CONSOLIDATED RESOLUTION No. 94/7 ON THE USE OF NEW INFORMATION TECHNOLOGY IN THE FIELD OF TRANSPORT

[CEMT/CM(94)19/FINAL]

The Annex to this document [CEMT/CM(94)19/ANN] is published separately under the title: "New Information Technology in the Field of Transport"

The Council of Ministers of the ECMT, meeting in Annecy on 26th and 27th May 1994,

HAVING REGARD TO:

-- Report CEMT/CM(94)19 on policy issues relating to new information technology in the field of transport;

-- Resolution CEMT/CM(93)8 on administrative and legal problems in connection with route guidance/driver information systems which was adopted on 26/27 May 1993;

-- Resolutions CEMT/CM(90)10 and CEMT/CM(91)22 on transport, computers and telecommunications which were adopted on 30 May 1990 and 21 November 1991 respectively;

NOTING that the work relating to some telematics applications for purposes of road traffic information and management is already at a very advanced stage, that a number of driver information/route guidance systems for road users are now being marketed and that their use should increase considerably over the next few years;

BELIEVING that, in order to avoid a situation in which individual governments, local authorities and operators each set up mutually incompatible systems, it is essential that ECMT Member countries should co-operate with respect to policy;

AWARE that the planning and implementation of mutually consistent driver information/route guidance services in Europe give rise to organisational, legal, financial and technical problems which require policymakers to adopt a common stance;

CONSIDERING that the development of driver information/route guidance services is at least partly the responsibility of Ministers of Transport from the standpoint of the management of road networks, safety of motor vehicle equipment, protection of the environment, and the development of industries associated with the automotive and telecommunications industries;

ADOPTS the attached recommendations concerning:

- specification and approval of driver information/route guidance services;
- administrative structures relating to such services;

- interoperability;
- establishment of guidelines for the initial telematics applications for driver information/route guidance;
- presentation of traffic messages;
- protection of privacy;
- ergonomics and safety of in-vehicle information systems;
- demonstration projects;
- implementation of the Radio Data System - Traffic Message Channel;

INSTRUCTS the Committee of Deputies:

- to monitor the implementation of these recommendations by assigning this task to the appropriate ECMT working bodies, more specifically to the Group on Road Traffic, Signs and Signals, whose composition may be changed, if necessary, to gear the Group more effectively to the new requirements of this remit;

- to report back to it in due course on trends in the use of the new information technologies in the transport sector and on the relevant legal, organisational, financial and technical problems in this connection;

- to transmit these recommendations to the international bodies concerned and, more particularly, to those working in the sphere of standardization such as the CEN, CENELEC and ETSI.

RECOMMENDATION No. 1

SPECIFICATION AND APPROVAL OF DRIVER INFORMATION/ROUTE GUIDANCE SERVICES

The provision of driver information services entails the collection, processing, validation and transmission of traffic data, and the dissemination of information on traffic conditions to road users through a given medium. Such information may also include items such as parking space availability and details of transport facilities offering alternative modes of transport.

The provision of such information must be regulated:

-- when it calls for the sharing of equipment installed directly in the roads or public property of the highways authority;

-- when its dissemination -- as, for example, in the form of ongoing real-time information -- can affect traffic management and/or road safety.

However, information of interest to road users that is not directly concerned with traffic conditions need not be regulated, except in cases where road safety is concerned. Examples include tourist information, details of hotel accommodation, etc.

The supply of transnational driver information services must be covered by guidelines that specify the quality of the service to be supplied and that identify the authorities responsible for their provision. This will ensure that information may be freely exchanged at international level regardless of any differences between the structures set up for this purpose at national level and regardless of whether such structures are managed by public or private organisations.

Formal approval procedures should be introduced for driver information systems, unless it can be shown that such systems will have no impact on traffic management and/or road safety.

Care must be taken when drafting such procedures, however, to avoid creating a situation in which the public authorities would be unable to exercise proper control over information that might have an adverse impact on public order, or in which, at the other extreme, private enterprise would be unduly constrained through excessive regulatory action.

The approval procedures must therefore specify the main requirements for performance of the service, as well as the associated financial terms and conditions. The scope of the rights and obligations of public authorities and either public or private operators must cover the collection, processing, validation, transmission and diffusion of traffic data. Under the normal play of competition, all operators must be given access to road traffic databases maintained by each member country. However, in return for such access, the authorities must be able to impose conditions on the way in which data are used, i.e. ethical rules (respect for data contents), formatting rules (language), rules regarding priority transmission (urgent messages). Fees may be charged for access to databases, and the pricing structure must allow database operators to vary their charges according to the use made of information (notably when information is used for commercial purposes by the operator).

Approval may be given legal effect in a variety of ways: licensing agreements, permits, conventions, contracts, etc.

The conditions for granting approval must be widely publicised to ensure that certain operators, particularly trans-national ones, are not excluded from the process; they should be broadly modelled on the rules applicable to public procurement contracts.

It is therefore recommended that ECMT Member countries:

-- *agree upon a common definition of "driver information services";*

-- *co-operate to draw up common guidelines specifying the level of quality that driver information services must achieve and identifying the authorities which will be made responsible for introducing such services; each country should also set up a structure to manage the databases involved in order to facilitate exchanges of information at international level and thus promote the development of a European driver information service;*

-- *make provision in their regulations for driver information services to be made subject to approval procedures of the type described in the present recommendation;*

-- *ensure that such procedures are widely publicised to ensure that no operators, particularly trans-national ones, are excluded.*

It is for the Ministers of Transport to take the necessary steps to implement these recommendations in collaboration with the national, regional and local authorities concerned (region, land, province, canton, commune, etc.).

RECOMMENDATION No. 2

ADMINISTRATIVE STRUCTURES RELATING TO DRIVER INFORMATION SERVICES

One of the main institutional barriers to the development of driver information/route guidance systems in Europe is the existence of significant administrative malfunctions, notably as a result of the way in which responsibilities for traffic and information are assigned to different bodies within individual States. Government departments dealing with such matters -- often with very little co-ordination -- include road traffic departments (road authorities and the police), telecommunications administrations, radio and television broadcasting authorities and the bodies responsible for safeguarding personal privacy. There are also problems stemming from the division of responsibilities between autonomous public authorities, notably in the case of conurbations comprising several different administrative districts or highway networks made up of roads for which different authorities are responsible.

The first step must be for each country to set up a permanent forum for the various government services involved, i.e. road traffic authorities (highway managers and police), telecommunications bodies, radio and television authorities, the agency responsible for safeguarding personal privacy, etc.

Each country should also establish a legal structure for traffic management, driver information and route guidance, relations between central government and regional bodies, and relations between individual local authorities. Action in this area is particularly important with regard to guidance systems that are not stand-alone and that need to make some use of public property, since under existing legislation local authorities are under no obligation to accept the installation of fixed roadside equipment (e.g. beacons or terminals) or to make their road networks available. While the problem is not crucial in major traffic corridors where main roads are the property of central government, it is critical in built-up areas where responsibility for highways may be shared by several local authorities. Where a driver information/route guidance system is operated by more than one authority (several municipalities, for example), the legal arrangements should provide for a rule whereby those authorities tempted to refrain from participating in the system can be prevailed upon to do so without the others having to call upon central government to intervene.

At international level, information on the powers and responsibilities of the various public authorities concerned with driver information/route guidance systems in each country needs to be circulated more widely so that countries can co-operate more effectively.

It is therefore recommended that ECMT member countries:

-- *give their support to any action that might help to improve and clarify in legal terms the relations between the various public authorities involved in the provision of driver information and route guidance services;*

-- *promote exchanges of information at international level with regard to the various public authorities involved in route guidance/driver information services and the respective responsibilities of such authorities in order to enhance co-operation between the various public authorities concerned in different countries.*

RECOMMENDATION No. 3

INTEROPERABILITY

Driver information and route guidance systems operate by transmitting messages and signals to moving vehicles fitted with a fixed or portable receiver that processes and presents information to the driver or vehicle occupants.

Driver information and route guidance systems must be interoperable to ensure that vehicle occupants or drivers can use the same in-car equipment to access the same or similar information services at any point in a trip at regional, national or international level. Interoperability meets the requirements with regard to trans-European networks set out in section XII, Article 129 C of the Maastricht Treaty on European Union.

The prerequisites for interoperability are:

a) Compatible communications between the in-vehicle equipment and the radio broadcasting or ground-based transmission systems used to supply information on traffic conditions, congestion, weather conditions, and advice on specific restrictions and regulations;

b) Accurate reading and interpretation of the messages received by the driver and relayed to the driver by the in-vehicle equipment;

c) Continuous coverage of traffic conditions on either side of borders.

Interoperability does not mean that the user will have no choice, but rather that the choice will be between standard in-car displays, standard road/vehicle/road communications, and so forth. Standardisation should facilitate, not impede, "mix and match". It must not restrict either the user's freedom of choice or industrial competition.

If services to car drivers are to be interoperable, it will be necessary to make use of the common European standards currently being drawn up by the Comité Européen de Normalisation (CEN) (Technical Committee 278) in collaboration with CENELEC and ETSI, work that is partly being carried out as part of a programme sponsored by the Commission of the European Communities. It will also require the introduction of standard procedures for exchanging data (data dictionaries, geographical database, exchange format) that will give countries easy access to data available in neighbouring countries.

It is therefore recommended that ECMT member countries:

-- *avoid pursuing individual and incompatible approaches towards the introduction of new information systems and promote the development of systems that are interoperable at European level;*

-- *help to speed up preparatory work on the technical standards or recommendations required and to establish a pan-european geographical database (European digital roadmap) as an important basis for road guidance systems;*

-- *use such standards or recommendations to introduce driver information and route guidance services;*

-- *allow system purchasers freedom of choice within the above framework of standards.*

RECOMMENDATION No. 4

ESTABLISHMENT OF GUIDELINES FOR THE INITIAL TELEMATICS APPLICATIONS FOR DRIVER INFORMATION/ROUTE GUIDANCE

Specifications for ATT applications used to supply driver information/route guidance services must be drawn up with reference to not only the highway network in which they will be used, but also the level and type of service offered.

Although the long-term objective is to install driver information/route guidance systems throughout the European road network set out in the AGR (European Agreement of Main International Traffic Arteries), the first step to be taken, given that new driver information systems can only be introduced gradually, should be to specify a network in which such transnational services might be installed in an initial phase. Preliminary work already out on the planning of trans-European networks and pan-European corridors might be used as a basis for selecting the routes to which priority should be given for the installation of ATT systems.

Once this priority network has been established, the quality of the services offered (type of information, intervals between information messages, etc.) and the conditions for access to services must be determined.

Safety considerations, in particular, will make it very difficult for government authorities to avoid establishing certain guidelines with regard to the minimum basic service to be supplied by information/guidance systems run by private and public operators.

Such guidelines should relate to kinds of service and to their level and quality.

As to the various kinds of service, a distinction should be made between what is covered by traffic management -- the only area for which the public authorities have sole responsibility -- and trip or traffic information.

With regard to the quality of the service supplied, the legal instruments used (contracts, agreements, licences, permits, etc.) and the specifications laid down by public authorities to govern the activities of operators of new information systems should include, at least in the form of guidelines, requirements relating to standards of service, message format and frequency, multilingual presentation, possible monitoring of information, etc.

At international level, studies should be carried out with respect to the type and the quality of services to be provided to ensure that systems are interoperable.

It is therefore recommended that ECMT member countries:

-- *specify a network in which driver information/route guidance systems might be installed in an initial phase, this network being made up of those motorways and highways with the highest traffic densities or the largest share of international traffic; studies currently in progress on the trans-European network and pan-European corridors might serve as a basis for designating such a network;*

-- *encourage the establishment of guidelines for the specification of the different services that driver information and route guidance systems are to provide in such a network;*

-- *promote work aimed at developing specifications for the quality of information disseminated by such systems.*

RECOMMENDATION No. 5

PRESENTATION OF TRAFFIC MESSAGES

Future road users travelling on national and international highways will be given advice or warnings by means of fixed or temporary road signs, and will be supplied with real-time information by variable message signboards and in-vehicle information systems.

The above systems will utilise standard encoding and message exchange protocols currently being developed by CEN Technical Committee 278.

The success and effectiveness of these systems largely depend upon the ability of drivers to interpret correctly the messages they receive, and also upon the complementarity of the various media used to convey information to road users.

It would therefore be highly desirable for standard road signs and driver information display formats to be used on the network of roads chosen for initial telematics applications, and ultimately throughout the entire European road network covered by the AGR (European Agreement on Main International Traffic Arteries).

The development of dynamic sign systems, however, does pose a greater risk of divergence than conventional static signs. Use of the pictograms agreed under the Vienna Convention and harmonisation of traffic signs alone will not be sufficient. Efforts must be made to standardise traffic management instruments to ensure that the messages given to road users are as unambiguous as possible (for example, whether or not drivers should leave the motorway or simply wait for further instructions in the event of a break in the flow of traffic; distinction made between advice and instructions) and thus to give the necessary remit to the authorities responsible in this area.

Driver information transmitted to users of the network chosen for initial telematics applications should be harmonised in accordance with:

-- the general provisions of the Vienna Convention and in particular those relating to pictograms, while taking due account of the conditions under which they may be used in dynamic message systems;

-- agreed definitions with regard to warnings and traffic information (traffic conditions, extent of congestion) or advice and regulatory information, notably when road users need to modify their behaviour in order to deal with traffic problems;

-- recommendations concerning real-time transmissions of traffic information which also provide for its presentation in drivers' own languages;

while avoiding conflicts between traffic messages transmitted via different media such as variable message signboards and RDS/TMC, and in general between messages broadcast to in-car receivers and messages conveyed through facilities installed in the infrastructure.

It is therefore recommended that ECMT member countries:

-- *harmonise traffic messages and introduce the use of such messages throughout their motorway and road networks;*

-- *instruct the ECMT's Group on Road Traffic Signs and Signals to propose standardised traffic messages and traffic management instruments in accordance with the present*

recommendation and with due regard to the work in hand in bodies such as the European Committee for Standardization or under the programmes developed in the European Union;

-- *ask the United Nations Economic Commission for Europe to take such messages and instruments into account when amending the Vienna Conventions.*

RECOMMENDATION No. 6

PROTECTION OF PRIVACY

The use of ATT applications makes it possible to offer an increasingly wide range of services tailored to the specific requirements of the various actors in transport systems:

-- road users, passengers, car drivers or drivers of fleet vehicles, etc.;

-- operators, suppliers of services;

-- officials responsible for enforcing the law or for overseeing the implementation of special contracts between different partners.

These services are, or may be, based on the personal identity of the user and may therefore be used to track the user's movements. Given the risks of infringing personal privacy that the use of such services may entail, personal information must not be disclosed except under certain strictly circumscribed conditions, i.e. as part of a contract for transport or, in the case of certain infringements of the law or regulations, at the request of the legal authorities.

It is therefore necessary to draw a clear distinction between cases in which it is useful to know the identity of the user (e.g. to facilitate financial transactions, run advertising campaigns or compile statistical data on trips) and those in which it is absolutely essential (e.g. personal insurance contracts), and between what is simply a contractual relationship (e.g. compliance with internal regulations) and what is a legal requirement (e.g. driver's licence or law enforcement).

A certain number of principles need to be respected:

-- strict compliance with legislation regarding the protection of privacy in the storing and exploitation of files using software to link individuals and their behaviour;

-- mandatory provision of an alternative option with regard to information that is merely useful and not essential, notably the possibility of making payments anonymously;

-- separation of data relating to the private life of the user (which may be stored on a tamper-proof, erasable support kept by the traveller) from those needed to check that contractual arrangements are respected (on a support that the traveller cannot easily access);

-- prohibition on the use of identification numbers that would make it possible to trace a traveller or given vehicle (registration number), except for applications relating to the payment of charges or verification of compliance with the law by the police.

It is therefore recommended that ECMT member countries:

-- *ensure that existing legislation in respect of privacy and data protection is respected in the design and implementation of driver information/route guidance systems;*

-- *encourage study of the legal and practical implications for the protection of privacy and data which arise from telematics applications for driver information/route guidance. This should start from the existing legislative position and consider such issues as the automated identification of vehicles, automated police controls, in-vehicle recording equipment, etc. and look on whether the principles to be respected as mentioned in the present recommendation, are necessary or whether they are complete, the aim being to ascertain whether the particular characteristics of these telematics applications warrant new or supplementary legal provisions or even a minimum of European legislation to ensure interoperability and, that being the case, to draw up appropriate recommendations.*

Note

1. One possible solution might be to allow personal data to be used for the verification of (tamper-proof and erasable) travel authorisations, but to restrict the power to verify the link between the holder of the authorisation and the authorisation itself to the legal authorities (who might under certain circumstances allow accredited officials access to such data in order to perform certain checks).

RECOMMENDATION No. 7

ERGONOMICS AND SAFETY OF IN-VEHICLE INFORMATION SYSTEMS

Poorly designed in-vehicle information systems can adversely affect driver behaviour, and thus safety, by distracting attention from the driving task. Furthermore, should such systems supply inaccurate, untimely or misleading information, they might prompt a driver to take inappropriate action thus endangering himself and other road users. They might also interfere with the vehicle's electrical or electronic systems.

It is essential that in-vehicle information systems be properly designed with safety in mind. The fact that such systems are now starting to appear on the market requires at least some form of surveillance, if not regulation. An undertaking from Ministers of Transport would seem to be necessary in this respect, in view of their responsibility for traffic management, the competitiveness of industries in the automobile sector, road safety and the environment.

Any kind of intervention in this context, however, presents us with a dilemma. Too much action might stifle development and result in failure to realise the full potential of in-vehicle information systems. Too little action might have an adverse impact and unacceptable consequences of the kind noted above.

The development of international standards for the ergonomics and safety of in-vehicle information systems, as well as appropriate assessment procedures, would seem to be an eminently desirable goal, although one that it will probably take several years to achieve.

In the meantime, the best advice possible on the current state of the art must be made available to the designers, manufacturers, installers and users of in-vehicle information systems to ensure that such systems are as efficient and as safe as possible. The Statement of Principles set out in document CEMT/CS(94)3 is designed to meet this requirement. It provides the basis for a framework in which initiatives can be monitored without the need for too strict a regulatory regime in the initial stages, and within which rules can be drawn up to favour those solutions which appear to afford the greatest intrinsic safety.

It is therefore recommended that ECMT member countries:

-- *make clear that they agree with the aim of the Statement of Principles with regard to the safety and ergonomics of in-vehicle information systems;*

-- *call upon the above-mentioned parties to apply the principles set out the Statement of Principles, on an interim basis, in the design and implementation of in-vehicle information systems;*

-- *avoid introducing legal measures that would run counter to the principles set out in the Statement;*

-- *lend their support to the research and standardisation work on in-vehicle information systems ergonomics undertaken within the framework of the Comité Européen de Normalisation (CEN), in liaison with the CENELEC and ETSI, and ensure that the CEN is allocated the resources it needs to develop, as a priority objective, standard methods of assessing in-vehicle information systems and to draw up performance standards for the man-machine interface for ATT applications in the transport sector.*

RECOMMENDATION No. 8

DEMONSTRATION PROJECTS

The purpose of demonstration projects is to provide a follow-up to pilot projects carried out under the DRIVE II programme. While the aim of these pilot projects is to demonstrate the technical feasibility of operating driver information and route guidance systems under normal traffic conditions, demonstration projects are designed to show the economic and social benefits of such applications and thus the potential benefits they offer to users and public authorities, as well as their feasibility from a policy standpoint.

It is essential for Europe to carry out proper demonstration projects. The number of parties involved and the size of the investment needed make it impossible to proceed directly from the current pilot projects to the introduction of operational systems (other than in a very small number of cases). Furthermore, relevant standards may not be finalised in due time.

The funding provided by European countries is often substantial but poorly co-ordinated. A major effort needs to be made to set up a limited number of demonstration projects. Such projects must be large enough in terms of both geographic coverage and the number of motorists involved (several thousand in most cases) to provide a rigorous scientific assessment of:

-- the positive and negative impacts of driver information/route guidance applications on traffic, safety and the environment;

-- the role, organisation and mutual interrelationships of actors;

-- problems which need to be resolved before such applications can be introduced on a large scale;

-- additional investment requirements and operating costs;

-- the interoperability of systems given existing standards and principles.

The high cost of such projects means that planners need to be prudent in selecting which demonstration projects should be carried out, particularly in view of the need to spread the costs of funding the development of new technologies evenly between further R&D aimed at developing new products and the performance of demonstration projects.

Although the number of demonstration projects actually performed must be limited to a small number of locations, such projects should be assessed jointly by European governments to provide a basis on which to develop major pan-European services from 1996-1997 onwards.

It is therefore recommended that ECMT member countries:

-- *provide technical and financial support for the initiation of a specific number of demonstration projects regarding the use of ATT applications in the provision of driver information and route guidance services; such projects should be selected on the basis of the findings of the POLIS and CORRIDOR projects and proposals made by the relevant national and international bodies;*

-- *ensure that, in view of their high costs, such demonstration projects:*

- *are very few in number (urban route guidance, intercity route guidance, intercity driver information, traffic management);*

- *place particular emphasis on system interoperability;*

- *are financed jointly by the European Union, member States, regional authorities, operators and industries, with written procedures detailing the sharing of risks between the private and public sectors;*

- *include an independent and rigorous assessment on the basis of predetermined organisational, social, economic and financial criteria that are known to all the actors involved;*

- *encourage further research and development of new products and services.*

RECOMMENDATION No. 9

IMPLEMENTATION OF THE RADIO DATA SYSTEM -- TRAFFIC MESSAGE CHANNEL (RDS-TMC)

It would be particularly useful to apply the previous recommendations to the Radio Data System -- Traffic Message Channel (RDS-TMC) which is technically ready for implementation at this time. Actions to support the removal of remaining barriers will allow this first fully interoperable, pan-European traveller information system to be realised in the near term.

Previous resolutions of the Council of Ministers have played a key role in the agreement of common technical standards for RDS-TMC. In Madrid, May 1987 [CM(87)8], it was resolved to support the development and standardisation of a common European traffic information system based on RDS-TMC. In Antalya, May 1991 [CM(91)12], Ministers endorsed the ALERT protocol as recommended technical transmission procedure to be adopted in the RDS-TMC field trials being pursued in various ECMT member countries. The current recommendation will help to overcome the institutional and operational barriers which remain.

The general features of Radio Data System (RDS) are already in widespread use. RDS was developed by European broadcasters for FM radio stations. The Traffic Message Channel will use RDS. Like teletext (on television), RDS-TMC will support traffic/travel information services which do not disturb the ordinary listener. Traffic messages are coded and retransformed into speech in the receiver, so that when driving in any country, users hear or see the information in the language of their choice. This also allows receivers to present only those messages relevant to the traveller's current journey.

The benefits of RDS-TMC have been demonstrated in various national (e.g. in France, Germany, Italy, the Netherlands, Sweden and the United Kingdom) and European projects (ACCEPT). RDS-TMC is technically successful and has been widely welcomed. Those who use it will be better-informed. They can plan their journeys, and often avoid congestion due to accidents or roadworks. Safety should be enhanced through increased awareness. RDS-TMC is popular because it reduces uncertainty; drivers feel more in control of their situation. Protocol enhancements (ALERT PLUS) also support route guidance, public transport information, and parking, including Park-and-Ride.

However, operational and institutional problems remain which, if left unsolved, could limit, delay or even prevent widespread implementation. For example, international exchange of information will need to be increased. Common location references must be specified. If non compatible solutions are adopted in different countries, interoperability may become difficult or impossible. Steps must be taken to deal with these issues, thereby paving the way for a compatible RDS-TMC application across Europe.

It is therefore recommended that ECMT member countries:

-- *should define and establish all necessary institutional agreements between participating partners (road and traffic authorities, police, broadcasters, motorist clubs, etc.);*

-- *should use RDS-TMC as suitable way to broadcast traffic messages to motorists;*

-- *encourage and support the creation and updating of location references for their transport network;*

-- *promote international exchange of traffic messages to alleviate international traffic;*

-- *promote the adoption of compatible standards for the supporting subsystems as far as these are needed top ensure interoperable sustainable RDS-TMC service;*

-- *adopt common standards as developed in European DRIVE/ATT Programme for international traffic message exchange between national traffic control and information centres;*

-- *support the integration of other important sectors of traffic messages, such as public transport, parking, route guidance.*