

Preface

Introduction

This volume contains the proceedings of the Seventh International Conference on “Complex System Design & Management” (CSD&M 2016; see the conference website: <http://www.2016.csdm.fr/> for more details).

The CSD&M 2016 conference was jointly organized during December 13–14, 2016 at the Chesnaie du Roy at Vincennes (France) by the two following founding partners:

1. The non-profit organization Center of Excellence on Systems Architecture, Management, Economy and Strategy (CESAMES),
2. The Ecole Polytechnique—ENSTA ParisTech—Télécom ParisTech—Dassault Aviation—DCNS—DGA—Thales “Engineering of Complex Systems” chair.

The conference benefited of the permanent support of many academic organizations such as Ecole Polytechnique, CentraleSupélec, ENSTA ParisTech and Télécom ParisTech which were deeply involved in its organization.

We also would like to thank the conference partners: Dassault Aviation, DCNS, Digiteo Labs, Direction Générale de l’Armement (DGA), Institut de Recherche Technologique (IRT) SystemX, MEGA International and Thales which were the main industrial and institutional sponsors of the conference.

We are also grateful to several non-profit organizations such as Association Française d’Ingénierie Système (AFIS) and International Council on Systems Engineering (INCOSSE) which strongly supported our communication effort.

All these institutions also helped us a lot through their constant participation to the organizing committee during the one-year preparation of CSD&M 2016.

Many thanks therefore to all of them.

Why a CSD&M Conference?

Mastering complex systems requires an integrated understanding of industrial practices as well as sophisticated theoretical techniques and tools. This explains the creation of an annual *go-between* forum at European level (which did not exist yet) dedicated to both academic researchers and industrial actors working on complex industrial systems architecture and engineering. Facilitating their *meeting* was actually for us a *sine qua non* condition in order to nurture and develop in Europe the science of systems which is currently emerging.

The purpose of the “Complex Systems Design & Management” (CSD&M) conference is exactly to be such a forum, in order to become, in time, *the* European academic–industrial conference of reference in the field of complex industrial systems architecture and engineering, which is a quite ambitious objective. The last six CSD&M Paris conferences—which were all held the last trimester of the year from 2010 to 2015 in Paris—were the first steps in this direction. In 2015, there were almost 300 participants who came from 20 different countries which measures the growing success of the CSD&M conference.

Our Core Academic—Industrial Dimension

To make the CSD&M conference this convergence point of the academic and industrial communities in complex industrial systems, we based our organization on a principle of *complete parity* between academics and industrialists (see the conference organization sections in the next pages). This principle was first implemented as follows:

- the program committee is composed of 50 % academics and 50 % industrialists,
- the invited speakers came in a balanced way from numerous professional environments.

The set of activities of the conference followed the same principle. They indeed consist of a mixture of research seminars and experience sharing, academic articles and industrial presentations, software and training offers presentations, etc. The conference topics cover in the same way the most recent trends in the emerging field of complex systems sciences and practices from an industrial and academic perspective, including the main industrial domains (aeronautic & aerospace, transportation & systems, defense & security, electronics & robotics, energy & environment, healthcare & welfare services, media & communications, software & e-services), scientific and technical topics (systems fundamentals, systems architecture & engineering, systems metrics & quality, systemic tools) and system types (transportation systems, embedded systems, software & information systems, systems of systems, artificial ecosystems).

The 2016 Edition

The CSD&M Paris 2016 edition received 46 submitted papers, out of which the program committee selected 16 regular papers to be published in the conference proceedings. A 29 % acceptance ratio was reached which guarantees the high quality of the presentations. The program committee also selected 17 papers for a collective presentation during the poster workshop of the conference.

Each submission was assigned to at least two program committee members, who carefully reviewed the papers, in many cases with the help of external referees. These reviews were discussed by the program committee during an online meeting by the May 30, 2016 and via the EasyChair conference management system.

We also chose nine outstanding speakers with various industrial and scientific expertise who gave a series of invited talks covering all the spectrum of the conference during the two days of CSD&M Paris 2016. The conference was organized around a common topic: *Challenges & Opportunities of Systems Engineering in a Changing World*. Each day proposed mix invited keynote speakers presentations and a “la carte” program comprising accepted papers presentations and conference partners’ workshops.

Furthermore, we had a poster workshop, for encouraging presentation and discussion on interesting but “not-yet-polished” ideas. CSD&M Paris 2016 also offered booths and presentations to provide each participant a good vision of the latest engineering and technological news.

Paris, France
August 2016

Gauthier Fanmuy
Eric Goubault
Daniel Krob
François Stephan

Complex Systems Design & Management
Proceedings of the Seventh International Conference
on Complex Systems Design & Management, CSD&M
Paris 2016

Fanmuy, G.; Goubault, E.; Krob, D.; Stephan, F. (Eds.)
2017, XVII, 256 p. 75 illus., 67 illus. in color., Hardcover
ISBN: 978-3-319-49102-8