Widening Systems Engineering Borders

WiSEB Special Track

April 18-22, 2021

Chairman

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ICONS 2021

WiSEB – why do we need systems engineering?

- Products and systems are getting increasingly connected and complex as part of larger systems-of-systems. Our expectations of the performance, reliability, safety, security, and cost-effectiveness is increasingly high.

WiSEB – why do we need to extend systems engineering adoption?

- Systems Engineering is needed more than ever as our world is becoming more and more connected at all levels of society across all demographics. The speed of technology change is ever increasing, showing the criticality introduced by interoperability, interdependencies, vulnerability, ownership and safety. Complex interacting systems are part of our daily life, therefore complexity is no longer seen as a risk to be managed but a means to enhance the quality of life and the ability for industry/services to generate value.

WiSEB – the topics we're addressing

- Systems engineering is promoting a holistic approach by definition; but it is still relegated in a niche if compared to its potential areas of application. How can we push forward its concepts and have a wider adoption of its fundamentals?

- Defense, automotive, Internet of Things (IoT) and medical industries are keen to systems engineering practices, but with different levels of adoption depending on company population and range of action; business development, sales and customer service are usually not involved in systems engineering practice, as an example. We set the goal to expand the benefits of systems engineering to new professionals, enriching the practice with cross-fertilization.

- Moreover, complex systems have no-longer strict sector boundaries and crossing those boundaries (e.g., openness to civil society, social-technical involvement, etc.) opens the doors to a wide range of opportunities and new challenges.

WiSEB 2021 - contributions

«*A Capability Based Approach for Warship Design*»

P. Gualeni, L. Tirone, M. G. Scognamiglio, P. Bonofiglio

DITEN – University of Genoa, Fincantieri

«*Chaotic based Security for Near Field Communication in Internet of Things devices*»

C. S. Kuka, J. Chandler, M. Alkahtani

University of York, The City of Liverpool College

WiSEB 2021 - contributions

«Enabling Business Analysts to implement Cyber Physical Systems (CPS) solutions using a Model Based approach»

T. Panetti, I. Famoso, G. Telleschi, A. D'Ambrogio

Tor Vergata University, AISE INCOSE