2019
Annual INCOSE
international workshop
Torrance, CA, USA
January 26 - 29, 2019

Automotive

www.incose.org/iw2019

Automotive

MEMBERS
~100

CO-CHAIRS
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INCOSE CONNECT ADDRESS
https://connect.incose.org/WorkingGroups/Automotive/Pages/Home.aspx

INCOSE WEB PAGE
http://www.incose.org/docs/default-source/wgcharters/automotive.pdf?sfvrsn=8

Charter Summary

WG PURPOSE/MISSION

To promote the application and advance the practice of Systems Engineering in the automotive industry, encompassing OEMs, suppliers and service providers in the private, commercial and industrial vehicle sectors. Emphasis will be put on the current needs and future challenges of the industry, covering issues related to product development (complexity, safety and security, diversity, reuse) as well as to business and organizational aspects (new business models, new services and smart or multi?modal transportation systems).

WG GOAL(S)

Missions

To broaden and improve the application of Systems Engineering to the vehicle development process by tailoring standard SE processes and known best practices to the needs and specificities of the industry. To build a common, shared Systems Engineering expertise and body of knowledge for their application by actors across the automotive industry.

Objectives

To provide value?added services to our members through the production of quality deliverables, the organization of quality events and efficient administration of the group.
To grow the number of members of the group up to a level of self?sustainment an increase the diversity of the leadership team by:
o Performing outreach actions
o Helping members learn from each other and from the experience of INCOSE experts
o Making sure that the needs of the members are covered by activity plans and are taken into account by INCOSE.
To support INCOSE's strategy to establish collaborations and partnerships with professional associations by initiating connections between the group and the different associations of the automotive industry.

WG SCOPE

From a global perspective, the Automotive Working Group will address the challenges faced by the actors of the industry when trying to implement SE or improve their application of SE. Previous work conducted by the Automotive Interest Group identified a series of topics covering a large spectrum of automotive concerns. These topics were grouped into generic SE themes (see below): organizational, SE processes, MBSE, architecture frameworks, safety and security, links with specialty domains and systems of

systems. The products of the working group (deliverables, events, etc.) will address the needs of the whole automotive industry supply chain, comprising the private, commercial and industrial vehicles sectors. They are intended to be valuable, useful products for both beginners and established SE practitioners.

AWG Scope (initial survey):

ORGANIZATIONAL

Acquisition: Contract-based processes (enabled by Requirements)
Cooperation with suppliers in a MBSE scheme
Lessons learned in implementing SE
Lean Systems Engineering & Agility

MBSE & ARCHITECTURE FRAMEWORKS

State of the art in system modeling
Mapping of tools used in the industry
Link with Simulation
Link with Safety
Modeling for communication purposes
Common Automotive Architecture Framework
Ontologies & Formal methods
Standards : lobbying @ OMG

SYSTEMS ENGINEERING PROCESSES

Requirements Engineering “top to bottom”
Architecture-Driven design
Reuse / Integration of COTS in a SE approach / Towards an “Automotive Systems List”
Product Line Management
Eco-Design

OUTREACH, TRAINING & OTHER SPECIFICITIES

Connection between INCOSE and other Automotive Associations

Charter Summary

Link between Systems and SW Engineering
Electric/Electronic Architecture Management from a SE perspective
Ad-hoc Systems Engineering Training Supports

SAFETY AND SECURITY

Impacts of ISO 26262 on Systems Engineering and vice-versa
Systems and Safety/Security Engineering (unified) processes

SYSTEMS OF SYSTEMS

The automobile product in new mobility concepts and smart transportation systems
Engineering Systems and Services

IW Outcomes

IW Outcomes

We had several interesting meetings, that allowed to define an ambitious 2019 action plan (see next section).
No additional volunteers for transveral activities in the WG, but many volunteers for technical topics to be addressed during the next months. Among those topics, several will involve other Working groups: SoSWG, SaSIWG, TWG, IWG, CIPRWG and also CIDAWG from NDIA.

Planned Work past IW

PLANNED ACTIVITIES

Many actions to be started or followed-up:

- Finalize SE Automotive Vision document and build its Executive Summary
- Prepare SE Tayloring to Automotive paragrah for SE Handbook V5
- Intelligent Transportation System (ITS) : CVRIA-ARC-IT return of experiences
- Continuous Development within the Automotive Industry
- System - Software exchange about MBSE in the Automotive context (incl. System & software layer, best practices, cultural/organizational changes)
- support MOU between INCOSE and SAE
- System-Software exchanges about Adaptive Autosar and VFB++
- Electric vehicle participation to Mcrogrid - Cross WG activity CIPR and AWG
- Towards standardized vehicle architecture because of connected services
- Prepare EMEA WS (10-11/oct)

PLANNED WORK PRODUCTS

Vision document
Executive summary of Vision document
Other deliveries (tbd)