Framework for Cultivating the Technology Transfer based on the Analysis of Technology Transfer Network

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Abstract. Recently the technology transfer is defined as a shared two-way process of knowledge technology, know-how, best practice and so on from the various technology providers to the various techniques recipient. In order to cultivate the technology transfer, it is necessary to diagnose the technology transfer network. However, most researchers have tried to verify the efficiency and effectiveness of technology transfer network based on the case studies. Therefore, in this research, we derive the new framework for diagnosing the technology transfer network based on social network analysis. By analyzing and visualizing the technology transfer network, the framework provide chance to grasp the opportunity that can lead to technology innovation. Further, the framework support technology recipient to understand the connectable point of an important technical mediation and core technology brokerage within the technology transfer network.

Keywords: Technology transfer, Technology transfer network, Social network analysis

1 Introduction

The effective acquisition of new technology is an important key to the success of the enterprise [1]. The radical development of technology has been rapidly fostering the change of the products and service innovation [2]. In the process from the technology donor to technology recipient, only enterprise that gain effectively the new technology transfer is possible to lead the world market [3]. However, enterprise does not develop all the technology, because the resources of enterprise are limited. As a result, the importance of technology transfer has been rapidly increased [2]. The innovation of new product development and services of more than 50% have been made through the technology transfer [4]. The market introduction of new products and services based on the technology transfer provides an opportunity to increase the profit and market share of the company [5] since the importance of technology transfer is increased, there is a growing interest in enterprise, government and research institutes [2].

The technology transfer has been variously defined [1] in the field of research and academy. The technology transfer in the initial studies was defined as the technology flow from the technician donor to the technology recipient. However, recently the
technology transfer is defined as a shared two-way process of knowledge technology, know-how, best practice and so on from the various technology providers to the various techniques recipient [4]. The definition has been expanded from the transfer of license and intellectual property rights to the transfer of knowledge related with technology.

Despite the national support for cultivating the technology transfer, a lot of technology have been remained in universities and the research institutes without transfer [6]. The main reason to hinder the technology transfer is a lack of knowledge about the technology donor [7, 8, 9]. To be the successful technology transfer, the knowledge about technology and technology donor should be needed. Moreover, the technology recipient requires the technology commercialization process, the information about processes, know-how and best practice. Only the movements of a technology licensing and intellectual property rights would be failed.

In order to cultivate the technology transfer, it is necessary to diagnose the technology transfer network. The social network analysis support activities of technology recipient from the technology selection to the knowledge commercialization. The role of social network analysis is as follows.

- By removing the structural hole, supporting the smooth transfer of technology
- By connecting various technology donor and technology recipient, leading the product development and services innovation of the new market
- By the understanding of the technology transfer network, improving the speed of technological innovation and diffusion

However, the most researches related with the technology transfer network have focused on the empirical studies [2]. Researchers have tried to verify the efficiency and effectiveness of technology transfer network based on the case studies. Therefore, in this research, we try to derive the new framework for diagnosing the technology transfer network based on social network analysis. By diagnosing the technology transfer network, it is derived to the strategy for cultivating technology transfer.

2 Research Framework

The framework for diagnosing technology transfer network is shown as the following figure. By analyzing and visualizing the technology transfer network, the framework provide chance to grasp the opportunity that can lead to technology innovation. Further, the framework support technology recipient to understand the connectable point of an important technical mediation and core technology brokerage within the technology transfer network.
To develop the strategies, it is needed to classify the four different technology transfer network. TH (Technology hole) network has the fragmentary knowledge about technology, because the process of acquiring technology is very inefficient. First, it is necessary to encourage actors in TH network to offer a technology. Moreover, the technology donor generates the hi-quality technology by training the technology transfer. TD (Technology Donor) network is dealing the technology of a particular topic. The technology in this network is actively spread. However, technology transfer is very limited because this technology is substantially hard to be utilized.

TR (Technology Recipient) network has a small number of active technology donors. In this network, the technology recipient takes advantages of transferred technology, because transfer technology is practical. This network tends to rely on a small number of technology donors. It should be offered to expand the technology transfer network by introducing the new technology provider.

3 Conclusions

The technology transfer has been variously defined in the field of research and academy. Recently the technology transfer is defined as a shared two-way process of knowledge technology, know-how, best practice and so on from the various technology providers to the various techniques recipient. Despite the national support for cultivating the technology transfer, a lot of technology has been remained in universities and the research institutes without transfer. In order to cultivate the technology transfer, it is necessary to diagnose the technology transfer network. However, most researchers have tried to verify the efficiency and effectiveness of technology transfer network based on the case studies. Therefore, in this research, we derive the new framework for diagnosing the technology transfer network based on social network analysis.
By analyzing and visualizing the technology transfer network, the framework provide chance to grasp the opportunity that can lead to technology innovation. Further, the framework support technology recipient to understand the connectable point of an important technical mediation and core technology brokerage within the technology transfer network.

However, our research has some limitations. Since the proposed framework is based on academic and theoretical research, the proposed framework should be verified through case studies. The framework needs to be applied to the real technology transfer network in diverse industrial fields.

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References