# System of Systems Engineering Collaborators Information Exchange (SoSECIE)

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**Situation Awareness and Decision Making for Constituent Systems**

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#### Abstract

The constituent systems (CS) that together form a system of systems (SoS) have a continuous need to assess situations and make decisions. In addition to operating in the environment, they also need to decide upon their status in the system of systems and be aware of their relations to constellations in the system of systems. To be able to make the best possible decisions, the constituent systems need to have an accurate situation awareness, *i.e.,* an understanding of the environment they are in, what other elements are present therein and how this will develop in the future. This presentation will give an overview of situation awareness and how it can be applied to systems of systems engineering.

#### Biographies

Pontus Svenson is a senior scientist at RISE Research Institutes of Sweden. He received a PhD in Theoretical Physics in 2001 and has a 15-year background at the Swedish Defence Research Institute (FOI), where he worked on decision support, situation awareness and data fusion, mainly for military intelligence and critical infrastructure protection. His current research is focused on systems of systems engineering, and in particular on resilience and situation awareness aspects within the transportation and critical infrastructure domains. He is the author of around 100 scientific publications and a member of INCOSE.

Jakob Axelsson is professor of computer science at Mälardalen University in Sweden and senior research leader in systems-of-systems at RISE Research Institutes of Sweden. He received a PhD in computer systems in 1997, and has a background of about 15 years in industry, mainly in the automotive domain at Volvo where he was involved in research and advanced engineering in areas such as system architecture, systems engineering, and model-based development. His current research interests are focused on systems-of-systems engineering, where he is leading a number of projects in domains such as transportation and construction. He is the author of around 100 research papers. He is a member of INCOSE and has been chairman of the Swedish chapter.