A robust innovation design engineering method- By integrated with QFD, TRIZ and FMEA

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Abstract

QFD has been widely used for motivatingbusiness to focus on customer requirements for many years, but in tradition, it doesn't quantify thecorrelations between individual design parameter, and not to be considered into the decision of importance of design parameters. Besides, it is not aimed at technological innovation, so it cannot clearly indicate that part of a product to which technological innovation should be applied. Among the design process, a designer would hardly create innovative concept and solve the conflicting problems if no systematic process to be followed.
Recently, TRIZ was developed to assist designer in finding innovative solutions to technical problems in product development processes, and it has been proved that TRIZ is a powerful methodology. Few researches have integrated QFD with TRIZ to redeem the shortcomings, However, these methods do not consider the potential model in manufacturing.
This research describes a new methodology, it named Robust Innovation Design Engineering Method (RIDE), which systematically integrate QFD, TRIZ with FMEA and not only enables the effective and systematic creation of technical innovation for new products, but also reflect the needs of customers and consider the potential failure in manufacturing simultaneously. In RIDE, the concept of 「Innovation Design」, 「Design for Customer」and「Design for Manufacturing」are comprehended furthermore, the effect of robust innovation design engineering could be measured.

Keyword：Innovation Design、TRIZ、QFD、FMEA