TECNALIA

FoF-12: Industrial technologies for advanced joining and assembly processes for multi-materials

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Project idea and main objectives

- Dissimilar materials joining and assembly in the automotive sector
- Final component cost reduction
- Increase the final component performance
- Increase the strength-to-weight ratio for joined components
- In-situ monitoring and control systems + automated NDTs
- Process automation

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Application cases

- **Sub-frame components**
  - The application cases have to be defined during the proposal stage, the project aims to start with the industrial requirements well defined
  - At least one prototype or pilot implementation in pre-industrial settings:
    - Multi-technology prototype Adhesive and/or mechanical joining
  - Final application case linked with the selected OEM

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Proposal – FoF-12. Expected impacts

• **Multi-material construction for:**
  • Increase the strength-to-weight ratio
  • Multi-functionality
  • Operation under highly aggressive environments
  • Low carbon footprint (assembly and disassembly efficiency, recycling)
  • Higher level of automation and lower production times compared to
    current technologies → To include innovations/ novel joining
    technologies

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Technical Work-packages

• WP1. Production cell requirements
• WP2. Joining technologies development
  – Process simulation, surface preparation...
• WP4. Quality and process control
  – Efficient and automated non-destructive inspection, monitoring..
• WP5. Joining technologies integration and prototype(s) construction
• WP6. Prototype(s) validation

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Consortium

- OEM - Specs
- Tier 1 - Application case (component)
- Composite material provider (thermoplastic/thermoset)
- Recycling assessment
- Tecnalia - R&D joining technology development and quality control
- Prototype integrator – SME
- Systems for mechanical fastening supplier
- Adhesive systems supplier
- Other R&D’s
- Application in other industrial sectors. Aeronautic?

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• Looking for:
• Industrial companies with high experience in automated systems for mechanical joining and/or adhesive bonding.
• Industrial and research companies with high experience in quality control systems for mechanical joining and/or adhesive bonding.

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