

Integrating Innovation: Engineering Singapore's Large-Scale Systems for a Sustainable Future

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Abstract:

The presentation described how Singapore applies systems engineering approach to building sustainable and livable cities. It addresses the challenges of the impact of climate change and the mitigation measures put in place to enhance livability.



Speaker Bio: Chief Sustainability Officer, A*STAR

As Chief Sustainability Officer of A*STAR, Prof Yeoh is responsible for the strategic positioning of A*STAR's capabilities and curation of A*STAR's contributions to address national demands and opportunities in sustainability. He represents and promotes A*STAR as a leading organization for sustainable solutions and technology development globally. He led the design and development of a modular decarbonization translational testbed that will transform the manufacturing processes of the chemical and pharmaceutical industries.

Prior to that, Prof Yeoh worked in NRF as Senior Director, Urban Solutions and Sustainability where he was responsible for developing R&D strategy and managing Singapore's national R&D programs in urban systems to meet national needs in areas such as energy, water, and land & livability. Prof Yeoh also initiated our national decarbonization R&D strategy to support the energy transition towards a low-carbon future and achieve Singapore's decarbonization goals.

Prof Yeoh spent 30 years in DSTA where he worked on large scale systems engineering projects in command-and-control systems, and as a systems architect in integrated defense systems. He developed the systems architecting methodology framework that guided program managers frame systems solutions. As an active systems architect, he continues to develop case studies in architecting communications system, education system, water system, energy system, as well as urban system.

As an adjunct professor in NUS, he conducted systems thinking and architecting for the Young Engineers Leadership Programme since 2015 and had trained more than 800 young engineers.

Prof Yeoh has been active in the Singapore engineering professional and academic circles. He served as the President of the Institution of Engineers (IES) from 2018 to 2020 and is currently a Chartered Engineer, Chair of IES Sustainability Certification and Emeritus President of the Institution. Prof Yeoh served also as the President of the International Council on Systems

Engineering (INCOSE), Singapore Chapter from 2009 to 2011, and in 2009, he was conferred a Fellow of INCOSE, the first such Fellow in Singapore, for his contributions and achievements through technology, leadership, and teaching systems engineering.

Prof Yeoh received his Bachelor of Science (with Honors) and Master of Science degrees from the National University of Singapore (NUS) in 1983 and 1987 respectively. He further obtained two Masters (with distinction) in 1990 and a PhD degree in Electrical Engineering in 1997 from the Naval Postgraduate School (NPS). He attended the Program for Management Development at Harvard University in 2003.

Prof Yeoh is a recipient of the Singapore Public Administration Medal in 2001 (Bronze) and 2008 (Silver). He was conferred the Defense Technology Prize in 1992, 2004 and 2007, the last of which was an individual award for C4I development, large scale systems engineering and technology leadership.