D6.1

eCall DEPLOYMENT ENABLERS, OPPORTUNITIES AND CHALLENGES

PRE-PILOT PRELIMINARY REPORT

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1 Terms and abbreviations

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<tr>
<td>CIP</td>
<td>Competitiveness and Innovation Framework Programme</td>
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<td>GIS</td>
<td>Geographical Information Systems</td>
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<td>EC</td>
<td>European Commission</td>
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<tr>
<td>EEIP</td>
<td>European eCall Implementation Platform</td>
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<tr>
<td>ITS</td>
<td>Intelligent Transport Systems (Services)</td>
</tr>
<tr>
<td>IVS</td>
<td>In-Vehicle Systems</td>
</tr>
<tr>
<td>LTE</td>
<td>Long Term Evolution, “4G” (Radio Technology)</td>
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<td>MNO</td>
<td>Mobile Network Operator</td>
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<td>MSD</td>
<td>Minimum Set of Data refers to the information that must be sent to the PSAP according to the standard EN 15722</td>
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<td>PSAP</td>
<td>Public Safety Answering Point is the physical location where emergency calls are initially received under the responsibility of a public authority or a private organisation recognised by the national government</td>
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<td>TMC</td>
<td>Traffic Management Centre</td>
</tr>
<tr>
<td>TIM</td>
<td>Traffic Incident Management</td>
</tr>
<tr>
<td>TPS eCall</td>
<td>Third Party Service eCall</td>
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<tr>
<td>TSP</td>
<td>Telematics Service Provider</td>
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<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Process</td>
<td>The method of operation in any particular stage of development of the material part, component or assembly involved.</td>
</tr>
<tr>
<td>Flag</td>
<td>‘eCall discriminator’ or ‘eCall flag’ means the ‘emergency service category value’ allocated to eCalls according to ETSI TS 124.008 (i.e. ‘6-eCall Manually Initiated’ and ‘7-eCall Automatically Initiated’), allowing differentiation between 112 calls from mobile terminals and 112 eCalls from in-vehicle terminals and also between manually and automatically triggered eCalls.</td>
</tr>
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2 Executive summary

This is the FIRST PART OF Deliverable D6.1 (the preliminary pre-pilot report) Enablers, Opportunities and Challenges, it is anticipated that issues raised in the first iteration of this document will be clarified after the piloting phase of the HeERO project.

The second and final version on D6.1 will be completed after the first piloting phase has been completed as detailed in the HeERO Description of Work.

Studies carried out on implementation of the pan European eCall solution show that it is expected to have beneficial effects on casualty reduction, and when the penetration level of eCall systems in vehicles is at a reasonable level, the system as such is cost effective.

The main benefits are related to safety improvements for vehicle occupants, but there are also additional beneficial effects, which are regarded as an impetus for larger service market development. Key research results show that with 100% penetration levels, eCall would prevent approximately 6% of deaths on the road which could equate to more than 1000 fatalities annually.

The political commitment to eCall is promoted clearly through the ITS Directive and Action Plan. The ITS Directive defines eCall as a priority action, with the harmonised provision for an interoperable EU-wide eCall, and its deployment. This is now coupled with a clear legislative path for the mandated implementation of eCall in 2015. The legislative path includes:

- Amendment to type approval regulations
- Requirements on MS to ensure MNO upgrade their systems for the eCall flag
- Requirements on MS to ensure that the PSAP is upgraded to receive eCall (Member States should require their public authorities to report measures taken in response to the EU recommendation by March 2012. The expectation is that if Member States show compliance with the recommendation by 2012, the EU will be satisfied that this step in the eCall implementation process has been taken. If not, the Commission may issue a directive or a regulation to ensure Member States are in a position to comply by 2015 so as to match the timings of the in-vehicle deployments which are intended to be completed by 2015).

However, a number of Member States have still to define a national implementation plan for eCall, which complies with the stated timeline for the implementation of Pan European eCall.
Member States are forming quite different national operational models for eCall depending on the current emergency rescue service systems in the Country.

In all MS governmental operations, major implementation plans should be included in the government implementation policies and budgetary programmes to guarantee that the necessary resources are available for the implementation within the defined timeline.

In most Countries eCall is a part of the national emergency processes and is included in national policy priorities. The structure of the national emergency management system also defines eCall management and operations in a Member State. Most Member States have accepted eCall to be a clear public service, but there are still exceptions to this view point, however they are in the minority.

The Pan European eCall system is not an independent system that will deliver significant added value without good cooperation with other necessary systems. In an emergency situation, the related services which include police, fire, ambulance and medical care that manage the incident, as well as traffic management to mitigate the risk of additional collisions at the scene of the incident.

According to some stakeholders, business case is not clear yet. There are still critics of the Pan-European eCall system based on 112 these come in the main from the private sector, claiming that the expected impact could be reached as a result on commercial business models. Models of tax and financial incentives have been presented and discussed.

However it should be noted that the provision of any eCall solution other than Pan European eCall based on 112 involves a fiscal transactions at some point in the eCall chain, be it between the vehicle owner and the service provider or between the service provider and the MS. In this case, where there is a financial arrangement, it can be broken. The crucial point for eCall based on 112 is that it is Free To All at the point of use and interoperable throughout Europe, and potentially beyond.

Although eCall will bring about potential savings for society, the financing of the upgrade of the current systems for eCall is a practical problem because the benefits and costs are generated to and by different stakeholders. Low interest by end-users (car-drivers) is a recognised phenomenon, and this applies to both the Pan European eCall and the TPS eCall. This is due mainly to awareness and their own inadequate risk estimation (this is a common attitude amongst people: “nothing will happen to me, ‘cause I’m a better than average driver”).
Generally, the emergency protection and response systems in Europe are cost-free to citizens and therefore this free of charge expectation may be also reflected to the in-vehicle emergency systems, this will be fitted as a standard cost absorbed into the cost of the vehicle. Efforts in communication to the general populace about eCall are now necessary as the deployment date of 2015 approaches.

The 112 operations are regulated by telecommunication laws and internal security laws (regulation for police and rescue operations etc.) and health care laws. Transport and traffic safety is typically under of the responsibility of the Ministry of Transport while disasters, large-scale incidents and rescue operations are the responsibility of the Ministry of the Interior.

Data protection and privacy issues have mainly been regulated and designed according to EU directives and national laws shaped around the concept enshrined in Article 8 of the European Convention on Human Rights.

Liability issues are still open however as the Pan European eCall is based around 112 then it should follow that many of the liability issues based around the concept of “Best Endeavour” should be followed. eCall legislation has yet to be harmonised across Europe, however it should be recognised as stated above that there are a wide range of different models which manage the issue of 112, and eCall now falls within that category.

All the technology issues have to be solved and settled in order to be able to effectively deploy eCall in Member States. In theory the main technology issues are already solved with standardisation and cooperation (e.g. EEIP work) but there can be practical issues, which come up in the piloting and implementation phase and they have to be settled. The HeERO project is well aware of these issue and is actively addressing each instance as it arises through the operational phase of the project, and the Standards task force established in work package 6 of this project. Challenges may arise from the fast development of mobile communication technologies e.g. LTE (4G) is replacing 2G (GSM/GPRS) and 3G. However it should be made quite clear that the deployment of Pan European eCall is based on the 2G network and no other communication medium.

The HeERO project will illuminate many of the aforementioned issues and help implementation efforts of eCall in the future. HeERO has made an excellent technical framework for MS eCall testing and implementation with its architecture, deepening standardisation and creating an all-embracing testing system for the whole eCall process.
3 Introduction

3.1 Purpose of Document

The purpose of this document is to gather the first insights of enablers, and highlight the opportunities and challenges of eCall implementation. In order to provide inputs and directions for the HeERO Pilot Sites, a questionnaire was prepared and delivered to HeERO partners who have provided comments on these subjects.

3.2 Structure of the Document

This deliverable document D6.1 consists of a general literature review of enablers and challenges for eCall implementation from different sources of information, feedback and insights from HeERO partners and initial conclusions. D6.1 is part of the work of WP6 Deployment enablers.

It should be made quite plain to all that this is the preliminary report, a revision of this document will occur at the conclusion of the first period of operational testing for the HeERO 1 project.

The overall aim of WP6 is the analysis of eCall enablers and barriers and the description and/or planning of certification processes in Member and Associated States. (figure 1).

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**Figure 1: HeERO project structure**

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3.3 HeERO Contractual References

HeERO is a Pilot type A of the ICT Policy Support Programme (ICT PSP), Competitiveness and Innovation Framework Programme (CIP). It stands for Harmonised eCall European Pilot.

The Grant Agreement number is 270906 and project duration is 36 months, effective from 01 January 2011 until 31 December 2013. It is a contract with the European Commission, DG INFSO.

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Any communication or request concerning the grant agreement must identify the grant agreement number, the nature and details of the request or communication and be submitted to the following addresses:

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Belgium
by electronic mail: INFSO-ICT-PSP-270906@ec.europa.eu
4 eCall and development activities

4.1 eCall development

From 2002 E-MERGE and GST RESCUE projects took the first steps towards ensuring the availability and functioning of vehicle-based emergency call systems that allow incidents to be dealt with in the same manner across the European Union.

By defining the first common Pan-European in-vehicle emergency call infrastructure and protocol a pre-eCall platform was developed in these projects.

Before the eCall system which was originally defined in E-MERGE and GST RESCUE can be implemented across the EU, two basic needs must be fulfilled.

1. EU Member States must ensure the complete implementation of E112 in Europe
2. PSAP’s need to upgrade their E112 solution to handle the minimum set of data.

The minimum set of data was first defined in EMERGE, which ended in 2004. The MSD was further refined in GST Rescue which ended in 2007.

The eSafety Forum was established in 2003. eSafety was a joint industry/public sector initiative working towards improving road safety by using new information and communication technologies and the working group’s expertise to build a European strategy to accelerate research and development in Intelligent Integrated Road Safety Systems. One initiative towards developing ITS to increase road safety was setting up the eSafety eCall Driving Group by the European Commission. eCall Driving Group drafted a Memorandum of Understanding (MoU) for the Realisation of Interoperable In-Vehicle eCall in Europe for relevant stakeholders to sign.

Several working groups and sub-working groups were established to working with various eCall challenges.

Recommendations on eCall introduction in 2006 deals with the eCall process, eCall requirements (architecture), performance criteria (eCall service chain, end-to-end performance criteria: timing, eCall generator, mobile network, PSAP), transport protocol and (certification), other issues (status in implementation, eCall deployment plan, privacy, PSAP structure and eCall business case). The recommendations include definition of necessary steps for deployment of eCall. (eSafety Forum 2006).

The eCall industry position paper gives general support to eCall and brings forth many relevant issues, including the fact that industry expects a business case. From an industry
D6.1 Enablers, opportunities and challenges, initial report

perspective eCall could be a stand-alone option, an interface or part of a safety package. The paper also underlined that industry required sufficient lead-time in which to implement eCall. (ACEA, JAMA, KAMA 2009)

eCall deployment enablers cover the whole end-to-end process and the stakeholders. Annoni has presented a list of potential enablers as follows (Annoni M. 2011):

- Mobile network independence
- In-vehicle device independence
- Level of adoption (cars/commercial vehicles; OEM/after-market)
- Gradual PSAP deployment/upgrade (i.e. timings, costs)
- Technology reliability
- Product certification
- Performance metrics
- Liability & legal aspects.

4.2 European eCall Implementation Platform (EeIP)

The European eCall Implementation Platform (EeIP) which commenced in February 2009, is the coordination body bringing together representatives of the relevant stakeholders associations and of the National Platforms supporting the implementation of a pan-European in-vehicle emergency call system based on 112. It aims to guide, coordinate and monitor the progress of the implementation of the eCall service across Europe to ensure the timely, effective and harmonised deployment of the eCall service in Europe.

The EeIP activity is organised around a number of Task Forces. EEIP assigned ASECAP to coordinate work on common protocols and to forward the information from the PSAP/eCall – centres to the relevant road operators (EEIP 2009). The aim of the task force was to produce the necessary recommendations. All Member States were invited to contribute to this action. In addition to this, an internet based survey was launched. (EEIP 2011a, EEIP 2011b).

EEIP works mainly with the definition of guidelines for implementation, the establishment of national and regional deployment platforms, special task forces, the follow-up of implementation, the exchange of best practices and potential pilot programmes (eSafety Forum 2011).
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Road operators are clearly responsible for the safety and management of the road network they operate. They are also taking part in rescue and safety improvement procedures. However, the Police have the main responsibility on safety related tasks.

Road operators have to keep continuous contact with other emergency services. Information sharing and data exchange between road operators and emergency service organisations should be well organised and defined. Incident location determination and the involvement of vehicles usually take place irregularly and slowly. Using the telephone as the only means of communication may result in different interpretations, miscommunication and, sometimes, conflicting information.

Incident information received by the road operators may be deficient with inaccurate information on the incident’s severity and location.

eCall will provide accurate and timely information, which ensures that road managers receive alerts and notifications that provide key information to the rescue services, but also enhance traffic management and consequently improve road safety.

General benefits of eCall include

1) faster response to the rescue,
2) faster implementation of the Traffic Incident Management (TIM) process,
3) reductions in secondary incidents
4) more accurate information.
5) increased information provided by the MSD

Road operators’ Traffic Management Centre (TMC) can support the emergency operations by immediately checking on the location and other relevant information with their existing monitoring systems and informing the rescue organisations about the incident.

There is a high requirement for information to manage an incident for the road operators. EEIP WG3’s proposal presents almost 30 important issues, which the road operators brought up related to eCall and Traffic Management. The respondents of the questionnaire survey proposed further consideration on system development and integration and work protocols. (EEIP 2011a)

The conclusions and recommendations, which road operators listed, are shortly presented here. For more information please see the report (EEIP WG3 proposal, reference EEIP 2011a)
- Test eCall as part of the complete Traffic Incident Management (TIM) process consisting of vehicle incident, notification to emergency call centre, response by emergency services, implementation of traffic management measures and transfer of traffic information

- Implement the solution based on the requirements expressed by Task Force 3 of EEIP

- Implement and test procedures to gather additional information to enrich the content of the Minimum Set of Data

- Test the prioritisation of types of eCall messages (manually v. automatic)

- Establish the procedures with vehicle recovery service based on the type of eCall messages

- Generate traffic information from TIM processes to other parties, based on the estimate of the severity of the eCall messages;

- Validate not only the technical but also the organisational issues in the pilot

- Implement a technical test to investigate and improve matching between GPS coordinates (provided from eCall) and used Road Database, so that incident location and direction of travel are made absolutely clear (also on parallel carriageways, connecting roads and in tunnels).

- Include the eCall information in existing GIS systems and / or Traffic Incident Management applications considering the clustering of eCall signals and the continuous update of incident information between TIM partners.

- Research the clustering of incident notification messages and the information gathered from third party calls, to enable the road traffic manager to make a accurate and rapid estimates on the severity of an incident, and the appropriate response required.

- Design a system for the exchange of information so that all emergency services have the same incident information at the same time and so that new information can be added. The eCall MSD could form the basis of this system, as part of the incident information as it automatically generates a unique code based on location and time. The archiving and logging carried out within this system could also be used to evaluate traffic safety measures as it may result in a more detailed traffic safety database.

- Investigate the combination of eCall information with TIM information. This means that efficient working processes have to be developed, which need to be supported by smart algorithms and make use of standard exchange mechanisms.

- Investigate legal issues of the eCall system implementation on local /regional level. The eCall value chain is covered by different legal environments and the way these are organised differs per country. The 112 operations have to deal with the telecom laws, the PSAP has to deal with police laws and transport and traffic safety is typically the responsibility of the Ministry of Transport while the large disturbances can be the responsibility of the Ministry of the Interior.
D6.1 Enablers, opportunities and challenges, initial report

- All data exchange is also subject to the privacy regulations. Important legal issues to be dealt with e.g. the Traffic Management Centre are not an official “client” of the 112 organisation, which deliver their information to the PSAP, yet clearly they are a key part of the rescue chain.

- Define service levels for information exchange between PSAP and road operators.

4.3 eCall impact assessments

The eCall impact assessment in Europe was published in 2008 by the European Commission (EU 2009). This study utilized both questionnaire study and in-depth study in four MS (UK, Netherlands, Finland and Hungary). Data consisted of material from 27 EU-countries and some non-EU-countries.

Three basic scenarios were introduced:

1. Do nothing,
2. Voluntary approach

The price of eCall installation was also calculated depending on the scenario. Cost-Benefit ratio was highest at the mandatory introduction scenario (in 2020: 0.53 and in 2030: 1.31). The safety benefits were mainly gained by more timely response to incidents (average time saving). This impact study also made a literature survey on previous research results on eCall. Beneficial effects are produced by more rapid medical care and faster medical intervention. Great differences between countries were recorded on congestion benefits and also on social benefit calculations.

EU-project eIMPACT (EU Commission 2008) has carried out a wide analysis on different vehicle systems aimed at improving traffic safety. These results show that the highest impacts would be produced by ESC (3250 saved lives in 2020) and Speed Alert (1100 saved lives in 2020). Several other systems have a high potential in preventing fatalities like eCall, but it does not reduce the number of injuries, but it should not be forgotten the timely medical intervention to a casualty would reduce the severity of the injury. The benefit-cost ratio (BCR) of eCall has been estimated to be 1.5…1.9 in 2020 and the overall effect -5.8%.

Detailed implementation issues for eCall were defined by eSafety Forum in 2011 as follows:
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Technology Availability

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tr>
<td>Vehicle integrated GSM/GPRS communications</td>
<td>only available in part of the vehicle fleet, but the percentage is slowly increasing</td>
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<tr>
<td>Roaming to overcome language difficulties</td>
<td>conference call via private service provider or local language. Only very large PSAPs are able to serve many languages</td>
</tr>
<tr>
<td>Low cost in-vehicle communication system</td>
<td>not available yet in Europe to create volume market. Mainly integrated either in embedded navigation systems or Telematics Units</td>
</tr>
<tr>
<td>Emergency call routing all over Europe</td>
<td>European call and SMS routing through private network only. Not available in all Member States. No public crossover systems exist</td>
</tr>
<tr>
<td>PSAP receiving technology</td>
<td>theoretically available, however, implementation depending on E-112 roll-out. In-band-modem software provided licence free but investments needed to up-grade to receive E112 calls.</td>
</tr>
<tr>
<td>Vehicle sensors</td>
<td>Airbag deployment sensors used in existing applications. Might be completed later with other types of sensors.</td>
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Road and Information Infrastructure Need and Availability

<table>
<thead>
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<th>Feature</th>
<th>Description</th>
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<tr>
<td>GPS Information</td>
<td>available in small part of the fleet but increasing together with strong growth in embedded and nomadic navigation devices; available in most HGVs (Heavy Goods Vehicles)</td>
</tr>
<tr>
<td>Road infrastructure</td>
<td>not necessary but traffic incident information could be displayed on variable message signs to avoid rear-end collisions</td>
</tr>
<tr>
<td>GSM Communication Technology all over Europe</td>
<td>future of GSM in Europe unclear</td>
</tr>
<tr>
<td>Receiving technology in PSAP’s and others</td>
<td>theoretically available, implementation depending on E-112 roll-out map</td>
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The Key Success Factors for eCall defined by eSafety Forum were:

A. The commitment of the larger EU Member States, where there are significant traffic volumes, is key.

B. Availability of suitable technologies in the Member States and in the vehicles

C. Availability of an accepted business model by all involved stakeholders (financially, technically and organizationally) leading to positive business cases

D. Availability of an accepted implementation plan by all involved stakeholders (financially, technically and organizationally)
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Status of commitment: at the end of 2011 the MoU have been signed by 23 Member States (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden,) and 5 associated States (Croatia, Iceland, Norway, Switzerland, Turkey,) along with over 100 organisations and stakeholders.

In order to encourage a more active involvement of the EU Member States (or at least of those who have signed the MoU) in the eCall deployment process at European level, the EC created the European eCall Implementation Platform (EeIP), as described earlier.

In TeleFOT a field operational test has been performed, which provided further proof of the functionality of eCall under the standardized and agreed solution.

The European Commission is financing Pan-European eCall pre-deployment piloting in ICT Policy Support Programme Type A in HeERO and subsequently in HeERO2. The HERO project also includes inter-operability testing activities with the Russian ERA-GLONASS system.

The eCall standards were finalized and approved by CEN and ETSI. They are being used and tested by the HeERO pre-deployment pilot. The reports so far indicate that additional work may have to be completed in terms of standards refinement, in preparation for future deployment, this is being undertaken by the HeERO project in conjunction with both the European Standards bodies.

The implementation of the eCall service at a European level should take into account three major conditions, on which its successful operations will depend:

1) Interoperability, the possibility for any vehicle from any European country travelling across Europe to access the Call service in case of a serious incident as if he were in his/her own MS. The interoperability issue covers not only the technical solution but also operations aspect.

2) Cross border continuity to ensure that in areas of proximity to MS borders the eCall is routed to the correct PSAP.

3) Harmonisation: the eCall service can work properly across Europe only if developed in a harmonised way in the different countries, still respecting the different national implementations. The use of 112/E112 represents the first steps of this harmonised approach.
**Results on positioning and GNSS relevant to eCall**

Current eCall standardisation calls for the sole utilisation of GPS in the position estimation for eCall. This is a part of co-ordinated EC’s effort in promotion of utilisation of Global Navigation Satellite Systems (GNSS) in the ICT sector (EU Commission 2010).

Recent research shows that the GPS positioning performance is very good, even in urban areas. (Filjar et al. 2004; Filjar et al. 2007; Zandberger et al. 2011)

European Commission promotes the application of European satellite navigation systems and services (EGNOS and Galileo). The introduction of the additional satellite navigation will bring benefits in increased accuracy and enhanced robustness of satellite based position estimation, as presented in numerous EU research projects. Key results of satellite navigation research under the sixth framework, available [here](#). Furthermore, the EC has established satellite navigation systems and services as the key component in road safety and intelligent transport system developments (EU 2010).

The acceptable GPS positioning performance depends on the necessary environmental conditions (good visibility of the sky, mitigated or corrected multipath effects, quiet space weather and conditions in the ionosphere), that cannot be expected to be fulfilled generally in the case of the eCall utilisation. A set of critical scenarios for the GPS-based eCall-related position estimation has been identified (Filjar et al. 2011). A recent study published by the UK Royal Academy of Engineering warns of the over-reliance on the sole utilisation of the satellite navigation systems, and the need of the utilisation of the redundant systems and services for position estimation (Thomas 2011).

The Global Navigation Satellite System (GLONASS) is a Russian system based on a constellation of active satellites, which continuously transmit coded signals in two frequency bands that can be received by users anywhere on the Earth's surface to identify their position and velocity in real time based on ranging measurements. The system is a counterpart to the United States Global Positioning System (GPS) and both systems share the same principles in the data transmission and positioning methods. GLONASS is managed for the Russian Federation Government by the Russian Space Forces and the system is operated by the Coordination Scientific Information Centre (KNITs) of the Ministry of Defence of the Russian Federation.

The operational space segment of GLONASS consists of 31 satellites in 4 orbital planes, with 3 on-orbit spares. GPS system uses code-division channelling. GLONASS uses frequency-division channelling. The structure of the signal also differs. The accuracy of GLONASS is very high, e.g. in Northern latitudes and in those locations is regarded as
better than corrected GPS, GLONASS is also functioning well in urban areas. Dual use of both systems makes location accuracy very good, though may not improve the time to first fix. (Glonass 2012)

4.4 European Union and Commission regulation history

eCall is seen as a priority safety system in Europe by the EU Commission mainly because of the great potential to reduce the number of road fatalities, which is a major societal problem in Europe.

The Commission found that technology requires a lot of more attention today, but there are also many other issues on eCall deployment that are of major importance. The market introduction of Intelligent Vehicle Safety Systems is complex and involves new risks to the user, the society and above all the manufacturers in terms of product liability and increased financial risks. These risks include human factors such as dependability, controllability, comprehensibility, predictability, misuse and robustness. The Commission sees that the market introduction involves policy, technology, societal, business, and legal and consumer aspects. (EU Commission 2003)

In 2006 the Commission issued a Communication on eCall to support eCall development, deployment and to speed up the process. The Commission agreed that due to the lengthy time in product development, and the associated costs, the automotive industry required certainty on the implementation of the necessary infrastructure in the Member States before entering the production phase.

The commitment of the telecommunication industry (MNO) was also seen as important. Member States should pursue the necessary action for an immediate roll-out. Missing standards were required to be completed. The Commission referred in this communication to the safety benefits but indicated that the combination of location communications capabilities coupled with the open architecture of eCall could serve as a platform for additional public sector and commercial services.

Major timing problems in the Member States are related to the roll-out of the necessary PSAP infrastructure, however most Member States are now working within a stated timetable for the necessary upgrade of the PSAP and for action from the MNOs’ to prepare for eCall deployment.

The remaining legal, technical and socio-economic problems should be solved together. The location information is expected to be made automatically available to the PSAPs by MNOs and the PSAPs are upgraded to handle the location information of eCall.
D6.1 Enablers, opportunities and challenges, initial report

The Commission defines that emergency call routing and handling coming from mobile terminals should work without SIM (This is not uniform across all MS), adequate language support is provided. The Member States should draw up detailed rules for MNOs’. Industry should commit to the implementation of the pan-European eCall. (EU Commission 2006)

The Communication on eCall in 2009 recognised that progress has been slow and planned actions were compromised. The Commission saw that further measures are needed.

The milestones reached include: CEN approval of eCall MSD, 3 GPP approval of eCall flag specification, protocols for sending the MSD, and CEN approval of the core operating requirements.

The automotive manufacturers took the position that making eCall standard factory-equipped equipment in all vehicles would only be possible through regulation. European industry advocated proprietary eCall solutions and the provision of added-value services. In other words a contracted service between the vehicle owner and an eCall operator.

Some Member States have yet to sign the MoU because of possible concerns over the cost of operation and the upgrade to their PSAPs may increase the citizen tax burden. GSM Europe has formed a Task Force to define deployment strategies for MNOs, but at the time of writing this report 25 MS had committed to eCall with 3 MS yet to commit.

Implementation of eCall and upgrading of PSAPs could also include upgrading the emergency rescue service dispatch functionality but this is not a prerequisite to eCall deployment.

Open system architecture would enable plug and play integration of future applications, this would need to reflect the fact that eCall is a safety application, and as such should receive priority. The definition of an open in-vehicle platform is still being developed.

Aftermarket equipment is being developed, clearly this development must reflect the defined standards for Pan European eCall based on 112, to ensure the correct operation on every occasion. The deployment of retro fit equipment must not detract from the deployment of eCall equipped vehicles as the development of the Pan European eCall will ensure that the service delivery for eCall is assured before the introduction to aftermarket equipment in substantial numbers. The penetration of eCall due to aftermarket fit is anticipated to increase eCall deployment exponentially.

Member States where there is an agreement to support proprietary eCall services provided by vehicle manufacturers where vehicle owners are free to choose either a proprietary or the
The ITS Directive defines eCall and its deployment as a priority action (the harmonised provision for an interoperable EU-wide eCall).

Relevant specifications are contained in Article 6. Rules on privacy, security and re-use of information are detailed. Annex II defines that service evaluation has to measure objectives:

- effective,
- cost-efficient,
- proportionate,
- support continuity of services,
- deliver interoperability,
- support backward compatibility,
- respect existing national infrastructure and network characteristics,
- promote equality to access,
- support maturity,
- deliver quality of timing and positioning,
- facilitate inter-modality
- respect coherence. (EU Commission 2008b)

The EU Commission has made an impact assessment of ITS Directive and also summarised the main reasons for the slow and fragmented deployment (Figure 2). Problem drivers hindering ITS take-up are listed as (EU Commission 2008b):

1. A lack of interoperability of applications, systems and services
   - Industry and private player develop ‘all in one’ proprietary solutions resulting costly stand-alone applications
   - Member States develop individual solutions, which are deployed at a local level
   - Lack of robust business models
   - Market inconsistency, de-facto monopolies
2. A lack of concentration and effective cooperation among stakeholders
   - No clear vision
   - Lack of a strong platform for concentration and cooperation
   - Limited awareness of the potential benefits of ITS

![Diagram showing problems of deployment of ITS systems and services (EU Commission 2008b).](image)

3. Privacy and liability issues

On September 8th, 2011, the European Commission adopted a recommendation addressing the EU Member States and asking them to call on the mobile network operators to set up their networks in a way that they correctly transmit automatic 112 emergency calls generated by cars (eCalls).

The adoption of this Recommendation is the first step of a tripartite legislative process. Later on, legislative initiatives on the eCall device to be fitted into the cars and on the technical specifications of the emergency call centres (PSAP) will follow. The timetable of legislation is:

a. eCall recommendations that address Member States and Mobile Network Operators were adopted on 8 September 2011, for the provision of the eCall Flag requirements, C(2011) 6269 refers. These recommendations have a
defined consultation period between 2011 and the end of quarter 4 of 2012 where it is anticipated that they will be adopted

b. A draft version of an amendment to the Type Approval Framework Directive 2007/46/EC was completed in quarter 2 of 2011. The work will continue so that Type-Approval Regulation will be coming into force by 2015.

c. Work on the requirements for PSAPs in Member States has seen progress during 2010 from 2nd quarter to the 4th quarter of 2010, with inputs from expert groups and Member States. This will be refined during the 2 quarters of 2012, with a final draft expected in the 3rd quarter of 2012, with adoption anticipated in 4th quarter of 2012.

d. The common specification for eCall, which form part of the ITS directive was referred to the Member States expert group on the 13th October 2011. It is now in a consultation period with the Member States.

(European Commission 2011a)

The recommendation also states that the Member States should draw up detailed rules for public mobile network operators operating in their countries on handling eCalls. The rules should fully comply with the data protection provisions enshrined in Directives 2002/58/EC and 95/646/EC. Further, they should indicate the most appropriate PSAP to route eCalls (European Commission 2011a).

Member States should ensure that mobile network operators implement the mechanism to handle the ‘eCall discriminator’ in their networks. This should be implemented by the end of 2014. Mobile network operators should handle an eCall like any other call to the single European emergency number 112. (EC 2011) Member States should also require their national authorities to report the progress of these implementations to the Commission by April 2012. (EU Commission 2011a)

This EU recommendation also included an impact assessment. The assessment affirmed that policy option 3 (Regulatory measures) promises to be the most effective and efficient, and therefore is the preferred option for the implementation of the eCall system in the EU. (EU Commission 2011b)
4.5 Organizing eCall in the HeERO partner countries

Most of the Member States have not yet defined a national implementation plan of eCall. The pilot will bring necessary experience for this planning, especially for institutional and financing issues that require preparatory steps.

Policy makers need studies and analysis on what organisational, monetary and human resources are needed for the operation and how to regulate mobile operator duties for eCall.

The organization model depends on national structures and procedures and is therefore not harmonised in Member States. However, in most of the countries eCall will be part of the national emergency processes and included in national policy priorities. The structure of the national emergency management system also defines eCall management and operations in a Member State. The situation of the emergency policy and complete system organization and implementation status can also be a barrier of eCall because strategic decisions have to be in place and implemented before the eCall can be deployed.

Most of the Member States have accepted eCall to be a public service, although the situation is not yet clear in all Member States, e.g. Sweden reports that eCall is not seen as a public service but Sweden is committed to the overall concept of eCall. However, most of the Member States share the general goal of eCall as to guarantee the same safety level for all European citizens wherever in Europe they are using their cars. It is anticipated that in the second iteration of this report that the status of all Member States will be clarified.

There are many commercial safety related services also available delivered by business operators and paid mainly by the clients on a voluntary basis. This is mainly due to the fact that services are effectively provided by business logic principles, not by technology innovations as functions or applications only, and may therefore offer also a business case for the private sector.

The eCall system is not an independent system that will deliver added value without good cooperation with other necessary systems in emergency situations. In emergencies, the related rescue chain includes police, fire-brigade, and ambulance operators.

Systems that manage the incident as a whole are multi-layered and complex in nature, however the introduction of eCall will ensure that these systems can provide timely intervention in the event of an incident on the strategic road network.

The Pan-European eCall implementation mandate means that eCall systems have to be installed in all new (new) type approved vehicles coming to the market in 2015 (Currently).
The eCall systems also have to be integrated to the periodic inspection of vehicles (PTI). These processes require that IVS’s are certified and customers are truly receiving the added value of eCall with functioning systems. The organization of how to define these requirements is still underway and is a specific activity of the HeERO project Phase 1 and 2, along with the European eCall Implementation Platform (EeIP) Task Force PTI.

4.6 PSAPs and eCall organisation in HeERO partner countries

A Public Safety Answering Point (PSAP), sometimes called “Public Safety Access Point”, is a call centre responsible for answering calls to an emergency telephone number for police, firefighting and ambulance services (112 and locally derived numbers).

Most PSAPs are capable of obtaining caller location for landline calls and mobile phone locations.

Trained telephone operators are also usually responsible for dispatching emergency services to respond.

The Working paper of Implementation of the European emergency number 112 reported in May 2011 that only four Member States (Denmark, the Netherlands, Romania and Finland) have 112 as their sole emergency number. The remaining Member States have following situations: five Member States (Cyprus, Ireland, Portugal, Sweden and the United Kingdom) have 112 and a single additional national emergency number to be used for all emergencies. Five Member States (Belgium, Germany, Estonia, Luxembourg and Slovenia) have one additional national emergency number for one of the main emergency services. The remaining 14 countries (Bulgaria, the Czech Republic, Greece, Spain, France, Italy, Hungary, Austria, Poland, Latvia, Lithuania, Malta, and Slovakia) have specific national emergency numbers for each of the three main emergency services and some of them also for other services, 112 can be one of the main numbers. (EU Commission 2011c and d)

Depending on the national civil protection system, the operator will either deal with the request directly or transfer it to the appropriate emergency service. In many cases, operators are able to answer in more than one language. Each Member State is responsible for the organisation of its own emergency services and the response to 112 and national emergency calls.

The PSAP organisation varies from country to country from one-level PSAPs to several level PSAPs. The more complex the command and control chain to handle the emergency call including eCall the more critical is correct capture of incident details.
D6.1 Enablers, opportunities and challenges, initial report

Figure 3 depicts the next generation of emergency calls, which may be accepted by PSAPs. (EENA 2011b)

Figure 3 Future ways to contact PSAPS (EENA 2011b)

Organising eCall in HeERO project's partner countries differ in many ways:

- PSAP organisations differ
  - interconnected local PSAPs with a common system (112 for all emergency dispatching)
  - central PSAP (filtering PSAP) with local PSAPs (dispatching PSAPs)
  - local PSAPs with no central PSAP, not interconnected
  - County differences (some interconnected, some not).
  - dedicated emergency service numbers (for police etc.) other than 112 in use

- eCall handled in one specialised PSAP

- eCall handled in all PSAPs
The main different ways of handling eCall is outlined in the following figure (figure 4).

**Model I**: eCalls routed as 112 calls

![Diagram of Model I]

**Model II**: All types of eCalls routed to a dedicated PSAP only for eCalls

![Diagram of Model II]

**Model III**: Manually triggered eCalls and automatically triggered eCalls are routed to a different PSAP (it can be the same PSAP for 112 calls, e.g. dedicated manual eCall PSAP can be the same as 112 PSAP)

![Diagram of Model III]

**Figure 4** Different models to route eCall (EENA 2011a)

The detailed scenarios require their own specialised planning and tests, so it is fortunate that almost all scenarios are represented in the HeERO project.
D6.1 Enablers, opportunities and challenges, initial report

HeERO partner countries have sufficient expertise in planning, architecture creation and system development for eCall implementation and testing.

ICT companies, MNOs, mobile network companies and consultants have been willing to assist in this work.

Some challenges still exist: those PSAP system developers and providers that are not involved in any way in eCall research are reluctant to put effort in eCall system integration if only one country asks for that, they expect commitment from several countries and the EU.

In general if the PSAP system architecture is complex there can be problems in system upgrading solely for eCall, as there may also be other larger system development on-going and eCall can be seen in such context as a marginal service. However interest is starting to be expressed by these organisations as the deployment date approaches.

All HeERO partner Countries have financing for the eCall pilot phase, with an acknowledgement that the upgrades will remain in place at the conclusion of the project, but for permanent implementation diverse situations exist. Some Countries start the implementation during the HeERO project, but all of the costs for the implementation phase are not clear as of now. Some are waiting for top-down decision making, which may be the only way for certain Member States to get the required resources for implementation.

Expectations about which parts are funded and carried out by the public and private sector differ. The expected efforts necessary for upgrading the system and training the operators differs from Country to Country.

There is a need for greater cooperation and coordination in many issues, but it should be noted that HeERO as a project is assisting in this process by defining the necessary models for the required implementation across 27 Member States.

HeERO partner expectations of the piloting phase:

- experience of successful functioning of eCall in PSAPs and in whole chain of eCall
- piloting brings information for needed resources and expertise for implementation and future planning; convincing the regulators and top-level decision makers that eCall will be a life-saving well-functioning service, demonstration and argument for required resources and expertise for real life implementation in PSAPs
- insights for business environment for deployment of value-added services
D6.1 Enablers, opportunities and challenges, initial report

- usefulness of VIN and especially EUCARIS functioning; many emergency rescue forces are sceptical about information pulling through mobile messages in the middle of a rescue mission
- cross-border eCall functioning defined
- inter-operability tested
- cooperation with needed stakeholders, also other than directly in rescuing services
- need for common policy and standardisation for PSAP interfaces towards the third-parties services (emergency, traffic information systems, road assistance providers, motorway operators, commercial service providers etc.)
- some ideas also for language problems.

4.7 Technical issues

The technical issues identified as eCall challenges and enablers vary considerably. Some matters that certain partners regard as a challenge do not concern other partners. What this does demonstrate is the diverse nature of the existing architecture that eCall will operate, and why both HeERO 1 and 2 are key to the effective deployment of eCall across Europe.

It must be stressed here that this paper was put together prior to starting the piloting, and once the piloting has finished there will be more information from the tests. HeERO piloting brings insight and clarification for many issues, HeERO is essential especially for technical performance of the whole eCall chain.

As in the framework (see Chapter 5) the technical issues mainly relate to, Machine-to-Machine-Interface and communications) intermingled with operational and business issues.

Commonly notified technical and operational issues brought up by HeERO partners include:

- standardisation is a key element, the standardisation of eCall chain elements has been extensive but there are still at this point some open and/or non-standardised elements in IVS. Many IVS providers have already started their development earlier than standards were completed, and some later, so at the testing period many different IVS-versions will be used, which may cause problems. In HeERO this is managed by common plug-in tests. Interoperability and compatibility may be threatened by incorrect interpretations and implementations of the standards but when the Type-Approval Regulation is fully in force this kind of “fluctuation” will not exist anymore.
eCall triggering will be dealt in piloting and other tests. Triggering functionality is one important part of certification process.

eCall after-market devices are partly dealt in piloting and in certification processes. In the HeERO project some tested devices are after-market products.

bypassing speech processing interfaces (including Bluetooth); mute other audio paths during in-band data modem transmission. The voice channel between the IVS and the PSAP must not be blocked for more than 4 seconds. Both the PSAP and the IVS in-band modem implementations should guarantee this. These issues will be dealt with partly in piloting.

deterioration of the voice channel quality during the transmission(s) of MSD messages. Piloting brings needed experience for handling of these issues.

getting both eCall voice call and MSD into the same operator desk; These issues will be dealt partly in piloting and finally settled in the implementation phase dependant of the PSAP structure of the Member State.

Two-way communicating: security and encryption of message, no outside data into CAN etc. These issues will be dealt with mainly in vehicle regulation.

Careful assessment of 2G/3G support is necessary; plan for migration from GSM network to more advanced radio technologies such as UMTS. Whilst it is acknowledged that these technical issues exist, eCall is quite clear for Europe in that it will be based on 2G and nothing else. MNOs will deal with these issues.

Needed minimum location quality, use of different GNSS systems. There are a lot of activities related to Location Based Services and for more and more accurate location systems.

eCall applications for two-wheelers, other vehicles etc. eCall for two-wheelers will be in focus of next phases of HeERO.

Manual and/or automated eCall? Challenges in HMI related issues lie in cancellation of false alarms; this feature should be available only for manually generated eCalls. The time between the initiation of an eCall, and the time the 112 operator answers the eCall will be very short in the majority of cases (5 or 6 seconds). These issues will be dealt with during piloting and the EeIP Task Force Silent

While vehicles are ageing, IVS functionality as part of the vehicle and part of the communication chain to the PSAP must be secured and continuously monitored.
D6.1 Enablers, opportunities and challenges, initial report

These issues will be handled in the certification processes on both HeERO project and EeIP Task Force PTI.

- Annual testing of eCall (PTI) must be defined and established, this includes both IVS and PSAP receiving environment. These issues are being dealt with in an EeIP Task Force (PTI) along with specific activities in HeERO Phase 2 coupled with the certification of service process.

- Additional services: Furthermore, eCall builds on technical components (satellite positioning, processing and communication capabilities) that also provide the basis for several in-vehicle applications, offered either on a commercial basis or as mandatory applications due to regulation, such as the digital tachograph, electronic toll collection or provisions on the transport of dangerous goods and live animals. (Schettino, Gonzales 2012)

- “The main technical challenges in updating the MNO network systems for eCall implementation nationally: the needed extensions in signalling have been already standardized and the TLC providers are already developing their pre-commercial releases. The integration of such software upgrades in the operational mobile network will most likely follow the consolidated operational and deployment methodology. It allows the MNO to continuously upgrade their network without impacting on the end-to-end service availability. Once the routing strategy for the eCalls will be established at national level, the roll-out phase in the Mobile Network is not expected to be critical.” These issues will be dealt with in piloting and in national MNO implementations.

5 Framework for systematic identification of enablers, opportunities and challenges

5.1 General framework

There are at least four layers to consider and deal with in successful implementation of any ITS service, which includes eCall:

- **Policy layer** (eCall policies and implementation, national policies and implementation, general regulation e.g. privacy and safety).

- **Business layer** (all administrative, financial and organisation issues, regulation, issues related to user - needs and feedback, functional and service architecture etc.).
D6.1 Enablers, opportunities and challenges, initial report

- **Application layer** (technical architecture of the service, interfaces between systems, technical service quality, user interfaces and devices etc.).

- **Network layer** (all communication between systems and stakeholders, interoperability, shared communication protocols and physical components of the system, the mobile communication infrastructure).

The policy layer is the basis for eCall implementation and the Pan-European eCall introduction. The policy layer is responsible for the fulfilment of general policy objectives of safety, sustainability and competitiveness and bringing well-being to the citizens of Europe. eCall is expected to support Pan European casualty reduction targets and thus saving lives.

The majority of Member States are willing to invest on eCall implementation and operation when they are convinced that the introduction is generating added value in terms of casualty reduction, and associated cost reductions from social security payments and the fiscal burden that is placed on society following road death. Therefore, eCall has to be integrated into strategic policies at European and at Member State level.

At a national level the commitment also has to be reflected in both national and regional governmental decisions and safety budgets and programmes guaranteeing the necessary resources for institutional, regulatory and technology investments, which will be required to ensure that eCall is deployed in line with the defined European timetable.

**Business layer challenges related to eCall are:**

- Differences in the organisation of PSAPs
  - One or two or more levels of PSAPs
  - One PSAP receiving all requests or several sector-specific ones?
  - Aforementioned issues leading to different technical and communication solutions

- Differences in regulation and responsibilities; e.g. regulated duties for MNOs, outsourcing parts to commercial services or a totally state operated system etc.

- General challenges related to markets and business models
  - Different market situation in different Member States (some countries already have private emergency assistance services available on the market while others do not)
D6.1 Enablers, opportunities and challenges, initial report

- “Chicken and egg” scenario; no one stakeholders (automobile industry or Member State) has been ready or able to move first
- Uncertainty and limited knowledge on socio-economic costs and benefits of deployment

Some answers for the aforementioned challenges will be revealed in the piloting phase and some must be dealt with separately in the Member State implementation phase, but it should be recognised that as this is a Pan European solution, all responses to the challenges must be within the European framework to ensure that Pan European eCall remains as an interoperable solution.

Issues related to the application layer for eCall are:

- Requirement for interoperable solutions at European level
  - All eCall in-vehicle systems have to be compatible with all eCall-ready PSAPs in Europe, therefore a centralised approach to standardisation is seen as necessary
  - Changes needed in safety-critical systems at PSAPs
  - Large number of PSAPs may need to be equipped in some Member States, or other technical solutions identified.

- Common understanding on the quality of service to be provided
  - What level of reliability should be expected (incident detection / communication / reception / visualisation of MSD etc.)?

- Management of dependencies between systems

Challenges related to network layer for eCall are:

- As the MNO systems were not originally made to include eCall and the available technologies do not match the requirements for data transmission between vehicle and PSAP, there must be planning and resources for the updates of the system.

- Implementation of the ‘eCall flag’ requires changes to mobile and fixed-line networks; the costs and resourcing of the implementation can be an issue, however GSMA as a body representing mobile network industry are signatories to
D6.1 Enablers, opportunities and challenges, initial report

the eCall MoU, and the majority have indicated support to the necessary upgrades within the defined timetable set for the deployment of eCall.

- There can be problems synchronising MSD and voice calls, although technical solutions to this are being defined with the HeERO standardisation task force.
- Slow implementation of E112 emergency calls (the network-based positioning of calls to 112 emergency number) in some countries, although the implementation of eCall will result in this additional functionality in some instances.
- These issues will be dealt mainly with standardisation, certification and technical excellence.

5.2 Framework for HeERO

The framework for HeERO can be divided into five layers:

1. Policy layer
2. Business layer – Administrative layer
3. Operative layer – PSAPs, service providers etc.
4. Technological layer – including hardware software, applications, and communication
5. User layer – end users

6 Identified enablers, opportunities and challenges

6.1 Policy layer

The political commitment for eCall has been laid gradually through different activities, Memories of Understanding, communications, recommendations, standards, studies and finally with ITS Directive and Action Plan. The ITS Directive defines eCall (the harmonised provision for an interoperable EU-wide eCall) and the deployment as a priority action. Relevant specifications can be provided (Article 6). Rules on privacy, security and re-use of information are given.

Although many countries have signed the MoU for eCall the national administrative and/or regulative actions have yet to be made for the future. The organization model depends on national structures and procedures and is therefore not harmonised in Member States. The
structure of the national emergency management system also defines eCall management and operations in a Member State.

Most of the Member States have accepted eCall to be a public service, although the situation is not fully harmonised yet. Most of the Member States share the general goal of eCall as to guarantee the same safety level for all European citizens wherever they are using their cars in Europe.

The eCall system is not an independent system that will deliver added value without good cooperation with other necessary public safety or emergency systems (police, fire-brigade etc.) in emergency situations. eCall will bring one new element for rescue in the emergency system chain.

**Some concluding remarks**

- eCall MoUs’ exist, along with letters of intent both from MS and commercial entities,
- Common understanding of eCall useful,
- eCall is defined in EC strategy but Member State governments have to arrange resources through their state budgetary plans to ensure ITS deployment and real life implementation.
- Common EU regulation is needed e.g. for national regulation and also for MNO system upgrading.

### 6.2 Business layer

#### 6.2.1 Impacts and business case

Studies on impact show that the eCall system is expected to have beneficial effects and when the penetration level is reasonable also the system as such should be cost effective. The main benefits are related to safety improvements but also have various additional beneficial effects, see Table 1.

The commercial business case is not clear at this time. eCall could provide an opportunity to open and support development of the ITS service markets. One major challenge that needs to be solved is the balance between eCall as a public service and the need for overall development of ITS services related to business interests. In many countries the discussion relating to the eCall system is also seen as the “killer solution” regarding the action towards
the deployment of business oriented ITS services, the re-use of information and the bundling of services.

Models of tax and financial incentives have been presented and discussed. So far no general agreement has been reached. The results of the new eCall Assessment study will allow progress on the business case area, while European FOT should increase customer awareness of the benefits of the service.

Rules on privacy and security issues are of outmost importance. Citizens and other potential users have to be able to trust that the systems take care of privacy and security issues and deliver help and support when needed.

It should also be noted that there are a number of Member States that regard the implementation of eCall as an altruistic provision for the overall benefit of the community at large. As such there is very little regard for commercial business case for third party provision of service. In general the adoption of eCall in these Countries is the priority, whilst the adoption of third party services is not actively pursued; there is an ambivalent regard for such provision.

<table>
<thead>
<tr>
<th>Key Stakeholders</th>
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<tbody>
<tr>
<td>Mobile Network Operators</td>
<td>Costs only</td>
</tr>
<tr>
<td>Automobile Manufacturers</td>
<td>Mainly costs, some hardware revenues</td>
</tr>
<tr>
<td>European Member States</td>
<td>Cost savings, less investments</td>
</tr>
<tr>
<td>Public Service</td>
<td>Only costs paid by public authorities and insurances</td>
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<tr>
<td>Service Operators</td>
<td>Revenues for service, cost operation</td>
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<th>Minor Stakeholders</th>
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<td>Customer</td>
<td>Lives saved</td>
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<tr>
<td>In-vehicle Hardware/Mobile Phone Producer</td>
<td>Revenues</td>
</tr>
<tr>
<td>IT Service/ Infrastructure Provider</td>
<td>Revenues</td>
</tr>
<tr>
<td>Insurance Companies</td>
<td>Revenues &amp; Cost savings</td>
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</table>

Table 1 eCall cost and benefit assessment as judged by the European Commission (Miethe 2010)

### 6.2.2 Legal issues

Data protection and privacy issues have been clearly stated, but liability issues are still open. Legislation is not yet harmonised across Europe.

The eCall value chain is covered by different legal environments and the way these are organised differs by country.
D6.1 Enablers, opportunities and challenges, initial report

The 112 operations using mobile telephony have to deal with the telecommunication legislation.

The PSAP in the receipt of the eCall, has to deal with both civil and criminal legislation, whilst transport and traffic safety is typical the responsibility of the Ministry of Transport, whilst large disturbances are often times the responsibility of the Ministry of the Interior.

All data exchanges are subject to privacy regulations. Important legal issues to be resolved are with the Traffic Management Centre, which is not with what could be regarded as the accepted “Rescue Chain”, however the modern concept of incident management make them an integral element, as it could be argued that the provision of timely information to the traffic management system could fall within the defined dispensation granted for 112, as effective control of a scene and its surrounding area is paramount in an effective rescue and scene management coupled with an ordered restoration of normality.

6.3 Operational layer

6.3.1 Organisational issues

The European Commission recommendation states that the Member States should apply the harmonised conditions and principles to the making of emergency calls manually or automatically by an in-vehicle telematics terminal to public safety answering points (PSAP) via the single European emergency call number 112 (EC 2011).

eCall end-to-end process is based on a value network of different organisations of which many are public and many also private.

Managing incident requires emergency care and medical operations but also the management of the incident itself and traffic in order to minimize accumulating risk.

6.3.2 Economic and financial matters of operations

eCall will bring about great saving potential in the health and social cost area, which would appear to cover the system costs. However, financing has been a practical problem because benefits and costs created involve different stakeholders across both commercial and public institutions. The low interest of drivers and customers is expected to be a result of low awareness and inadequate own risk estimation. In general, the emergency systems are cost-free to citizens and therefore this free of charge expectation is also reflected to the Pan European eCall in-vehicle emergency system.
D6.1 Enablers, opportunities and challenges, initial report

The Commission agrees that due to the long times in product development, and due to the associated costs, the automotive industry needs certainty on the implementation of the necessary infrastructure in the Member States before entering the production phase.

Some Member States have not signed the MoU because of costs of operation and upgrading their PSAPs may increase the tax burden on Member State citizens.

### 6.4 Technological layer

eCall belongs to the priority infrastructure-related systems. Technology issues cover the whole end-to-end process. Annual vehicle inspection (PTI) are an essential element in transport safety, it is anticipated that eCall will form part of the test schedule.

This requirement will be resolved and harmonised after the EeIP has produced its proposal for inspection procedure Task Force PTI. HeERO are today piloting different types of IVS prototypes, and pre-production models and have yet to finalise the open standards and certification issues to open the market for real products.

Retrofitting is a way to accelerate the up-take of eCall service either as an integrated IVS, or a separate eCall system or even a smart phone based solution, however all must be based on the defined standards. All these alternative approaches have to be analysed further in HeERO to produce proposals for final solutions, to accord with the standard and certification procedure.

The following issues will be examined and answers found in the HeERO pilots:

- Definition of requirements?
- Architecture definitions completed
- Completion and inputs for standardisation esp. concerning IVS technology and MNO networks
- PSAP system requirements, receiving technology, upgrading
- Functionality of systems and components
- Functionality of vehicle sensors
- Roaming and language issues
- Accurate and reliable position estimation regardless of local environment
- Availability of suitable digital maps
- eCall triggering
6.1 Enablers, opportunities and challenges, initial report

- The SIM (required or not),
- eCall flag, embedded or brought-in solution
- Mobile communications future – how are the enabling mobile communication developing compared to current definitions (LTE / GSM, GPRS) and in what timeline
- Interoperability (generic platforms, standards)
- Data security
- Performance metrics
- Availability of aftermarket systems
- Open in-vehicle platform.

6.5 User layer

Customer awareness and acceptance

The interest of drivers and customers to pay for emergency call services is low, this applies to both Pan European eCall and third party services. As long as the customer is not made aware about the benefits of a harmonised European emergency call service he/she is reluctant to pay for this service.

The current situation of different state of deployment of rescue services and gaps in rescue chains in different European countries is making it difficult to find common solutions. However the adoption of the Pan European eCall solution based on 112 makes it quite clear that the service is free to the citizen at the point of access.

The service will be maintained and always available whether a citizen should opt for a commercially provided service initially.

All third party eCall services are based on a commercial arrangement, whether it is with the vehicle owner and the eCall provider, or with the eCall provider and a MS State administration. All commercial arrangements can be broken. The provision of the Pan European eCall is not based on this assumption, and as such ensures the interoperable provision of this service to all citizens across Europe.

Regulation of personal data and the protection of privacy in the electronic communications sector require that the privacy and data protection rights of individuals should be fully
D6.1 Enablers, opportunities and challenges, initial report

respected, and adequate technical and organisational security measures should be implemented for that purpose.

These principles are enshrined in Article 8 of the European Convention on Human Rights which specifically allows for the use of location data (personal data) by emergency services without the consent of the user concerned (Use of 112).

In particular, eCall recommendations states that Member States should ensure that there are transparent procedures governing the way in which a provider of a public telecommunications network and/or service may override the absence of consent by a user to the processing of location data, on a per-line basis for organisations that deal with emergency calls and are recognised as such by a Member State. (EC 2011)

It should be clearly understood that the above referred dispensation in the receipt and transmission of personal data on the use of 112 cannot be applied to third party provided eCall services. In this instance there must be a specific dispensation obtained from the owner of the personal data to each person or body in receipt of such personal data.

Users need to be made aware of the advantages and potential benefits of eCall system, but also on the technical limits (when it does work and when it will not). This should form part of the HeERERO dissemination activities across the MS Pilot Sites.

6.6 Moral and ethical issues

Moral and ethical issues are related to policies and reflected through policy actions. Some of these actions also relate to legal actions guaranteeing e.g. privacy and safety issues.

Main moral and ethical issues concern citizens’ rights. Traffic safety and safety as a whole is a basic requirement of all of EU citizens. Traditionally, the providing of general safety level in a society is a social responsibility and should be offered to all citizens. However, supporting actions provided by other than public organisations are of course also allowed.

7 Conclusions and recommendations

European research results have clearly proved the positive impact of the Pan European eCall system in Europe. A major reduction in the severity of injury to casualties and other closely related societal benefits can be expected especially if a significant penetration level of the eCall system is realized.

The available research results were reviewed and initial questionnaire study before the pilot phase was finalised summarising the enablers, opportunities and challenges in partner
In this preliminary phase the answers to all of the emerging questions cannot, however, be provided yet.

The framework and main categories for relevant issues were

1) Policy layer,
2) Business layer (including Administrative issues)
3) Operative layer (PSAPs, service providers etc.)
4) Technological layer (including hardware and software, applications, communication)
5) User layer (end users).

The status of eCall is high in the main EU-level policies today. In Member States, however, the development of eCall and real commitment when taking also financial matters into account seems to vary still, however it should be noted that the combination of HeERO 1 and 2 (When commenced) will ensure that 15 of the 27 Member States will have upgraded and be prepared for eCall. Not included are a number of associated Pilot Sites (3) who will increase the numbers to 18 Countries in mainland Europe and associated Countries capable of receiving and processing eCall.

The HeERO-project is in a key position when solving the remaining problems and guaranteeing the harmonised implementation and deployment of eCall.

Discussions on the business case and the role of the private sector on eCall deployment are still continuing. There are many reasons for this: the on-going change and initiatives in vehicle-industry from conventional vehicle production into more widened service delivery for the whole vehicle life cycle, activities in after-market in-vehicle platforms and services (same possibilities for safety services should be available also for older vehicles), the complexity in various emergency organisations etc.

Some key findings from the first HeERO’s enables and challenges study:

- the level of the political commitment for eCall varies in EU Member States. Harmonised regulation of eCall implementation is needed for several parts of end-to-end performance to increase both political and private participation (e.g. mobile operator duties, financing, political commitments etc.)
- complex organisation of emergency rescue operations in Member States can influence eCall implementation and performance
- business case for eCall should be beneficial/tolerable for all stakeholders
D6.1 Enablers, opportunities and challenges, initial report

- there are many technical issues and uncertainties in end-to-end performance, which must be studied and tested in HeERO and other future tests

- end-user awareness is an important part of the success story of eCall

The interest of drivers and customers to pay for emergency call services is rather low. As long as the customer is not made aware about the benefits of a harmonised European emergency call service, he/she is reluctant to pay for this service. The current situation of different state of deployment of rescue services and gaps in rescue chains in different European countries is making it challenging to find common solutions.

Regulation of personal data and the protection of privacy in the electronic communications sector require that the privacy and data protection rights of individuals should be fully respected and adequate technical and organisational security measures should be implemented for that purpose. However, it allows the use of location data by emergency services without the consent of the user concerned.

The main moral and ethical issues to be considered are citizens’ rights, the right to life being central. Traffic safety and safety as a whole is a basic requirement of all citizens. Traditionally, providing a general safety level in a society is a social responsibility, undertaken in a collective manner by a Member State governments, and as such should be offered to all citizens. However, supporting actions provided by other commercial concerns that are not public organisations should of course also be allowed, but they should allow the Pan European eCall based on 112 to be subordinate.

The analysis of enablers and challenges is continuing during the entire HeERO-project, in both phases. The project is monitoring the pilot implementation and operation phases and recording all of the major enablers and challenges during these phases. The project is also following what kind of effects are borne on the already identified enablers and challenges reported in this first study and phase.

This deliverable will be updated in the lifetime of the HeERO Phase 1 project once the second phase of operations has been commenced.
8 References


D6.1 Enablers, opportunities and challenges, initial report


EU Commission 2011e. eCall Memorandum of Understanding.
D6.1 Enablers, opportunities and challenges, initial report


Mayer, H. 2011. From cooperative systems to mobility services. Executive Session 03. ERTICO. 8th ITS European Congress – Lyon, 7 June 2011.


D6.1 Enablers, opportunities and challenges, initial report


Appendix 1 Questionnaire

Objectives of the WP6 (Deployment enablers)

WP6 gathers inputs and experiences about challenges and enablers of eCall, concerning implementation. Challenges can exist in stakeholder relations, in technology, chosen standards, implementation processes and other services related to eCall etc.

The in-vehicle Pan European eCall is an emergency call generated automatically via activation of in-vehicle sensors or in some cases manually by vehicle occupants.

The current iteration of eCall trigger is transmitted over the vehicle can bus to the in-vehicle system. The in-vehicle system aggregates the MSD as specified and agreed by the eCall stakeholders (based on MoU). When activated, the in-vehicle eCall system will establish a 112-voice connection directly with the relevant PSAP (Public Safety Answering Point) (either a public or a private eCall centre operating under the regulation and/or authorization of a public body). At the same time, a minimum set of data (MSD) will be sent to the eCall operator.

Figure 5 eCall value chain and main stakeholders and domains
D6.1 Enablers, opportunities and challenges, initial report

It is vital to analyse all possible bottlenecks in end-to-end service chain and find the key-enablers for a successful and unbroken service chain.

The first questionnaire aims to **find out the key questions** for the HeERO pilot to give the answers, examples of possible key questions are:

- **For administration process:** what will be the optimal process to enforce eCall service in an EU country? (Views from ministries, state authorities, vehicle administration etc.)

- **For PSAP processes:** what are the key challenges to overcome in PSAPs processes related to eCall? Is it technology, fear of false alarms, procurement issues etc.?

- **For technology provision:** Is the quality of end to end performance the main thing to concentrate on now or e.g. business models for vehicle industry, IVS, MNO, service providers etc. for eCall implementation?
## D6.1 Enablers, opportunities and challenges, initial report

### Table: Summary of questionnaire #1 results

<table>
<thead>
<tr>
<th>Number</th>
<th>QUESTIONS</th>
<th>SUMMARY</th>
<th>NavCert/GERMANY</th>
<th>ITSN</th>
<th>FINLAND</th>
<th>NETHERLANDS</th>
<th>GREECE</th>
<th>ROMANIA</th>
<th>CROATIA</th>
<th>ITALY</th>
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<tr>
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<td>eCall top-down plan?</td>
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<td>No</td>
<td>Not official</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Plan with VIN?</td>
<td>4/9</td>
<td>No</td>
<td>Not</td>
<td>Yes</td>
<td>No</td>
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<td>Supranational</td>
<td>Supranational</td>
<td>Supranational</td>
<td>National</td>
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<td>National</td>
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<td>Certification services providers?</td>
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<td>NavCert/TUV</td>
<td>SMV</td>
<td>NavCert/TUV</td>
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<td>No</td>
<td>No</td>
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<td>Authorities informed?</td>
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<td>Many levels of PSAPs?</td>
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<td>No</td>
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<td>No</td>
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<td>Yes</td>
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<td>Resources and experts available?</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes/Coperation</td>
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<td>Yes</td>
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<td>Problems with eCall message handling?</td>
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<td>Some</td>
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<td>No</td>
<td>No</td>
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<td>No</td>
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<td>Problems of financing into PSAP?</td>
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<td>Validation</td>
<td>Cooperation</td>
<td>Functioning eCall</td>
<td>Automotive industry</td>
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<td>Main challenges with supranational?</td>
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<td>Languages</td>
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<td>PSAP interoperability</td>
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<td>Yes</td>
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<td>Legislation?</td>
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<td></td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
<td>Minor</td>
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<td>eCall cooperation with the industry?</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Yes</td>
<td>Volvo</td>
<td>BMW/PSA</td>
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<td>Yes</td>
<td>No</td>
<td>No</td>
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<td>Discussions about including other services?</td>
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<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<td>Need for more EU coordination?</td>
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<td>Yes</td>
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<td>Triggering , retrofit</td>
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<td>Main eCall functions</td>
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<td>Retrofitting</td>
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<td>Main eCall functions</td>
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<td>Issues in retrofitting older cars?</td>
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<td>Proper installation</td>
<td>Liability</td>
<td>Triggering</td>
<td>Triggereing</td>
<td>Quality of service</td>
<td>Several</td>
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### Table heading:
- **State authorities**
- **PSAPs**
- **Vehicle and research**
- **Vehicle industry**
- **Technical challenges**
- **Issues to be included to certification?**
- **Issues in retrofitting older cars?**

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Vehicle systems

<table>
<thead>
<tr>
<th>2.5.1 In-vehicle systems</th>
<th>Is there IVS providers?</th>
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<td>2.5.3 Challenges related to HMI etc?</td>
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<td>Manual alarm</td>
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<td>Cancellation of eCall flag</td>
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<td>2.5.4 Main problems with IVS-MNO?</td>
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<td>2/9</td>
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<td>Voice, MSD</td>
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<td>eCall flag</td>
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<td>2.5.5 Retrofitting and several services?</td>
<td>Yes</td>
<td>4/9</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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ICT-industry

| 2.6.1 More EU cooperation and companies? | Yes | 6/9 | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2.6.2 Challenges with location and maps? | Yes | 5/9 | Yes | No | Some | No | No | Yes | Yes | Yes |
| 2.6.3 Other | No | 2/9 | Manual alarm | Not great | No | Some | Yes | No | Cancellation of eCall flag | Yes | e, g. HMI |

MNOs

| 2.7.1 Known problems with MNOs? | Yes | 4/9 | Test number | No | Yes | No | Yes | No | Yes | No | No |
| 2.7.2 MNO duties regulation? | Yes | 3/9 | Partly | No | Yes | No | No | Yes | No | Yes |
| 2.7.3 Who will finance HeERO MNO tests? | MNOs | 4/9 | EU/Companies; probably MNOs | MNOs | MNO support | MNOs | MNOs |
| 2.7.4 Who will finance eCall implemetations? | No | 4/9 | Yes | No | Yes | No | No | Yes | Yes | Yes |
| 2.7.5 Main HeERO pilot expectations to MNOs? | Many | Test number | Data | MNO regulation | Implementation of all features | Technical adequacy |
| 2.7.6 Any challenges with SIM/USIM? | Yes | 3/9 | Many operators | MNOS | Interoperability issues | Requirements as E112 |
| 2.7.7 Any challenges with MNOs/IVS providers? | Yes | 3/9 | Many operators | MNOS | Interoperability issues | Requirements as E112 |
| 2.7.8 Any special issues in voice/MSD integration? | Yes | 3/9 | Many operators | MNOS | Interoperability issues | Requirements as E112 |
| 2.7.9 Main technical challenges in updating MNO systems? | Many | Many operators | Many operators | MNOS | Interoperability issues | Requirements as E112 |
| 2.7.10 Should eCall SMS be included in service? | No | Many | No | MNOs | Interoperability issues | Requirements as E112 |

Value Added Services

| 2.8.1 eCall as a separate service? | Yes | 3/9 | Yes | No | Yes | No | Yes | No |
| 2.8.2 eCall connected to other in-vehicle service | Yes | 4/9 | Could be | Yes | No | No | Yes | Yes |
| 2.8.3 Conditions of integration? | Yes | 4/9 | eCall free of charge | Functioning services | Functioning service | Security etc. |
| 2.8.4 Main benefits of integration? | Many | Many | Many | Service improvement | Costs, business models |
| 2.8.5 What kind of services could be integrated? | No | Many | No | Substitute | No |

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Croatia

Stakeholders / eCall domains

State authorities (ministries, regulatory authorities, departments)

2.1.1. Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)? Yes/No
Yes

2.1.1.a) If yes, attach a plan/sketch of a top-down subordination diagram (related authorities) or stakeholder list of eCall process in the country.

The Croatian eCall deployment plan has not been devised yet. The implementation of eCall subsystem within System 112 was not planned in the Strategy of the Government Programs for the period 2011.-2013. The process of setting up the national integrated information-communication system 112 has been put on hold because the World Bank loan for the modernisation within planned project „Croatia Disaster Risk Mitigation and Adaptation Project” (DRMAP) has not yet been approved. However, the Croatian government has signed the eCall MoU in 2010. In addition, the following regulatory and governmental offices actively participate to Croatian eCall Pilot activities:
- Ministry of Sea, Transport and Infrastructure (Directorate for Telecommunications and Post, Directorate of Road Transport)
- Ministry of Health and Social Welfare
- Croatian Post and Electronic Communications Agency
- Ministry of Interior
- National Protection and Rescue Directorate (NPRD)

2.1.1.b) If not, what are the known most discussed issues (organisational or technical or other) hindering the official process?

2.1.2. Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country?
Yes.
The implementation problems are foreseen in regard to legislation, especially for privacy protection.

2.1.3. Should the certification of eCall IVS be national / supranational?
No national certification is expected. It should be included in the vehicle type approval.

2.1.4. Are there interested parties in your country to provide certification services for eCall?
Yes (ENT, National centre for vehicle technical inspection).

2.1.5. Are there already plans for technical supervision of eCall IVS (connected to annual vehicle inspections etc.)? Yes/no
A dedicated plan has not been developed yet. However, it is expected that the eCall IVS will undergo inspection during regular mandatory vehicle inspection. While the concept draft exists, the EC decision (recommendation or directive) should provide the ground for national procedure for the eCall IVS inspection.

2.1.5.a) If yes, is there issues you want to rise about this supervision organisation?
No.

2.1.6. Are the related authorities (road authorities etc.) informed and cooperative in eCall issues?
Yes. This applies to stakeholders listed in 2.1.1. a) as well.

Any other issues related to state organisation?

PSAPs
2.2.1 Are there many PSAP –levels in the country (e.g. national level / local level / TPS-eCall service centres)? Yes/no; if yes, short description:
Yes
In 2005, Croatia initiated establishment of the emergency call system 112, based on the system prevalent in the European Union. The main centre is located in Zagreb and each county is to have a 112 centre. The centres are responsible for logging events; coordinating the communication of commands and decisions; and informing the population of threats.

Technical architecture of National ICT infrastructure for 112 Service defines components the system needs to consist of:
- integrated ICT solution in the centres; Zagreb, Split, Sisak and Požega
- computer telephone integration solution in the centres: Dubrovnik, Šibenik, Zadar, Rijeka, Pazin, Karlovac, Krapina, Varaždin, Čakovec, Koprivnica, Bjelovar, Virovitica, Slavonski Brod, Osijek and Vukovar
- computer telephone integration solution in the National centre

Architecture of ICT infrastructure for 112 service is fully aligned with organization structure of 112 service in Croatia that is based on 3 levels.

![Organizational Structure Diagram]

In the centre Zagreb, Split, Sisak and Požega is implemented application Ericsson CoordCom R5.2

2.2.2 Is there a plan for dedicating a certain PSAP centre (or a few PSAP centres) for centralist handling of eCall in the country/area (=eCall messages are sent to a certain PSAP)? If yes, why?
No.

2.2.3 Are there known or predicted problems in implementing eCall to PSAP system? What are those?
For now we have not anticipated any relevant issue.

2.2.4 Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?

The eCall procurements are in compliance with the PSAP procurements process.
Resources (both HR & Finance)

2.2.5 Will there be enough resources and experts (Human Resources) for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter?

For the time being, human resources for operational activities as well as for maintenance of software and interface support for Pilot eCall are sufficient.

2.2.6 Do you see any problems in risk evaluations or eCall message handling compared to normal emergency requests (incident handling done by PSAP operators compared to normal 112 call and eCall)? What?

We do not foresee any relevant issue.

2.2.7 Will there be any problems with financing the permanent eCall implementation into PSAP system?

The implementation of eCall subsystem within System 112 was not planned in the Strategy of the Government Programs for the period 2011 - 2013. The eCall service will be planned in the Strategy of Government Programs as of 2014.

2.2.8 Are there enough resources and experts for procurement of needed hardware and software updating because of eCall for PSAP system? Or is there a need for cooperation with other countries in this matter?
Yes / No.

Operation and techniques

2.2.9 What are the main expectations of piloting?
2.2.9. a) Experience of successful functioning of eCall in PSAPs?
Yes.

2.2.9. b) Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?

Croatian government has signed the eCall MoU, and regulators will act in favour of the eCall deployment. The pilot is expected to provide the additional motivation for MNOs.

2.2.9. c) Demonstration and argument for needed resources and expertise for real life implementation in PSAPs?
Yes.

2.2.9. d) Or other?
Creation of business environment for deployment of value-added services.

2.2.10 What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs’ point-of-view?
The PSAP interoperability and mutual communication (between different countries).

2.2.11 Are there technical challenges in voice call / MSD integration in PSAPs?
In-band modem concept, the over-all eCall quality of service.

2.2.12 Are there technical challenges in supranational eCall mediating in PSAP point-of-view?
No.

2.2.13 Other issues?

Standards and research
2.3.1 Are there experts from the country involved in standardisation work?
Yes (in general standardisation work, but not related to the eCall standardisation, at the moment) – Renato Filjar

2.3.2 What are your key messages for [future] standardisation work?
- Include the standardisation of the IVS in a vehicle homologation process.
- HeERO participants should delegate the HeERO standardisation representative to CEN and ETSI eCall standardisation groups in order to promote and clarify HeERO arguments for the eCall standards development and modifications.

2.3.3 Is there active research work related to eCall in the country?
There is, not directly related to the eCall, but to segments utilised for eCall.

2.3.4 What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services?
- In-band modem vs. alternatives that overcome in-band modem concept’s drawbacks.
- Position estimation for eCall (sole utilisation of GPS is not sufficient and may become misleading with tragic consequences).

2.3.13 Other issues?

Vehicle industry

2.4.1 Is there vehicle industry in the country? yes/no
Yes

2.4.2 Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs? Yes/no.
Yes

2.4.2 a) If there is, are there any problems risen to discussions related to eCall?
The vehicle industry needs clear specifications, standards and deadlines for the IVS provision to allow for related R&D activities.

2.4.3 Are there competing commercial or private emergency or rescue services (bCall etc.) in the country?
Several stakeholders (vehicle manufacturers, insurance companies) have expressed interested in introduction of private emergency and post-collision assistance services.

2.4.4 Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services?
No

2.4.5 Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry?
In a respect to the answer 2.4.2 a) the coordination is essential for the eCall implementation.

2.4.6 What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)? E.g. eCall trigger functioning, vehicle aging, annual testing etc.
Interconnections and interactions between various vehicle electronic devices and control units.

2.4.7 What issues should the certification include? What should be left to industry?
The certification process must comprise clear definition of the technical requirements and standards. It must be related and in compliance to the vehicle homologation process.
2.4.8 How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges?
This question is very sensitive and since still there are high share of the old vehicles that do not have airbags and no sensors that can send a signal for the trigger the IVS, the retrofit can be very expensive and technically demanding.

2.4.9 Other issues?

*In-Vehicle Systems, device manufacturers, ICT industry / software production?*

2.5.1 Is there an eCall In-Vehicle System providers in the country? yes/no
Yes
2.5.2 Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.?
- In-band modem concept has significant drawbacks
- Utilisation of GPS+EGNOS/GLONASS combined receiver as a standard for eCall position estimation (for all markets)
- Flexible length of MSD message

2.5.3 Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm?
- Multiple eCall triggering (resulting from reduced consciousness of the people involved, for instance)
- Integration of various collision detector sensors to recognise traffic collision more reliable using dedicated algorithms

2.5.4 What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm?
- Deterioration of the voice channel quality during the transmission(s) of MSD messages

2.5.5 Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services?
Yes

2.5.6 Other issues?

*ICT industry / software production*

2.6.1 Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Ericsson, Siemens etc.)?
There is a need for standardisation of PSAP interfaces towards the third-parties services (emergency, traffic information systems, road assistance providers, motorway operators etc.)

2.6.2 Do you see any challenges in location accuracy and maps?
Yes. The sole GPS utilisation almost certainly does not satisfy requirements for accuracy and continuity of position estimation, at least in a certain critical environments. Furthermore, different requirements of certain markets (EU and Russia, for instance) may yield the common agreement for standardised utilisation of the combined GPS+EGNOS/GLONASS receivers, with benefits for all users not regarding to the market. Finally, advanced system integration methods are to be challenged for provision of continuing and accurate position estimation for eCall.

2.6.3 Other issues?

*MNOs*

2.7.1 Are there known problems in activating the MNOs for future eCall duties? e.g. in eCall Flag implementation?
2.7.2 Will the MNO duties be regulated by law?
This information is currently unavailable. It depends on EU regulation recommendations.

2.7.3 Who will finance the HeERO MNO tests?
HeERO MNO tests will be funded by MNOs through provisioning of equipment and man hours.

2.7.4 Who will finance the permanent eCall implementations in MNOs?
If the eCall service will be regulated mandatory, the MNOs should finance permanent eCall deployment.

2.7.5 What are the main expectations of HeERO project/piloting for MNOs? What issues they see the most important that the pilot will bring up?
MNOs are focused on successful implementation of eCall features in their core network, with no impact on existing services.

2.7.6 Do you see any challenges with the use of SIM and USIM cards?
At this point, the challenges are not foreseen.

2.7.7 Do you see challenges in contracts between MNOs' SIM/USIM releasing & IVS providers?
At this point, the challenges are not foreseen.

2.7.8 Do you see special issues/challenges in voice call / MSD integration?
At this point, the challenges are not foreseen. The MNOs are co-operating with equipment manufacturer, which provides solution for the eCall service.

2.7.9 What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed in this?
The main technical challenge in updating the MNO network system is in the updating process. Various tests need to be performed before the update can be released in live network environment. Additional resources are expected mainly in form of men-hours.

2.7.10 What are the main technical challenges in updating the MNO network systems for eCall implementation supranationally? Need of roaming SIMs?
Main technical challenges are expected in interoperability issues caused by multi-vendor environment.

2.7.11 Should also the eCall SMS be included in service?
Based on existing issues with proposed In Band-modem solution, eCall SMS should be discussed as possible substitute for In Band-modem, or as an additional service.

2.7.12 Other issues?

Value Added services / Services related to eCall

2.8.1 Should eCall be a separate, stand-alone service? yes/no
Yes (safety-related telematics may be combined within the eCall units, but the other services should be based on separate in-vehicle systems)

2.8.1a) If yes, what are the main benefits for separate eCall?
- Provision of non-interrupted and dedicated safety-related service
- Preserving the privacy

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no
Yes.

2.8.3 What are the conditions for this integration (if any)?
The following pre-conditions have been foreseen as the necessary framework for the related integration:
- standardised interfaces between PSAP and third-party services
- IVS modifications in support of the proposed integration (standardisation needed!)
- eCall SOP modification

2.8.4 What are the main benefits of integrating eCall to other services?
The main benefit of eCall in the Republic of Croatia is the improvement of the System 112 feature by means of integration of all current and future eCall services. In this way the information collection as well as the analysis of obtained information and urgent calls and adequate response to the needs of all participants in the system of protection and rescue or local community will be raised to an efficient level in the equal manner in all parts of the country by means of single European emergency number 112. In addition, the enhanced situation awareness (provision of more accurate traffic information) and opening market for the other related services (tailored insurance plans, for instance) are foreseen as the additional benefits of the eCall integration with the other services.

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other un-regulated services?
Vehicle insurance management, traffic information service, efficient incident scene management proper deployment of the eco-tax.

2.8.6 Other issues?
The end-users are not presented as stakeholders in this questionnaire. Several groups (motorcyclists, for instance) have already expressed their concerns in regard to segmented implementation of the eCall services.
Finland

Stakeholders / eCall domains
State authorities (ministries, regulatory authorities, departments)

eCall implementation is a joint decision of Ministry of Interior and Ministry of Transport and Communications, the Ministry of Interior being the executive party and Ministry of Transport is more related to traffic issues, safety impacts and development of the system.

There have been high level meetings and impact studies. Both ministries have experts in handling eCall matters, but no official procedure with regulation or direct orders for permanent eCall implementation have been made. Open issues still exist in organisation matters and financing. The HeERO project will give inputs for this process, and upgrading work of eCall handling in the Emergency Rescue Centre’s central system will be done in HeERO. In HeERO project Ministry of Interior and Emergency Rescue Centre Administration will be in charge of the upgrading work of the PSAP central system and operator training.

PSAPS

In Figures 1 and 2 depict the basic functions of incident handling in Finnish PSAP system. Finland has a single-layered PSAP system, which now has 15 PSAPs (ERC = Emergency Rescue Centres) which all use the same central emergency situation handling system with connections to police and rescue forces systems and databases. So when there is an incident on the road and someone phones to the PSAP/ERC from the scene, it is directed to the nearest PSAP, which takes care of dispatching the help to the spot. Currently the location of the incident is given either by the informer (address) or via mobile network cell-id. eCall handling procedure will work in a similar manner; the novelty will be the MSD bringing the exact GNSS coordinates of the location, which will speed up the process at least to the help dispatching. Of course another issue is that are there e.g. doctors nearby to be brought into the spot. Finland has a lot of rural areas where the road distances are long and only way to get help quickly on the spot may be a helicopter which are not always available.

Finland’s centralised PSAP structure and duties

- Someone phones 112 from road
- Mobile operator mediates call to nearest PSAP
- PSAP alerts help (police / rescue forces / other officials...)

No other number than 112 for dispatching Police, Fire Brigades, Ambulances. ERC(= chain of PSAPs) handles them all

15 ERCs (=PSAPs) (by 2015 6)

Figure 7 Current PSAP procedure in case of vehicle collision (simplified)
In HeERO one issue to be studied will be how the MSD and voice call are brought together onto the same operators desk in PSAP.

Emergency Rescue Centre Administration is currently renewing its central system, the provider has just been selected and the work has begun. The new system will be functioning by 2015 in the same time as the organisational consolidation from 15 ERCs into 6. eCall will be included in the new system and all eCall related specifications and standards can be taken into account. First modules will be tested by 2013. As for the current system, challenges exist for eCall implementation, because the current system provider, Siemens, is not involved in eCall HeERO or other eCall development and they are slightly reluctant to deploy upgrades for eCall especially just for one country – there should be more pressure from other countries and EU in this matter.

As for MSD mediating, as it is, to other officials’ databases (police, rescue forces, border guard etc.) it will not happen. ERC will handle the MSD (extract it) and mediate the location data to other systems if needed. ERC takes care that all relevant information is mediated to the police and rescue forces as in current situation.

The Emergency Rescue Centre Administration is slightly sceptical about the usefulness of VIN data. There have been discussions about it and the Rescue Forces themselves have a very clear and trained procedure for example in cutting into the vehicle safely in case of emergency, they feel it is a risk to wait for exploded views of vehicle body through mobile connections for cutting instructions etc. when people have to be taken out of the vehicle as quickly as possible. In MSD there is the Block no 3, which contains in bit mode the basic data of the vehicle type (M1-M3 passenger car/bus, N1-N3 van-lorry, L1e-L7e two-wheelers). This data can be used in PSAPS as basic information of the vehicle in collision, of course VIN data gives much more details when the connection and data delivery between PSAP and vehicle administration is in full service. Until then officials see it positive that eCall MSD brings data of vehicle type for help in dispatching rescue services and the exact location of course.

Standards and research

Finland has several experts involved in ITS and eCall standardisation.
Finland has had a test bed for eCall IVS testing several years now, and it has been used by both national and international testers. Test bed in VTT (more information www.ecall.fi)

**Vehicle industry**

Finland does not have its own car industry but Finland has active mobile device and in-vehicle device industry.

*In-Vehicle Systems, device manufacturers, ICT industry / software production?*

Currently there have been several projects on-going where In-Vehicle Platforms have been studied; the idea is to combine different transport related services into a common platform; services can be commercial services, work related and transportation aiding services and regulated services like Pay-As-You-Go taxing and insurances, mobile inspections (e.g. for OBD2 related data) and also different security and safety services. There have been discussions also can eCall be part of a common In-Vehicle Platform. And while Finland does not have car industry the efforts lie mostly in retrofit platforms and devices, but of course also services for vehicle industry. While Finland also has quite a lot older cars, there should be more research in retrofitted eCall IVS for older cars. Especially regarding the reliability of triggering techniques and easy but reliable mounting of devices into vehicles.

**MNOs**

Finland has three main mobile operators and they are all present in a common board connected to Emergency Rescue handling, eCall has been discussed with them, but of course they feel that either regulation or preferably financing is needed for eCall flag implementation. Ministry of Transport and Communications is the mobile operator regulator and the discussions are under their control. The Emergency Rescue Centre Administration sees that the flag is very important function and it must be tested in HeERO.

*Value Added services / Services related to eCall*

Also more research should be put to service business models and the whole business case and open architecture and interfaces.

Finland will be testing multi-functioning GNSS: DGPS and Glonass (maybe also others). There may also be tests for dual-SIMs.
Germany (ITSN)

Stakeholders / eCall domains

State authorities (ministries, regulatory authorities, departments)

2.1.1. Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)? Yes/No

In Germany the ITS Action Plan includes the eCall situation and the problems to solve – most focus is set to the process in the different states and the responsibilities of the governments. In addition to this a national eCall platform is established to inform all stakeholders about the actual status and the on-going process. The chair is by the Ministry of Transport, Building and Urban Development (BMVBS) in Berlin.

2.1.1.a) If yes, attach a plan/sketch of a top-down subordination diagram (related authorities) or stakeholder list of eCall process in the country.

The ITS Action Plan will be delivered by the BMVBS to the EC. Up to this date the draft version of the documentation is under “confidential status” – the final document will be delivered when it will be public and can be used for the documentation.

2.1.1.b) If not, what are the known most discussed issues (organisational or technical or other) hindering the official process?

The biggest problems are the different competences of the involved players. To clarify the different point of views will take some more time. Moreover the awareness is not everywhere on the same level. Some players are still waiting for legal binding decisions by the EU or the German government.

2.1.2. Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country?

We have discussed and implemented the technical interface between the national PSAP reference system and the EUCARIS network. For this action an extra meeting with the representatives from EUCARIS took place in Braunschweig and the solution was shown in Berlin during the eCall Days. This implementation shall be used for the introduction in Germany as well.

2.1.3. Should the certification of eCall IVS be national / supranational?

The certification of the eCall IVS shall be based on a common standard for all Member States to ensure the same quality of this safety critical system and even more important assure the compatibility in all Member States. (by NavCert)

2.1.4. Are there interested parties in your country to provide certification services for eCall?

Yes, NavCert, respectively TÜV SÜD can provide these services. (by NavCert)

2.1.5. Are there already plans for technical supervision of eCall IVS (connected to annual vehicle inspections etc.)? Yes/no

Yes, within the EeIP a task force is dealing with all requirements of PTI (periodical technical inspection). NavCert is leading this task force on behalf of TÜV SÜD, one of the leading inspection organizations for the annual vehicle inspection. (by NavCert)

2.1.5.a) If yes, is there issues you want to rise about this supervision organisation?

No, not right now. (by NavCert)

2.1.6. Are the related authorities (road authorities etc.) informed and cooperative in eCall issues?

Yes, the authorities are informed and cooperative. But they are waiting for legal binding guidelines to start an official working progress. We are discussing the actual status through the national Platform, the CeBIT fair and the eCall Days in Berlin as a continuous process. Any other issues related to state organisation?

Germany is a federal state and has the problems of decentralised structures. Therefore an implementation like eCall, which affected several players, is a big organisational issue. Without pressure from the EU the process will be take long.
PSAPs

Organisational issues
2.2.1 Are there many PSAP –levels in the country (e.g. national level / local level / TPS-eCall service centres)? Yes/no; if yes, short description:
Yes, there is no consistent organisation of PSAPs. The most PSAPs operate in a local area and work for one area municipality. But there are also bigger PSAPs that integrated several areas. It can be expect that a process of fusion of smaller PSAPs will happen in the near future.

2.2.2 Is there a plan for dedicating a certain PSAP centre (or a few PSAP centres) for centralist handling of eCall in the country/area (=eCall messages are sent to a certain PSAP)? If yes, why?
This process is still open and not clear, but today it is not the favourite solution. We are working on a special technical solution for the implementation of all PSAPs in Germany. Details will be published at the CeBIT 2012.

2.2.3 Are there known or predicted problems in implementing eCall to PSAP system? What are those?
Problems:
The PSAPs have very different technical infrastructure, so that some PSAPs have to buy new systems and some others need only software updates.
The PSAPs have not the personnel resources to manage eCalls in other languages.

2.2.4 Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?
Later

Resources (both HR & Finance)

2.2.5 Will there be enough resources and experts (Human Resources) for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter?
Yes, there are enough resources.

2.2.6 Do you see any problems in risk evaluations or eCall message handling compared to normal emergency requests (incident handling done by PSAP operators compared to normal 112 call and eCall)? What?
The PSAPs infrastructure must be able to receive the MSD. This is not realised yet. If the technical infrastructure will not be available the normal emergency call is the fall back solution all over Germany.

2.2.7 Will there be any problems with financing the permanent eCall implementation into PSAP system?
As we can see up to now – No. The scheduling of the needed infrastructure and the training will be done during the project and has to be discussed with the BMVBS and the responsible partners of the national government. After this discussion the real budget for the upgrade will be addressed to the related PSAPs and the national governments.

2.2.8 Are there enough resources and experts for procurement of needed hardware and software updating because of eCall for PSAP system? Or is there a need for cooperation with other countries in this matter?
No need for cooperation – but helpful to exchange the experiences and to prepare the cross boarder tests.

Operation and techniques

2.2.9 What are the main expectations of piloting?
2.2.9. a) Experience of successful functioning of eCall in PSAPs?
50 %
2.2.9. b) Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?
35%
2.2.9. c) Demonstration and argument for needed resources and expertise for real life implementation in PSAPs?
15 %
2.2.9. d) Or other?

2.2.10 What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs' point-of-view?
Language problem

2.2.11 Are there technical challenges in voice call / MSD integration in PSAPs?
Yes, because of the different current status of infrastructure (see 2.2.3)

2.2.12 Are there technical challenges in supranational eCall mediating in PSAP point-of-view?
Not known now

2.2.13 Other issues?

Standards and research

2.3.1 Are there experts from the country involved in standardisation work?
Yes, there are several experts from different stakeholders involved in these processes. (by NavCert)

2.3.2 What are your key messages for [future] standardisation work?
Standardization of safety related topics should be done faster. (by NavCert)

2.3.3 Is there active research work related to eCall in the country?
No, not known, but there is ITS research in general.

2.3.4 What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services?
Technical and organisational issues are both important for example to enlarge eCall to other road users.

2.3.13 Other issues?

Vehicle industry

2.4.1 Is there vehicle industry in the country? yes/no
Yes

2.4.2 Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs? Yes/no.
No, not officially yet.

2.4.2 a) If there is, are there any problems risen to discussions related to eCall?

2.4.3 Are there competing commercial or private emergency or rescue services (bCall etc.) in the country?
Yes (BMW and PSA Peugeot) – also some other OEMs are operating a private solution to assist the users/drivers of a car. This is also the ADAC, AvD/Allianz, Steiger Stiftung etc.

2.4.4 Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services?
The German vehicle industry is guarded on this issue except BMW. They are not talking officially about those systems where an eCall is implemented. BMW has its own experience with the BMW Connected Drive System. This system is actual not in line with the pan-European eCall of HeERO – we discuss the opportunities to introduce a common system solution.
2.4.5 Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry?
Yes

2.4.6 What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)? E.g. eCall trigger functioning, vehicle aging, annual testing etc. Trigger functioning and annual testing, after market installation,

2.4.7 What issues should the certification include? What should be left to industry?
The certification must show the compatibility of the system components to the applicable standards and the interoperability for all Member States and all PSAPs. This includes ALL issues mentioned within the standards. (by NavCert)

2.4.8 How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges?
The main challenge is the triggering function and the connection to a PSAP after an incident. Safety functional implementation and installation into the cars,

2.4.9 Other issues?

In-Vehicle Systems, device manufacturers, ICT industry / software production?

2.5.1 Is there an eCall In-Vehicle System providers in the country? yes/no
yes

2.5.2 Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.?
No, nothing special

2.5.3 Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm?
no

2.5.4 What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm?
Both, the voice communication after an collision and the MSD communication.

2.5.5 Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services?
No, not known

2.5.6 Other issues?

ICT industry / software production

2.6.1 Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Siemens etc.)?
Open question

2.6.2 Do you see any challenges in location accuracy and maps?
There could be problems from the countryside (big buildings, deep forest, very rural area or high mountains)

2.6.3 Other issues?

MNOs

2.7.1 Are there known problems in activating the MNOs for future eCall duties? e.g. in eCall Flag implementation?
There could be delay concerning the introduction of eCall Flag because of planned maintenance cycles.

2.7.2 Will the MNO duties be regulated by law?
No comment available.

2.7.3 Who will finance the HeERO MNO tests?
No comment available.

2.7.4 Who will finance the permanent eCall implementations in MNOs?
No comment available.

2.7.5 What are the main expectations of HeERO project/piloting for MNOs? What issues they see the most important that the pilot will bring up?
No comment available.

2.7.6 Do you see any challenges with the use of SIM and USIM cards?
No comment available.

2.7.7 Do you see challenges in contracts between MNOs’ SIM/USIM releasing & IVS providers?
No comment available.

2.7.8 Do you see special issues/challenges in voice call / MSD integration?
No comment available.

2.7.9 What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed in this?
No comment available.

2.7.10 What are the main technical challenges in updating the MNO network systems for eCall implementation supranational? Need of roaming SIMs?
No comment available.

2.7.11 Should also the eCall SMS be included in service?
No comment available.

2.7.12 Other issues?

*Value Added services / Services related to eCall*

2.8.1 Should eCall be a separate, stand-alone service? yes/no
no

2.8.1a) If yes, what are the main benefits for separate eCall?

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no
yes

2.8.3 What are the conditions for this integration (if any)?
The use of eCall must be free of charge. The other services must not affect the eCall service.

2.8.4 What are the main benefits of integrating eCall to other services?
The main benefit is that the eCall system becomes more attractive for the end customer who demands e.g. an break-down service. This generates a business model for the car manufacturers, which leads to a faster implementation and gives the EU an advantage in the field of ITS innovations.

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other unregulated services??
All the mentioned services are imaginable and also infotainment could be a part of an IVS (see 2.8.3)
Greece

Stakeholders / eCall domains

State authorities (ministries, regulatory authorities, departments)

2.1.1. Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)? Yes/No
No

2.1.1.a) If yes, attach a plan/sketch of a top-down subordination diagram (related authorities) or stakeholder list of eCall process in the country.

2.1.1.b) If not, what are the known most discussed issues (organisational or technical or other) hindering the official process?
The main issues are organisational, since eCall involves different authorities.

2.1.2. Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country? Yes/No
No

2.1.3. Should the certification of eCall IVS be national / supranational?
It should be supranational.

2.1.4. Are there interested parties in your country to provide certification services for eCall? Yes/No
No party has expressed their interest yet.

2.1.5. Are there already plans for technical supervision of eCall IVS (connected to annual vehicle inspections etc.)? Yes/no
No

2.1.5.a) If yes, is there issues you want to rise about this supervision organisation?

2.1.6. Are the related authorities (road authorities etc.) informed and cooperative in eCall issues? Yes/No
Generally yes. There is currently an eCall application under development to be installed on the emergency vehicles of Greek motorways, which will communicate with the Control Centre of each motorway.

Any other issues related to state organisation?
None, at the moment.

PSAPs

Organisational issues

2.2.1 Are there many PSAP –levels in the country (e.g. national level / local level / TPS-eCall service centres)? Yes/No; if yes, short description:
No

2.2.2 Is there a plan for dedicating a certain PSAP centre (or a few PSAP centres) for centralist handling of eCall in the country/area (=eCall messages are sent to a certain PSAP)? If yes, why?
The plan is to have one central PSAP for the whole country, so as to have a centralised overview and handling of emergencies and for better coordination of other authorities.

2.2.3 Are there known or predicted problems in implementing eCall to PSAP system? What are those?
At the moment the organisational / resources issues are the main concern. On the organisation side, it should be noted that a list of organisations are involved in the implementation of eCall. On the resources side, it worth to note that some studies indicate a rise of the emergency calls –including false alarms- once the eCall system is fully implemented. Therefore a dedicated study should be...
performed on National level that will direct the actual needs in terms of PSAP resources. We envision having a better understanding for the process within the course of the HeERO pilot.

2.2.4 Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?
The procurement for acquiring the PSAP hardware and software will start within the HeERO pilot.

Resources (both HR & Finance)

2.2.5 Will there be enough resources and experts (Human Resources) for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter?
Even though we believe there will be enough resources, we will also consider cooperation with other countries, if this will improve our time constraints.

2.2.6 Do you see any problems in risk evaluations or eCall message handling compared to normal emergency requests (incident handling done by PSAP operators compared to normal 112 call and eCall)? What?
Yes. Changes will have to be made concerning the flow of information and actions required for handling an eCall message, compared to a 112 call.

2.2.7 Will there be any problems with financing the permanent eCall implementation into PSAP system?
Yes. There is no warranty for financing a permanent eCall implementation through public funds.

2.2.8 Are there enough resources and experts for procurement of needed hardware and software updating because of eCall for PSAP system? Or is there a need for cooperation with other countries in this matter?
There are sufficient resources and experts in Greece for these issues, however, we are open for new collaborations with other countries in order to exchange technical expertise and ideas.

Operation and techniques

2.2.9 What are the main expectations of piloting?
2.2.9. a) Experience of successful functioning of eCall in PSAPs?
Yes.
2.2.9. b) Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?
Yes.
2.2.9. c) Demonstration and argument for needed resources and expertise for real life implementation in PSAPs?
Yes.
2.2.9. d) Or other?

2.2.10 What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs’ point-of-view?
Greece does not have any cross-border eCall partners so there are no supranational challenges at present time.

2.2.11 Are there technical challenges in voice call / MSD integration in PSAPs?
Yes.

2.2.12 Are there technical challenges in supranational eCall mediating in PSAP point-of-view?
Greece does not have any cross-border eCall partners so there are no supranational challenges at present time.

2.2.13 Other issues?

Standards and research
2.3.1 Are there experts from the country involved in standardisation work?
Yes, experts from the ICCS dep’t of the National Technical University of Athens (N.T.U.A.) participate in the CEN TC278/ WG15.

2.3.2 What are your key messages for [future] standardisation work?
We consider that standardization work should focus on the resolution of the current version, maintaining back compatibility when possible, defining testing procedures for the IVS, implementing eCall functionality on different platforms/technologies e.g. Smartphone/IP networks.

2.3.3 Is there active research work related to eCall in the country?
Yes, there is the national pilot project called “eKLISI”, which will develop and evaluate an eCall application. ICCS, COSMOTE (major telecom operator) and Space Hellas are co-partners.

2.3.4 What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services?

2.3.13 Other issues?

Vehicle industry

2.4.1 Is there vehicle industry in the country? yes/no
No
2.4.2 Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs? Yes/no.
No
2.4.2 a) If there is, are there any problems risen to discussions related to eCall?

2.4.3 Are there competing commercial or private emergency or rescue services (bCall etc.) in the country?
No

2.4.4 Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services?
Not at the moment

2.4.5 Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry?
Yes. The cooperation would ease the eCall deployment.

2.4.6 What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)? E.g. eCall trigger functioning, vehicle aging, annual testing etc. Electromagnetic compatibility, in compliance to the EC directive; also eCall trigger functioning (including the manual eCall mode), the vehicle aging and the annual testing are issues that should be addressed in a coordinated way.

2.4.7 What issues should the certification include? What should be left to industry?
As a minimum, the certification should include the issues addressed in the standards.

2.4.8 How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges?
The eCall functionality should be made available for older cars as well. The main challenge might come out of the fact that the vehicle signals that are essential for the eCall functionality (e.g. eCall triggering, MSD message) are not open, the work should be handled by a certified network. Careful assessment of 2G/3G support is necessary; plan for migration from GSM network to more advanced radio technologies such as UMTS.

2.4.9 Other issues?
In-Vehicle Systems, device manufacturers, ICT industry / software production?

2.5.1 Is there an eCall In-Vehicle System providers in the country? yes/no

No

2.5.2 Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.?

Bypassing speech processing interfaces (including Bluetooth); mute other audio paths during in-band data modem transmission. The voice channel between the IVS and the PSAP must not be blocked for more than 4 seconds. Both the PSAP and the IVS in-band modem implementations should guarantee this.

2.5.3 Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm?

No. The exact implementation relies on the vehicle manufacturers and should guarantee ease of use, avoidance of false alarms etc.

2.5.4 What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm?

Both issues mentioned above are important. Also dual mode IVS should be pursued while the MNO should provide security (e.g. bit encryption – no threat to CAN).

2.5.5 Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services?

No.

2.5.6 Other issues?

ICT industry / software production

2.6.1 Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Siemens etc.)?

Yes.

2.6.2 Do you see any challenges in location accuracy and maps?

Yes. The required accuracy of the location information and the needed coverage implicate the use of GNSS, using GPS and in the near future the European Satellite Navigation Systems Galileo which will offer even greater accuracy and availability. PSAPs and the emergency rescue services should have the necessary infrastructure for handling the location information received.

2.6.3 Other issues?

MNOs

2.7.1 Are there known problems in activating the MNOs for future eCall duties? e.g. in eCall Flag implementation?

No.

2.7.2 Will the MNO duties be regulated by law?

They should be, at European level.

2.7.3 Who will finance the HeERO MNO tests?

Not applicable for Greece. There are no MNOs.

2.7.4 Who will finance the permanent eCall implementations in MNOs?

Will be financed by both the private and public.

2.7.5 What are the main expectations of HeERO project/piloting for MNOs? What issues they see the most important that the pilot will bring up?

There is an expectation for EE regulation for MNOs. MNOs should support the ITS directive objective.
2.7.6 Do you see any challenges with the use of SIM and USIM cards?
No.

2.7.7 Do you see challenges in contracts between MNOs' SIM/USIM releasing & IVS providers?
No.

2.7.8 Do you see special issues/challenges in voice call / MSD integration?
No.

2.7.9 What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed in this?
The national eCall implementation is not intended to involve MNOs.

2.7.10 What are the main technical challenges in updating the MNO network systems for eCall implementation supranational? Need of roaming SIMs?
The MNOs will carry out the required routing changes & updates in mobile switches. eCall in an MNO perspective is an additional public safety telecom service that requires the establishment of a reliable channel to deliver data and voice. As any telecom service it has to be interoperable (device and MNO independent), reliable and testable. MNO specific topics analysed and discussed by GSMA to identify possible work items to be addressed.

2.7.11 Should also the eCall SMS be included in service?
No. In general, an additional functionality may obstruct the smooth operation of eCall.

2.7.12 Other issues?

Value Added services / Services related to eCall

Integration of eCall with other ITS public utility and/or commercial services is an open issue, in the sense of Cost / Business models that could be enabled by the introduction of eCall.

2.8.1 Should eCall be a separate, stand-alone service? yes/no
No. It is not necessary.

2.8.1a) If yes, what are the main benefits for separate eCall?
May be more specific to certification requirements.

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no
No.

2.8.3 What are the conditions for this integration (if any)?

2.8.4 What are the main benefits of integrating eCall to other services?

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other unregulated services??

2.8.6 Other issues?
Italy

Stakeholders / eCall domains

State authorities (ministries, regulatory authorities, departments)

Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)? Yes/No

No; the HeERO project is expected to give useful information and guidelines for the national deployment of eCall; authorities and organization are now those of emergency

If yes, attach a plan/sketch of a top-down subordination diagram or stakeholder list of eCall process in the country.
If not, what are the known most discussed issues (organisational or technical or other) hindering the process?

NUE 112 organization. Next eCall deployment, at a national level, will be based on the infrastructure available for E112 service, complemented with required additional features for interconnection.

Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country?

Italy is part of EUCARIS and it will support the eCall EUCARIS application; for the rest the answer is the same of above

Should the certification of eCall IVS be national / supranational?
National

Are there interested parties in your country to provide certification services for eCall?
No

Are there already plans for technical supervision of eCall IVS (connected to annual inspections etc.)?
Yes/no
No

If yes, are there issues you want to rise about this supervision organisation?
Are the related authorities (road authorities etc.) informed and cooperative in eCall issues?
They are informed about HeERO and eCall, but they cooperate only on request

PSAPs

Are there many PSAP –levels in the country (e.g. national level / local level)? Yes/no;
Yes

if yes, short description:

Centralized Deployment Model

In this model, a 1st level PSAP collects the calls and, after a proper analysis, distributes both voice and data to a 2nd level PSAP (Police, Carabinieri, Fire Department, Health Service, Civil Defence) through digital lines.

Italian pilot plans to use this model in Varese operating central.

Integrated Deployment Model

This model has been implemented in Salerno. The model plans a PSAP composed by a Police control centre interconnected to a Carabinieri control centre, that receive 112 NUE calls equally distributed 50% each; both the control centres are connected to the 2nd level PSAP (Fire Department, Health Service) trough digital lines; upon them will be transmitted both voice and MSD.

Distributed Deployment Model
This model corresponds to the Carabinieri control centre that receives 112 NUE calls; they are connected to the other PSAP (Police, Fire Department, Health Service) through analogue or digital lines.

Is there a plan for dedicating a certain centre (or a few centres) for handling eCall? If yes why?

YES. 1st level PSAP in the Centralized Deployment Model. The main reason is that these will be few centres (3 – 4 per region)

Are there known or predicted problems in implementing eCall to PSAP system? What are those?

No

Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?

Later

Are there enough resources and experts for procurement of needed eCall hardware and software for PSAP system? Or is there a need for cooperation with other countries in this matter?

Plenty of experts

Will there be any problems with financing the permanent eCall implementation into PSAP system?

The financing problems are related to the 112 NUE first model deployment; the gap to upgrade to eCall is very little.

Will there be enough resources and experts for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter?

Plenty of experts

What are the main expectations of piloting?

Experience of successful functioning of eCall in PSAPs?

30%

Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?

50%

Demonstration and argument for needed resources and expertise for real Life implementation in PSAPs?

20%

Or other?

What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs’ point-of-view?

The eCall will be always national, NUE 112 provides multi-lingual features

Are there technical challenges in voice call / MSD integration in PSAPs?

No

Are there technical challenges in supranational eCall mediating in PSAP point-of-view?

No

Do you see special challenges with eCall message handling compared to normal emergency requests? What?

Silent eCall

Silent Call after a call back (people gone out)

Samaritan calls

[In the end of piloting: Have there been special success factors or problems related to technical or organisational performances of eCall in PSAPs which are the most important and general and therefore useful to inform others?]

Standards and research

Are there experts from the country involved in standardisation work?

Yes. The MNO’s and the TLC system suppliers are continuously active in standardization in the frame of 3GPP and all eCall standards that have been mandated to 3GPP have involved them
WP6 D6.1 Questionnaire

What are your key messages for [future] standardisation work?
Start from pragmatic and verified operational requirements. Take into account the deployment issues from an end-to-end system perspective.

Is there active research work related to eCall in the country?
NO. The technology to be used by the pan-European eCall public service is well established and, at the moment, does not require specific research activity. As a result of the HeERO Pilot, some area for possible improvement and research might be identified and considered, if applicable.

What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services?
A lot is certainly to be done in the organizational domain where the eCall deployment is based on pre-existing (legacy) infrastructure and processes (this is the case for Italy). The results of such analysis should be used to properly plan and address the national investment required to fully deploy the service and to make it available to a significant portion of the automotive population. During the early stage of the operation deployment, some impact/effectiveness and technical performance analyses might also be advisable to tune-up the overall system.

Vehicle industry

Is there vehicle industry in the country? yes/no
YES

Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs? Yes/no.
Yes, within HeERO

If there is, are there any problems raised to discussions related to eCall?
NO
Are there competing commercial or private emergency or rescue services (bCall etc.) in the country?
Yes

Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services?
NO

Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry?
NO

What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)?
E.g. eCall trigger functioning, vehicle aging, annual testing etc.
eCall activation and message transmission timing constrains
What issues should the certification include? What should be left to industry?
How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges?
Vehicle integration Vs. eCall functionalities
Other issues?

In-Vehicle Systems, device manufacturers, ICT industry / software production?

Are there eCall In-Vehicle System providers in the country? yes/no
YES

Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.?
YES, IVS Pan EU requirements compliant are still prototypes and it is very complex to test the all chain because many actors are needed.

Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services?
YES

Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Siemens etc.)?
YES

Do you see any challenges in location accuracy and maps?

Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm?
YES, more standardization is needed on the HMI related to manual activation and to driver signalling

What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm?
Not tested yet

MNOs

Are there known problems in activating the MNOs for future eCall duties?
NO

Will the MNO duties be regulated by law?
YES, at least at national level eCall MNO duties must be considered an extension of the E112 call and regulated accordingly

Who will finance the HeERO MNO tests?
The MNO itself, with some costs partly covered in the frame of the HeERO contract

Who will finance the permanent eCall implementations in MNOs?
Unclear, at the moment. Specific costs are very difficult to isolate from those originating from other operational and upgrade routinely activity. It is assumed that an approach similar to that adopted for E112 deployment will apply.

What are the main expectations of HeERO project/piloting for MNOs?
The possibility to bring together all national actors involved in the deployment of the eCall to establish a stable Working Group that will be able to support adequately the actual deployment.

What issues they see the most important that the pilot will bring up?
Demonstration of the technical adequacy of the technology standardized. The complexity of the overall process extension and re-organization at national level for the public emergency calls processing. A number of new processes and procedures will have to be identified to allow the correct and lawful processing of the eCall.

Do you see any challenges with the use of SIM and USIM cards?
NO

Do you see challenges in contracts between MNOs’ SIM/USIM releasing & IVS providers?
Commercial issues (such as SIM/USIM provisioning for IVS devices implementing public pan-European eCall service) need to be addressed and negotiated among the parties based on the established regulatory framework.

Do you see special issues/challenges in voice call / MSD integration?
NO.
What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed in this?
The needed extensions in signalling have been already standardized and the TLC providers are already developing their pre-commercial releases. The integration of such SW upgrades in the operational mobile network will likely follow the consolidated operational and deployment methodology. It allows the MNO to continuously upgrade their network without impacting on the end-to-end service availability. Once the routing strategy for the eCalls will be established at national level, the roll-out phase in the Mobile Network is not expected to be critical.

What are the main technical challenges in updating the MNO network systems for eCall implementation supranational? Need of roaming SIMs?
The same requirements in place for E112 call will apply

Should also the eCall SMS be included in service?
NO. However, it might be an implementation option for other commercial Value Added Services

Value Added services / Services related to eCall

Should eCall be a separate, stand-alone service? yes/no
No
What are the main benefits for separate eCall?
Or should eCall be connected to other in-vehicle services? yes/no
Yes
What are the conditions for this integration (if any)?
Security (must work after crash, etc.) and priority (all other services are interrupted when an eCall start)

What are the main benefits of integrating eCall to other services?
Share man machine interface; costs, business model
What kind of services could be connected to eCall?
bCall, fleet management, stolen vehicle tracking, …
Netherlands

1. **State authorities (ministries, regulatory authorities, departments)**

2.1.1. Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)?

   No, First EU legislation has to be in place.

   2.1.1.a) If yes, attach a plan/sketch of a top-down subordination diagram (related authorities) or stakeholder list of eCall process in the country.

   2.1.1.b) If not, what are the known most discussed issues (organisational or technical or other) hindering the official process?

   At this moment eCall is not yet a reality in terms of legislation but a project.

2.1.2. Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country?

   Yes, by taking part in EUCARIS

2.1.3. Should the certification of eCall IVS be national / supranational?

   Following the model of standardisation it will require international standards followed by local legislation

2.1.4. Are there interested parties in your country to provide certification services for eCall?

   Yes, one can expect all present certification institutes to enter this market

2.1.5. Are there already plans for technical supervision of eCall IVS (connected to annual vehicle inspections etc.)?

   No, only first talks

   2.1.5.a) If yes, is there issues you want to rise about this supervision organisation?

   Yes, but it will be discussed in the EeIP task force on periodical inspections

2.1.6. Are the related authorities (road authorities etc.) informed and cooperative in eCall issues?

   Yes: RDW

   Any other issues related to state organisation? Not known

**PSAPs**

**Organisational issues**

2.2.1 Are there many PSAP –levels in the country (e.g. national level / local level / TPS-eCall service centres)? Yes/no; if yes, short description:

   Netherlands:
   - PSAP 1str level: 1 PSAP for all mobile 112, 22 112
   - PSAP 2nd level: 22 co-located regional emergency rooms, police, fire, ambulance.
   - TPS eCall: some car manufacturers have their own eCall TPS in our country (Volvo) others operate from abroad. Not connected to first level PSAP’s

2.2.2 Is there a plan for dedicating a certain PSAP centre (or a few PSAP centres) for centralist handling of eCall in the country/area (=eCall messages are sent to a certain PSAP)? If yes, why?

   Automatic e-Call will be handled by regional PSAP’s.
   Manual e-Call will be handled by 1st level PSAP. After validation it will be transferred to regional PSAP

2.2.3 Are there known or predicted problems in implementing eCall to PSAP system? What are those?

   Actual situation: No infrastructure to send data to 2nd level PSAP’s. In 2012 such the infrastructure will be realised. PSAP 1st level: Implementation planned in Year-3.

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Decisions about the infrastructure between 1st level and 2nd level PSAP are not part of this project. To be decided by (political) authorities. There are actual problems in receiving and process DTMF data probably caused by (de)compression in networks and/or IP-PBX. (Under investigation)

2.2.4 Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?

eCall related updates will be done in Year 3. The pilot is stand alone in a look-a-like application.

Resources (both HR & Finance)

2.2.5 Will there be enough resources and experts (Human Resources) for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter? Yes, no cooperation needed.

2.2.6 Do you see any problems in risk evaluations or eCall message handling compared to normal emergency requests (incident handling done by PSAP operators compared to normal 112 call and eCall)? What?
No, because the call taking process will not be changed. eCall is adapted to the present process. False calls may be an issue.

2.2.7 Will there be any problems with financing the permanent eCall implementation into PSAP system?
Yes, changes needed in de 2nd level our out of range of the project. This will require decisions to be made by authorities.

2.2.8 Are there enough resources and experts for procurement of needed hardware and software updating because of eCall for PSAP system? Or is there a need for cooperation with other countries in this matter?
Yes, subcontractors offer enough resources and expertise.

Operation and techniques

2.2.9 What are the main expectations of piloting?

2.2.9. a) Experience of successful functioning of eCall in PSAPs?
Success is dependent on how automotive is going to use the pan-European eCall. It is out of influence of the project. Our main goal is to realize optimal support of the PSAP-process.

2.2.9. b) Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?
No,

2.2.9. c) Demonstration and argument for needed resources and expertise for real life implementation in PSAPs?
Yes. Authorities will be informed and asked to take necessary decisions.

2.2.9. d) Or other?
Input for Traffic Management. Sharing information with chain-related-parties.

2.2.10 What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs’ point-of-view?
International roaming, access to VIN related information, interpretation of optional data in MSD. (standardised interpretation.)

2.2.11 Are there technical challenges in voice call / MSD integration in PSAPs?
Yes, DTMF is a challenging factor.

2.2.12 Are there technical challenges in supranational eCall mediating in PSAP point-of-view?
Legislation may be a more determining factor than technical aspects.

2.2.13 Other issues?
Not yet.

**Standards and research**

2.3.1 Are there experts from the country involved in standardisation work?
RWS Jan van Hattem also leader Dutch project team participates in CEN 278, WG 15 on eCall and leads the work item on dangerous Goods.

2.3.2 What are your key messages for [future] standardisation work?
Without standardisation no interoperability.
Also need to standardise extended eCall dataset

2.3.3 Is there active research work related to eCall in the country?
Yes on getting data on truckloads into the eCall message.

2.3.4 What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services?
Full chain performance using the eCall data in the whole chain of emergency help and road management
Using eCall for Dangerous goods
Involving the private sector in using Pan EU eCall or similar TPS eCall services

2.3.13 Other issues?

**Vehicle industry**

2.4.1 Is there vehicle industry in the country? no

2.4.2 Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs?.
No

2.4.2 a) If there is, are there any problems risen to discussions related to eCall?
Not relevant

2.4.3 Are there competing commercial or private emergency or rescue services (bCall etc.) in the country?
Yes, Road Assistance. (competitive or complementary ????) TPS are showing interest.

2.4.4 Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services?
No, but European eCall like services of car manufacturers are also operating in the Netherlands.

2.4.5 Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry?
Yes. To anticipate on the future operational situation it is a MUST.

2.4.6 What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)?
Call trigger functioning, vehicle aging, annual testing, standards, TPS-access, what happens when car changes owner, what TPS do after end of subscription period. Will TPS reprogram modems to Pan European eCall?

2.4.7 What issues should the certification include? What should be left to industry?
Guarding quality of offered services, Periodical check
2.4.8 How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges?
Guarding quality of offered services and performance, how can the consumer trust on these devices, what rules and certification does apply, is all allowed and how will this affect the quality of the calls towards 112?

2.4.9 Other issues?
Not yet

In-Vehicle Systems, device manufacturers, ICT industry / software production?

2.5.1 Is there an eCall In-Vehicle System providers in the country? yes
Yes almost all international companies have offices or affiliates in the Netherlands

2.5.2 Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.?
YES ! DTMF and the correct version of the software, how to deal with backwards compatibility?

2.5.3 Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm?
Disconnection code should be sent to PSAP !!!!!
The HMI should be as standardised as possible in order to prevent user mistakes

2.5.4 What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm?
Only one of three MNO’s is willing to implement eCall flag.
Possible cost to MNO’s of handling non-emergency calls (wrong call, test calls ..)

2.5.5 Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services?
Not yet, but there will be these services sharing the same in-car platform

2.5.6 Other issues?
The 112 organisation made a restriction to the eCall implementation to handle pan-European eCall by TPS.

ICT industry / software production

2.6.1 Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Siemens etc.)?
This is an interesting thought, it would help the take up of eCall considerably in my view

2.6.2 Do you see any challenges in location accuracy and maps?
Not for the Netherlands

2.6.3 Other issues?

MNOs

2.7.1 Are there known problems in activating the MNOs for future eCall duties? e.g. in eCall Flag implementation?
KPN-NL and Vodafone-NL will not implement eCall-flag voluntary. Negotiation with authorities.

2.7.2 Will the MNO duties be regulated by law?
No, only when it will be initiated on European level.

2.7.3 Who will finance the HeERO MNO tests?
T-Mobile will mainly finance their own costs. A request for a financial governmental contribution has been submitted.

2.7.4 Who will finance the permanent eCall implementations in MNOs?
Unknown at this moment

2.7.5 What are the main expectations of HeERO project/piloting for MNOs? What issues they see the most important that the pilot will bring up?
Correlation of data with 112PSAP

2.7.6 Do you see any challenges with the use of SIM and USIM cards?
Not yet.

2.7.7 Do you see challenges in contracts between MNOs' SIM/USIM releasing & IVS providers?
??- for us it is still unknown how they will work together on these issues

2.7.8 Do you see special issues/challenges in voice call / MSD integration?
Yes, DTMF

2.7.9 What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed in this?
MNO's gave information that networks do not need to be upgraded. In 2012 two new MNO's. (ZIGGO and UPC), But eCall implementation is a problem without legal obligation

2.7.10 What are the main technical challenges in updating the MNO network systems for eCall implementation supranational? Need of roaming SIMs?
?? question is not clear, do we need roaming SIM’s?

2.7.11 Should also the eCall SMS be included in service?
No

2.7.12 Other issues?
no

Value Added services / Services related to eCall

2.8.1 Should eCall be a separate, stand-alone service? yes/no
Yes.

2.8.1a) If yes, what are the main benefits for separate eCall?
Channelling call flow.

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no
No.

2.8.3 What are the conditions for this integration (if any)
The eCall service is a separate service, but it may share technical resources with other applications as long as eCall has first priority over these services. But eCall should be functioning apart from critical cars functions like motor management ABS, Track control.

2.8.4 What are the main benefits of integrating eCall to other services?
Again do not integrate the function but use same resources, in this way costs will be saved, and resources will be tested during the use of the other applications.

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other unregulated services??
The platform can be available to any private or public service as long as the eCall service is apart and has priority.
Romania

Stakeholders / eCall domains

State authorities (ministries, regulatory authorities, departments)

2.1.1. Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)? Yes/No

Regarding authority roles, the same structure for the 112 system will also apply for the eCall system. The 112 system falls under the responsibility of the Ministry of Communications and Information Society. The minister is the president of the Coordination committee of the 112 System. The Special Telecommunications Service is the legal governmental operator and is designated to implement and operate the 112 System. The Ministry of Communications and Information Society is not a direct partner in the HeERO pilot, but it has issued a “Certification of authorised national representative” for all the Romanian HeERO partners.

2.1.1.a) If yes, attach a plan/sketch of a top-down subordination diagram (related authorities) or stakeholder list of eCall process in the country.

2.1.1.b) If not, what are the known most discussed issues (organisational or technical or other) hindering the official process?

2.1.2. Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country?

Romania is a member of EUCARIS since 2001 and, for the HeERO project, we will use the EUCARIS database for decoding the VIN. Using EUCARIS, we will have access to an international database of vehicles from countries that are EUCARIS members (until 2012 all the EU Member States will have implemented EUCARIS).

2.1.3. Should the certification of eCall IVS be national / supranational?

We believe that the certification of eCall IVSs should be done locally in every country, but this certification should be valid at European level. So the best solution would be that the local certification organisations should follow some general rules defined at European level.

2.1.4. Are there interested parties in your country to provide certification services for eCall?

At this moment we have not had any discussions regarding the certification services and we do not plan to address this matter during the pilot. For the permanent implementation, the current vehicle certification authorities will be in charge of the certification services for eCall IVSs.

2.1.5. Are there already plans for technical supervision of eCall IVS (connected to annual vehicle inspections etc.)? Yes/no

There no plans at the moment, the eCall IVSs will probably be tested once every two years, considering that in Romania the mandatory vehicle inspection takes place once every two years (not annually).

2.1.5.a) If yes, is there issues you want to rise about this supervision organisation?

2.1.6. Are the related authorities (road authorities etc.) informed and cooperative in eCall issues?

The only road operator in Romania (RNCMNR - National Company of Motorways and National Roads) is a partner in the HeERO project and we are currently developing an interface between the 112 PSAP and the National Traffic Management Centre. Through this interface RNCMNR will be able to receive data about the collisions that are being reported through eCall.
Also, STS (the operator of the 112 PSAP) is developing an interface that will allow other interested 3rd parties to receive information about incidents reported through eCall.

Any other issues related to state organisation?

**PSAPs**

**Organisational issues**

2.2.1 Are there many PSAP – levels in the country (e.g. national level / local level / TPS-eCall service centres)? Yes/no; if yes, short description:
Currently Romania has 40 112 PSAPs (one for every county) and 2 in Bucharest (one that also serves Ilfov county and one for backup). The 112 system is decentralized: all the 112 emergency calls are received in the county PSAP where the caller is located, and the PSAP operator has the ability to transfer the call to the local emergency agencies: Police, Ambulance, Fire Rescue, Gendarmes. At the same time, in case of need, the Bucharest PSAP has the ability to answer emergency calls from any part of the country. All the PSAPs and emergency agencies use the same software.

2.2.2 Is there a plan for dedicating a certain PSAP centre (or a few PSAP centres) for centralist handling of eCall in the country/area (=eCall messages are sent to a certain PSAP)? If yes, why?
For eCall, Romania will use a centralized system: all eCalls will be routed to the Bucharest PSAP, with the Braşov PSAP acting as a backup in case something happens with the Bucharest one. The Bucharest PSAP operators will be able to transfer the calls directly to the county emergency agencies. All the other county PSAPs will not be upgraded to handle eCalls. The main reason for using a centralized system is the reduced impact that this will have on the current 112 infrastructure. Routing all the calls to the Bucharest (and Braşov) PSAP also means that we will only have to train the operators in these 2 PSAPs. At the same time the implementation costs will be significantly lower, because we will not need to install eCall modems in every county PSAPs (if we could consider 2 modems for every PSAP this would mean more than 80 modems).

2.2.3 Are there known or predicted problems in implementing eCall to PSAP system? What are those?
There are no known problems regarding the implementation at PSAP level. An indirect problem could be the eCall flag, which, if not implemented, will result in further problems at PSAP level.

2.2.4 Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?
All the equipment purchased during the pilot and all the developed software will be used for the permanent eCall service.

**Resources (both HR & Finance)**

2.2.5 Will there be enough resources and experts (Human Resources) for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter?
STS (who is the operator of E112 system in Romania) will provide all the resources needed for operation and maintenance for the eCall service in the PSAPs.

2.2.6 Do you see any problems in risk evaluations or eCall message handling compared to normal emergency requests (incident handling done by PSAP operators compared to normal 112 call and eCall)? What?
We do not see any problems regarding this matter. The information provided through the MSD will only help the operators in the risk evaluation process.

2.2.7 Will there be any problems with financing the permanent eCall implementation into PSAP system?
At this moment, we consider that there will not be any problems regarding the financing for the permanent implementation of eCall. Taking into account the centralized solution that will be adopted in Romania, the permanent implementation will not require substantial costs.
2.2.8 Are there enough resources and experts for procurement of needed hardware and software updating because of eCall for PSAP system? Or is there a need for cooperation with other countries in this matter?
All the specific needed hardware for PSAPs (eCall modem) will be developed in Romania. All the necessary software updates will also be developed in Romania. The HW and SW updates will be developed by STS (the national 112 operator) either using their own experts, or through subcontracting.

**Operation and techniques**

2.2.9 What are the main expectations of piloting?
2.2.9. a) Experience of successful functioning of eCall in PSAPs?
2.2.9. b) Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?
2.2.9. c) Demonstration and argument for needed resources and expertise for real life implementation in PSAPs?
2.2.9. d) Or other?

2.2.10 What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs’ point-of-view?
The main challenge will be sending the MSD data from one country to another. We believe that the sending ONLY the voice part of an emergency call to another country will not be very difficult.

2.2.11 Are there technical challenges in voice call / MSD integration in PSAPs?
See 2.2.3.

2.2.12 Are there technical challenges in supranational eCall mediating in PSAP point-of-view?
Could you please explain what you mean through mediating?

2.2.13 Other issues?

**Standards and research**

2.3.1 Are there experts from the country involved in standardisation work?
The Romanian Standards Association is involved in the definition of the CEN standards.

2.3.2 What are your key messages for [future] standardisation work?
The standards should take into account the results of the HeERO project, as this will be the first time the eCall service will be implemented according to these standards.

2.3.3 Is there active research work related to eCall in the country?
In the past some research work has been done related to eCall: both a study on current eCall technologies and a prototype IVS developed by the “Politehnica” University from Bucharest. A Romanian company is currently developing an IVS module that will be used during our national pilot. They are also planning on developing a commercial module once the eCall service will be implemented at European level.

2.3.4 What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services?
We believe that further research should be dedicated to analysing the impact of the implementation of eCall.

2.3.13 Other issues?

**Vehicle industry**
2.4.1 Is there vehicle industry in the country? yes/no
Yes.

2.4.2 Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs? Yes/no.
No.

2.4.2 a) If there is, are there any problems risen to discussions related to eCall?

2.4.3 Are there competing commercial or private emergency or rescue services (bCall etc.) in the country?
No.

2.4.4 Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services?
There have some discussions with the national vehicle manufacturers, but at this there are no concrete plans.

2.4.5 Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry?
Some kind of coordination should exist at European level so that we will be able to ensure the interoperability of the system.

2.4.6 What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)? E.g. eCall trigger functioning, vehicle aging, annual testing etc.
At this moment we believe that the infrastructure needed for testing and certificating all the IVSs will be the main problem. One important issue is the manner in which these tests will be conducted without affecting the 112 system.

2.4.7 What issues should the certification include? What should be left to industry?
The certification for IVSs should include the main eCall functionalities: establishing an emergency call, sending the MSD etc. The industry should be responsible of the sensors installed in the vehicle and the triggering of these sensors. Also the industry should be responsible for all the physical tests of the IVS unit (resistance at shocks, vibrations etc.) and other requirements for a module installed on board a vehicle.

2.4.8 How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges?
The main challenge with the retrofitted devices will be the extra cost of the units. Many users will be more receptive to a device that is already installed in the vehicle when you purchase it, than to a device that they have to buy and install separately. From a technical point of view there will be difficulties in accessing the security systems of a vehicle for triggering purposes.

2.4.9 Other issues?

In-Vehicle Systems, device manufacturers, ICT industry / software production?

2.5.1 Is there an eCall In-Vehicle System providers in the country? yes/no
Yes.

2.5.2 Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.?

-
2.5.3 Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm?
The cancellation of false alarms will be a delicate matter. First of all, we believe that this feature should be available only for manual generated eCalls. Secondly, the time between the initiation of an eCall, an the time the 112 operator answers the eCall will be really short in the majority of cases (5 or 6 seconds).

2.5.4 What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm?

-  

2.5.5 Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services?
At this moment there have not been any discussions regarding the retrofitting of older cars with eCall IVSs.

2.5.6 Other issues?

ICT industry / software production

2.6.1 Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Siemens etc.)?
We believe that the permanent implementation will benefit from this, but at this moment it is too from the point of view of the HeERO project, as most of the countries have started developing their own software for handling eCalls.

2.6.2 Do you see any challenges in location accuracy and maps?
Considering that at this moment the E112 service uses cell ID for the positioning of the incident, we believe that the presence of GPS coordinates will be a great improvement, regardless of the accuracy.

2.6.3 Other issues?

MNOs

2.7.1 Are there known problems in activating the MNOs for future eCall duties? e.g. in eCall Flag implementation?
At this moment there have been some discussions regarding the eCall flag implementation, but no operator has currently implemented the eCall flag. All the major operators usually have a parent company and they cannot take any decisions without consulting them at first.

2.7.2 Will the MNO duties be regulated by law?
The MNO duties probably will not be regulated by national law, unless this will happen at European level.

2.7.3 Who will finance the HeERO MNO tests?
If the eCall flag will be implemented for the pilot tests, the MNOs will support all the costs for the necessary updates.

2.7.4 Who will finance the permanent eCall implementations in MNOs?
It is too early to speculate who will finance the permanent eCall implementation of the MNOs. If the eCall flag will be regulated at European level, probably the MNOs will support the costs.

2.7.5 What are the main expectations of HeERO project/piloting for MNOs? What issues they see the most important that the pilot will bring up?

-  

2.7.6 Do you see any challenges with the use of SIM and USIM cards?
For the pilot we will use regular SIM cards, but for the permanent implementation this will not be feasible. Dedicated numbers will have to be assigned for the SIM cards at European level, because the full scale implementation of eCall will mean a huge amount of SIM cards, and the operators will not have enough numbers.

2.7.7 Do you see challenges in contracts between MNOs’ SIM/USIM releasing & IVS providers? The IVS providers or maybe even the vehicle manufacturers will be responsible for these contracts.

2.7.8 Do you see special issues/challenges in voice call / MSD integration? As long as the eCall flag will be implemented we see no problems regarding the MNOs, as they will handle the eCall as if they would handle any TS12 emergency call.

2.7.9 What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed for this? The MNOs will have to assign some resources for the necessary software updates for handling the eCall flag.

2.7.10 What are the main technical challenges in updating the MNO network systems for eCall implementation supranational? Need of roaming SIMs? We believe that all the SIM cards used for eCall will need to have roaming capabilities. This condition should also apply for the pilot tests, as we need to test the interoperability of the system, and cars from every country will have to travel to other countries to test their IVSs.

2.7.11 Should also the eCall SMS be included in service? Considering that no European standards mention the use of SMS, Romania will only test the in-band modem solution.

2.7.12 Other issues?

Value Added services / Services related to eCall

In Romania, at this moment, we have not discussed the implementation of value added services that will use the eCall platform.

2.8.1 Should eCall be a separate, stand-alone service? yes/no

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no

2.8.3 What are the conditions for this integration (if any)?

2.8.4 What are the main benefits of integrating eCall to other services?

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other unregulated services??

2.8.6 Other issues?

Any other comments, feel free!

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Sweden

Stakeholders / eCall domains

State authorities (ministries, regulatory authorities, departments)

2.1.1. Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)? Yes/No

2.1.1.a) If yes, attach a plan/sketch of a top-down subordination diagram (related authorities) or stakeholder list of eCall process in the country.

2.1.1.b) If not, what are the known most discussed issues (organisational or technical or other) hindering the official process?

eCall is not considered to be an public service and are expected to be solved by the market. In order to plan this we need a member state regulation

2.1.2. Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country?

No

2.1.3. Should the certification of eCall IVS be national / supranational?

2.1.4. Are there interested parties in your country to provide certification services for eCall?
The Swedish Motor Vehicle Inspection Company is by appointment of the Swedish government solely responsible for inspecting all vehicles registered in Sweden and would be the natural certification body on national level

2.1.5. Are there already plans for technical supervision of eCall IVS (connected to annual vehicle inspections etc.)? Yes/no

2.1.5.a) If yes, is there issues you want to rise about this supervision organisation?

2.1.6. Are the related authorities (road authorities etc.) informed and cooperative in eCall issues? Yes

Any other issues related to state organisation?

PSAPs

Organisational issues

2.2.1 Are there many PSAP –levels in the country (e.g. national level / local level / TPS-eCall service centres)? Yes/no; if yes, short description:

No, SOS Alarm handles 112 for the whole of Sweden.

2.2.2 Is there a plan for dedicating a certain PSAP centre (or a few PSAP centres) for centralist handling of eCall in the country/area (=eCall messages are sent to a certain PSAP)? If yes, why?

No, we plan to use all 18 call centres for eCall

2.2.3 Are there known or predicted problems in implementing eCall to PSAP system? What are those?

No problems. We use Ericsson’s CoordCom system and they are involved in the Swedish pilot.

2.2.4 Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?

We will use the same system as the pilot. But we need to buy a license for eCall in CoordCom.
Resources (both HR & Finance)

2.2.5 Will there be enough resources and experts (Human Resources) for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter?
Yes we have enough resources and we will operate this within the ordinary system.

2.2.6 Do you see any problems in risk evaluations or eCall message handling compared to normal emergency requests (incident handling done by PSAP operators compared to normal 112 call and eCall)? What?
If the in band transfers delays the 112 speech call there can be a small risk but the advantage of having a correct position is worth more.

2.2.7 Will there be any problems with financing the permanent eCall implementation into PSAP system?
We do not yet know how much the license from Ericsson will cost but probably not.

2.2.8 Are there enough resources and experts for procurement of needed hardware and software updating because of eCall for PSAP system? Or is there a need for cooperation with other countries in this matter?
No problems.

Operation and techniques

2.2.9 What are the main expectations of piloting?
2.2.9. a) Experience of successful functioning of eCall in PSAPs?
2.2.9. b) Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?
2.2.9. c) Demonstration and argument for needed resources and expertise for real life implementation in PSAPs?
2.2.9. d) Or other?
Experience the functions and get all stakeholders together, get knowledge about what is needed and missing for an implementation

2.2.10 What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs’ point-of-view?
I do not understand the question. As I see it, the eCall will be placed within the country that you currently visiting. So there will not be any “border crossings” of the eCall.

2.2.11 Are there technical challenges in voice call / MSD integration in PSAPs?
No

2.2.12 Are there technical challenges in supranational eCall mediating in PSAP point-of-view?
See 2.2.10

2.2.13 Other issues?

Standards and research

Standards and research
2.3.1 Are there experts from the country involved in standardisation work?
Yes, Jan Arfwidsson

2.3.2 What are your key messages for [future] standardisation work?
Let Pan-EU eCall and TPS eCall co-exist for quickest market introduction.

2.3.3 Is there active research work related to eCall in the country?
HeERO
2.3.4 What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services?

**Vehicle industry**

2.4.1 Is there a vehicle industry in the country? yes/no
2.4.2 Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs? Yes/no.

2.4.2 a) If there is, are there any problems risen to discussions related to eCall? No there is no risks to discuss eCall.

2.4.3 Are there competing commercial or private emergency or rescue services (bCall etc.) in the country? Volvo On Call supports bCall supported at all counties. Mostly Allianz - Global Assistance, (previously named Mondial Assistance but recently they went together with Allianz. In Sweden we use Falck as a subcontractor).

2.4.4 Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services? Yes! We at Volvo Car want to keep our Volvo On Call system and support eCall with a Third Party Solution setup.

2.4.5 Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry? Yes, coordination is required for EU towards ERA Glonass, to get a seamless eCall working at crossing the border into Russia or even Belarus and Ukraine.

2.4.6 What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)? E.g. eCall trigger functioning, vehicle aging, annual testing etc. The infrastructure settlement for a TPS is a large work. The requirements for eCall triggering are known since long time and are not very complex. In Russia they require a system that support a test activated by some button press. Should preferably be coordinated with PAN European eCall.

2.4.7 What issues should the certification include? What should be left to industry? Complete loop verification with MSD and acknowledgement by establishing a call setup with voice message to be verified to give acceptable quality.

2.4.8 How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges? Huge implications and a very difficult liability scenario.

2.4.9 Other issues?

**In-Vehicle Systems, device manufacturers, ICT industry / software production?**

2.5.1 Is there an eCall In-Vehicle System providers in the country? yes

2.5.2 Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.? The license fee for proprietary systems or aftermarket systems where more services then basic eCall is given. I-B-M will be supported for free according QUALCOMM but how will this be verified that our other services do not make use of I-B-M. There is a clear risk that QC will require fees because of that, which was not the intention from beginning.

2.5.3 Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm? Volvo use buttons located practically at hand and hardwired directly to the IVS.

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Volvo do not have any eCall system malfunctioning today more than some fault codes presented in the display stating that customer shall contact Volvo Service. Volvo has a possibility to cancel a manually triggered eCall, within 10 seconds. After that all cancellation must be handled by our call centre.

2.5.4 What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm? With I-B-M there exist problem and is basically the major one today. Except for that we do not see any problem.

2.5.5 Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services? Some OEM will use basic eCall in their vehicles. Some will use the eCall as a platform to get connected to all customers and offer a more wide spectra of added services.

2.5.6 Other issues?

ICT industry / software production

2.6.1 Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Siemens etc.)? If this is planned for (or already exists) it is important that it’s an equal terms for all to compete

2.6.2 Do you see any challenges in location accuracy and maps? We have not found any description of requirements of location accuracy more than “high” and “low” We welcome a more precise description and maybe how the accuracy shall be described in a map.

2.6.3 Other issues?
- There is no defined configuration management of standards and implementations of IVS, network adaptations and PSAP’s. In a couple of years there will be a large number of versions in use in the growing numbers of cars equipped with eCall. It must be defined how these versions will be managed and controlled to secure interoperability, and to make sure that any new version in backward compatible with existing old version still in use.
- There is no clear specification of how interaction between Third Party Solutions Providers (TSPS) and PSAP’s will work. Both low/technical level and high/operational level need to be agreed and approved.
- It needs to be investigated how often test eCalls will be triggered. For example, how often will Bilprovningen (the Swedish Motor Vehicle Inspection Company) trigger and send an eCall to certify that the function is working? There is a concern that test eCalls are only identified through MSD. Thus, a test eCall will for a short moment look identical to a real eCall, until MSD has been decoded, and if MSD is corrupt the eCall will not be identified at all as a test eCall.

MNOs

2.7.1 Are there known problems in activating the MNOs for future eCall duties? e.g. in eCall Flag implementation? No, it is a straight forward upgrade with a patch. But there will be maintenance in keeping the PSAP number list up to date.

2.7.2 Will the MNO duties be regulated by law? Parts might be regulated. 112 directives?? Are they part of the spectrum license? Then it is an "agreement"

2.7.3 Who will finance the HeERO MNO tests? For Telia-Sonera this is part of the tasks for Ericsson = 50 % EU - 50 % Ericsson
2.7.4 Who will finance the permanent eCall implementations in MNOs?
No one knows, probably the MNOs, depending on if this will be regulated by law.

2.7.5 What are the main expectations of HeERO project/piloting for MNOs? What issues they see the most important that the pilot will bring up?
The reliability of In Band modem in the end to end path. The modem is known to be sensitive to "In path equipment" and IP-lines, Verification that eCall flag work correct.

2.7.6 Do you see any challenges with the use of SIM and USIM cards?
No, not so far.

2.7.7 Do you see challenges in contracts between MNOs’ SIM/USIM releasing & IVS providers?
No the SIM will be released depending on contracts between MNOs and the car industry (not?) the IVS providers.
Not during the trial, in a commercial realization this will be part of a commercial agreement. Uncertain regulatory aspects might affect the setup.

2.7.8 Do you see special issues/challenges in voice call / MSD integration?
Yes, see GSMA EMP#82011-05-17 Washington DC presented by Karl Hellwig, Ericsson.
The main benefit for the MNO is that the in band modem is transparent and no additional implementation is required except the eCall flag and routing of calls.

2.7.9 What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed in this?
For the HeERO trial both Telenor and Telia networks are upgraded nationwide. But there are several other operators not involved at this stage.
Current implementation is straightforward. Telenor has enabled this functionality nationwide. It uses traditional voice calls and no additional infrastructure is needed.

2.7.10 What are the main technical challenges in updating the MNO network systems for eCall implementation supranational? Need of roaming SIMs?
This is handled in the normal E112 regulation between MNOs.

2.7.11 Should also the eCall SMS be included in service?
Yes. Side by side (but outside the project) eSMS will be tested in the Telia network and the results compared with In Band modem.
eCall is more complex for the mobile operator to implement and maintain. IP infrastructure between MNO and PSAP needs to be established and passing traffic through firewalls will increase the risk of functionality problems.

2.7.12 Other issues?

Value Added services / Services related to eCall

2.8.1 Should eCall be a separate, stand-alone service? yes/no

2.8.1a) If yes, what are the main benefits for separate eCall?
Other services should not be named e-call, e-call is by definition only e-call.

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no
Could be connected technically.

2.8.3 What are the conditions for this integration (if any)?
Se above.
2.8.4 What are the main benefits of integrating eCall to other services?

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other unregulated services??

2.8.6 Other issues?

Any other comments, feel free!
WP6 D6.1 Questionnaire

NavCert

Stakeholders / eCall domains

State authorities (ministries, regulatory authorities, departments)

2.1.1. Is there a plan (or possibly already approved) top-down “marching order” / subordination for eCall implementation in the country (e.g. planned regulation, supervision, authority roles, implementation procedures etc.)? Yes/No

2.1.1.a) If yes, attach a plan/sketch of a top-down subordination diagram (related authorities) or stakeholder list of eCall process in the country.

2.1.1.b) If not, what are the known most discussed issues (organisational or technical or other) hindering the official process?

2.1.2. Is there a plan for organising the national activities in international eCall processes including the VIN data delivery from country to country?

2.1.3. Should the certification of eCall IVS be national / supranational? The certification of the eCall IVS shall be based on a common standard for all Member States to ensure the same quality of this safety critical system and even more important assure the compatibility in all Member States.

2.1.4. Are there interested parties in your country to provide certification services for eCall? Yes, NavCert, respectively TÜV SÜD can provide these services.

2.1.5. Are there already plans for technical supervision of eCall IVS (connected to annual vehicle inspections etc.)? Yes/no Yes, within the EeIP a task force is dealing with all requirements of PTI (periodical technical inspection). NavCert is leading this task force on behalf of TÜV SÜD, one of the leading inspection organizations for the annual vehicle inspection.

2.1.5.a) If yes, is there issues you want to rise about this supervision organisation? No, not right now.

2.1.6. Are the related authorities (road authorities etc.) informed and cooperative in eCall issues?

Any other issues related to state organisation?

PSAPs

Organisational issues

2.2.1 Are there many PSAP –levels in the country (e.g. national level / local level / TPS-eCall service centres)? Yes/no; if yes, short description:

2.2.2 Is there a plan for dedicating a certain PSAP centre (or a few PSAP centres) for centralist handling of eCall in the country/area (=eCall messages are sent to a certain PSAP)? If yes, why?

2.2.3 Are there known or predicted problems in implementing eCall to PSAP system? What are those?

2.2.4 Are the permanent eCall service procurements (dedicated eCall related updates for PSAP hardware and software) done later as a separate acquisition? Or will the pilot start the procurement process in PSAPs?

Resources (both HR & Finance)

2.2.5 Will there be enough resources and experts (Human Resources) for operating and maintenance of eCall functions in PSAPs? Or is there a need for cooperation with other countries in this matter?
2.2.6 Do you see any problems in risk evaluations or eCall message handling compared to normal emergency requests (incident handling done by PSAP operators compared to normal 112 call and eCall)? What?

2.2.7 Will there be any problems with financing the permanent eCall implementation into PSAP system?

2.2.8 Are there enough resources and experts for procurement of needed hardware and software updating because of eCall for PSAP system? Or is there a need for cooperation with other countries in this matter?

Operation and techniques
2.2.9 What are the main expectations of piloting?
2.2.9. a) Experience of successful functioning of eCall in PSAPs?
2.2.9. b) Convincing the regulators and top-level decision makers that eCall will be life-saving well-functioning service?
2.2.9. c) Demonstration and argument for needed resources and expertise for real life implementation in PSAPs?
2.2.9. d) Or other? Validation of all technical and organizational aspects for eCall to assure alter on interoperability and compatibility together with a high acceptance during implementation as mayor hurdles resulting from implementation have been identified and resolved in the pilot. Identification of the best solution for the implementation of such a system.

2.2.10 What are the main challenges in supranational eCall sending (from country-to-country) in PSAPs' point-of-view? Support of different languages and identifying the proper language.

2.2.11 Are there technical challenges in voice call / MSD integration in PSAPs?

2.2.12 Are there technical challenges in supranational eCall mediating in PSAP point-of-view?

2.2.13 Other issues?

Standards and research
2.3.1 Are there experts from the country involved in standardisation work? Yes, there are several experts from different stakeholders involved in these processes.

2.3.2 What are your key messages for [future] standardisation work? Standardization of safety related topics should be done faster.

2.3.3 Is there active research work related to eCall in the country? Yes

2.3.4 What are the key research areas that should be further activated related to eCall (in technical performance / in organisational issues / in impacts and impressiveness) especially for permanent eCall services? Availability of GNSS signals for position accuracy and availability of mobile networks for communication purposes at critical locations.

2.3.13 Other issues?

Vehicle industry
2.4.1 Is there vehicle industry in the country? yes/no Yes, i.e. Audi, BMW, Daimler, Volkswagen...
2.4.2 Is there eCall related cooperation between the vehicle industry and national traffic safety authorities and PSAPs? Yes/no.
2.4.2 a) If there is, are there any problems risen to discussions related to eCall?

2.4.3 Are there competing commercial or private emergency or rescue services (bCall etc.) in the country? Yes, i.e. different insurance companies.

2.4.4 Are there discussions or plans for vehicle industry driven common in-vehicle platforms, which include several services and 112-eCall or private emergency services?

2.4.5 Should there be more coordinated supranational or EU-wide cooperation between eCall activities and vehicle industry? There should be a more EU-wide cooperation.

2.4.6 What technological challenges are the most difficult ones connected to eCall system in cars (or other vehicles)? E.g. eCall trigger functioning, vehicle aging, annual testing etc. To get a stable communication link to the PSAPs in any case. IVS is part of a vehicle but depending on the outside world opposed to all other (safety critical) components in a vehicle. Due to the aging of a frozen IVS compared to the continuous change in the outside world (mobile network, PSAP), the on-going interworking of the whole chain has to be continuously monitored.

2.4.7 What issues should the certification include? What should be left to industry? The certification must show the compatibility of the system components to the applicable standards and the interoperability for all Member States and all PSAPs. This includes ALL issues mentioned within the standards.

2.4.8 How do you see the retrofitted eCall triggering devices for older cars? What are the main challenges? For retrofit an additional challenge is the proper installation and integration into the vehicle which has to be validated on a per vehicle base.

2.4.9 Other issues?

In-Vehicle Systems, device manufacturers, ICT industry / software production?

2.5.1 Is there an eCall In-Vehicle System providers in the country? yes/no Yes

2.5.2 Are there special issues and problems raised to discussions related to eCall among IVS providers? Do you see any challenges in eCall IVS? E.g. in standardisation of software and systems, in Qualcomm modem etc.? First tests in real life have shown several challenges concerning the correct implementation of the QUALCOMM modem and the connection via the mobile network. A big problem in standardization is, that currently several different versions of standards are existing which are not compatible with each other. As many IVS providers already started their development, many different IVS-version are existing, which causes several problems. Interoperability and compatibility are threatened by wrong interpretations and implementations of the standards. Today no reference implementation neither IVS nor PSAP exist.

2.5.3 Do you see any challenges in HMI related issues: airbag trigger / manual trigger / driver alert of eCall system malfunctioning / driver cancellation of false alarm? Buttons and displays are clearly defined and there will be nearly “the same” look and feel in different cars. The manual alarm to trigger a test call has to be standardized to allow in the PTI the proper handling by the inspector.

2.5.4 What are the main problems between IVS – MNO? Two-way communicating? MSD sending/cancelling if false alarm?

2.5.5 Are there discussions or plans for retrofitted common in-vehicle platforms, which include several services, 112-eCall or private emergency services?

2.5.6 Other issues?

ICT industry / software production
2.6.1 Should there be more coordinated supranational or EU-wide cooperation between national eCall activities and international ICT or service companies, which offer PSAP systems (like Siemens etc.)?

2.6.2 Do you see any challenges in location accuracy and maps? Yes, if maps are too old and/or the location is not covered by GNSS (right now mainly GPS) in a sufficient manner, there might be a problem.

2.6.3 Other issues?

MNOs

2.7.1 Are there known problems in activating the MNOs for future eCall duties? e.g. in eCall Flag implementation?

2.7.2 Will the MNO duties be regulated by law?

2.7.3 Who will finance the HeERO MNO tests?

2.7.4 Who will finance the permanent eCall implementations in MNOs?

2.7.5 What are the main expectations of HeERO project/piloting for MNOs? What issues they see the most important that the pilot will bring up?

2.7.6 Do you see any challenges with the use of SIM and USIM cards? Challenge is to identify which test number shall be dialled to set up a call to a test centre and how to change this number.

2.7.7 Do you see challenges in contracts between MNOs’ SIM/USIM releasing & IVS providers?

2.7.8 Do you see special issues/challenges in voice call / MSD integration?

2.7.9 What are the main technical challenges in updating the MNO network systems for eCall implementation nationally? Are there new resources needed In this?

2.7.10 What are the main technical challenges in updating the MNO network systems for eCall implementation supranational? Need of roaming SIMs?

2. Should also the eCall SMS be included in service?

2.7.12 Other issues?

Value Added services / Services related to eCall

2.8.1 Should eCall be a separate, stand-alone service? yes/no

2.8.1a) If yes, what are the main benefits for separate eCall?

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no

2.8.3 What are the conditions for this integration (if any)?

2.8.4 What are the main benefits of integrating eCall to other services?

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other unregulated services??

2.8.6 Other issues?
ADAC

PSAPs

2.2.13 Other issues?
There is the issue of possible false alarms from eCall equipped vehicles. This issue was reported to us from the involved German HeERO PSAPs. PSAPs already today regularly suffer from automatically triggered false alarms, e.g. from fire detection systems.
In our opinion, the issue of false alarms needs to be examined in HeERO and it needs to be clarified, who pays for costs arising from false alarms.

Value Added services / Additional services / Services related to eCall

2.8.1 Should eCall be a separate, stand-alone service? yes/no
No, not necessarily. In basic version, eCall will be implemented as a stand-alone service function in the vehicle. The question, whether eCall service will be complemented with other additional services, is basically in the responsibility and decision of every individual vehicle manufacturer.

2.8.1a) If yes, what are the main benefits for separate eCall?

2.8.2 Or should eCall be connected to other in-vehicle services? yes/no
Basically, this is a strategic decision every individual vehicle manufacturer has to do. From commercial point of view, it would make sense to use the eCall in-vehicle system for additional services. Examples: Breakdown service, real-time traffic information, stolen-vehicle tracking.

2.8.3 What are the conditions for this integration (if any)?
1. The availability and reliability of the in-vehicle eCall service function needs to be ensured at any time and must not be affected by additional service offerings or their usage.
2. If eCall in-vehicle systems are used for offering additional (value added) services, the systems need to be accessible (respectively open) for independent service providers, not just limited to OEM-related service providers. If the in-vehicle system is accessible/open for independent service providers, there is broader choice for consumers. If consumers can choose their service provider of preference, this will drive competition and innovation and hence will stimulate the overall telematics market significantly.

To enable this, open platforms with standardized interfaces for voice and data communication are required.

Note: The EeIP Task Force “OPEN” has dealt with the subject of using the in-vehicle eCall platform for other services and how additional services could contribute to an overall positive business case. For more information, please refer to the Final Report (v1.0) of the Task Force OPEN.

2.8.4 What are the main benefits of integrating eCall to other services?
If there is an open platform/system in the vehicle, eCall can be seen as one service among a variety of services. However, the 112 eCall service is mandatory and must not be deleted or de-installed from the drop-down menu and kept available at any time.

2.8.5 What kind of services could be connected to eCall? E.g. to other regulated services like road-tolling or to traffic insurances, delivery of dangerous goods etc.? Or also to infotainment and other unregulated services??
There are 2 categories, private additional services, which can be free of charge or paid, and additional public services/benefits that are rather free of charge.
Private additional services are usually offered by commercial service providers, automobile clubs, insurers etc. Examples: breakdown service, real-time traffic information, stolen vehicle tracking, pay-as-you-drive car insurance schemes, remote diagnostics service.
Public additional services or benefits can be offered by public authorities or others. Examples: Dangerous goods information, rescue sheet data (vehicle-specific information for rescue services how to open cars safely and properly after crashes)

What about user awareness and user acceptance?
Should we consider them in our work?