

SESE 2017

The South European Systems Engineering Tour

Introduction – Welcome

*Jean-Claude Roussel, ESEP
Director of EMEA Sector of INCOSE*



Paris, 29th May



Rome, 30th May



Madrid, 31st May

Jean-Claude Roussel
Systems Engineering Senior Expert
Technology Process Owner at Airbus CTO

Technical Director of INCOSE in 2011-2013*
Director of EMEA (Europe, Middle East, Africa) Sector of
INCOSE since Jan 2014.

ESEP (Expert Systems Engineering Professional)

Jean-claude.roussel@airbus.com



Short biography : Systems Engineering Senior Expert with 37 years of experience in different Aeronautic and Space Programs within Airbus, I am presently in charge of Technology Roadmap Planning at Airbus Corporate Technical Office in Toulouse since Jan 2017. I have been working the last 8 years in the Corporate Research Center of Airbus on various Systems Engineering research projects and was a permanent member of the Airbus Systems Engineering Steering Committee which defines the strategy of Systems Engineering for the company.

I have been successively in charge of Configuration Management, Project Management and Systems Engineering for most of the new aircraft developments within the Airbus business unit (from A320/A319, A330/A340, A380, A400M till A350 program) and some years on space programs for ESA (European Space Agency) within the Astrium (today Airbus Defense and Space) business unit. My career began at Airbus in 1981 by developing Product Data Management application and data exchange standard for CAD/CAM (Computer Aided Design/Computed Aided Manufacturing) tools.

President of AFIS (Association Française d'Ingénierie Systeme) , the French part of INCOSE (International Council on Systems Engineering Chapter) in 2007 and 2008 and received the Gold Circle Award of INCOSE.

Technical Director of INCOSE from Jan 2011 till Jan 2013, I have been elected Director of EMEA (Europe, Middle East, Africa) Sector of INCOSE in Jan 2014 (till Jan 2017). I am a member and co-author of the BKCASE project (Body of Knowledge and Curriculum to Advance Systems Engineering) launched in Dec 2009.

Member of PMI (Project Management Institute) in 1999.

I am certified Expert Systems Engineering Professional (ESEP) by INCOSE

Born in 1957, I am a graduated Engineer (1980) in Computer Science from Polytech' Lille.

INCOSE : Who We Are

- A not-for-profit membership organization founded in 1990 and dedicated to systems engineering
- Over 14,700 members in government, industry, and academia
 - Spanning aerospace & defense, transportation, health care, energy, and beyond
 - 67 local/national chapters and members in 58 countries

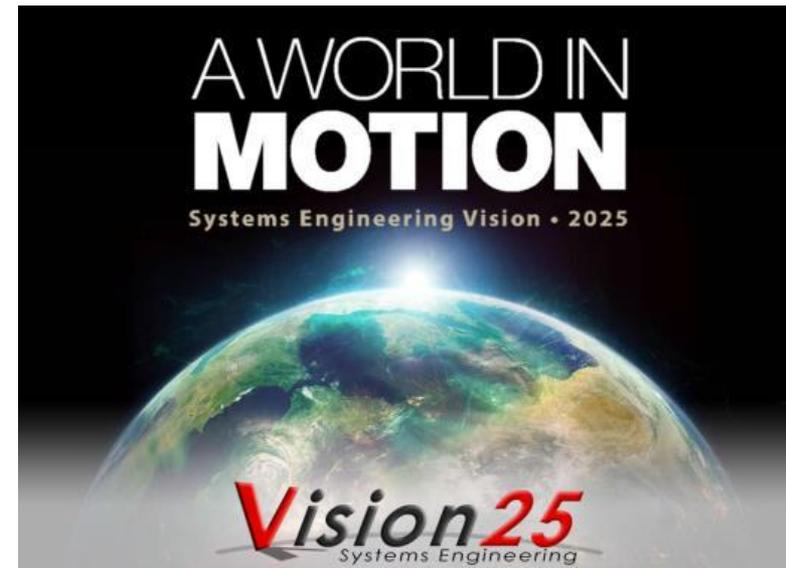
Learn more at www.incose.org

INCOSE Mission, Vision and Goals

- **Mission:** To address complex societal and technical challenges by enabling, promoting, and advancing Systems Engineering and systems approaches.
- **Vision:** A better world through a systems approach.

Goals

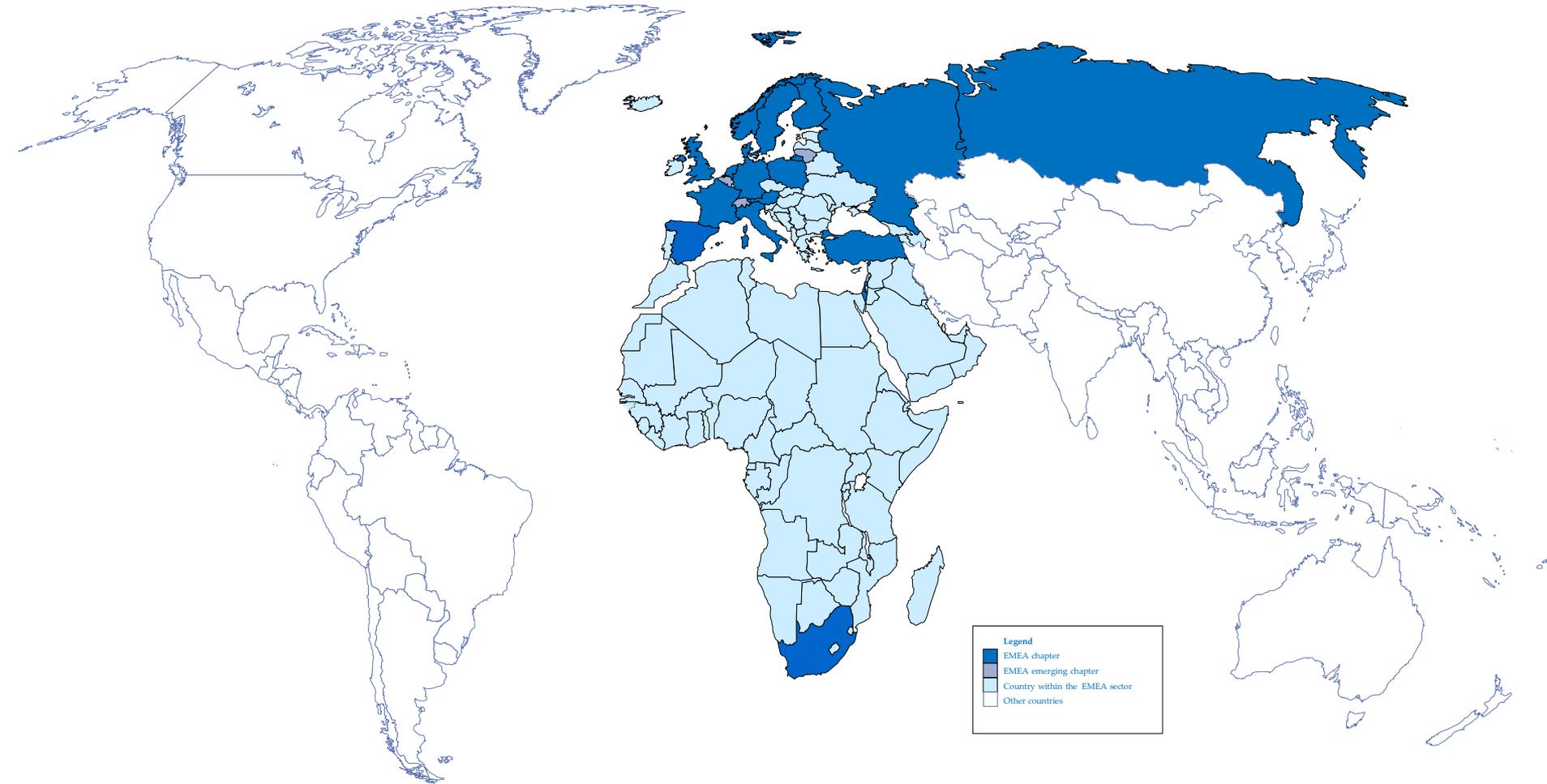
- ✓ **focal point** for dissemination of systems engineering **knowledge**.
- ✓ promote **international collaboration** in systems engineering practice, education, and research.
- ✓ assure the establishment of competitive, scalable **professional standards** in the practice of systems engineering.
- ✓ improve the **professional status** of all persons engaged in the practice of systems engineering.
- ✓ encourage governmental and industrial support for **research and educational programs** that will improve the systems engineering process and its practice.



In INCOSE, We Value :

- **Systems Thinking** – thinking and acting to apply systems approaches to address complex challenges and thus to realise successful sustainable solutions.
- **Pioneering and Innovation** – taking opportunities ourselves or with partners to evolve systems approaches to meet future challenges.
- **Learning and Development** – life-long learning with a changing world through education and continuing professional development, covering both technical and leadership competencies.
- **Respect, Diversity, Collaboration** – building and maintaining respectful relationships internally and externally in order to enable effective collaboration across the diverse community.
- **Individuals** – the importance of people, their intellect and influencing skill, to support complex decisions and to deliver enduring change.
- **Volunteerism** – volunteers and staff working together to achieve our objectives and to deliver benefit to our members, individuals and society.

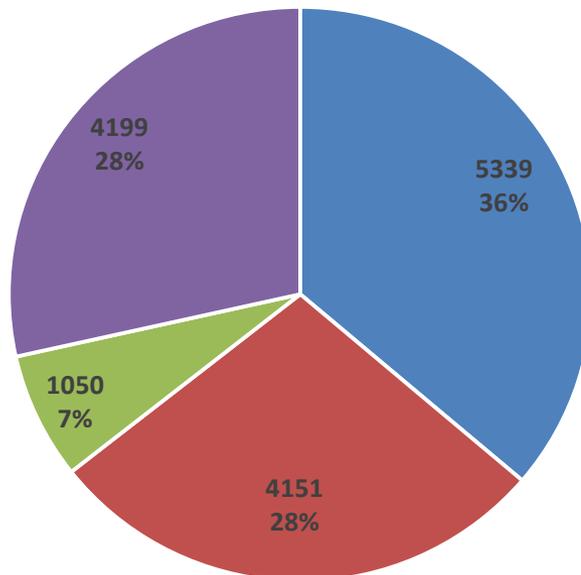
INCOSE Chapters EMEA Sector



INCOSE Chapters EMEA Sector

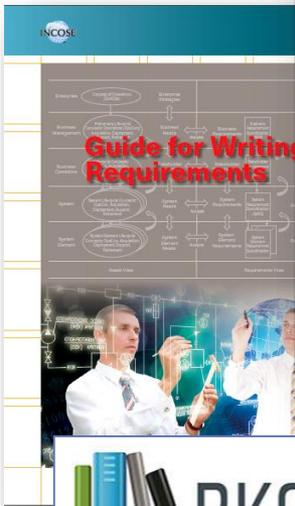
- AMERICAS - 5339 members 44 chapters
- **EMEA - 4151 members 16 chapters**
- ASIA-OCEANIA - 1050 members 7 chapters

- Denmark
- Finland
- France
- Germany
- Israel
- Italy
- Netherlands
- Norway
- Poland
- Portugal (Emerging)
- Russia
- South Africa
- Spain
- Sweden
- Switzerland
- Tunisia (Emerging)
- Turkey
- United Kingdom



■ Americas ■ EMEA ■ Asia-Oceania ■ CAB

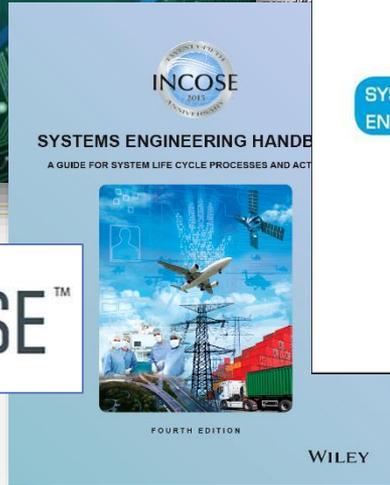
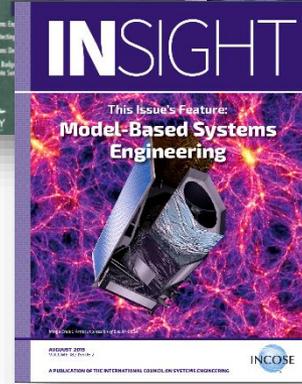
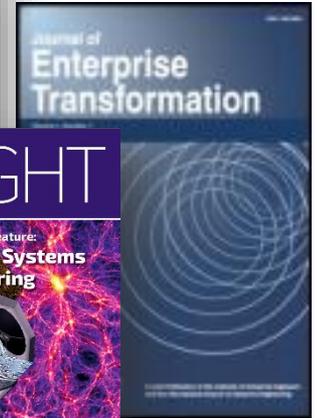
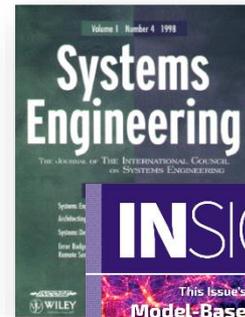
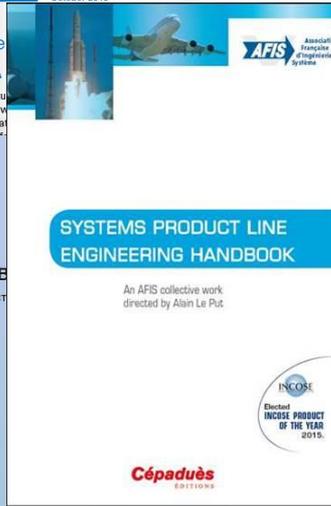
Situation on 16th May 2017



Issue 1.0
October 2010

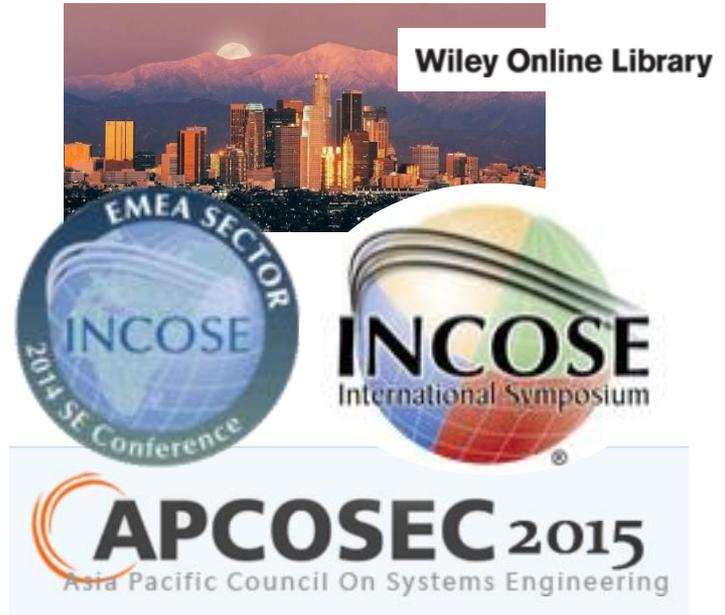
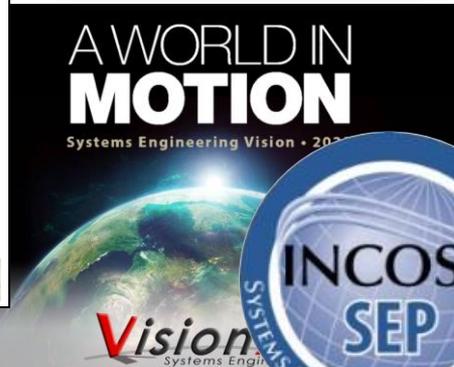
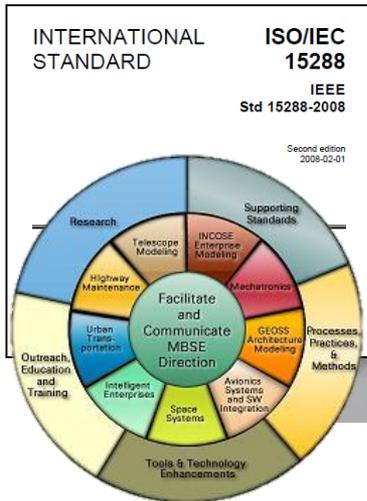


System Architecture concept, unfortunately



Cépaduès
EDITIONS

Wiley Online Library



INCOSE Technical Working Groups

| | |
|-------------------------------|---|
| Agile Systems | Oil & Gas |
| Architecture | Ontologies |
| Automotive | Power & Energy Systems |
| Biomedical / Health Care | Process Improvement |
| Complex Systems | Product Line Engineering |
| Cost Engineering | Project Management – Systems Engineering Int. |
| Defense Systems | Requirements |
| Global Earth Observation SoS | Resilient Systems |
| Human Systems Integration | Risk Management |
| Information Systems | Space Systems |
| Infrastructure | Standards |
| Intelligent Enterprises | Systems of Systems |
| Lean Systems Engineering | Systems Safety Integration |
| SE Management | Systems Security Engineering |
| Measurement | Technology Life Cycle |
| Model-Based Conceptual Design | Transportation |
| Model-Driven System Systems | Verification & Validation, |

For more information or the complete list, visit <http://www.incose.org>
follow Home>Advancing the Practice>Technical Operations

Top 10 priorities of EMEA Sector

1. MBSE
2. SE Training
3. Agile SE
4. Requirements / Product Line
5. System of Systems
6. Competencies
7. Lean SE
8. Architecture
9. Model Based Conceptual Design
10. Complex Systems

Main EMEA contributions to INCOSE WG (Extract from Matrix WG / Chapters)

| Chapter | | France | Italy | Russia | Israel | United Kingdom | Poland (emerging) | Germany | Spain | Netherlands | South Africa |
|---|----|--------------------------------------|---|---|--|--|--|--|---|-----------------------------|-------------------------------|
| Chapter | | 20 | 15 | 15 | 13 | 14 | 8 | 9 | 12 | 3 | 3 |
| Topic/Working Group | 12 | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Model-based Systems Engineering (MBSE) Initiative | 9 | AFIS MBSE WG | Chapter members participating in the WG | strong interest except SysML models | Model-based Systems Engineering (MBSE)-need more knowledge & expertise | UK MBSE WG | | MBSE WG and additional WG working on SysML 2.0 | Gaining momentum in Spain | Startup MBSE WG in December | |
| Training WG | 8 | AFIS Training & Competence WG | | Systems engineering education | Training & Educating WG | | Training - key topic for our members | | SE Education is a very important issue in Spain, and one of our main priorities to be promoted from the Chapter | WG EDU (Education) | An active SE Training Working |
| Agile Systems and Systems Engineering WG | 8 | SE Management WG | Some Chapter members interested in topic; potential for local/Sector WG | | Agile Approach & Agile SE are important topics for our members | Agility - key topic for our members | Agility - key topic for our members | 2 WGs for "non complex SE" & Agil application | Driving some interest even for safety-critical applications | | |
| Requirements WG | 5 | | Chapter members participating in the WG | | | Requirements - key topic for our members | Requirements - key topic for our members | | Requirements is key topic for our members | | |
| System of Systems WG | 5 | AFIS SoS & Service - Architecture WG | Chapter members participating in the WG | regular topic of discussion | SoS is an important issue for our members | Chapter members participating in the WG, including co-chair | | | | | |
| Competency WG | 4 | AFIS Training & Competence WG | Chapter members participating in the WG | | | Competency, Professionalism, CPD - key topic for our members | | | SE competency and SEP Certification are important topics for our members | | |
| Lean Systems Engineering WG | 3 | | Chapter members participating in the WG | | Lean SE is an important issue for our members | | Lean SE WG - maybe (with "Bo" Oppenheim) | | | | |
| Architecture WG | 5 | AFIS SoS & Service, Architecture WG | | Architectural styles, architectural languages (not SysML) | | UK Architecture WG | | Functional Architecture WG | | | |
| Model-based Conceptual Design WG | 3 | AFIS Research & Innovation in SE WG | Chapter members participating in the WG | potential interest, not knowing much about it | | | | | | | |
| Complex Systems WG | 3 | | Some Chapter members interested in topic; potential for local/Sector WG | | Complex Systems - key topic for our members | | | | Complex Systems - key topic for our members | | |

Main EMEA events in 2017

| EMEA Chapter | Title of the event | Type of event * | Date | Duration | Location | Language |
|---------------------------|--|-----------------------|-----------------------------------|----------------|---------------------------------|----------|
| Denmark | Nordic Systems Engineering Tour 2017 | Seminar | 15-16-17-18-19 May 2017 | 1 day | Copenhagen 17. May 2017 | English |
| Finland | | | | | | |
| France (AFIS and CESAMES) | Third Collaborative Engineering Day | Thematic day | 15 June 2017 | 1 day | Paris | French |
| France (AFIS) | Model based V&V | Workshop | 12 January 2017 | 1/2 day | Grenoble | French |
| France (AFIS) | Systems Engineering and health systems | Thematic day | 20 April 2017 | 1 day | Nîmes | French |
| France (AFIS) | SESE 2017: France step | SE Tour | 29 May | 1 day | Paris | English |
| France (AFIS) | Architecting & MBS | Thematic day | 1 day TBD from 19 to 23 June 2017 | 1 day | To be defined | French |
| France (AFIS) | RobAFIS 2017 | Robot competition | December 2017 | 2 days | To be defined | French |
| France (CSDM) | CSDM 2017 | Conference | Dec-17 | 2 days | Paris | English |
| Germany (GfSE) | Local eveing events | Chapter Meeting | monthly | Evening | Hamburg, Munich, Paderborn, etc | German |
| Germany / EMEA | EMEA 2017 International Workshop | Sector Workshop | 19-21 Sep 2017 | 2 days | Mannheim, Germany | English |
| Israel (ILTAM) | Monthly lectures, seminars, working groups | Chapter Meeting | Monthly | 1-5 days | Israel | Hebrew |
| Italy | CIISE 2017 SESE 2017 – Italy step | Conference SE Tour | Nov-17 30 May 2017 | 1 day 1 day | Napoli Rome | English |
| Netherlands | Monthly lectures | Chapter Meeting | Monthly | Evening | Various in NL | Dutch |
| Norway | KSSE 11th Kongsberg SE Event | Conference | Jun-17 | 1 day | | English |
| Norway | ALSSE Tour - Air, Land, Sea SE Tour | SE Tour | Sep-17 | 1 day | Oslo, Norway | English |
| Poland | Lean Systems Engineering | Workshop | 3-5 Januray 2017 | 3 days | Cracow | English |
| Poland | Nordic Systems Engineering Tour (NoSE 2017) | SE Tour | 19 May 2017 | 1 day | Warsaw | English |
| Russia | | | | | | |
| South-Africa | 13th Annual INCOSE SA Systems Engineering Conference | Conference | 11-13 October 2016 | 3 days | CSIR ICC, Pretoria | English |
| Spain | SESE 2017:Spain step | SE Tour | 31 May | 1 day | Madrid | English |
| Sweden | Nordic Systems Engineering Tour (NoSE 2017) | SE Tour | 16-May | 1 day | Stockholm | English |
| | ALSSE Tour - Air, Land, Sea SE Tour | SE Tour | Sep-17 | 1 day | Stockholm | English |
| Switzerland | SWISSED17 - The Swiss Society of Systems Engineering Day | Conference | 42982 | 1 d | Zürich | English |
| Tunisia | | | | | | |
| Turkey | | | | | | |
| UK | Training day | Tutorial | 42886 | 1 day | Bristol | English |
| UK | ASEC 2017 | Conference | 14-15 November 2017 | 2 days | Liverpool | English |

Perspectives for INCOSE

- **Extension of Systems Engineering usage**
 - To other domains such as Transportation, Energy, Healthcare, Smart cities,..
 - Fully Integrated with Project Management
 - With all actors of the Extended Enterprise, including VSE/SME.
- **Full deployment of MBSE** at wide scale
- Promotion of **Systems Thinking** to support complex systems and societal situations
- Recognition of **Systems Engineering as core competence** in the Academic and Industrial worlds
- Maintain, update and promote a **Systems Engineering Vision**

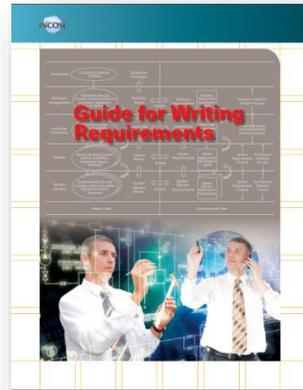
I wish you a good and fruitful day

Enjoy SESE 2017 !

In any question or comment, please address it to
Jean-claude.rousseau@airbus.com

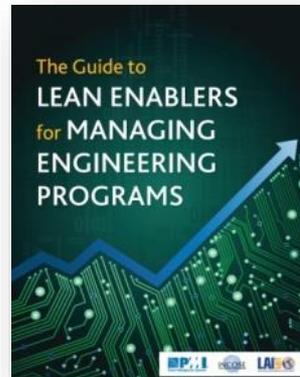
Some Successful Experiences....

Requirement WG



The Guide for Writing Requirements

Lean Systems
Engineering WG



Lean Enablers for Managing
Engineering Programme
Joint Publication PMI-INCOSE-MIT

PMI-INCOSE Alliance
(Partnership with MIT)



Guide to the Systems Engineering
Body of Knowledge



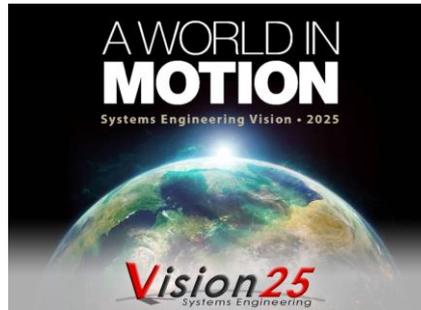
Body of Knowledge and Curriculum for Advanced
Systems Engineering
(Partnership with IEEE and SERC)



Graduate Reference Curriculum for
Systems Engineering

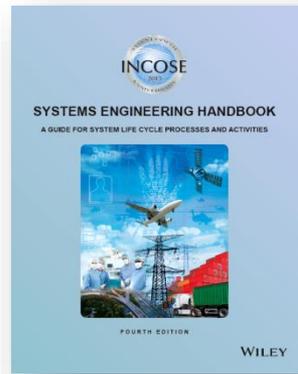
Some Successful Experiences....

SE Vision 2025

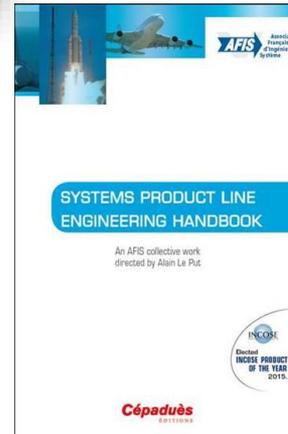


The Systems Engineering Vision 2025

The Systems Engineering Handbook (V4)



Product Line WG



Product Line Engineering Handbook