

# A Lean Engineering Journey

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**Abstract.** During the three last INCOSE symposiums, Thales Systèmes Aéroportés proposed papers and presented concrete illustrations to implement a Lean approach in Systems Engineering and Product Development. Lean methodology stands on several pillars: ‘obsession of the customers and satisfaction of their needs’, ‘attention to problems and elimination of wastes’ and ‘involvement and development of employees through the resolution of problems’. This tutorial is based on our real experiences and describes achieved examples to address many Lean Enablers for Systems Engineering developed by the INCOSE Lean Working Group such as: “have cross functional stakeholders worked together to build the agreed value stream” and “use formal value stream mapping methods to identify and eliminate Systems Engineering and Product Development waste, and to tailor and scale tasks” This tutorial is divided into four major topics: 1. A Lean approach adapted to Systems Engineering: historical and technical Lean fundamentals; 2. A Lean approach illustrated by concrete examples: a transformation workshop (up to Obeya), a systematic workshop (up to VSM-PERT) and a recurrent workshop (up to Waste Diagnosis); 3. A Lean approach through pragmatic exercises: a case study about Rework in R&D (model & metrics); 4. A Lean approach deployed in Systems Engineering: key success factors, roles, risks, agile vision, Lean Enablers, etc.

## Biography

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Olivier Terrien is a Thales Lean Expert and is the Thales Systèmes Aéroportés reference for Lean Engineering. He has implemented numerous process improvement workshops based on Lean Manufacturing and/or Lean Engineering approaches (in systems engineering, software development and customer commitment). His background is in the engineering processes (design of microwave components, development of electronic warfare receivers, integration of naval radar systems and airborne electronic warfare suites). He has published more than 350 pages in the worldwide Press.