

Trans-Atlantic Modelling and Simulation for Cyber-Physical Systems



Introduction of TAMS4CPS

Validation Workshop, Brussels, 16th November 2016

Presented by: Prof. Michael Henshaw, Loughborough University

TAMS4CPS in a nutshell



- **TAMS4CPS:**
Trans-Atlantic Modelling and Simulation
for Cyber-Physical Systems
- Support Action, co-financed by the
European Commission, DG Connect
ICT 1-2014: **Smart Cyber-Physical Systems**
- 3 Partners from 2 European countries & 5
collaborators from the US
- Coordinator: Prof. Michael Henshaw,
Loughborough University, United Kingdom
- Project duration:
February 2015 - January 2017, 24 months
- Total EC contribution: EUR 399.650
- GA No.: 644821



TAMS4CPS Aims & Objectives



- Define scope of **CPS for US and Europe** and agreed scope for **collaboration**
- Identify **priority research** and **development needs for modelling** and simulation for cyber-physical systems
- Create a **strategic research agenda for collaboration (SRAC) in modelling and simulation for cyber-physical systems (CPS)**, which is endorsed by European and US industry and academia
- Provide **key enablers** for Trans-Atlantic collaboration in modelling and simulation for cyber-physical systems
- **Disseminate findings** of the project to the research and user communities in both the European Union and the US

TAMS4CPS - Trans-Atlantic Modelling and Simulation for Cyber-Physical Systems



Approach & Expected Results

Creation of an **Experts Community** with 5-year availability



Test cases, webinars, workshops with Experts Group in order to facilitate development of a:



Strategic Research Agenda for EU and US Collaboration in modelling and simulation for CPS

- Types of Modelling:
 - Architectures Principles and models for Autonomous Safe and secure CPS
 - System Design, modelling and virtual engineering for CPS
 - Real time modelling for Autonomous adaptive and cooperative CPS
 - Model-Based Systems Engineering (MBSE9 applied to Computing Platforms and energy management
 - Integration of socio/legal/governance models within modelling framework

Project Partners



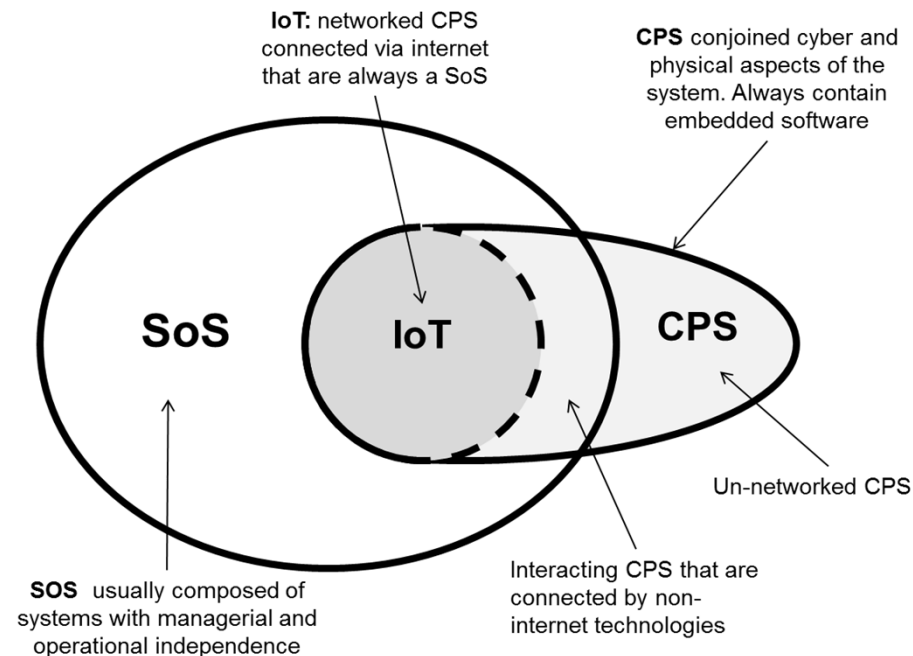
US Collaborators

Theme 1	George Mason University
Theme 2	Georgia Institute of Technology
Theme 3	Purdue University
Theme 4	The University of Texas at San Antonio
Theme 5	Stevens Institute

EU Partners

 Loughborough University	Loughborough University, United Kingdom
 STEINBEIS-EUROPA-ZENTRUM	Steinbeis-Europa-Zentrum, Germany
 Newcastle University	Newcastle University, United Kingdom

CPS: “fundamental intellectual problem of conjoining the engineering traditions of the cyber and physical worlds” (Lee 2015)



The use of models is fundamental to all forms of enquiry: a model is always a representation of reality, but its form is dependent upon the type of enquiry and, often, the discipline in which that enquiry is pursued.

Outcomes

To lay the foundations for EU-US collaboration in Modelling and Simulation for Cyber-Physical Systems

- A recognised gap in M&S
- Mutual interest and benefit to EU and US
- Realistic objects can be set

Strategic Research Agenda for Collaboration

State of the Art in relevant areas

Test cases for collaborative comparisons

Welcome

The purpose today is to use your expert opinion to validate the agenda and make any adjustments or augmentations to ensure its acceptability to European organisations

It is planned to publish the agenda in its final form at the end of 2016

Contact



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