

Educating students about value creation in the engineering enterprise

by

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Why is it that students and engineers find it hard to explain the value of their work to employers and investors, even governments? What is the value created by most engineers who never actually invent, design or build anything for themselves? What's the social value contributed by engineers? These are fundamentally important questions that students should learn to answer in their studies.

In a research study in Australia and Portugal, we set out to investigate value creation in the engineering enterprise working from an analysis of literature on engineering value creation in business studies, engineering and engineering education publications. Value creation has mostly been associated with innovation and entrepreneurs. However, work performed by most engineers has little to do with innovation so the means by which most engineers contribute value is unclear in the literature. Analysis of data from studies in engineering workplaces in Australia, South East Asia and Portugal helps to identify several ways in which engineers create value.

An important finding is that routine engineering performances by a majority of engineers, not associated with innovation or entrepreneurial activities, not only can be shown to create value, but also to protect accumulated value from inadvertent destruction.

This work has identified a fundamental gap in research literature and literature on the philosophy of engineering. Value creation by engineers cannot be taught readily without a robust theory to explain it.

In this talk, the educational implications of these findings are explained and measures are proposed that engineering educators can adopt to improve the understanding of engineering graduates about engineering value creation.