

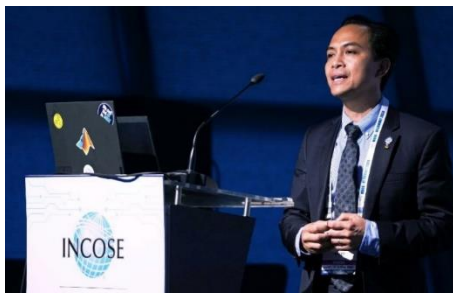
A Systems Engineering Governance Approach

Dr Quoc Do

Abstract:

This presentation introduces a Systems Engineering Governance Approach (SEGA) that enables the execution of Model-Based Systems Engineering (MBSE) and tackles intricate sociotechnical issues in submarine programs and infrastructure projects across organisational and national boundaries. The SEGA incorporates the Viable System Model (VSM) along with principles from Systems Engineering and cybernetics to facilitate efficient control, communication, coordination, and integration of MBSE teams and operations across international borders.

The presentation begins by examining the VSM and its diverse applications to establish the SEGA, and then describes the implementation of the VSM and MBSE in submarine design and infrastructure projects. This covers how project systems engineering teams work together and how MBSE artefacts were customised to address cultural differences and minimise the risk of miscommunication between the geographically dispersed systems engineering teams across national boundaries. The presentation further covers the significant findings, advantages, difficulties, and knowledge gained from implementing this framework during the definition and design phases of a submarine capability and major infrastructure project, as well as outlining future research directions.



Speaker Bio:

Dr. Quoc Do is a ONE KBR Technical Fellow, Principal Consultant at Frazer-Nash Consultancy, and Systems Engineering Director, Submarine Rotational Force West – Priority Works. He was the Technical Governance Manager of the Submarine Systems Engineering executive directorate within NSSG. He is an expert in digital engineering, model-based systems engineering, defence architecture frameworks, governance, and assurance.

He is a Fellow (FIEAust) and Chartered Systems Engineer (CPEng) of Engineers Australia and is well respected within the defense and commercial sectors. He is also a nationally and internationally recognized systems engineering leader, qualified as a DSS (Defense Support Service) Level 5 Pre-eminent Consultant in three categories (Systems Engineering, Capability Definition Documentation, and Systems Architecture and Integration), and inducted by the International Council of Systems Engineering (INCOSE) Leadership Institute.

Dr. Do has made significant contributions to the systems engineering profession through various leadership roles, including current Asia-Oceania Sector Director of INCOSE, past president of the INCOSE Australia Chapter, past president of the Systems Engineering Society of Australia (SESA), former Associated Director for Technical Review of INCOSE, and founding Chair of the INCOSE international Model-Based Conceptual Design (MBCD) Working Group.