Progress National Report

for the

State of the ITS Deployment in Spain

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1. Summary

This document is the National Progress Report for the State of the ITS Deployment in Spain for the European directive 2010/40/EU.

Having regard to the Directive 2010/40/UE and in particular article 17(3), each Member State is to report every 3 years following the initial report on the progress made in the deployment of the actions referred to in Article 17(1) (priority actions).

This document has the aim to gather and structure the existent information regarding the progress in Spain ITS context in a comprehensive and extensive way.

2. CURRENT NATIONAL STRATEGY

Due to the legal and territory competence distribution within Spain´s state, there is not a single body responsible for ITS deployment but there exist a number of departments and bodies at all administrative levels (state, regional, urban) with enough capacity to develop projects and deploy ITS.

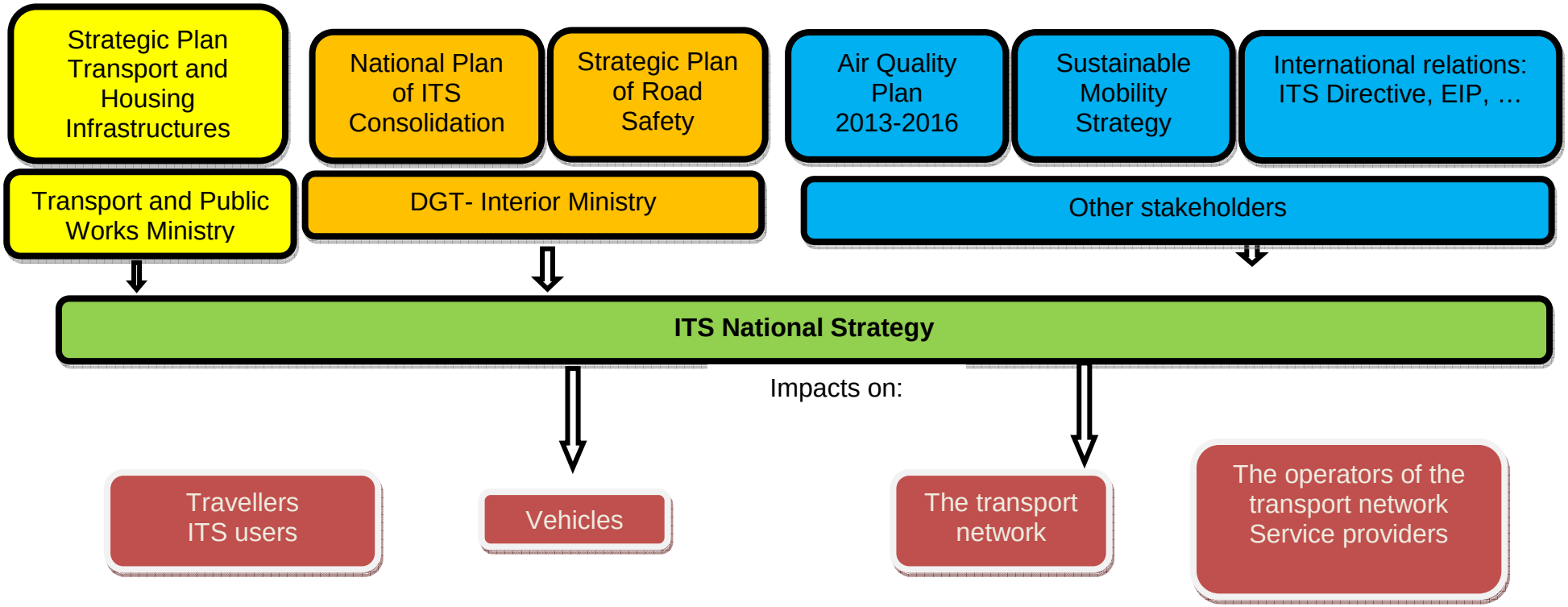
According to Real Decreto 662/2012, in compliance with ITS Directive, it is established that DGT (Traffic Department) will inform the European Commission on the undergone progress in ITS activities and projects as regards Priority Actions.
In order to achieve the previous and inform European Commission, all entities, bodies, departments and ITS service providers are to send DGT a report on all ITS activities and projects which have been developed in the 3-year study period.

At the national level there are two ministries related to ITS:

- Transport and Public Works Ministry
- Internal Affairs Ministry (DGT)

Other regional public administrations should also be mentioned (mainly, the Traffic and Security Department of the Basque Country Government, and Servei Català de Trànsit) as well as various local administrations, like Transport Consortia, that have made a great investment on ITS. With the aim of providing the current national strategy the information has been obtained mainly from the following references:

- Infrastructure and Transport Strategic Plan – Transport and Public Works Ministry
- National Plan for ITS Consolidation (DGT – Interior Ministry)
- Strategic Plan of Road Safety 2011-2020 (DGT – Interior Ministry)
- Plan de Infraestructuras Transporte y Vivienda (PITVI) 2012-2024
- Plan Nacional de Calidad del Aire y Protección de la Atmósfera 2013-2013
- Real Decreto 662/2012 de 13 de abril, por el que se establece el marco para la implantación de los sistemas inteligentes de transporte (SIT) en el sector del transporte por carretera y para las interfaces con otros modos de transporte.


Strategic Plan Transport and Housing Infrastructures
National Plan of ITS Consolidation
Strategic Plan of Road Safety
Air Quality Plan 2013-2016
Sustainable Mobility Strategy
International relations: ITS Directive, EIP, …
Transport and Public Works Ministry
DGT- Interior Ministry
Other stakeholders
ITS National Strategy
Impacts on:
Travellers ITS users
Vehicles
The transport network
The operators of the transport network Service providers

In the following cases there is a common factor: **creating a national ITS architecture.**

2.1. National Plan for Housing and Transport Infrastructure

2.2. ITS Consolidation National Plan

The ITS Consolidation Plan of the Dirección General de Tráfico (DGT), as its name suggests, includes ITS as a central part of the strategy of the traffic administration in order to meet some objectives, which will be presented in the next chapter in greater detail. It focuses on the need to complete the ITS deployment to:

- Improve road safety.
- Improve traffic management in Spain and, therefore, improve mobility at the same time that the environmental impact is reduced.

The plan has **14 priorities**:

- Improving surveillance, including all its possibilities.
- Advanced safety systems, which include the vehicle and its surroundings (other vehicles and the outside)
- Improving the safety transport conditions on the road.
- Improving the data capture systems and the traffic monitoring services.
- Improving information dissemination.
- Cooperating with traffic management centres, both national and European, including those centres not related to road traffic that help supporting co-modality.
- Coordinating ITS systems.
- Improving urban traffic laws.
- Managing some merchandise and intermodal terminals.
- Developing the electronic administration (e-Administration).
- E-Mobility, including its relation with public transportation.
- Creating a national ITS architecture.
- Carrying out market research.
- Evaluating all the activities made through cost-benefit studies.

2.3. Strategic Plan of Road Safety (SPRS) 2011-2020

EL SPRS of the Dirección General de Tráfico has recently presented and includes all the actions and strategies foreseen on traffic-related topics in Spain until the year 2020.

The priority objective is obviously road safety, although taking into account sustainable mobility and international circumstances.

ITS are also a tool to obtain some these objectives, the priorities of which are:

- Protecting the most vulnerable users.
- Safe mobility in urban areas.
- Motorcyclists' safety.
- Improving road safety on conventional roads.
- Improving the driver's behavior for alcohol drinking and speeding.

The work will increase on eleven action areas, one of which is **infrastructures** and **ITS**, where the work areas are:

- The information about infrastructure safety.
- Use and maintenance of infrastructures.
- Safe design of infrastructures.
- Intelligent transport systems and traffic management, which deal with:
    - The European directive about ITS.
    - A new updated ITS plan for Spain for the year 2020.
    - Integration of environmental criteria for traffic management.
    - Integration of new European criteria for service harmonization and continuity.
    - Support the use of collective transportation and shared car.
    - Support the addition of traffic information to navigators.
    - Develop an integrated management of safe parking areas for heavy vehicles.

With these actions, it is expected to have the following indicators for the year 2020:

1	*Decrease of number of 37 fatalities per million inhabitants.*
2	*Decrease the number of the seriously injured to 35%*
3	*Zero children dead without child restraint systems.*
4	*25% less of 18 to 24 year-old drivers dead and seriously injured in a weekend.*
5	*10% less of fatalities who are older than 64 years old.*
6	*30% decrease of runover fatalities.*
7	*1,000.000 of cyclists more without an increase of their mortality.*
8	*Zero fatalities in cars in urban areas.*
9	*20% less of fatalities and seriously injured of motorcyclists.*
10	*30% less of fatalities for getting out of the road on a conventional road.*
11	*30% less of fatalities in accidents in itinere.*
12	*Decrease the 1% of positive results of blood alcohol level in random preventive controls.*
13	*Decrease 50% the percentage of light vehicles that go over the speed limit in more than 20 km/h.*

2.4. Other policies that have an impact on the ITS national strategy

The **Spanish strategies for sustainable mobility** have been included. **They integrate ITS** as a tool to offer transport services, their coordination, route optimization, demand management, modal exchange, among others, which therefore have an impact on the Spanish ITS strategy.

2.4.1. Spanish Strategy of Sustainable Mobility (SSSM)

The SSSM of the Ministry of Public Works and the Department of Environment was passed by the cabinet in April 2010 is still in place. It is the national framework that integrates the principles and coordination tools for directing and giving coherence to the sectoral policies that aim at having a sustainable and low-carbon mobility.

The objectives and directives of the SSSM can be specified in 48 measures divided into 5 areas: (i) territory, transport and infrastructures planning; (ii) climate change and reduction of energetic dependency; (iii) air quality and noise; (iv) safety and health; and (v) demand management.

Within the area “Territory, transport and infrastructures planning” there is one **specific section about ITS**, which details the priority **of implementing intelligent transport systems progressively** so as to meet the following objectives:

- Improve the safety of the passengers or merchandise affected by transport and traffic.
- Optimise the exploitation of transport resources, depending on their capacity, availability, reliability, and so on both for each transport means and as a group.
- Harmonise and standardise definitions of compatibilities between systems and presentation clarity for the user.

Another priority is to support and collaborate in the definition and development of a **global multimodal architecture of intelligent transport systems**, the key elements of which are:

- Communication networks.
- Positioning sensors
- Databases and geographical and environmental information
- Integral information services for the user of intelligent transport systems

The tools anticipated to meet the objectives suggested are:

- Awareness tools, such as creating a knowledge portal, which includes information about experiences in Spain.
- Training tools to make politicians and municipal technicians aware of the areas of the strategy.
- Investigation tools

- Other service providers that should be taken into account to improve mobility management. The role of these elements should be studied:
    - Operators of mobile phones
    - Companies of navigation products
    - Companies manufacturing mobile phones
    - Companies of digital cartography
    - Others, such as Google

Within area (ii) “Climatic change and reduction of energetic dependency” the objective is to improve the service quality by supporting **ITS implementation**.

2.4.2. Sustainable Economy Law

The Sustainable Economy Law was approved in March 2011 and includes a specific chapter about transport and sustainable mobility. Although ITS are not mentioned explicitly, these are necessary to meet the objectives of sustainable mobility:

- Contribute to the improvement of the urban environment and the citizens’ health as well as the safety and the efficacy of the economy by making a more rational use of natural resources.

- Integrate the urban, economic and mobility development in such a way that habitual movements are reduced. Also, facilitate accessing the basic services effectively and safely while having a minimum weather impact.

- Encourage the decrease of energy consumption and the improvement of energetic efficiency. For this purpose, policies for demand management will be used.

- Encourage the use of the means of transport of lesser social, economic, environmental and energetic cost both for passengers and merchandise. Also, encourage the use of public and collective transport and other non-motorised modes.

- Encourage the modality and intermodality of the different means of transport, taking into account the overall group of networks and means of transport that are an alternative to the private vehicle.

Also, the Sustainable Economy Law establishes that the Ministry of Public Works will develop an information system about the official network of transport infrastructures and an analysis and evaluation of the demand of electronic, universal and free access transport services.

2.4.3. Sustainable and Safe Mobility Law

The Sustainable and Safe Mobility Law is being writing out by the Ministries of Public Works, Interior, Environment, Environment. It is intended to be a tool to

improve the mobility of people and merchandise in aspects such as efficiency, road safety and sustainability and, especially, in job mobility.

The draft refers to the progressive introduction of teleinformatic means and new technologies for mobility management so as to guarantee a rational, ordered and adequate mobility to the citizens' needs. It should be further mentioned that this future law at a national level, there are various legislative developments about sustainable mobility at an autonomic level that include progressive implementations of ITS in their directives.

2.4.4. PLAN NACIONA DE CALIDAD DEL AIRE Y PROTECCIÓN DE LA ATMÓSFERA 2013-2016

The improvement of air quality is regarded as a priority action line for the Ministry of Environment due to the severe effects on human health and ecosystmes that air pollution can cause.

Road Traffic is responsible for over 50% of PM1 and some 80% of NOx, being this chemical compound the cause of most respiratory illnesses in urban areas.

Recently, the basic nation-wide norm on road traffic and road safety "Ley de Tráfico, Circulación de Vehículos a Motor y Seguridad Vial" has been passed and includes new relevant articles and coordination mechanisms in order to accomplish with this Plan Aire and enable coordinated sustainable mobility management.

In line with the previous, ITS technology becomes central for proper dynamic traffic management which allows to develope all kind of measures or actions based on traffic enforcement, restrictions, information, or surveillance.

2.4.4. International strategies

The Spanish strategy for ITS is influenced by the European strategies. Among them, the following should be highlighted:

- The European ITS Directive 2010/40/EU
- The European action plan for ITS deployment
- The activities carried out in the ITS deployment projects from the year 1995 (first ARTS and SERTI in euro-region format) and now EIP in a pan-European format.
- The directive 2006/38/CE (Eurovignette), or future updating.
- The directive 2008/96/CE about safety of road infrastructures.

3. OBJECTIVES AND REASONS FOR THE NATIONAL STRATEGY

As indicated in the previous section the national strategy has various sources (departments, bodies or administrations dealing with ITS). The present section **includes** all the objectives and reasons for the national strategy.

The objectives have been included here grouped in general objectives. However, some of the specific objectives could be included within the main objectives as they are considered horizontal objectives.

- **Road safety** improvement through:
  - Checking that traffic regulations are respected
  - Driving aid systems and vehicle-infrastructure and vehicle-vehicle cooperative systems
  - Support to road transport systems

- Improve **systems and information services** for users and, therefore, there should be investments for improvements regarding:
  - Services for mass dissemination information (web services, variable message signs, …)
  - Personal information services (information telephone 011, information through applications such as smartphones)
  - **Traffic data detection** and monitoring services to improve personal information services. The following aspects should be dealt with:
    - traffic data detection
    - la quality of the traffic data available
    - automatic incident detection
    - weather-related data affecting traffic
  - Interconnect **Traffic Management Centres** network that currently exists in Spain, including the centres of the different operators (national, regional and local administrations, toll motorways operators, etc) through the standard protocol DATEX II.

- Improve all systems that help citizens access **electronic public administration** services (information, payments, etc.)

- Introduction of new technologies to those services that are intended to meet users' needs. The main aim is to **support the intermodality** of the transportation system and, thus, improve the information and the access to the **public transportation**.

- Improve the qualifications and competitiveness of the **Spanish transport companies** in an every time more open Spanish market.

- Creation of a **Spanish ITS architecture** that helps:

- Harmonise the service conditions of the road network for safety, services and maintenance.
- Promote multimodality in favour of cleaner modes such as railway system.
- Integrate ports within international transport network.
- Improve sustainability and the environmental impact of transport
- Improve the interurban, urban and metropolitan transport by improving mobility, efficiency and service quality reducing polluting emissions.
- The future implementation of the Eurovignette.

In order to join the content of the Directive to the Spanish legal ordinance, a RD is being written down that will set up the bases for implementing and the coordinated and coherent uses of the Intelligent Transport Systems (ITS) in Spain and the general necessary conditions for meeting that objective will be established within the framework of that indicated in the Strategic Plan of Road Safety approved by the Cabinet Meeting on the 25th February 2011. The RD is intended to establish the national ITS service architecture of national traffic, which includes the integrated collection of systems, actions, strategies, plans, procedures, mechanisms, installations, means and resources whose aim is offering the ITS traffic systems described in the section 4 of the present report.

4 ITS DEPLOYMENT STATE PROGRESS (2011-2014)

Information on ITS progress within the ITS Directive Priority Actions has been structured following the criteria shown in the table below:

Functional area	ITS service (what)
Traffic information	Traffic events and incidences
	Traffic flow (levels of service)
	Travel time
	Information about speed limits
	Driving restrictions
	Distribution of images and videos
	Weather information
	Itinerary planning
	Information exchange
Traffic and mobility management	Dynamic peed management
	Prohibition of truck take-over
	Reversible lanes
	Use of hard-shoulders
	High occupancy lanes
	Ramp Metering or Access control
	Dynamic management of driving restrictions in mass movements and adverse weather conditions
	Tunnel management
	Traffic Management Plans
	Traffic lights priority system
	Public Management Bicycle
	Dynamic management of urban traffic plans
	Car sharing
Safety and emergency management	e-call or incident management
	ADAS
	Lost vehicles
	Remote diagnosis
	Vulnerable users
Surveillance (enforcement)	Speeding control
	Red light control
	Access control
	Environmental
Telematic payment	Road pricing

Functional area	ITS service (what)
Freight and fleet	e-freight
	e-administration
	Information about parking spaces
	Booking of parking spaces
	Dangerous merchandise management
	Especial transport management
	Urban and interurban logistics
Facilities Transport	Exploitation Support Systems
	Trip planning
	Intermodal transport management
	e-ticketing
	Exchange

In the following tables, each ITS service is disaggregated, including current situation of each service in Spain.

The following colour-scale has been used to represent 3 levels of deployment and maturity.

	Test level, pilot projects or investigation or preliminary studies
	Service deployed in some corridors or specific cities
	Service deployed in most part of territory or area where it is necessary. There may be space.

Traffic information

4.1.1. Events and traffic incidences

What	How	Who	Where	2011 Deployment	2014 Deployment
Events and traffic incidences	Variable Message Signs (VMS)	DGT, SCT, DT	Accesses and ring roads of big cities. Some sections of the interurban network of Spain.		
		City halls	Big cities		
		Toll highways	Some toll highways		
	Web servers	DGT, SCT y DT	All interurban network		
		City halls	Big cities		
		ITS Service providers using data provided by Administration or other agents	All interurban network		
	RDS-TMC	DGT via RNE	All interurban network		
	Information telephones (900-123505 & 011), SMS, 012, …	DGT, SCT, DT, Some city halls of big cities	All the urban and interurban road network		
	Apps for smartphones	ITS Public and private providers with information provided by the administration or other servers	All interurban network and part of the urban one		
	Teletext and interactive digital televisions	DGT, SCT, DT	All interurban network		

Traffic flow (levels of service)

This information is available to some big city halls, private operators (Google, INRIX, etc), as well as toll motorway operators using web services and smartphone applications.

4.1.2. Travel times

What	How	Who	Where	2011 Deployment	2014 Deployment
Travel times	Variable Message Signs (VMS)	DGT, SCT, DT, Big cities and some toll highways	Accesses and ring roads of big cities, big urban axes and some stretches of toll motorways.		
	Web servers	DGT	Accesses and ring roads of big cities.		

4.1.3. Information of speed limits

What	How	Who	Where	2011 Deployment	2014 Deployment
Speed limit information	Variable Message Signs (VMS)	DGT, SCT, DT, big cities and some toll highways	Accesses and ring roads of big cities, big urban axes and some road stretches of toll motorways		

4.1.4. Driving restrictions

What	How	Who	Where	2011 Deployment	2014 Deployment
Driving restrictions	Variable Message Signs (VMS) Web servers Channels of news	DGT, SCT, DT	Accesses and ring roads of big cities, big interurban axes Social networks and web-based info dissemination.		

4.1.5. Image or video distribution

What	How	Who	Where	2011 Deployment	2014 Deployment
Image or video distribution	Web servers Smartphone Apps	DGT, SCT, DT, big city halls, some toll motorways and ITS service providers	Accesses and ring roads of big cities, big interurban axes		

4.1.6. Weather-related information

What	How	Who	Where	2011 Deployment	2014 Deployment
Weather – related information	Variable Message Signs (VMS) Web servers Smartphone Apps	DGT, SCT, DT and ITS service providers	Specific points of the interurban network		

4.1.7. Itinerary planning

What	How	Who	Where	2011 Deployment	2014 Deployment
Itinerary planning	Web servers and Smartphone Apps	DGT, SCT, DT and ITS service providers	All road network		

4.1.8. Information exchange

What	How	Who	Where	2011 Deployment	2014 Deployment
Information exchange	DATEX	DGT, SCT, DT, Abertis	Interurban road network, including an exchange with France and Portugal		
	.xml files for private operators	DGT, Basque Government	Interurban road network		
	Text files for private operators	SCT			

4.2. Traffic and Mobility Management

4.2.1. Dynamic speed management

What	How	Who	Where	2011 Deployment	2014 Deployment
Dynamic Speed Management	Variable Message Signs (VMS) Speed cameras Web servers	SCT	Specific sections of interurban and periurban network		
		DGT	Specific sections of interurban and periurban network		
	Virtual Variable Message Signs Web Servers	FOTSYS	Specific sections of periurban network		

4.2.2. Prohibition of truck take-over

What	How	Who	Where	2011 Deployment	2014 Deployment
Prohibition of truck take-over	Variable Message Signs Web servers News channels	DGT, SCT, DT, Motorway operators: Abertis, AUMAR	Specific sections of interurban network		

4.2.3. Implementation of reversible lanes

What	How	Who	Where	2011 Deployment	2014 Deployment
Implementation of reversible lanes	Variable Message Signs (VMS) Web servers News channels	DGT, SCT, DT,	Specific sections of interurban network		

4.2.4. Hard shoulder use

What	How	Who	Where	2011 Deployment	2014 Deployment
Hard shoulder use	Variable Message Signs (VMS)	DGT, SCT, DT	Specific sections of interurban network		

4.2.5. Management of high-occupancy lanes

What	How	Who	Where	2011 Deployment	2014 Deployment
Management of high occupancy lanes	Variable Message Signs (VMS) Web servers News channels	DGT	20-km stretch on the high capacity A-6 Madrid periurban motorway access.		
	Variable Message Signs (VMS) Web servers News channels	SCT	Finshed HOL project on C-58 (oct.2012: HOV+3; march 2013 HOV+2; sept. 2014 HOV +2 (1+1 layout).		

4.2.6. Ramp Metering

What	How	Who	Where	2011 Deployment	2014 Deployment
Ramp Metering	Variable Message Signs Web servers News channels	Barcelona Town Hall			
	Variable Message Signs Web servers News channels	DGT	A-5 and A-1 periurban Madrid motorways		

4.2.7. Dynamic management of driving restrictions in mass movements and adverse weather conditions

What	How	Who	Where	2011 Deployment	2014 Deployment
Dynamic Management of driving restrictions in mass movements	Variable Message Signs Web servers News channels	DGT, SCT, DT, Madrid and Barcelona Municipalities	Interurban Networks and ring roads metropolitan areas of big cities: Madrid y Barcelona		
Dynamic Management of driving restrictions in adverse weather conditions	Variable Message Signs Web servers News channels	DGT, SCT, DT, Madrid and Barcelona Municipalities	Interurban Networks and ring roads metropolitan areas of big cities: Madrid y Barcelona		

4.2.8. Tunnel Management

What	How	Who	Where	2011 Deployment	2014 Deployment
Tunnel Dynamic Management	Variable Message Signs Web servers News channels	DGT, SCT, DT, motorways operators: M-12 Airport axis, Abertis, AUMAR ; Madrid and Barcelona Municipalities	Tunnels of the interurban and urban network		

4.2.9. Traffic Management Plans

What	How	Who	Where	2011 Deployment	2014 Deployment
Traffic Management Plans	In traffic Management centres by means of service levels algorithms, traffic conditions, automatic incident detection and travel times. Variable Message Signs Web servers News channels Smartphone apps	DGT, SCT, DT, motorways operators: M-12 Airport access, Abertis, AUMAR	In all traffic management centres, the interurban road network of Spain		

4.2.10. Dynamic management of urban traffic plans

What	How	Who	Where	2011 Deployment	2014 Deployment
Dynamic Management of urban traffic plans	Traffic lights priority system and urban Traffic Management Centres with adaptative algorithms.	Municipalities and Authorities that regulate traffic lights. Provinces	Centralised Control Systems based on traffic lights in Spanish cities		

4.2.11. Traffic lights priority system for the public transport

What	How	Who	Where	2011 Deployment	2014 Deployment
Traffic lights priority system for public transport	Traffic lights priority system, exploitation support systems and urban traffic Management Centres	Municipalities and municipal transport companies	Cities: Donostia-San Sebastián, Albacete, Vigo, Valencia, Zaragoza, Bilbao, Murcia.		

4.2.12. On-request public transport

What	How	Who	Where	2011 Deployment	2014 Deployment
On-request public transport	On-board equipment exploitation aids, info screens, reservation centre, tool for making reservations (web, SMS, telephone).	Municipalities, authorities of public transport and operators of public transportation	Rural environments or low density environment in cities in cities and/or metropolitan areas: Madrid, Asturias, Zaragoza, Camp de Tarragona, Castilla y León…		

4.2.13. Public Bicycles Services Management

What	How	Who	Where	2011 Deployment	2014 Deployment
Public Bicycles Services Management	Equipment stations – bike racks– Conventional and electrical bicycle; Contactless card; Intermodality with other public transport modes. Web servers News channels-web portals	Municipalities and Municipal Transport Companies	Spanish cities: Madrid, Barcelona, Valencia, Sevilla, Bilbao, San Sebastián, Murcia, Ciudad Real, Zaragoza…		

4.2.14. Car-pooling

What	How	Who	Where	2011 Deployment	2014 Deployment
Car – pooling	Variable Message Signs Web servers	DGT, SCT, DT	Specific stretches of the interurban road network		

Note that there also exist a series of private **Car-Sharing** operators.

4.3. Safety management, road safety and emergencies

4.4. Enforcement

4.4.1. Speeding control

What	How	Who	Where	2011 Deployment	2014 Deployment
Speeding control	Speed cameras	DGT, SCT, DT and Municipalities	Specific areas due to safety reasons		
	Mean Speed speed controls	DGT, SCT, DT and big cities municipalities	Specific risky stretches such as tunnels		

4.4.2. Red Light control

What	How	Who	Where	2011 Deployment	2014 Deployment
Red Light control	Camera, traffic sensor and traffic light unit	DGT, SCT, DT and Municipalities	Traffic light regulated intersections with road safety problems		

4.4.3. Access control due to weather-related reasons

What	How	Who	Where	2011 Deployment	2014 Deployment
Access control	Licence Plate Recognition (LPR) and VMS supported with automatic fee devices	Municipalities	Heritage / Air quality protection on sensitive areas		

4.4.4. Video-surveillance in the public transportation system

What	How	Who	Where	2011 Deployment	2014 Deployment
Video-surveillance in the public transportation system	Onboard cameras, driver alarm, control centre, operation support systems.	Municipalities, authorities of public transport, operators of public transport, taxi drivers.	Vehicles of the different modes, in cities and/or metropolitan areas: Madrid, Barcelona, Valencia, Murcia, Zaragoza, Gipuzkoa…		

4.4.5. ETC offenses

What	How	Who	Where	2011 Deployment	2014 Deployment
Electronic toll collection offenses	Camera, offense sensor, ETC and automatic offense device	Motorway concessionaries; DGT	Toll roadways (integration with national fine management centre – ESTRADA centre)		

4.5. Telematic payment

What	How	Who	Where	2011 Deployment	2014 Deployment
ETC	DSRC antennas in tolls, on-board devices	Motorway concessionaries	All Spanish toll motorways throughout the country.		

4.5.1. Mobile phone payment and card verification on public transport

What	How	Who	Where	2011 Deployment	2014 Deployment
Payment and card verification of public transportation by using the mobile phone	SIM cards, application of payment in the mobile phone, onboard verification equipments that use NFC technology.	Municipalities, public transport authorities and operators.	Preliminary and pilot studies in some metropolitana reas such as: Madrid, Valencia, Murcia, Málaga, Gipuzkoa, Lleida, Pamplona…		

4.6. Freight and fleet

4.6.1. Information and reservation services on safe and secure parking places for lorries.

What	How	Who	Where	2011 Deployment	2014 Deployment
Information about interurban parking spaces	Variable Message Signs Web servers	Parking operators; DGT	Intelligent Truck Parking		

What	How	Who	Where	2011 Deployment	2014 Deployment
Information about urban parking spaces	Variable Message Signs Web servers	Madrid Town Hall Barcelona Town Hall Terrassa Town Hall			

4.6.2. Dangerous goods traffic management.

What	How	Who	Where	2011 Deployment	2014 Deployment
Dangerous goods management	Variable Message Signs Web servers LPR	Madrid Town Hall Barcelona Town Hall Terrassa Town Hall			
	Web server Variable Message signs LPR	SCT	Web-based application to decide best route for dangerous goods.		

4.6.3. Dangerous goods monitoring.

What	How	Who	Where	2011 Deployment	2014 Deployment
Dangerous goods monitoring.	Variable Message Signs Web servers	Ministerio de Fomento (DGTT)	All state-dependent road network nationwide.		
	Web application	SCT	"TRESA" application for special transports authorizations"		

4.6.4. Special Transport Management.

What	How	Who	Where	2011 Deployment	2014 Deployment
Special Transport Management	Web applications GPS	DGT	TRAZA application for abnormal size/weight transport authorizations. STRE-fv application for GPS monitoring of special transport vehicles and fleets and integration in Traffic Management Centres		
		SCT	TRESA application for abnormal size/weight transport authorizations.		

4.6.5. Urban and interurban logistics.

What	How	Who	Where	2011 Deployment	2014 Deployment
Urban and interurban logistics	Technical department	Ministerio de Fomento (DGTT)	Nation-wide road network		

4.6.6. Lean and green logistics.

What	How	Who	Where	2011 Deployment	2014 Deployment
Urban and interurban logistics	Logistics platform creation.	Ministerio de Fomento (DGTT) Transport operating companies	Nation-wide road network		

4.7. Transport facilities

4.7.1. Exploitation Support Systems (ESS)

What	How	Who	Where	2011 Deployment	2014 Deployment
Exploitation support systems	Follow-up and fleet control through geolocalization (GPS) and wireless voice/data communication with mobile units. Boarding Systems control. Driver help interface. Centre of operation control: Communication servers and database, client positions, geographical and synoptic information.	Municipal Transport Companies Interurban transport companies	In most Spanish cities and in areas served by interurban service connecting main urban nodes.		

4.7.2. Trip planning (including door-to-door planner)

What	How	Who	Where	2011 Deployment	2014 Deployment
Trip planning	Computer tool that supports the planning job of helping operators. The information generated is used by the ESS.	Municipal Transport Companies; Interurban transport companies	In most Spanish cities and in areas served by interurban service connecting main urban nodes: Madrid, Barcelona, Valencia, Sevilla, Gran Canaria, Pamplona, Murcia, Asturias, etc.		
	www.bus.es	Ministerio de Fomento (DGTT)	All interurban Spain´s concessions.		
	Smartphone App	DGT + Other service providers (based on DGT sources)	Nation-wide road trip planning (including weather, incidences, restrictions and traffic L.O.S)		

4.7.3. Intermodal transport management

What	How	Who	Where	2011 Deployment	2014 Deployment
Intermodal transport management	Introduction of a unique transport card. e-ticketing harmonizing systems of different operators. - Control and compensation centres to make a distribution between the operators and other system agents.	Transport regulation bodies in regions and provinces.	Various regions		
	Road-Sea seasonal intermodality	DGT	Information dissemination for long-range nation-wide road trips to Access sea ports (traffic levels, ports occupation, estimated departures times, en-route rest areas, etc).		

4.7.4. E-ticketing

What	How	Who	Where	2011 Deployment	2014 Deployment
e-ticketing	Magnetic, contactless, or bar-code technology, bar code. Sale systems Control Systems for card usage, centre of e-ticketing control and management.	Municipal transport companies. Interurban transport companies (urban and interurban)	Areas served by interurban service connecting main cities. cities and/or metropolitan areas: Comunitat Valenciana, Murcia, Andalucía, Asturias, Mallorca, Gran Canaria, Zaragoza, Gipuzkoa, Camp de Tarragona, Lleida, Pamplona, Vigo, A Coruña…		

4.7.5. Exchange

What	How	Who	Where	2011 Deployment	2014 Deployment
Exchange	Apps and required servers for multimodal info.	Transport regulation bodies in regions and provinces.	Big cities		

4.7.6. Traveller information

What	How	Who	Where	2011 Deployment	2014 Deployment
Information to SIV travellers	Systems for visually impaired people. Wireless or fixed communication between the control centre (SAE/SIV) and info screens in real time, Apps for info dissemination through different channels and formats for users. Control	Transport Municipal Companies Interurban transport companies	Areas served by interurban service connecting main cities. Cities and/or metropolitan areas: Comunitat Valenciana, Murcia, Andalucía, Asturias, Mallorca, Gran Canaria, Zaragoza, Gipuzkoa, Camp de Tarragona, Lleida, Pamplona, Vigo, A Coruña…		

	centre.				

5. PRIORITY AREAS PROGRESS

In the following pages, a summary of the most significant progresses on each priority area (see Article 17(1) of ITS Directive) is detailed for the Spanish case.

A description of actions and projects is undertaken regarding the priority actions according to the priority areas.

Status of deployment of Priority Action A.- Provision of EU-wide multimodal travel information services

August 2014

Introduction

The main legal responsibility regarding multimodal trips belongs to Ministerio de Fomento (Ministry of Public Works), who is currently fostering this action but no specific data is still available.

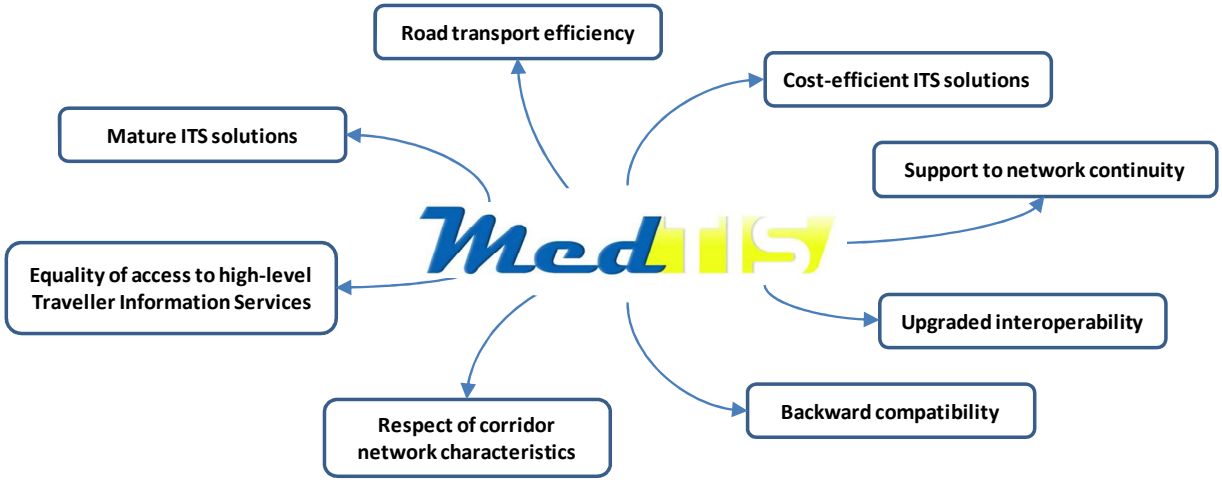
In 2012, ITS Action Plan (Ministerio de Fomento) was submitted to European Commission, but due to budget constraints, it can only be highlighted the progress undertaken on the development of a computer-based application for the acquisition, gathering and management of data from all road-passenger transport concessions within the area of responsibility of the State Administration. This application also allows for real-time data transmission to central information systems of Ministerio de Fomento.

In the following lines, a description of all progresses is included regarding Ministerio de Fomento and the rest of Ministries.

Current status as overview

Long-distance travels
According to road administration data, some **16% of cross-border demand** corresponds to long-range travels within the European Union, which highlights the relevance of a proper connectivity of the network and the seamless provision of services and traffic/road safety information.
Land Transport Management
Spain´s land transport authority is fostering and promoting this priority action in a wide perspective including all transport modes while final results are still being processed and analysed and will be available soon.
Additionally, within the context of Ministerio de Fomento ITS program, a robust real time information management system on passengers land transport operators data is being undertaken so that all data is centralized into the information systems of Ministerio de Fomento aiming to have a better control and tools to improve and optimize the transport system concession system.
Seasonal Traffic Management
In Spain, every single summer season, a major seasonal road operation known in Spain as **'Paso del Estrecho'** takes place. During the summer period (3 calendar months) Spanish road operators have to cope with an extra traffic volume of 2.000 vehicles per day which distribute on two main corridors along the country. These vehicles and road users heading to the south of Spain to reach northern Africa have to be informed, managed and receive indications on parking and transport modes along the route.
Spain is actively working on a coordinated management of traffic and road safety related information within an European project financed by EC, called MedTIS. This project basis its

approach on the ITS Action Plan and ITS Directive MedTIS partners' general approach and focus could be summarised with the following diagram:



In the case of Spain, an approach towards multimodality management is undertaken in order to safely manage traffic demand under special events and operations, mainly on the aforementioned Operación Paso del Estrecho.

Figure 1: VMS displaying information on waiting times and parking places availability at sea ports.

The dissemination of information to road users must take into account the variety of languages which are used in the European Union as shown in the previous figure (French).
DGT has various means for the dissemination of information to road users:

- Dedicated staff located in en-route Rest Areas including translators and medical service.
- Informative brochures on itineraries, useful phone numbers, ticket sales, road safety and security information.
- Info points on several spots along the main road itineraries.
- Variable Message Signs (VMS).
- Radio Traffic.
- Mobile App.

- Traffic Police at critical road sections.

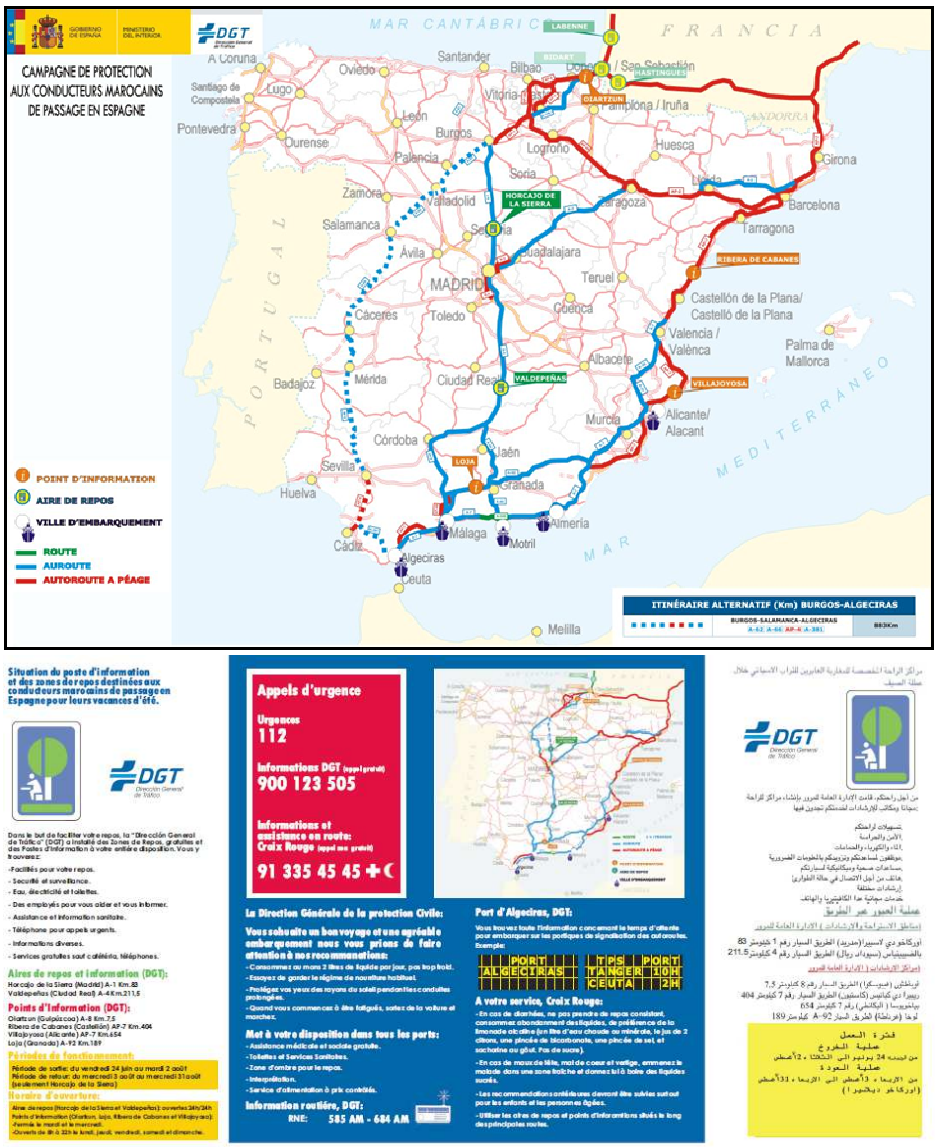


Figure 2: Road map and informative brochure.

Accordingly, all information provided to seasonal non-frequent users aims at reducing road traffic disruptions and road accidents by means of allowing users to make smart travel decisions (itinerary, ticket purchase, rest times, etc) which results in more comfortable trips and less seam-related disruptions associated with multimodality transfer Road-Sea.

In fact, provision of real time and forecast information on parking areas availability and waiting times for embarking at main sea ports is a useful tool for users who can plan their travel in advance and consider itinerary alternatives as well as embarking dates according.

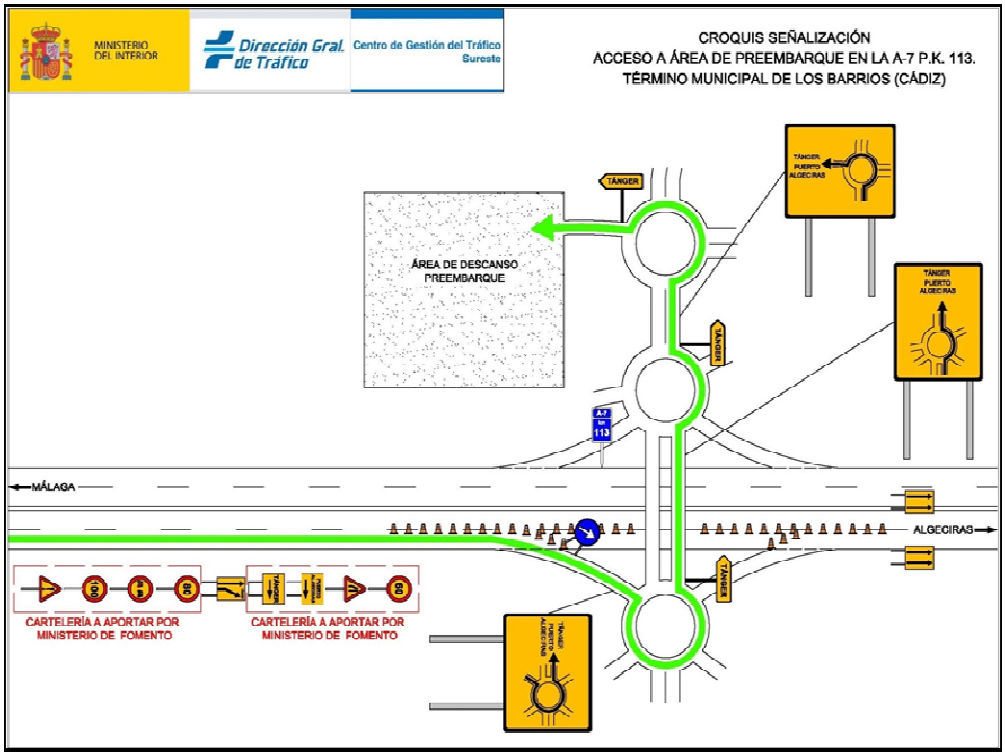


Figure 3: Temporary multimodal car park and special signage for traffic distribution.

A continuous monitoring of traffic parameters is undertaken on main high capacity road sections and at dedicated info points and rest areas, too.

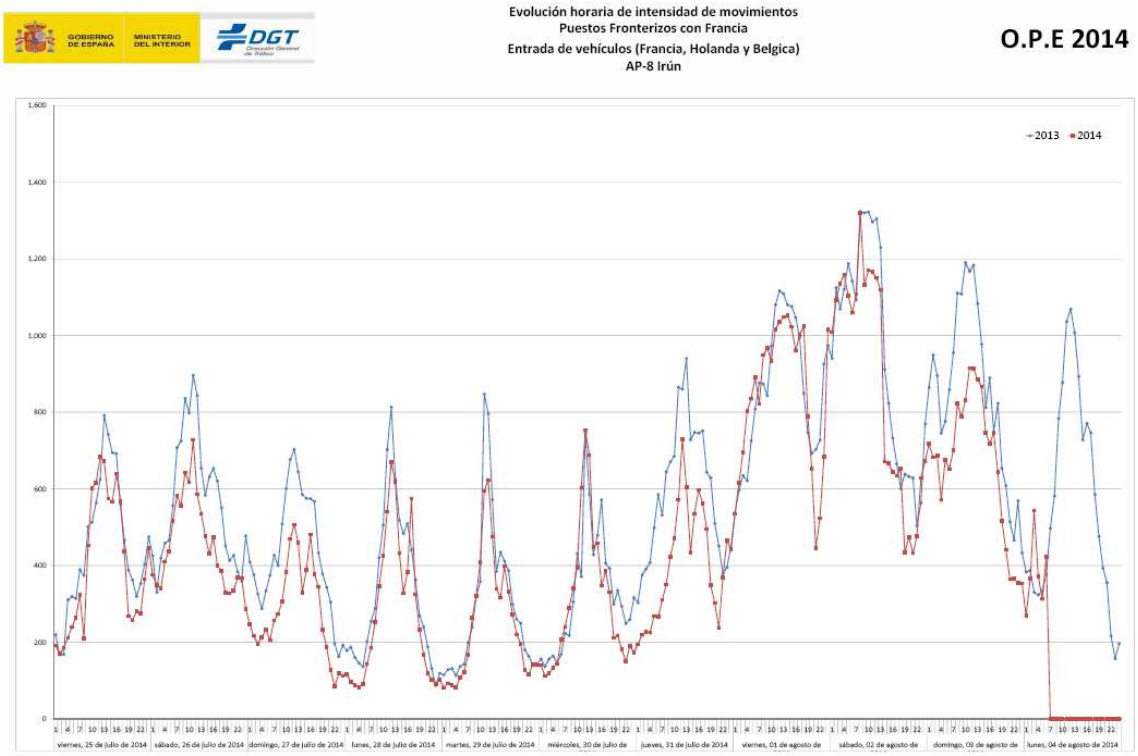


Figure 4: Traffic parameters monitoring graph.

Additionally, DGT owns a special trans-border traffic monitoring system by which DGT can retrieve real-time and historical data border-crossings attending to time, vehicle nationality, and border section, including sea ports and airports. This would allow for an efficient traffic management and enable to elaborate multimodal traffic studies (Road-Sea; Road-Air) as well as provide added value information and services to road users for informed multimodal trip decisions.

Status of deployment of Priority Action B: The provision of EU-wide real-time traffic information services.

August 2014

Current status as overview

At the time of writing this report the delegated act associated with the priority action b) of the directive 40/2010/UE has not been approved yet. At the beginning of July 2014 took place the last of the meetings in which the experts designated by the member states collaborate in the development of the specifications. Spain has attended those meetings and cooperated in the elaboration of the specifications.

At this moment we are devoting our efforts in the deployment of the priority actions whose delegated acts have been already approved, priority actions c), d) and e).

Regarding the national access point to real time traffic information, Spain intends to reuse and build up on the national access point of the priority action c) to comply with the requirements of the priority action b).

As soon as the final specifications of the priority action b) are released the Spanish authorities will start its deployment.

Status of deployment of Priority Action C: Data and procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users.

August 2014

Introduction

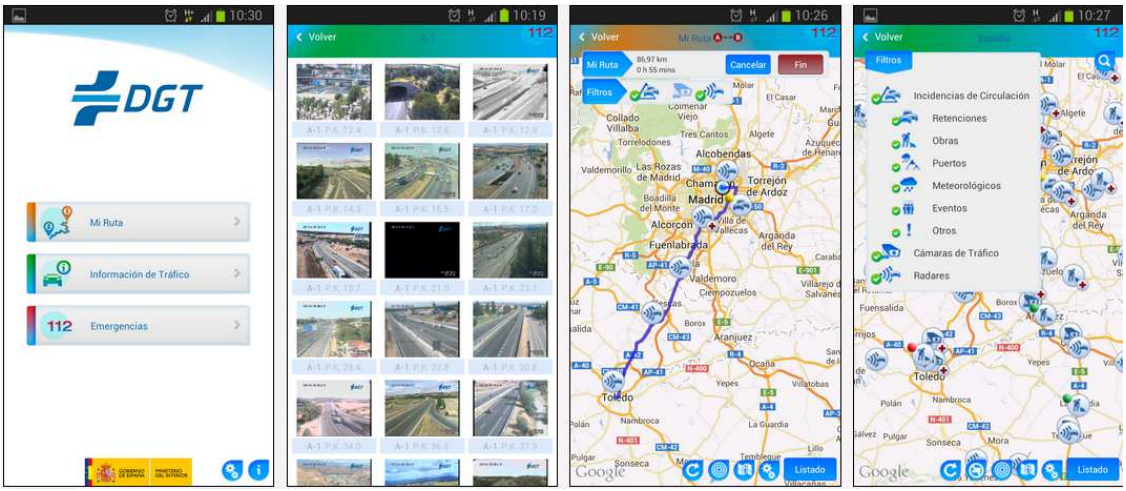
Despite the fact that road accidents, fatalities and casualties figures have dropped dramatically in the last decade, 72% reduction on road accidents deaths since 2003, road safety is still nowadays a major element in the European Union.

In this context, Spain is making progress on deploying ITS services aimed to improve incident detection, incident info dissemination, support traffic supervision, and provide road safety related information to road users.
Spain is actively participating in ARC-ATLANTIQUE ana MedTIS European Commission projects on ITS deploying and road safety information management and exchange.

The previous supports the success of Priority Action C) since traffic / weather / incident detection relies on proper ITS infrastructure (inductive loops, licence plate recognition, road weather stations, CCTV, speed cameras, etc, as well as on proper management and exchange of information.

Current status as overview

The initial step of DGT is taken from the baseline situation, which already accounts for a Website (dedicated to “real time” Traffic and Road Safety Information), an information service for automated input of external info systems (3rd parties), a smartphone APP (see next figure) which broads the array of info channels in order to reach all kind of users/drivers and adapt to new technologies.



In line with the accomplishment with 2010/40/UE requirements, as regards safety-related minimum universal access point, it must be noted that published info has currently an internal DGT format based on “xml” in compliance with general info exchange/management international recommendations.

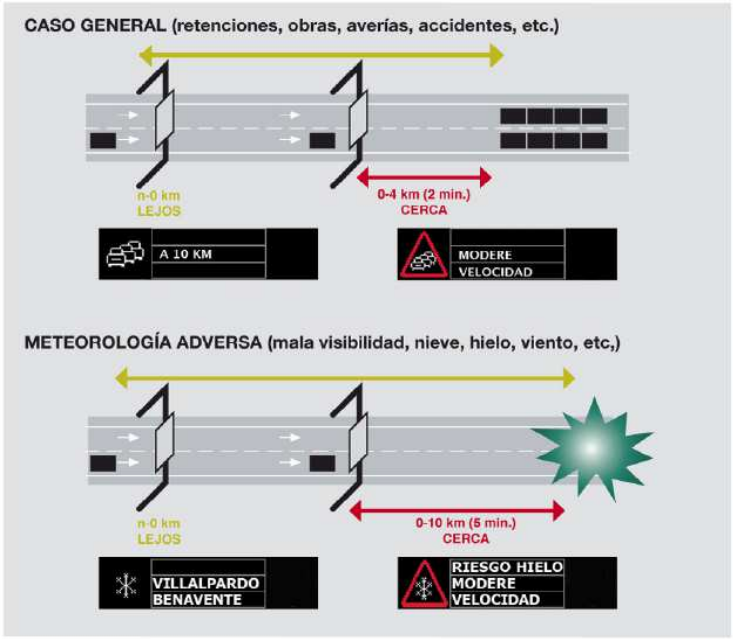
Notwithstanding, a new evolution of this system is projected and meets the Commission Delegated Regulation (EU) No 886/2013, in terms of info publishing format (DATEX II).

The following are the event categories that Spain is covering and providing information to users nowadays:

- Temporary slippery road.
- Animal, people, obstacles, debris on the road.
- Short-term road works.
- Reduced visibility.
- Exceptional weather conditions.

For each of the previous events, Spain provide the following contents:

- Location of the event: Location information is based on “road kilometer point” but progresses are being undertaken in order to adapt this system into a standard geographic location format.
- Category of the event (see previous list).
- Brief description of the event.
- Driving behoviour advice: Enforcement and advice is undertaken by Traffic Management Centres in compliance with “Resolución de 1 de Junio de 2009, Manual de Señalización Variable” norm, which establishes criteria and structure for variable message sign info provision covering all the previous categories (see an example in next figure).



Regarding Article 9) of the Delegated Act, Spain has developed a study for the development of an electronic database which joins all traffic and safety-related info from all involved stakeholders, as well as the degree of accomplishment with Delegated Acts. Note that this could also be used for the rest of Priority Actions.

Significant difficulties have been found at implementing the requirement imposed by Article 9. of Delegated Act in general, and in particular all the implications regarding “randomly inspections” of the correctness of the declarations of operators.

Data Quality management methods are still internal for each traffic body or operator. Notwithstanding, Spain will incorporate all conclusions and recommendations from 3.2 and 3.3 E.I.P Working Groups, and adhere to common agreed methodologies and guidelines.

Status of deployment of Priority Action D.: The harmonized provision for an interoperable EU-wide eCall.

August 2014

Current status as overview

Spain is currently involved in the European Commission co-funded project HeERO2 on testing the harmonized European eCall system. In the framework of HeERO2 project the most relevant Spanish organizations are working together in order to evaluate the feasibility of an specific eCall architecture to be deployed in the whole country.

The Spanish consortium is driven by the Spanish Road Traffic Administration (DGT) with collaboration with the other relevant eCall stakeholders:

- Civil Protection
- Regional 112 PSAPs
- State Secretary on Telecommunications for the Information Society (Gral. Subdir. on telecommunication networks and operators)
- Automobile Clubs
- IVS providers
- System developers and integrators

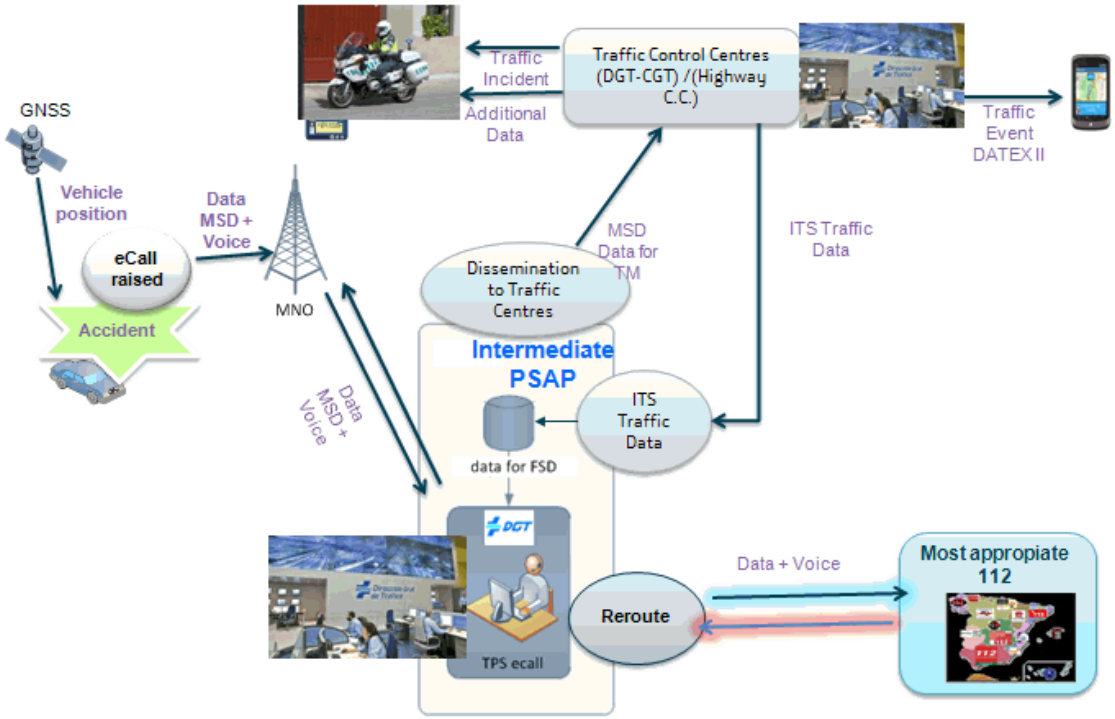
Currently eCall service has been already tested taken into account the whole data chain as it is presented in the following figure (each of these items will be deeper explained in following chapters):

- Deployment of several vehicles equipped with eCall IVS able to send both manual and automatic eCalls
- Deployment of an intermediate PSAP able to decode and filter eCalls and sending to appropriate 112 PSAPs
- Deployment of 4 regional 112 PSAPs able to receive eCalls

Furthermore, Spain will organize:

- the HeERO Conference in Madrid between 26th and 28th of November
- the eCall TestFest in Vigo between 27th and 31st of October for interoperability testing between different IVS and PSAPs

Besides HeERO2 involvement, Spain is also acting as co-chair of the European eCall Implementation Platform (EeIP) as representative of Member States.



Before the end of year 2014 it will be carry out a higher number of tests that will be used to evaluate several KPIs (Key Performance Indicators). The evaluation results will allow a final decision on Spanish eCall architecture.

Intermediate PSAPs

An intermediate PSAP has been deployed in Madrid's DGT Traffic Management Centre. It has been equipped with 2 solutions from different providers (Telefónica & Ericsson). Both solutions are currently under evaluation (in the framework of HeERO2 project).

The system deployed in the Intermediate PSAP receives all eCalls and after decoding the MSD is able to re-send the information to the more appropriate regional 112 PSAP. In parallel the information is also sent to the traffic incident database and own DGT traffic police.

The decoding of the MSD also includes the connection with the own Spanish vehicles database which in the final solution will be changed to the Eucaris database for no Spanish vehicles.

Regional 112 PSAPs

Spain has 19 regional 112 PSAPs. In HeERO2 project there are involved 4 of them (Madrid, Galicia, Valencia and Castilla and León).

All these 4 regional 112 PSAPs involved in HeERO2 project has already been upgraded to receive and managed eCalls if the MSD is decoded by the Intermediate PSAP.

Moreover it has been already tested the possibility to establish a call back with the vehicle when received an eCall MSD data from the Intermediate PSAP.

MNOs

There are 4 MNOs with own telecommunication infrastructure in Spain (Telefónica, Vodafone, Orange and Yoigo).

At this stage none of them has implemented the eCall discriminator. Telefonica is the only MNO involved in the HeERO2. However the implementation of the eFlag is not previewed in the HeERO2 framework.

Currently, in the HeERO2 framework, the IVSs have configured a long phone number (not phone number 112) which allows addressing any eCall to the Intermediate PSAP in Madrid which is able, after decoding of MSD to re-send the received data to the most appropriate regional 112 PSAP.

IVSs

There are 3 Spanish eCall IVS providers in HeERO2 project (FICOSA, CTAG and GMV). All of them have provided IVS equipment which has been installed in different vehicles in order to carry out the HeERO2 tests.

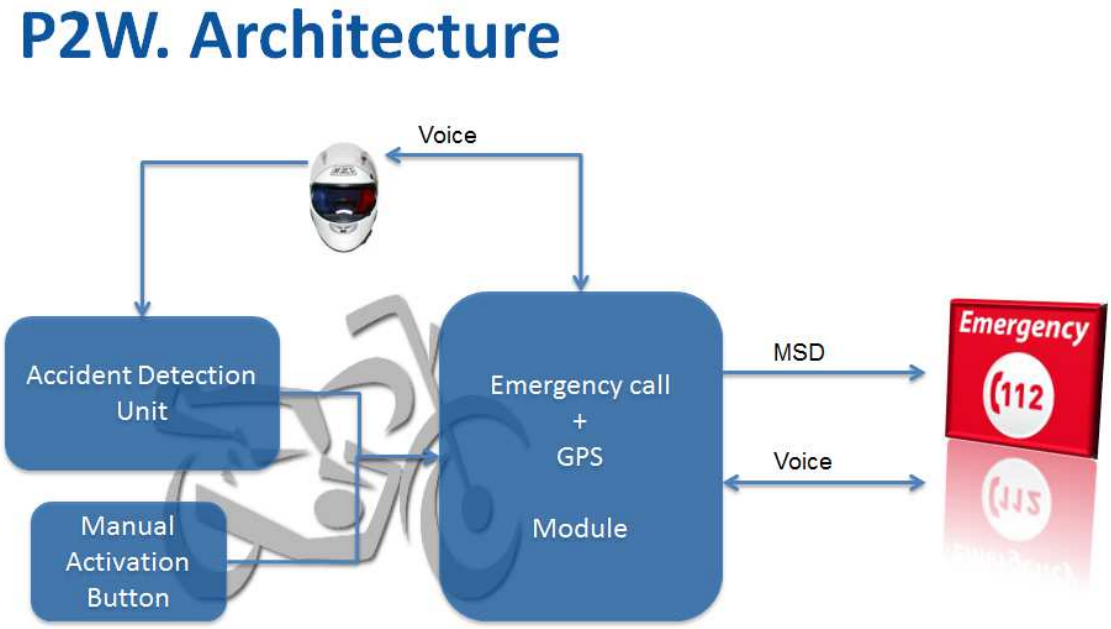
In the first test stage, it has not been found any important problem and all minor issues have been fixed promptly. In the second test stage, which will run until the end of the year the 3 type of IVS will be again evaluated and KPI will be measured.

Currently, it has not yet been feasible to test all IVS under various weather and environment situations (rain, orography barriers, etc …).

P2Ws

Two Spanish partners in HeERO2 project are interested in testing and developing a potential eCall system P2W (Powered 2 Wheels). The system is based in sensors aimed to determine whether an accident has occurred:

- Helmet sensors
- Motorcycle sensors
- Communication between the helmet and the motorcycle



Dissemination of information on eCall at national level

At national level, a wide number of activities have been undertaken, and the Spanish pilot has been presented internationally.
The following is just a summary of undertaken activities:

- V Conference about ITS in Cataluña, Barcelona. 6 March, 2013
- XIII Spanish Congress on Intelligent Transport Systems – San Sebastian. June 18-20, 2013 with participation of all Spanish partners
- TRAFIC 2013, International Exhibiton about Road Safety and Equipment for Roads – October 15-18, 2013 Madrid. Stand and specific session with participation of all Spanish partners
- Insurance Week 2014, Madrid. 18 February. Conference of DGT about HeERO2 status in Spain
- XIV Spanish Congress on Intelligent Transport Systems – Madrid. May 6-8, 2014
- Press releases: magazines, newspapers, on the Internet, blogs…
- Press coverage of Tests

Road Map for eCall deployment

A roadmap for eCall deployment has been agreed at both technical and political levels. The road map includes a set of clear technical and political steps. This also includes issues which have not yet been agreed:

- Decision already taken on eCall support and deployment from the signing eCall MoU and the support of all the European approaches (specifications & normative) for eCall deployment.
- Decision already taken to participate in HERO2 pilot project in order to evaluate the feasibility of an intermediate PSAP.
- Already created first technical (and financial) document with the possible final eCall Spanish architecture, considering basically the creation or not an Intermediate PSAP.
- Final decision on Spanish eCall architecture to be taken at the end of HeERO2 project.
- Decision on final protocol to be followed by Intermediate PSAP (if finally decided to be used) and regional 112 PSAPs.
- Decision and definition on certification framework mainly related to IVS and retrofit devices.
- Agreement with the Spanish MNO regulator for the protocol to be used in order to regulate the deployment of eCall discriminator by all the MNOs.

Status of deployment of Priority Action E.- Provision of Information (safe and secure parking places for trucks and commercial vehicles)

August 2014

Current status as overview

Spain´s freight transport is heavily oriented towards road modes, which imposes serious conditionants on road planning, road maintenance and road operations.
According to "Encuesta Permanente de Transporte de Mercancias" (Source: Ministerio de Fomento), some 119.263 freight transport operations were registered, which accounted for up to 1,12 millions of tons/year in 2013 (2,41 millions of tons were transported in 2007), of which 6% is international freight transport.
Due to the previous, Safe and Secure Parking areas for trucks and commercial vehicles is a serious and urgent working area for the improvement of safety and security of the overall transport system.
The existing capacity of truck parking areas along the Spanish road transport network is still poor and heterogeneous in terms of infrastructure and services to customers, which has not helped to tackle freight robberies, and therefore road safety gets weakened due to poor rest of truck and commercial vehicles rest.
Spain has so far participated in all the Workshops where discussions on what needs to be specified, and the main conclusions were the following:

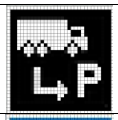
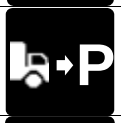
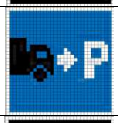
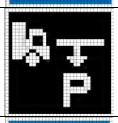
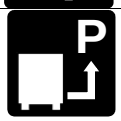
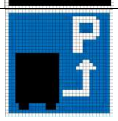
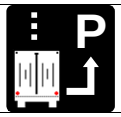
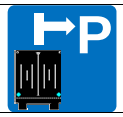
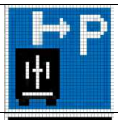
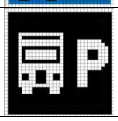
- Definition of standardisded procedures for proceeding to reservation should include: booking demand, confirmation, modification and payment.
- Cancellation or "no show" management will be out of the scope of the specifications since they can be seen as commercial conditions.
- Payment specifications should be compatible with all existing means.
- Use of electronic means, automatic detection and information of next parking places offering reservation services and user friendly interface should be emphasized.
- The relevant definition for data exchange and consistency between ITS technologies in both vehicles and road parking facilities not forgetting necessary update of the information on available parking space for reservation purpose.

Along the last years, ESG4 has cooperated with ESG3, particularly regarding Intelligent Truck Parking signage and information dissemination.
Given that all required safe and secure parking areas cannot be constructed at once, proper and reliable information can play a significant role on the initial success of this service.
Within this context, it is vital to disseminate information to drivers (national and international) so that these can find the most suitable parking are along their route. Accordingly, ESG3 proposes to use existing PMV to provide information on parking places.
Spain launched a comprehension test in 2010 which included combined pictograms from Vienna 1968 Convention, having reached optimistic results in terms of comprehension within the UE framework.

Various pictograms designs were agreed to be included within the test:

- On the one hand, the idea of “truck parking area” had to be condensed in a unique pictogram considering existing PMV restrictions in the EU.

- On the other hand, it was advisable to study the comprehension rate of existing dedicated PMV in Germany indicating both the existence of parking and free places.

	Black & White		VC inspired		Feasibility (32x32)
Lateral view I					
Lateral view II					
Lateral view III					
Lateral view IV					
Rear view I					
Rear view II					
Front view					

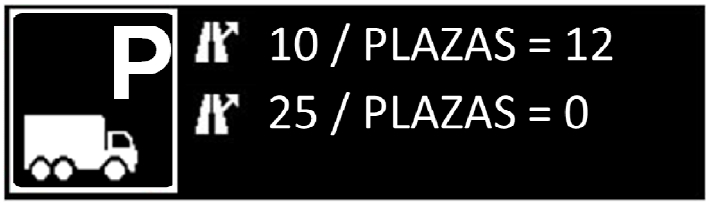
Finally, the following pictograms were selected for comprehension tests:

Vienna 1968 Convention Pictograms Joint	Current german PMV.	New pictogram
		

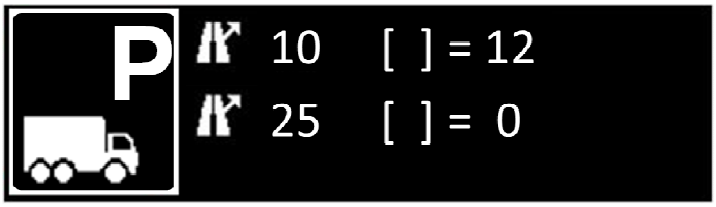
Results are being processed, whereas pictograms used in the Netherlands have got correct comprehension rates of up to 96%.

The definition of a new pictogram which joins two existing Vienna 1968 Convention existing pictograms could be really satisfactory in terms of adaptation to PMV infrastructure and technology.

Information of real time and short term forecast availability of parking places is a great added value, which requires to define structured harmonized messages indicating possible alternatives to truck drivers on route.



Considering that due to adverse weather, massive use of parking places is required, it is posible to pre-disseminate information attending to available parking places ahead.
Though, It has been found that figures in the PMV messages should indicate its meaning (parking places) like in the above image, in contrast to the one below.



New parking areas in Spain

DGT is working on the establishment of a common set of minimum requirements for the provision of Intelligent Safe and Secure Truck Parkings information on PMV and web/apps.
A framework is being discussed among all stakeholders involved:

- DGT
- Ministerio de Fomento (Public Works Ministry).
- Comunidades Autónomas (Regions).
- Toll Roads Operators
- Service Providers
- Main Road Freight Traffic Representatives.

First steps have aimed towards the adoption of LABEL considerations and defined levels of service of the parking infrastructure itself.
It has been found that although LABEL project has ended, the resulting product has been an added value tool for countries to establish criteria and undertake a

categorization of all truck parking areas in order to provide service and disseminate information according to drivers expectations.
The Spanish main petrol provider company in the country has initiated the construction of various safe and secure parking places in observation of LABEL criteria and recommendations. These parking areas are spread along the main road network, and spacing among them has been calculated according to legal compulsory rest driving times.
DGT is working on a framework in which accommodating this private initiatives while ensuring total transparency and equity. DGT would use PMV according to the previously stated, in order to show messages on parking places availability on-route, and would also publish this information on official web (www.dgt.es) and mobile app (http://www.dgt.es/es/app-movil.shtml).
Normative, warning and safety messages would have a priority treatment over parking areas service messages, and existing PMV would be used instead of new ad-hoc ones unless parking service provider invests on new variable message signs, which should anyway comply with existing norms and what DGT could eventually stipulate.

On-road VMS info dissemination scheme

A study on the main freight transport corridors and nodes is being undertaken in order to identify the most potentially demanded and most cost-effective areas to be accordingly supervised and adopted into DGT traffic info systems.
According to the previous, a cross verification of ITS devices availability and heavy traffic demand is accomplished in order to determine the following:

- Existence of VMS able to show the agreed message.
- Availability of VMS in peak demand hours.
- Existence of License Plate Recognition and Traffic Counters in order to short-term forecast parking areas occupation.
- Existence of LPR able to recognize foreign plate numbers.

Due to the previous limitations, DGT will either provide information on the Mobile App only, or also on VMS (on-board information).
The criteria for the design and implementation of VMS contents and timing will be done in observance of “Manual de Señalización Variable – Resolución de 1 de junio de 2009 de la Dirección General de Tráfico; http://www.boe.es/boe/dias/2009/06/13/pdfs/BOE-A-2009-9838.pdf), which is a nation-wide guidelines for Traffic Management Centres operation on VMS concepts and designs, and also determines which messages are to be showed in each traffic situation.

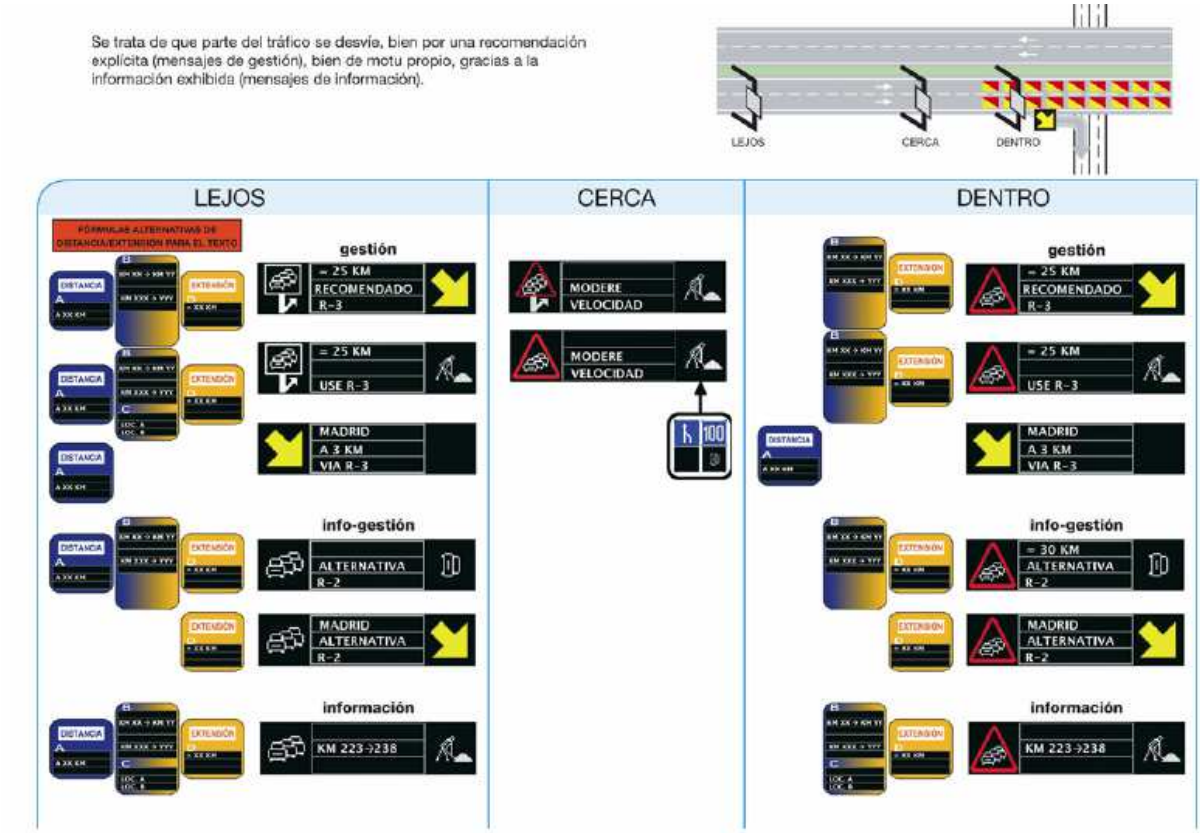


Figure 5: Example of road traffic management VMS scheme (Source: VMS official Guidelines).

Status of deployment of Priority Action F.- Provision of reservation services for safe and secure parking places for trucks and commercial vehicles

August 2014

Current status as overview

The current position of DGT as regards reservation services for safe and secure parking places for trucks and commercial vehicles is in line with the evolution and maturity of Priority Action E. In such a way, a first deployment stage is to be accomplished in the short term, which will be followed by a service deployment stage for those certified parking areas.
Given the fact that some 6% of heavy traffic vehicles in Spain are UE vehicles from other countries whose drivers are especially vulnerable and do not always know the itinerary and road circumstances, it is important to provide a service which allows for pre-reservation so that confident driving and navigation is achieved.
The existing parking places do not provide on-line reservation for all drivers in a broad perspective, therefore, DGT position is to create a common reservation platform for all parking areas so that drivers do not need to use various access points depending on the service provider.

New parking areas in Spain

A new provider is in undertaking a deployment of a series of safe and secure parking areas under the umbrella of LABEL UE project.

Figure 6: New parking sites form heavy and comercial vehicles in Spain.

Since new providers are expected to arouse and new services are to be provided, DGT is aiming to create a normalization framework for all providers so that both service conditions and regulations accomplish with a minimum level of service.

Reservation services scheme

DGT is working on the establishment of:

- Standardization and regulation of conditions for the availability of road parking information to users both on-board and pre-trip.
- Common schemes for data exchange between parking sites, DGT and end-users.

DGT is also planning to work on a parking site occupation forecast service in conjunction with parking operators so that info on the likelihood of finding a free place ahead is provided to en-route drivers. This service will be available only after a medium period of operation has taken place and solid data correlation (parking occupation – hour distribution – heavy traffic parameters) is validated.
The previous added value information will be initially shown on road VMS if priority messages are not required to be shown.

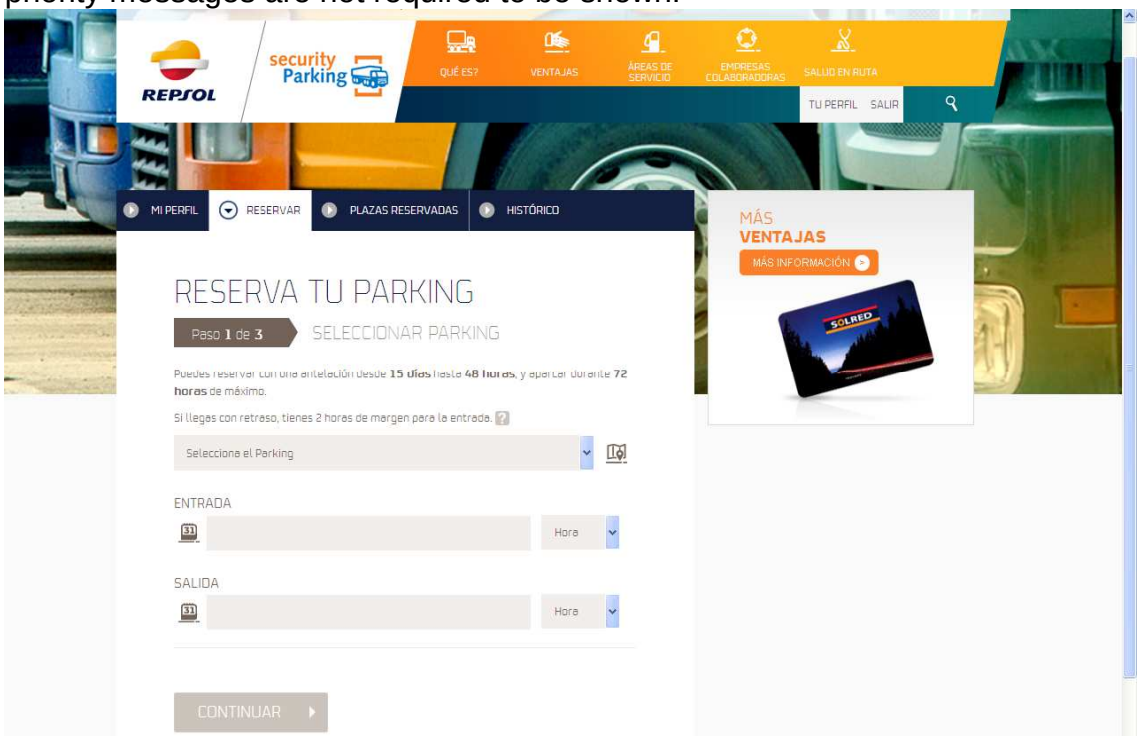


Figure 7: Reservation web (Source: Repsol).

6. REFERENCES

For this report, the following basic references have been used:

- National Plan for Infrastructures, Transport and Housing PITVI (2012-2024).
- National Plan for the consolidation of road ITS in Spain of the Dirección General de Tráfico of the Interior Ministry
- Road Safety Plan 2011-2020 - Dirección General de Tráfico (Internal Affairs Ministry).
- Law of Sustainable Economy
- Spanish Strategy of Sustainable Mobility of the Transport and Public Works Ministry, Environment, Rural and Marine Ministry.
- European Commission Decision nº 585/2014/UE
- National Report on the current situation of demand and deployment of new technologies on road and rail transport in Spain. March, 2012.
- Real Decreto 662/2012 for establishing a framework for ITS deployment on road transport and its interfaces with other transport modes.