Project Deliverable

Project Number:	Project Acronym:	Project Title:
611115	CPSoS	Towards a European Roadmap on Research and Innovation in Engineering and Management of Cyber-Physical Systems of Systems

Instrument:	Thematic Priority
COORDINATION AND SUPPORT ACTION	ICT

Title

D1.1 Systems of Systems Working Groups:
List of members and Terms of Reference

Due Date:	Actual Submission Date:
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Start date of project:	Duration:
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PU	Public	**X**
PP	Restricted to other programme participants (including the Commission)	
RE	Restricted to a group defined by the consortium (including the Commission)	
CO	Confidential, only for members of the consortium (including the Commission)	

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Abstract :

The present document contains a finalised list of the members of each of the Working Groups and the finalised version of the Terms of Reference that have been set up to serve as modus operandi for the work to be done by the Working Groups.

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Keywords :

Working Group, Terms of Reference, Cyber-physical systems of systems

Disclaimer:

Revision History

The following table describes the main changes done in the document since it was created.

Revision	Date	Description	Author (Organisation)
V1	6/01/2014	Creation	Dagmar Marron (inno TSD)
V2	05/02/2014	Initial review and contribution	Svetlana Klessova (inno TSD)
V2.1	11/02/2014	Contribution	Dagmar Marron (inno TSD)
V3	13/02/2014	Review	Haydn Thompson (Haydn Consulting Ltd)

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Acronyms and Definitions

Acronym	Defined as
FP7	7th Framework Programme for Research and Technological Development
IP	Integrating Project
R&D	Research and Development
SoS	Systems of Systems
STREP	Specific Targeted Research Projects
ToR	Terms of Reference
WG	Working Group

1. Introduction

The concept of systems of systems has emerged as an active domain of research in recent years at the interface of various disciplines, such as computer science, systems and control, systems engineering, and is of crucial importance for the societal challenges facing the world.

CPSoS, funded by the EC (FP7 programme), is a 30-month Support Action that will provide a forum and an exchange platform for systems-of-systems related communities and ongoing projects, focusing on the challenges posed by the engineering and the operation of technical systems in which computing and communication systems interact with large complex physical systems. Its approach will be simultaneously integrative, aiming at bringing together knowledge from different communities, and applications driven.

It will bridge between the different approaches to the design, analysis and control of SoS that are pursued by different communities in theory and applications and relate the different methods and tools proposed for dealing with SoS to key application domains which are important for Europe's competiveness as well as for the well-being of its citizens. The project will examine in depth application-specific issues, capture cross-industry and cross-application findings and ensure appropriate cross-domain developments and propose new avenues for SoS analysis, design and control, towards a science of systems of systems and a European R&I agenda on SoS, involving different scientific communities, application domain experts, end-users and vendors of solutions and equipment.

The project findings will be summarized in a concise strategic policy document "European research and innovation agenda on Cyber-physical Systems of Systems" supported by a set of in-depth technical papers. A symposium "Cyber-physical Systems of Systems Meeting Societal Challenges" will be organised.

The core activity of CPSoS are three Working Groups, with interactions between them:

- **Working Group 1: Systems of Systems in Transportation and Logistics**
- **Working Group 2: Physically Connected Systems of Systems**
- **Working Group 3: Tools for Systems of Systems Engineering and Management**

The Working Groups are led by neutral (in terms of commercial competition) and experienced leading European experts in their domains who are committed to a broad, interdisciplinary and integrative approach.

The first two Working Groups will focus on applications; one covering all areas that are related to transportation and logistics and one on physically connected systems of systems. These Working Groups comprise internationally recognised experts and have strong participation from industry. They will synthesize the needs of the application domains in a bottom-up fashion.

The third Working Group will provide a map of available and forthcoming tools and theories and will provide analysis of the state of the art.

These two views will be integrated by joint working sessions in order to identify gaps and opportunities and to provide a full map of challenges, open problems, proposed theories and solutions and needs for future research. Cross-industry and cross-application findings will be captured thanks to interactions within and between the Working Groups.

The Working Groups are guided by the Terms of Reference, providing an overview on the objectives, work plan, expectations on the WG members and indicative timeline.

2. Overview of Working Groups

The following three Working Groups have been set up:

- **Working Group 1: Systems of Systems in Transportation and Logistics**
  Chair: Professor Haydn Thompson, Haydn Consulting, UK - 8 members

- **Working Group 2: Physically Connected Systems of Systems**
  (i.e. Systems of Systems in Electrical Power Grids, Industrial Systems, Distribution Networks, Smart Buildings)
  Chair: Professor Sebastian Engell, TU Dortmund, DE - 10 members

- **Working Group 3: Tools for Systems of Systems Engineering and Management**
  Chair: Professor Wan Fokkink, TU Eindhoven NL - 11 members

These Working Groups are composed of:

- One Chair per Working Group
- Members from industry and academia, representing computer science and systems & control communities and
- Representatives from the following running FP7 SoS STREP/IP funded projects:
  - **AMADEOS**
    Architecture for Multi-criticality Agile Dependable Evolutionary Open System-of-Systems
  - **COMPASS**
    Comprehensive Modelling for Advanced Systems of Systems
  - **CyPhERS**
    Cyber-Physical European Roadmap and Strategy
  - **DYMASOS**
    Dynamic Management of Physically Coupled Systems of Systems
  - **Local4Global**
    System-of-Systems that act locally for optimizing globally

- Additional external members may be accepted throughout the project lifetime, upon agreement with the Working Group Chair and the European Commission.

3. List of Working Group members

WG1: Systems of systems in transportation and logistics

Haydn	THOMPSON	Haydn Consulting Ltd (WG Chair / Consortium member)
Carlos	CANUDAS DE WIT	CNRS GIPSA-Lab
Uwe	CLAUSEN	Fraunhofer IML
Charles	DIBSDALE	OSyS (Rolls Royce)
Philippe	LIATARD	CEA – Leti
Antonio	PASCOAL	IST, Instituto Superior Tecnico
Maria Victoria	CENGARLE	Fortiss GmbH – Delegate FP7 Project CyPhERS
Hermann	KOPETZ	TU Wien – Delegate FP7 project AMADEOS

WG2: Physically connected systems of systems

Sebastian	ENGELL	Technische Universität Dortmund (WG Chair / Project Coordinator)
Göran	ANDERSSON	ETH Zürich
Vladimir	HAVLENA	Honeywell Prague Laboratory
Alf	ISAKSSON	ABB AB Västerås
Patrick	PANCIATICI	RTE - Réseau de Transport d'Electricité
Francesco	BRANCATI	ResilTech SRL – Delegate FP7 Project AMADEOS
John	FITZGERALD	Newcastle University – Delegate FP7 project COMPASS
Elias	KOSMATOPOULOS	Technical University of Crete – Delegate FP7 project Local4Global
Stefan	KRÄMER	INEOS in Köln – Delegate FP7 Project DYMASOS
John	LYGEROS	ETH Zürich – Delegate FP7 project DYMASOS and Local4Global

WG3: Tools for systems engineering and management

Wan	FOKKINK	Technische Universiteit Eindhoven (WG Chair / Consortium member)
Alberto	BEMPORAD	IMT Lucca
Alessandro	CIMATTI	Bruno Kessler Foundation
Marika	DI BENEDETTO	University of l'Aquila
Peter	FRITZSON	Linköping University
Stefan	KOWALEWSKI	RWTH Aachen
Erwin	SCHOITSCH	AIT - Austrian Institute of Technology
Wil	VAN DER AALST	Technische Universiteit Eindhoven
Christina	DIAKAKI	Technical University of Crete – Delegate FP7 project Local4Global
Peter Gorm	LARSEN	Aarhus University – Delegate FP7 Project COMPASS
Martin	TÖRNGREN	KTH Stockholm – Delegate FP7 project CyPhERS

4. Terms of Reference of the CPSoS working groups

4.1. Background

The concept of systems of systems has emerged as an active domain of research in recent years at the interface of various disciplines, such as computer science, systems and control, systems engineering, and is of crucial importance for the societal challenges facing the world.

CPSoS - Towards a European Roadmap on Research and Innovation in Engineering and Management of Cyber-physical Systems of Systems - is a 30-month Support Action funded by the European Commission under FP7 programme, it aims at building constituencies for a European R&I agenda on SoS. CPSoS will provide a forum and an exchange platform for systems-of-systems related communities and ongoing projects, focusing on the challenges posed by the engineering and the operation of technical systems in which computing and communication systems interact with large complex physical systems. Its approach will be **simultaneously integrative, aiming at bringing together knowledge from different communities, and applications driven.**

The project will:

- Bridge between the different approaches to the design, analysis and control of systems and systems that are pursued by different communities in theory and applications;
- Relate the different methods and tools proposed for dealing with SoS to key application domains which are important both for Europe's competitiveness and for the well-being of its citizens, as e.g. energy systems, transport systems, air traffic management, water and gas networks, production systems.

The project will examine in depth application-specific issues, capture cross-industry and cross-application findings and ensure appropriate cross-domain developments and propose new avenues for SoS analysis, design and control, towards a science of systems of systems.

The goals and the outcomes of current projects (STREPs, IPs on the European level, support actions on SoS, the Network of Excellence HYCON II, nationally funded projects and initiatives) and related international initiatives will be analysed, common problems, methods and features will be synthesized, trends and most important topics for the future proposed and discussed, involving both the scientific communities coming from different domains (computer science, systems and control, systems engineering) and domain experts and end-users and vendors of solutions and equipment. This will provide favourable conditions for sharing knowledge in a large community and for proposing new avenues for further R&D initiatives. The approach will facilitate networking, feed discussions and will thus prepare the EU stakeholders from both research and users communities for extracting a competitive advantage from the recent and the future SoS developments.

The uniqueness of CPSoS is

- The broad, trans-disciplinary integrative approach
- The focus on the needs of real applications in the domain of cyber-physical systems and the inclusion of recognized representatives from the application fields and from leading industrial companies.

The final outcomes of the project will be:

- Identification of industrial & societal needs and of the state-of-the-art of tools and theories for cyber-physical SoS
- Identification of synergies, open issues and promising trans-disciplinary research directions, which will go into work programs of the EU, national funding programs, etc.
- Building up a network of key researchers and application domain experts in the area
- Stimulate the take-up of research by industry (vendors and end-users)
- Raise public awareness of the impact of research on systems of systems engineering, analysis and control (Public events will be organised in conjunction with some of the Working Group meetings).

CPSoS will organize a final dissemination conference – a symposium ("Cyber-physical Systems of Systems Meeting Societal Challenges") on how design, analysis and control of SoS can respond to the current societal challenges. The policy recommendations will be summarized in a position paper "European research and innovation agenda on Cyber-physical Systems of Systems" which will be complemented by detailed technical papers written by the members of the working groups. It is planned to publish the position paper and the technical documents in an edited book to provide an authoritative reference for the emerging field of Cyber-physical Systems of Systems.

Implementing consortium:

- Technische Universität Dortmund (Germany / Sebastian Engell, Project Coordinator)
- Haydn Consulting (Great Britain / Haydn Thompson)
- TU Eindhoven (The Netherlands / Wan Fokkink)
- inno TSD (France / Svetlana Klessova)

4.2. Working Groups

The core activity of CPSoS will be three Working Groups, with interactions between them:

- **Working Group 1: Systems of Systems in Transportation and Logistics** (Chair: Professor Haydn Thompson, Haydn Consulting, UK)
- **Working Group 2: Physically Connected Systems of Systems** (i.e. Systems of Systems in Electrical Power Grids, Industrial Systems, Distribution Networks, Smart Buildings - Chair: Professor Sebastian Engell, TU Dortmund, DE)
- **Working Group 3: Tools for Systems of Systems Engineering and Management** (Chair: Professor Wan Fokkink, TU Eindhoven NL)

4.3. Objectives of the Working Groups

The main objective of the Working Groups will be to prepare a **proposal for the "European Research and Innovation Agenda on Cyber-physical Systems of Systems**".

The first two working groups will analyse the situation in the application domains in a bottom-up fashion and collect needs for research and development in tools and methods for systems of systems. The third working group will assemble a broad picture of the available tools and methods and of the existing gaps from a methodological point of view. **In synthesizing both views, we expect to develop a broadly supported research agenda for the next decade.**

The Working Groups will:

- identify and analyze common features and differences between applications, industrial and societal needs and the tools and approaches currently adopted
- help assess and interrelate relevant activities as related to systems of systems, synthesize the needs of the application domains in a bottom-up fashion, and identify gaps and opportunities;
- discuss and provide a map of challenges, open problems, proposed theories and solutions and needs for future research;
- facilitate the process of consultations to identify the research topics of common interest, involving where necessary the relevant stakeholders from SoS community (academia, industrial and users);
- contribute to the development of a policy proposal (position paper) for the European research and innovation agenda in systems of systems, supported by technical papers;
- contribute to the promotion of the project activities and results.

4.4. Compositions of the Working Group

The core of the Working Group will be composed of:

- One Working Group Chair
- Members from industry and academia, representing computer science and systems & control communities (**see Annex 1 - List of Working Groups' Members**)
- Members representatives from the following running SoS STREP/IP projects:
  - AMADEOS - Architecture for Multi-criticality Agile Dependable Evolutionary Open System-of-Systems
  - COMPASS - Comprehensive Modeling for Advanced Systems of Systems,
  - CyPhERS - Cyber-Physical European Roadmap and Strategy
    DYMASOS - Dynamic Management of Physically Coupled Systems of Systems
  - Local4Global - System-of-Systems that act LOCALly For optimizing GLOBALly,

The Working Group membership might be open throughout the project to additional external members, as appropriate and upon agreement with the Working Group Chair and the European Commission. The particular participants at any Working Group meeting may vary according to the needs and topics covered. The coordinator of the project (Prof. Sebastian Engell, TU Dortmund) may participate in the Working Group meetings or delegate a member of his team.

4.5. Expectations on Working Group Members

Working Group members are expected:

- to participate in four meetings (and related public workshops) during the project lifetime (30 months); indicative timing is the following:
  - Meeting 1 (kick off, joint for three WGs): January 2014 (in Düsseldorf, DE)
  - Meeting 2 (individually by WG): around Month 12/13 (locations to be defined)
  - Meeting 3 (joint): around Month 21 (expected in Florence, IT)
  - Meeting 4: around Month 29 (symposium "Cyber-physical Systems of Systems Meeting Societal Challenges")
- to actively contribute, during these meetings, to project discussions, findings and recommendations;
- to be the **project ambassadors** by keeping informed their various networks of the project outcomes, the **project proactive observers** by notifying any new initiatives and **the project inner reviewers** by providing feedbacks, advices and ideas notably concerning the case studies, the results, etc
- to contribute with a technical article in the specific domain of competence, detailing the content of the policy document (article to be presented at the symposium and published as a special issue or in a book)

The Chair of the Working Group is expected:

- to finalise composition of the Working Group during the early project stage;
- to nominate one contact person in order to facilitate the correspondence, provide technical support to the process and support drafting report under direction of the Chair;
- to facilitate the interaction of the Working Group members;
- to moderate the meeting of the Working Group;
- to prepare the Working Group's meeting report (public document) and to follow up the meeting.

4.6. Operation mode of the Working Groups

4.6.1. Secretariat

The consortium partner inno TSD will provide methodological and communication support to the Working Groups, e.g. ensuring overall coordination, setting up meetings and agendas in cooperation with Chairs of the Working Groups, preparing dissemination materials, publish them on the web site, provide logistical support to the organization of the events, including invitations etc.

4.6.2. Meetings of the Working Groups

A tentative planning of the meetings has been established. The date of the meetings will be fixed at least 3 months in advance in order to provide enough time to ensure the necessary logistical preparations.

The draft agenda proposed by the hosting party will be finalized with the coordinator and the secretariat through an iterative process well in advance of the meeting and if possible not later than 30 days prior to the meeting.
Ad hoc members may be invited to participate in meetings for which a specific area of expertise may be identified.
The meeting objectives are planned as following (planning of the meeting is indicative and will be confirmed):

- **1st meeting**, **kick off, end of January 2014** (**joint WG meeting, in Dusseldorf, Germany**): to kick off the process; to discuss current status in Transportation and Logistics as related to systems of systems, in Physically connected systems of systems and Tools for systems of systems Engineering and Management, in particularly with regard to resource knowledge base (research teams, projects…), to discuss preliminary recommendations and open issues, to validate the next steps
- **2nd meeting**, **around September – October 2014 "State of the art and future challenges in cyber-physical SoS":** to sum up findings and trends, to propose further directions. A relevant public event will be organized in conjunction to each Working Groups' meeting.
- **3rd meeting, around March 2015 (joint WG meeting, expected in Florence, IT), "European research and innovation agenda on systems of systems"**: to propose directions for the future European research and innovation agenda on Cyber-physical Systems of Systems. A public workshop will be organized in conjunction to the Working Groups' meeting.
- **4th meeting, around March 2016 "Symposium "Cyber-physical Systems of Systems Meeting Societal Challenges":** to present policy document and technical papers supporting it (materials will be published).

4.6.3. Confidentiality issues

The Working Group will make papers and presentations publicly available after each session unless a member or expert explicitly asks to keep some or all of the content confidential. The documents and material developed by the Working Groups will be made public, after validation from the WG members. Those documents will be circulated to the Working Group members, asking for comments and remarks where applicable until a certain deadline. If no feedback is provided until this deadline, the consortium will consider this to be an approval.
In some particular cases, certain non-approved documents might be kept confidential. They will be clearly identified by the mention "RESTRICTED DISTRIBUTION" and be handled accordingly.

4.6.4. Resources

The travel costs of the Working Group members who are not delegates from other projects, and of the Chair, will be covered by the project.

The Working Group members should contact directly the Working Group Chair, or his representative, for any question related to the meeting of the WGs and ticket cost coverage. Contact details have been provided separately.

Representatives of the STREP/IP SoS R&D projects funded by the EC will take in charge their travel cost coverage.

The Chair of the Working Groups has the budget provision for the organization of the meetings of the Working groups (meals, coffee breaks...). The funding is also available for the workshops to be organized in conjunctions with the Working group meetings.

4.6.5. Timescale and Duration

The Working Groups are established for the duration of the project (start October 1st, 2013, duration 30 months).

4.7. Legal Status

These Terms of Reference are not intended to create any legally binding obligations and do not constitute an agreement under international law.

4. Short biopics of Working Group members

Working Group Members appointment has started at proposal stage and has now been finalised.

4.1. Working Group 1: Systems of Systems in Transportation and Logistics

(Chair: Professor Haydn Thompson, Haydn Consulting, UK)

Prof. Haydn Thompson
Consultant and Professor of Systems Engineering
Haydn Consulting Ltd.
United Kingdom

Professor Haydn Thompson, BSc, PhD. CEng has 20 years experience working in a mixture of senior industrial research and development roles in flight control systems, space programmes and radar signal processing applications for leading companies. From 1993- Feb. 2013 he was the Programme Manager of the Rolls-Royce Control and Systems University Technology Centre. Currently he is Managing Director of Haydn Consulting Ltd. as well as being a founder and owner of THHINK Wireless Technologies Ltd. (UK) and THHINK Wireless Technologies (Japan) Ltd which specialises in robust, ultra low power embedded wireless sensors, energy harvesting and custom platforms for diagnostics, health monitoring and control. He has over 100 publications on applications of distributed systems, multi-disciplinary multi-objective optimisation, gas turbine engine control, fault diagnosis and health monitoring, wireless communications, energy harvesting, rapid prototyping and co-simulation. He has also written two books on gas turbine engine control. He is, or has been, a member of the International Federation of Automatic Control's (IFAC) International Aerospace Control, Mechatronics and Real-Time Computing and Control Committees being chair of Embedded Systems, the Institution of Electronic and Electrical Engineers Aerospace Committee, and IET representative on the Learned Society Board of the Royal Aeronautical Society. He is a member of the American Institute of Aeronautics and Astronautics.

Having gained over £10M of funding Professor Thompson was the co-ordinator for the European Union funded IST FLEXICON project, led work on the More Electric Aircraft in the Airbus/EU MOET project and led two consortia of 4 Universities in the WICAS and SWIFT projects with Airbus. He has also run successful research programmes with Network Rail developing self-powered wireless sensor technologies for infrastructure monitoring which are being productionised. In the area of System of Systems he is an expert advisor to Rolls-Royce Aerospace and Marine as well as acting as an expert consultant to IDC on embedded systems and system of systems. He was an expert panel member for the European Commission on mixed criticality systems and system of systems writing the "Directions in Systems of Systems Engineering" Report for the EC in 2012. He has also acted as Rapporteur for the EU funding call on SoS and is a Project Reviewer for the COMPASS SoS IP.

Carlos Canudas de Wit
Director of Research (DR1) at the CNRS
Leader investigator of the research group NeCS
(Networked Controlled Systems) at
GIPSA-Lab (CNRS), Grenoble
France

Canudas-de-Wit, Carlos was born in Villahermosa, Tabasco, Mexico in 1958. He received his B.Sc. degree in electronics and communications from the Technological Institute of Monterrey, Mexico in 1980. In 1984 he received his M.Sc. in the Department of Automatic Control, Grenoble, France. He was visitor researcher in 1985 at Lund Institute of Technology, Sweden. In 1987 he received his Ph.D. in automatic control from the Polytechnic of Grenoble (Department of Automatic Control), France. Since then he has been working at the same department as "Directeur de recherche at the CNRS", where he teaches and conducts research in the area of nonlinear control of mechanical systems, and on networked controlled systems. He is the current leader of the NeCS GIPSA-lab(CNRS)-INRIA team on Networked controlled systems. His research topics includes: vehicle control, adaptive control, identification, control of walking robots, systems with friction, AC and CD drives, networked controlled systems, and road traffic modeling and control. He has established several industrial collaboration projects with major French companies (FRAMATOME, EDF, CEA, IFREMER, RENAULT, SCHNEIDER, ILL, IFP, ALSTOM). He has been associate editor of the IEEE-Transaction on Automatic Control, from Jan 1992, to Dec. 1997, AUTOMATICA, from 1999, to 2002, Editor of the Asian Journal of Control (since 2010), and IEEE Transaction on Control System Technology (Since Jan. 2013), and the IEEE Transaction on Control of system Networks (Since June 2013). He is current President of the EUCA association for the period 2013-15, and serves at the IEEE Board of Governors of the Control System Society 2011-2014. His research publications includes: 185 International conference papers, and 62 published papers in international journals, 5 books, 9 Book chapter, and holds 11 Patents. He has supervised more than 30 Ph. D. students, 11 Post-docs, and more than 30 Ms.

Prof. Dr-Ing. Uwe Clausen
Director
Fraunhofer IML & ITL,
TU Dortmund University
Germany

Prof. Clausen worked in the logistics service industry as European Operations Director at Amazon.com and logistics manager at Deutsche Post DHL until 2001. 2002 to 2005 Prof. Clausen was dean of the engineering faculty at TU Dortmund University. From 2004 - 2012 he was Member of the DFG (German Research Foundation) experts board “System technology” on the subject “Traffic and transportation systems, logistics, quality management”. As of 2013 he is Member of the board of ECTRI European Conference of Transport Research Institutes. His research areas include commercial traffic modelling, intermodal transportation, network optimization and distribution systems.

Charlie Dibsdale
Chief of Engineering Research and Intellectual Property
at Optimized Systems & Solutions
United Kingdom

Charlie Dibsdale is a seasoned engineer, with over 20 years experience in operations and maintenance in Nuclear propulsion and submarine systems, with formal Computer science and information systems education. He is an internationally

recognized expert in Predictive maintenance authoring books and delivering key note presentations, as well as actively contributing to emerging engineering standards such as API 691 and Integrated Vehicle Health Management (on the SAE HM1 committee). He is also expert in Engineering Research and Technology and management of intellectual property in adding key differentiating technology to predictive maintenance and other areas associated with complex machinery asset management.

Dr. Philippe Liatard
Transport Program Manager

CEA-Leti
(Laboratory for Electronics & Information Technology)
France

Philippe Liatard has a PhD in CEA in the field of Atomic Physics. Co-founder of CORYS spin off of CEA in the 90's, he was in charge of international projects for simulator development in Energy Production Systems. Since 2000 Philippe has been in charge of funding projects with SMEs in the field of micro electronics and he has been participating in European research projects with SMEs. He represents CEA Leti in European associations in charge of research on transportation system like EARPA and EPOSS. Philippe is project manager for national and European projects for future vehicles and transport infrastructures and is representing CEA Leti in Road2SoS project and responsible for the Multimodal Traffic Management domain.

CEA-LETI employs some 1600 people among whom 1100 CEA employees and co-workers of various status including 100 people from industrial partners, working in the CEA-LETI premises within the framework of bilateral collaborations. Otherwise CEA-LETI is developing research activities with industrial partners in earth transportation systems through its Systems Department (DSIS) . CEA is participating in many projects in the field of transportation and infrastructure : vehicle safety, full electric vehicle, reloading FEV with photovoltaïc panels, Infra red vision, Embedded sensors etc. This development axis will answer to global energy and CO2 reduction by the way of better traffic management and full electric vehicle.

Photo to come

Dr. Antonio Pascoal
IST, Instituto Superier Technico /
Institute for Systems and Robotics
Portugal

PhD in Control Science from the University of Minnesota, Minneapolis, MN, USA. Associate Professor of IST and Member, Scientific Council of ISR. Expertise in Dynamical Systems Theory, Robotics, Navigation, Guidance, and Control of Autonomous Vehicles, and Networked Control and Estimation. Associate Editor, International Journal of Systems, Control and Communications. Elected Chair, IFAC Technical Committee Marine Systems, 2008. Vice-President EuorOcean, the European Center for Information on Marine Science and Technology. He was IST´s responsible scientist for eight EU funded collaborative research projects and several national research projects, all in the area of dynamical systems and ocean robotics. He has cooperated extensively with groups in Europe, US, and India on the development and testing of advanced robotic systems for ocean exploration. He is the author of more than 150 papers and communications on the subject, published in international journal and proceedings of conferences.

Dr. rer. nat. Maria Victoria Cengarle
(Delegate CyPhERS)
Staff researcher, Software & Systems Engineering division
fortiss GmbH
Germany

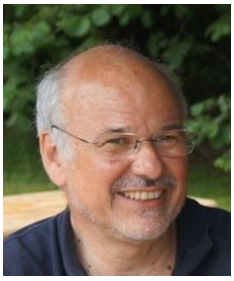
Dr. María Victoria Cengarle studied computer science at the Universidad de Buenos Aires and the Escuela Superior Latinoamericana de Informática (ESLAI), Argentina, and obtained her Ph.D. degree from the Ludwig-Maximilians-University of Munich. As a research assistant at various research institutes, she was involved in numerous national and international projects, of both basic and applied nature as well as with transfer character. These include the standardization of the programming language Lisp, foundations of system development and the formal semantics of the modelling languages UML and OCL.

Prof. Dr. Hermann Kopetz
(Delegate AMADEOS)
Professor Emeritus
TU Wien,
Vienna University of Technology
Austria

Hermann Kopetz is professor emeritus at the Technical University of Vienna. He is the chief architect of the time-triggered technology for dependable embedded Systems and a co-founder of the company TTTech. The time-triggered technology is deployed in leading aerospace, automotive and industrial applications. Kopetz is a Life Fellow of the IEEE and a full member of the Austrian Academy of Science. Kopetz served as the chairman of the IEEE Computer Society Technical Committee on Dependable Computing and Fault Tolerance and in program committees of many scientific conferences. He is a founding member and a former chairman of IFIPWG 10.4 and has been a member of the ISTAG advisory group at the European Commission in Brussels from 2008-2012. Kopetz has written a widely used textbook on Real-Time Systems and published more than 200 papers. In June 2007 he received the honorary degree of Dr. honoris causa from the University Paul Sabatier in Toulouse, France.

4.1. Working Group 2: Physically Connected Systems of Systems

(Chair: Professor Sebastian Engell, TU Dortmund, DE)



Prof. Sebastian Engell
Professor of Process Dynamics and Operations
Technische Universität Dortmund
Germany

Sebastian Engell, Full Professor for Process Dynamics and Operations at TU Dortmund for more than 20 years, has graduated more than 50 PhD students. His research covers the full area of process operations in the process industries, from control structure selection and logic controller design and verification to high-level performance optimization and production scheduling. In the NoE HYCON II he coordinates the area of System-wide Coordination and Control and he has been a lead author and coordinator of the HYCON II Position Paper on Systems and Control. He is a recipient of a European Research Council Advanced Investigator Grant for the project "Model-based Optimizing Control – from a vision to industrial reality" and was appointed Fellow of the International Federation of Automatic Control in 2006 and chairs the IFAC Fellow Selection Committee. He was Vice Rector for Research of TU Dortmund 2002-2006 and member of the selection committee for the highest German research prize 2004-2010. He has published more than 100 Papers in scientific journals, more than 40 papers in edited volumes and more than 300 conference papers with peer review and has received several best paper awards. Four of his students have won awards for best thesis in the field of automation in the chemical industry from by NAMUR, the German industrial federation for process automation. Sebastian Engell has led the ICT STREP Multiform on the integration and interoperability of tools for the design, analysis and verification of automated systems and currently leads the Workpackage "Process Operations" of the FP7 Integrated Project Fast Flexible Future Factory that develops new production concepts for the chemical industry with strong industrial participation and leadership. He also leads a German research cluster on online-optimization under uncertainty.

Photo to Come

Dr. Göran Andersson
Professor in Electric Power Systems
ETH Zürich
Switzerland

Dr. Andersson obtained his M.S. (1975) and Ph.D. (1980) degrees from the University of Lund, Sweden. In 1980 he joined ASEA's, now ABB's, HVDC division in Ludvika, Sweden, and in 1986 he was appointed full professor in electric power systems at KTH (Royal Institute of Technology), Stockholm, Sweden. Since 2000 he is full professor in electric power systems at ETH Zürich (Swiss Federal Institute of Technology), where he also heads the powers system laboratory. His research interests include power systems dynamics and control, and future energy systems. He has published more than 250 papers in scientific journals and at conferences.

Dr. Andersson is Fellow of the Institute of Electrical and Electronic Engineers (IEEE), elected member of the Royal Swedish Academy of Sciences (KVA) and of the Royal Swedish Academy of Engineering Sciences. He is Editor-in-Chief of IET Proceedings Generation, Transmission and Distribution, recipient of the IEEE PES Outstanding Power Educator Award 2007 and of the George Montefiore International Award 2010.

Prof. Vladimír Havlena
Technology Manager and Senior Fellow
Honeywell ACS Global Laboratory, Prague
Czech Republic

Vladimir Havlena received the M.Sc. degree in electrical engineering and the Ph.D. degree in control theory from the Czech Technical University, Prague, Czech Republic, in 1989. In 1989 to 1995, he was a Research Fellow at Czech Technical University and visiting researcher at Kyoto University, Japan, for 18 months. Since 1995 he has been leader of the Process Control and Optimization Group, Honeywell Prague Laboratory. He has extensive experience with advanced process control and real time optimization of grid-oriented systems – as an example, his team developed Advanced Energy Solution suite for industrial power and distributed MPC solution for water distribution systems. His current research interests include model predictive control, estimation and filtering, and optimization under uncertainty. He is also a Professor at CTU, lecturing Estimation and Filtering postgraduate level course.

Prof. Havlena has published over 70 papers in scientific journals and conferences and is an author of 15 patents. He is a member of the International Federation of Automatic Control (IFAC) Technical Committee on Power Plant and Power System Control, an Associate Editor of the IFAC Control Engineering Practice and Kybernetika journals.

Dr. Alf Isaksson
Global Research Area Manager, Corporate Research
ABB AB Västerås
Sweden

Alf Isaksson gained a PhD in Automatic Control in 1988 from Linköping university, Linköping, Sweden, with a thesis on system identification and stayed at Linköping university until 1991 as an assistant professor. After having spent one year as guest researcher at The University of Newcastle, Australia, he moved to the Royal Institute of Technology in Stockholm as an Associate Professor in 1992, where he was later promoted to full Professor 1999.

In 2001 he left academia and moved to ABB Corporate Research, Västerås Sweden. At ABB he has held various research specialist positions, including from 2009 the highest one called Corporate Research Fellow. From January 2014 he is responsible for the Research Area Control with 100+ researchers in 7 locations world-wide. From 2006 back part-time in academia as Adjunct Professor of Automatic Control at Linköping university. There he headed the Process Industry Centre Linköping (PIC-LI) from 2009-2011, also spanning such academic subjects as Production Economics and Optimization.

Mr. Patrick Panciatici
Scientific Advisor in R&D-I division
RTE - Réseau de Transport d'Electricité
France

Patrick Panciatici graduated in Electrical Engineering from the French Ecole Supérieure d'Electricité (Supélec) in 1984, Patrick joined EDF R&D in 1985 as research engineer developing new methods for load forecast then he managed the

EUROSTAG (time domain simulator) Project and CSVC (Coordinated Secondary Voltage Control) project. He joined RTE (www.rte-france.com), the French Transmission System Operator in 2003, participating in the creation of the department internal R&D department "Methods and Support". He was the head of a team which develops real time and operational planning tools for RTE, and ensures operational support on the use of these tools from 2003 to 2011. He is a member of CIGRE, IEEE, SEE, the "R&D plan" ENTSO-E (www.entso-e.org) Working Group and is RTE's representative in PSERC USA. He was and is involved in several European Projects (PEGASE, OPTIMATE, TWENTIES, iTesla, e-HIGHWAY2050), He is "rapporteur" in Integrated Roadmap H2020 and reviews several FP7 projects. He is currently senior scientific advisor in the R&D department of RTE.

Photo to come

Francesco Brancati
(Delegate AMADEOS)
ResilTech SRL
Italy

Short bio to come

Prof. John S Fitzgerald
(Delegate COMPASS)
Professor of Computing Science, Centre for Software Reliability
School of Computing Science, Newcastle University
United Kingdom

John Fitzgerald is Director of the Centre for Software Reliability (CSR) at Newcastle and Director of Research in the School of Computing Science, where he has a personal chair. He is a specialist in the engineering of resilient systems, particularly using rigorous analysis and design tools. In his research, he develops model-based methods and tools to help in the design of particularly challenging types of system that require collaboration between engineering teams of differing backgrounds and disciplines. For example, he currently leads the international COMPASS project, which is developing technology for engineering complex "Systems-of-Systems" that are built from pre-existing systems that might never have been designed with collaboration in mind. He recently led research into methods for co-modelling and co-simulation in the design of fault-tolerant embedded systems (in the DESTECS project and in the EPSRC platform grant on Trustworthy Ambient Systems). He has contributed to the development of the Vienna Development Method (VDM) from its logical foundations to a commercial tool-supported method, with industry applications in areas as diverse as options trading and firmware design. He recently led work in the Deploy project on achieving and demonstrating dependability through the deployment of formal methods in four industry sectors.

John studied formal proof (PhD, Manchester Univ.), before joining Newcastle, where he worked on formal design techniques for avionic systems with British Aerospace in the 1990s. He went on to study the potential for industrial application of formal modelling (specifically VDM) as a SERC Fellow and later as a Lecturer at Newcastle. He returned to the University in 2003, having established the design and validation team at Transitive, a successful SME in the embedded processor market. He is Chairman of FME, the main European body bringing together researchers and practitioners in rigorous methods of systems development, a Fellow of the BCS, and a member of the EPSRC College, ACM and IEEE.

Prof. Elias Kosmatopoulos
(Delegate Local4Global)
Ass. Professor, Dept of Electrical Engineering, DUTH and CERTH
Technical University of Crete
Greece

Elias B. Kosmatopoulos received Diploma, M.Sc. and Ph.D. degrees from the Technical University of Crete, Greece, in 1990, 1992, and 1995, respectively. Dr. Kosmatopoulos is an Associate Professor at the Department of Electrical and Computer Engineering at the Democritus University of Thrace, Greece and a Collaborative Professor of Institute of Telematics, Centre for Research and Technology, Hellas. He has been an Assistant Professor with the Department of Production Engineering and Management, Technical University of Crete (TUC), Greece and Deputy Director of the Dynamic Systems and Simulation Laboratory at TUC.

Prior to joining TUC, he was a Research Assoc./Assist. Professor with the Department of Electrical Engineering-Systems, University of Southern California (USC) and a Postdoctoral Fellow with the Department of Electrical & Computer Engineering, University of Victoria, B.C., Canada. Dr. Kosmatopoulos' research interests are in the areas of nonlinear and adaptive control, robotics, energy-efficient buildings and intelligent transportation systems. He is the author of some 40 journal papers and over 100 book chapters and conference publications. Among his contributions, the most significant are the following:

Analysis of the approximation and stability properties of Recurrent High Order Neural Networks (RHONNS).

Globally convergent learning laws for Recurrent High Order Neural Networks (RHONNS).

Adaptive controllers for unknown nonlinear systems.

An Adaptive Fine-Tuning (AFT) tool for rapid fully-automated fine tuning of highly-nonlinear and complex Large-Scale Control Systems (LSCSs)

Cognitive Adaptive-based Optimization (CAO) of multi-robot applications.

A Convex Control Design (ConvCD) tool that provides arbitrarily-close-to-the-optimal control design for highly-nonlinear and complex LSCSs and Multi-Robot Applications.

AGILE, re-configurable and self-adaptable LSCSs.

Real-life large-scale control implementations in various areas such as segmented telescopes, traffic control systems, energy efficient buildings and swarms of flying or underwater robotic vehicles.

Dr. Kosmatopoulos has been involved in various applied research projects on virtual reality, intelligent manufacturing systems, fault detection in TV cable plants, telecommunications, control of space telescopes, control of air vehicles and hypersonic vehicles, mitigation of earthquake effects to civil structures, intelligent highway systems, intelligent transportation systems, traffic control, agile ports, energy positive buildings and robotic swarms. While in the U.S. he was involved as the Principal Investigator, Co-Principal Investigator or Technical Consultant in many research projects funded by NASA, Department of Transportation, Air Force and the private sector. Currently he is involved in research projects (funded by the EU, the Greek Secretariat of Research & Development and the private sector) involving Energy Positive Buildings, Robotic Swarms and Intelligent Transportation Systems.

Dr. Stefan Krämer
(Delegate DYMASOS)
Site Energy Manager,
Standortentwicklung

INEOS in Köln
Germany

Dr. Stefan Krämer is a chemical engineer with a Master's from the University of Newcastle upon Tyne, UK, and he received his PhD in process control at the Technical University of Dortmund. He teaches Batch Process Operation as a Guest Lecturer at the Technical University of Dortmund. He joined INEOS in 2004 as an Advanced Control Engineer and ran a team of APC and DCS engineers from 2009 to 2013. He is now Energy Manager of the site. Operating the site wide energy management system and coordinating energy efficiency projects is part of his responsibilities. He is the former chairman of the NAMUR working group on Process Dynamics and Operation and member of working groups on energy efficiency in NAMUR.

Prof. Dr. John Lygeros
(Delegate DYMASOS, Local4Global)
Head, Automatic Control Laboratory

ETH Zürich
Switzerland

John Lygeros completed a B.Eng. degree in electrical engineering in 1990 and a M.Sc. degree in Systems Control in 1991, both at Imperial College of Science Technology and Medicine, London, U.K. In 1996 he obtained a Ph.D. degree from the Electrical Engineering and Computer Sciences Department, University of California, Berkeley. During the period 1996-2000 he held a series of research appointments at the National Automated Highway Systems Consortium, Berkeley, the Laboratory for Computer Science, M.I.T., and the Electrical Engineering and Computer Sciences Department at U.C. Berkeley. In parallel, he also worked as a part-time research engineer at SRI International, Menlo Park, California, and as a Visiting Professor at the Department Mathematics of the Universite de Bretagne Occidentale, Brest, France. Between 2000 and 2003 he was a University Lecturer at the Department of Engineering, University of Cambridge, U.K., and a Fellow of Churchill College. Between 2003 and 2006 he was an Assistant Professor at the Department of Electrical and Computer Engineering, University of Patras, Greece. In July 2006 he joined the Automatic Control Laboratory at ETH Zurich, first as an Associate Professor, and since January 2010 as a Full Professor. His research interests include modelling, analysis, and control of hierarchical, hybrid, and stochastic systems, with applications to biochemical networks, automated highway systems, air traffic management, power grids and camera networks. John Lygeros is a Fellow of the IEEE, and a member of the IET and the Technical Chamber of Greece.

4.2. Working Group 3: Tools for Systems of Systems Engineering and Management

(Chair: Professor Wan Fokkink, TU Eindhoven NL)

Prof. Wan Fokkink
Professor in Stochastics Design

Technische Universiteit Eindhoven
Netherlands

Wan Fokkink received his PhD degree in Computer Science from the University of Amsterdam. After a lectureship at the University of Swansea, he became head of the Embedded Systems Group at CWI in Amsterdam in 2000. Since 2004 he is full professor in Theoretical Computer Science at the VU University Amsterdam. Since 2012 he also has a part-time appointment at Eindhoven University of Technology as professor in Stochastics Design, heading the Systems Engineering Group. Wan was head of the Systems Validation Centre, a centre of excellence on telematic systems (1999-2002), advisor to EIFFRA Working Group at Euro-Interlocking in Zurich on integration of European railway interlockings (2000-2002), involved in the ITEA project TT-Medal on automated testing of software-intensive systems (2003-2005), project leader of PDC1 within the Bsik project BRICKS on secure network access (2004-2010), and work package leader on trust and access policies within the COMMIT project (2010-2015). Companies involved in these projects include Ericsson, ProRail, Bombardier, Alstom, Nokia, Daimler, Siemens, and Thales.

Prof. Alberto Bemporad
Professor in Control Systems
Director of the Institute and Head of the research unit DYSCO

IMT Institute for Advanced Studies Lucca
Italy

Alberto Bemporad received his master's (Laurea) degree in Electronic Engineering in 1993 and his PhD degree in Control Engineering in 1997 from the University of Florence, Italy. During the 1996/97 academic year he visited the Center for Robotics and Automation, Department of Systems Science and Mathematics, Washington University, and in 1997-1999, he was a postdoctoral fellow at the Automatic Control Laboratory, ETH Zürich where he collaborated as a senior researcher until 2002. Between 1999 and 2009 he was with the University of Siena (Italy), Department of Information Engineering, where he became an associate professor in 2005. In 2010-2011 he was with the University of Trento (Italy), Department of Mechanical and Structural Engineering and since 2011 he is a full professor at the IMT (Institute for Advanced Studies Lucca, Italy) where he is the Director since 2012. He also leads the research unit DYSCO (Dynamical Systems, Control, and Optimization) in the Computer Science and Engineering Department. Since 2011 he is also a founding member of ODYS Srl, a university spin-off of IMT.

He has directed, coordinated and managed many national and international research projects. He is in charge of the management and organization of scientific events and of a series of international doctoral schools on engineering controls.

His current research interests include model predictive control, hybrid systems, optimization algorithms, automotive and aerospace control, financial engineering, energy markets and smart grids, polyhedral computation, wireless sensor networks, and robotics.

His research activities concern embedded real-time optimization for control of dynamical processes, with efforts covering the investigation of theoretical aspects, the development of numerical algorithms and software tools, and their application to real-life problems of industrial and economic interest, such as in the areas of automotive and aerospace systems,

financial engineering, smart grids and energy markets, process control.

He is reviewer for several international journals, conferences and research projects, and he has published more than 250 papers in scientific journals and conferences papers, with an H-index of 50. He served as chairman of the IEEE Technical Committee on Hybrid Systems (HYSCOM) from 2002 to 2010 and since 2010 he is an IEEE Fellow. He is a member of the Technical Activities Board of the Control Systems Society.

Ing. Alessandro Cimatti
Head of Unity, Center for Information Technology

Bruno Kessler Foundation
Italy

Alessandro Cimatti received his Master Degree in Electronic Engineering in 1988 at the University of Genova. He joined IRST in Trento in 1990 as a researcher, and has since then been active in various fields of formal verification and automated reasoning, with particular reference to the design of safety-critical systems. Since 2007, Cimatti is the leader of the research unit in Embedded Systems. He is/was involved in or project manager of many industrial and research projects, including the European projects PRODYS, ESACS, ISAAC, MISSA, the European Railway Agency funded project EuRailCheck, the European Space Agency (ESA) funded projects OMCARE, COMPASS, AUTOGEF, IRONCAP, FAME, HASDEL, and the ARTEMIS projects pSafeCer and nSafeCer, as well as the starting ARTEMIS Innovation Pilot Projects (AIPPs) CRYSTAL. Major issues of these projects are validation & verification, safety assessment, intelligent monitoring and reconfiguration, certification, standardization, reference technology (tool) platforms for complex safety critical embedded systems, mainly in the application areas transport (automotive, aerospace, rail), production and energy system automation, and the development of cross-domain techniques. Cimatti has published 29 journal and 110 conference papers, has an H-index of 41, and has been a programme committee member of the major conferences in Formal Methods and Artificial Intelligence.

Prof. Maria Domenica (Marika) di Benedetto
Professor and Director of Center of Excellence for Research DEWS
President Italian Association Researchers Automatic Control

University of l'Aquila
Italy

Maria Domenica Di Benedetto holds a Master degree (summa cum laude) in Electrical Engineering and Computer Science, University of Roma "La Sapienza", the degrees ``Docteur-Ingenieur" and ``Doctorat d'Etat ès Sciences", Université de Paris-Sud (Orsay, France). Since 1994, she has been Professor of Control Theory at University of l'Aquila. From 1995 to 2002, she has been Adjunct Professor at the Department of EECS, University of California at Berkeley. In 1987, she was Visiting Scientist at MIT, in 1988, 1989 and 1992 Visiting Professor at the University of Michigan, Ann Arbor, in 1992 Chercheur Associé, C.N.R.S., Poste Rouge, Ecole Nationale Supérieure de Mécanique, Nantes, France, and from 1990 to 1995 McKay Professor at the University of California Berkeley. She has been an IEEE Fellow since 2003. From May 2007 to 2010, she was been a member of the IEEE Control Systems Technical Fields Award Committee anda member of the IEEE Fellow Evaluation Committee of the Control Systems Society since January 2013. From 2003 to 2007 she was Chair of the Standing Committee on Fellow Nominations of the IEEE Control Systems Society. From 1995 to 1999, she was Associate Editor of the IEEE Transactions of Automatic Control. From 2006 to 2009, she was been Associate Editor at Large of the IEEE Transactions on Automatic Control. Since 1995 she is Subject Editor of the International Journal of Robust and Nonlinear Control. She is the PI and Director of the Center of Excellence for Research DEWS "Architectures and Design methodologies for Embedded controllers, Wireless interconnect and System-on-Chip". Since 2009, she has been the President of the European Embedded Control Institute and since 2010, she has been a Member of the International Advisory Board of the Lund Center for the Control of Complex engineering systems (LCCC). Her research interests are: analysis and control of non-linear and hybrid systems, and their application in the domain of automotive systems and networked control.

Dr. Peter Fritzson
Professor and research director of the Programming Environment Laboratory

Photo to come

Linköping University
Sweden

Director of the Open Source Modelica Consortium

Peter Fritzson is Professor and research director of the Programming Environment Laboratory, at Linköping University. He is also director of the Open Source Modelica Consortium, and vice chairman of the Modelica Association, organizations he helped to establish.

In 2006 he took the initiative of creating the MODPROD centre for model-based product development with whole-product model-based integrated software-hardware development with the essentials of Cyber-Physical system development, and organizes its annual international workshop, the 7th workshop in February 2013. He also took the initiative to and was technical coordinator for the OPENPROD ITEA2 European 28-partner 3-year Project "Open Model-Driven Whole-Product Development and Simulation Environment" which successfully completed in December 2012. During 1999-2007 he served as chairman of the Scandinavian Simulation Society, and secretary of the European simulation organization, EuroSim.

Prof. Fritzson's current research interests are in software technology, especially cyber-physical modelling languages and system specification and development tools, programming languages, tools and environments; parallel and multi-core computing; compilers and compiler generators, high level specification and modelling languages with special emphasis on tools for cyber-physical object-oriented modelling and simulation where he is one of the main contributors and founders of the Modelica language and the initiator of the ModelicaML UML-Modelica Profile. Professor Fritzson has authored or co-authored more than 250 technical publications, including 17 books/proceedings.

Prof. Stefan Kowalewski
Embedded Software Lab
(Informatik 11)

RWTH Aachen
Germany

Stefan Kowalewski is professor for embedded software in the Computer Science Dept. at RWTH Aachen University. His research interests are in software and systems engineering for embedded and cyber-physical systems, in particular formal methods for program analysis and synthesis, design and validation of safe and reliable systems, model-based control software design.

Dipl. Ing. Erwin Schoitsch
Senior Research Fellow, Safety&Security Department

AIT - Austrian Institute of Technology
Austria

Erwin Schoitsch received his Master Degree in Technical Physics and a Bachelor degree in Computer Science (1962-1969) at the University of Technology in Vienna. He has worked at AIT Austrian Institute of Technology for more than 40 years, focusing on software process improvement and on development and validation of safety-related embedded software-intensive systems with high dependability requirements. He is/was involved in or project manager of many industrial and research projects, including the European projects ESPITI, OLOS, SPIRE, ENCRESS, ACRuDA, ECUA, ISA-EuNet, AMSD, COOPERS, DECOS, Watch-Over, ADOSE, MOGENTES, ProSE and the ARTEMIS projects R3-COP, pSafeCer, nSafeCer and

MBAT, as well as the ARTEMIS Innovation Pilot Projects (AIPPs) CRYSTAL and ARROWHEAD, and EMC2 which starts April 2014. Major issues of these projects are validation & verification, certification, standardization, reference technology (tool) platforms for complex safety critical embedded systems, mainly in the application areas transport (automotive, aerospace, rail), production and energy system automation, but also other domains like medical devices, and aiming at cross-domain applicability. He is active in international working groups (European Technology Platforms ARTEMIS and EPoSS, representing AIT in these ETPs, EWICS TC7, ERCIM), (co-) organizer of workshops and conferences in the area of Dependable Cyber-physical (embedded) Systems and Systems-of-Systems, member of international program committees and of standardization committees for functional safety (IEC 61508, IEC 61511 and related standards, ISO WD 26262, and ISO TC 184 SC2, robotic safety). Within ARTEMISIA, he is chairperson of the Education & Training WG and active member of the Standardization WG. He contributed to the ARTEMIS SRA and Work Programme. His main interest is the holistic approach to system dependability for Cyber-physical Embedded Systems and Systems-of-Systems.

Prof.dr.ir. W.M.P.(Wil) van der Aalst
Chair of AIS department and Scientific director of DSC/e

Technische Universiteit Eindhoven
Netherlands

Prof.dr.ir. Wil van der Aalst is a full professor of Information Systems at the Technische Universiteit Eindhoven (TU/e). He is also the Academic Supervisor of the International Laboratory of Process-Aware Information Systems of the National Research University, Higher School of Economics in Moscow. Moreover, since 2003 he has a part-time appointment at Queensland University of Technology (QUT). At TU/e he is the scientific director of the Data Science Center Eindhoven (DSC/e). His personal research interests include workflow management, process mining, Petri nets, business process management, process modelling, and process analysis. Wil van der Aalst has published more than 165 journal papers, 17 books (as author or editor), 350 refereed conference/workshop publications, and 60 book chapters. Many of his papers are highly cited (he has an H-index of more than 104 according to Google Scholar, making him the European computer scientist with the highest H-index) and his ideas have influenced researchers, software developers, and standardization committees working on process support. He has been a co-chair of many conferences including the Business Process Management conference, the International Conference on Cooperative Information Systems, the International conference on the Application and Theory of Petri Nets, and the IEEE International Conference on Services Computing. He is also editor/member of the editorial board of several journals, including Computing, Distributed and Parallel Databases, Software and Systems Modelling, the International Journal of Business Process Integration and Management, the International Journal on Enterprise Modelling and Information Systems Architectures, Computers in Industry, Business & Information Systems Engineering, IEEE Transactions on Services Computing, Lecture Notes in Business Information Processing, and Transactions on Petri Nets and Other Models of Concurrency. In 2012, he received the degree of doctor honoris causa from Hasselt University. In 2013, he was appointed as Distinguished University Professor of TU/e and was awarded an honorary guest professorship at Tsinghua University. He is also a member of the Royal Holland Society of Sciences and Humanities (Koninklijke Hollandsche Maatschappij der Wetenschappen) and the Academy of Europe (Academia Europaea).

Dr. Christina Diakaki
(Delegate Local4Global)
Senior Research Associate, Dynamic Systems and Simulation Laboratory

Technical University of Crete
Greece

Dr Diakaki is Senior Research Associate at the Dynamic Systems and Simulation Laboratory of the Technical University of Crete, Greece. She holds a Diploma in Production and Management Engineering from the Technical University of Crete, Greece (1991), a MSc degree in Operations Management from the Institute of Science and Technology of the Victoria

University of Manchester (UMIST), UK (1993), and a PhD degree in Operations Research from the Department of Production Engineering and Management of the Technical University of Crete, Greece (2000). Since 1999, she has been Adjunct Professor and Research Associate at several research and educational establishments in Greece (Technical University of Crete, Technological Educational Institutes of Crete and Kozani, Telecommunication Systems Institute), while since 1991, she has participated in numerous research projects sponsored by the EC (ATT, Telematics Applications in Transport, DG for Transport, ESPRIT, IST, Leonardo Da Vinci, IEE), national authorities and private organisations. She serves as a reviewer for several scientific journals and conferences, she is member of the Editorial Board of the Intelligent Transportation Systems Journal of the Institution of Engineering and Technology, and she is the author and co-author of numerous research reports and papers in scientific and technical journals, and conference proceedings. Her research interests include decision analysis and operations research, and systems' analysis, modelling, optimisation and simulation, with applications in the fields of Transportation, Energy and Environment.

Prof. Peter Gorm Larsen
(Delegate COMPASS)
Head of the Software Engineering Research group in the Electronics and Computer Engineering Section of the Department of Engineering

Aarhus University
Denmark

Peter Gorm Larsen is currently a professor at Aarhus University at the Department of Engineering where he is leading the software engineering research team. After receiving his M.Sc. degree at the Technical University of Denmark in Electronic Engineering and Computer Engineering in 1988, he went to industry to bridge the gap between academia and industry. He later returned and did an industrial Ph.D. degree which was completed in 1995. He gave industrial courses all over the world, and had an industrial career until he decided to return to academia in 2005.

His prime research interest is to improve the development of complex mission-critical applications with well-founded technologies and in particular tool building that enables such development. Key areas of interest are Cyber-Physical Systems and System of Systems. He is the author of more than 100 papers published in journals, books and conference proceedings and a couple of books.

Photo to come

Martin Törngren
(Delegate CyPhERS)
KTH Stockholm
Sweden

Short bio to come

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5. Next Steps

The main next steps for the Working groups includes:

At the Kick off Meeting

- Review the state of the art in applications and methods
- Review the scope and core research topics
- Start to specify in more detail what the research and development needs are

After the Kick off Meeting

- Provide detailed input on the core research topics
- Review first draft of roadmap paper

At the next Meeting

- Further improve the roadmap
- Discuss with the community about the findings

Long Term

- Contribute to edited volume: write a chapter (technical paper) that supports the main statements of the roadmap paper

6. Annexes

6.1. Annexe 1: Travel Cost Reimbursement Guidelines

See separate document

Working Groups Meetings attendance
Travel cost / reimbursement guidelines

General principles

- Travel and accommodation cost will be reimbursed by the CPSoS project to those Working Group members who are not delegates of other FP7-funded projects
- Travel costs are reimbursed only to those participants who physically participated in the Working Group meetings.

Organisation of Travel

- Flight/train: Working Group members shall organise, book and pay their flight/train themselves.
- Hotel: booking instructions will be provided by the organisers. In most cases, a booking form will be provided by the organisers, the booking should be done by the Working Group members but the payment of the hotel will be done centrally by the organisers.
- Meals (lunch/dinners): lunch (and dinner, depending of meeting schedule) will be organised free of charge for the Working group members.
- Taxi: will be reimbursed when justified (e.g. late evening flight, not enough time between arrival and start of the meeting, no or insufficient public transport)
- Car travel: will be reimbursed according to the national regulations of the CPSoS partner who refunds the cost

Budget Restrictions

- Only economy class travel shall be reimbursed (Y-Class flights, train)
- If the cost of your journey is higher than 400€, please notify the Secretariat of the Working Groups (Dagmar Marron d.marron@inno-group.com) **in advance**

Reimbursement Procedure

- Travel expenses paid by the Working Group members (flight, train, etc.) shall be reimbursed by bank transfer to the personal account of the Working Group member after attendance to the event and upon provision of the original tickets / boarding passes (when applicable) and of an expense claim provided by the organisation which refunds the cost.
- Members of Working Group 1 shall address their cost claims to

  Haydn Consulting Ltd
  1 Haugh Lane
  Sheffield
  South Yorkshire
  S11 9SA
  United Kingdom
  E-mail: haydn.thompson@haydnconsulting.com

- Members of Working Group 2 and 3 shall address their cost claims to

  Dagmar Marron
  inno TSD
  Place Joseph Bermond, Ophira 1
  06902 Sophia Antipolis
  France Cedex
  E-mail: d.marron@inno-group.com
  Phone: +33 4 92 38 84 12 - Fax +33 4 93 65 41 35

- A template for reimbursement will be provided in January 2014

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Secretariat of the Working Groups:

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Working Group Chairs contacts:

Working Group 1: Systems of systems in transportation and logistics

Haydn THOMPSON, haydn.thompson@haydnconsulting.com

Working Group 2: Physically connected systems of systems

Sebastian ENGELL, Sebastian.Engell@bci.tu-dortmund.de

Working Group 3: Tools for systems engineering and management

Wan FOKKINK, wanf@cs.vu.nl

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for Research & Technological Development (2007-2013) - ICT theme