Zero Defects manufacturing of Automotive Powertrain Components
FAGOR EDERLAN is an Spanish company leading supplier of complete solutions for the automotive industry, specializing in Chassis and Powertrain applications.

We are not only a casting or machining supplier, we are experts in the complete product value chain, consequently we offer the best product solutions in different technologies and materials.

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<th>DATA</th>
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<tbody>
<tr>
<td>Sales:</td>
<td>2014: 651 million</td>
<td>2015: 624 million</td>
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<td>Personnel:</td>
<td>2014: 3,559</td>
<td>2015: 3,546</td>
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**PROPOSAL INTRODUCTION (I)**

- **Vision:** The main goal is to define, develop and implement a zero defect manufacturing strategy through the integration of materials data, process simulation, machine monitoring and defects characterization. Such a system must be able to predict where the defects will take place, according to process parameters and the geometry of the component and help to minimize their effect.

- **Motivation:** Today’s quality control systems mainly focus on specific manufacturing stages (working in silos), identified as critical to assure product’s completeness of customer requirements. However, **current production systems tend to a high number of transformation actions**, which increases the complexity of quality assurance methods. It would be the aim of this project **to know the effect of previous (Upstream) or subsequent operations (downstream) into the final quality of the component**, so the zero defect approach could be taken holistically.

- **Content:** This project would have activities on **materials characterization, casting and machining process modelling and simulation, data analysis and error source identification**.
• **Expected outcome:** Zero defects manufacturing processes for the cost and time efficient production of metal powertrain components (knuckles, engine, transmission, brake discs,…) in aluminum and iron alloys. This outcome would be implemented into existing manufacturing lines,

• **Impacts:**
  - Advanced defect characterization at different manufacturing stages, identifying improvement opportunities. Quantify the costs derived from defects.
  - Proactively respond to customer expectations and consider quality assurance activities from a holistic approach involving all actors affected.
  - Systematically reduce defect levels.
  - Normalize as many value adding operations as possible.
  - Reduce the time of new products to reach the market.
  - Continuous, permanent quality improvement to: Prevent defects, reduce waste, Improve and sustain profit margins, reduce costs, improve product quality, reduce cycle time.

• **Schedule:** Project lasting 30 to 36 months
• **Current** So far only FAGOR EDERLAN (powertrain manufacturer) and its research unit (EDERTEK)

• **Partner search**: Partners from any SMART supporting country (or EUREKA member state) with the following skills and background:

  - Metallic alloys characterization
  - Casting and machining simulation
  - Error source modelling and characterization
  - Data acquisition from sensors and actuators
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