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COUNCIL of 7 July 2010

Report on national activities and projects regarding the priority sectors

Italy's contribution

Date: September 2011

This document represents the initial report referred to in Article 17(1) of Directive 2010/40/EU. It was drawn up taking into account the guidelines laid down in European Commission Decision of 13 July 2011 on ITS and approved by the Ministry of Infrastructure and Transport Technical Coordination Table for ITS on 15 September 2011.

CONTENTS

1.	National context	3
1.1	The transport sector in Italy: current numbers, problems and strategies	3
1.2	Intelligent Transport Systems in Italy	5
1.3	National contacts	8
2.	State of affairs regarding national activities and projects in the priority sectors	10
2.1	Priority area 1	10
2.2	Priority area 2	13
2.3	Priority area 3	22
2.4	Priority area 4	29
Annex 1	List of main national best practices	31
	Bibliography	35

INDEX OF FIGURES

Figure 1	- Trend in accident rate from 1997 to 2009	4
Figure 2	- ITS equipment on the motorway network	12
Figure 3	- ITS equipment on the motorway network for info-mobility and electronic road toll systems	13
Figure 4	- Turin Mobility Supervisory Operating System	18
Figure 5	- eCall emergency call roadmap	22
Figure 6	- Management of integrated Single Emergency Number model interconnectivity	24
Figure 7	- Schematic description of <i>Infonebbia</i> [fog information] Project	29

1. National context

1.1 The transport sector in Italy: current numbers, problems and strategies

Italy is one of the European countries with the highest density of internal traffic. This is distributed unevenly throughout a transport network that includes 156 ports, a rail network covering 19 472 km, a road network (state, regional, provincial and municipal roads) covering approximately 840 000 km, a 6 588 km motorway network (of which 5 724.4 km are toll roads) and 98 airports.

In 2010 the volume of passenger-km for distances greater than 50 km [Source: National Infrastructure and Transport Report, 2009-2010] was 918 560 million passenger-km, indicating a strong mobility system, a sure sign of productive vitality and vigorous exchange, but also – as emphasised by the kilometre results – one that is at the brink of saturation.

This situation, in itself worrying, is also burdened by a heavy modal imbalance that makes the risk of road mobility collapse an increasingly real possibility: 91.87% of journeys over 50 km take place by road, while the remaining 8.13% are split between railways (5.94%), air (1.71%) and waterways (0.48%) respectively.

Also in 2010, freight traffic journeys over 50 km within Italy accounted for 211 354 million tonnes-km/year, with 63.28% of demand focussed on roads while the remainder was distributed between railways (13.11%) and waterways (23.14%). The percentage of freight transport by air was, however, completely insignificant (0.46%). The proportion of freight transport by road is still very much higher, amounting to more than 90% if one takes into account distances below 50 km, a category that includes almost all urban freight distribution.

Current traffic data for Italy therefore confirms the absolute domination of road transport, despite the fact that the infrastructure cannot yet fully cope with the demand, with negative knock-on effects in terms of heavy congestion, environmental pollution and safety. Added to this is the fact that the demand for road transport is affected by significant regional imbalances, as traffic flows are essentially concentrated on a few critical arteries and hubs around major metropolitan and industrial areas of the country.

The problem of traffic is particularly serious in the urban areas that are home to more than 50% of the population and where more than 70% of production activities are carried out and 60% of vehicles circulate. The migration from large cities, especially in the last two decades, by many members of the public has also brought about an increase in the practice of commuting to work sites located in the city, resulting in growing pressure on access routes to urban centres.

In terms of road safety, the following graph shows the trend in the number of accidents, deaths and injuries in the period 1997-2009, and reveals that in 2009 215 405 road traffic accidents took place, resulting in 4 237 deaths and 307 258 injuries for a social cost of some EUR 28bn.

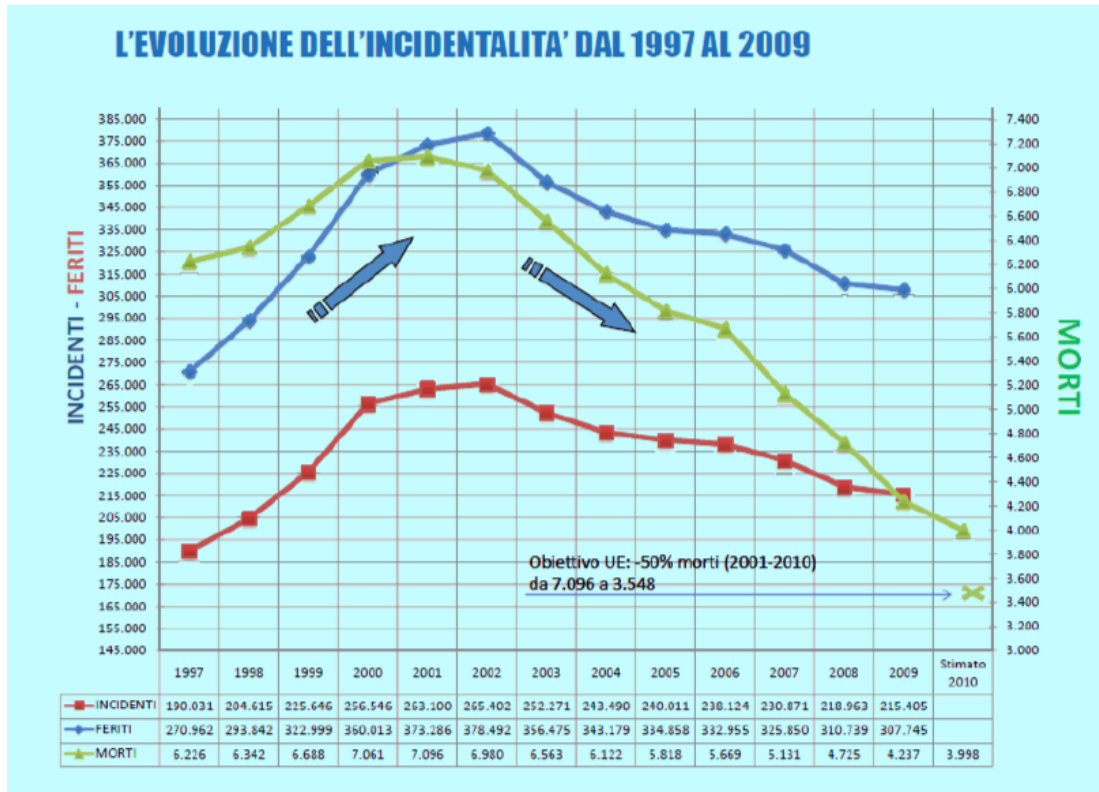


Figure 1 – Trend in accident rate from 1997 to 2009

Key to graph	=	TREND IN ACCIDENT RATE FROM 1997 TO 2009
EVOLUZIONE DELL'INCIDENTALITA' DAL 1997 AL 2009	=	TREND IN ACCIDENT RATE FROM 1997 TO 2009
INCIDENTI – FERITI	=	ACCIDENTS – INJURIES
Obiettivo UE: -50% morti (2001-2010) da 7.096 a 3.548	=	EU goal: 50% reduction in deaths (2001-2010) from 7 096 to 3 548
INCIDENTI	=	ACCIDENTS
FERITI	=	INJURIES
MORTI	=	DEATHS
Stimati	=	estimated

The graph also reveals that the rate of accidents and also of deaths and injuries has fallen since 2002. This is largely due to the entry into force of the penalty points system and tougher controls, partly due to ITS technologies (i.e. Tutor). The latest estimates published by ISTAT in 2010 show a further downturn of approximately 3.4 percentage points to achieve a level of -43.7% during the decade 2001-2010 and therefore a reduction of slightly less than the 50% required by the European Commission in its 2001 White Paper. This result was partly achieved as a result of the systematic and structured approach developed through the adoption and implementation of the **National Road Safety Plan (PNSS)** approved in 2002. Road safety still remains one of the main national emergencies on which the Government's attention is focused because road accidents are the main cause of death in the age group up to 40 years.

Another critical issue is the vulnerability of the system to exceptional events, particularly weather events.

As far as national transport policy in Italy is concerned, the latest framework document approved by Parliament is the **General Transport and Logistics Plan – GTLP**, published by the Ministry of Infrastructure and Transport in Presidential

Decree of 14 March 2001. This set as its main objectives transport decongestion, reducing delays, inefficiencies and the impact of transport on pollution, rebalancing of the volume of goods and passengers between the different methods of transport and the improvement of road safety.

In addition to planned measures to update and extend the infrastructure network, the plan singles out the following measures as particularly strategic:

- increasing the efficiency and accessibility of urban and suburban transport networks and services;
- streamlining and encouraging the development of goods supply chains and distribution processes;
- promoting combined transport and the development of Motorways of the Sea;
- improving the quality and habitability of the urban environment;
- developing sustainable mobility systems such as car sharing;
- improving the flow of traffic over the Alps for greater integration of Italy with the rest of Europe.

In 2007, the Ministry published its **Mobility Plan Guidelines**, which reaffirmed the efficiency and safety goals in the GTLP. The **Mobility Plan Guidelines** were revised in 2010 to lay greater emphasis to the goals of co-modality, innovation, road safety, environmental sustainability, logistics, motorways of the sea and the development of trans-European networks, in line with European Commission objectives.

With particular regard to logistics, with the aim of improving the efficiency of ports and inland terminals, urban distribution of goods and to promote increased use of forms of co-modality, the Ministry of Infrastructure and Transport launched the **National Plan for Logistics 2011-2020** in December 2010. This document is organised around 10 strategic lines that include 51 actions for the implementation of Plan policies.

1.2 Intelligent Transport Systems in Italy

In line with other European countries, Italy has decided to adopt a ‘systems’ approach to address the ongoing challenges of rising demand for mobility, within which information, management and control work in synergy to optimise the use of infrastructures, vehicles and logistic platforms from a multimodal perspective.

Intelligent Transport Systems (ITS) play such a crucial role in this strategic approach that the above General Transport and Logistics Plan – GTLP of 2001 considers ITS to be one of the key measures for implementing the sustainable mobility objectives that underpin the plan. The Mobility Plan Guidelines subsequently assigned an essential role to ITS, describing such systems as a key tool for achieving integration between transport modes and networks both within Italy and between Italy and major international routes, particularly in Europe and the nearby Mediterranean. As far as logistics are concerned, the recent National Logistics Plan 2011-2020 also acknowledges the pivotal role in the development of the sector played by ITS by devoting strategic line number 8 entitled ‘*Telematic platform, ICT system and Galileo project*’ to this topic.

The ITS sector has actually been active in Italy since the 1980s but really took off during the next decade, mirroring growth in the other major industrialised countries. The State, local government, agencies, research institutes, Italian universities and public and private system operators have taken part in all European Commission Research and Development Framework Programmes, with significant results.

On the eve of the 'Italia 90' world sporting events, the Italian Parliament authorised the then Ministry of Public Works, in conjunction with the Ministry of the Interior, to set up a centre for the coordination of information on traffic regularity and security. The subsequent Ministerial Decree 154/90 established and regulated the CCISS (Road Safety Information Coordination Centre) and then laid down the conditions for effective operational start-up.

The CCISS now operates with the aid of an up-to-date operations centre that was activated recently (April 2009). This receives, processes, stores and sends out to the public all info-mobility information (accidents, delays, static events (road works) and dynamic events (congestion, meteorological events, etc.) disturbing the regular flow of road traffic).

Centre activities are supported by: traffic police, *Carabinieri*, ANAS and motorway operator companies in addition to the RAI and ACI.

Traffic events are intercepted by police forces present locally or bodies owning or operating road infrastructures as well as by means of the network of sensors and TV cameras distributed along the road network.

These events are broken down into their essential characterisation and then entered – mainly in automatic mode – into the CCISS RTTI platform (native DATEX) and broadcast via the radio, TV, telephone, Internet and mobile channels and via satellite navigation systems running the RDS TMC system.

With more than 700 000 items of information gathered in one year and broadcast via 16 000 radio bulletins, 7 000 TV bulletins, 700 000 on-demand telephone contacts, iPhone and Android apps, a website that received some 10 million hits in August 2011 alone and more than 6 000 hours of dedicated live radio broadcasts, the CCISS represents the natural gatherer of mobility information and a tool that is potentially able to amplify the effects of most ITS applications in Italy.

Traffic management and mobility ITS are operating in many Italian cities, including Rome, Turin, Milan, Florence, Bologna, Genoa, Perugia, Naples, Brescia, Salerno and so on. Almost 80% of Local Public Transport Agencies are also equipped with fleet localisation and monitoring systems designed to improve the service provided.

Considerable progress has also been achieved in the on-board systems sector with the aim of increasing the safety level of vehicles, including heavy vehicles. Numerous projects have been promoted in various sites on strategic freight transport corridors with the aim of encouraging the development of intermodality and integrated logistics.

With regard to the logistics sector, in particular, one of the main national initiatives funded by the Ministry of Infrastructure and Transport is the **UIRNET** project, a telematic platform designed to improve the efficiency and safety of the entire Italian logistics system, bringing considerable benefits both for individual users and the system as a whole. The platform will offer a diverse series of info-mobility services and actions, information on interoperability and special services for hazardous goods transport management.

Mention should also be made of ITS projects funded under the 2000-2006 and 2007-2013 Transport NOP (National Operating Programme) that have been developed or are in the process of being developed in Objective 1 Regions (Basilicata, Calabria, Campania, Puglia, Sardinia and Sicily) and also of ITS projects promoted as part of the Elisa Programme and funded by the Ministry of Regional Affairs.

In the motorway field, the toll motorway sector has represented and still represents in Italy a natural area for the testing and application of innovative systems and technologies. The toll network was in fact set up with the intention of guaranteeing efficient links between areas of Italy of great economic and social importance, typified by significant traffic flows. This led to a need to deploy advanced systems for managing and monitoring the road infrastructure, information to users and toll collection. It is important to highlight in this context that toll motorways are the subject of licensing agreements drawn up between ANAS and operating companies. These agreements also involve a set of activities such as monitoring, rescue, collection of data as a basis for traffic information, toll collection and so on.

Italian toll motorways thus began to test and use intelligent traffic and operations management systems more than two decades ago and have therefore accrued significant experience in both the organisation and management of advanced ITS services.

In particular, Italian operator companies have been involved in projects co-financed by the EU, such as national projects named Pitagora I and Pitagora III (aimed at the construction of a national ITS plan and support interoperability between existing information systems and those of other European countries), the Hannibal project (devoted to continuity of service between Italy and France), Euro-Regional ITS projects SERTI, CORVETTE, CONNECT and ITHACA. Participation in these projects has played a fundamental part in ensuring the alignment of national installations with the growing need for supranational interaction.

Since 2007, many activities for the implementation of ITS systems and services have fallen under the auspices of the EasyWay programme, a leading European venture for the development of ITS systems, in which Italy is a major partner and to which Italian operators are strongly committed.

A major part of the EasyWay programme is the harmonised implementation and use of ITS services within certain specific sectors, namely services for provision of information to users and traffic management on the trans-European road network, with the aim of improving the management of traffic flows and increasing road safety, with evident repercussions also on the environment.

National operators of the toll network, partners of EasyWay, coordinated by the Ministry of Infrastructure and Transport, have shown themselves to be fully satisfied with the results achieved by the programme to date, not merely at a technical level but also in terms of the profitable cooperative relationship developed at European level between the institutions and operators of the main European road network. They thus consider it to be the major European programme for ITS development and hope it will continue in years to come.

Lastly, the most important initiative undertaken in recent years in Italy to offer substantial encouragement to the full development of ITS was the definition by the Ministry of Infrastructure and Transport of *Architettura Telematica Italiana per il Sistema dei Trasporti (ARTIST)* [Italian telematic architecture for the transport system]. Version 1 of ARTIST was published in January 2003.

The aim of ARTIST is to establish the reference guidelines that are required to ensure the various ITS applications are compatible, integrable and interoperable with one another.

ARTIST has represented a milestone in the process of Italian ITS integration. The different systems developed at local and national level can indeed communicate through ARTIST, thus making it possible to treat the entire transport network as a single system of which the different modes are interoperable components.

Compatibility of ARTIST with the European reference architecture KAREN through the FRAME network also guarantees that the schemes offered by ARTIST are interoperable with products developed within Europe.

Annex 1 provides a supplementary list of the most significant cases of best practice developed in Italy.

1.3 National contacts

The national institution responsible for ITS policies is the Ministry of Infrastructure and Transport. The relevant contacts are given below:

Department for Transport, Navigation and Information Systems and Statistics

Directorate General for Information Systems, Statistics and Communication

Division 1 – Application development and management

Massimiliano Zazza – ITS systems contact

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Website: www.mit.gov.it

Department for Infrastructures, General Affairs and Personnel

Directorate General for Territorial Development, Programming and International Projects

Division 5 – Coordination of spatial planning. European spatial and urban development programmes and projects

Francesco Sirchi – Easyway coordination contact

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Email: francesco.sirchi@mit.gov.it

Website: www.mit.gov.it

TTS Italia is the national association for telematics for transport and safety. Like other national ITS associations, this aims to promote ITS at national level. TTS Italia includes some 80 members and is part of the European network of national ITS associations, of which it is a founder member, sponsored by Ertico/ITS Europe.

Contacts: Ms Olga Landolfi, Secretary General; Via Flaminia 388 – 00196 Rome;
Tel: +39 06 3227737; Fax: +39 06 3230993; Email: olga.landolfi@ttsitalia.it,
ttsitalia@ttsitalia.it

AISCAT – Italian Association of Motorway and Tunnel Operator Companies. Like all category associations, since this association was set up back in 1966 it has been responsible for gathering and comparing the experiences and needs of Italian operators of toll motorways and tunnels and sharing them at working tables.

Contacts: Mr Andrea Manfron, Head of Technical Affairs; Via Po 12 – 00198 Rome
Tel: +39.06.4827163; Fax: +39.06.4746968; Email: andrea.manfron@aiscat.it.

2. State of affairs regarding national activities and projects in the priority sectors

The following sections describe the current state of affairs regarding activities and projects and entities involved for each of the priority sectors identified in Directive 2010/40/EU, giving some significant best practices for each sector.

2.1 Priority area I: Optimal use of road, traffic and travel data

Current situation and entities involved

The entities operating in Italy as regards traffic monitoring systems are public or private bodies that acquire, store, process and provide data on traffic, parking and vehicle fleets. They are therefore (this is not necessarily an exhaustive list): road traffic operating bodies, traffic police authorities, road and traffic data marketing companies (data providers), companies and bodies that supply data processing models and systems (content providers), logistics and transport operators, public transport authorities. The final category of entities are the information system users themselves, as they effectively act as floating probes that identify traffic conditions in the network in order to supply the data providers.

The entities operating within the Information Systems differ only partly from the above because different entities act both as data providers and information service providers: mobility agencies, road operating bodies, traffic police authorities, producers of on-board terminals (satellite navigation systems, smart phones), telecommunication operators (mobile phones, wi-fi networks, Internet providers), companies providing traffic information services (information providers). The information recipients are end users in some cases and in other cases they are intermediate entities or agencies responsible for regulation and control.

Road operating bodies and mobility agencies collect traffic data by means of fixed and mobile detection systems. They generally carry out an initial processing of measurements taken for statistical purposes or to provide information to the user and they are themselves information providers, at local level, by means of variable message signs (VMS), Infopoints or other tools.

Local public transport companies, private and public vehicle fleet operators and logistics operators also provide data on vehicles that can therefore be used indirectly after appropriate processing operations in order to obtain information on traffic status.

Police authorities do not carry out traffic measurements directly but are a useful source of information on anomalies such as accidents, road closures, and so on.

The data providers collect and process data with the aim of providing information on traffic and the performance of network elements for which the monitoring system provides satisfactory coverage.

Forecasting methods represent one of the main functional requirements of regulation and information systems. Various qualitative data processing levels can in fact be

defined (considering here only advanced systems for real-time measurement and digital expression of data):

- a) direct and immediate communication of data recorded by location on a digital map (for example: CCISS, ANAS website, motorway network operator sites);
- b) immediate application of recorded data in a form consistent with the method of representation (examples are provided by the Infoblu and Octo Telematics website and various motorway operator companies, including Autostrade per l'Italia and Autostrade dei Fiori);
- c) forecasting of traffic conditions based on statistical speed estimates (for example: TomTom HD Traffic, TRAVEL TIME service of motorway operator companies);
- d) forecasting of traffic conditions based on the simulation of network performances according to the way users behave when faced with unexpected congestion conditions.

Information may be provided in very different ways: by Internet, via RDS/TMC radio, by text messaging, using an on-board navigation system or by means of variable message signs.

Main cases of best practice

CCISS

The CCISS – Road Safety Information Coordination Centre – was set up in 1990 and performs its legally-assigned role of:









- Ü collecting, processing and selecting information on traffic and the road system;
- Ü circulating useful information about traffic flow and safety;
- Ü preparing and delivering road safety campaigns.

The CCISS is coordinated and managed by the Ministry of Infrastructure and Transport. It collects information on events that disturb the regular flow of traffic and circulates it through:

- Ü broadcast and satellite TV bulletins
- Ü radio bulletins on RAI channels
- Ü Internet (www.cciss.it)
- Ü Call-centre: with a freephone number (1518) operational 24 hours a day with the option of four macro-regional bulletins, weather bulletin, latest radio bulletin broadcast or direct interaction with the operator.
- Ü Geo-referenced news on smartphone mobile apps (iCCISS – iCCISSpro)
- Ü RDS-TMC (digital channel superimposed on FM radio transmissions) operated by the RAI that can be displayed on satellite navigation systems.

The CCISS operates its own proprietary information platform (RTTI) developed to provide native support for the DATEX protocol used to exchange data with other national and European DATEX hubs.

The data shown in the following table refer to the operations of CCISS Operating Centre during the period January-August 2011:

Number of website hits		50 203 227
Radio news output		
RAI OndaVerde		8 315
Macro-regional		23 295
TV news output		
RAInews 24 and other RAI channels		4 956
Info-mobility events processed:		
Input manually		126 391
Via DATEX transfer		367 301
Freephone contacts resolved:		
Managed by operator		217 048
Managed by exchange		197 570

ITS services on the motorway network

Even though the Italian toll motorway network is managed by different companies, the management and user service provision methods are standardised over the entire network.

The numbers in the following figures refer to the basic elements of the infrastructure for data collection and processing along the network. This is made up of the TV cameras, weather stations, SOS posts, data processing systems and Traffic Control Centres that provide the building blocks for information services to end users.



Figure 2 - ITS equipment on the motorway network

The electronic information and toll services, which are currently present in significant numbers as shown in the following figure, perform the task of making these tools available to users.

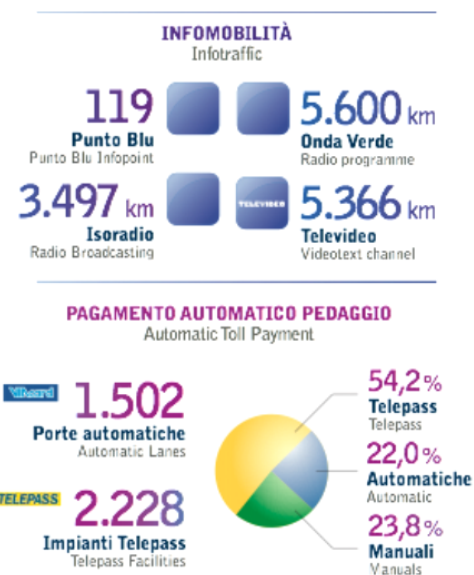


Figure 3 – ITS equipment on the motorway network for info-mobility and electronic road toll systems

2.3. Priority area II. Continuity of traffic and freight management ITS Services

Current situation and entities involved

In Italy, four main application and service sectors have been identified that may have a bearing on priority area II, which covers most mobility-related topics:

1. *Payment system*: sector covering payment applications of various kinds associated with mobility: roads, motorways, car parks, public transport, mobility value-added services;
2. *Access control systems*: this sector includes systems currently adopted in Italy for the control of access to Restricted Traffic Zones in town centres.
3. *Traffic management systems*: this sector covers information collection applications, circulation to traffic-mobility-logistics control centres, integrated management of traffic and hierarchically controlled mobility;
4. *Safety*: this sector covers applications linked to the control of safety and prevention (such as speed control, control of protected areas such as logistics centres).

1) Payment systems

Motorway toll payment systems

The most widespread motorway toll payment system in Italy is the Telepass system, based on interoperable DSRC technology (DSRC ETSI EN 200674-1 Telepass).

The Telepass System, which currently caters for more than 6 million users, was developed by the company Autostrade per l'Italia and is adopted by all national motorway operators as an electronic payment system. This was made possible through an agreement between operating companies based on certain key elements:

- Autostrade per l'Italia developed standardised classification systems for vehicles, procedures and payment methods for use by all Italian motorway operators. The systems and equipment used for toll payment by other companies comply with those developed by Autostrade per l'Italia and are all interfaced with the control centres;
- Autostrade per l'Italia operates as a clearing house for electronic payment transactions by allocating expenditure and procedures relating to toll transactions to appropriate operators based on a delegation agreement between all operator companies.

Parking payment systems: various systems are already used extensively. Some of these are conventional and others are more innovative.

- RfID Systems: based on cards with RfID tags associated with the vehicle license plate and placed on the vehicle windscreen. The card stores all services relating to urban mobility acquired by a member of the public (typically via a website). Traffic wardens are equipped with hand-held computers for mobile communication that they can use to read the information stored on the card.
- Parking meters, a device positioned in front of the parking bay and therefore specific to each parking place;
- Pay and display, based on a device for issuing tickets that must be positioned inside the vehicle on the dashboard, on the windscreen or on the passenger side window;
- TELEPARK, is a real-time parking management system that can be used to pay for parking using a mobile phone or landline and an Internet system;

- Parking management systems based on on-board unit (OBU) recognition. Various car parks have already been set up where access and payment on exit are directly managed by means of radio-operated OBUs. One example is the Michelin car park (Bologna) developed by Autostrade//Tech where users who hold a Telepass OBU can enter and leave the parking area without having to stop and take a ticket on entry or pay when they exit. Financial transactions are managed remotely by means of data sent in real-time by on-board units to transceivers located at entrance and exit points. Collected transit data is then processed simultaneously by remotely-located processors and the relevant user accounts are credited for the balance owed for parking.

Electronic ticketing systems: these systems are based on microchip smartcards and contactless smartcards or are operated via text messages and the Internet. They make it possible to optimise the reporting of local public transport payments and also to achieve intermodal rate integration with other transport services at local level (car parks, railways and so on) to simplify revenue reporting and distribution operations.

At present, a survey conducted in 2010 among local public transport companies showed that electronic ticketing systems have been implemented by a number of companies representing 66% of the carrier*km/year

2) *Access control systems*

Most Italian cities have implemented Restricted Traffic Zones (ZTL) with digital access control systems. Various types of ZTL systems are already operational in Italy:

- License plate recognition systems: these systems are based on the use of TV cameras and a software program that recognises vehicle licence plates in order to identify vehicles authorised to access the restricted traffic zone and penalise the others. One example of the application of this type of system is ECOPASS in Milan. In some cases, this system is integrated with other technologies for specific user types, as in the case of pass systems for disabled people, based on radio technologies (e.g. municipality of Rome);
- Systems based on the use of OBUs: these systems are mainly installed by Autostrade//Tech and based on interoperable DSRC technology; recently, a development of such systems based on integration between satellite technologies and DSRC was also set up and marketed. Such systems require the installation of gates equipped with transceivers for the detection of transit-authorized OBUs as they enter restricted traffic zones. In addition to the transceivers, the gates are also fitted with TV cameras that are used to penalise all unauthorised transits. Although these systems are installed by Autostrade//Tech they are managed directly by bodies appointed by the municipal authorities responsible for requesting installation.

3) *Traffic management systems*

With regard to the management of urban traffic, the main systems implemented within Italy are as follows:

- traffic light management systems (UTOPIA system applied in Rome, Turin, Milan, Naples and so on);

- interchange zone management systems;
 - user information for: restricted traffic zones (ZTL), car parks, interchange zones, traffic information (radio, TV, Internet and so on);
 - fleet and commercial vehicle management systems (heavy vehicles, exceptional loads, ADR vehicles, corporate fleets);
 - car park management systems;
 - public transport management systems (Advanced Public Transport Systems – APTS); (examples in Rome, Turin, Venice, Florence and Naples);
 - traffic and mobility management systems (Advanced Traffic Management Systems – ATMS);
 - traffic information systems (Internet, radio broadcast, GSM, variable message signs on roads, RDS-TMC):
- Pre-trip information: this may concern road infrastructures, public transport, intermodal transport vehicles and users and information to users who do not use motorised vehicles for journeys. Depending on the type of service provided, pre-trip information may include updated information on traffic conditions, compliance with timetables and location of public transport vehicles in relation to the position of the service user, road information and/or weather information, traffic regulations and tolls. The following categories of pre-trip services may be identified, for example: road traffic, public transport (buses and trains), commercial vehicles, customised interactive services (accessible via portable or fixed devices, such as mobile phones or personal computers), multi-modal exchanges, guided trip planning using vehicle on-board devices (satellite navigation systems), integrated multimodal journey guide (vehicle on-board devices), pedestrian or cycle path guide (by means of portable, fixed or on-road devices);
- On-trip information including information supplied to travellers on board the vehicle (designed for the general public or tailored to the vehicle) or along the route of the journey. This information may include real-time traffic information, including time estimated to reach your destination based on current traffic conditions and also road works, accidents, weather, tolls, availability of parking and other information useful to travellers. Examples of On-trip services include road information, information on parking on mobile devices, on-board vehicle indications, independent navigation on board vehicles (smart navigation devices that receive information in real-time from the road and adapt routes accordingly).
- The main systems used for suburban traffic management are as follows:
- fleet management;
 - emergency vehicles;
 - systems for the exchange of standardised collected data (DATEX protocol or equivalent);
 - systems for monitoring, data collection and traffic supervision (sensors, TV cameras);
 - cross-border plans for traffic management;
 - traffic information systems (Internet, radio broadcasts, GSM, variable message signs on roads, RDS-TMC);

- monitoring of traffic and infrastructures (traffic sensors, weather sensors, TV cameras, etc.);
- data processing and coordination of operations by means of control centres;
- information on the road system by means of VMS;
- information on the road system by means of radio/TV information, including on radio isofrequency;
- information on the road system by means of Internet resources and portable devices (e.g. mobile phones);
- information on journey times;
- dynamic lane management;
- monitoring of operational fleets (winter operations vehicles, patrols, etc.);
- information on service/parking area equipment (Web services, signs with fuel prices).

Traffic management systems also include the following types of traffic control centres (TCCs):

- motorway radio control rooms;
- national centre;
- radio and TV companies;
- UIRNet (National logistics centre system) for the development of a hardware and software platform for managing the national logistics network and security systems at logistics centres¹.

4) Safety applications

Numerous systems have been implemented in Italy with the aim of increasing both urban and suburban road and traffic safety levels.

In particular, the following systems are currently active for motorways:

- alarms/localisation (SOS posts, TV cameras, etc.);
- video surveillance (TV cameras in service areas, etc.);
- data processing and alerting of responsible entities (traffic control centres with links to the police, medical rescue, roadside rescue, etc.) supported by expert operator assistance systems;
- detection and automatic penalising of speeding (Tutor);
- detection and automatic penalising of incorrect lane use (*sorpassometro* automatic overtaking control system);
- automatic detection of emergency events, accidents;
- detection of visibility in tunnels (fumes, etc.) and outside (fog);
- detection of ice formation;
- dedicated radio-relay systems or radio channels with emergency corps and units;
- detection of vehicles heading against the traffic flow;
- dynamic weighing of heavy vehicles.

¹ www.uirnet.it

The main systems distributed at urban level are as follows:

- systems for detecting and penalising red traffic light runners;
- systems for detecting instantaneous and average speed;
- video surveillance systems on-board vehicles, on road infrastructures and on inter-modal hubs;
- systems for detecting and managing accidents.

All the systems that have been introduced to monitor hazardous goods should also be mentioned. Some significant projects include those operated by the Region of Lombardy, the ULISSE System in the Region of Campania that is financed with 2000/2006 NOP funds, and the SCUTUM (SeCuring the EU GNSS adopTion in the dangeroUs Material transport) project funded by the European Commission.

Main cases of best practice

The 5T system in Turin

The 5T System (*Tecnologie Telematiche per i Trasporti e il Traffico a Torino* – Telematic technologies for transport and traffic in Turin) is one of the most important ITS-based mobility management systems in Europe. The Project was launched in 1992 and the 5T System is currently made up of seven subsystems:

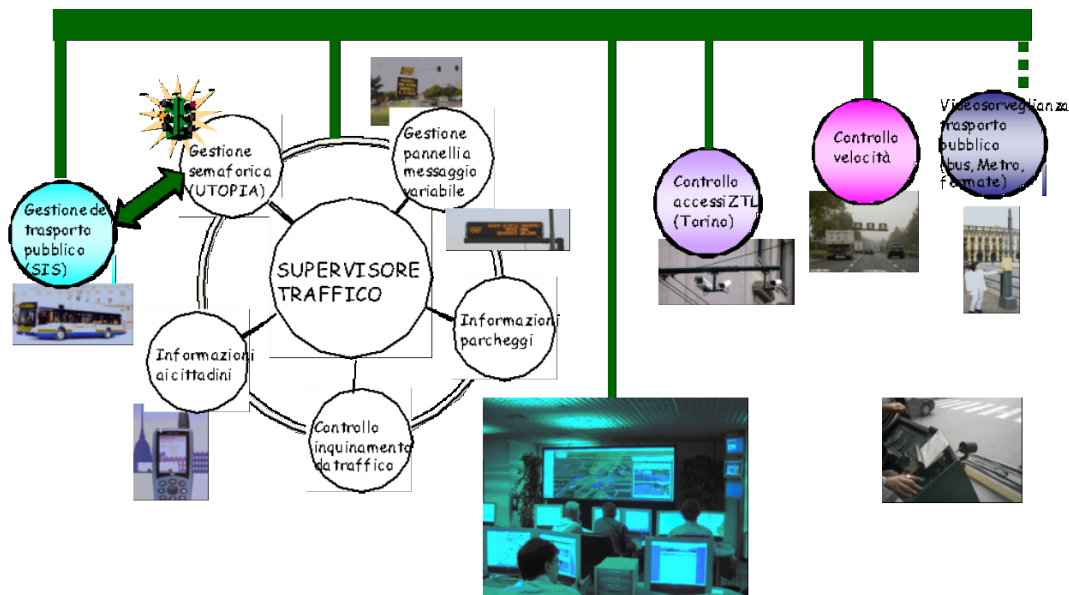


Figure 4 – Turin Mobility Supervisory Operating System

Key

Gestione di trasporto pubblico (SIS)	=	Public transport management (SIS)
Gestione semaforica (UTOPIA)	=	Traffic light management (UTOPIA)
Gestione pannelli a messaggio variabile	=	Variable message sign management
Informazioni parcheggi	=	Parking information
Controllo inquinamento da traffico	=	Traffic pollution control
Informazioni ai cittadini	=	Information to the public
SUPERVISORE TRAFFICO	=	TRAFFIC SUPERVISORY OPERATING SYSTEM
Controllo accessi ZTL (Torino)	=	ZTL (restricted traffic zone) access monitoring
Controllo velocità	=	Speed monitoring
Videosorveglianza trasporto pubblico (bus, metro, fermate)	=	Public transport video surveillance (bus, metro, stops)

- Public Supervisory Operating System, guarantees the integration of all subsystems with the aim of generating the best service to mobility while protecting the environment. The system records traffic progress every five minutes, forecasts mobility hour by hour, monitors pollution and formulates a general strategy for environmental protection.
- Public Transport management sub-system, guarantees the regular flow and speed of the public transport system by monitoring vehicles on the road and user information at stops. The system operates with 353 incoming arrival display units (VIA) at stops and 500 next stop announcement units installed on board vehicles.
- Traffic control subsystem (UTC), manages traffic lights in accordance with local measures and area policies suggested by the Supervisory Operating System, also guaranteeing that public transport vehicles are given priority at traffic lights. The system operates at 300 intersections within the urban area, with some 3000 traffic detection units.
- Parking management subsystem connected to 28 automatic car parks, provides forecasts of place availability.
- Environmental subsystem forecasts short-term environmental conditions using weather forecasts, data on pollution and traffic and makes them available to the Supervisory Operating System for implementation of appropriate mobility policies.
- Collective direction subsystem (VMS), provides dynamic direction information towards city areas and real time information on places available in automated car parks. The system operates using 26 direction signs and 20 guide signs to car parks.
- User information subsystem, offers real time information on the status of public transport, traffic and parking via the Internet and text messaging. In particular, the system provides travellers with on-line information to help them plan the best form of transport and route from origin to destination before or during the trip.

The 5T system has made it possible to achieve a reduction of approximately 20% in travelling time for private traffic in the area controlled by the system and an increase of 17% in the commercial speed of public vehicles due to the management of traffic light priority.

It should also be emphasised that the 5T System managed all traffic flow to areas involved in the Games during the 2006 Turin Winter Olympics and has been selected together with partners to manage the Sochi Winter Olympics in 2014.

Rome – Integrated traffic and mobility management system

Rome's economy is mainly based on services that are chiefly located in the centre of the city. In 1999 the Municipal Administration promoted the development of an integrated ITS for traffic monitoring and management with the aim of reducing the negative impact caused by traffic.

The heart of the Rome RTS system is a Traffic Control Centre that monitors, manages and controls urban traffic through various subsystems, each dedicated to the performance of specific traffic flow monitoring and/or regulation functions:

- Mobility Management System (MMS) incorporates the various subsystems through biunivocal data exchange based on a geo-referenced reference graph representing the main road systems of the city of Rome. Communication between subsystems takes place through WAN and LAN networks and TCP/IP protocols.
- Traffic light regulation system controls more than 400 traffic light sets centrally and is based on SPOTS/UTOPIA software for the dynamic regulation of traffic light cycles.
- Traffic flow monitoring system consisting of more than 2500 on-road induction loops and more than 65 real-time traffic monitoring stations located at critical points of the road system. Traffic data are generated by sensors every minute and are available via MMS every five minutes. The system also provides input data for planning activities making it possible to validate the models against actual traffic data.
- User information system via variable message signs located on the main road routes. The signs automatically provide information on service status (delays, congestion, queues and so on) of certain road routes obtained by processing traffic data generated by local sensors. The signs can also display general information concerning, for example, planned events (e.g. strikes, demonstrations, closures or deviations) or recommendations of a general nature (e.g. road safety campaigns).
- IRIDE access monitoring system for automatic monitoring of access to the historic centre ZTL (restricted traffic area). The system is based on gates and TV cameras that automatically detect incoming vehicle licence plates and cross-check them against a list of authorised plates. If the vehicle is not on the list, the system automatically activates the penalty procedure.
- Video surveillance system, consisting of more than 60 TV cameras that can be controlled remotely (swinging and zoom) located around the main Roman churches near problem intersections. The images are also sent in real-time to both the Centre and the Municipal Police Operations Room as a support for accident detection.
- PARK system for monitoring of parking manages Laurentina and Magliana interchange car parks by means of units for automatic counting of vehicles entering and leaving that are able to communicate space occupation status in real time to the Traffic Control Centre.
- TIC traffic information system manages the dissemination of information on traffic status (delays, queues, etc.), road works, planned events (road closure, demonstrations, etc.) and exceptional events (accidents, etc.). The information is supplied by e-mail, website, video-text and text message.

The Rome ITS system has been in operation since the Jubilee in 2000 and it has allowed a 10% reduction in travelling times, a 12% reduction in the number of accidents and a 15% reduction in polluting emissions in areas managed by the Traffic Monitoring Centre.

Safety Tutor

The Safety Tutor System developed by Autostrade per l'Italia can be used to measure average speed and capture images of the licence plates of speeding vehicles on roads with multi-lane carriageways with high traffic density at speeds of up to 255 km/h. The system is operational 24 hours a day, 365 days a year.

In detail, the system consists of vehicle detection units, image capture and license plate reading units and local processing units; safety module, timetable synchronisation unit and communication unit.

The Safety Tutor system has been installed along road sections with higher-than-average mortality rates. Speed control by means of the Safety Tutor is currently active on approximately 2700 km of highways (equivalent to approximately 39% of the network operated by the Autostrade per l'Italia Group). During its first 12 months of operation, it made it possible to achieve a significant reduction in average speed (-15%) and peak speed (-25%), also bringing about a distinct reduction in the accident rate and consequences to people:

- mortality rate: -51%
- rate of accidents with injuries: -27%
- accident rate: -19%

2.2 Priority area III: ITS road safety and security applications

Current situation and entities involved

1) eCall

The eCall deployment scenario is based on the assumption of national deployment complemented by the single European emergency call number 112, and then reuse of this infrastructure, adding specific functionalities necessary for processing a vehicle emergency call. Depending on the condition of the occupants of the vehicle involved in the accident, the call may only involve the automatic exchange of data between the vehicle and the PSAP.

The annex entitled ‘Single emergency number’ describes the implementation status of the single European emergency call number 112 in the various European countries.

The figure is a schematic representation of the roadmap to eCall.

In Italy, an emergency voice call service has for years been available as a free public service to all landline and mobile network users.

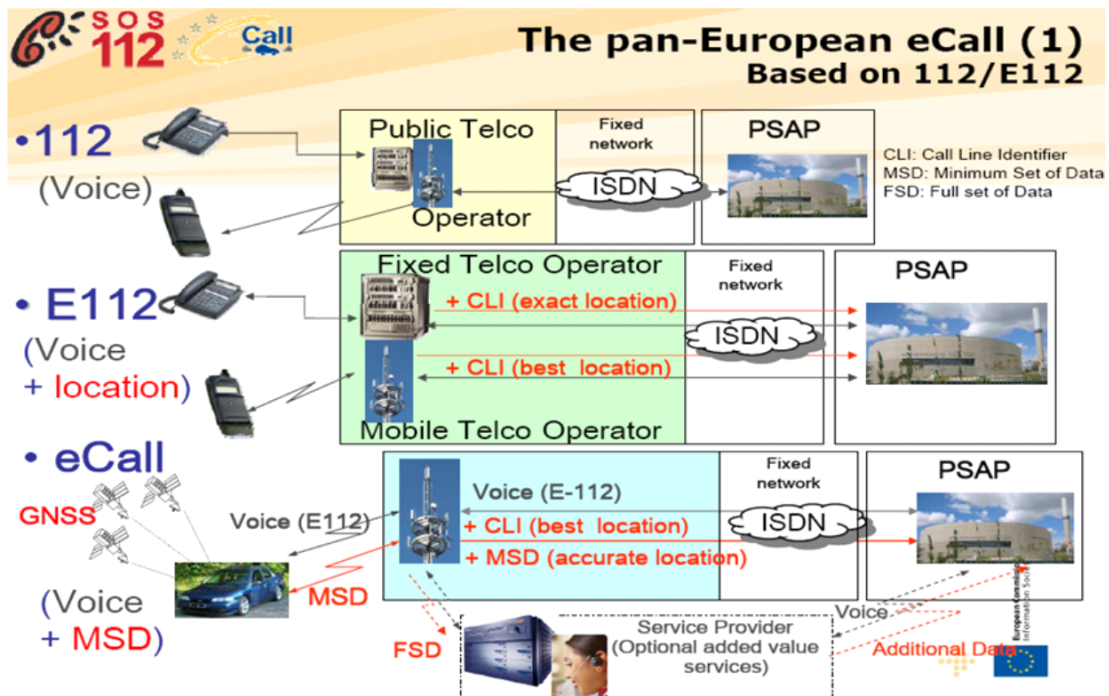


Figure 5 – eCall emergency call roadmap

Implementation status of single European emergency call number 112

The Europe-wide eCall system involves calling the single European emergency call number 112 as an emergency number.

Throughout Italy, emergency calls are currently managed at district level with the involvement of the responsible authorities (for example: Police, *Carabinieri*, Fire Brigade, medical emergency 118).

The deployment of the single European emergency call number 112 involves two stages: an initial stage (A) modelled on the distributed system implemented in the province of Salerno. When this is rolled out to the entire country it will make it possible to move on to the second stage (B), modelled on the level 1 centralised call centre system implemented in Varese.

A short description of both models is given below.

Integrated Deployment Model

This model has been implemented in Salerno. The model includes a PSAP consisting of a Police exchange and a *Carabinieri* exchange, linked to each other, that receives single European emergency call number 112 calls via a 50% distribution system. Both exchanges are connected to the remaining level 2 PSAPs (Fire Brigade, medical emergency) by means of digital lines. Both voice and data calls are distributed on these lines (Figure 6).

Centralised Deployment Model

In 2010, an unspecialised single European emergency call number 112 call centre was activated at the Varese 118 operating exchange. This is now operational in the single 112 exchange set up by the Regional Accident and Emergency Agency (AREU) upon the orders of the Interior Ministry. This call centre is able to process calls on all emergency numbers (112, 13, 115 and 118, in other words *Carabinieri*, Police, Fire Brigade, Medical Emergency, Civil Protection and Local Police) and sort them to the level 2 PSAPs as both voice and data calls.

Under this model, an unspecialised level 1 PSAP collects the calls and after analysing them in accordance with a specific protocol, distributes them as voice and data to the level 2 PSAPs, which are connected by means of digital lines.

This service is also organised to enable a multilingual response: the operators are able to forward the call very quickly to interpreters specialising in a very wide range of foreign languages to guarantee maximum accessibility to all. The service is currently available in five languages: Italian, English, French, German and Russian.

Both models require:

- the digitisation of telephone lines and systems for all *Carabinieri* and Police stations within Italy, for Fire Brigade Provincial Commands and for the Medical Emergency Service 118 operating exchanges ;
- caller identification and location for all emergency bodies through an interface with an Inter-force IT centre;
- implementation and management of the necessary multilingual areas.

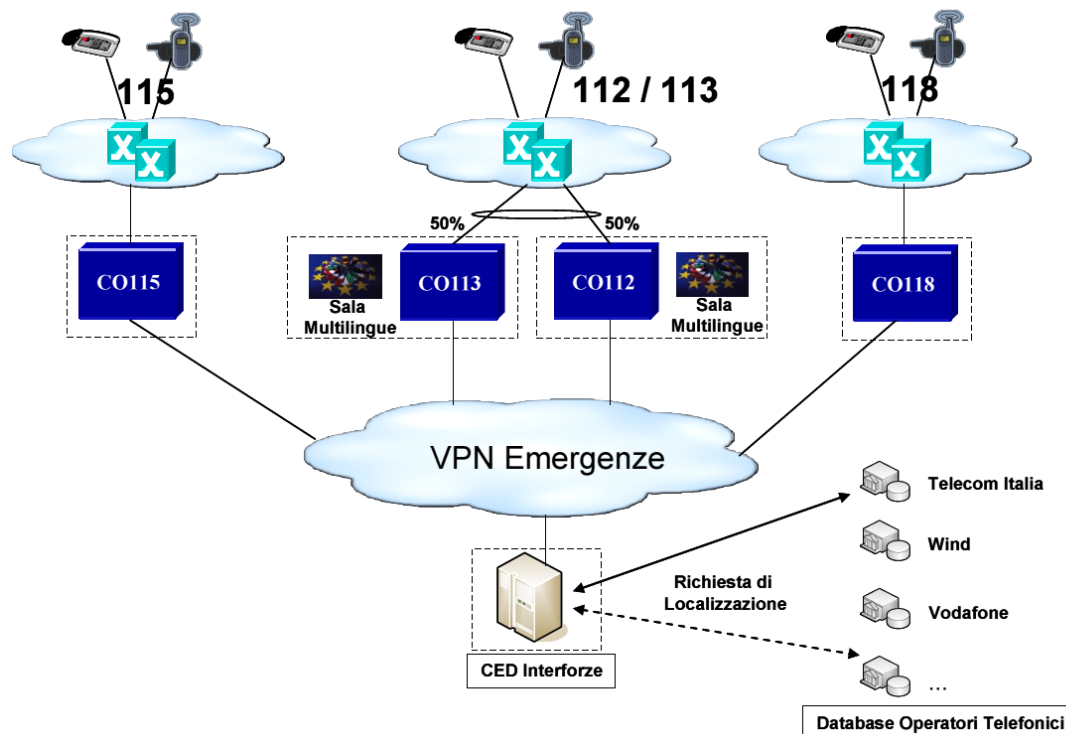


Figure 6 – Management of integrated single emergency number model interconnectivity

Sala multilingue	=	Multilingual area
VPN emergenze	=	Emergency VPN
CED Interforze	=	Inter-force IT centre
Richiesta di localizzazione	=	Location request
Database Operatori Telefonici	=	Telephone operator database

Development of single European emergency call number 112

The service active in Varese is currently expanding with the service being extended to the entire region of Lombardy through the setting up of another two call centres, one in Milan and one in Brescia.

At the same time, another two regions, Emilia Romagna and Sicily, have also shown interest in developing the stage B model and there is every likelihood that systems similar to that in Varese may be started up in Ravenna and Palermo.

The situation that seems likely to develop over the coming years is a ‘mixed’ system in which the organisation of the single European emergency call number 112 for public emergencies in part of the country will already be at stage B with the rest of the country still at stage A.

Subsequent deployment of eCall at national level will be based on the infrastructure made available for the single European emergency call number 112, complemented by the necessary additional functionalities.

Italy will take part in the HeERO project, a project funded as part of the European CIP – ICT PSP programme that aims to test technologies for the implementation of the eCall system.

Additional emergency management services (private and bCall emergency call)

For additional information, this section describes activities in progress at national level for the management of emergency calls in the event of accident or breakdown (**private emergency call** and bCall). The ITS services that have been developed by the insurance sector have already established a national benchmark in this area.

Particular reference must be made to the development of the insurance telematics services that have been adopted by the major insurance companies within the space of a few years. To date, the portfolio includes more than one million consumer customers in Italy, more than 1 200 new units installed every day and various service providers operating within this type of service, namely Octo Telematics, COBRA, VIASAT, Infomobility and so on.

The rapid growth of the number of users, facilitated by multifunctional, low-cost aftermarket technology and also an array of insurance services including Pay per Use, Pay As You Drive, Pay How You Drive and so on was initially prompted by a need to reduce fraud in the insurance field but a knock-on effect has been the spread of emergency, security or roadside rescue call management systems, managed by private stakeholders and installed on some 1 200 vehicle models including cars, trucks, caravans and commercial vehicles.

The spread of such services, which have already been operational for several years in Italy, has led to the accrual of extensive experience in the selection and management of emergency calls (voice calls alone and assisted by location data) to the extent that it is now possible to effectively filter out the false alarms that represent the bulk of calls handled by operating centres and thus manage assistance requests effectively.

By using data recorded during crashes, the operation rooms of **private** service centres are already able to display complete incident files in real time that contain processed information on crash dynamics (vehicle direction, speed, entity of impact, acceleration/deceleration, etc.) and event geolocation. This enables the centres to carry out appropriate event management in terms of organisation and immediate assistance (forwarding to medical and/or mechanical assistance as necessary to take charge).

The maturity of the technology backed by the development of organisational models makes the Italian system a case of best practice at international level. This is an example of how innovative business models can offer added-value commercial services, linking and harmonising the contribution of numerous stakeholders in the building of value. This kind of system makes it sustainable to amortise the costs necessary for setting up and maintaining the technological architectures by achieving economies of scale and redistributing resources and secondary business.

2) CURRENT STATE OF SAFE REST AREAS IN ITALY

ANIA website

With the aim of providing better protection against thefts and hijacks affecting freight in the haulage sector, ANIA (National Association of Insurance Companies) has prepared a website incorporating a map system known as *Geososta* listing the main protected car parks and rest areas located in various areas of Italy.

All the sites included in the list have been inspected by safety specialists.

The list is divided into two parts:

- the first includes protected parking places that, as a minimum, are equipped with an enclosure and include a guard service and may also be equipped with appropriate electronic prevention measures (intruder alarm systems, closed-circuit TV, etc.);
- the second concerns rest areas, in other words spaces that are not always enclosed and guarded, where it is possible to park heavy vehicles even for relatively long periods.

The pages on protected parking places and rest areas also provide useful information about the main structural characteristics (location, accommodation, means of access, etc.) and the services offered.

Haulage Registry Central Committee equipped rest area project

With the aim of increasing the level of safety on the road for freight transport, the Registry Central Committee has sponsored the 'equipped area' project. This project came about with the aim of providing support for hauliers in transit on Italian roads and motorways and the Committee has co-financed 22 rest areas throughout Italy.

The existing facilities in Italy were also surveyed and classified and the following methodology was adopted: the facility characteristics were divided into the categories 'services', 'security', 'safety', 'vehicles' and 'miscellaneous'. Each characteristic of the facility was allocated a score, with reference to the Italian Official Gazette, where calls for tender were published for the allocation of funds earmarked for the construction or extension/upgrading of rest areas. Each area was therefore allocated a score that represents the equipment and determines the membership class of each category. Three classes were designated, 'A', 'B' and 'C', delimited by a range of scores specific to each characteristic. As a general rule, the 'service' category falls into class A, the 'security', 'safety' and 'vehicles' categories into class B and lastly the 'miscellaneous' category into class C.

Main cases of best practice

FIAT Group SOS Emergency

The Fiat Group has recently introduced an optional SOS Emergency service on new vehicles. This service can be used to send an automatic text message to the operating centre showing the vehicle position by pressing the SOS key. The vehicle may then be located and contacted to receive the necessary roadside and medical assistance.

To ensure safety, the call is forwarded automatically if the airbag is activated.

The service may even be used in the event of illness and is free for the first two years after purchasing the vehicle.

East Brescia truck park

The East Brescia truck park located along Corridor V at the A4 motorway exit was built by the Autostrada Brescia-Padova company to a brief by the Brescia FAI (Federation of Italian Hauliers), which wished to see the setting up of equipped rest areas tailored to drivers throughout Italy that could offer services for people and vehicles for use by the drivers during their stay.

The East Brescia truck park covers an area of 173 000 m² and is absolutely new and unique within Italy due to its size and characteristics. To achieve the highest level of efficiency and meet the required specifications of size, structure and function, the truck park incorporates a set of infrastructures designed for accessibility, safety and quality.

To this end, a system has been installed for the monitoring and management of entrances and exits that uses state-of-the-art technologies and guarantees a round-the-clock monitoring and video surveillance service. The entire area has been fully wired. Access is controlled by electronic procedures and the entire complex is managed and subject to video surveillance, including the implementation of a monitoring system for the area by means of sensors and TV cameras. The video surveillance system installed at the gates has been enhanced to enable the management system to link each entrance ticket with the vehicle license plate details.

The parking area includes 430 bays, 300 of which are standard and approximately 10 of which are equipped with electrical power hook-up for vehicles carrying perishable foodstuff. The bays are marked out by horizontal signs on the road surface in order to ensure the orderly positioning of vehicles. The size of the access and exit routes are sufficient to ensure easy transit and manoeuvring of vehicles.

A photovoltaic plant installed on the perimeter allows energy saving by covering the lighting needs of the entire fleet: in addition to saving money, this energy production also aims to safeguard the environment against further pollution. The area offers an extensive range of services and is divided into various sections. Because the new European rules on employment contracts for hauliers require longer rest times of up to nine hours and sometimes more, a hostel has been set up consisting of 12 rooms for overnight stays in case of emergency. Another area is set aside for vehicle services. This is also open 24 hours a day and includes a reception with multilingual staff who are able to assist customers by directing them toward the relevant area.

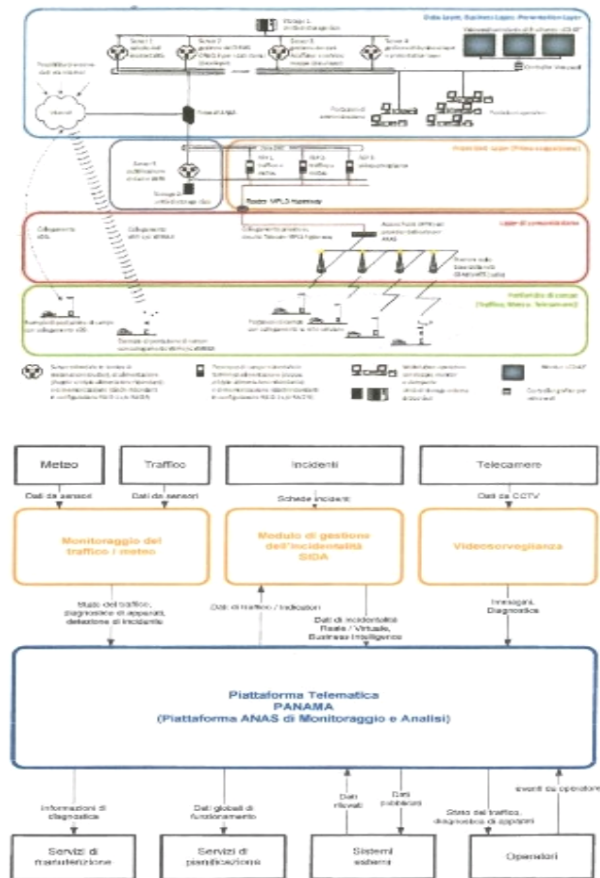
An IT system to connect the equipped rest areas to the Internet is being developed by the Hauliers Central Committee and will provide another benefit for hauliers. It will be possible to book the necessary services in advance online or via a call centre and then plan stopovers with greater ease during the journey.

3) MONITORING AND ANALYSIS OF TRAFFIC AND ACCIDENT RATES

ANAS Monitoring and Analysis Platform

ANAS (operator of the Italian road and motorway network, a joint-stock company whose only shareholder is the Ministry of the Economy) has set up a telematic platform known as PANAMA (ANAS monitoring and analysis platform) with the aim of carrying out more thorough statistical analyses of accident rates, traffic flows and traffic forecasts on the various arteries of the road system it controls.

Design of organisation, function and service /system relations:



This platform acquires current traffic measurements in real-time by means of 900 above ground sensors and 500 induction loops, processes them and uses them to estimate and observe the state of the monitored network, also carrying out a short-term forecast of traffic data. It carries out traffic video surveillance by means of 40 TV cameras and meteorological monitoring using 40 weather stations. The collected images and data are shown on a geo-referenced map and published on the Internet.

Historical traffic measurement records and estimated/model parameters as well as acquisition of accident data make it possible to identify potentially dangerous stretches of road.

The operating procedures for running the system comply with ITIL V3 and DATEX standards, while the conductivity used is IP protocol on the mobile network.

2.3 Priority area IV: linking the vehicle with the transport infrastructure

Current situation and entities involved

ITS for advanced vehicle control are systems that aim to improve vehicle safety conditions by providing information on the state of the driver, the vehicle and the surrounding environment or by performing certain typical vehicle driving manoeuvres.

Italian companies and universities have been particularly active for years in research and development projects in the vehicle safety systems sector. The projects concern innovative on-board integrated vehicle components and systems and also vehicle-infrastructure interactions. They are, however, essentially research projects conducted with the purpose of making these technologies reliable and developing innovative solutions to reduce the risk of accidents.

Experimental co-operative driving operational applications have also been developed such as the Infonebbia system, which arose out of a joint venture between ANAS and the Fiat Research Centre with the aim of developing and testing an integrated system to guarantee driving safety in situations of poor visibility.

One strongly innovative element that sets the project apart and is characteristic of the entire research and development process lies in the approach adopted: tackling the complex issue of road safety with an integrated solution that focuses on smart dialogue between cars and the road. To date, this complex situation has been addressed by means of unilateral problem-solving focusing on the vehicle or on the infrastructure alone.

The project, the operation of which is schematically represented in the following figure, has developed two motorway test sites equipped with ITS technologies: the Brescia-Padua Motorway and the Turin-Caselle expressway.

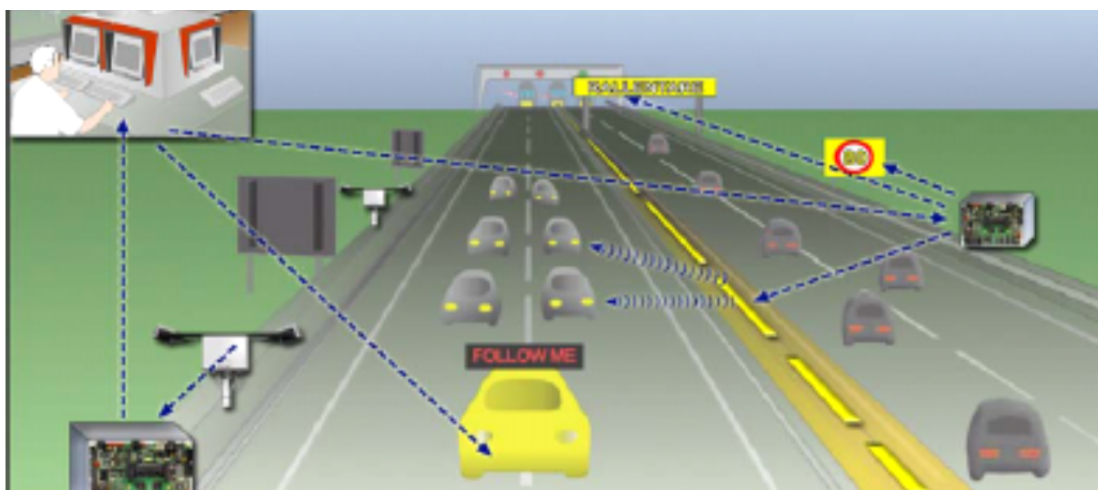


Figure 7 – Schematic representation of *Infonebbia* [fog information] Project

Main cases of best practice

Participation in EU projects

As emphasised under the previous point, the sector has concentrated more on developing research activities than co-operative driving applications. The main projects in which Italy has been involved are as follows:

- PREVENT² (*intelligent vehicles for safer travel*). The aim of the project is to prevent side collisions and/or shunting when reversing, assist drivers when they have no line of vision and prevent them from becoming distracted at the wheel. This is achieved through safety applications directly aided by information and communication technologies (ITC) that can help the driver to avoid an accident or limit its severity;
- CVIS³ (Cooperative Vehicle-Infrastructure System). In this system, vehicles interact with one another and with road infrastructures: the CVIS project aims to design, develop and test new technologies necessary to allow vehicles to interact with one another and with adjacent road infrastructures. The ambitious goal is to bring about a genuine revolution in the fields of passenger mobility and the free circulation of goods by completely reinventing the method of interaction between drivers, their vehicles, goods transported and transport infrastructures. In this way the CVIS project will be able to increase road efficiency and safety and also reduce the environmental impact of road transport.

Development of smart autonomous vehicles

Lastly, another important initiative worthy of mention, is the development of smart autonomous vehicles by Vislab, a spin-off of the University of Parma.

In particular, in 2010 Vislab organised an expedition by four autonomous vehicles with TV cameras, lasers and on-board computers over a route of more than 13 000 km. The expedition lasted approximately three months and travelled from Italy to China, crossing countries such as Hungary, Ukraine, Russia and Kazakhstan with the ultimate destination of the Shanghai Expo.

Vislab has been active for more than 15 years in the application of artificial vision techniques and instruments on vehicles to increase road safety. It has successfully participated in international calls for tender in the US in the past with autonomous vehicles developed in its laboratories.

² Source: <http://www.prevent-ip.org>

³ Source: <http://www.cvisproject.org>

Annex 1 – List of best practices

A list of some of the main ITS applications and best practices developed in Italy is given below ⁽⁴⁾.

€ ITS traffic management and urban mobility

- Rome – integrated traffic and mobility management system
- Turin – 5T system (Telematic Technologies for Transport and Traffic in Turin)
- Milan – integrated mobility management system
- Catania – Telematic traffic and pollution monitoring system
- Bologna – Van Sharing
- Padua – City Porto

€ ITS for Local Public transport

- Milan – system for centralised regulation and control of local public transport vehicles
- Naples – SAE system
- Turin – service management by means of AVM since the end of the 1980s
- Ischia – local public transport management system
- Bologna – reserved lane monitoring system
- MITT (Trento region integrated transport mobility)
- Province of Milan – local public transport vehicle location and monitoring system
- STRIM-TP project – integrated regional Telematic system for public transport monitoring
- SITUS TP project – University of Salerno integrated Telematic system for public transport

⁴ A full description of individual applications and best practices is given in [10]

- € ITS for management of road and motorway traffic
 - Telepass system (Motorways) for electronic tolls
 - Integrated ITS for the management of Mestre ring-road
 - EGNOS2road project

- € ITS for user information
 - CCISS
 - RDS-TMC system
 - *Muoversi in Campania* info-mobility project
 - TOC (Traffic Operational Centres) system for the management of the 2006 Winter Olympics, still being operated by 5T

- € ITS for road safety
 - Brescia-Padua motorway COMPANION system
 - POLICEMAP integrated accident detection system
 - ANAS *Sicurezza nella Nebbia* [fog safety] project
 - SAFETUNNEL *Sicurezza in Galleria* project
 - SITI 'Safety in Intelligent Tunnel' project
 - PREVENT project
 - SAFESPOT project
 - Province of Milan integrated road safety system (SISS)
 - TUTOR system
 - SCUTUM system

- € ITS for management of logistics and intermodal freight transport

- Bologna logistics centre Interpass system
- Genoa Port authority Cargo Community System
- Siena Park&Buy system developed as part of the eDrul Project
- UIRNET platform
- AUTOVIE VENETE project on hazardous goods monitoring
- City Ports project coordinated by the Region of Emilia Romagna for the rationalisation of movements and vehicles in urban goods distribution
- FIDEUS Project for the development of vehicles and solutions dedicated to urban distribution logistics

€ ITS for the insurance market

- Telematic variable-rate systems linked to car use;
- ISVAP (Institute for Supervision of the Insurance Market) Check Box project

€ ITS for maritime traffic management

- National and VTS system
- VTMS system for the Upper Adriatic

€ ITS for rail transport

- TRAINSAT system
- INFOTREN system

€ ITS for training

- E-Learning platform on ITS

€ Elisa programme

- SI.MO.NE Project (Sistema Innovativo di gestione della Mobilità per le aree metropolitane – innovative mobility management system for metropolitan areas)
- Wi MOVE project (public info-mobility services and services for the management of mobility and federated and inter-operational Wi-Fi network)
- GiM Project (informed mobility management)
- LOP-IN-MED Project (LOGistica INtegrata nel MEDiteraneo – integrated logistics in the Mediterranean)
- INFOCITY Project (multimodal and customised info-mobility system for cities of the future)
- CONCERTO Project (System for the control and management of mobility in protected zones and areas)

€ Transport NOP

- Ulisse Project (Unified Logistic Infrastructure for Safety and Security);
- SI-ITS Project (Nettuno, Trinacria Sicura, Città Metropolitane):
- Nettuno (integrated remote booking of embarkation of heavy vehicles on motorways of the sea) first batch Port of Palermo;
- Trinacria Sicura (integrated multi-access Telematic platform for monitoring and control of hazardous goods and special waste passing through Sicily);
- Città Metropolitane (integrated Telematic tracking and tracing platform for open goods distribution) first batch City of Palermo;
- SITIP Project (integrated Telematic IT system for the ports of Apulia);
- SBIRB Project, integrated rate system for mobility in Basilicata;
- SINTAS Project – research and development of rate integration systems in local public transport in Sardinia.

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