



Proj. N 289011
 Kick-Off Oct 2011
 Duration 3 ½ years
 Budget 8.4 Meuro



Large-scale integrating project (IP)

OPENCROSS

**Open Platform for Evolutionary
 Certification Of Safety-critical Systems**

Project Motivations and Overview

Speaker

Event, Location, Date

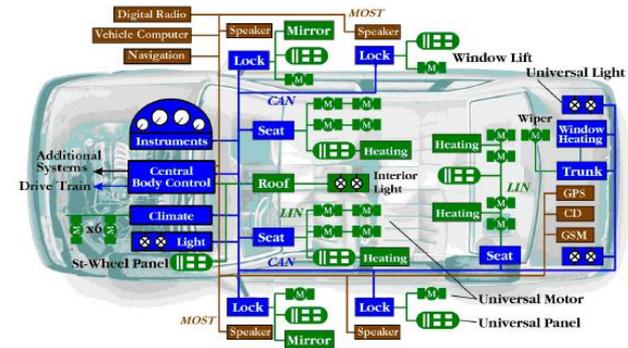
Project partners	Country
TECNALIA R&I	ES
ALSTOM Transport	FR
RINA	IT
TU/e	NL
AdaCore	FR
Parasoft	PO
Intecs	IT
ATEGO UK	UK
SIMULA	NO
IKV++	GE
ATEGO France	FR
Det Norske Veritas	FR, NL
Altreonic	BE
HPDahle	NO
University of York	UK
Centro Ricerche FIAT	IT
THALES Avionics	FR

Background (onboard electronics are pervasive!)

Modern transportation systems are increasingly dominated by electronics /software:

Computers on wheels, Computers that fly

*A modern luxury car has more than **80** Electronic Control Units with millions of lines of software code*



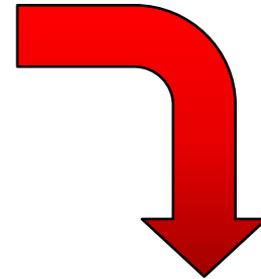
The electronics are mainly intended to:

- *increase passengers safety*
- *improve comfort, functions, performance*
- *reduce energy consumption*



Problems and Challenges

- Electronic systems shall not introduce hazards due to possible malfunctions or incorrect specifications
- Society demands adoption of high safety standards
- Different transport sectors (railway, automotive, avionics) have developed their own specific set of standards (a «Babel Tower»)



1. High initial «certification» costs and long schedules
2. High «re-certification» costs when products evolve
3. Difficulty in reusing «pre-certified» components
4. Difficulty in sharing expertise and pre-certified components from different transport sectors (Babel Tower effect)



Strong European Project Team accepting the challenge



CENTRO
RICERCHE
FIAT



- Major transportation industries
- Major suppliers
- Certification organizations
- Consultancy organizations
- Tool Vendors
- University & Research Institutes

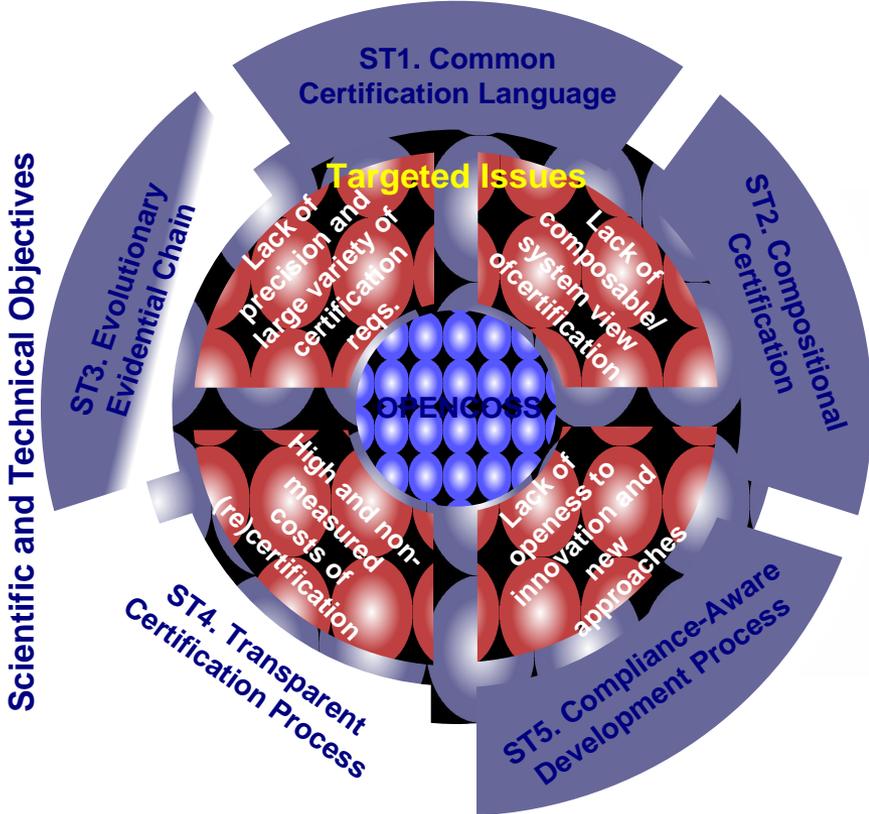


The Four Pillars of our Approach

1. Identify a «common safety/certification language» across the different transport sectors (challenge the Babel Tower);
2. Identify methods (e.g. safety cases) to better substantiate the satisfaction of safety goals. We will strive to introduce more cost effective and precise «**model-centric**» approaches in place of current bureaucratic **document-centric** approaches;
3. Develop methods to manage the safety of a complete system built from a set of «pre-certified» components, including those available from different transport sectors;
4. Develop a platform and a set of tools to support faster and more accurate safety assessment, including «re-certification» after system changes.



OPENCOSS at a Glance



Industrial Application Contexts

AVIONICS 

RAILWAY 

AUTOMOTIVE 



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Dissemination Mngr: Paolo.Panaroni@intecs.it

Visit our web site: www.opencross-project.eu

Linkedin group: *opencross (>100 participants)*

The project is OPEN !!

all results will become public documents and open source software

