



## The 4th International Conference “Complex Systems Design & Management Asia” (CSD&M 2021) and INCOSE Beijing Summit 2021

[www.csdm-asia.net](http://www.csdm-asia.net) or [www.csdm-asia.cn](http://www.csdm-asia.cn)

The 4th International Conference Complex Systems Design & Management Asia (CSD&M 2021) & INCOSE Beijing Summit, an annual conference was held in Beijing from April 12 to 13. The conference was co-hosted by the Chinese Society of Aeronautics and Astronautics (CSAA) and CESAMES (Center of Excellence on Systems Architecture, Management, Economy and Strategy). There were leading experts such as CSAA Vice President ZHANG Xinguo, CSAA Secretary General YAO Junchen, CSAA Vice Secretary General ZHAO Shuanghong, Vice Secretary General of the Chinese Institute of Electronics LIU Mingliang, Vice Secretary General of the China Ordnance Society (COS) QU Yanbing, Program Committee Academic Co-Chair LI Lefei, etc. Over 150 scientific and technical professionals from research institutions, universities, state-owned enterprises and private enterprises attended the conference offline, and over 30 foreign experts participated in the meeting through online mode. The conference, gathering experts in various fields such as aviation, aerospace, weapon, ship, electronics, automobile, transportation, architecture, communication, medical, information and urban planning, carried out in-depth discussions on complex system engineering and model-based system engineering, which was the first time that this series conference was held in China.

In the morning of the April 12<sup>th</sup>, ZHANG Xinguo, Vice President of the Chinese Society of Aeronautics and Astronautics (CSAA), Distinguished Professor of Tsinghua University, Chief Scientist of the Chinese Academy of Aeronautics and Astronautics, President of INCOSE Beijing Chapter, and KROB Daniel, President of CESAMES, Professor of the Ecole Polytechnique and INCOSE Fellow, respectively as co-chairs of the conference, gave a welcoming speech in reminding by a few words the history of the CSD&M:

“I created this conference in hoping that becomes the reference in the field of complex industrial systems architecting, modeling and engineering. The last eleven CSD&M conferences all held from 2010 to 2020 in Paris (France) and four CSD&M Asia conferences all held from 2014 to 2018 in Singapore, were the first steps in the direction. Last year, there were about 300 participants who attended the 2-day CSD&M 2020 conference, exceptionally managed online. That again proves the great interest in systems architecting, modeling & engineering. Today in 2021, we decide to merge of the two previously independent European and Asia-Pacific streams, to result into a unique CSD&M series that will alternate between Europe and Asia from now on.”



ZHANG Xinguo, General Co-Chair of the conference, attended the conference and delivered an opening speech



KROB Daniel, General Co-Chair of the conference, gave a brief CSD&M history and welcoming speech online

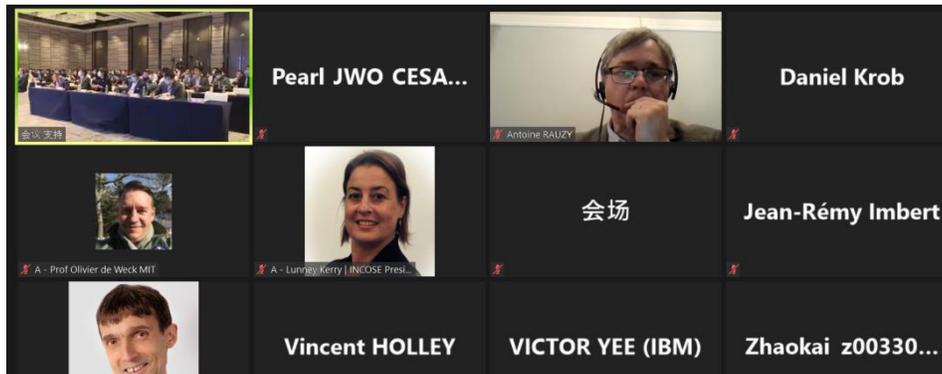


LI Lefei, Program Committee Academic Co-Chair of the conference, gave a welcoming speech



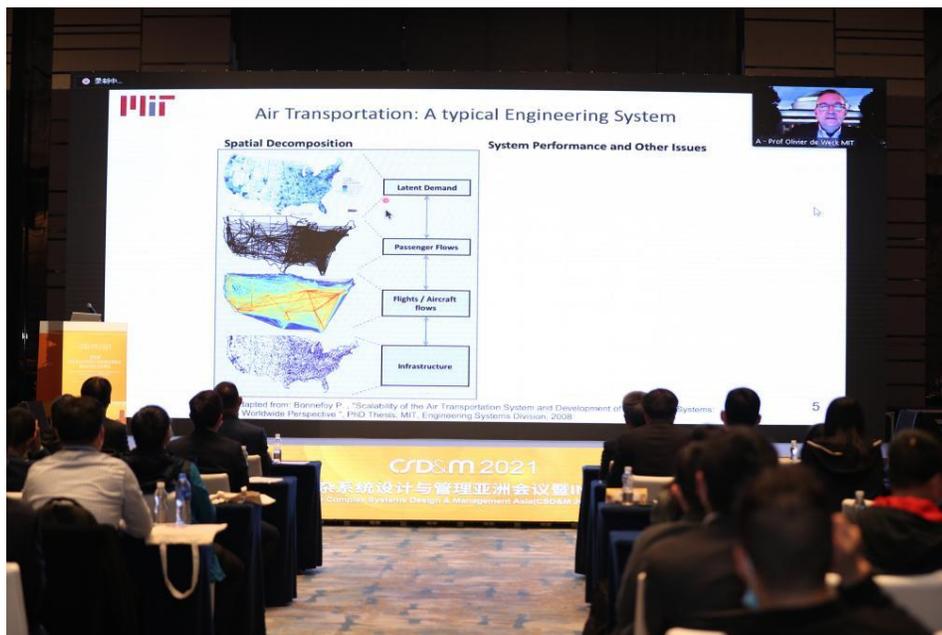
More than 150 scientifics and engineers working in complex systems engineering from various institutions and industries attended the conference

HIGHLIGHTS CSD&M2021



Dozens of experts in MBSE complex systems engineering attended and interacted in live with the online-offline hybrid mode

For the keynote presentations of the conference, Prof. DE WECK Olivier of Massachusetts Institute of Technology (MIT, USA), also INCOSE Fellow, Prof. RAUZY Antoine of Norwegian University of Science and Technology (NTNU, Trondheim, Norway), Mr. ZHOU Fanli, CEO of Suzhou Tongyuan Software & Control Information Technology Co. Ltd, China, CHEVALIER Thierry, Head of Digital Design Manufacturing Thrust of Airbus, ZHANG Wenfeng, Research Professor at the Institute of Aerospace System Engineering in China, and LUNNEY Kerry, President of INCOSE, introduced the latest progress and understanding of digital transformation in complex systems engineering from different perspectives at the conference and online platform respectively. During the Contributed Talks and Posters Session, more than 40 selected authors came to present their reports, delivering in-depth discussions and exchanges.



DE WECK Olivier, Professor of MIT, gave a keynote speech on “Challenges and Opportunities for Complex Systems in a Global post-COVID-19 Society” online



RAUZY Antoine, Professor of NTNU, gave a keynote speech on “Syntax, Semantics and Pragmatics, the Model-Based Systems Engineering Trinity” online



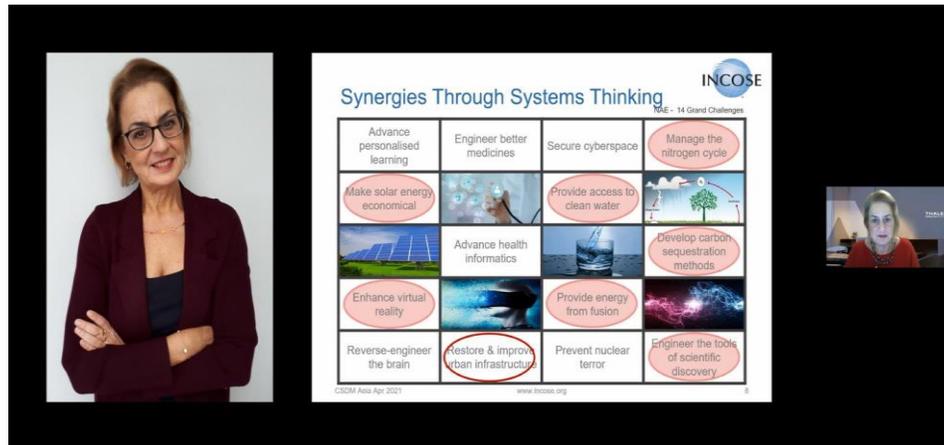
ZHOU Fanli, CEO of Suzhou Tongyuan Software & Control Information Technology, gave a keynote speech on “Technology, Tools and Application of System Modeling and Simulation in MBSE” at the conference



CHEVALIER Thierry, Head of Digital Design Manufacturing Thrust of Airbus, gave a keynote speech on “Global Approach to System of Systems” online



ZHANG Wenfeng, Research Professor of Institute of Aerospace System Engineering, gave a keynote speech on “MBSE paradigm - Accelerating enterprise digital transformation in aerospace industry” at the conference



LUNNEY Kerry, President of INCOSE & Country Engineering Director Thales Australia, gave a keynote speech on “Over the Horizon with Systems Engineering” online

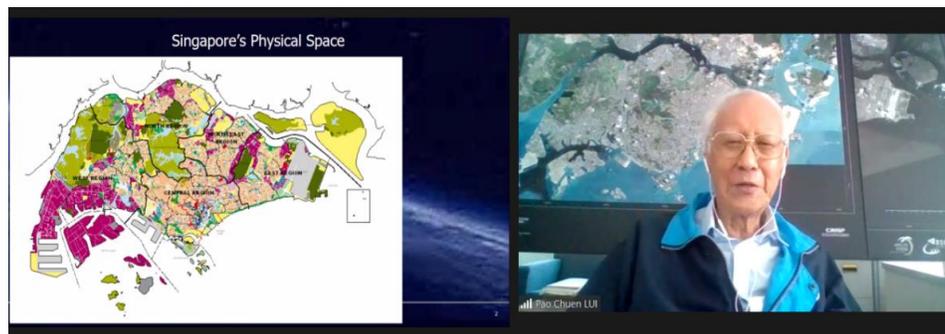
In the afternoon of 13th, INCOSE Beijing Summit was held, where Prof. ZHANG Xinguo, President of INCOSE Beijing Chapter, gave an in-depth analysis and explanation on essence of MBSE transformation - system conceptual integrity and layered mapping; Prof. LUI Pao Chuen, Temasek Defence Professor, National University of Singapore and INCOSE Pioneer, gave a comprehensive view on the growing smart city in nature; Prof. KROB Daniel, President of CESAMES & INCOSE Fellow, presented the systems engineering at enterprise scale with success stories from the Automotive Industry; LANDRY Serge, Director of INCOSE Asia Pacific Sector, gave a detailed analysis of the issues in digital transformation of complex systems engineering.



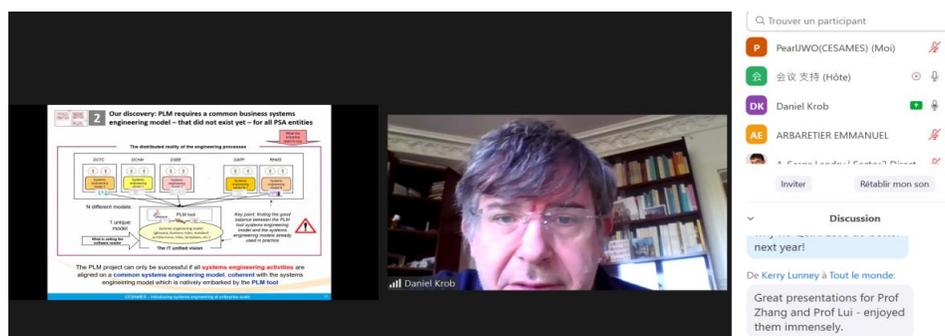
GUO Mengyu, Assistant Professor of Tsinghua University, chaired the INCOSE Beijing Summit 2021



ZHANG Xinguo, President of INCOSE Beijing Chapter, gave a keynote speech on “Essence of MBSE Transformation - System Conceptual Integrity and Layered Mapping” at the Summit



LUI Pao Chuen, INCOSE Pioneer, gave a keynote speech on “Growing Smart Cities in Nature” online for the Summit



KROB Daniel, INCOSE Fellow, gave a keynote speech on “Systems Engineering at Enterprise Scale: A Success Story in the Automotive Industry” online for the Summit



LANDRY Serge, Director of INCOSE Asia Pacific Sector, gave a keynote speech on “Digital Transformation in Complex System Engineering - Mind the Gaps” online for the Summit

During this event, many experts in complex system engineering from many countries of the world such as Australia, China, France, Germany, Israel, Japan, Norway, Singapore provided wonderful presentations, among which some form domestic and foreign cooperation units such as: AVIC Xi’an Flight Automatic Control Research Institute (AVIC FACRI), AVIC China Aeronautical Radio Electronics Research Institute (AVIC CARERI), APSYS, CESAMES, Dassault Systèmes, IBM, MBSE Consulting, PGM and Siemens, setting up booths in the conference lobby, presenting the latest technology tools of system engineering, and providing success stories to over 190 participants, both online and offline.

This 2021 edition made full use of the excellent platform to expand the scope of academic-industrial-institutional collaboration in China, integrating of course the international and multidisciplinary dimensions, also thanks to the co-operators of this edition: Aviation Industry Corporation of China, Beihang University, Chinese Nuclear Society, Chinese Institute of Electronics, China Instrument and Control Society, China Ordnance Society, Chinese Society of Astronautics, Chinese Society for Composite Materials, China Society of Naval Architects and Marine Engineers, China State Shipbuilding Corporation, Department of Industrial Engineering of Tsinghua University, the International Council on Systems Engineering and its Asia-Pacific Sector & Beijing Chapter.

The high level and warm atmosphere of the conference were unanimously recognized and highly praised by the participants and as the first MBSE conference in China, it was a success!

HIGHLIGHTS CSD&M2021



WU Daphne, representing the Sponsor Dassault Systèmes, gave a presentation on “Simplifying complexity through Model Based Systems Engineering”



FANG Zhigang, co-representing the Sponsor Siemens, provided a presentation on “iMBSE: “A proposed framework for architecting digital twin of complex systems” at the conference



ZHANG Qili, co-presenting the Sponsor Siemens, provided a 2<sup>nd</sup> part presentation at the conference



XU Renfei, representing the Sponsor PGM, gave a presentation on “Practice of ARCADIA and Capella in Civil RADAR Design” at the conference



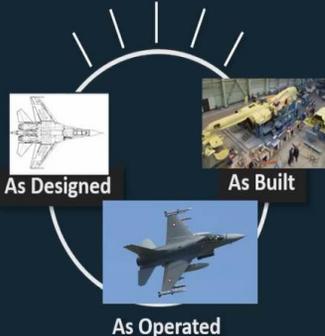
GAO Lei, representing the Sponsor AVIC CARERI, gave a presentation on “Model-Based Design Method and Practice for Avionics System” at the conference



WU Fangfang, representing the Sponsor AVIC FACRI, gave a presentation on “Deploy System Engineering Methods in Airborne GNC Domain” at the conference

**What is a Digital Twin?**

*“Digital Twin is the digital representation of a physical asset or system across its life-cycle using operational real-time data and other sources, that customer are adopting to drive business outcomes”*




**Digital Twin Enablers:**

- IoT
- Big Data & Cloud
- Analytics & AI

GERY Eran, representing the Sponsor IBM, provided a presentation ““Integrated Digital Twin over Product Life-cycle” online



9 partners sponsors set up booths in the conference lobby at Renaissance Beijing Wangfujing Hotel



Great Contributed Talks wonderfully chaired by CHANG Chuangye (Beihang), GUO Mengyu and LI Lefei (Tsinghua), LIU Dong (Nortek) and ZHANG John (Huawei)



Tea & Coffee breaks and Posters Session, rich moments of exchanges and networking



YAO Junchen, Secretary General of CSAA, visited editors' booths



On behalf of the co-organizers CESAMES and CSAA, we sincerely thank all chairs, committees' members, co-operators sponsors and all participants for this 2021 edition. We wish all the best and look forward to welcoming you again at the CSD&M 2022 in France!

For news about the CSD&M 2022, please

Consult: [www.cesames.net](http://www.cesames.net) (EN-FR) or [www.cesames.cn](http://www.cesames.cn) (CN)

Connect: [linkedin.com/in/cesames-asia-pacific](https://www.linkedin.com/in/cesames-asia-pacific) or CESAMES 系思迈系统架构企业管理 (Wechat/Weibo)