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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

'eCall: Time for Deployment'

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1.   INTRODUCTION

Road fatalities in the EU-27 have fallen by more than 27 % since 2001, when the Commission published its White Paper on European Transport Policy.[1] The European Road Safety Action Programme[2] and **the Intelligent Car Initiative[3]** have had a significant impact on this positive development, and are expected to continue to yield further benefits towards the goal of reducing fatalities.

However, with around 39 000 deaths and more than 1.7 million injured in 2008 on European roads, further action is needed. **The pan-European in-vehicle emergency call**, **'eCall',** is estimated to have the potential to **save up to 2 500 fatalities annually in EU-27** when fully deployed, to reduce the severity of injuries, bring significant savings to society in healthcare and other costs and reduce human suffering.[4]

To help deploy the pan-European eCall, initially aimed for full-scale roll out in 2009, the Commission has already taken several steps. It supported a working group comprising all stakeholders, which agreed on **the definition of an interoperable eCall service which will work across borders in Europe**, and invited all stakeholders, including the Member States and industry, to sign a Memorandum of Understanding (MoU) which commits them to work together towards implementing eCall. The Commission also adopted **two communications** defining an implementation plan and recommending action by stakeholders.[5] Furthermore, the Commission adopted in December 2008 the ITS Action Plan[6], in which support to eCall deployment is one of the actions, and at the same time an ITS Directive[7] proposal, which provides for a legal instrument (i.e. a regulatory committee) to impose measures to the Member States, notably for the '*harmonised introduction of pan-European eCall*'.

eCall enjoys widespread support from all stakeholders, including the European Parliament, the Council, the Member States and the general public.

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[1]   COM(2001) 370 – 'White Paper on European transport policy for 2010: time to decide'.

[2]   COM(2003) 311 – 'European Road Safety Action Programme — Halving the number of road accident victims in the European Union by 2010: A shared responsibility'.

[3]   COM(2006) 59 – Intelligent Car Initiative - 'Raising Awareness of ICT for Smarter, Safer and Cleaner Vehicles'. COM(2007) 541 – 'Towards Europe-wide Safer, Cleaner and Efficient Mobility: The First Intelligent Car Report'.

[4]   See studies on www.esafetysupport.info/en/ecall_toolbox/related_studies/.

[5]   COM(2005)431 – 'Bringing eCall to the citizens'. COM(2006) 723 – 'Bringing eCall back on track'.

[6]   COM (2008) 886 – 'Action Plan for the Deployment of Intelligent Transport Systems in Europe'

[7]   COM (2008) 887 – Proposal for a 'Directive laying down the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other transport modes'

- **The European Parliament** has on several occasions pledged **its full support** to implementing eCall, and called on the Commission and the Member States to take all the necessary steps to deploy it in a harmonised way throughout Europe[8].

- **The Council** of the European Union considered it as a priority to define the measures needed to promote the harmonised introduction of an interoperable EU-wide eCall on the basis of co-operation and appropriate standardisation[9].

- **Most of Member States** have signed the eCall MoU and support eCall implementation.

- More than eighty public and private organisations have also signed the MoU, including representatives of all stakeholders in the value chain.

More than 70 % of citizens responding to a Eurobarometer survey in Europe said they would like to have eCall installed in their next car.[10]

Progress has, however, been too slow and the roll out of the pan-European eCall is severely delayed. The voluntary approach taken in previous communications and the Commission's efforts to standardise eCall and work with all stakeholders has not been sufficient. **Further measures are urgently needed.**

This Communication aims to inform the EU Institutions on the progress achieved, and proposes new measures to begin actually deploying the eCall service in Europe. The measures, directed to the stakeholders and the European Commission itself, include the option of setting up a regulatory framework for deploying eCall. **These measures will make the pan-European in-vehicle emergency call service a reality, and lead to eCall devices being installed in new type-approved vehicles in Europe**.

2. THE PAN-EUROPEAN IN-VEHICLE EMERGENCY CALL: HOW IT WORKS

Over 1.2 million accidents require medical help in Europe every year, and many more need other types of assistance. After an accident, the occupants in the vehicle may be in shock, not know their location, be unable to communicate or to use a mobile phone. In all these cases, wherever they are in Europe, eCall makes the difference: it can **drastically cut the emergency response times**, save lives and reduce the severity of injuries. When fully implemented in Europe, the socio-economic benefits of eCall will be huge.[4]

eCall is a pan-European service that will operate in **all European Member States and states associated to the initiative**. It will be available in **all vehicles**, irrespective of brand, country and actual location of the vehicle. eCall is the only service providing **European-wide coverage**: no special agreements or additional devices will be needed, eCall will work at your holiday destination and during your business trip as well as at home.

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[8]   EP Resolutions A6-0072/2006 of 27 April 2006, A6-0169/2008 of 6/5/2008, 2008/2216(INI) of 20/1/2009.
[9]   Council conclusions on the EC Communication 'Action Plan for the Deployment of Intelligent Transport Systems in Europe' of 31/03/2009.
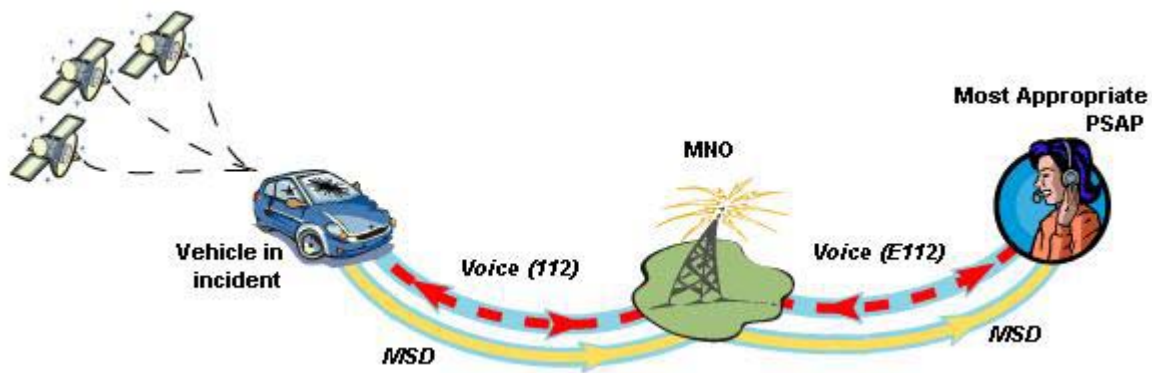[10]   Eurobarometer 267 on the Use of Intelligent Systems in Vehicles.

Figure 1. **eCall — Operational Principles**

When a serious accident occurs, in-vehicle sensors will automatically trigger an eCall. When activated, the **in-vehicle system establishes a 112-voice connection** and at the same time an emergency message, the **minimum set of data (MSD)** including key information about the accident, such as time, location, driving direction (resulting from accurate satellite-based data such as EGNOS[11] and, from 2013 on, Galileo[12]) and vehicle description is sent with the voice call. The eCall can also be activated manually.

The mobile network operator (MNO) identifies that the 112 call is an eCall from the 'eCall flag' inserted by the vehicle's communication module. The MNO handles the eCall like any other 112 call and **routes the call to the most appropriate emergency response centre** — Public Safety Answering Point (PSAP) — [13] as defined by the public authorities. The PSAP operator will receive both the voice call and the MSD.

The information provided by the MSD will be decoded and displayed in the PSAP operator screen. The **location and driving direction** of the vehicle can be shown in a Geographic Information System. At the same time, the operator will be able to hear what is happening in the vehicle and talk with the occupants of the vehicle if possible. This will help the operator ascertain which emergency services are needed at the accident scene (ambulance, firemen, police) and to rapidly dispatch the alert and all relevant information to the right service.

Furthermore, the PSAP operator will be able to immediately inform the road/traffic management centres that an incident has occurred in a specific location, facilitating rapid information to other road users and thus preventing secondary accidents, helping to clear the carriageway and therefore reducing congestion.

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[11] European Geostationary Navigation Overlay System. It increases the reliability and precision of GNSS (Global Navigation Satellite System) signals.

[12] European GNSS to come into operation from 2013 onwards

[13] PSAP: the physical location where emergency calls are first received under the responsibility of a public authority or a private organisation recognised by the government. The most appropriate PSAP is the one defined beforehand by authorities to cover emergency calls from a certain area or for emergency calls of a certain type (i.e. eCalls).

3. REPORT ON PROGRESS AND ACHIEVEMENTS

3.1. Progress of standardisation activities

The Commission requested the European Standardisation Organisations (ETSI[14], CEN[15]) to draft open standards for the eCall operation, based on the recommendations agreed by the stakeholders.[16] This work was accepted by the technical committees ETSI-MSG[17] in collaboration with 3GPP[18] for the standards related to the eCall transmission and CEN TC 278 WG 15[19] for those related to the MSD structure and the operational requirements of the systems. The main milestones reached are:

- CEN approval of the structure of **eCall Minimum Set of Data** ('MSD'). The MSD includes important information to help send the services to the site of the incident and to speed up the response. The MSD enables the PSAP operator to respond to the eCall even without a voice exchange.

- 3GPP approval of the **eCall discriminator** ('eCall flag'), included in Release 8 of the technical specifications with which the mobile telecommunications systems must comply. This discriminator will differentiate between 112 calls from mobile terminals and eCalls, and also between manual and automatically triggered eCalls.

  This will permit Member States to design the eCall response infrastructure in the way that best fits their emergency response infrastructure (i.e. centralised/decentralised, same PSAP that receives the 112 calls, or different PSAP with a filtering function, public organisation or private one recognised by the public authority). Member States must inform mobile network operators operating in the country of the most appropriate PSAP to route eCalls.

- ETSI-MSG and 3GPP approval of the core technical specifications defining the **protocols for sending the MSD** from the vehicle to the PSAP operator. The solution agreed is that the data will be transmitted via an in-band modem along with the voice call. It is an open standard and there will be no licence fees for using the in-band modem for the eCall service.

- CEN approval of the **core operating requirements** for the Pan-European eCall service, defining the general functional and operational principles. The operating requirements are expected to be completed with high-level application protocols by autumn 2009.

This set of standards will allow the deployment of a harmonised, reliable, interoperable, continuous eCall service in Europe, subject to their application by the stakeholders: vehicle and equipment manufacturers, mobile network operators and Member States. The updated list of standards may be consulted on:
http://ec.europa.eu/information_society/activities/esafety/ecallstandards/

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[14] European Telecommunications Standardisation Institute.
[15] European Committee for Standardisation.
[16] eCall Driving Group: Final Recommendations for the introduction of the pan-European eCall.
[17] ETSI Mobile Service Group.
[18] 3rd Generation Partnership Project.
[19] Technical Committee 278 on Road transport and traffic telematics. Working Group 15 on eSafety.

3.2. Progress on the commitment of major stakeholders

3.2.1. Negotiations with the automotive industry

In 2008, the European Commission held negotiations with representatives of the automotive manufacturers associations (ACEA, JAMA and KAMA[20]) on the voluntary introduction of eCall in all new type-approved vehicles.

The automotive manufacturers (ACEA being one of the first signatories of the eCall MoU) confirmed their commitment to eCall and pledged to offer eCall as an option for new type-approved vehicles of certain categories[21] three years after approval of all relevant standards (communication standards, MSD, operating requirements), provided that Member States update their PSAP infrastructures to handle eCalls. **The automotive manufacturers also took the position that making eCall standard factory-equipped equipment in all vehicles would be possible only through regulation.**

Furthermore, the automotive industry advocates for the coexistence of the pan-European eCall and **proprietary emergency call solutions** developed by some manufacturers. The automotive industry is also interested in using the eCall platform to offer **added-value services** to boost their business.

3.2.2. Member States

To date, fifteen Member States have signed the eCall MoU: Austria, Cyprus, Czech Republic, Estonia, Finland, Germany, Greece, Italy, Lithuania, Portugal, Slovakia, Slovenia, Spain, the Netherlands and Sweden. Three other European countries have also signed: Iceland, Norway and Switzerland.

Other Member States have expressed their support for the initiative and their willingness to sign the MoU in the short term: Belgium, Bulgaria, Hungary, Luxembourg, Romania and Poland.

The reasons given by other Member States for not having signed up to the eCall deployment vary but essentially relate to the cost of the operation. Some Member States are unwilling to invest in upgrading their PSAPs to receive eCalls as this may increase the tax burden on all citizens, even those who do not have a car. However, eCall would benefit all citizens, including the users of public transport and vulnerable road users. While it is true that upgrading PSAPs and rescue infrastructure will not be without cost, deploying eCall throughout a Member State, and consequently across the European Union, would mean significant economies of scale.

Although some Member States are still hesitating, most are ready to go ahead and implement eCall. As the relevant core standards now exist,[22] Member States should start implementing the eCall function in their emergency rescue infrastructure. As well as saving lives, it would

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[20]   ACEA, JAMA, KAMA: European, Japan and Korean Automobile Manufacturers' Association respectively.

[21]   eCall will be introduced first in passenger cars and light commercial vehicles (categories M1 and N1) for which an appropriate triggering mechanism exists, and later in other vehicle categories.

[22]   See http://ec.europa.eu/information_society/activities/esafety/ecallstandards/

be an incentive for industry to install eCall systems on board vehicles and to achieve economies of scale through wider deployment.

3.2.3. *Mobile Network Operators*

Mobile telecommunications operators need to handle eCalls in the same way as they handle 112 calls. They must activate the eCall indicator in their networks, so that they can identify eCalls and route them to the most appropriate PSAP defined by national governments.

GSM Europe, the association representing European Mobile Network Operators, has established a task force to develop strategies to deploy eCall in Europe, contribute to standardisation and participate in the work of the European eCall Implementation Platform.[23]

3.2.4. *Emergency response services*

Member States need to upgrade their emergency rescue service, the PSAP infrastructure to handle eCalls and the data contained in the MSD.

PSAP representatives have been active in defining eCall specifications. The final definition of the service corresponds to the needs of the emergency services.

For countries with state-of-the-art PSAP infrastructure capable of handling the location information of mobile calls to 112 (E112), this will represent a minimal investment. For countries with a less developed system, the design of eCall service including the eCall discriminator offers various options, such as setting up an intermediate platform. Nonetheless, upgrading the PSAP infrastructure is an essential investment for saving lives.

3.3. eCall is an opportunity to deploy added-value services

eCall builds on technical components (satellite positioning, processing and communication capabilities) that also provide the basis for several in-vehicle applications, including those required by existing or planned regulation applicable to commercial or private vehicles, such as the digital tachograph, electronic toll collection or provisions on the transport of dangerous goods and live animals.

A streamlining and integration of all these applications within a coherent, open-system architecture could yield better efficiency and usability, reduced costs and enhanced extensibility, enabling "plug and play" integration of future new or upgraded applications. Such modular approach will easily allow the low cost integration of functionalities and applications that address road safety, personal mobility, logistics support or access to multimodal information. The definition of an 'open in-vehicle platform' concept is part of the ITS Action Plan, and the introduction of eCall based on this concept would positively contribute to its momentum.

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[23] This Platform is the coordination body bringing together representatives of the relevant stakeholders associations and of the National Platforms. It aims to guide, coordinate and monitor the progress of the implementation of the eCall service across Europe to ensure a timely, effective and harmonised deployment of the eCall service in Europe. See http://www.esafetysupport.org/en/ecall_toolbox/ecall_implementation_platform/

The automotive and telecommunications industry and service providers will benefit from new services based on the introduction of the eCall telematics platform in all vehicles. This is particularly valuable in times of crisis.

Road operators will benefit from a more efficient incident management service due to immediate reporting of incidents provided by the eCall service.

Emergency services will benefit from the vehicle description included in the MSD. This will inform them of the exact structure of the vehicle, considerably reducing the intervention time to extract trapped occupants and avoiding possible accidents (i.e. by knowing the exact position of the vehicle batteries or the pyrotechnic systems).[24]

Furthermore it is expected that after-market equipment will be developed to provide the eCall service in vehicle models already present on the market. These after-market systems should comply with the standard pan-European eCall operational requirements.

3.4. Coexistence of pan-European eCall and proprietary eCall services

Proprietary in-vehicle emergency call services are offered in Europe and worldwide by different automobile branches and service providers (e.g., Volvo OnCall, GM OnStar, PSA, Fiat, BMW). They are typically bundled with other services, such as breakdown assistance, onboard mobile telephony, dynamic navigation, etc. Emergency calls are received by private call centres that transmit the calls and the accident data to PSAPs in an emergency. Each manufacturer needs to reach an agreement with PSAP authorities in every country in which they want to deploy the service, on a case-by-case basis.

Although these services, introduced more than 10 years ago, have shown their usefulness and confirm the benefits that eCall can provide, their penetration remains low in Europe (less than 0.4 % of the vehicle fleet). The service is normally offered only in high-end cars and does not cover all countries in Europe.

In Member States where there is an agreement to support proprietary eCall services with a similar quality of service as the pan-European eCall, the vehicle manufacturer would be free to choose the type of system supported (pan-European eCall or proprietary eCall service). For this purpose, CEN is developing standardised operational requirements for third party services providing eCall (TPS-eCall). In other Member States, vehicle manufacturers must implement the pan-European eCall system. If the buyer of a vehicle does not opt for the proprietary eCall solution, the automobile manufacturer must equip the vehicle with the pan-European eCall system.

Regardless of the solution chosen by the vehicle manufacturer, **an in-vehicle emergency call service**, including voice link and provision of at least the eCall MSD, **must be provided in a seamless way in all EU Member States**.

When eCall is fully deployed across Europe, the providers of proprietary eCall services can also migrate to using the pan-European eCall, i.e. in-vehicle emergency calls will call the 112 number while all other services provided stay intact.

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[24] See ADAC accident research study on rescue sheets. www.adac.de/rettungskarte

4. RECOMMENDATIONS

4.1. Need for further action

The initial target for eCall deployment was 2009. **Progress has, however, been too slow and roll out severely delayed**, despite the availability of standards and the willingness of a majority of stakeholders**.**

A major problem in deploying eCall has been that simultaneous action by all stakeholders is needed, i.e. the automotive industry, mobile telecom operators, emergency services and Member States each have to implement part of the service. **To find a solution to this deadlock, the Commission is considering three possible policy options**: (1) not intervening and leaving the introduction to market forces; (2) supporting voluntary introduction by industry or (3) mandating introduction through regulatory measures.

(1) Regarding the option of not intervening, the proprietary in-vehicle emergency call services have proved their benefit, but their market penetration is very slow, restricted mainly to high-end cars and only certain countries in Europe. Moreover the emergency response services will need to liaise with different proprietary services, adding complexity to the service. Clearly, with what is at stake (saving lives), this option is unacceptable.

(2) The voluntary approach would lead to the introduction of the eCall service in Europe, but too slowly. The commitment of industry to offer eCall as an option in all vehicles of certain categories is a positive step forward, and would, with time, increase the penetration rate of the service, provided the emergency services are upgraded. However, by making eCall only an option there would not be the same economies of scale, which could increase its price, reduce demand and curb its penetration and consequently its benefits.

(3) The regulatory approach would mean making eCall standard equipment installed in all new vehicles in Europe, starting with certain categories[21] during a transition period, and would provide a framework for handling eCalls in telecommunications networks and PSAPs, based on existing regulations. This approach would make eCall available to all citizens in Europe, accelerate take-up and unlock the full potential of eCall to save lives and mitigate the severity of injuries. Furthermore it is expected that the certainty created by the regulatory approach will accelerate the introduction of eCall systems by automobile manufacturers, thus fostering the introduction of the service even before it becomes compulsory, and at the same time stimulating the telematics service market in Europe.

4.2. Proposed action

The measures proposed below aim to make the pan-European eCall service a reality in Europe. Stakeholders should take the following steps:

(1)   The Commission, Member States and all other stakeholders will actively support the work of the European eCall Implementation Platform (EeIP)[23] and its Task Forces, to ensure the timely issuing of all definitions, guidelines and good practise for effective and harmonised deployment of the eCall service in Europe.

(2)   The Commission, along with the Member States and other stakeholders, will launch coordinated awareness campaigns to increase understanding of and demand for the service.

(3)	The Member States, PSAP organisations, automotive and telecommunication industry, along with other stakeholders, will carry out pre-deployment pilots taking into account the standards being approved. The Commission may provide funding to support these pilots through the Competitiveness and Innovation Programme (CIP).

The final aim is to fully roll out the pan-European eCall service and make it standard equipment in all new type-approved vehicles in Europe. The Commission will monitor the effectiveness of the voluntary approach described above. If significant progress is not made by the end of 2009, both in the availability of the eCall device in vehicles, and the necessary investment in PSAP infrastructure, the Commission will plan to take the following regulatory measures in 2010:

(1)	A Recommendation to the Member States targeting Mobile Network Operators on the transmission of eCall, including the MSD from the in-vehicle systems to the PSAPs. The guidelines would be based on the single European emergency number enhanced with location capabilities (E112)[25] and the set of standards related to transmission of the eCall.

(2)	A proposal for a regulation under the vehicle type-approval legislation[26] for the mandatory introduction of the in-vehicle part of the eCall service in new type-approved vehicles in Europe starting with certain categories,[21] based on the operating requirements approved by the European Standardisation Organisations.

(3)	The assessment of a potential regulatory measure for the necessary upgrading of the PSAP infrastructure required for proper receipt and handling of eCalls, in the framework of the proposed Directive on the deployment of ITS in Europe[7]. The resulting Regulation, that would require Member States to take the necessary action for eCall implementation, would be based on the recommendations of the European eCall Implementation Platform (EeIP).

## 5.	CONCLUSIONS

eCall has been identified as one of the most efficient, low-cost intelligent transport systems for road safety that can be deployed in the short term. The technology is mature and the European Standardisation Organisations have issued the standards needed to ensure a reliable and interoperable operation of the eCall service Europe-wide. Citizens recognise its value and want an affordable eCall with their next vehicle. The European Parliament and most Member States have pledged full support to the eCall service. Stakeholders have joined forces in the European eCall Implementation Platform to ensure a harmonised and timely deployment of the service in Europe.

It is time now to start deploying the systems in vehicles, communication mobile networks and emergency service infrastructures. In this Communication, the Commission proposes measures to accelerate the introduction of eCall as part of the equipment of all new vehicles in

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[25]	Directive 2002/22/EC of 7 March 2002 'Universal Service Directive' and Commission Recommendation 2003/558/EC of 25 July 2003 on the processing of caller location information in electronic communication networks for the purpose of location-enhanced emergency call services.

[26]	Directive 2007/46/EC establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles.

Europe. Saving 2500 lives per year and reducing the suffering of thousands of families should not be delayed any further. Should the voluntary approach not meet the objective of introducing the eCall service in Europe, the Commission will consider introducing in 2010 new regulatory measures for making the eCall system standard in new type-approved vehicles in Europe, to bring down the cost of the systems and to ensure it is deployed in all European countries.