costs of providing standards to support market opportunity.
- It is not reasonable to expect the commercial market place to bear the costs of political, social or legal requirements for standardization.
- It is generally difficult to draw definitive boundaries between commercial requirements (opening market place) and political requirements (EU single market provisions, safety provisions etc.)
- It is generally against the 'commercial' interest of the marketplace to develop standards to implement laws.
- The 'market place' for ITS standards is frequently wider than that bounded by simple commercial vendor/client relationships. One of the reasons for slow progress in many ITS standards groups is the reluctance of public sector clients to invest in the standardization process.

As the list of requirements for standardization above is heavily affected by non commercial requirements and Public interest and Policy considerations, the support for standardization from EU and the public sector clearly needs significant increase if the objectives are to be met in a timely manner.

6 Identifying the gaps in the current standardization programmes for ITS

The present work programme of CEN TC278 and its sister Committee ISO TC204, together with relevant parts of the current programmes of ISO TCs 22 and 104, relevant communications standards from ETSI, ITU Recommendations, etc. have been taken, and sought to identify the gaps in the current programmes that need to be filled to achieve the objectives of the Vision and Mission Statements and the tenets of the rationale and framework described in Section 6 above.

This has not been easy because, apart from the work programmes of CEN TC278 and ISO TC204 which were specifically designed for ITS, ITS is generally an adjunct to the purpose of other relevant groups (e.g. ETSI provides mainly general communications standards in an environment where ITS is only one of many competing demands).

Additionally, in order to achieve the societal aims described in the preceding sections, there are also requirements for supporting measures to enable these aspects to be achieved. These measures may require device specifications but also include pan European enabling and enforcement measures to support these objectives.

Many of the 'gaps' identified therefore require organisational and legal action rather than technology or formal standards. For example within the field of law enforcement at European level within the scope of ITS, considering not only the technological driven standardization issues but also the regulatory, legal and institutional implications.

The core of ITS is, by definition, the communication, transfer, processing and use of information to provide improved and safer transportation means.

If it is accepted that in the 21st Century, modern communications enable ITS to use subsets of general IT, radio and telecommunications standards, then the technical requirements for standardization for ITS are simplified. They may be summarized as:

Technical areas for ITS standardization:

- Protocols, data, and interfaces between systems, subsystems and actors
- Data Dictionaries and Registries of information/data and electronic messaging standards such as ebXML.
- Common Practices to provide services.
- Device functionality

However, there are significant additional requirements to achieve the social policy aspects of European Community programmes and objectives for ITS:

Social Areas for ITS standardization and related support requirements

- Common device operation, measurement and performance, to enable social and enforcement objectives
- Harmonisation of the legal framework
- Harmonisation of information requirements and messages between authorities, countries and regions.
- Harmonisation of regulations

7 Recommendations (general aspects)

10 priority areas for standardization (involving 29 specific recommendations) are proposed where support may be needed either in the form of financial or political support from the EU/EFTA, national public bodies in order to progress the work, accelerate the work, or in some cases to make any progress possible at all. The remaining recommendations are included in **Annex C**. These also include some **non-standardization actions** necessary to progress the successful implementation of ITS technologies and applications has been proposed, where support may be needed either in the form of financial, legal, organisational and political support from the EU/EFTA or national bodies in order to progress the work or accelerate it.

In respect of recommendations for new work items, the most appropriate standards bodies have been identified in each case, but the work items are not yet fully developed Work Items. Once the present report has been formally submitted to the European Commission, the next steps in the standards bodies would be for the recommendations to be considered case-by-case for formal adoption as work items, standards projects, etc., in accordance with practice and procedures in the bodies concerned. The mandate from the EU and EFTA makes provision for European activities in an overall sense; for aspects relating to how the overall future activities might be co-ordinated, please see section 9 below.

In making the recommendations, it is recognized that progressing some of them will be difficult. However, if a cohesive and harmonized ITS sector, achieving the goals of the European authorities, is to be attained in Europe, these recommendations need to be implemented and supported.

The impact of some of the recommendations would lead logically to a review of the structure of the principal standards groups implementing ITS, and giving consideration as to how this might be best achieved. We do not consider this formally to be within our remit; it is rather a matter for the European Standards Organizations themselves to consider. However, most of the “core” recommendations have been directed towards CEN TC278, as necessarily the relevant European specific group in this area. One generally “organizational” aspect that is covered here is the question of multi-modality. We consider it essential that the present limitation of the scope of CEN TC278 activities to the road transport and traffic areas be addressed; as already mentioned, an important aspect of future standards needs relates to multi-modality, and CEN needs a technical structure that is similarly multi-modal. A specific recommendation is also made concerning the review and “conversion” of existing work items within the TC278 programme.

The use of CEN Technical Specifications (the replacements for ENV), CEN Workshop Agreements or other “new deliverables” in other standards organizations may be used as initial consensus documents, as a stepping stone to formal standardization provides more rapid support for both manufacturers and users, and is to be encouraged as far as possible.

The recommendations indicate as far as possible when the appropriate “new deliverables” should be used as the first step.

8 Specific recommendations: Examination of TC278 Work Programme

8.1 Recommendation 1 – Multimodal requirements

There is a need for a consistent set of standards for multimodal aspects of ITS. In the case of intermodal aspects that concern road transport, the existing CEN TC278 work programme should be re-examined to ensure that due account is taken of multi-modal requirements, by amending work items and drafts in progress where that is appropriate.

Scope

The expansion of multi-modal transport, and particularly information services supporting such multi-modal shifts (both for travellers and freight), requires, among other things, review of those parts of the present CEN TC278 work programme that have not been completed. This activity will require discussions with interested parties regarding rail, waterborne and air transportation.

Rationale

The TEN-Transport (TEN-T) Expert Group on ITS for Road Traffic Management was set up to help the European Commission in the revision of the TEN-T guidelines following a proposal of the EC to the TEN-T Policy Committee. The TEN-T guidelines contribute to the deployment of measures and projects dealing with safe and efficient movement of people and goods throughout Europe, amongst its goals it lists :

“: promoting the use of multi-modal door-to-door travel services to encourage optimum use of available transport modes”

The basis for successful use of multimodal transport (including PUBLIC transport) is that multimodal transport systems are adapted to suit people needs (access, ease of use- physical design of systems, design of supporting ITS systems . ticket machines, timetables, etc). The term .people. includes people who are elderly and disabled. The starting point for this activity therefore must be the end user not technology. As the document notes, the TEN-T Policy Committee wishes to .promote the **use** of door-to door travel services. CEN/TC278 will therefore need to examine its work programme against this background taking due account of user requirements.

One specific additional intermodal deliverable is proposed: **Standardized definition of public transport-related customer information data**

Lead Responsibility

CEN TC278 – should also provide the telematics interface between road transport and other modes of transport in a multimodal environment. BT/WG141 has been established to prepare a Business Case for activity in the area of Multimodal and interoperable freight and passenger transport.

Deliverables

- (a) Initially :New Programme of Work items needed to be converted into multi-modal deliverables ;
Negotiation with UIC, IATA, other CEN TCs, eBES / EEG2 Transport, CENELEC TC9X
- (b) Standardized definition of public transport related customer information data
(Standard : TS leading to an EN).

Strategy

Specific work items to support the extended work programme to be identified by the TC or prompted from EU programmes and assigned to Working Groups.

CEN needs to ensure that it has adequate cross committee arrangements in place, and the CEN/CENELEC/ETSI Joint Programming Committee – Rail needs to be involved.

Priority

Urgent

Timetable

Work item adoption within 6 months. Deliverables timetable to be decided by the responsible technical group.

Liaisons/identified partners

There needs to be a negotiation with UIC, IATA, other CEN TCs, eBES / EEG2 Transport and CENELEC TC9X to accept the extension of scope and negotiate acceptable boundaries. These bodies need subsequently to be actively associated with the development of the work.

Support required

The support required is not financial. In order to achieve/progress this work, EU and EU projects need to make formal written requests with their requirements to TC278 to

expand their existing work programme to cater for multi-modal transport and multi-modal shifts. A formal support of EU to the extension of the work programme, and input to other standards groups who have a boundary interface explaining this need may also be required.

8.2 Recommendation 2: Provision of standards for continuous communications with vehicles using generic communications methods

Scope

Providing standards to enable continuous communications between vehicles and roadside.

Continuous communications between vehicles and other actors (CALM: Continuous Communications Long and Medium range) are seen as being of great importance to the future potential and realisation of ITS. The PT recommends that CEN TC278 follow the example of ISO TC204 in adopting such work items. These to be based on existing generic communications standards as far as possible.

Rationale

In looking to the future, and particularly given the rapid developments of communication technologies, we recommend that ITS standardization more closely engage in the direction of the general world of communications and IT (in the past TC278 has tended to develop custom solutions for RTTT/ITS).

We recommend that, wherever possible, ITS standards should be an instantiation of generic communications and IT standards (or a specified subset thereof) thereby gaining economies of scale and benefiting from the considerable resource and investment in the generic solutions, rather than developing ITS-specific solutions that risk being obsolete by the time that they are finalized, and that make interoperability more difficult rather than assisting it.

Continuous communications between vehicles and other actors (CALM: Continuous Communications Long and Medium range) are seen as being of great importance and CEN TC278 is recommended to follow the example of ISO TC204 in adopting such work items. These to be based on existing generic communications standards as far as possible. Present standardization tasks are conducted through ISO TC 204 Groups 16.1 and 16.2 and most protocols will be ready by Q1 of 2003.

We recommend the adoption of the following work items and their pursuance jointly with ISO TC204 under the Vienna Agreement

Lead Responsibility

In Europe: CEN TC278. Global: ISO TC204 (working under Vienna Agreement).

Deliverables

- (a) CALM using GSM
(Standard - EN)
- (b) CALM using 2/2.5 Generation Cellular Communications
(Standard - EN)
- (c) CALM using 3G Cellular Communications
(Standard - EN)
- (d) CALM using 5.8-5.9 GHz Microwave technology
(Standard - TS leading to EN)
- (e) CALM using Millimetre Microwave technology
(Standard - TS leading to EN)
- (f) CALM using Infra Red Technology
(Standard - TS leading to EN)
- (g) CALM using RADAR
(Standard - TS leading to EN)
- (h) CALM Network Protocols
(Standard - EN)

TETRA and TETRAPOL technologies might be considered also.

Where work is already well advanced in the international community and there are extant ITU/ETSI Standards for immediate reference, this work is recommended to move swiftly to EN status. In other areas the TS/EN progression at an appropriate speed is recommended.

Note: Wherever possible, a CEN TC278 ITS CALM Standard should be a simple standard by reference to the principal global or European technology standard (ITU-R, ETSI etc.), or a subset thereof.

Strategy

We recommend the adoption of European work items and their pursuance jointly with ISO TC204 under the Vienna Agreement

Priority

Urgent. Such systems are in the process of implementation so the need for standards is very urgent

Timetable

We recommend that these work items are put to CEN TC278 at the earliest opportunity. The work is already in progress in ISO TC204 with deadlines of end 2002 or earlier. The importance is to increase European influence in this work and ensure it meets European needs.

Liaisons/identified partners

This work is already the subject of ISO TC204 work items, and the objective of having CEN work items is to ensure that European requirements are met in the standards that ensue.

Support required

Software industry and potential users of CALM (operators and service providers) should be associated with the work.

EU political support for adoption of these new work items and more bandwidth and spectrum allocation for ITS applications. Frequency spectrum availability in most European countries is the main bottleneck to ITS development and it was therefore recommended to CEN and EC to support more bandwidth allocation for ITS applications such as CALM, safety projects and others.

8.3 Recommendation 3: Architecture and Architecture Related Issues

Scope

Further development of the European architecture through the existing projects (e.g. FRAME) and through standardization and EU support for standards bodies and implementers; provision of a commonly accessible Case Tool for developing CEN and EU Project models.; provision of standards or proposals to facilitate interoperability and compatibility of ITS services (across applications and between countries) to achieve standardization of information exchange and communications protocols; standardization of information exchange: common data models/structures to create a stable basis for new and updated data dictionaries location referencing, including in urban areas, and its convertibility by means of a clear structure/architecture.

Rationale

The current European architecture (KAREN) is limited and needs expanding. Further, countries trying to implement the model have found gaps and inconsistencies that identify more work that is required. The list below identifies the principle areas for further work and the nature of the deliverable. Additionally some standards specific support measures are detailed. Although these are not formally 'standards deliverables' they are so tied to enabling the standards deliverables listed in Recommendation 3, that they are listed in this section of the report, rather than in the 'other support actions' annex.

Particularly, experience of trying to implement KAREN (which was developed without the benefit of a modelling tool) has shown the need for the use of such a tool. Presentation of the European requirements expressed via the product of such a tool will assist integration into the international architecture model which is prepared and updated using such tools. Common availability of such a tool for European standardizers and implementers will greatly assist the probability of achieving interoperability.

Lead Responsibility

FRAME project, and if necessary TC278 and/or supporting CEN Workshops

Deliverables

- (a) Further elaboration of KAREN model
(Review European preStandard ENV 14813 to progress towards a full European standard and International standard)

- (b) Map/determine the class interactions and interdependencies
(Review European preStandard ENV 14813 to progress towards a full European standard and International standard)

- (c) Expand architecture to include CALM Continuous Communications
(Review European preStandard ENV 14813 to progress towards a full European standard and International standard)

- (d) Extend the framework architecture to include key public and private actors
(Review European preStandard ENV 14813 to progress towards a full European standard and International standard)

- (e) Functional (logical) architecture, data flows and message content for main functions related to public transport operations.
(Review European preStandard ENV 14813 to progress towards a full European standard and International standard)

- (f) To provide standards or proposals to facilitate interoperability and compatibility of ITS services (across applications and between countries and in multi-operator environments) to achieve cross-border continuity
(Dependent on group used).

- (g) Standardization of information exchange (including Mobile EDI)
(Dependent on group used).

- (h) Freight & Fleet Management : Messaging supporting functions and data flows (EDI) within the FFM system architecture
(Dependent on group used).

- (i) Freight & Fleet Management : integrating on-board systems architecture and interfaces for on-board data communications (including Mobile EDI)
(Dependent on group used).
- (j) Extend the ITS sector architecture to include provision for an interoperable ITP-Card (ITP = Integrated Transport Payment) (including Mobile EDI)
(Dependent on group used: possibly extension of ENV 1545).
- (k) Standardization of information exchange and communications protocols to support in vehicle and remote electronic information provision. (Including Mobile EDI)
(extension to ISO14817 to meet European requirements)
- (l) common data models/structures to create a stable basis for new and updated data dictionaries; including location referencing, including in urban areas, and its convertibility by means of a clear structure/architecture; time and timing
(extension to ISO14817 to meet European requirements)
- (m) Extension of Areas coverage to intermodal / multimodal transport (c.f also Recommendation 1).
(Dependent on group used).
- (n) Extension of contents down to an information layer / data models so as to make it more useful for Systems implementers and Standards developers / designers.
(Dependent on group used).

Related Support Measures :

- (o) provision of a UML case modelling tool for common use in developing European architecture standards
(EU Support Measure)
- (p) creation of a TC-level forum covering each major technical standards area to look at issues such as operational procedures and quality issues. The

composition of this forum should be debated by the TC. (It is envisaged to be at a lower 'task' level than the High Level Strategy Group proposed in Section 9 of this report.

(FORUM)

(q) promotion of awareness of and participation in ISO ITS standardization committees to ensure European requirements are accommodated.

(EU Support Measure to promote participation)

Strategy

If architecture development in Europe, and its incorporation into standards is to be coherent, it is imperative that it can be build and national variants tested and compared using a consistent model. Such a model should publicly be made available to CEN TC278 (WG13), or provided to a European Project, such as FRAME.

The delivery mechanism for this recommendation needs further consideration. Some felt that standards were necessary while others believed that other mechanisms could be used. If the work is carried out in CEN it will need to be decided whether a Workshop approach or TSs is appropriate.

In respect of the specific items a) – e) it is recommended that these should be given as specific tasks, with associated deliverables to the FRAME projects, and, if necessary, the financial support provisions for that project expanded.

In respect of implementation of both of these actions, it will be necessary to provide resource that is unlikely to be available from the commercial sector, and getting National State involvement is unlikely to target the wider European objectives. Therefore a Project team, or EU Project, will be required to provide the necessary resource. The fastest mechanism would logically appear to be an extension/successor project to the already established FRAME Projects.

Priority

URGENT (if Europe is to play a leading influential role in the development of international ITS Architecture Standards.)

URGENT if it is considered important to have consistent architecture implementations in Europe.

Timetable

This work will require a substantial project. An initial estimate would be that there is more than 1½ - 2 man years' work content, excluding meetings. A Project Team or Teams are proposed for this purpose, which will probably require 9 – 12 elapsed months to complete the work. Without such a Project Teams it is unlikely that much of this work will ever be undertaken, and that which is undertaken, may be on a time frame in excess of three years.

Liaisons/identified partners

CEN TC278- All working Groups, ISO TC204- All working groups, All EU ITS Projects.

Support required

- EU financial support to a Project Team(s) to undertake work in a timely fashion as there will otherwise be inadequate resources available in the standardization community.
- EU support through acquisition of a UML case tool to support CEN TC278 WG13 & Architecture Projects
- Political support from EU

8.4 Recommendation 4: Integrated Electronic Payment Systems

Scope

As a longer-term activity, a Project Team should be appointed to identify applicable standards from other payment-architectures, to then define adequate standardized procedural interfaces between the payment-terminals and their related “fee-deciding” environment in mobile and static applications-areas, and to develop standardized test procedures for conformance, against which all products claiming compliance with above standards can be tested.

Rationale

TC278 has already carried out a lot of work concerning fee collection, and relevant standards are now generally in place, although in many cases the commercial operator agreements concerning their implementation do not exist.

However, in the longer-term, as technologies and applications develop, we recommend that Electronic Fee Collection should be progressed as part of generic Integrated electronic payment system solutions including mobile commerce.

Lead Responsibility

CEN TC278 in collaboration with CEN/TC224/WG11.

Deliverables

- a) Investigation & Deliverable to WG.: Identify applicable standards relating to payment technologies, and apply them. Identify missing aspects and develop them in close active co-operation with other standards groups, including consortia.

(Report)

- b) Standardized information and procedural interfaces between the payment-terminals and the different entities in the fee and fare collection process.

(Standard. TS leading to an EN).

- c) Standardized test procedures for conformance testing of integrated payment services/EFC equipment

(Standard. TS leading to an EN).

Strategy

We recommend that, in future developments, Electronic Fee Collection should be progressed as part of generic Integrated Electronic Payment system solutions.

A Project Team should be the focus of identifying applicable standards from other payment-architectures and apply them. Identify missing standards and develop them

Priority

Urgent

Timetable

A Project Team will require probably 250 man days of a small focussed team to achieve this task, which could be completed within a 12 month elapsed time period. Without the support of a project team it is improbable that this work will be undertaken properly, if at all, and, based on progress to date may take in excess of five years if it is undertaken.

Liaisons/identified partners

Banking Sector, CEN TC224/WG11, ISO/IEC SC17

Support required

EU Financial support for a Project Team

EU political support to get work item adopted and treated with urgency by WG

8.5 Recommendation 5: Traffic Management Standards

Scope

Extension of the DATEX data dictionary to cover urban as well as interurban messaging paying particular attention to the urban/interurban interface: project to extend the DATEX data dictionary to cover urban as well as interurban messaging

Develop standard addressing location referencing in urban areas for meeting the requirements of data exchange between UTC and other TCC's.

Rationale

Provision of standard interoperable information to support extended data dictionaries, location referencing etc. This is necessary to cover missing data and is also key for cross-border purposes.

Lead Responsibility

CEN TC278. Project Team.

Deliverables

- (a) Standard interoperable information to support extended data dictionaries, location referencing, ebXML Core Components etc.
(Standard TS leading to EN).
- (b) Standard for location referencing in urban areas for meeting the requirements of data exchange between Urban Traffic Control (UTC) and other traffic control centres, public transport management (vehicle tracking), and data exchange between vehicles and UTC.
(Standard TS leading to an EN).

Strategy

A Project Team is required to develop and populate the extension of the DATEX Data Dictionary and populate addressing location referencing, to be presented as a draft deliverable for standardization.

Priority

Medium Term

Timetable

This work is needed to extend DATEX and other data dictionaries. Given the resources available to the TC it could be several years before this work can be finalised by voluntary resources. A project team could complete the task in 6 – 9 months elapsed time.

Liaisons/identified partners

ISO TC204 WG1

Support required

EU support (Project Team) will be necessary if this work is to be achieved as commercial funding seems unlikely.

8.6 Recommendation 6: Safety and Emergency : Communications links, command and control systems and databases for safety applications (e.g. hazardous freight transport and passenger safety)

Scope

Hardware/communication links to and from on-board equipment which will automatically communicate with the fleet management systems and inform the police/fire services on the possible nature of the safety incident in order to decide actions.

Rationale

There is a lack of standards for data definition and communication in this field, which is important for personal safety.

Lead Responsibility

To be determined in consultation with CENELEC and the eSafety initiative.

Deliverable

- (a) rollover/crash sensor devices on vehicles to be able to successfully trigger communication of appropriate data with fleet management systems, police and fire services throughout Europe
 - (b) to define the data relating to hazardous goods for safety purposes
 - (c) On-board public transport or passenger car equipment to be able to successfully trigger communication of appropriate data with fleet management systems, police and fire services throughout Europe
- (Standards. TS leading to an EN).

Strategy

In order to obtain a timely result for this work, the strategy proposed is for a Project Team to define the links and develop the standard. Coordination with the e-Safety initiative and the e-MERGE emergency call project should be assured. An identification of existing safety related vehicle systems should also be undertaken.

Priority

URGENT

Timetable

If dependent on voluntary resources, this work is unlikely to be completed within 3 or more years. Given the support of a small Project Team comprising four or five experts, it could probably be achieved within a man day budget of 250 man days and an elapsed time of six to nine months.

Liaisons/identified partners

CEN TC278 (especially WG2)

Support required

EU support (Project Team would accelerate this work if the European Commission consider it to be of sufficient Priority but first a policy framework for the work would need to be adopted by the European Commission)

8.7 Recommendation 7: Human Machine Interface (HMI) - standardization of travel guidance information presentation

Scope

Standardization of access to travel guidance information and its presentation (develop a style guide rather than harmonising all aspects of traveller information systems)

Rationale

Standardization of travel guidance information is required in order to avoid confusion (icons, symbols, pictograms), use of colour, abbreviations. To take account of user interfaces for home, mobile, PDAs, etc.

Lead Responsibility

CEN/TC278, results to be put into ISO TC 22 Road Vehicles / ISO TC 145 at the international level

Deliverable

Standard for travel guidance information presentation.
(Standard. TS leading to an EN).

Strategy

We can only envisage this work being undertaken by a Project Team reporting to the TC with defined time lines set by EU..

Priority

Long term – The demand for this standard is to enhance mobility within the EU. It is thus a long term strategic need rather than a short term priority. However, without such harmonisation full EU integration will be more difficult. EU may therefore choose to advance this work by means of a Project Team.

Timetable

Without the benefit of a Project Team it is difficult to see this work ever being successfully achieved as there are no financial interests other than EU integration to sponsor the work. With the benefit of a geographically representative Project Team the work could probably be completed within 9 elapsed months from start. The PT would have to represent most country groups and numerically probably 9-12 persons, requiring a total man day budget of around 250 man days, as these issues, though apparently simple, will be difficult to resolve with consensus.

Liaisons/identified partners

ISO/TC22 and 145
CEN/TC122
CEN/TC224/WG6
ICTSB DATSCG

Support required

EU support for a Project Team would accelerate this work if the European Commission considers it to be of sufficient priority

8.8 Recommendation 8: Traveller Journey Assistance: Common message sets, coding schemas, and location referencing Schemas

Scope

Common message sets for traveller journey assistance: coding schemas, and location referencing schemas that are consistent with legacy systems but allow for open applications using coding schemes such as XML.

Rationale

Traveller Journey Assistance Systems can be considered as pre-trip and on-trip. This provides the ability to the traveller to: chose the mode of travel; the timing of the journey; the route; or, indeed, whether to make the journey at all.

Generic solutions like the Wireless Application Protocol (WAP), XML, the Internet (TCP IP) and location referencing systems like Geographic Data Format (GDF) could be harnessed to provide the data transmission and application backbone of Traveller Journey Assistance Systems.

It is possible that there is no need for additional standards specific to a particular set of applications like Traffic and Traveller Information. However, simply taking a set of generic tools and applying them may be impractical due to bandwidth and processing power limitations.

The establishment of a funded data registry (possibly located in Europe) should be considered

Lead Responsibility

CEN TC278

Deliverable

Standard providing common message sets for traveller journey assistance (Standard. TS leading to an EN).

Strategy

Without the benefit of a Project Team, this work will only be achieved slowly as it is quite removed from direct financial interests. A small team of 3 – 4 persons working intensively could probably complete the work within 6 – 9 elapsed months, 200 man-days.

Priority

Urgent

Timetable

Work should commence as quickly as possible and provide input into the population of ISO 14817 Data Registry/Dictionaries at the earliest opportunity

Liaisons/identified partners

CEN/ISSS WS/eBES concerning XML messaging aspects

Support required

EU support to a Project Team would accelerate this work if the European Commission consider it to be of sufficient priority

8.9 Recommendation 9: Standards to support Enforcement

Scope

A family of standards in respect of legal and enforcement measures to enable trans-European ITS.

Rationale

A number of technical standards are required to support the introduction and operation of pan-EU legal and enforcement measures to ensure interoperability/compatibility.

Lead Responsibilities

CEN TC278 WG12 : Pan-European recognition devices and measures for cross-border enforcement (extension to AVI standards)

CEN TC278 WG5 : Digital imaging for automated video enforcement

CEN TC278 WG14 : Stolen vehicle tracking – after theft devices

CENELEC : Enforcement device homologation: European RTTE

CENELEC: Periodic verification of digital enforcement systems by an independent authority for verification of proper functioning

CENELEC: Digital tachographs – digital black boxes – development of a European Standard for accident data recorder

CEN TC278 WG 5: Accident investigation - standardize data capture from the accident crash scene to the central unit

Deliverables

A family of Standards for

(a) Common European vehicle identification (including vehicle class) classification that will cover enforcement related areas.

Standard. TS leading to an EN.

(b) Stolen vehicle tracking – after theft devices standard.

Standard. TS leading to an EN (extension to current CEN TC278 work item deliverable)).

(c) Digital imaging for automated video enforcement. Standard.

Standard. TS leading to an EN.

- (d) Standard to enable enforcement device homologation (features of checking enforcement devices {such as speed detectors, weight classifiers etc.} to be homologated for pan-European acceptance).

Standard. TS leading to an EN

- (e) Periodic verification of digital enforcement systems by an independent authority for verification of proper functioning Standard.

Standard. TS leading to an EN.

- (f) Accident data recorders. Standard.
Standard. TS leading to an EN.

- (g) Accident investigation - standardize data captured from the accident crash scene to the central control (to enable standardised information exchange between authorities).

Standard. TS leading to an EN.

Strategy

These measures are required if cross-border enforcement and assistance are to be enabled. Adding these work items to the appropriate working groups is, with the exception of the first two subjects (where related work is already well advanced) is unlikely without a project team as there is no commercial interest in the work, rather, it is an institutional requirement for pan-European integration.

Items 1 & 2 can simply be proposed to be added to the work programme of CEN TC278 WG12 and WG14 respectively the remaining work to be progressed by a Project Team.

This work will require a substantive project work. An initial estimate would be that there is more than 3 man years' work content, excluding meetings. A Project Team, will probably require 12 – 18 months elapsed months to complete the work. The PT would have to represent most country groups and numerically probably 9-12 persons, requiring a total man day budget of around 750 man days, as these issues are legally very complex, will be difficult to resolve with consensus.

Without a Project Team it is unlikely that much of this work will ever be undertaken, and that which is, may be on a time frame in excess of five years.

Priority

Urgent & medium-term.

Timetable

The Recommendations to CEN TC278 WG12 & WG14 could be made immediately and the Working Groups may timetable the work within their programme through the adoption of New Work Items.

If the EU requires to progress the integration of cross border enforcement and assistance as part of the process of European integration, a Project Team will be required. These are substantive issues

Liaisons/identified partners

European Commission. police forces across Europe, ERTICO and TISPOL

Support required

Whilst the recommendations to CEN TC278 WG12 and WG14, if accepted, can most probably met from the resources of the working groups, to progress the integration of cross border enforcement and assistance as part of the process of EU European integration depends on the will of the EU and its member States to undertake this work, and the extent of such collaboration. We consider this potential work is of political import beyond that achievable in a normal project team, and would require investigation, country positioning etc. It may therefore be appropriate, if EU has the will to progress these issues, to instigate this as a subject for an EU research project in the next call for RTTT projects. At this stage it is impossible to quantify the size of such a project, or indeed the EU and its member states will to progress these issues. Without such will, work would be unproductive. However, if such will and extent is already established and defined at a political level, it may be possible for that to be translated into a more traditional project team remit. It is impossible to assess the scale of resource required without knowledge of the extent of such political will

8.10 Recommendation 10: Advanced Driver Assistance Systems (ADAS)

Scope

ADAS is concerned with the display and control of information presented to the car driver (and or passengers) via information and communications technologies. This includes, but is not limited to::

- Vehicle dynamics
- Collision warning systems
- Intelligent cruise control
- Radar/Lidar/laser
- Sensor systems, simulation & testing
- Vision-based sensing
- Infrared
- Transponders

As such, human factors standards for the safe design / evaluation of display and control of information is crucial (what information to present, how to present it, how to design and locate controls, how many simultaneous tasks can the driver safely handle).

Rationale

This field is clearly not just a standardization issue. It needs an integrated policy to help co-ordinate the many different stakeholders (consumers, telecommunications providers, public authorities -regional and national, - emergency call centres, road authorities, researchers, product/system developers, etc). There are standardization issues underpinning some issues, which can be started upon immediately (see below) whilst the policy and framework needs to be put in place first.

Lead Responsibility

Various bodies (see below)

Deliverables

- (a) Develop/adapt design process related standards building on European Statement of Principle on HMI for In-Vehicle Communication Based Services
(Standard in ISO TC 22/ CEN TC278)
PRIORITY: SHORT TERM

(b) OBE to have interfaces to assistive technologies for input/ output of information (Extension of DSRC & CALM Work Items DSRC/CALM)
(Provision in standards in ISO TC204 / CEN TC278)
PRIORITY: SHORT TERM (2003 is European Year for DISABLED)

(c) Standards for In-vehicle “black box” collision detection/notification systems
(Standard in ISO TC22)
PRIORITY: MEDIUM

(d) Standards to support systems Use of RTT to wake sleepy drivers up
(Standard in ISO TC22)
PRIORITY : LONG TERM

(e) Standardization of Guidance Information
(Standard in ISO TC22)
PRIORITY: MEDIUM

(f) Standardization of ergonomic design of command and control systems
(Standard in CEN TC 122/ CEN TC 278)
PRIORITY : LONG TERM

Strategy

Filling the standardisation gaps will require a multidisciplinary team from several different standards bodies (CEN, ETSI) and from different technical committees, not just from TC 278 including, but not limited to, TC 122 Ergonomics, TC 224 WG 6, ETSI TC HF.

Priority

SHORT to LONG-TERM (see above)

Timetable

This work involves a number of different bodies, which will need to be approached after the acceptance of the ITS programme.

Liaisons/identified partners

CEN TC278, CEN TC 122, ISO TC22 and ISO TC204-

Support required

- EU financial support to a Project Team(s) to undertake work in a timely fashion as there will otherwise be inadequate resources available in the standardization community.

9 Future co-ordination

The original mandate from the EU and EFTA recommended the conclusion of a Memorandum of Understanding to ensure market “buy-in” to the future standardization work programme in this area. However, the large range of different issues and technologies in ITS does not lend itself to an overall blanket commitment by a single group of interested parties, which would be implicit in concluding an MoU.

It is recommended that instead a “steering mechanism”, to comprise market players – industry, administrations, consumer representatives, etc., as well as representatives of the standardization groups concerned and the Secretariats of the three European Standards Organizations. The role of such a mechanism which we propose to be called a High Level Strategy Group, would be to monitor progress, ensure adequate co-ordination between the different groups involved, and take an overview of new strategic developments. Its role would be purely advisory.

Such a High Level Strategy Group might be derived from the existing CEN TC278 Strategy Group, suitably modified and enlarged to include representatives of market players, including consumers/end users. It should operate under the auspices of the ICTSB.

10 The Annexes of this Report and supporting documentation

Annex A lists the membership of the Steering Committee and the Project Team that prepared the first proposals.

Annex B lists relevant current EU-supported research and implementation projects.

Annex C provides detail of other Standardization related recommendations as proposed by the Project Team. Particularly in respect of the harmonization of Legal and Safety and Emergency issues, the requirements have more of a regulatory aspect, and recommendations for action by EU, National Administrations, the police forces of Europe and associated bodies are made.

Annex D lists the relevant current work in CEN and ETSI Technical Bodies

Annex E summarises Terms and Abbreviations

Annex F provides a report of Open meeting on 24 May 2002.

RTTT Steering Committee

John Ketchell	CEN/ISSS – Temporary Chair
James Boyd	CEN/ISSS – RTTTSC Secretary
Gé Van Toorenburg	CEN/TC278, Chair
Jelte Dijkstra	CEN/TC278, Secretary
Bernard Laurens	CEN/TC278 Strategy Group, Chair
Bob Williams	M/270 Phase 2 PT Convenor
Dominique Vankemmel	EBES EG Transport
Gerd Ochel	ETSI Secretariat
Paul Kompfner	ERTICO
Bev Marks	EBU ²
Christopher Roberts	DG ENTR
Carmen Mena-Abela	DG INFSO
Valerie. Moutal	DG INFSO
André. Vits	DG INFSO
Frédéric Kunkel	DG TREN
Claudia Fusco	DG TREN
Jóhannes Þorsteinsson	EFTA

RTTTSC Project Team*Project Leader*

Bob Williams: Group Senior Consultant for Consultancy Services International Ltd.,

Members:

Adam Balfour: Human Factors Solutions, Norway
 Paul Burton: Oscar Faber Group Ltd
 Natalia de Estevan-Ubeda: Transport Research Laboratory (TRL).
 Ales Lacsman: Advanced Radio Telemetry,
 Pierre Lereboullet: LOGMA ,.SA
 Jacques-Claude Rennesson AFT - FC
 Helmut Strasser Dipl.-Ing. Helmut Strasser KEG.

² Corresponding member

Annex B List of relevant EU current projects

This lists a few of the many 5th Framework and TEN-Transport projects that are either developing or applying standards in the RTTT/ITS domain.

5th Framework

AGORA – location referencing standard (I-LOC)

DELTA – standard for in-vehicle integration of tolling on-board unit

ITSWAP – developing applications of WAP for ITS services, recommendations of modifications to WAP

TRIDENT – specifications for multi-modal data exchange, based on XML, DATEX & TRANSMODEL

EMILY – developing specifications and prototype navigation module combining GNSS & EOTD techniques

DIAMOND – developing ITS applications based on combination of DAB digital broadcast & GSM cellular transmission

NextMAP – specifications for digital maps to support ADAS systems/services

WAVE – weigh-in-motion

LOCUS – specifications for location based services, especially emergency call

TPEG – developing end-user focussed TTI applications for delivery over medium data rate bearers (eg DAB), requiring no location referencing database in client decoders.

Ten-T

VIKING – road traffic management

CORVETTE – transport telematics deployment

CENTRICO – traffic management & information services

SERTI – road telematics implementation

ARTS – road traffic info and management

CESARE – interoperable tolling application

INSTANT – multimodal transport information & management

2.2.3 (KAREN AREA 2) Provide Safety and Emergency Services

The widespread standardization issues that relate to SES are multifaceted will need to be handled through co-ordinating standardisation committees and bodies No single Technical Committee or Working Group could handle all the issues.

Various areas where standardisation is required are:

Rec. No:	Description	Lead Actor/also action by:
R32	<p>Automatic speed constraints run from a central source (especially for lorries, coaches)</p> <p>WORK ITEM : Automatic speed constraints run from a central source</p> <p>FORM OF DELIVERABLE: New Work Item</p> <p>PRIORITY: URGENT or MEDIUM</p>	<p>EU support (Project Team or Project) would accelerate this work if the European Commission consider it high priority</p>
R37	<p>SES must be able to handle input / output in several languages, over several media and in different modes (visual, auditory, tactile/ braille)</p> <p>WORK ITEM : Project Deliverable to enable SES to be able to handle input / output in several languages</p> <p>FORM OF DELIVERABLE: Project</p> <p>PRIORITY: MEDIUM</p>	<p>EU support (Project Team or Project) will be necessary if this work is to be achieved as commercial funding seems unlikely)</p>

R42	<p>Consider the adoption of NTCIP (National Transportation Communications for ITS Protocol) implies a need for further work on the data dictionary, message format, and most importantly, location referencing;</p> <p>WORK ITEM : Adoption of NTCIP FORM OF DELIVERABLE: Consideration and decision by CEN TC278 PRIORITY: URGENT</p> <p>WORK ITEM : Project to Populate data dictionaries FORM OF DELIVERABLE: Project Deliverable PRIORITY: MEDIUM</p>	<p>EU support (extension of Project) will be necessary if this work is to be achieved as commercial funding seems unlikely)</p>
R44	<p>The elements necessary for the sharing of UTMC information, particularly the common database.</p> <p>WORK ITEM : Project Deliverable defining database elements FORM OF DELIVERABLE: Project Deliverable PRIORITY: MEDIUM</p>	<p>EU support (extension of Project) will be necessary if this work is to be achieved as commercial funding seems unlikely)</p>

2.2.4 (KAREN AREA 4) Public Transport

Rec. No:	Description	Lead Actor/also action by:
R45	<p><i>Public Transport On-board data transmission interfaces:</i> CEN/ISSS workshop centred around participants from industry</p> <p>WORK ITEM : ISSS Workshop Public Transport On-board data transmission interfaces FORM OF DELIVERABLE: Workshop PRIORITY: URGENT</p>	<p>CEN TC278/ IOPTA / eEurope Smart Card Charter TB7 / ITSO</p>

R46	<p><i>Public Transport Road vehicles AVMS, on board equipment environmental and electrical conditions and limits:</i> CEN/ISSS workshop centred around participants who are Public Transport Operators.</p> <p>WORK ITEM : ISSS Workshop Public Transport Road vehicles AVMS, on board equipment environmental and electrical conditions and limits: FORM OF DELIVERABLE: Workshop PRIORITY: URGENT</p>	As Above
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2.2.5 (KAREN AREA 5) Advanced Driver Assistance Systems (ADAS)

This field is clearly not just a standardisation issue. It needs an integrated policy to help co-ordinate the many different stakeholders (consumers, telecommunications providers, public authorities –regional and national, - emergency call centres, road authorities, researchers, product/system developers, etc). There are standardisation issues underpinning some issues, but the policy and framework needs to be put in place first.

Filling the standardisation gaps will require a multidisciplinary team from several different standards bodies (CEN, ETSI) and from different technical committees, not just from TC 278 including, but not limited to, TC 122 Ergonomics, TC 224 WG 6, ETSI TC HF.

The list below is not exhaustive. It merely indicates the different levels/ complexities related to the HMI of ITS.

Rec. No:	Description	Lead Actor/also action by:
R51	<p>For ADAS, develop/adapt design process related standards (e.g. similar to EN 614, ISO EN 13407) building on European Statement of Principle on HMI for In-Vehicle Communication Based Services</p> <p>WORK ITEM : develop/adapt design process related standards building on European Statement of Principle on HMI for In-Vehicle Communication Based Services</p> <p>FORM OF DELIVERABLE: Standard PRIORITY: LONG TERM</p>	ISO TC 22/ CEN TC278

R52	<p>Design of speech interfaces</p> <p>WORK ITEM : Project Design of speech interfaces FORM OF DELIVERABLE: Industry Project PRIORITY : LONG TERM</p>	ISO TC22
R54	<p>OBE to have interfaces to assistive technologies for input/output of information (DSRC/CALM)</p> <p>WORK ITEM : Extension of DSRC & CALM Work Items FORM OF DELIVERABLE: Provision in Standards PRIORITY: MEDIUM</p>	ISO TC204 / CEN TC278
R55	<p>In-vehicle "black box" collision detection/notification systems (perhaps from airbag deployment data) - so that onwards communication with Emergency Services is consistent.</p> <p>WORK ITEM : Standards for In-vehicle "black box" collision detection/notification systems FORM OF DELIVERABLE: Standard PRIORITY: MEDIUM</p>	ISO TC 22
R56	<p>Use of RTT to wake sleepy drivers up (detection of lack of movement / eye movement by driver / ref. Dead mans hand in trains).</p> <p>WORK ITEM : Standards to support systems Use of RTT to wake sleepy drivers up FORM OF DELIVERABLE: Standard PRIORITY : LONG TERM</p>	ISO TC 22
R57	<p>All guidance information to be standardised in order to avoid confusion</p> <p>WORK ITEM : Standardization of Guidance Information FORM OF DELIVERABLE: Standard PRIORITY: MEDIUM</p>	ISO TC 22
R58	<p>The correct ergonomic design of command and control systems in order to reduce human error and reduce operator stress. Design of integrated systems that are easy to use.</p> <p>WORK ITEM : Standardization of ergonomic design of command and control systems FORM OF DELIVERABLE: Standard (TC22) PRIORITY : LONG TERM</p>	CEN TC 122/ CEN TC 278

R59	Design of CCR systems based on task analysis. WORK ITEM : Investigation of design of CCR systems based on task analysis. FORM OF DELIVERABLE: Project (commercial) PRIORITY: LONG TERM	CEN TC 122
R60	Common website/text TV / WAPsite for traffic information in all European countries – accessible in different languages WORK ITEM : Common website/text TV / WAPsite for traffic information FORM OF DELIVERABLE: Commercial Project PRIORITY: MEDIUM	IETF, ETSI, WAP consortium, Broadcasting ++++++
R61	OBE to have interfaces (BlueTooth) to assistive technologies for input/ output of information WORK ITEM : OBE to have interfaces to assistive technologies for input/ output of information FORM OF DELIVERABLE: Commercial Design PRIORITY: MEDIUM	ISO TC 22, ISO TC 204, ISO TC 173, CEN TC 293.

2.2.6 (KAREN AREA 6) Traveller Journey Assistance Systems

Rec. No:	Description	Lead Actor/also action by:
R64	Link with payment systems items to perform booking and payment functions. WORK ITEM : Standard(s) for payment systems items to perform booking and payment functions. FORM OF DELIVERABLE: Statement in new Work Programme PRIORITY: MEDIUM	

2.2.7 (KAREN AREA 7) Support for Enforcement

This section has been divided into legal (organisational) and technology oriented sections.

- Technical areas for standardisation:

One of the key issues is to set the exact extent of the standardisation area: which protocols, data, devices, and which interfaces between the sub-systems need to be standardised.

Rec. No:	Description	Lead Actor/also action by:
R68	<p>Development of a common European data type for cross-border enforcement at communication level and also for information exchange according to existing standards, such as DATEX, or in-use models, such as Lingua-Net model used by some police agencies. Preferably, developed in a language independent basis</p> <p>WORK ITEM : EU Project to develop of a common European data type for cross-border enforcement at communication level and also for information exchange FORM OF DELIVERABLE: Project Deliverable PRIORITY: MEDIUM</p>	<p>Action to be taken by EC.</p> <p>Action to be addressed to TISPOL (European Police Agency), ACPO</p> <p>EU Project</p>
R69	<p>Data processing: development of a network to deal with cross-border enforcement</p> <p>WORK ITEM : EU Project backed by EU directive FORM OF DELIVERABLE: EU Project Deliverable and Directive PRIORITY: URGENT</p>	European Commission
R73	<p>Consider initiating a European directive for harmonised RTTE procedures to ensure mutual acceptance of traffic enforcement methods.</p> <p>WORK ITEM : European directive for harmonised RTTE procedures to ensure mutual acceptance of traffic enforcement methods.</p> <p>FORM OF DELIVERABLE: EU Directive PRIORITY: MEDIUM</p>	EU/ CENELEC

R74	<p>Interoperability of Electronic Data Processing used by different Authorities potentially involved through Standardised messages. Data storage and transmission Data security and integrity</p> <p>WORK ITEM : Interoperability of Electronic Data Processing used by different Authorities potentially involved through Standardised messages</p> <p>FORM OF DELIVERABLE: EU Project/Directive</p> <p>PRIORITY: MEDIUM</p>	European Commission
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With regard to typified offence areas such as alcohol, drugs and accident, the following proposals are made:

Rec. No:	Description	Lead Actor/also action by:
R78	<p>Drugs & Alcohol: A standardised approach to limit value measurement evidence for drug and alcohol impairment.</p> <p>WORK ITEM : A standardised approach to limit value measurement evidence for drug and alcohol impairment</p> <p>FORM OF DELIVERABLE: EU Directive</p> <p>PRIORITY : LONG TERM (Strategic)</p>	National Authorities/ EU
R79	<p>Speed: a standardised approach to tolerances of speed measurement for enforcement</p> <p>WORK ITEM : a standardised approach to tolerances of speed measurement for enforcement</p> <p>FORM OF DELIVERABLE: EU Directive</p> <p>PRIORITY : LONG TERM (Strategic)</p>	National Authorities/ EU

- Legal, organisational, institutional and regulatory issues relevant for standardisation:

Rec. No:	Description	Lead Actor/also action by:

R82	<p>Legal user needs: development of a European standard for criteria on automatic enforcement after EU political agreement</p> <p>WORK ITEM : development of a European standard for criteria on automatic enforcement after EU political agreement</p> <p>FORM OF DELIVERABLE: Directive/ Standard</p> <p>PRIORITY: LONG TERM (Strategic)</p>	<p>European Commission</p>
R83	<p>Harmonisation of method(s) of video evidence in the courts of European States</p> <p>WORK ITEM : Harmonisation of method(s) of video evidence in the courts of European States</p> <p>FORM OF DELIVERABLE: Directive</p> <p>PRIORITY: LONG TERM (Strategic)</p>	<p>European Commission</p>
R84	<p>Harmonise and adopt electronic readable drivers license</p> <p>WORK ITEM : Harmonise and adopt electronic readable drivers license</p> <p>FORM OF DELIVERABLE: Directive</p> <p>PRIORITY: LONG TERM (Strategic)</p>	<p>ISO IC SC17 and European Commission</p>
R85	<p>Common standards and bilateral access to national driving license and vehicle databases. European-wide registration of car owners – automatic access to foreign vehicle registers.</p> <p>WORK ITEM : bilateral access to national driving license and vehicle databases</p> <p>FORM OF DELIVERABLE: Directive</p> <p>PRIORITY : LONG TERM (Strategic)</p>	<p>Governments European Commission</p>
R86	<p>Production of European Privacy guidelines (storage of data, persons and organisations allowed to handle the data).</p> <p>WORK ITEM : Production of European Privacy guidelines (storage of data, persons and organisations allowed to handle the data).</p> <p>FORM OF DELIVERABLE: Policy Directive</p> <p>PRIORITY: MEDIUM</p>	<p>European Commission</p>

R87	<p>Harmonisation of levels of responsibility for road traffic offences across European countries</p> <p>WORK ITEM : Harmonisation of levels of responsibility for road traffic offences across European countries FORM OF DELIVERABLE: Policy Directive PRIORITY : LONG TERM (Strategic)</p>	<p>Police Forces across Europe: agreements</p>
R88	<p>Harmonisation of level of penalty for road traffic offences across Europe</p> <p>WORK ITEM : Harmonisation of level of penalty for road traffic offences across Europe FORM OF DELIVERABLE: Policy Directive PRIORITY : LONG TERM (Strategic)</p>	<p>European Commission Police Forces across Europe: agreements</p>
R89	<p>Digital tachographs – digital black boxes. Link between the legal provisions for the use of the digital tachograph and the technical specifications. European Harmonisation of admissibility issues of black box data in Court.</p> <p>WORK ITEM : Directive : European Harmonisation of admissibility issues of black box data in Court.</p> <p>FORM OF DELIVERABLE: Directive PRIORITY: LONG TERM (Strategic)</p>	<p>European Commission</p>

2.2.8 (KAREN AREA 8) Freight and Fleet Management

Rec. No:	Description	Lead Actor/also action by:
R91	<p>WS MEET System Architecture and CEN TC 278 WG 12 / ISO TC 204 WG 4 AVI/AEI Intermodal and Multimodal Reference Architecture (CEN/ISO 17261), ISO/IEC JTC1 SC31 WG4 (ISO18000-1) SITS (Simple Intermodal Tracking System) which provides an approach for a conceptual model of a layered open system allowing for the consolidation of tracking and tracing information in one data base, need all to be considered simultaneously</p> <p>WORK ITEM : CONSOLIDATE WS MEET Architecture to KAREN and ISO TC204 Architecture FORM OF DELIVERABLE: ISSS Deliverable PRIORITY: Project Deliverable URGENT</p>	<p>WS MEET CEN TC 278 / ISO TC 204 , ISO/IEC JTC1 SC31 SITS</p>
R92	<p>INTACT and, ARTEMIS Projects should, through THEMIS bring contributions to a transport vision as integrated in the supply chain and INTERPORT / TRIM are expected to contribute to extension to intermodality.</p> <p>WORK ITEM : a transport vision as integrated in the supply chain FORM OF DELIVERABLE: Project Deliverable PRIORITY: URGENT</p>	<p>THEMIS INTACT ARTEMIS</p>
R93	<p>That where there are adopted CEN/ISO work items and/or Standards that in such areas, EC and CEN/ISSS initiatives are <i>required</i> to use these approaches rather than develop new, inconsistent approaches.</p> <p>WORK ITEM : Re FFM. EC and CEN/ISSS initiatives are <i>required</i> to use these approaches rather than develop new, inconsistent approaches FORM OF DELIVERABLE: CEN POLICY STATEMENT /Regulations PRIORITY: URGENT</p>	<p>EC Projects CEN/ISSS Projects</p>

R94	<p>That, where there are adopted CEN/ISO work items and/or Standards that in such areas, the deliverables from EC and CEN/ISSS initiatives are <i>required</i> to be provided to the appropriate working groups for consideration and comment prior to finalisation.</p> <p>WORK ITEM : Re FFM : the deliverables from EC and CEN/ISSS initiatives are <i>required</i> to be provided to the appropriate working groups for consideration and comment prior to finalisation.</p> <p>FORM OF DELIVERABLE: CEN POLICY STATEMENT /Regulations PRIORITY: URGENT</p>	EC Projects CEN/ISSS Projects
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Rec. No:	Description	Lead Actor/also action by:
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R97	<p>Bridging status reporting messaging with tracking and tracing Intermodal and Multimodal Freight common aspects.</p> <p>WORK ITEM : Bridging status reporting messaging with tracking and tracing Intermodal and Multimodal Freight common aspects.</p> <p>FORM OF DELIVERABLE: Deliverable PRIORITY: MEDIUM</p>	CEFACT. CEN TC 278 WG 2, WS MEET. ISO JTC 1 / SC 31 EU support (Project Team or Project) would accelerate this work if the European Commission consider it high priority
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R98	<p>Extending messaging to Mobile data communication. API (Fleet Application Protocol) Mobile EDI Messages in general, New Structured information into Mobile EDI Messages.</p> <p>WORK ITEM : FFM: Extending messaging to Mobile data communication. API (Fleet Application Protocol) Mobile EDI Messages in general</p> <p>FORM OF DELIVERABLE: Deliverable</p> <p>PRIORITY: URGENT : MEDIUM : LONG TERM</p>	<p>CEFACT. CEN TC 278 EU support (Project Team or Project) would accelerate this work if the European Commission consider it high priority</p>
R99	<p>Integrating On Board Systems Architecture and Interfaces for on board data communications. The publication of the electronic tachograph “technical annex” could open and allow for the investigation of additional standardisation requirements. For instance: integration in messages of information coming from tachograph sub-systems, contents and format of social and technical data captured within the vehicle, second mandatory interface for the electronic tachograph to be added to the CAN bus interface, vehicle networking of on-board systems, ease of plugging / unplugging of components.</p> <p>WORK ITEM : FFM: Integrating On Board Systems Architecture and Interfaces for on board data communications.</p> <p>FORM OF DELIVERABLE: Deliverable</p> <p>PRIORITY: MEDIUM</p>	<p>ISO TC 22. CEN TC 278 CEFACT.</p> <p>EU support (Project Team or Project) would accelerate this work if the European Commission consider it high priority</p>
R100	<p>HMI : Specific investigations should address the future commercial vehicles drivers environment.</p> <p>WORK ITEM : FFM HMI Specific investigations should address the future commercial vehicles drivers environment</p> <p>FORM OF DELIVERABLE: Project</p> <p>PRIORITY: MEDIUM</p>	<p>ISO TC 22. CEN TC 278 EU support (Project Team or Project) would accelerate this work if the European Commission consider it high priority</p>

R101	<p>HGMCS : The possible consideration of Hazardous Goods Monitoring and Control System at an European level could require the present KAREN extension (with consequences on standards requirements), based on former HAZEX expert group output.</p> <p>WORK ITEM : Project Extension. Hazardous Goods Monitoring and Control System at an European level could require the present KAREN extension</p> <p>FORM OF DELIVERABLE: Project Deliverable/Extension of Standard</p> <p>PRIORITY: MEDIUM</p>	<p>CEN TC 278 EU support (FRAME Project extension) would accelerate this work if the European Commission consider it high priority</p>
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2.3 *Proposals to accelerate the work of Existing Work Programme*

Public Transport Fare Collection is part of the scope of WG1 but it has not been possible, so far, to get Public Transport experts involved in WG1. All standards related to fee/toll collection have been developed within TC 278/WG1.

R111	<p>Public Transport Fare Collection</p> <p>WORK ITEM : Public Transport interoperable fare management systems architecture</p> <p>FORM OF DELIVERABLE: New Work Item/Standard-extension to 14813.</p> <p>PRIORITY: URGENT</p>	<p>New work item on Public Transport interoperable fare management systems architecture, which has been assigned to WG3, should get official participation of WG1 experts.</p>
R112	<p>Public Transport Fare Collection</p> <p>The Project team has been made aware of work which overlap with TC 278 WG3/SG5 assignment-smart card applications for Public Transport. Being undertaken by SG1 of TC 224/WG11. They are even working on a Work Item called IOPTA (Interoperable Public Transport Operations),</p> <p>WORK ITEM : Participation in CEN TC224 by CEN TC278</p> <p>FORM OF DELIVERABLE: No specific form, participation in work</p> <p>PRIORITY: URGENT</p>	<p>The PT strongly recommends participation of TC278/WG1 members for this project</p>

Annex D**List of current work in CEN and ETSI Technical Bodies***CEN/TC 278*

Title	Status	Reference
After-theft systems for the recovery of stolen vehicles - Common status message set	Under development	TS
After-theft systems for the recovery of stolen vehicles - Interface and system requirements in terms of long range communication system	Under development	TS
After-theft systems for the recovery of stolen vehicles - Interface and system requirements in terms of short range communication system	Under development	TS
After-theft systems for the recovery of stolen vehicles - Messaging interface	Under development	TS
Automatic vehicle and equipment identification - Numbering and data structures	Adopted	ENV ISO 14816
Automatic vehicle and equipment identification - Part 1: Reference architectures and terminology	Adopted	ENV 12314-1
Automatic vehicle and equipment identification - Reference architectures and terminology (review)	Under development	EN ISO 14814
Automatic vehicle and equipment identification - Intermodal goods transport - Architecture and terminology	TC comments received	CEN ISO TS 17261
Automatic vehicle and equipment identification - Intermodal goods transport - Numbering and data structures	Ready for Parallel Formal Vote	CEN ISO TS 17262
Automatic vehicle and equipment identification - Intermodal goods transport - System parameters	Ready for Parallel Formal Vote	CEN ISO TS 17263
Automatic vehicle and equipment identification - System specification	Adopted	ENV ISO 14815
Automatic Vehicle and Equipment Identification (AVI/AEI) - AVI/AEI Interfaces	Under development	CEN ISO TS 17264
DATEX specifications for data exchange between traffic and travel information centres (version 1.2.a)	Adopted	ENV 13777
DATEX traffic and travel data dictionary (version 3.1.a)	Adopted	ENV 13106

Title	Status	Reference
Dedicated Short Range Communication - Physical integration with the vehicle of On Board Units (OBU) for Electronic Fee Collection (EFC)	Under development	TS
Dedicated Short-Range Communication - Application layer	Adopted	ENV 12834
Dedicated Short-Range Communication - Application layer (review)	Comments resolved	EN 12834
Dedicated Short-Range Communication - Physical layer using microwave at 5.8 GHz	Adopted	ENV 12253
Dedicated Short-Range Communication - Physical layer using microwave at 5.8 GHz (review)	TC comments received	EN 12253
Dedicated Short-Range Communication (DSRC) - DSRC Data link layer: Medium Access and Logical Link Control	Adopted	ENV 12795
Dedicated Short-Range Communication (DSRC) - DSRC Data link layer: Medium Access and Logical Link Control (review)	Comments resolved	EN 12795
Dedicated Short-Range Communication (DSRC) - DSRC profiles for RTTT applications	Adopted	ENV 13372
Dedicated Short-Range Communication (DSRC) - DSRC profiles for RTTT applications (review)	TC comments received	EN 13372
Electronic Fee Collection - Application interface definition for Dedicated Short-Range Communication	Adopted	ENV ISO 14906
Electronic Fee Collection - Application interface definition for Dedicated Short-Range Communication (review)	Under development	EN ISO 14906
Electronic Fee Collection - Security framework	TC comments received	CEN ISO TS 17574
Electronic Fee Collection - System architecture for vehicle related transport services	Ready for parallel Formal Vote	CEN ISO TS 17573
Electronic Fee Collection - Test procedures for user and fixed equipment - Part 1: Description of test procedures	Adopted	ENV ISO 14907-1
Electronic Fee Collection (EFC) - Application interface definition for CN/GNSS based EFC	TC comments requested	CEN ISO TS 17575
Electronic Fee Collection (EFC) - Interface specification for clearing between operators	Adopted	ENV ISO 14904
Electronic Fee Collection (EFC) - Interface specification for	Under Parallel	ENV ISO 14904

Title	Status	Reference
clearing between operators (review)	Formal Vote	
Electronic Fee Collection (EFC) - Test procedures for user and fixed equipment - Part 2: EFC application interface conformance tests specification	Under development	CEN ISO TS 14907-2
Freight and Fleet Management Systems - Reference architecture and terminology - Part 1: high level architecture and terms	TC comments received	TS
Geographic Data Files	Adopted	ENV ISO 14825
Geographic Data Files - Version 4.0	TC comments received	CEN ISO TS 14825
Geographic road data - Location catalogues	Starting up	TS
Geographic road data - Maintenance rules	Starting up	TS
Glossary of Standard Terminologies for the Transport Information and Control Sector	Adopted	ENV ISO 14812
Public transport - Non interactive dynamic passenger information on ground	Adopted	ENV 13998
Public Transport - Road vehicles - AVMS on board equipment - Environmental and electrical conditions and limitSON hold		TS
Public transport - Automatic ticket vending machines - Traveller interface	Under development	TS
Public transport - Interoperable fare management systems architecture	Under preparation	TS
Public transport - Public interactive information terminals - Traveller interface	TC comments received	TS
Public transport - Reference data model	Adopted	ENV 12896
Public transport - Reference data model (review)	TC comments received	EN 12896
Public transport - Road vehicle scheduling and control systems - Part 1: WORLDIFIP definition and application rules for onboard data transmission	Adopted	ENV 13149-1
Public transport - Road vehicle scheduling and control systems - Part 2: WORLDIFIP cabling specifications	Adopted	ENV 13149-2
Public transport - Road vehicle scheduling and control systems - Part 3: WORLDIFIP message content	Under development	TS 13149-3

Title	Status	Reference
Public transport - Road vehicle scheduling and control systems - Part 4: General application rules for CANopen transmission busses	Under Formal Vote	ENV 13149-4
Public transport - Road vehicle scheduling and control systems - Part 5: CANopen cabling specifications	Under Formal Vote	ENV 13149-5
Public transport - Road vehicle scheduling and control systems - Part 6: CAN message content	Under development	TS 13149-6
Public transport - Road vehicles - Dimensional requirements for variable electronic external signs	Adopted, lifetime extended	ENV 12694
Public transport - Road vehicles - Driver's console mechanical interface requirements - Minimum display and keypad parameters	Adopted	ENV 13093
Public transport - Road vehicles - Driver's console mechanical interface requirements - Minimum display and keypad parameters (review)	Starting up	EN 13093
Public transport - Road vehicles - Validators	Adopted	ENV 12796
Public transport - Road vehicles - Validators (review)	Starting up	EN 12796
Public transport - Road vehicles - Visible variable passenger information devices inside the vehicle	Under development	TS
Road traffic data - Elaboration, storage, distribution - Exchange formats (low level)	Under development	TS
Road traffic data - Elaboration, storage, distribution - Exchange procedures (low level)	Dormant	TS
Road traffic data - Elaboration, storage, distribution - Physical interfaces	Under development	TS
Road vehicles – Ergonomic aspects of transport information and control systems – Dialogue management principles and compliance procedures	Parallel Enquiry completed	EN ISO 15005
Road vehicles - Ergonomic aspects of transport information and control systems - Procedure for assessing suitability for use when driving	Parallel Enquiry completed	EN ISO 17287
Road vehicles - Ergonomic aspects of transport information and control systems - Procedure for determining priority of on board messages presented to drivers	TC comments received	EN ISO 16951
Road vehicles - Ergonomic aspects of transport information	Parallel	EN ISO 15006

Title	Status	Reference
and control systems - Specification and compliance procedures for in-vehicle auditory presentations	Enquiry completed	
Road vehicles - Ergonomic aspects of transport information and control systems – Specifications and compliance procedures for in-vehicle visual presentation	Parallel Enquiry completed	EN ISO 15008
Road vehicles – Measurement of driver visual behaviour with respect to transport information and control systems – Part 1: Definitions and parameters	Under Formal Vote	EN ISO 15007-1
Road vehicles - Measurement of driver visual behaviour with respect to transport information and control systems – Part 2: Equipment and procedures	Adopted	ENV ISO 15007-2
Traffic and Travel Information - Medium-range pre-information	Under development	CEN ISO TS 14822
Traffic and travel data dictionary - Part 1: General definitions, entities, attributes	Replaced by ENV 13106:2000	ENV 13106-1
Traffic and Travel Information - Messages via media-independent stationary dissemination systems - Graphic data dictionary for pre-trip and in-trip information dissemination system	TC comments received	CEN ISO TS 14823
Traffic and Travel Information (TTI) – TTI via Transport Protocol Expert Group (TPEG) data-streams – Part 2: Syntax, Semantics and Framing Structure (SSF)	No TC comments received	CEN ISO TS 18234-2
Traffic and Travel Information (TTI) – TTI via Transport Protocol Expert Group (TPEG) data-streams – Part 3: Service and Network Information (SNI) Application	TC comments received	CEN ISO TS 18234-3
Traffic and Travel Information (TTI) – TTI via Transport Protocol Expert Group (TPEG) data-streams – Part 5: Public Transport Information Application	TC comments requested	CEN ISO TS 18234-5
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 1: General specifications	Adopted	CEN TS ISO 14821-1
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 2: Numbering and ADP message header	Adopted	ENV ISO 14821-2
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 3: Basic information elements	Adopted	ENV ISO 14821-3
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 4: Service-independent protocols	Adopted	ENV ISO 14821-4
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 5: Internal services	Adopted	ENV ISO 14821-5

Title	Status	Reference
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 6: External services	Adopted	ENV ISO 14821-6
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 7: Performance requirements for onboard positioning	Adopted	ENV ISO 14821-7
Traffic and Travel Information (TTI) - TTI messages via cellular networks - Part 8: GSM-specific parameters	Adopted	ENV ISO 14821-8
Traffic and Travel Information (TTI) - TTI Messages via Dedicated Short-Range Communication - Part 1: Data specification - Downlink (roadside to vehicle)	Adopted, lifetime extended	ENV 12315-1
Traffic and Travel Information (TTI) - TTI Messages via Dedicated Short-Range Communication - Part 2: Data specification - Uplink (vehicle to roadside)	Adopted, lifetime extended	ENV 12315-2
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 1: Coding protocol for Radio Data System - Traffic Message Channel (RDS-TMC) using ALERT- C	Adopted	ENV 12313-1
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 1: Coding protocol for Radio Data System - Traffic Message Channel (RDS-TMC) using ALERT- C	Ready for Parallel Formal Vote	EN ISO 14819-1
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 2: Event and information codes for Radio Data System - Traffic Message Channel (RDS-TMC)	Adopted	ENV 12313-2
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 2: Event and information codes for Radio Data System - Traffic Message Channel (RDS-TMC)	Parallel Enquiry completed	EN ISO 14819-2
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 3: Location referencing for ALERT- C	Adopted	ENV ISO 14819-3
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 3: Location referencing for ALERT- C (review)	Ready for Parallel Enquiry	EN ISO 14819-3
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 4: Coding protocol for Radio Data System - Traffic Message Channel (RDS-TMC) - RDS-TMC using ALERT-Plus with ALERT-C	Adopted	ENV 12313-4
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 4: Coding protocol for Radio	Under development	EN 12313-4

Title	Status	Reference
Data System - Traffic Message Channel (RDS-TMC) - RDS-TMC using ALERT-Plus with ALERT-C (review)		
Traffic and Travel Information (TTI) - TTI Messages via traffic message coding - Part 5: Location referencing for ALERT-Plus	Under preparation	EN 12313-5
Traffic and Travel Information (TTI) – TTI via Transport Protocol Expert Group (TPEG) data-streams – Part 1: Introduction, Numbering and Versions	TC comments received	CEN ISO TS 18234-1
Traffic and Travel Information (TTI) - TTI via Transport Protocol Expert Group (TPEG) data-streams – Part 4: Road Traffic Message (RTM) Application	TC comments received	CEN ISO TS 18234-4
Traffic and Travel Information (TTI) - TTI via Transport Protocol Expert Group (TPEG) data-streams – Part 5: Public Transport Information Application	TC comments requested	CEN ISO TS 18234-5
Transport Information and Control Systems - Reference Model Architecture(s) for the TICS Sector - Part 2: Core TICS reference architecture	Ready for Formal Vote	CEN ISO TS 14813-2
Transport Information and Control Systems - Reference Model Architecture(s) for the TICS Sector - Part 1: TICS Fundamental Services	Ready for Formal Vote	CEN ISO TS 14813-1
Transport Information and Control Systems - Reference Model Architecture(s) for the TICS Sector - Part 3: Example Elaboration	Ready for Formal Vote	CEN ISO TS 14813-3
Transport Information and Control Systems - Reference Model Architecture(s) for the TICS Sector - Part 4: Reference model tutorial	Ready for Formal Vote	CEN ISO TS 14813-4
Transport Information and Control Systems - Reference Model Architecture(s) for the TICS Sector - Part 5: Requirements for Architecture Description in TICS standards	Ready for Formal Vote	CEN ISO TS 14813-5
Transport Information and Control Systems - Reference Model Architecture(s) for the TICS Sector - Part 6: Data presentation in ASN.1	Ready for Formal Vote	CEN ISO TS 14813-6

CEN/TC 224/WG11

Title	Status	Reference
Identification card systems - Surface transport	Under	prEN 1545-1 rev

Title	Status	Reference
applications - Part 1: General data elements	Development	
Identification card systems - Surface transport applications - Part 2: Transport payment related data elements	Under Development	prEN 1545-2 rev
Identification card systems - Surface transport applications - Part 3: Tachograph related data elements	Under Development	prCEN/TS 1545-3
Identification card systems - Surface transport applications - Part 4: Driving licence related data elements	Under Development	prCEN/TS 1545-4
Identification card systems - Interoperable public transport applications - Ticketing applications	Under Development	
Identification card systems - Surface transport applications - Electronic fee collection - Part 3: Application and security aspects	Under Development	prCEN/TS 14062-3
Identification card systems - Surface transport applications - Electronic fee collection - Part 4: Test procedures	Under Development	prCEN/TS 14062-4
Identification card systems - Surface transport applications - Electronic fee collection - Part 1: Physical characteristics, electronic signals and transmission protocols	Completed	ENV 14062-1:2001
Identification card systems - Surface transport applications - Electronic fee collection - Part 2: Message requirements	Completed	ENV 14062-2:2001

CEN/ISSS WS-MEET

Title	Status	Reference
Agreed Requirements on Multimodal Tracking and Tracing Systems	Completed	CWA 14356/2001

CEN/ISSS WS-FASTEST

Title	Status	Reference
Common user requirements within European mobility: Europe-wide essential user requirements	Under Development	

Title	Status	Reference
Common user requirements within European mobility: Map of required user -oriented service	Under Development	
Common user requirements within European mobility: Rules and methodology for defining the range of user mobility requirements	Under Development	
User requirements within a functional review for existing experience and projects: Functional requirements report - current practice	Under Development	
User requirements within a functional review for existing experience and projects: Functional requirements for interoperable e-ticketing schemes	Under Development	
Catalogue of Technical and Business Process Requirements	Under Development	

ETSI/ERM TG29

Title	Status	Reference
Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Dedicated Short Range Communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5,8 GHz Industrial, Scientific and Medical (ISM) band; Part 1: Technical characteristics and test methods	Under development	EN 300 674-1
Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Dedicated Short Range Communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5,8 GHz Industrial, Scientific and Medical (ISM) band; Part 2: Harmonized EN under 3.2 of the R&TTE Directive	Under development	EN 300 674-2

Annex E

Abbreviations and Definitions

<u>ABBREVIATIONS &</u>	<u>ACRONYMS</u>
4 GL	4 th Generation computer programming language
ACC	Adaptive Cruise Control
ACPO	Association of Chief Police Officers
ACTIF	TIF National Architecture Implementation Project for France
ADAS	Advanced Driver Assistance Systems
ADVICE	Advise Vehicle Classification and Enforcement Systems. A 4 th Framework Project for the European Commission DG XIII
AEI	Automatic Equipment Identification (of larger items of equipment such as trailers, boxes, swap bodies etc.)
AHSRA (Japan)	Advanced Cruise Assist Highway System Research Association
AID	automatic incident detection
ANPR	Automatic Number Plate Recognition
ANSI	American National Standards Institute
API	Application Programme Interface
API₂	FAP (Fleet Application Protocol) is sometimes referred to as API
ARTEMIS	Advanced Road Transport Electronic Management Information Systems" in 4 th Framework Programme
ASCII	American Standard Code for Information Interchange.
ASECAP	Association of European toll motorway operators
ATIS	Advanced Traveller Information System
AVI	Automatic Vehicle Identification
BlueTooth	A consortium developing low cost wireless interfaces for computer equipment, peripheries etc at 2.45 GHz
Bus	Within this document a 'bus' generally refers to a data bus. (the public transport object called a 'bus' is an instance of a public transport class and is generally simply referred to within 'Public Transport 21st century
C21	
CALM	Communications, Air-interface, long and medium range (for ITS).
CALYPSO	Acronym: <u>C</u> ontact and contact <u>l</u> ess environments <u>y</u> ielding a citizen <u>p</u> ass integrating urban <u>s</u> ervices an financial <u>o</u> perations 4 th Framework Program, 01.01.98 - 31.12.99; Programme Telematics 2C, Project Reference 1A1001
CAN bus	ISO 11898 Road vehicles - Controller area network (CAN)
CARDME	CARDME 1 to 4 (DG-INFSo, 1997-2001) - projects supporting the Concerted Action for Research on Demand Management in Europe) concerned with the identification and removal of obstacles to cross-border interoperability of electronic tolling systems for road transport in Europe.
CEFACT	Committee for EDI For Administration Commerce And Transport
CESARE	CESARE 1 and 2 (DG-TREN, 1998-2001) - Projects developed by ASECAP (association of European toll motorway operators)
CEN	Committee for European Normalisation
CEN BT	CEN Technical Board
CEN/ISSS	CEN Information Society Standardization System
CEN/ISSS WS/FASTEST	An ISSS directed at interoperable ticketing-systems for public transport-means throughout Europe.
CEN TC 122	Ergonomics
CEN TC 224	Personal Identification (using IC Cards)

TC 224 WG 6	Man Machine Interface WG
CEN TC 224/WG11	Smart Card for Public Transport WG
CEN TC 278	CEN TC for ITS
CEN TC 278 WG 2	CEN TC278 Freight & Fleet Management
CEN TC 278 WG 3	CEN TC278 Public Transport
CEN TC278 WG3 SG 1	On board data bus
CEN TC278 WG3 SG 2	Automatic ticket vending machines
CEN TC278 WG3 SG 3	Interactive passengers information kiosks
CEN TC278 WG3 SG 4	Reference data model
CEN TC278 WG3 SG 5	Interoperable fare management systems architecture
CEN TC 278 WG 4	CEN TC278 Traveller Information
CEN TC 278 WG 5	CEN TC278 Traffic Control
CEN TC278 WG 7	CEN TC278 Geographic Road Data
CEN TC 278 WG8	CEN TC 278 Road Traffic Data
CEN TC278 WG 9	CEN TC278 Dedicated Short Range Communication
CEN TC278 WG10	CEN TC 278 Man Machine Interfaces
CEN TC 278 WG 12	CEN TC278 WG12 Automatic Vehicle & Equipment Identification
CEN TC278 WG13	CEN TC278 WG13 Architecture, taxonomy and Terminology
CEN TC278 WG14	CEN TC278 WG14 Anti-theft
CEN TC 320	TC 320 Transport – Logistics and Services
CENELEC	European Electrical Standards Normalisation Organisation
CEO	Chief Executive Officer
COMETA	COMmercial vehicles Electronic and Telematics Architecture
CORBA	Common Object Request Broker Architecture
DAB	Digital Audio Broadcasting
DATEX	Protocols and Message Sets for TIC – TIC communications (Data EXchange)
DG	Directorate General
DGXIII	An EU Directorate General, responsible for
DimES	Digital Imaging Enforcement System
DIS	“Delta Interchange System”. A private standard for the transfer of the content of the tachograph to a ground application.
DoCoMo	Japanese Cellular Telephone Operator
DSRC	Dedicated Short Range Communication (for ITS)
DVB	Digital Video Broadcasting
DVLA (UK)	Driver Vehicle Licensing Authority
EBU	European Broadcasting Union
EDI	Electronic Data Interchange (general)
EDIFACT	Electronic Data Interchange using FACT identifiers
EDIFACTBOARD	Management Board for EDIFACT
EDITRANSPORT	French body working on and promoting EDI in Transport applications.
eEurope Initiative	An EU initiative (launched by the European Commission in December 1999) with the objective to bring Europe on-line. (Details Section 3.11)
ELP	Electronic License Plate
EN	European Standard
ENV	European PreStandard
EPC	electronic product code
ERTICO	EUCAR
ESCAPE	EU 4 th Framework RTD Programme Project (Assessment of Potential Enforcement Tools to Improve Compliance
e-ticketing	Electronic Ticketing (most commonly using an IC-Card)
ETSI	European Telecommunications Standards Institute
ETSI TC GATS	ETSI Technical Committee : TTI using Cellular Telephony

EFC	Electronic Fee Collection
EU	European Union
EVI	Electronic Vehicle Identification
FAP	Fleet Application Protocol (sometimes referred to as API)
FFM	Freight and Fleet Management
FLEETMAP	FLEET Mobile Application Protocol". A 4th Framework European Project
FM	Frequency Modulation (of radio signal)
FRAME-NET	Framework Architecture Made for Europe-Network". A 5 th Framework Programme Thematic Network (Concerted Action). Started 1 st JULY 2001.
FRAME S	Framework Architecture Made for Europe-Support". A 5 th Framework Programme Concerted Action. Started 1 st August 2001.
GATS	Global Automobile Telematics Services
GDF	Geographic Data Format
GHz	Gigahertz (thousand million radio cycles per second)
GIS	Geographic Information System
GSM	Global System for Mobile Communications
GPS	Global Positioning System
HAZICS	A hazard information system that provides information on the dangers of a particular hazard and describes the immediate actions needed
HAZIDS	Hazardous goods system architecture
HASEX	Hazardous or Explosive
HGMCS	Hazardous Goods Monitoring and Control System
HGV	Heavy Goods Vehicle
HMI	Human Machine Interface (or Interaction) (politically correct MMI)
HOD	Head of Delegation
HTTP	HyperText Transfer Protocol
ICS	International Classification of Standards
ICSCA	Industry Cooperation on Standardization and Conformity Assessment
ID	Identification
IDB	ITS Data Bus. An AMIC investigation on a new vehicle bus
IFMSA	Interoperable Fare Management System Architecture (managed by TC 278/WG 3)
INTACT	Integrated Telematics for Advanced Communication in Transport". 4 th Framework Programme Project
INTERPORT	DGVII R&D Projects. Tracking and Tracing to /from Ports.
IOPTA	Interface for interoperable Public Transport Ticketing Application
IP	Internet Protocol
IRDA	Infra Red Data Association
IRU	International Road Union. A Federation of Road Carriers Professional Organisations.
IS	International Standard
ISO	Organisation internationale de normalisation (International Standards Organization)
ISO/IEC35	Icons, Symbols and Pictograms
ISO/IEC JTC	ISO/IEC Joint Technical Committee
ISO/IEC JTC 1	ISO/IEC Joint Technical Committee 1 –Information Technology
ISO/IEC JTC 1 SC17	ISO/IEC Joint Technical Committee, Personal Identification (IC Cards)
ISO/IEC JTC 1 SC31	ISO/IEC Joint Technical Committee, Automatic Identification
ISO/IEC JTC 1 SC31 WG4	ISO/IEC Joint Technical Committee, Automatic Identification Item Management using RFID
ISO TC 122	Packaging
ISO TC 204	ISO Technical Committee for ITS
ISO TC204 WG1	ISO TC204 WG1 Architecture, taxonomy and Terminology

ISO TC204 WG2	ISO TC204 WG2 Quality and Reliability Requirements
ISO TC204 WG 3	ISO TC204 WG 3 TICS Database Technology
ISO TC204 WG 4	ISO TC204 WG 4 Automatic Vehicle Identification
ISO TC204 WG 5	ISO TC204 WG 5 Fee and Toll Collection
ISO TC204 WG 6	ISO TC204 WG 6 General Fleet Management (now merged with WG7)
ISO TC204 WG 7	ISO TC204 WG7 Commercial Vehicle
ISO TC204 WG 8	ISO TC204 WG8 Public Transport / Emergency
ISO TC204 WG 9	ISO TC204 WG9 Transport Information, Management & Control
ISO TC204 WG10	ISO TC204 WG10 Traveller Information Systems
ISO TC204 WG11	ISO TC204 WG11 Route Guidance and Navigation
ISO TC204 WG12	ISO TC204 WG12 Parking Management / Off Road Commercial
ISO TC204 WG13	ISO TC204 WG13 Man Machine Interface
ISO TC204 WG14	ISO TC204 WG14 Vehicle Control Systems with External Interfaces
ISO TC204 WG15	ISO TC204 WG15 Dedicated short Range Communication
ISO TC204 WG16	ISO TC204 WG16 Wide Area Communication
ISO TC204 WG16.1	ISO TC204 WG16.1 Wide Area Communication - CALM Continuous Communications
ISO TC 22	ISO TC 22 Road Vehicles
ISSS	see CEN/ISSS
IT	Information Technology
ITP	Integrated Transport Payment
ITP-Card	An IC-card (smart card) for Integrated Transport Payment Java
ITS	Intelligent Transport Systems
ITSO	Integrated Transport Smart card Organization (UK)
ITS Ten-T	ITS Technical Expert Group on ITS for Road Traffic Management. Details Section 3.12.
ITU	International Telecommunications Union
ITU-R	ITU – Radio
KAREN	Keystone Architecture for European Networks. An EU funded Architecture project to find a common basis for ITS Architecture in Europe.
KBPS	Kilo bits per second
KHz	Kilohertz (thousand radio cycles per second)
LAN	Local Area Network
M270 EU Mandate 270	EU Mandate 270
M270p2	EU Mandate 270 Phase 2
MASTER	EC 4 th Framework RTD Programme : Managing Speeds of Traffic on European Roads) MDTP)
MBPS	Mega bits per second
MEET	Multimodal End to End Tracking and Tracing
MHz	Megahertz (million radio cycles per second)
MIT	Massachusetts Institute of Technology
MMI	Man Machine Interface –also referred to as HMI
MoU	Memorandum of Understanding
NMCS 1 and 2 (UK)	National Motorway Communications System
NTCIP	National Transportation Communications for ITS Protocol
OBE	On Board Equipment
OBU	On Board Unit (a specific instance of an OBE)
OCIT	Open Communications Interface Technology
OEM	Original Equipment Manufacturer
OnStar (USA)	emergency service, roadside diagnostics and assistance, information services
PDA	Personal Data Assistant

POI Terminals	point of information terminals
PSP	Payment Service Provider,
PT	Project Team
R&D	Research and Development
RADAR	RAdio Detection and Ranging
RDS	Radio Data Systems
RDS-TMC	Radio Data Systems – Traffic Message Channel
RFID	Radio Frequency Identification
RSE	Road Side Equipment
RTD	Research and Technological Development
RTT	Road Transport Telematics (general)
RTTT	Road Traffic and Transport Telematics (ITS)
SA	System Architecture
SAE	Society of Automotive Engineers
SDO (USA)	Standards Development Organization
SC	Sub Committee
SCOOT	Split Cycle Offset Optimisation Technique
SERTI	Study for Southern European Road Telematics Implementation. This is a Euro-regional TEN-T Project for the European Commission DG TREN. Background on SERTI: SERTI co-ordinates the implementation of traffic management and user information services covering the southern region of Europe: adjacent parts of France, Germany, Italy and Spain. Since 1996 studies have been conducted and co-ordinated to define a common action programme covering monitoring, organisational problems, data exchange, traffic management using VMS, RDS-TMC traffic information services, and pre-trip information services. Implementation of the applications has begun in 1997, concentrating on the highest priorities in the action programme.
SES	Safety and Emergency Services
SIROCCO	Description: Mobility enhancement with interoperable Smart Card application using Combicards Program: Esprit 4 Record Control Nr.: 10288
SITS	Simple Intermodal Tracking System
SME	Small & Medium Size Enterprise. An EU indicator implying companies of less than 200 employees.
SMS	Short Message System (GSM)
SWG	Sub-Working Group
TB7	Smart Card Charter – Trailblazer 7
TC	Technical Committee
TCC	Traffic Control Centre
TCIP	Transio Communications Interface Protocol
TCP-IP	Communications Protocol - Internet Protocol
TEN-T	See ITS TEN-T
TET	TET Transport Expert Team (A 1991 EU Initiative). See Section 2.
THEMIS	Thematic Network for Multimodal Information Systems. 5 th Framework Programme.
TIC	Traffic Information Centre
TICS	Transport Information and Control Systems. Old ISO TC204 Title, now ITS
TISPOL	European Police Agency
TMC	Traffic Management and Control
TMCS	TMC System

TREN	European Commission, Transport and Energy Directorate
TRIANGLE	Description: Proof of concept for a simple, workable and manageable interoperable solution for door-to-door travel based on chip-card Project Reference: IST-2000-25296
TRIDENT	EU project concerned with data sharing on a multimodal level, in particular by means of object oriented exchange (Java/Corba) for the development of Protocols and Message Sets for TIC – TIC communications
TRIM	TRansport Information Model". DGVII R&D Projects.
TTAS	Traffic and Traveller Assistance Systems
TTI	Traffic and Traveller Information
UDC	Urban Drive Control
UHF	Ultra High Frequency range between 300 MHz and 3000 MHz (3GHz) .- includes broadcast bands IV and V and L-band.
UIC	Union Internationale de Chemin de Fer
UIRR	Union Internationale des Transports Rail Route
UK	United Kingdom of Great Britain and Northern Ireland
UML	Unified Modelling Language
UMTS	Universal Mobile Telephone Service
UN-ECE	United Nations European Economic Executive
UNINFO	Italian National Standards Organization
USA	United States of America
US DoT	United States Department of Transportation
UDC	Urban Drive Control
UITP	International Association of Public Transport (UITP acts as a forum for transport operators and undertakings to exchange information and ideas to further the position of Public Transport on a world-wide basis. UITP organises special themed meetings and conferences, projects and studies to meet the needs of its members, and every two years a biennial World Congress and Exhibition.)
UTC	Urban Traffic Control
UTMC	Urban Traffic Management and Control
VAS	Value Added Service
VERA	EC 4 th Framework Programme project :Video Enforcement for Road Authorities
VDV (Germany)	Verband Deutscher Verkehrsunternehmen
VERTIS	Japan Its organization. Now called ITS Japan
VHF	Very High Frequency range between 30 MHz and 300 MHz.- includes broadcast bands I, II and III.
VICS (Japan)	Vehicle In Car System
VIS	Vehicle Identification Systems
VLS	Vehicle Location Systems
VMS	Variable Message Sign
VRIS	Vehicle Remote Immobilisation Systems
VRS	Vehicle Recording Systems
VSS	Vehicle Signalling Systems
WG	Working Group
WAP	Wireless Applications Protocol (for GSM)
WI	Work Item. A formally adopted item of work for a Standardization Committee that will lead to a Standard, Specification or Technical Report
WIP	Work In Progress
WS	Workshop
WS MEET	CEN/ISSS Workshop on Multi modal tracking and tracing

WTO
XML

World Trade Organization
Exchange Mark up Language

TERMS

Actors	An actor is a role of an object or objects outside of a system that interacts directly with it as part of a coherent work unit (a use case). An Actor element characterises the role played by an outside object; one physical object may play several roles and therefore be modelled by several actors.
Adaptive Cruise Control	Cruise Control with automatic features that disable the cruise function, or adapt the speed of the vehicle, to avoid collision with a preceding vehicle
Compatible	Functionally able to be substituted but may need some form factor adaptation
Database	A database is data provided in an organised and constructed electronic file or collection of files that provides a consistent means for documenting, storing and retrieving the syntactical form (i.e., representational form) and the meaning and connotation of each data concept
Data Dictionary	A data dictionary is an organised and constructed (electronic data base) compilation of descriptions of data concepts that provides a consistent means for documenting, storing and retrieving the syntactical form (i.e., representational form) and the meaning and connotation of each data concept
Data Model	A data base organized to support specified functions and functionality
Data Registry	A Data Registry provides a store of data, characterised in a consistent manner, used for a specific purpose (in this case ITS). It provides a determination of the ITS Data Dictionary items accepted into the ITS Data Registry. This contains not only data about data concepts in terms of their names and representational forms but also substantial data about the semantics or meaning associated with the data concepts. A Data Registry may contain data that assists information interchange and re-use, both from the perspective of human users and for machine-interpretation of data elements. An ITS Data Register shall comprise only items from ITS Data Dictionaries, showing their source, however, not all Data Dictionary items shall necessarily be submitted for inclusion, or accepted, into the Data Registry
Financial Clearinghouse	A banking sector service to provide central exchange transaction confirmations for funds
Floating Car Data	Permanent Polling of position tracing of given vehicles such as to determine traffic speed and congestion.
Fortress Europe	An attitude of creating barriers to defend Europe against perceived (usually commercial) threats
Functional Decomposition	The description of a system by progressive analysis of its component parts.
Infra Red	Energy propagated at circa 850 nm (slightly below visible light frequencies).
Intermodal	applications where equipment and loads may use several different transport modes in the course of a journey
Interoperable	Functionally compatible and capable of seamless substitution
Lingua-Net	Model for common European data type for cross-border enforcement used by some police agencies
Mayday	Emergency calls for assistance
MEGA	A computer modelling tool using functional decomposition
Millimetre Microwave	Microwave propagation circa or above 60 GHz
Mushroom shed organisation	Where organization and / or research and/or development is undertaken without any external reference or checks with the world beyond that organization/research/development

Multimodal	Where loads or part loads may be transferred between different transports and modes of transport during a journey.
OO	See Object Oriented Methodology
OO modelling tools	Computer Modelling tools using OO Methodology
Object Oriented Methodology	A method for system definition and description where a system is defined to comprise objects or groups of objects with similar characteristics (Classes) where the characteristics of the Class (object) and data associated with the Classes are well defined and the interactions between classes and actors are defined in terms of interactions, behaviour and data. The behaviour is described through interaction instances (Use Cases). OO methodology is normally developed and managed using computer based OO modelling tools, the most widely used modelling tools are based on the Unified Modelling Language (UML).
Rational Rose	A computer modelling tool using UML Object Oriented Methodology
Select Enterprise	A computer modelling tool using UML Object Oriented Methodology
Subsidiarity	A principle that, whilst there may be EU direction or recommendations, decision making and implementation are left to the discretion of National Administrations.
System Architecture	The description of a system, its boundaries, behaviour, composition, characteristic, data and interactions. This may be undertaken by Object Oriented analysis or Functional Decomposition. System architecture can be described from different views, and at different levels. At the highest level, SA is a description of the concepts and relationships in a system, at the next level describing its functionality, down to, from one view, physical implementation, and from another view, the management of data exchange, etc.
Terminators	The point where service provision or information exchange meets the boundary of the system.
Trafficmaster	Commercial System: Driver information and congestion warning system
Turbo Architecture	A computer modelling tool using functional decomposition
Use Case	Within an OO defined system, a use case is a coherent unit of functionality provided by a system or class as manifested by sequences of messages exchanged among the system and one or more outside interactors (called actors) together with actions performed by the system. Use case diagrams show elements from the use case model. The use case model represents functionality of a system or a class as manifested to external interactors with the system.
User Needs	The requirement for service provision to satisfy the user of the system
Vienna Agreement	The Vienna Agreement is an agreement on exchange of technical information between ISO and CEN that provides for : : Cooperation on standards drafting between ISO and CEN : Cooperation through mutual representation at meetings : Cooperation by transfer of work items from CEN to ISO : Parallel ISO and CEN voting and makes specific provisions for CEN Project Leadership for new work in fields where work is in progress in CEN but is not yet covered in ISO
Yellow Pages services	Commercial (usually value added) services. Origin from Telephone directory 'yellow pages' where the directory is organised into service classifications (e.g. plumbers, glaziers, etc.) to provide a user with a quick reference for multiple sources to obtain the required service.

**European standardization in Intelligent Transport Systems Open meeting,
Friday 24 May 2002****Note of the Meeting****Welcome**

Mr John Ketchell (CEN/ISSS Director), welcomed participants to this Open Meeting on ITS standardization. CEN/ISSS had brought together the key parties interested in the development of road transport telematics, to consult them on the proposed programme for European standardization in ITS. It was vital for the players to give their opinions and feed back on the market relevance of these initial proposals, to ensure that no significant items for standardization were missing from the draft programme. The conclusions of the public consultation meeting, and other comments received, would be taken into account in preparation of a final draft programme, which would be then submitted to the ICTSB and to the European Commission and EFTA.

Keynote speeches

In his opening address, the meeting Chairman, **Mr Bernard Laurens**, noted with pleasure that industry was well represented and that there were many people who were not normally involved in standards groups. It was important to get their views.

ITS was not limited to a single country nor to a single operator nor even to a single mode of transport. Therefore there was a need to harmonise and to seek an intermodal solution. ITS should facilitate seamless travel, which itself was indispensable to the economic development of the EU. The ITS market was world-wide and very competitive. Many players have to interact to provide the necessary transport services. The ITS market was, in a large part, driven by authorities and safety is one of the key considerations. This required the interoperation of a number of different systems. The time was now past when most of the activity was in the area of research. It was no longer acceptable to have proprietary solutions and therefore standards were required.

The development of mobile telecom mass market low cost data and voice carriers from which ITS can benefit thus sparing the development of its own solutions

Mr Laurens outlined the benefits of standardization – stability, a wider market and interoperability with multivendor solutions. He highlighted architecture, data models, information exchange and MMI as the most important areas for standardization. On the other hand he drew attention to some of the limitations of the standards process and pointed out that it was a voluntary activity dependent on the commitment of the

players. Any programme would need to be approved by the technical groups concerned. He mentioned the different status of formal standards as against CWAs and finally appealed for appropriate financial support for the programme.

The keynote address was given by **Mr Keith Keen**, of the European Commission - Directorate-General for Energy and Transport, who had recently joined the Galileo team. He emphasised that standards were needed (at European level) for a number of reasons including ensuring the competitiveness of European industry, lowering prices and responding to users' needs. Last but not least they were needed for assisting in the implementation of European policies such as European Transport Policy for 2010, Galileo and the E-Safety initiative.

However some difficulties existed in the standardisation process which would need to be addressed such as the length of process, the quality of the standards, the lack of overall strategy and the sometimes obstructive stance of commercial interests (e.g. with regard to Human Machine Interface). In ITS out of date often meant too late

From the European Commission's perspective the main priorities were:

- Electronic fee collection,
- Safety and Emergency Services (related to E-Safety),
- ITS Framework Architecture,
- Information services,
- Traffic Management,

However the whole process needed to be optimised to suit the ITS sector and the organisation of the work needed to be flexible. New approaches should be looked at such as Workshops with broader stakeholder representation. CWAs could provide a step-wise approach to getting the standards we need. Funding mechanisms should be adapted and the funding for standardisation needed to be clearly identified and should match priorities. There should also be a closer link between standardisation bodies and R&D projects in the 6th Framework Programme. In order to improve the quality of the process, the Commission was looking for:

- Stricter quality procedures
- Clear milestones and deadlines from the onset
- The testing of Standards
- Feedback from implementation

If these changes and priorities were taken into account then the Commission would look again at the funding issues and perhaps modify mandate.

The draft ITS programme

Mr John Ketchell (CEN/ISSS Director) and **Mr Bob Williams** (Project Team Leader) introduced the draft Work Programme. Mr Ketchell explained the background to the work, which had been initiated by a mandate from the European Commission and

EFTA. The work, in relation to Phase 2 of this mandate, was being carried out in CEN/ISSS, but with the full involvement of the ICT Standards Board, whose members included CENELEC and ETSI and also, in this field, ERTICO. A Steering Group was responsible for the finalisation of the Phase 2 Report after the present meeting; the final version would be published and submitted to the Commission. Phase 3 would be the creation of the actual programme inside the standards bodies. In addition to CEN TC278, CEN/ISSS included an open Workshop environment – such Workshops were able to reach very rapid consensus, and counteracted the trend towards closed consortia by being both more formal and more open.

Mr Williams gave a detailed overview of the work programme and its recommendations. He said that standardization did not need to be slow and pointed to the data registries standard produced together with ISO, which has taken only 2 years to produce and be voted on. What was required was for the standards bureaucracies and the Technical Committee members themselves to get their acts together. He pointed out that, since the beginning of the Technical Committee work, the ITS environment had altered radically. In particular, the Internet had completely changed the business model. Care should be taken not to reinvent the wheel. Finally he pointed to one of the Steering Committee Recommendations, which called for a co-ordination mechanism to be set up to oversee the implementation of the programme.

The standards community

Mr Gé van Toorenburg (Chair of CEN/TC278 “Road Transport and Traffic Telematics”) described the role played by CEN/TC278 in ITS standardization. He pointed out that CEN merely facilitated the process and that the key was to engage the interest of the industrial stakeholders, whose main interest was to share the development costs. Governments too, at European level, need products such as equipment to do payments, which conform to common standards.

He noted that ITS saw the convergence of two very different markets – automotive and mobile communications – with different strategies and product life cycles. This made the task more difficult and the need for a commitment to reaching a fast consensus more important. He was looking for more involvement from industry (but not just to get monopoly positions) and more support from the administrations to finish the standardization part of the Mandate on time. He concluded by saying that all parties should actively pursue a win-win solution.

Mr Oliver Wheaton (Head of Standardization Policy Unit, UK Department of Trade and Industry, Radio Communications Agency) explained the role of the European Telecommunications Standards Institute (ETSI). ETSI provides harmonised standards relevant to this issue under the EMC and Terminal Equipment Directives. These harmonised standards provide access to the European market for radio products and also define the radio equipment’s spectrum characteristics; they thus

serve a dual role by offering market access to the manufacturer or supplier and spectrum management tools for the administrations.

Mobility is fundamental theme of communication systems, and therefore a key concern is the availability of spectrum for transport communications. Spectrum is a valuable and scarce resource and it is up to the administrators to direct the CEPT that spectrum must be available.

Mr Martin Rowell, Chair ISO/TC204 “Intelligent Transport Systems” brought the perspective of the international standards arena. He, too, pointed to the challenges presented by the different product life cycles and regulatory frameworks of the telecommunications and automotive markets.

The need was to ensure forwards and backwards compatibility and achieve regional and trans-national interoperability. The opportunities for ITS standardization were increasing with the new demands placed on transport by increasing urbanization and the new markets offered by the combination of ITS and the internet. However he highlighted some of the non-technical pitfalls which lay in the way in terms of privacy concerns, variety of legal systems, intellectual property rights and lack of funding for experts.

The difference with working between CEN and ISO was that internationally the system was one country one vote, and he appealed for more active participation from European countries in the work. He concluded by warning that without ITS standardization, mobility and accessibility would not happen.

The stakeholders

Mr Daniel Augello, Transportation Policy Delegate, Renault SA, presented an overview of priorities and work in the area of the standardization of safety systems. Much work was being undertaken in the frame of the e-Safety initiative with the DG INFOSOC of the European Commission, a working group of which was going to hold a first meeting on 10 June. This group should review the draft ITS standardization Work Programme.

He disagreed with the top-down approach to ITS standardization that had been initiated by the Mandate and questioned some of the priorities – such as infrared for CALM – and some of the targets. In particular, he said that it was not feasible to attempt to apply ITS to all vehicles as there were a substantial number of older vehicles which would continue to be used for some time. Finally he turned to the assertion by Mr Keen that industry was resisting MMI standardization. This was not wholly true. The automotive industry was quite happy to see standards on methodology and building blocks (icons, etc) but was not in favour of MMI standards on products, which could be very restrictive.

For the Public Transport Operators, **Mr Berthold Radermacher**, Association of German Transport Undertakings (VDV), explained that the main purpose of their involvement in ITS standardization was to get more customers through offering reliable, accessible and trustworthy transport services and products. ITS standards would also allow industry and the operators to recoup their investment.

The European Standards Organizations could contribute if they produced standards that:

- fulfil the business and operational requirements of the operators
- fulfil the legal requirements of the business scope
- are developed by experts (with practical experience) from the stakeholders

However he emphasised that the number of available experts was very limited. Therefore standardizers should restrict their activity to standards describing durable contents such as interfaces, data information, system architecture etc.

Discussion

Delegates were then invited to comment on the morning's discussion.

In answer to a question on his criticism of infrared, Mr Augello clarified that he was speaking as a representative of the car industry and not for ERTICO.

A representative from the Netherlands Police Agency drew attention to the fact that not only industry had an interest in ITS standards but also administrations need standards for robust and durable technologies.

A number of delegates asked what possibilities existed for key actors such as car manufacturers, operators etc to have some further influence on the report. The Chair reiterated that the final implementation would be up to technical bodies concerned but that the real test would be whether the stakeholders spent money to participate in the work.

A representative from the UK Highways Agency noted that CEN/TC278 was undertaking the standardization of data registries and asked who would operate the data registries? Mr Williams acknowledged that this would be a major IT application and that it would be logical for it be done in one place in Europe but that it would require major funding. He suggested that the initial steps could be funded by some of the government bodies. Mr Ketchell suggested that there was no reason why CEN should not operate such a registry.

Breakouts

The meeting divided in the afternoon into break out session on Public Issues, Driver and Traveller Services, and Communications, and the results are attached at Attachment 1.

Conclusions

To close the Chair asked the panel of the morning's speakers for their reactions and recommendations of the first three priority areas for ITS standardization over the next 10 years

Mr Williams stressed the need for increased multimodality and more emphasis on safety, particularly within the eSafety initiative. He also supported the calls for more spectrum to be made available.

Mr Radermacher urged a focus on the customer. In order to give the customer a familiar environment and to minimise the necessary investment it will be necessary to use the hardware that the customer already uses for his information needs. He also called that after the establishment of nation-wide Fare Management Systems in the next years, a European fare management system will be established.

Mr van Toorenburg said that his main preoccupation was to achieve standardization in the area of Electronic Fee Collection – specifically DSRC.

Mr Augello would only look forward 5 years and emphasised the need for supporting the work in the e-Safety initiative including the work on HMI, the interface of hardware and software and the standardization of floating car data

Mr Rowell called upon the stakeholders to recognise the need to update what had already been done. Standards should be funded top-down. He also pointed to the need for more socio-political ground work in relation to ITS standardization. Finally he appealed to those countries in Europe whose involvement in ISO work has become marginal to reconsider their participation: this is in contrast to Asia Pacific countries like Japan, Korea and China which are fully committed.

Considering these responses the Chair noted the absence of a mention of traveller information as a priority.

In the final discussion it was noted that the European Commission had expressed its concern in Mandate M/270 that stakeholders were not sufficiently involved in the standardization process. However, this Open Meeting had been an exercise in deepening this outreach to the stakeholders. Mr Ketchell re-emphasised the importance of the 10th recommendation – on the need for a Steering Committee to oversee the implementation of the programme. The Chair suggested that this could be done by enlarging the TC278 Strategy Group to include additional representatives of stakeholders.

Care also had to be taken to improve the speed and quality of the process. The example of producing data registry standards within two years, might be a good achievement for formal standardization but fell short of industry requirements. The Chair said that the Quality aspects had been identified as a key area of improvement by TC 278 and would be addressed at the next meeting.

It was also emphasised that consumers and especially people with special needs needed to be involved. Mr Rowell pointed out that this was one of the key aspects of the eSafety initiative, through the participation of the European Car Club members of the AIT, under the leadership of Mr Max Mosley (who is also chairman of ERTICO).

The next steps

Summing up, the Chair said that the next steps would be to synthesise what had been said and revise the draft programme for discussion by the RTTT Steering Group on 20 June. When the Steering Group had agreed the text, the Programme would then be sent it to the European Commission and EFTA and the ICT Standards Board and would be published on the web. It would certainly be scrutinised by the CEN/TC278 Strategy Group.

The next challenge would be how to translate the proposed Programme of Work into concrete actions, within the relevant technical groups and supported actively by the stakeholders.

Attachment 1

Results of the Break out meetings

Breakout group 1 “Public Issues” addressed the recommendations regarding Multimodal Transport, Traffic Management, Safety and Emergency, Standards to support Enforcement. (Recommendations 1,5,6 and 9).

General remarks

- Human factors specialists need to be brought in the standardisation process.
- There is a need to establish business cases in order to set the priorities in the standardisation process.
- The issue of the readiness of experts to work in the several fields was regarded as important.
- The issue of the need for funding in the standardisation activities was considered very important. There is a need for funding to cover experts costs (travel, subsistence and cost to employer)
- The group felt unable to prioritise issues at the time since there is a need to establish business models to do so. Prioritisation is dependent upon who you are (i.e. which stakeholder) prioritisation will in practice be dependent upon voluntary work plus ability to secure funding.

Multimodal Transport (Recommendation 1)

The group confirmed the need for consistent standards for multimodal aspects, even if this is not of the direct competence of TC278, standardisation work should be undertaken.

It emphasised the need to speed up the standards process (difficult in the case of multimodal transport, due to the need to involve all modes of transport) and called for more involvement of the stakeholders, including consumers, in the standardisation bodies

The group stated that there was a need to clearly define multimodal transport versus intermodal transport. Multimodal would make reference to freight whereas intermodal would involve passenger transport. TC278 should provide the interface between multimodal and the rest modes of transport.

The main priority areas were Freight transport and the interface between road (freight) and rail

Traffic Management (Recommendation 5)

It was agreed that the recommendation for the definition of new elements to cover missing data needs to be adopted and that standardisation in the field of DATEX is a key activity, also for cross-border purposes.

Questions raised by the group included: who should be responsible to ensure that freight and fleet management are effectively linked to traffic management; and should Location Referencing be expanded from hazardous material – Water and rail?

Safety and Emergency (Recommendation 6)

This recommendation was regarded as important and priority.

The Group felt that the recommendation should open its scope to more than two sensors and that it should make broader reference to passengers and not only freight and may be enlarge its scope by addressing personal safety.

The E-Safety initiative was important in this field and the EU funded project E-MERGE on Emergency Call was mentioned as a possible input to standardisation.

Standards to support Enforcement (Recommendation 9)

The group strongly endorsed the need for the technical standards mentioned in this recommendation, especially in view of the importance of enabling cross-border enforcement.

It was recognised that, on top of technical standards, there is a need to harmonise the law that is going to be enforced. Legal matters should be progressed along with technical standardisation.

Important areas for standardization were identified as EVI (here mention was made of activities initiated by ERTICO and TISPOL), Digital Imaging and Data Collection in accident investigation.

The Police role was identified as key in this field, steered by the European Commission and not the particular Agencies when it comes to providing input in the standardisation process.

Breakout group 2 “Driver and Traveller Services” addressed the recommendations regarding European ITS Architecture, Integrated Electronic Payment Systems, Advanced Driver Assistant Schemes, Traveller Journey Assistance (Recommendations: 3, 4, 7 and 8)

General remarks

There was concern expressed at the session as to whether further consultation would take place after the feedback from the Open meeting had been incorporated into the Steering Committee's final report.

Architecture and Architecture related Issues (Recommendation 3)

The Group believed that System Architecture was seen as technology independent and should continue as such. There was a need to extend the KAREN work but there was no need for a standard. KAREN / FRAME documentation was all that was needed, although a status (such as a technical report) within the standardisation bodies would be helpful.

No additional funding beyond that being given to FRAME is required;

Integrated Electronic Payment Systems (Recommendation 4)

This recommendation was seen as too ambitious and anyway work was already progressing in this area. However the group thought that there was a rationale for undertaking work on Recommendation 4.3 (Standardised Test Procedures)

Standardization of travel guidance information (ADAS) (Recommendation 7)

Clearly ADAS should be removed from the title;

The group felt that the recommendation needed to have a broader range. Also there was a feeling that to ensure interoperability, the work should concentrate on the interfaces between systems, rather than harmonising all aspects of traveller information systems.

The reference to TC145 (Symbols) should be supplemented by a reference to TC22. It was likely that the majority of work should be undertaken in TC22 but under the auspices of TC145;

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Traveller Journey Assistance: Common message sets, coding schemas, and location referencing Schemas (Recommendation 8)

The group gave little feed back on this recommendation and had no views on priority. However it felt that this work had strong links to the concerns to establish a data registry within CEN.

Breakout group 3 "Communications" addressed the recommendation regarding

continuous communicants with vehicles using generic communications methods (Recommendation: 2)

The group made the following clarifications:

- The purpose of CALM program was reassessed and defined as follows:
“CALM as -Continuous Air communications Long and Medium range- is composed of a set of common network protocols enabling continuous communications sessions for users on the move, switching automatically between most advantageous following communication media :GSM, 2/2.5 Generation Cellular, 3G Cellular, 5.8-5.9 GHz Microwave, Infrared and Radar “.
- CALM is dedicated to Hi-speed communication needs? typically above 1 Mbps.
- Present standardization tasks are conducted thru ISO TC 204 Groups 16.1 and 16.2 and most protocols will be ready by 1st Q of 2003.

The group felt that CALM capabilities were of great importance for future potential ITS services and recommended the participation of European experts in the ISO TC 204 work. It suggested the expansion of the TC278 Work program and formation of a new group within TC278 to ensure that European requirements are met within these ISO led activities, and to make any adaptations required to the format of CALM standards to enable them to be in a format suitable for parallel EN balloting whenever it is feasible in a reasonable time frame.

The group suggested considering adding TETRA and TETRAPOL to the list.

The priority of this work was considered as high and though the ISOTC 204 timescale looked very tight it should be supported.

It was generally considered that necessary expertise exists within TC 278 groups to support TC 204 work on CALM but CEN should draw the attention of TC 278 communication experts on the importance to participate.

It was recommended to have the Software industry associated to the work and to secure coordination with ETSI and ITU. Potential users of CALM (operators and service providers) should be associated also.

Frequency spectrum availability in most European countries was the main bottleneck to CALM development and it was therefore recommended to CEN and EC to support more bandwidth allocation for ITS applications and specially for e-safety projects.