



18th World Congress
Milano (Italy)
August 28th – September 2nd, 2011
<http://www.ifac2011.org>



INVITED SESSION ON

DESIGN APPROACHES, PATTERNS AND FRAMEWORKS FOR INTEROPERABILITY IN SYSTEM ENGINEERING (code cX8ld)

Sponsored by



Working Group “GT Easy-Dim”
from the French CNRS National
Research Group GDR MACS



IFAC TC 5.3 “Enterprise Integration
and Networking”

Organisers

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Keywords: System Engineering, Complex Systems management and design, Interoperability, System Engineering Design Patterns, Frameworks and Reference Models

Scope: System Engineering (SE) provides methodologies, tools, reference models or frameworks, norms and standards to support the design or redesign of complex systems. The goal of System Engineering methodology is to help, guide and support design engineers when defining and formalising needs and requirements, building functional and organic architectures, verifying and validating the system of interest by checking its relevance, coherence and consistency or when assessing and optimising these architectures referring to multiple criteria. System Engineering is a model-driven approach focusing on problem definition and solution description. It can be applied both to technical or socio-technical systems.

Among the last years, research on interoperability has led to many contributions. In a simple way, interoperability can be considered as the ability of a system of interest to work efficiently in interrelation with other systems in a given environment: technical, informational, human operators... Interoperability appears crucial when designing complex systems and should tend to be maximised by engineers involved in SE processes. However, current works on interoperability essentially focus on a restrictive vision of interoperability for Information Systems or Enterprise Applications that only partially covers SE concerns.

Therefore, the “Design approaches, patterns and frameworks for interoperability in System Engineering” session focuses on the necessary links to be deeply developed between SE methodologies and Interoperability issues. Authors are invited to submit original contributions on all aspects of enterprise reference models and architecture, including but not limited to:

- Interoperability issues in Model Driven Approach and Model Based System Engineering context
- Design Pattern for interoperability
- Agile model transformation for conceptual interoperability



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- Dynamic/static modelling languages and interoperability barriers requirements
- Meta model composition for improving model interoperability
- Interoperability issues within System Engineering and System of Systems Engineering (needs, requirements, functional and architectural design)
- Organisational, conceptual and technical barriers of interoperability facing to System Engineering approaches, tools and processes
- Lack, limitations and improvement of System Engineering reference models and architecture frameworks with regards to interoperability issues
- Interoperability reference models, frameworks and interoperability maturity model relevance or usage in system engineering context, ...

Applications and demonstrations are welcome:

- System of Systems engineering,
- Manufacturing System engineering,
- Information System engineering,
- Mechatronical System engineering,
- Enterprise System engineering, ...

Prospective authors are invited to contact the organizers by sending them an email before **July 31st, 2010** with the title of the paper, the authors' names and affiliation and 10 lines abstract.

Papers submissions will be due before **September 30th, 2010** through the conference submission platform, selecting the session title.