

ACEA Position

eCall Business Case Automotive Manufacturers Position Version 14.03.06

For automobile manufacturers eCall will not generally create a positive business case. The same is probably valid for other stakeholders like insurers as well.

The automotive industry is currently investigating two possible solutions for eCall

- (1) Integrated solution (fully embedded)
- (2) Mobile phone based solution (smart interface)

and has communicated minimum specifications to different stakeholders of the eCall value chain for comments (version 0.10). The two solutions offer different benefits and have different implications for the eCall business case. Therefore, they will be discussed and investigated with regard to its profit potential separately in this paper.

1. Integrated systems (factory fitted)

1.1 Base system approach

1.1.1 The cost side

Independent from necessary further R&D efforts and its related costs the onboard unit itself with satellite positioning (GPS/Galileo module), communication unit (GSM), and other features (memory, etc.) plus vehicle integration will probably cost more than €100-150 cost price.

In case a SIM card is needed for the base unit, additional cost for the card plus lifetime management will probably increase the cost price for the manufacturers to €150-200¹. Some suppliers argue that they have products under development, which would lead to lower costs, but details are not published and the issues of integration and lifetime SIM remain an open question.

In case all 230 million vehicles in Europe would be equipped with a standard base eCall system the whole **cost** would amount to 34,5 – 46 bn Euro (over 20 years at current costs). The first 6 years of a start up phase would probably cost 6,7 bn Euro (see chart under 1.2.1.1) below).

The Automotive Manufacturers are not supporting retrofit solutions due to reliability, performance, cost and HMI issues.

¹ All cost figures are very rough estimates and could change when detailed calculations are done

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1.1.2 The revenue/cost compensation side 1.1.2.1 Public Health and Social Sector

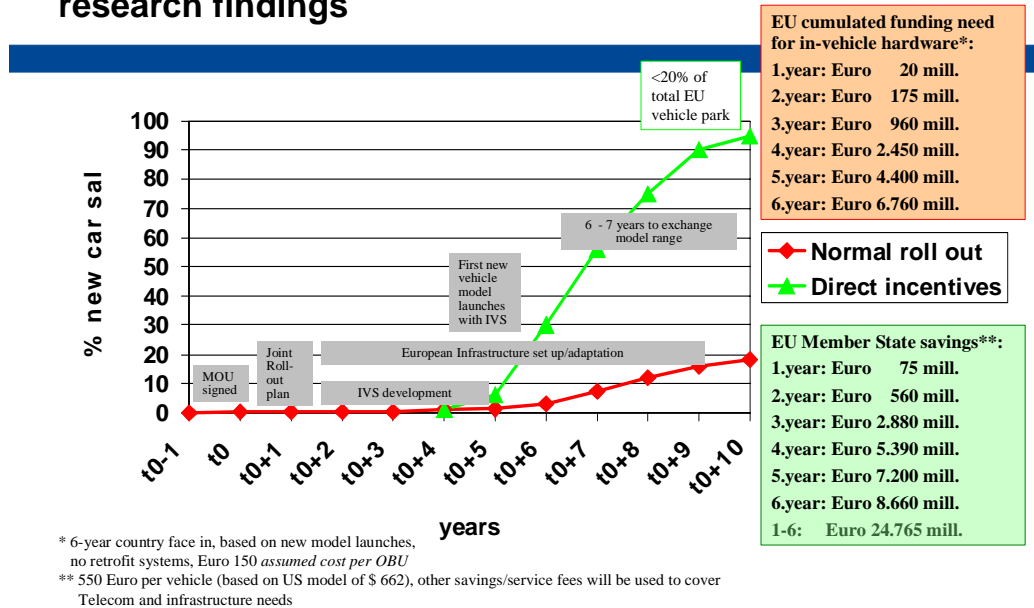
To finance in-vehicle devices/functionalities the ECDG has identified significant cost savings in the public health and social sectors.

These savings, which were calculated at maximum 21 - 26 bn €per annum (10 year average) are mainly reductions in public health care and social costs (4 bn probably in congestion savings), areas which are today in a serious deficit in most European countries. Even though reductions of deficits are important, they do not lead to enthusiasm to share parts of those savings with others in order to generate the overall savings in the first instance. This is even more complicated by the fact that societal health and social costs savings happen in many areas and cannot easily be identified by single players. The result is a general reluctance of the Member States to enter discussions with the industry on this subject.

We have calculated an accumulated saving potential in the first 6 years of more than 24 bn Euro.

Due to other measures (active/preventive safety) the saving potential of eCall p.a. will probably decline afterwards.

EU model calculation for financial support based on US research findings



For the first six years of implementation a ramp-up funding of 6,7 bn Euro stands vis-à-vis savings of almost 25 bn. Euro. As stated earlier the major savings will occur on the public health side and by far cover incurred industrial costs. The only approach for a voluntary and quick rollout, therefore, proves to be public funding for the ramp-up period.

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1.1.2.2 Insurances

Many stakeholders have mistaken the public saving potential as insurance savings and have asked the insurance companies to adequately contribute to eCall.

In a meeting on January 24, 2006 the insurance representatives stated that for them the single eCall embedded solution would not create any benefits as a Non-SIM or “eCall only SIM” solution would not allow real-time information of insurance companies in order to reach productivity gains (by higher process efficiency).

While “**crash notification**” could probably have a positive impact in general (process improvements) two other Telematics related services (more or less using similar hardware as eCall with SIM) are of higher importance: “**Tracking and Tracing**” (T&T) and “**Pay as you use**”. However, even with the potential benefits out of an up-graded version of eCall with a “commercial” SIM, software adaptations and interfaces to link additional services the insurances may not subsidize major part of the system cost up-front but could help amortizing OEM investments².

Even when looking into other potential insurance relevant services (less accident -> less costs) this statement does not change³

1.1.2.3 Vehicle manufacturers

There are no benefits on the vehicle manufacturer side related to the base unit as back end benefits require communication links beyond the 112-call connection.

Concerning back end benefits the automotive manufactures have carried out in-depth studies to evaluate the commercial value of such systems for their own purposes and found out that the assumed savings are much lower than expected and that the cost for a more sophisticated hardware than the base unit exceeds the benefits, when calculated independently from other applications.

There might be better possibilities for commercial vehicles. Details, however, are not available.

1.1.2.4 Mobile Network Providers/ Telecommunication companies

Telecoms do not see a business in providing a non-commercial SIM card and feel very insecure about the lifetime costs of such cards, not to talk about potential investments in handling an increased number of eCalls free of charge through their networks.

When providing a non-commercial SIM card than – at minimum - the lifetime costs need to be covered. Depending on the price charged the Telecoms could make a profit or just

² A business evaluation of the two services, T&T and “Pay as you drive” could be found in annex I but need to be left to insurers for more details.

³ For an evaluation of more potential Telematics related services with insurance saving/profit potential see annex II. Insurers have stated that their possible contribution for data acquisition might be substantial.

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cover their costs. As 112 calls, however, are free of charge to the customer, any increase in mobile 112 calls is critical from a Telecom business point of view.

1.1.2.5 Emergency operators

Emergency operators will generate savings through higher service efficiency. Satellite location based services will reduce travel and search time and speed up internal processes. No details on cost savings known.

1.1.2.6 The Customer

Any efficient emergency call will help to save lives and reduce heavy injuries due to faster rescue times. As found out in a number of representative research reports the customer has safety/security services including breakdown and eCall on his priority list but is not willing to pay for such a hypothetical service, he hopefully will never use. There are numerous examples where customers tried to exchange emergency service features against metallic paint or accessory options.

1.2 Multi service box (fully embedded Telematics/navigation device)

Today, a number of vehicle manufacturers offer emergency services through private service providers. The system is either part of a Telematics units or a navigation system. The service provider mainly handles the breakdown service for the OEM and has offered emergency services (automatic/manual) as an add-on.

In spite of the increasing penetration of navigation systems in the market such a solution will probably reach its limits. It is estimated that at the current price level for in-built navigation systems the car park penetration will not exceed 2%. It is, therefore, expected that the OEMs will introduce more “affordable” navigation units.

On the truck side other devices like OBU (Tolling box), T&T and Fleet Management devices also play an important role and can be used – next to navigation – for eCall. Business case considerations will ensure that all “multi service boxes” are based on a positive return on investment.

Strong growth is expected for nomadic navigation systems, which could add eCall as an additional feature in the future. Nomadic device manufactures sell those devices at a profit.

Vehicle manufacturers would profit from those devices as they allow valuable back end services. It is known that today some manufactures invest in such communication devices to have better access to their vehicles (VRM, CRM). Synergies between the two independent approaches could reduce costs.

Insurances would profit when devices would allow at least the three Telematics applications as pointed out before.

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Telecom companies would profit from higher penetration/usage of mobile services and airtime in vehicles.

For the **public side** savings are included in the reduction of the health sector costs and the improved emergency service efficiency.

2. Mobile phone based solutions

In parallel to the embedded system OEMs are proposing mobile phone based solutions.

A professional interface between the mobile device and the vehicle would allow both automatic eCall with data transfer (Minimum Set of Data) and manual call and could exclude certain applications with high distraction potential (e.g. TV while driving, etc.). The interface could be established through a standardized e.g. Bluetooth interface (extension of the wide spread Bluetooth hands-free-profile (HFP)). Another advantage would be that the solution is independent from a carrier network technology (GSM, UTMS, etc.) over the vehicle lifetime, as any change will only affect the connecting device (mobile phone).

This solution can do better than the nomadic navigation alternative as it officially links into the vehicles (approved by OEMs) BUS system. As it is expected that the future generations of mobile phones (smart phones) will have the necessary intelligence (Satellite positioning module, e.g. OSGi platform, etc.) already integrated, the “box” in the car could be reduced to a minimum. From a business point of view, however, all Telematics services will be offered by the Telecom industry only while the OEMs just get paid for the interface into the vehicle architecture. The SIM card is a commercial SIM card. HMI issues need to be considered for safe and secure placement of the mobile device.

This scenario creates some positive revenues for the **mobile phone manufacturers** as customer can use their devices in a much safer way in the vehicles. By this, more services can be offered to meet individual customer needs. eCall integrated mobile devices (to be used in and outside the vehicle) add additional benefits for the customer.

Telecoms would profit from more airtime.

The **automobile industry** would get additional revenues through integration of mobile devices in the vehicle but runs the risk to loose profitable hardware business. Back end benefits could also be created but require secured lines.

The **public side** would benefit as well even though some of their requirements will not be fulfilled as long as they are not cross-financed.

Potential **insurance** support to this solution is questionable as vehicle related applications are restricted initially to MSD (minimum set of data) and T&T and “Pay as you use” applications cannot be supported by a non-embedded platform.

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In all scenarios the **customer** is the ultimate beneficiary as it is his accident and his life.

3. Summary and Recommendation

It can be seen that when looking into eCall by stakeholder group a positive business case can only be created if:

... for an **embedded base eCall system** the Member States and other stakeholders who expect savings share the costs with those who carry the cost.

In this case the sum of stakeholder benefits for an embedded base system would at least cover the costs of the system. The public funding should go mainly to the OEMs, which offer the solution as standard equipment, volume related and for the reduction of equipment costs in order to avoid margin effects, or to the customer purchasing equipped vehicles (but then supporting margins and taxes on street prices). However, there is currently no indication in key member states to financially support such a solution.

... for a **mobile phone based solution** with commercial SIM card the Telecoms contribute to the hardware costs due to the potential additional airtime. A portable solution with a standardized vehicle interface could also enable a faster market penetration (see US example).

Independent from the two technical solutions, **equally promoted by ACEA**, it became very clear that private stakeholder alone could not carry the necessary investments and running costs for a Pan-European emergency service.

Different stakeholders, however, would only invest in eCall when additional benefits could be created to cover the cost, both for eCall and hardware/software upgrades to enable additional profitable services.

As such proposals are high on the agenda of politicians, business case implications needs to be explored as well:

Positive business case for eCall enhanced solutions?

In this context it needs to be stressed that the industry is looking into a base system, which is suitable for mass-market introduction, as a **non-competitive item**.

In case, more **enhanced embedded solutions** – as they exist today for higher-end vehicles – are requested (in combination with Telematics services, navigation or other functionalities) the industry would leave the non-competitive area. eCall would become a “by-product” while competitions takes place with other non-harmonized or standardized services.

At the end it is the customer who will pay a higher price with the following result: An expensive device will make the (small) car less affordable for many customers.

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Just to add the full cost on top of the new car price is extremely contra-productive as significant price increases in the volume car sector will extend the holding time of a car, lead to reduced sales through delayed customer purchases and has serious consequences on the competitiveness of the industry, the employees and the environment (new cars have less emissions than old cars).

The same arguments are valid against reflection of making eCall mandatory through legislation or even by expanding special validation systems like EuroNCAP.

Due to the significantly higher market prices for commercial vehicles/trucks as well as “high-end cars” this argument is less valid so that an enhanced system might be more feasible.

The judgment on an **enhanced eCall system**, therefore, has to be twofold:

(i) For Cars (volume market)

- Transparent costs and benefits: every party is financing according to their benefits. All stakeholders should clearly state under which conditions they are willing to pay a certain share of the costs or a certain amount (depending on the size of their benefits) to the overall cost of an in-vehicle device (embedded or portable), e.g.

$$\text{Cost of enhanced in-vehicle hardware} = \text{Fiscal incentives} + \text{Automotive back end benefits} + \text{Insurance service benefits} + \text{Telecom Airtime benefits} + \text{Mobile Phone manufacturers volume benefit} + \text{Customer contribution}$$

- System must be affordable, payment only for applications the customer selects
- Agreement on base reference architecture and communication standards if possible, global standards preferable
- No additional bureaucracy and cost through certification
- Legal security
- Extremely difficult to achieve due to too many different interests

(ii) For Trucks/high end cars

- Each company to evaluate for themselves how to combine eCall with other services (one box principle) and create its individual business case
- Agreement on base reference architecture and communication standards if possible
- *Not suitable for mass market introduction*

In spite of the efforts of the European Commission to bring the different stakeholders together many of the conditions related to create a volume market and fast ramp up seem to be extremely difficult to overcome.

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As a final consequence the following can be stated:

- 1) **Embedded base eCall** will only be feasible when supported by **Member States**
- 2) **Mobile phone based solution** needs major drive from **Telecoms** and mobile phone manufacturers and acceptance by public authorities
- 3) **Embedded enhanced eCall** systems either
 - a) Require agreements between all stakeholders to share cost and benefits but must allow service differentiation
 - b) Or are based on individual approaches by OEMs. Some OEMs have already proven that optional expanded (but individual) service/product packages including eCall can be sold as a profit when negotiated on an individual basis with other stakeholders

Based on current experience and reactions from the relevant stakeholders all three scenarios have a low probability to be realized from a business point of view.

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- Annex I

Reduction of Crime

While today a number of luxury vehicles and trucks with valuable cargo can only be insured when a T&T module is installed, thefts of vehicles in general might be reduced with higher penetration of T&T modules in vehicles.

Since the German “Maut” OBUs (tolling devices) are being installed the penetration of T&T systems in trucks has grown substantially. Current discussions focus on the point whether third parties, police authorities, may use this kind of data in particular to follow up on crimes.

To install T&T modules in the more “vulnerable” vehicles groups is seen as a positive contribution.

A general installation in all vehicles, even when using the same components as with eCall systems, would need certain software adaptations and the set up of an enlarged T&T common organization to follow up on received calls. Today T&T requirements differ between the Member States. With a perhaps 1% theft rate vs. 100% hardware penetration the business case needs to be reviewed and adjusted accordingly. Furthermore, the tracking and tracing of all European citizens seems to be a “no go” from a political point of view (data protection, privacy issues). What would be a “paradise” for legal enforcement agencies is a nightmare for data protection officials.

However, each mobile phone or communication unit in a vehicle today bears the possibility to be traced. Either the customer does not know or he has accepted it with the purchase of the device. The Commission has asked the National Data Protection Officers for a statement⁴

Last but not least current systems are retrofitted at various places in the car, a line fitment requires full vehicle frame integration as otherwise violators can easily locate and destroy the device.

Under those aspects the potential financial contribution to the cost of a common hardware/software platform is limited.

“Pay as you use”

Concerning “Pay as you use” the objective is to offer car drivers/owners a usage based insurance premium for main customer segments and for example of niche segments, support young people to abstain from driving at critical times (Friday and Saturday night). While a test in the U.K brought positive results, the responsible French authority turned down such a proposal for privacy protection reasons. Even with agreement of the customer to be monitored around the clock, this attempt is not proportional to the targeted result. The insurance industry, however, is confident that they would be able to influence

⁴ Three main points to solve the privacy issues are: (1) Ensure that the system will not be logged in constantly (so no possibility of being tracked by third parties). This is something that it is already agreed and considered under ETSI standardization. (2) To offer the possibility of deactivate the system to the users (different than to offer the possibility of not installing it) and provide appropriate information to the user. (3) Not to include the VIN, as this may link to sensible personal data. We discussed about it in the last meeting of the subgroup on performance requirements, and it was agreed by PSAPs that they need make, model and year.

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the French Authorities to change their mind, proposing a more balanced quantity/quality data collection scenario versus insurance needs ratio.

“Pay as you drive” systems could use eCall components like GNSS and crash sensors while not increasing system costs (data processing being made off-board).

In case these systems would be authorized, a positive impact can be expected for the insurances.

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- Annex II (needs to be discussed further)

List of potential savings related to eCall (0 = neglectable/not possible, X = small/possible, XX = significant, XXX = huge) (pink field not related to Telematics)

Applications	Nomadic Systems (smart phone /Bluetooth)	Embedded			Link to eCall	Benefits			
		Embedded Systems Aftermarket (Retrofit)	Low Cost Embedded System (volume vehicles)	Up level Embedded Systems (higher end vehicles)		Benefits Insurances	Benefits Telecoms	Benefits Automotive Industry	Benefits Customer
Crash Notification (ACN) (accident happened at defined location)	X (special device)	X (crash sensor)	X (crash sensor/airbag)		XX	X	0	0	XX
eCall (no SIM, incl. MSD) Low cost	0	X	XX	X	XX	0	0	0	XX
eCall (incl. dedicated SIM/ MSD) Low cost	0	X	XX	X	XX	X	0	0	XX
eCall (incl. MSD/FSD, commercial SIM) Up level	X	0	0	XX	XXX	X	XX	X	XXX
Tracking & Tracing	0	XX	X	X	X	XX	0	XX (Fleet)	XX
Pay as you drive	0	0	X	X	X	XX	X	0	XX
Not directly relevant for eCall									
Speed Alert/ISA	X	X	X	X	X	XX	0	X	XX
Event Recorder	0	0	X	X	0	XX	0	0	X
EVI	0	X	X	X	0	X	0	0	0
Alcohol-Lock	X	X	X	X	0	XX	0	X	XX
ESC	0	0	0	X	0	XX	0	XX	XX