

A treatise on the position of Bosch

Research on the impact mechanism of knowledge heterogeneity of collaborative development products on firm value performance: A case study of China's security industry

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The era of knowledge economy has come. Drucker points out that knowledge is the most important asset in post-capitalist society

Source, knowledge plays a leading role in promoting the competitive advantage of enterprises. In the final analysis, the competition between enterprises is the contest of knowledge. Knowledge is not homogeneous, but heterogeneous, and heterogeneity is the key characteristic to understand knowledge. Enterprise heterogeneity is due to the knowledge differences accumulated in the production and operation process of enterprises. Improving the knowledge base of enterprises and their heterogeneous teams, strengthening the integration of heterogeneous knowledge, and promoting open innovation have become important measures to improve the competitive advantage of enterprises, which has won the recognition of entrepreneurs and academic scholars. In order to actively cope with the sanctions imposed by the United States on Chinese security enterprises, enterprises should enhance dynamic capabilities through the cross-border integration of heterogeneous knowledge resources, so as to improve enterprise value performance.

Knowledge heterogeneity is of great significance to China's security industry. At present, "AI+ security" has become a hot topic and investment hotspot in the industry. AI technology heterogeneity has natural advantages in the landing of security scenarios: core chips and software-defined cameras are arranged at the end and side; The intelligent video cloud platform is arranged at the edge and center; Big data cloud platform and intelligent command platform are arranged in the upper layer. Data + computing power + algorithm + scheme + scene constitute the five basic elements of AI, software and hardware products form solutions, landing in the project, scene data is king. The actual application scenarios faced by enterprises are mostly "individual needs and flexible customization". Heterogeneous knowledge resource input will inevitably lead to the increase of enterprise cost and decrease of profit, and the lack of input will inevitably lead to the lack of customer participation value, experience value and exchange value. Christensen points out when studying the dilemma of innovators and solutions. Enterprises are faced with the development paradox of "increasing R&D and technology investment is equal to death, while not increasing investment means waiting for death". In order to navigate the rapidly changing uncertain environment, enterprises need to associate, ask questions, observe, experiment, establish contacts, and implant the innovator's gene into the body. Actively cooperate with the heterogeneity, embeddedness and

reciprocity of industry chain and ecosystem members to form sustainable competitive advantages.

Taking China's security industry as an example, this study selects security enterprises' collaborative development products in the Yangtze River Delta region, Guangdong-Hong Kong-Macao Greater Bay Area, and Beijing-Tianjin-Hebei region, which are the most economically active areas in China, as the research object. Combining resource-based view, knowledge heterogeneity, knowledge synergy theory, and dynamic capability theory, this study proposes the following research questions: (1) Can the knowledge heterogeneity based on collaborative development products improve enterprise value performance? (2) What are the mechanisms of knowledge heterogeneity based on collaborative development products to improve performance? In this study, a theoretical model of "knowledge heterogeneity -- dynamic capabilities -- value performance" was constructed by combining theory and empirical research. Data were collected through questionnaire survey to test the mechanism of knowledge heterogeneity on firm value performance.

The main conclusions of this study include the following five aspects:

(1) The knowledge heterogeneity based on collaborative product development between enterprises has a significant effect on the improvement of enterprise value performance

It has a significant positive effect on enterprise value performance. The higher the degree of enterprise knowledge heterogeneity, the better the system of enterprise knowledge maintenance, the stronger the ability to transform the stock of knowledge, and the greater the promotion of new product value performance.

(2) The knowledge heterogeneity based on collaborative product development has a significant positive impact on the improvement of dynamic capabilities of enterprises.

(3) Dynamic capabilities have a significant positive impact on firm value performance. The core value of dynamic capabilities on firm value performance is that they empower enterprises to transfer, integrate and sublimate knowledge resources, so that enterprises can obtain higher premium value performance by changing the resource base.

(4) Dynamic capabilities partially mediate the relationship between knowledge heterogeneity and firm value performance.

(5) Knowledge base has a significant moderating effect on the relationship between knowledge heterogeneity and firm value performance, but synergy intention has no significant moderating effect on the relationship between knowledge heterogeneity and firm value performance.

The innovation of this study mainly includes the following three aspects:

(1) This study introduces mediating variables and moderating variables to open the "black box" of the impact of knowledge heterogeneity on firm value performance and clarify the mechanism of the impact of knowledge heterogeneity on firm value performance.

At present, there are three different controversial views on the relationship between knowledge heterogeneity and firm value performance: positive, negative, and inverted U-shaped nonlinearity. For scholars and literature research on knowledge heterogeneity, based on the situational variables is the study of knowledge heterogeneity of enterprise value performance influence mechanism is the key, about the intermediary variable research focuses on internal communication, cognitive conflict, internal and external learning ability, team learning, cross-border knowledge search, knowledge integration, Shared mental model, external knowledge network, etc; The research on moderating variables mainly focuses on interpersonal coordination, outcome dependence and team years, culture, strategy and human resource practices, co-working and environmental uncertainty, team diversification, leader optimism, executive support, knowledge governance mechanism, knowledge search intensity, network conventions, etc. This study makes up for the blind spot of previous studies on mediating variables and moderating variability. By taking dynamic capabilities as the mediating variable and knowledge base and willingness to collaborate as moderating variables, we empirically verify the mediating effect of dynamic capabilities on "knowledge heterogeneity -- firm value performance". The moderating effect of knowledge base on "knowledge

heterogeneity -- dynamic capabilities" was verified, and the "black box" from knowledge heterogeneity to firm value performance was opened, and the influencing mechanism between the two was clarified.

(2) This study selected the specific background of collaborative product development of enterprises, broadened the scope of heterogeneity research, and explored the antecedents of knowledge heterogeneity and the results of value performance by combining case studies and questionnaires.

There are two explanations for the underlying logic between knowledge heterogeneity and firm value performance: one is the "resource -- capability -- performance" argument model, and the other is the "resource -- strategy - - performance" argument model. This study adopted "resource - ability - performance" mode of argumentation, with mature theory and the inheritance and development of emerging theory as the breakthrough point, based on the specific background of the collaborative development security products, in this study the author management wisdom, science and technology for the exploratory case samples, combined with the questionnaire, broadening the heterogeneity research scope. In response to the uncertain environment, enterprises should shift from internal potential exploration to external resource acquisition, develop in collaboration, and co-exist in clusters, in order to obtain the first-mover advantage and ecological advantage of enterprises in the hyper-competitive environment. security

Cross-border competition in the industry intensifies the uncertainty of the future. To explore the antecedents of knowledge heterogeneity, it is necessary to strengthen collective actions among enterprises to coordinate the heterogeneity, embeddedness and reciprocity of ecosystem members, and achieve the results of shared, co-created and win-win value performance.

(3) Based on the specific perspective of China's security industry and data samples of Chinese security enterprises, this study summarizes the understanding of regularity, and provides a practical methodology for the improvement of enterprise value performance by knowledge heterogeneity.

This study takes China's security industry, where the author works, as an example. The research data sample is from a questionnaire survey, focusing on the middle and senior managers of 360 security enterprises in the Yangtze River Delta region, the Guangdong-Hong Kong-Macao Greater Bay Area, and the Beijing-Tianjin-Hebei region, which are the most developed security areas in China. The sample covers enterprises with different property rights types, including private enterprises, Sino-foreign joint ventures, state-owned enterprises, wholly foreign-owned enterprises and other enterprises, as well as enterprises upstream and downstream of different supply chains, including key component providers, software and hardware product providers, cloud service providers, engineering/integration/O&M providers and other enterprises. The impact of the post-pandemic era on the security industry and supply chain, the impact of the US sanctions on China's security enterprise entities, and the integration of heterogeneous knowledge to enhance dynamic capabilities and improve enterprise value performance are positive coping strategies. In the open innovation environment, external heterogeneous knowledge resources become the core component of enterprise innovation strategy. This study provides a practical methodology for knowledge heterogeneity to improve the value performance of security enterprises.

Key words: collaborative development products, security industry, knowledge heterogeneity, dynamic capabilities, value performance