

## HeERO2 Year 2 - Publishable summary

### Project context and objectives

- a) the technology is mature and the European Standardisation Organisations have published the standards necessary to ensure a reliable and interoperable operation of the eCall service across Europe based on 112;
- b) all major eCall stakeholders have joined forces in the European eCall Implementation Platform to ensure a harmonised deployment of the service in Europe;
- c) nine member states have adapted their PSAP infrastructure in HeERO1;

it is the right time to continue with a second phase with the pre-deployment of the service utilizing Mobile Network and PSAP infrastructures of additional member state pilot sites.

The HeERO2 project will prepare, carry-out and coordinate eCall pre-deployment pilots at European level taking into account the approved standards.

#### Objective

The overall project objective is to prepare for the deployment of the *necessary infrastructure* in Europe with the aim of making the Pan-European in-vehicle emergency call service eCall a reality.

The implementation of the in-vehicle emergency call service eCall at European level should take into account two major conditions on which its successful operations will depend:

1. **Interoperability and cross border continuity:** the possibility for any vehicle from any European country travelling across Europe to use the eCall service in case of a serious collision should be a service key driver. The interoperability issue covers not only the technical solution but also operations aspect.
2. **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.

To address the interoperability and harmonisation dimensions of the eCall implementation, the following high level objectives have been identified for the European pre-deployment pilots:

OBJ 1 To extend HeERO to new Member States or associated countries to demonstrate the scalability of the HeERO solution and to widen the acceptance of eCall

### **Supporting aims**

Aim 1 To prepare the necessary infrastructure to realise pan-European eCall

Aim 2 To boost Member States investment in the PSAP infrastructure and interoperability of the service

Aim 3 A wider adoption across more Member States to test the proposed solution

### **Work performed since the beginning of the project**

The second year of HeERO2 year has been pivotal to the eCall initiative, leading 6 eCall pilot sites to the conclusion of their activities. One of the benefits to be obtained from this project was to explore the concerted effort between HeERO1 and HeERO2.

Throughout the two years of the project, the HeERO2 pilot sites (Belgium, Bulgaria, Denmark, Luxembourg, Spain and Turkey) have successfully implemented the eCall service architecture at the pilot sites location, have carried out two phases of pilot testing and have performed thorough analysis and evaluation of the piloting results.

All administrative tasks related to the start of the project have been finalised, and the payment schedule approved.

Beside the general management of the project, a wide range of communication activities have been carried-out, both at national levels and at European, and global level. This culminated into the organisation of two HeERO International Conferences, held in November 2013 in Bucharest (Romania) and in November 2014 in Madrid (Spain). Both events attracted an audience of more than 250 delegates from more than 30 countries worldwide.

### **Main results achieved so far**

#### ***Implementation of the pilots in the Member States***

The HeERO team finished the implementation in their PSAP. Also the installation of IVS in the test fleets has been completed and tests have been carried out during 2014. During the second year, the efforts have been mainly dedicated to the preparation of the second round for the implementation status questionnaire. For the second round of testing, the existing problems have been almost completely solved.

### State of the art analysis of the operational and functional requirements

This analysis issued the Hardware (HW) and Software (SW) set-ups required at the different HeERO2 pilot sites and gathered the initial background information for the definition of steps leading towards the eCall standards implementation. On this basis, the In Vehicle System, 112/E112 and PSAP needed upgrades have been defined.

### eCall systems functionalities' specifications

Following the work and functional specifications already defined from HeERO1, the HeERO2 Pilot Sites have completed the definition of the functional specifications, and the requisite deliverable submitted to the European Commission.

### Hardware and software implementation plan

All HeERO pilot countries have defined their implementation plan following the HeERO1 structure.

### System test cases

The system test cases again have been drawn from the experience in HeERO1. This experience has permitted a shorter timescale for the HeERO2 project, using proven test cases matched to the necessary pilot sites, according to the need.

### Operators' training

The final version of the operators training manual was delivered in July 2014. It included country specific training information (in national languages), which are attached to the deliverable as annexes. Locally, the PSAP operators were trained during local workshops.

## **Status of the Pilots implementation after HeERO2 Year 2**

### Belgium

**PSAP:** Implementation completed and interoperability tests with Touring done.

#### **Link to EUCARIS network:**

Connection of the Test-PSAP to the DIV-system (Belgian system connected to EUCARIS) is requested and approved.

#### **Link to Traffic Management**

**Centre:** Link is already available as the Federal Police is both present in the PSAP as in the Traffic Management Centre.

**Mobile network:** The SW-release CS9.2 rolled out in North East quarter of Belgium (1 MNO only).

**IVS:** 6 IVS delivered by NXP / S1NN. 6 delivered by Geneva Micro Systems. IVS not driving around due to GPS-issue in Genie.

### Bulgaria

**PSAP:** During Q8 of the project the 2<sup>nd</sup> realisation stage of the Bulgarian pilot was used as a base for operational tests and demonstrations:

Mtel implemented eCall flag at the beginning of 2014 and the IVSs call to 112 directly;

eCall test environment – PSAP application integration was available and it was improved in accordance with the operational test results;

The received data from local VIN data base was visualized on the operators' screen during the demonstration.

The system verification tests were completed. "Technical specifications for PSAP upgrade" activities are ongoing till the end of the project.

#### **Link to EUCARIS network:**

The target is Bulgarian pilot to be connected to EUCARIS respectively to National Vehicle Register managed by Traffic Police, Mol.

Connection to EUCARIS is planned via the already existing EUCARIS connection that is used for the exchange of information based on the Prüm Council Decisions and in the very near future the CBE Directive.

Technical specification for EUCARIS/eCall is provided by EUCARIS Secretariat and available to the expert working group. Web services according this specification for the access to national VIN database-Traffic Police National Vehicle Register (TPNVR)/ EUCARIS were developed. Currently all tests are performed using a connection and access to test TPNVR data base.

Mol started the formal procedure to get an access to National Vehicle Register and initiate correspondence with EUCARIS to start a procedure National Vehicle Register Data Base to be joined to EUCARIS/eCall platform and get access of eCall service to the platform

### **Link to Traffic Management**

**Centre:** There are not TMCs in Bulgaria yet.

**Mobile network:** The basic requirements to the communication between MNO and PSAP have been developed.

The workaround connection between MNO (Mtel) and PSAP (NCOM) is deactivated next quarter.

**IVS:** TUS in-vehicle system implementation status

#### Denmark

**PSAP:** Test PSAP ready – go live implementation commenced.

*Status at rest of PSAP:*

Since April 2013, there has been an issue with the vendor for the rest of the PSAP (which are operated by another authority than the first). In August 2013 the issue was expected to have been resolved, but new problems kept arising.

Therefore the second PSAP authority left HeERO2. They will implement eCall in their PSAP, expecting to be ready early summer 2015.

The ambition to make all three PSAPs ready before second phase of pilot-testing was abandoned.

**Link to EUCARIS network:** No EUCARIS-link is envisaged Denmark has excluded itself from EUCARIS

### **Link to Traffic Management**

**Centre:** No changes to the link to Traffic

Management Centre envisaged at this point in time.

**Mobile network:** No MNO involvement planned in the Danish pilot project. For the pilot-test, only “long numbers” were used.

**IVS:** The objective is to use retrofit IVS-systems with dormant SIM-cards in 10-20 vehicles. The number of involved IVS-vendors have been reduced to two. In first phase of pilot-testing, only IVS from one vendor were ready. In second phase of pilot-testing, both IVS vendors unit were used.

#### Spain:

**PSAP:** The intermediate PSAP is the solution used by DGT call takers in order to decide if a call is a real emergency (and transfer it to 112 PSAP) or not.

PSAP Solution provided by Telefónica (Séneca System): Physical hardware and software installation and configuration of Seneca System in DGT site. **Done.**

Software development. Some developments have been carried out to improve Séneca functionality in order to properly manage the eCall: and show the MSD information, functional modifications in call management process, ability to redirect the eCall (voice and data) to the appropriate regional 112 PSAP, following a specific protocol being defined within the project framework, etc. **Done**

Software development and deployment at involved regional 112 PSAP that allows

112 PSAP to receive and manage properly eCall rerouted from intermediate PSAP at DGT. **Done**

PSAP Solution provided by Ericsson (Coordcom System):

Physical hardware installation and configuration of Coordcom System in DGT site. **Done**

Coordcom SW solution is already used in Sweden and Croatia as PSAP, eCall modules is already integrated in the solution no further developments needed. **Done**

CoordCom to DGT Planificador integration needs of adaptor SW to translate formats. **Done**

**Link to EUCARIS network:** DGT decided not to implement a link to EUCARIS network. Instead, DGT ATEX information (own vehicle database) will be consulted for the purpose.

**Link to Traffic Management Centre:**

**Mobile network:** Telefónica network actually supports the 112 emergency calls (both from national and international roamers) and the routing of 112 emergency calls from the caller to the geographical PSAP that must respond to the call.

However, there is no support currently for eCall in the network because the actual hardware and software network

infrastructure need some modifications to work properly and to reroute the eCall to the intermediate PSAP.

These modifications cannot be made within the actual project and, therefore, eCall pilot cannot use the 112 number to test the behaviour of the entire solution. That means that eCall flag is not going to be tested in this first stage of the Spanish pilot.

In order to solve this situation, a workaround has been developed: a common number is used by IVS to send an eCall, and this eCall is routed directly to the intermediate PSAP, where MSD demodulation and eCall management is performed.

**IVS:** Three different IVS are used in the Spanish pilot provided by CTAG, FICOSA and GMV, respectively and another for the P2W (CEIT and NZI). Completion of HW implementation and the modifications of SW necessary to incorporate the different required eCall functionalities as well as to incorporate the different standards for the equipment to be compliant with applicable eCall European standards occurred during Q3 in addition to unitary and laboratory tests of IVS, as well as preliminary tests with DGT intermediate PSAP.

Q4 permitted to carry out the execution of first pilot activities which led to the necessary adjustments in the IVS software as a result of the assessment of the data

registered during first phases of pilot campaigns and in order to fine-tune the IVS for the KPI measurement which will take place during the second phase of the pilot execution in 2014.

No significant activities are to be referred in Q5 and Q6, as the IVS-related activities were already considered as completed in Q4.

In particular:

CTAG IVS: The testing of IVS was performed in 4 vehicles equipped with CTAG IVS taking into account different scenarios as specified in test plan.

The performance results of the IVS were satisfactory in the first stage in terms of call establishment and MSD transmission as well as receiving call backs.

The second stage was carried out fulfilling the objective number of eCall's according the test plan, including the scenarios defined.

From the point of view of evaluation, early results were obtained as well as first KPI calculations. Those were included in D4.2.

GMV's IVS: 4 IVS were installed on the testing vehicles (having one additional IVS for back-up purposes) and tested during a first phase of pilot execution. During this process, fine-tuning of software in the equipment and in the solution developed for data logging was carried out in order to prepare the device for the correct

measurement of the defined KPIs during second phase of pilot execution in 2014.

FICOSA IVS: FICOSA IVS units were installed on 4 testing vehicles provided by DGT, including HMI and connection and data loggers, several tests were carried out in order to evaluate requirements accomplishment, with special focus on KPIs raw data collection and MSD exchange protocol. In addition some fixes were applied to the software as a feedback coming from eCall Testfest - September 2013.

P2Ws IVS: The P2W eCall device has two parts: on-board module (developed by CEIT) and helmet's module (developed by NZI). 4 systems are ready for being tested for the communication with the PSAP and additional 4 systems will be installed in the races motorcycle for testing accident detection module. The integration in the motorcycle is simple, because the testing systems have their own power supply, in order to be easily integrated in the P2Ws.

#### Luxembourg

**PSAP**: Status: eCall Router and SIM cards for IVS installed.

**Link to EUCARIS network**: no link established yet

**Link to Traffic Management Centre**: N/A

**Mobile network**: eCall Bit routing: to be installed by Q2 2015.

**IVS:** IVS of FICOSA, NXP and Fujitsu Ten have been successfully tested in the Luxembourg network.

IVS Status: Fujitsu Ten IVS and FICOSA IVS installed and tested, NXP tests cancelled

### Turkey

**PSAP:** In Turkey, each city has its own PSAP. eCall system is implemented only in Antalya's PSAP. All cars with IVS is able to make an eCall in Antalya region. For the other cities, eCall is planned to be diverged to Antalya's eCall system in future.

#### **Link to EUCARIS network:**

Turkey is not a member of EUCARIS, so this function was not implemented

#### **Link to Traffic Management**

**Centre:** No link is implemented.

**Mobile network:** eCall flag was implemented in Antalya (Only for MNO Turkcell). A car with IVS device travelling all around the Antalya City can trigger eCall.

**IVS:** 3 type of IVS devices were used in the project. Tofaş's Magneti Marelli device was to collect operation data. Civitronics' IVS device was used for interoperability tests. Other one was used for implementation and verification purposes.



## **Operation**

### **Status of pilot operation after HeERO2 year 2**

The second year of HeERO2 project was dedicated to the second phase of testing.

#### Pilot operation preparation report

The operation plans are prepared in the Members States and are under consolidation at project level.

#### Interoperability testing

During year 2, several interoperability testing have been carried out

**Belgium:** Interoperability test took place with Bulgaria.

**Bulgaria:** PSAP interoperability tests were completed during the eCall#3 Testfest - Vigo, Spain in October 2014, and with Belgium.

**Denmark:** N/A

**Luxembourg:** No activities in the reporting period.

**Spain:** N/A

**Turkey:** Interoperability tests are completed. 10 test eCall were made from Romania and received in Aselsan's eCall testbed in Ankara. In all of the calls, the MSD data is received and displayed correctly on the operator screen; also voice communication is established between the caller and the eCall operator.

#### Status of pilot operation after HeERO2 year 2

**Belgium:** A steering group has been installed at the side of the public authorities. In the steering group, following departments of the public services are involved:

-The Federal Ministries of Mobility, Interior (covering public security as well as private security) and Public Health;

-The regional Ministries of Transport (Brussels/Flemish/Walloon Regions) – to be confirmed;

-The Federal Police;

-The Ministry of Telecommunication (the Belgian telco regulator).

**Bulgaria:** Bulgarian pilot is divided in two stages – before and after eCall Flag implementation, eCall test environment – PSAP application integration and connection to EUCARIS or local VIN database. Preliminary operational results are going to be based on the 1-st stage, and final – on the 2-nd stage.

**Denmark:** Operation planned and actions have started.

**Spain:** During Phase 2 all tests performed were carried out over the complete eCall chain (IVS-intermediate PSAP-112). This phase took place from September to November 2014. The set of data collected during Phase 2 was used for the final analyses and generation of final conclusions of the project. For these tests, a common protocol for answering the eCall at PSAP level (DGT and regional 112) was agreed in order to obtain coherent results in all test regions. In November, the event eCall Testfest #3 (Vigo), allowed both IVS and PSAP involved in the Spanish pilot to perform interoperability tests against several international PSAP and IVS vendors.

Since the system performance was tested and improved during Phase 1, Phase 2 allowed launching a high number of eCall in order to have a representative number of manual and automatic tests in the defined scenarios. The total number of eCall was 276 in Madrid/Castilla y León, 420 in Galicia/Castilla y León and 88 in Valencia. Additionally around 108 interoperability tests during eCall#3 Testfest were carried out.

#### Data collection and consolidation

During the years 2, WP3 and WP4 worked together to ensure a smooth transition of the data from the operations site to the WP4 for analysis.

#### **Methodology and Evaluation Plan**

At the start of the year 2, the task WP4.1 was finalised and the deliverable submitted in May 2014. Then, the WP4 became active again to start the analysis of the results of the phase 1

Compared with Phase 1, tests in Phase 2 were performed with only minor technical issues, mainly at PSAP operational level. Regarding data logging, the issues related with synchronization of time stamps between the different elements of the eCall chain were successfully solved, so these results allowed the calculation of time related KPIs.

During Q8, the analysis of final data from the tests was performed and included in the deliverable D4.2/D4.3. This deliverable was completed with final KPIs and overall conclusions for the Spanish pilot.

Regarding P2W tests, during Q8 160 calls were completed in order to check the communication with the PSAP installed in Madrid by Telefonica. The results obtained have been analysed and included also in D4.2/D4.3.

**Luxembourg:** use of long number as eCall flag is not implemented yet. The eCall flag was implemented but problems were identified so the usage was limited.

**Turkey:** Operational tests were completed.

of the tests. This analysis and evaluation task was performed, and at the end of the year 2, the evaluations finished.

Key performance indicators (KPI), test specification and methodology

During the year 2, the KPI's indicators developed during HeERO1 were reviewed, revised and extended with respect to Large Goods vehicles and Powered 2 Wheelers. This task has been carried out and finalised during the year 2 with the evaluation performed according to the agreed specification and methodology (Deliverable 4.1). The definition of all KPIs in detail is also documented in this deliverable.

Processing of test results

The input of the member states was collected and consolidated in deliverable 4.3. The consolidated evaluation is based on results of the pilot sites (Belgium, Bulgaria, Denmark, Luxemburg, Spain and Turkey). Each pilot site provided statistical evaluations of the measured KPIs with derived recommendations and conclusions. During year 2, deliverable 4.3 was revised and submitted at the end of year 2.

**Dissemination**

Efforts have been spent on dissemination during the second year of the project. The 3<sup>rd</sup> International Conference was held in Madrid (ES) on 27-28 November 2014 and was attended by more than 250 delegates from emergency services, industry, mobile network operators, standardisation bodies etc. from over 30 countries in Europe, North America, Asia, Africa and Australia. HeERO2 have been provided a status and achievement of each pilot sites, proposal of recommendations, and report on interoperability tests. Demos and interoperability tests were held on 28 November 2014. The event was organised by the HeERO2 consortium (Spanish partners, ERTICO, EENA).

In order to reach a wide audience, the HeERO1 & 2 project used the same website which is available in 15 different languages (Bulgarian, Croatian, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Italian, Romanian, Spanish, Swedish, Turkish). The main sections (About eCall, About HeERO) have been translated thanks to consortium partners.

Many targeted and technical dissemination activities have been carried out, at international and national levels, in order to get the support of more stakeholders for the deployment of eCall. The dissemination deliverables have also been updated.

Main project level dissemination activities

Partner	Date	Name and place of the event	Contribution and results
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<b>ERTICO+ others</b>	1 <sup>st</sup> April 2014	British APCO, Manchester, UK	Presentation of eCall
<b>ERTICO, EENA</b>	2 <sup>nd</sup> April 2014	EU emergency services Workshop 2014, Warsaw, PL	Presentaiton of eCall and HeERO stand
<b>ERTICO</b>	8 <sup>th</sup> April	Telematics update(content &Apps for automotive in Europe 2014) , Munich, DE	Presentation of eCall
<b>ERTICO+ others</b>	29 <sup>th</sup> April 2014	iMobility Forum Plenary meeting, Brussels, BE	Presentation of eCall and HeERO stand
<b>ERTICO+others</b>	17-20 June 2014	ITS European Congress, Helsinki, FI	Special session
<b>ERTICO+others</b>	24 <sup>th</sup> June 2014	Chinese Delegation, Brussels, BE	Presentation of HeERO
<b>ERTICO</b>	26 <sup>th</sup> June 2014	Turkish pilot site visit, Antalya, TR	Presentation of eCall
<b>ERTICO</b>	24 <sup>th</sup> July 2014	Luxembourgish pilot site visit, LU	Presentation of eCall
<b>ERTICO</b>	21 <sup>st</sup> August 2014	Danish pilot site visit, Copenhagen, DK	Presentation of eCall
<b>ERTICO</b>	2 <sup>nd</sup> September 2014	Belgian pilot site visit, Brussels, BE	Presentation of eCall
<b>ERTICO+others</b>	3 <sup>rd</sup> September 2014	PSAP workshop, Brussels, BE	PSAP deployment issues - Interoperability and TPS
<b>ERTICO+others</b>	8-11 September 2014	ITS World Congress, Detroit, US	Special Interest session
<b>ERTICO+others</b>	16 <sup>th</sup> September 2014	eCall day in Berlin, DE	Presentation of eCall and HeERO stand
<b>ERTICO</b>	2 <sup>nd</sup> October 2014	Spanish pilot site visit, Madrid, ES	Presentation of eCall
<b>ERTICO</b>	17 <sup>th</sup> October 2014	Bulgarian pilot site visit, BG	Presentation of eCall
<b>ERTICO</b>	21 <sup>st</sup> October 2014	eCall day in Bulgaria, BG	Presentation of eCall
<b>ERTICO</b>	20 <sup>th</sup> November 2014	ETSI in case of Emergency summit, Nice, FR	Presentation of eCall based on 112
<b>ALL</b>	26 <sup>th</sup> November 2014	HeERO2 Steering Committee meeting, Madrid, ES	Payment year 1 issue agreement
<b>ALL</b>	26 <sup>th</sup> November 2014	HeERO2 General Assembly 2014, Madrid, ES	Presentation of HeERO2, short statement from all Pilot sites and Work packages leaders.
<b>ALL</b>	27 <sup>th</sup> November 2014	HeERO International Conference, Madrid, ES	HeERO2 outcome from Pilot site leader and Recommendations.

### ***Identification of deployment barriers and enablers***

D6.2 Deployment enablers and opportunities and challenges: Final Report is an update of the D6.1 Barriers and Enablers Preliminary Report that has been prepared during the first six months of the HeERO2 project. The content of the Deliverable is based on phone interviews carried out by ICOOR, during the months of March 2014 and September 2014 with the aim to detect the new challenges and enablers and opportunities identified during the execution of the pilots.

### ***Standardisation Task Force / Assessing certification procedures in eCall deployment***

#### **Standardisation Task Force**

The work of the standardisation Task Force started in HeERO1 and is continuing with HeERO2 in WP6, specialist assistance from CEN to formulate the required changes and place them before CEN. A third Test fest was organised in 2014. This work is reported in the HeERO2 progress report as well as in the HeERO2 D6.3 Deliverable.

### ***Preparing guidelines for eCall deployment in Europe***

Based on the experience gained in HeERO1 in the different tasks WP2, WP3 and WP4, and on the results obtained in HeERO2, the deliverable D6.5 is an update and an integration of the contents reported in Deliverable D6.4 Guidelines for eCall deployment in Europe of HeERO1. Specifically, sections and tables of the document will be reported with new information obtained thanks to the work carried out by HeERO2 participants.

### ***Expected final results and potential impacts***

The WP6, deliverable D6.6 provided recommendations for the implementation and operation of eCall based on the challenges and enablers identified in D6.2 and D6.5 of HeERO2 and based on the challenges and enablers identified in HeERO1. In addition, the recommendations are supported with an analysis of the challenges for implementation and operation of eCall.

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