



IEEE Aerospace & Electronics Systems Society

“Systems-of-Systems (SoSs) & Systems Engineering: The Value to Business and Economic Growth”

Bruneau Lecture Theatre, SJ Carew Building; Memorial University

Hosted by IEEE Newfoundland Labrador Section

2013-05-27; 6:30pm

SPEAKER:



Paul E. Gartz, IEEE Distinguished Lecturer

Globally, the world continues to become more technical, more integrated and more complicated. “Systems”, with their human interfaces, now abound, and these have become much more interconnected resulting in societal-changing capabilities (e.g., cell phones and Facebook behind the “Arab Spring”). There also have been some dramatic “failures”, such as the recent global economic crisis and global healthcare issues. These “systems” of products, services, technology and humans are often developed sub-optimally resulting in poor business returns, missed market opportunities, lowered customer utility, safety concerns and sometimes bankruptcies. Is there a way to both increase business opportunities and address these issues?

Now emergent are what are called “Systems-of-Systems (SoSs)”. These are a new way to view and optimize the interdependencies of major groupings of large numbers of products, services, technologies, information and humans that together provide higher societal functions. One example is air transportation where the assemblage of airplanes, radars, satellites, ground stations, airlines, weather, airports, etc. form a global, air transportation SoS. Another is communication. Yet another is global healthcare that appears exceptionally sub-optimized. What can be learned from these and what are the best practices to address them?

SoS knowledge gives businesses, governments, professionals and even lay people knowledge not available to others and hence a market, technical, business and/or a personal advantage.

Businesses can make more money; governments can provide better services for less with greater safety; professionals can advance careers faster; and the public benefits from all.

Closely related are the special skills needed to better develop and operate not just SoSs, but any major product and service. The talk will review SE401...21st century best practices for advanced, systems engineering and systems thinking. It can be practically applied at any level of complexity or size to improve business and technical results. As a national skill base, it can advance whole industry sectors and even a country for competitive advantage at a global and GDP level. Japan vividly demonstrated this via the Toyota method from the 1960s onward.

SPEAKER : Paul Gartz has spent over forty years in the aerospace and communications industries working large-scale, multi-billion dollar programs on commercial, defense and civil projects...including many world firsts. He developed the first overall systems engineering (SE) best practices for Boeing Commercial Airplanes, led the Boeing effort to get the world’s first combined model-based SE/Software Engineering tools and datasets, and, as SE architect,

technically led systems engineering efforts on many of Boeing's modern transports. His application domain experience includes research, development, service business creation, large scale manufacturing and supplier base and process and knowledge management in all of above. His recent focus is Systems-of-Systems (SoSs). He was Chief Architect – Engineer for Boeing's entry into the Global Earth Observation SoS (GEOSS) market. He had similar roles on three of Boeing's four SoSs. Earlier Paul was a lead on other world firsts at Bell Labs including the Bell Labs SAFEGUARD Antiballistic Missile Program and AT&T's Picturephone©. Paul is a member of the Boeing Technical Fellowship, a past president of IEEE AESS, an IEEE global lecturer and recipient of the international Harry Rowe Mimno Award.