The Electric Vehicle revOLUTION enabled by advanced materials highly hybridized into lightweight components for easy integration and dismantling providing a reduced life cycle cost logic

**Fact Sheet**

<table>
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<th>Project Information</th>
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<td><strong>EVOLUTION</strong></td>
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<td>Grant agreement ID: 314744</td>
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<td><strong>Start date</strong></td>
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<td>1 November 2012</td>
<td>31 October 2016</td>
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<td>FP7-NMP</td>
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<td>€ 13 438 488,67</td>
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<tr>
<td>AALBORG UNIVERSITET</td>
<td>Denmark</td>
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**Objective**

Hybrid-EVs and Full-EVs on the market are products where the Internal-Combustion-Engine (ICE) is supplemented by an electric-motor (HEV) or replaced by an all-electric power-train (FEV). Neither approach address lightweight or modularity inheriting the same disadvantages as conventional ICEV - Electrification of mobility must face a conceptual rEVOLUTION! This project breaks the paradigm of current Body-in-White (BiW) by delegating the whole structural function to a novel BiW archetype made up of a central cell, including Multifunctional-Rolling-Chassis (MRC) enabled by a new generation of highly-hybridized structural components and
complemented by a severe-crash-dimensioned front end plus a modular rear end. This concept will be the common basis for a family of user friendly vehicles differing by changing only the rear end according to the customer demand. Advanced materials will enable the development of novel super-lightweight hybrid components complying with safety standards and recycling constraints, and enable the design of the innovative MRC for FEV leading to a further weight reduction of 40% over that achieved using the current state of the art in the SuperLIGHT-CAR project. The EVolution goal is to demonstrate the sustainable production of a 600 kg weight FEV by the end of 2015. To this end EVolution addresses the whole vehicle by prototyping, assembling, and disassembling, the most representative components (MRC, crash cross-beam, crash box, suspension sub-frame, side-door, A-pillar, and a multifunctional-hard-top) made from raw polymers and aluminum alloys commonly used in the automotive industry, to ensure compliance with EC Directive 2000/53/EC ‘End-of life vehicle’ which imposes stringent requirements on the disposal and recycling of motor vehicles. Guaranteeing the safety and regulatory compliance, with a weight saving of 50%, each component chosen will prove, mutatis mutandis, the revolutionary potential of the EV solution in all components employed today in current high volume production.

Field of science

/social sciences/economics and business/business and management/commerce
/natural sciences/chemical sciences/polymer science
/engineering and technology/environmental engineering/waste management/recycling

Programme(s)

Topic(s)

Call for proposal

FP7-2012-GC-MATERIALS

Funding Scheme

CP-IP - Large-scale integrating project

Coordinator
<table>
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<th>Organisation</th>
<th>EU contribution</th>
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<th>Activity type</th>
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<tr>
<td>AALBORG UNIVERSITET</td>
<td>€ 808 520</td>
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<td>Via Bruno Buozzi 6 10100 Turin, Italy</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
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<tr>
<td>FUNDACION TECNALIA RESEARCH &amp; INNOVATION</td>
<td>€ 248 682,50</td>
<td>Parque Cientifico Y Tecnologico De Gipuzkoa Paseo Mikeletegi 2 20009 Donostia/san Sebastian (Gipuzkoa)</td>
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**INNOVAZIONE AUTOMOTIVE E METALMECCANICA SCARL**

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**KGR SPA**

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**FPK LIGHTWEIGHT TECHNOLOGIES S.COOP.**

Spain
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<td>Javier Martinez-Cue (Mr.)</td>
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