

IDENTIFICATION OF POTENTIAL CORE TECHNOLOGIES USING INTELLECTUAL PROPERTY BIG DATA IN MANUFACTURING COMPANIES

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ABSTRACT

Intellectual Property (IP) is an important asset for enterprises, not only for large enterprises but also for small and medium-sized enterprises (SMEs). IP has been contributing to our prosperity since before. However, it is often that SMEs are not able to utilize excellent technologies (so-called Core Technology). It is due to the restrictions of their management resources.

This study defines “core technology” as technology that can be applied and deployed in multiple businesses or industries. We propose a method to find potential core technologies in the manufacturing industry by using the big data of Patents. Resulted in the current accuracy is about 74%, which is not high. Thus, improvement of fine-tuned model is needed. In this study, we have not reached our proposed system. The model just classifies the input sentences according to the IPC classification.

Keywords: Technology Management, Technology Strategy, Patent; Bigdata, Intellectual Property

1. INTRODUCTION

Once Japan was said, “Japan as Number One” (Vogel, 1979) before the 1980s. Especially automobile industries and electrical industries have played a great role in the prosperity. In the past, when Toyota, Honda, and Nissan sold cars in this way, the companies under them profited.

However, Japan now dropped “Japan as Number 3” in terms of GDP. It is due to the rise of high-tech companies in the world such as Tesla, Google, Apple, and so on. Thus, the big change is already happening and the collapse of Japanese industry has already started. At the same time, the future of small and medium-sized enterprises in the automotive industry is uncertain.

Alternatively, Intellectual Property (IP) is an important asset for enterprises, not only for large enterprises but also for small and medium-sized enterprises (SMEs). IP has been contributing to our prosperity since before. However, it is often that SMEs are not able to utilize excellent technologies (so-called Core Technology). It is due to the restrictions of their management resources (Human resources, goods/services, budgets, information).

Core Technology Strategy (Nobeoka, 2007) is the concept of leveraging the strengths of their technologies and using the potential for diversion to other industries. Thus, utilizing the core technology strategy is important for SMEs’.

This study defines “core technology” as technology that can be applied and deployed in multiple businesses or industries. The author try to find potential core technologies in the manufacturing industry by using Bigdata from patents.

Patent is a type of intellectual property that gives its owner the legal right to exclude others from making, using, or selling an invention for a limited period in exchange for publishing and enabling disclosure of the invention.