A Methodology for Developing New Technology Ideas to Avoid Patent Infringement: F-Term Based Patent Analysis

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Abstract : With the growing importance of intangible assets recently, the impact of patent infringement on the business of a company has become more evident. Accordingly, it is essential for firms to estimate the risk of patent infringement risk before developing a technology and create new technology ideas to avoid the risk. Recognizing the needs, several attempts have been made to help develop new technology opportunities and most of them have focused on identifying emerging vacant technologies from patent analysis. In these studies, the IPC (International Patent Classification) system or keywords from text-mining application to patent documents was generally used to define vacant technologies. Unlike those studies, this study adopted F-term, which classifies patent documents according to the technical features of the inventions described in them. Since the technical features are analyzed by various perspectives by F-term, F-term provides more detailed information about technologies compared to IPC while more systematic information compared to keywords. Therefore, if well utilized, it can be a useful guideline to create a new technology idea. Recognizing the potential of F-term, this paper aims to suggest a novel approach to developing new technology ideas to avoid patent infringement based on F-term. For this purpose, we firstly collected data about F-term and then applied text-mining to the descriptions about classification criteria and attributes. From the text-mining results, we could identify other technologies with similar technical features of the existing one, the patented technology. Finally, we compare the technologies and extract the technical features that are commonly used in other technologies but have not been used in the existing one. These features are presented in terms of "purpose", "function", "structure", "material", "method", "processing and operation procedure" and "control means" and so are useful for creating new technology ideas that help avoid infringing patent rights of other companies. Theoretically, this is one of the earliest attempts to adopt F-term to patent analysis; the proposed methodology can show how to best take advantage of F-term with the wealth of technical information. In practice, the proposed methodology can be valuable in the ideation process for successful product and service innovation without infringing the patents of other companies.

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