

Quantification of the Value of Systems Engineering, and the influence of the organisation

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Location: Loughborough University, W1.30 Sir David Davies Building

Speaker: Prof. Paul Davies MA(Cantab), C.Math, C. Eng Systems Design Engineer, Network Rail

In 2000, Sarah Sheard and Chris Miller published "The Shangri-La of ROI" on the subject of the value provided by Systems Engineering (SE). In the opening paragraph, they summarized: "This paper shows that: 1) There are no "hard numbers"; 2) There will be no hard numbers in the foreseeable future; 3) If there were hard numbers, there wouldn't be a way to apply them to your situation; and 4) if you did use such numbers, no one would believe you anyway." However, time has moved on, and recent studies by Eric Honour and by the National Defence Industries Association (led by Joseph Elm) have started to quantify the correlation between SE practices and business benefit. Sheard and Miller's points (1) and (2) are therefore seen to have been overcome. However, the study results need careful interpretation and consideration of the organizational context in which they apply. This presentation will cover some empirical rules for consideration of point (3), and start to address the barriers to adoption of point (4).

An outline of the presentation is as follows:

- Different models for the business value of SE
- The conclusions of the relevant studies, and implications for the ROI in SE
- The dependence of the business benefit correlation with project complexity and individual / organisational competence
- The evolution of maturity in SE praxis, by individuals and organisations
- A possible interpretative structural model of achieving maximum value of SE through improvement of praxis

Speaker

Paul Davies is a Systems Engineer at Network Rail in Milton Keynes, where he is SE Discipline Manager for the Infrastructure Projects Division. Prior to joining Network Rail in August 2013, Paul worked for Thales for 29 years in a variety of SE

roles. These included managing their SE research programmes; and Head of Innovation for a Thales division in the UK.

Paul graduated from Cambridge University in 1978, and is a Chartered Mathematician and Chartered Engineer. He has served as President of the UK Chapter of INCOSE, the International Council of Systems Engineering, and has chaired national (UK) and international conferences in SE. He holds positions as Visiting Professor in Systems at Loughborough University and Visiting Fellow at Bristol University.

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