World Academy of Science, Engineering and Technology
International Journal of Industrial and Systems Engineering
Vol:9, No:06, 2015

The Use of TRIZ to Map the Evolutive Pattern of Products

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Abstract : This paper presents a model for mapping the evolutive pattern of products in order to generate new ideas, to perceive emerging technologies and to manage product's portfolios in new product development (NPD). According to the proposed model, the information extracted from the patent system is filtered and analyzed with TRIZ tools to produce the input information to the NPD process. The authors acknowledge that the NPD process is well integrated within the enterprises business strategic planning and that new products are vital in the competitive market nowadays. In the other hand, it has been observed the proactive use of patent information in some methodologies for selecting projects, mapping technological change and generating product concepts. And one of these methodologies is TRIZ, a theory created to favor innovation and to improve product design that provided the analytical framework for the model. Initially, it is presented an introduction to TRIZ mainly focused on the patterns of evolution of technical systems and its strategic uses, a brief and absolutely non-comprehensive description as the theory has several others tools being widely employed in technical and business applications. Then, it is introduced the model for mapping the products evolutive pattern with its three basic pillars, namely patent information, TRIZ and NPD, and the methodology for implementation. Following, a case study of a Brazilian bike manufacturing is presented to proceed the mapping of a product evolutive pattern by decomposing and analyzing one of its assemblies along ten evolution lines in order to envision opportunities for further product development. Some of these lines are illustrated in more details to evaluate the features of the product in relation to the TRIZ concepts using a comparison perspective with patents in the state of the art to validate the product's evolutionary potential. As a result, the case study provided several opportunities for a product improvement development program in different project categories, identifying technical and business impacts as well as indicating the lines of evolution that can mostly benefit from each opportunity.

Keywords : product development, patents, product strategy, systems evolution
Conference Title : ICIMT 2015 : International Conference on Innovation, Management and Technology
Conference Location : Toronto, Canada
Conference Dates : June 15-16, 2015