

Editorial

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Traditional system safety approaches are being challenged by the introduction of new technology and the increasing complexity of the systems we are attempting to build. STAMP is a new systems thinking approach to engineering safer systems described in Nancy Leveson's book "Engineering a Safer World" (MIT Press, January 2012). While relatively new, it is already being used in space, aviation, medical, defense, nuclear, automotive, and other sectors.

STAMP (Systems-Theoretic Accident Model and Processes) is an accident causality model based on systems theory and systems thinking and was originally developed by Prof. Dr. Nancy Leveson at MIT. STAMP integrates into engineering analysis causal factors such as software, human decision-making and human factors, new technology, social and organizational design, and safety culture, which are becoming ever more threatening in our increasingly complex systems.

STPA (Systems-Theoretic Process Analysis) is a powerful hazard analysis technique based on STAMP, while CAST (Causal Analysis based on STAMP) is the equivalent for accident and incident analysis. These tools are increasingly used across diverse industry sectors. Application areas have included aviation, air traffic control, space, defense, the automotive industry, railways, chemicals, oil and gas, medical devices, health-care, and workplace safety, with a growing interest coming from new areas such as the pharmaceutical industry and the finance and insurance sectors. Ongoing developments aim at extending the application field of STPA to include security.

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