Fuzzy Data Envelopment Analysis to Rank Engineering Design Requirements in QFD

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Abstract

Quality function deployment (QFD) is a product development technique that translates customer requirements into activities for the development of products and services. From the viewpoint of QFDs designers, product design processes are performed in uncertain environments, and usually more than one goal must be taken into account. Therefore, when dealing with the fuzzy nature in QFD processes, fuzzy approaches are applied to formulate the relationships between customer requirements (CRs) and engineering design requirements (DRs). However little academic work exists on methodologies for deriving the relative importance of DRs When several additional factors (cost and environmental impact) are considered. DEA provides a general framework facilitating QFD computations when more factors need to be considered. In this paper, the fuzzy data envelopment analysis aims to rank DRs to maximize the customer satisfaction. Finally, the applicability of the proposed models in practice is demonstrated with a numerical example.

Keywords
Quality function deployment, Customer Requirements, Design Requirements, Fuzzy Data Envelopment Analysis.

Biography

Mohammad Molani Aghdam is a Director of Master of Science in Industrial & Executive Management and Bachelor of Science in Industrial Engineering in the Department of Engineering at the Islamic Azad University, Ayatollah Amoli Branch, Amol, Iran. He earned B.S. in Industrial Engineering and masters in Industrial Engineering from Mazandaran University of Science and Technology, Iran. He is in final semester on PhD (Industrial Engineering). He has published journal and conference papers. Also Mohammad is Director of Technology Incubator of Islamic Azad University, Ayatollah Amoli Branch. His research interests include New Product Development, optimization, Quality Function Deployment and lean.