Keynote Speech

TRIZ And AntiFragile Systems

Speaker Name,

Professor Darrell Mann,

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Speaker Biography:

Darrell is an engineer by background, having spent 15 years working at Rolls-Royce in various R&D related positions, including a leading role in the Company's transition from selling jet-engines, to selling 'power-by-the-hour', and ultimately becoming Chief Engineer responsible for the company's long term future military engine strategy. He left the company in 1996 to first help set up a high technology company spin-out from Imperial College, London, before entering a programme of systematic innovation research at the University of Bath. He first started using Systematic Innovation in 1992, and by the time he left Rolls-Royce had generated over a dozen patents and patent applications. In 1998 he started teaching Systematic Innovation methods to both technical and business audiences, and to date has given workshops to over 15,000 delegates across a broad spectrum of industries and disciplines. He continues actively use and develop the Systematic Innovation methodology. With over 800 systematic innovation-related papers and articles to his name, plus the best-selling 'Hands-On Systematic Innovation' books, Darrell is now one of the most widely published authors on the innovation subject in the world. He is CEO of Systematic Innovation Ltd, a UK based innovation company with offices and affiliates in India, Malaysia, China, Denmark, Turkey, Australia, US and Austria. Featured in Who's Who in the World, Darrell is now recognised as one of the world's most prolific inventors. He is a Professor at the University of Buckingham in the UK, and Taylor's University in Malaysia.

Abstract/Outline

The desire to increase the reliability and robustness of engineered systems is subject to the universal laws of the S-Curve: we can improve reliability, availability and life to a certain level, but to go beyond that level demands a discontinuous shift in design methods and strategies. Some engineering systems now demand that designs are not simply robust (capable of surviving extreme conditions) or resilient (capable of adapting to extreme conditions), but now become 'antifragile' such that their exposure to extreme conditions causes the system to become stronger. To achieve antifragile demands several discontinuous jumps in design capability, which in turn means the resolution of several contradictions. The presentation will examine the hierarchical nature of these jumps, the contradictions that require to be solved, and how TRIZ/SI is being used to solve some of the main ones. The presentation will incorporate a number of real-life examples from the world's most reliable and resilient industry – aerospace.