How can INCOSE ensure SE's Future Relevance

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Abstract.

The future value of systems engineering will be measured by its contribution to INCOSE's vision of "a better world through a systems approach." To stay relevant, systems engineering must expand its scope beyond the technical realm by addressing today's most pressing and complex problems, which span technical, social, and ecological domains. This paper builds on our previous work as the Bridge Team, in which we proposed an the evolving architecture of the systems engineering discipline, detailing how it can maintain its value by effectively engaging in eco-socio-technical challenges. Here we propose collaborative strategies with other disciplines to enhance and broaden its foundational base, which is crucial for realizing its potential as a transdisciplinary field in an increasingly complex world.

This presentation will be of interest those who care about the future of SE and how INCOSE can contribute to sustaining it, and so maintain its future position as a pre-eminent systems discipline.

Biography

Peter Brook (Dashwood Systems Engineering)
Peter Brook is an INCOSE Fellow, a member of the UK Royal Academy of Engineering, and is with Dashwood Systems Engineering, Malvern, Worcs, WR14 3BB, UK. He has consulted with the UK government and DARPA in the US on many large programs, acting mainly on the client side. He spent most of his career in defence R&D establishments, filling a number of senior posts, including director of systems engineering for DERA, with secondments to MOD: head of the integration authority and chief scientist for the British Army. His research interests have included enterprise systems engineering and systems of systems. Peter has first degrees in physics: BSc Wales (Swansea), MSc London (UCL, External), with an early career spent in researching solid-state microwave systems. He was awarded a visiting professorship in Defence Systems Engineering at Cranfield University/Defence Academy and retains an active presence in the academic and professional communities. He has co-authored an SE textbook and held positions on the INCOSE Board (1996-2000).

Michael Pennotti (Stevens Institute of Technology)
Michael Pennotti is an INCOSE Fellow and a Distinguished Service Professor at Stevens Institute of Technology, Hoboken, NJ, US. He served as associate dean for academics and later, director of systems and software programs. Prior to joining Stevens Institute in 2001, Pennotti spent 20 years as a systems engineering practitioner and leader at Bell Laboratories, designing and improving the operational performance of four generations of undersea surveillance systems for the U.S. Navy, and another 10 years applying systems principles to enterprise systems in executive positions with AT&T, Lucent Technologies, and Avaya. He is a senior member of the IEEE and co-founder and coach of the INCOSE Institute for Technical Leadership. He holds PhD and MS degrees in electrical engineering from the Polytechnic Institute of New York, a BEE from Manhattan College, and is a graduate of the AEA/Stanford Executive Institute for Technology Executives.

David Rousseau (Centre for Systems Philosophy)
David Rousseau is an INCOSE Fellow, a Fellow of the Royal Society of Arts, Commerce and Manufactures, and is with the Centre for Systems Philosophy, Addlestone, Surrey KT15 1EL, UK, and the School of Mechanical, Industrial, and Manufacturing Engineering, Oregon State University, Corvallis, OR 97331, US. David has a BEng from the University

of Pretoria, and a PhD from the University of Wales TSD. He was first employed as a lecturer in electronic engineering at the University of Pretoria, then as a project officer with Air Space Control Command in the South African Air Force, and then as programmes manager for Air Force surface-to-air missile systems in the Armaments Corporation of South Africa (ARMSCOR). After moving to the UK, he joined Applied Materials (UK) Ltd as director, eBusiness Solutions. Since 2012 he has been research director of the Centre for Systems Philosophy in the UK. He has published more than 50 articles in peer-reviewed journals and books and discovered three scientific general systems principles. He is a past president, an honorary life member and a past chair of the Board of Trustees of the International Society for the Systems Sciences (ISSS). He is a full member of the Omega Alpha Association (international systems engineering honor society).