Impact of Knowledge Network Attributes on Enterprise Innovation Performance

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Recommended Citation

Li, Xiaoli and Li, Kun, "Impact of Knowledge Network Attributes on Enterprise Innovation Performance" (2022). *WHICEB 2022 Proceedings*. 36.
https://aisel.aisnet.org/whiceb2022/36

<u>Full Research Paper</u>

Impact of Knowledge Network Attributes on Enterprise

Innovation Performance

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Abstract: Previous studies have more often explored the impact of structural and relational characteristics of knowledge network on the enterprise's innovation performance. However, the attribute characteristics of enterprise knowledge network also have an impact on the innovation performance of enterprises. Based on the knowledge-based view, our study tries to explore how knowledge attributes affect firm's innovation performance, and whether the complementarity of ambidextrous learning plays an indirect role in this process. Our research results show that both the combination potential of knowledge and knowledge diversity can affect the innovation performance of enterprises, and there is a threshold of the combination potential of knowledge, beyond which the positive impact on enterprise innovation performance will be weakened. At the same time, the complementarity of ambidextrous learning plays a moderating role between the combination potential of knowledge and the positive effect of firm innovation performance, but there is no moderating effect between knowledge diversity and firm innovation performance.

1. INTRODUCTION AND RESEARCH FRAMEWORK

     Innovative performance is critical to the survival and success of a business[1]. Previous research confirms that collaborative network contribute to productivity and innovation[2]. Participants can access knowledge, information and resources through collaborative relationships with others. However, innovation by individuals or companies is not only embedded in collaborative network, but also in knowledge network[3-4]. In the knowledge network, the nodes represent the 'knowledge elements' and the ties represent the interconnections between the knowledge elements, indicating their combinatorial relationships. Although the study of knowledge network has attracted scholarly attention, less research to date has focused on the attributes of knowledge network that drive specific innovation performance, leaving open the question of how the attribute characteristics of knowledge network affect innovation performance. At the same time, the knowledge and resources acquired by the organization from the outside need to be absorbed, integrated and utilized in order to help the enterprise improve its innovation ability, which depends on the organization's learning ability, including exploratory learning and exploitative learning, which means that an enterprise's knowledge network is closely related to its own learning capability. Therefore, this study will conduct a more micro-level analysis of the relationship between knowledge network and innovation performance. Our research questions are as follows: (1) How do the two dimensions of knowledge attributes (combination potential of knowledge and knowledge diversity) affect firm's innovation performance? (2) How does the interactive dimension of knowledge attributes affect firm's innovation performance? (3) Can the complementarity of ambidextrous learning indirectly affect firm's innovation performance?

     Based on the knowledge-based view and the organizational learning theory, the hypotheses and research framework are proposed herein(Figure 1).

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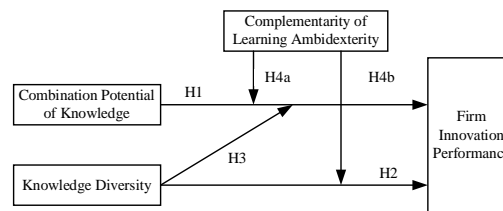
Figure 1. Research framework

　　The dataset is derived from patent data for 116 listed companies in the Chinese A-share automotive manufacturing industry from 2010 to 2018, using a 3-year rolling timeline to calculate various indicators and test our hypotheses through a negative binomial regression fixed effects model.

2. MAJOR FINDINGS

　　This study observed some valuable and interesting findings: (1) Combination potential of knowledge is curvilinearly (in an inverted U-shape) related to innovation performance, while knowledge diversity positively affects a firm's innovation performance. (2) Knowledge diversity improves the inverted U-shaped link between combination potential of knowledge and firm innovation performance. (3) The complementarity of ambidextrous learning moderates the positive link between combination potential of knowledge and firm innovation performance, but has no moderating effect between knowledge diversity and firm innovation performance. This may be because the Chinese automotive industry is in a phase of technology accumulation and core competence formation, where exploitative learning can help improve the practicality of technological innovation. This is most important for the current automotive industry, where knowledge diversity requires new, broader and more innovative knowledge elements.

3. CONTRIBUTION

　　Our research not only enriches the research on the relationship between knowledge attribute characteristics and enterprise innovation performance, but also emphasizes the moderating role of the complementarity of ambidextrous learning, and promotes the theoretical exploration of ambidextrous learning. From a management perspective, companies should aim to keep the combination potential of knowledge at a reasonable range. At the same time, enterprises should expand the knowledge base and improve the heterogeneity and richness of knowledge. Moreover, enterprises should focus on cultivating their own ambidextrous learning capabilities and fully play the role of complementarity of ambidextrous learning as a bridge in the development of enterprise innovation. In addition, we only study the automobile manufacturing industry, and the empirical results may be limited.

ACKNOWLEDGEMENT

REFERENCES

[1] Gassmann, O. (2006). Opening up the innovation process: towards an agenda. R & D Management, 36(3), 223-228.

[2] Guan, J., & Pang, L. (2018). Bidirectional relationship between network position and knowledge creation in Scientometrics. Scientometrics, 115(1), 201-222.

[3] Guan, J., & Liu, N. (2016). Exploitative and exploratory innovations in knowledge network and collaboration network: A patent analysis in the technological field of nano-energy. Research Policy, 45(1): 97-112.

[4] Wang, C., Rodan, S., Fruin, M., & Xu, X. (2014). Knowledge networks, collaboration networks, and exploratory innovation. Academy of Management Journal, 57(2), 484-514.