



FRESH

Aeronautical Project (EC DG RTD)

**FRom Electric cabling plans to Simulation
Help**

PARTNERS



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INPL-LORIA
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ESTIA (Project Leader)
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(Greece) .

OBJECTIVES



High level Objectives

- To reduce electrical harness development costs
- To grant an error free intervention level
- To reduce harness modification, maintenance and overhauling costs

Technical Objectives

- To convert electric wiring plans into Computer Aided Design wiring diagrams language.
- To translate CAD generated wirings language into universal language
- To adapt and improve available software to transfer wirings diagrams into electrical harness,
- To simulate electrical harnesses physical behaviour and take benefit from simulation verification and optimisation capabilities.

INNOVATIONS



The general innovation of the project is to offer to the aeronautical electrical harness industry with new recognition, simulation, verification, validation and optimisation means dedicated at design and maintenance.

- Innovations for aircraft design, maintenance, overhauling from simulation:
 - Modelling of the electric components
 - Implementation of a factual simulation
 - Visual display of the factual simulation
 - Harness global simulation

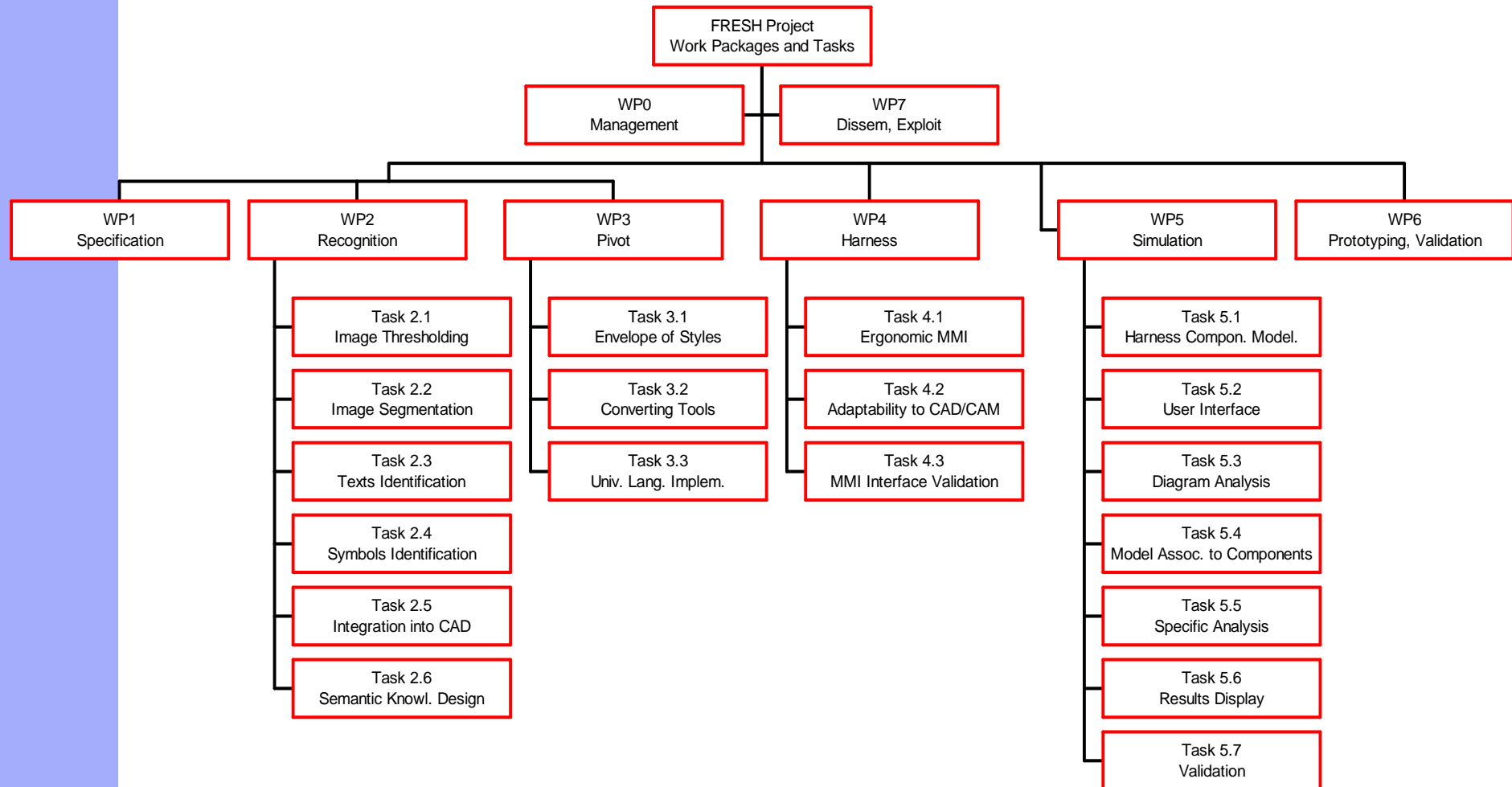
- Basic innovations for recognition: provide a full open & evolutive system devoted to wire, via the following features:
 - Recognition of equipotentials in a diagram
 - Recognition of connectors, disconnectors and function strip with their terminal
 - Recognition of the symbols such as splices, earth, switch, etc
 - Equipment recognition
 - Areas recognition.

EXPECTED ACHIEVEMENTS

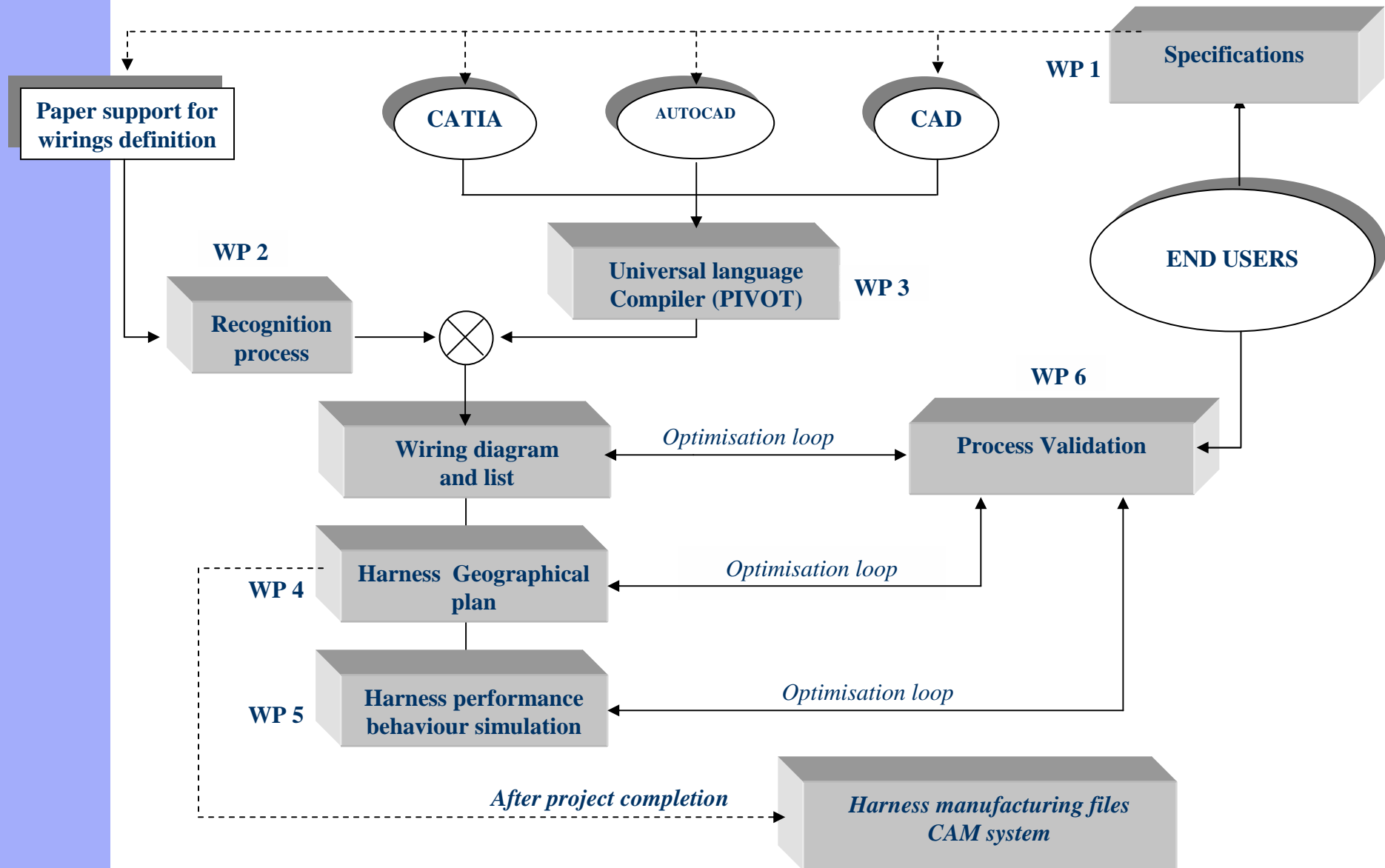


- An automatic system to recognise paper electrical wiring diagrams and to convert them into a numerical “reconstructed wiring information”.
- Dedicated modules to convert the ”reconstructed wiring information” into a universal language, understandable by classical tools to generate the harness.
- A system to design, through computing, the geographical plan of the harness
- A electrical harness simulation, smart system, to check the electrical validity of the wiring diagrams and its harness.

WORK PACKAGES



WORK PACKAGES



FIGURES



- Project of small enterprises serviced by SCRATCH (<http://www.aero-scratch.net>).
- Duration: From 01/11/04 to 31/10/07.
- 9 Partners from 5 EU states.
- Budget: € Million 2.8.
- Dissemination on <http://www.aero-scratch.net>