Directive 2010/40/EU

ON THE FRAMEWORK FOR THE DEPLOYMENT OF INTELLIGENT TRANSPORT SYSTEMS IN THE FIELD OF ROAD TRANSPORT AND FOR INTERFACES WITH OTHER MODES OF TRANSPORT

AISCAT Position Paper on implementation of the ITS Directive

October 2011
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FOREWORD: ABOUT AISCAT

AISCAT - Associazione Italiana delle Società Concessionarie di Autostrade e Trafori (Italian Association of Tolled Motorways and Tunnels Operators) – is the Association, founded in 1966, which brings together, as effective members, companies, authorities and consortiums that own concessions for the construction and/or operating of tolled motorways or tunnels in Italy.

The association was founded for the purpose of collecting, comparing and sharing the collective experiences and requirements of its members (providing them with support on different aspects of interest to the sector and representing them before main political and administrative institutions, both in Italy and internationally). AISCAT and its members have always been actively involved in promoting the development and modernisation of the infrastructure network, and in the implementation of strategies and solutions for sustainable mobility.

AISCAT currently has 23 effective members who collectively operate approximately 5,700 km of motorways and tunnels, representing more than 86% of the Italian motorway network.

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INTRODUCTION

The tolled motorway sector in Italy continues to be a natural area for the experimentation and application of innovative systems and technologies.

Indeed, the tolled motorway network in Italy was built to secure efficient connections between areas of large economic and social importance, which went on to generate important traffic flows: as a natural development of the same, the management of increasing traffic flows led to the need of finding more and more advanced operating systems, for example in the monitoring of road markings, in the supply of information to road users, and in toll collection methods.

Italian tolled motorways have consequently been experimenting and using modern technologies and systems in their infrastructure operations for more than two decades, and have gathered significant experience in the organisation and management of so called ITS services.

A large part of these developments, especially from the mid 90s onwards, took place within the scope of European activities, and particularly in European co-financed research and development programmes, thus ensuring some level of alignment with European guidelines and with the criteria of continuity and interoperability of road operation services, which then became the supporting elements of Directive 2010/40/EU.

The tolled motorway sector has a number of specific elements to it, which should be underlined, such as:

- the operating obligations existing under concession agreements,
- the clear attribution of responsibility in relation to the infrastructure that is operated,
• the role of managing significant roadways that are not only of national importance, which means constraints that cannot be overlooked in terms of the application of European laws.

In summary, Italian tolled motorway concessionaires have always had a proactive approach in the field of ITS, and in some areas, such as remote speed control systems (studied and patented by the largest Italian concessionaire operator, and which have contributed to decreasing the number of fatalities by over 50% in areas where such systems have been introduced) and electronic toll services, levels of absolute excellence on a continental and world level.
1. MOTORWAY OPERATORS: NETWORK, ROLE AND INSTITUTIONAL RELATIONS

1.1 Operators and the network

As already noted in the foreword, AISCAT’s 23 effective member companies (listed in Table 1) cover almost 5,700 km (precisely 5,689.1 km\(^1\)) equivalent to approximately 3% of the country’s primary road network.

It is a somewhat complex infrastructural system which, in light of the country’s particular geomorphology, is also characterised by numerous architectonic structures:

- **three international tunnels**, having a total length of more than 25 km;
- **more than 1,530 bridges and viaducts** each having a length of more than 100 metres, for an overall extension of 724 km;
- **approximately 630 tunnels** each having a length of more than 100 metres, for an overall length of 929 km\(^2\).

As a confirmation of the key role for the country’s infrastructure, in addition to the whole network currently in operation and mentioned before, the development of the tolled network is completed by:

- **151 km of new road under construction**
- **521 km planned for construction**

In 2010\(^3\) Concessionaire companies:

- made investments amounting to **Euro 2,028.91 million**
- carried out planned maintenance works for **Euro 714.31 million**.
- opened **142 new worksites** for **Euro 2.7 billion**

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\(^1\) All data reflect the situation as of 1\(^{st}\) January 2011, as reported on 30\(^{th}\) April 2011

\(^2\) In particular the tolled network has **more than 200 tunnels (all of which are twin tunnels for an overall length of approximately 500 km)** having a length > 500 metres which are part of the TERN (Trans-European Road Network). It is worth underlining that Italy has approximately 50% of all European tunnels having a length > 500 metres that are part of the TERN.

\(^3\) Source: Ispettorato di Vigilanza Concessioni Autostradali - IVCA
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<th>CONCESSIONAIRE COMPANIES</th>
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1.2 Mobility management: the role of concessionaire operators

The Italian motorway network has historically developed and operated under the mechanism of concession agreements. Tolled roadways and their operating are governed by concession agreements between ANAS, as Grantor entity on behalf of the State, and concessionaire operator companies. These agreements include details on the coverage and type of motorways as well as on their operating conditions.

This last aspect is very important, among others, for ITS services, since concession agreements entail exclusive entrustment to the concessionaire operators of the to supply, or in any case make available, along the roadways they have been awarded, a series of activities, such as monitoring, road assistance, data collection on which to base traffic news, toll collections, etc.

Motorway concessionaires can manage activities directly or opt to appoint other parties on the basis of transparent agreements.

In light of these activities, concessionaire operators have organised themselves over the years both independently as well as by developing specific institutional relations.

The Control Centres located along all motorways operated under concessions are an example of independent solutions. These are the gathering points of all the information relating to a particular road stretch that has been assigned to the Centre in question. These Control Centres centrally manage the activities of Road Police, dedicated monitoring means, road assistance, winter operations, and other road services.

Collaboration with the Road Police is an example of an institutional solution. The Road Police operates under conditions of exclusivity along tolled motorways, on the basis of agreements with concessionaire companies, and bring a fundamental contribution to the chain of events making-up the efficient development of different projects and services relating to ITS.

These few aspects should be clear enough to gather the complexity of the operative and institutional chain required for the “production” of certain services, as well as the constraints that the chain is subject to.
2. **ITS: THEIR ROLE IN MOTORWAY DEVELOPMENT STRATEGIES**

*ITS play a part in motorway development strategies as a function of the road and of the mobility of road users:* they are indeed a fundamental tool for the overall improvement of road transportation services, especially in such a special sector such as the one of motorways that are operated under concessions, where the motorway operator performs a public service under the concession instrument, but is also required to improve the efficiency, effectiveness and safety of the infrastructure it has been awarded.

The search for new and more efficient information and technological applications, and their evermore common and “focused” use, unquestionably contributes to the achievement of improved service, safety and quality levels for travellers, and to the implementation of sustainable mobility policies.

The knowledge and skills acquired by motorway operators in this field is fundamental: motorways have always been the test rig for innovative operating technologies and techniques, and the absolutely positive results that have been achieved, in terms of traffic flow and accident levels, are clear evidence of this.

With an overall traffic level of more than 83 billion vehicle-km last year (of which 22%, or 18.7 billion vehicle-km, consisting of heavy vehicle traffic), the tolled motorway system has once again confirmed to be the country’s supporting infrastructural network, sustaining a quarter of all domestic mobility demand. The fact that the length of the motorway network has increased by a mere 12% over the last 30 years vis-à-vis a traffic increase of 180% over the same period, both in terms of medium-short journey as well as (and ever more so in the most recent years) in terms of short journeys - using the motorway network somewhat like an “urban ring-road” as an alternative to the ordinary roads - should also be taken into account.

And despite this growth in mobility demand and in the distribution of vehicle flows, the efforts of the sector, both in terms of resources invested as well as in daily operations, have, over the years, produced – and continue to produce – important results also in terms of accident levels: over the period 2001-2010 the number of deaths has decreased 54%, or nearly 60% in terms of death rate, and injuries are down by 29%. The tolled motorway network is the only system that has reached, and exceeded, (and done so one year ahead of schedule) the European goal of halving the number of road victims, and the numbers attest to the tolled motorway network’s safety, especially if compared to the urban road network.

Even if it is difficult to exactly quantify the impact of each single factor on these results, it is certainly true that ITS and their timely application on motorways have been fundamental.

However, it must be underlined that the sector spends, on average, around Euro 100,000 per km every year and that this amount includes technical and technological implementations, maintenance works, and the costs of specialised staff and relative resources, all of which guarantee the high levels of safety and quality.
It would therefore seem obvious that the full implementation of Directive 2011/40 should necessarily take into account what has so far been the role of ITS – at least in the motorway sector: “instruments” that have been instrumental in optimising mobility management and ensuring the highest levels of safety.

In summary, the motorway sector should recognise the leading management and safety role played by ITS instruments; from this standpoint, all services, applications or technologies, should never conflict with this function, so as to prevent possible negative repercussions on current management procedures.

Consequently, it would appear necessary that the scope of action of a single ITS service/application, regardless of the technologies used or relative technical specifications, be accurately delimited; it is therefore necessary that market rules (outlined by the Directive and relative provisions of law) take into account the possible repercussions on the whole mobility system, and with particular attention to emergency and accident situations. ITS must be an integral part of the broader mobility system and must not act independently of it.
3. TRANSPOSITION AND IMPLEMENTATION OF THE DIRECTIVE IN ITALY

3.1 Premise

The Directive aims at outlining, in a number of phases, the architecture underlying the “market” for ITS. In this regard, a crucial element is the definition of “specifications” by 27 February 2013 – pursuant to article 6 of the ITS Directive. Accordingly, it would seem that any action, today, aimed at bringing forward the identification of specifications and/or requirements would be premature; one would run the risk of having to adjust any national specifications/requirements that are not homogenous with European ones.

It should be remembered that the Directive intends to identify, through the specifications, the roles of the parties involved in the production of an ITS service, the related flow of data, the technical and organisational provisions and the services levels and contents of same. It would therefore seem that these subjects cannot, today, be the matter (unless only marginally) of the Directive’s transposition.

3.2 General considerations

Having made the above premise, we provide, here below, a number of useful considerations, that are the product of the concrete experience of our sector in the field of ITS, for the purpose of an effective implementation of Directive 2010/40/EU which may take into account the positive results already secured with ITS by motorways operating under concessions:

1. As already illustrated, the Italian motorway system operating under concessions has in fact predated the Directive and its objectives. ITS applications have been developed over the years in line with the provisions of the Directive, precisely with the aim of ensuring that service continuity and interoperability that mobility requirements must rely on, and, largely supported at the European level.

As has been done in the past, the sector aims to work as an “open lab” in the near future too, ready to test and implement new technologies that can support the growth of ITS in Italy and Europe. IN this regard, the are numerous projects in the pipeline.

We must protect or enhance the value of what has so far been achieved by all operators – whether the latter are road operators or providers of mobility services, technologies and applications – providing for a focused integration between existing and future ITS services and applications; a way of “building a system” has to be found, and this need has to be pioneered by the institutions, in line with the spirit of the Directive.

2. Moreover, the primary aim of national and European institutions should be to promote ITS guaranteeing full respect of the knowledge, as well as the obligations, of the parties involved, both institutional and not.
The ITS market, which the Directive aims at regulating and promoting, will mean that parties that have always worked in specific business areas shall now find themselves having to work and interact in sectors they know little about and have little experience in. In fact, regulating the ITS market, as it appears to be developing for the near future, shall see car manufacturers, telephony operators, mobility service producers, and road operators all coexisting and carrying out their work in a new, more or less regulated, integrated environment.

We wish to insist on this point: in order to develop the ITS market, full respect of the roles, responsibilities and procedures reflected in existing rules and provisions of law, need to be guaranteed.

Let’s look at the management of emergencies or accidents for example: the laws that exist in Italy (the road code) and the agreements between the state and concessionaires mean that emergency management is led by the Road Police and by road operators. It follows that the development of ITS (the services and related applications) has to take this into account, rather than run the risk of upsetting the operating effectiveness of processes and systems that have long been consolidated.

3. **Voluntary cooperation agreements between Member States** should be encouraged in certain priority work areas, as already happens for the EasyWay programme: over the last twenty years, the intense activity carried out by Italy in Euro-regional projects has allowed the development of tight work collaborations in the sector of motorways operated under concessions between parties from different European regions, belonging to different Member States. This essentially proves that the exchange of experiences and good practices, together with a joint analysis of aspects that are common to all operators in the sector, especially in terms of modern technologies applied to the road system, can produce concrete and successful results on the improvement of road safety, mobility, traffic information and other useful services for road users.

4. The Directive aims at guaranteeing standard services to European users across different Member states, thus encouraging access between the latter. In this respect, the EasyWay programme - a shared working platform at the European level – is one of the best examples of cooperation between operators from different Member States (specific Guidelines Deployment and technical reports have been prepared). Italy must continue its efforts to support EasyWay.

5. Each strategy and rule to promote ITS must take into account the correct cost/benefit relationship, as already expressly indicated in the same Directive.

6. **Forms of “compensation” should be provided for any obligations introduced by the Directive which trigger incremental costs for private operators.** Consequently the additional investments should be allowed inclusion among the costs for the determination of capital directly invested pursuant to existing provisions of law governing the economics of the road sector. Alternatively, one could provide, for example, that such incremental costs be borne by the final providers of the ITS services.

7. **Today, the motorway system is the system ensuring the largest availability of mobility data and information.** There would appear to be a need to focus on those areas where the availability of data and information is most lacking; in this regard particular
attention should be given to mobility data relating to the ordinary road.

In this regard, and even more so in terms of a general consideration, it may be useful to assess the risk that certain operations and provisions – regardless of the actual need that there may be – on a network, such as the motorway one, which is already safer and more “technologically” advanced than the network of ordinary roads, may further increase the undeniable gap that exists between the service and safety levels of the different networks, to the detriment of non-motorway users and mobility.

4. CONSIDERATIONS ON THE PRIORITY AREAS DEFINED BY DIRECTIVE 2010/40

4.1 ITS services for the management of passenger traffic and for transportation of goods: includes priority areas I and II of Directive 2010/40

i. The value of projects/platforms that are functional to the optimisation of traffic flows along the network needs to be enhanced; in this regard it appears fundamental that an aggregator party be identified, making a system possible between all the components involved. Technological platforms such as UIRNET may fully satisfy such a requirement, provided they interact effectively with the other key players of the whole system, above all the motorway operators, those who operate the “intelligent” road network on which ITS are a part of the daily operations, providing road users with the aforementioned service continuity.

ii. The responsibilities of all components involved in supplying the ITS service have to be identified if these directly or indirectly have an impact on the roads’ operating mechanisms and the effectiveness of same. For the purpose of safeguarding such mechanisms, and hence the mobility safety and optimisation, all involved parties must be fully aware of the consequences of their activities; it therefore appears indispensable that there be a clear undertaking of responsibility by the providers of the services (especially suppliers of info-mobility services). Particularly significant is the case of incorrect traffic information that can affect the behaviour of road users and consequently traffic circulation, especially when there are accidents and/or situations of emergency.

If we remind ourselves of the fact that information is one of the primary tools to manage mobility, in situations of emergency operators should have a preferential communications channel with road users. Accordingly, “institutional” information, the source of which can only be the operator of the infrastructure, must be given more value (at least during emergencies) than other sources of information (for example: only the road operator can have
iii. In relation to the Directive’s aim of making available a minimum set of traffic information free of charge to users, it must be highlighted that motorway concessionnaires already provide – free of charge – traffic data and information through public utility services such as the CCISS (Road Safety Information Coordination Centre). This centre, founded in 1990, is a concrete example of synergy and collaboration among the main operators of roads and motorways in Italy, the relevant institutional authorities and RAI (in its capacity of state radio and television broadcaster) to provide road users with information on the whole situation along the network.

Specifically, in relation to info-mobility, and learning from the CCISS experience, one must underline the importance that there be an institutional third party (such as the Road Police) to certify the reliability of information (e.g., validation) as well as another institutional party ensuring quality handling of the information (e.g., the CCISS).

iv. All the phases that are useful to produce traffic information must be qualitatively high, from the acquisition of the information, to its handling and subsequent dissemination. All phases of the process need to accurately developed, implemented and managed. If one of the phases is poor, the entire production chain shall run the risk of ultimately providing poor information.

This means that the laws and rules of reference need to guarantee certain minim requirements, which must mandatorily relate to the different sources of information, as well as to the procedures for the acquisition, handling and dissemination of the same.

4.2 ITS systems for road safety and transportation security: includes priority area III of Directive 2010/40

i. One of the elements required to guarantee road safety is the availability of suitable information. Only the road operator has full knowledge of what is happening along the road (types of accident, possible loss of cargo, the presence of staff or emergency vehicles along the road, the characteristics of work sites, the condition of the road surface and thus of accessibility under bad weather conditions, etc.). This needs to be taken into account in the transposition of the Directive, so as to ensure that the operator has full control in accordance with that provided for under the concession agreements and agreement obligations.

ii. The Directive aims at promoting the harmonisation of services and processes at a European level. In this regard, efforts could be made to enhance the harmonisation that has already taken place at a European level (through the Mare Nostrum and EasyWay programmes) for Variable Message Signs: harmonised messages and standards have been identified for the construction of VMS within the European network. One could consider using this activity to
standardise information inside vehicles, developing a unique “communications interface” for users, which aids the understanding of traffic information messages.

iii. The introduction of the eCall emergency system offers a potential that has to be fully exploited. However, it is necessary to avoid useless duplications or operating hindrances which could actually worsen safety conditions on the motorway.

Taking into account the special nature of motorway networks operated under concessions, the responsibilities of the Road Police and operator in handling accidents, and the good results achieved in terms of road safety, it would be desirable that for the development and implementation of eCall across the European Union, there be the active participation of motorway operators, their knowledge and expertise, so as to safeguard the existing technologies and operating procedures that have proven effective in terms of safety levels.

The above must be given due consideration in the transposition of the Directive.

4.3 ITS applications based on interactions between vehicles and infrastructure

i. The Directive aims at promoting ITS services, such as electronic toll payments, with a view to service “continuity”. Today, free flow tolling is a particularly interesting system; future motorways and important sections of the national road network shall be tolled through such a system. Consequently, Italian law on ITS could enhance the value of the above objective, by enhancing, among others, the interoperability between free flow systems and the current electronic toll payment system.