Over the past six (6) months, the International Council on Systems Engineering (INCOSE) has started a new initiative focused on Systems Engineering of the Future (SEOTF). The initial discussion included that “The scale of complicated and complex systems and services continues to increase exponentially with intricate and often hidden interfaces and interrelationships, and operating in a dynamic and non-deterministic world.” This initiative has indicated that although there have been many improvements and advancements in SE, there is an urgent need to evolve SE in a manner that enables us to leverage the new technologies and manage the challenges.

In many ways the SoSE community has already been focused on these challenges which often characterize the systems of systems environment, in which multiple independent systems are interacting to support broader capabilities. This community has been looking at ways to address the complexities that result from independencies among elements of systems in the SoS, both those apparent and those which may be discovered over time.

This roundtable discussion will address the following questions:

- How can the experience of the SoSE community provide insights into the drivers for SE of the future to address the dynamic, nondeterministic, and evolutionary environment typical of SoS and increasing characteristic of systems in general?
- How much is the growth in SoS applications driving the future of SE?
- What impact will the use of advanced technologies, such as autonomy and artificial intelligence, have on SoSE?
- How can the current SoSE approaches address the challenges of systems that are self-learning, self-organizing, self-adapting, etc.?

Moderator:

Garry Roedler, Lockheed Martin / INCOSE

Roundtable Participants:

Judith Dahmann, The MITRE Corporation, USA
Jakob Axelsson, Mälardalen University and the Swedish Institute of Computer Science, Sweden
Chris French, Shoal Group, Australia
Vincent Arnould, Naval Group, France
Tom McDermott, Systems Engineering Research Center at Stevens Institute of Technology, USA
Mo Jamshidi, University of Texas, San Antonio, USA
Alan Harding, BAE Systems, UK
Kerry Lunney, Thales, Australia
Mike Yokell, Lockheed Martin, USA
Gerrit Muller, Buskerud University College, Norway
Paul Hershey, Raytheon, USA
Ramakrishnan Raman, Honeywell Technology Solutions Lab, India
Don York, Engility Corporation, USA
Mo Mansouri, Stevens Institute of Technology, USA
Cihan Dagli, Missouri S&T, USA
Francois Coallier, ETS, Canada
Matthew Joordens, Deakin University, Australia