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Artemis Spring Event

CPS Summit

Overview

Harald Ruess (ruess@fortiss.org)



CPS Summit

Coordinated Support Action



Goal: Facilitating and creating an enduring and sustainable collaboration campaign on CPS research and development between Europe and the US.

Start: 1st February 2015

End: 31st July 2016

Scientific Coordinators: Joseph Sifakis, Manfred Broy

Project Coordinators: Harald Ruess, Saddek Bensalem

Funding: European Commission under **H2020** programme within topic **ICT-01-2014** under grant agreement #644184

Project Officer: Werner Steinhögl

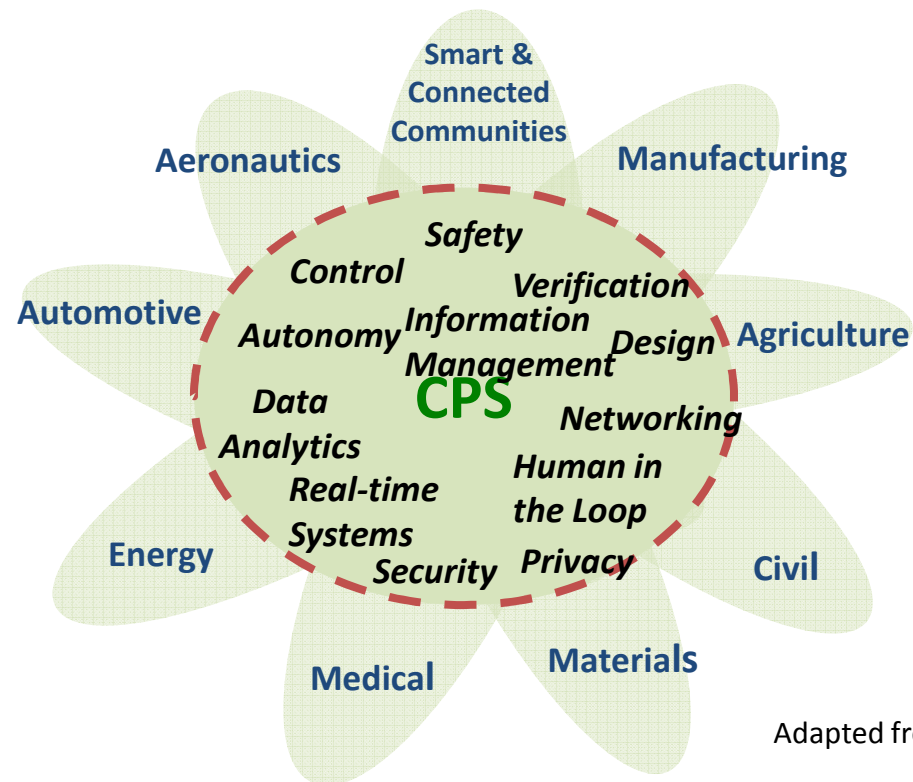
See also: <http://cps-vo.org/node/19159> (group: cps-summit)



The CPS Landscape

The EU and the US face **common challenges** to push forward the limits of the **science and technology for engineering trustworthy CPS**

- US PCAST, Agenda CPS, JU Artemis/ECSEL, Cyphers



Adapted from NSF source



Key Challenge

Mastering the Engineering of Trustworthy CPS

CPS are a **core enabling technology** with lots of game-changing business potential and novel business models for integrated services and products.

We **do not yet have a mature science to support CPS engineering**

- Area **lacks the maturity** of established engineering and scientific disciplines
- It also **lacks scalable principles** of combining large heterogeneous ensembles of physical systems, humans, and cyber-systems
- **Lack suitable of methodologies** and systems engineering processes applied to cross-domain CPS, and consequently, a **lack of suitable standards** and **supporting tools**.

... and the consequences are profound

- The lack of foundations and methodologies create barriers that may **prevent market success** of new CPS applications and hinders the **implementation of cross-sectorial value chains**.
- **Current CPS** systems are **engineered and maintained at very high cost and sometimes with unknown risks**.

We are about to make our society completely dependent on a technology, whose risks have been insufficiently reflected upon.



Key Action Plan

Transatlantic Research Collaboration

- The magnitude of the CPS foundational challenge is so great that a research **cooperation between the US and Europe** would prove to be more **beneficial for industry, academia, and governments**.
- The CPS Summit prepared an **action plan** for such a transatlantic collaboration.
 - I. **Joint research**: making CPS predictable and dependable across life-cycle
 - II. **Driving open, horizontal standards**: capitalizing on synergies in building CPS
 - III. **Open platforms and living labs**: testing and experimentation with CPS
 - IV. **Exchanging best practices**: training and education for CPS
- CPS Summit champions the **implementation** of a **transatlantic CPS research program** with joint review process based on its action plan.
 - A **novel mechanism to foster a strong EU-US research collaboration** is needed.
- CPS Summit aims to jointly **assess fundamental** CPS design, production, operation and life-cycle management **principles, methods, and associated risks**

