Integrating Systematic Innovation Method and Industry 4.0-based Concepts on the Problem Analysis and Opportunity Identification of Fastener Industry

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ABSTRACT
Screw manufacturing industry is an important industry in Taiwan. In 2015, Taiwan is one of the three largest fastener exporting countries in the world. The export quantity was 1.57 million metric tones. The exporting value was 2.8 billion US dollars. Many of the leading factories are capable of manufacturing massive quantities. However, as the global economic growth slows down recently, customers do not want to keep large inventory in the warehouse. As the batch quantity reduces, the production lines need to be adapted. Many problems will arise due to small batch quantity. In order to adapt to new order trends, we have to use Industry 4.0 concepts to quickly respond to the changing demands. As we solve the problems, we will find new business opportunities. In this paper, we use a systematic innovation approach to demonstrate how to find problems when applying Industry 4.0 concepts. Then we use TRIZ problem solving tools to solve the problems and suggests a new business model. The research processes in this paper are problem definition, Function Analysis and 40 inventive principles. In this paper, we showed systematic innovation approach of opportunity identification with a case study on a suggestion to new business model for tooling shops. The procedures we proposed in the paper can be used as general opportunity identification procedures. Therefore, it contributes a feasible reference method to search for a new business model in fastener industry or other industries.

Keywords: Systematic Innovation, Industry 4.0, Opportunity Identification, Fastener Industry.

REFERENCES