
Establishing an Integrated QFD, TRIZ and ANP Methods for Innovative Product Development and Concepts Selection: Using Smart Phone Products as an Example

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Because of the fast development in science and technology, the competitions of the consumer products have become fiercer, which has led to shorten product lifecycle. Therefore, enterprises need to grasp market trends at any time and introduce new products or services to meet market demand constantly in order to sustain their products advantage. In the product concept developing stage, the traditional product research and development process is usually lack of integrated tools from collecting potential customer's demands to product concepts generating, selecting and testing. From the literature review, the specific research and development tools such as QFD (quality function deployment), TRIZ (theory for inventive problems solving) and ANP (analytic network process) have gradually become popular and been widely implemented and tested. However, their combination and integration often cause the distortion of information transmission and inconsistent policy decision. This research is mainly to employ methods of QFD, TRIZ, and ANP in the front stage of the product development process, which is also called the concept developing stage, to set up an integrated and effective decision procedure. By combining qualitative and quantitative methods and based on the key customer's voices, QFD is employed to transfer the voices into product goal specifications. In addition, TRIZ method is used as the systematic approach for product concept generation in order to create innovative product idea or developing direction. Further, in order to completely consider the different product attributes from customer's demands, goal specifications and the final innovative idea, the ANP method is applied for a better decision process. Finally, this research takes conceptual design of the intelligent mobile phone as an example, and evaluates the effectiveness of our methodology of integrated methods for innovative product development and concepts selection.

Key Words: QFD, TRIZ, ANP, Innovative Product Development, Product Development Management.

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