

Factors Influencing Corporate Innovation: A Literature Review

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Abstract—Innovation is of great importance both to economies and to enterprises. Enterprise innovation has always been a hot topic in economics and management, this paper discusses the recent years about enterprise innovation from external factors to internal factors, that is, in the external factors are industrial policy, government subsidies for research and development, digital economy; internal factors are managerial characteristics and corporate governance, in order to sort out the research pulse of enterprise innovation influencing factors, enrich the enterprise innovation research ideas, and provide a reference to further promote the research of enterprise innovation theory.

Keywords—corporate innovation, literature review, corporate governance

I. INTRODUCTION

The report of the 20th Party Congress proposes that “innovation is the first driving force” and “adhere to the central position of innovation in the overall situation of China's modernization”. Since the 18th Party Congress, China has stepped into a new stage of development, the traditional factor-stacked economic growth model is no longer enough to meet the needs of high-quality economic development, the only way to break through the boundaries of the traditional economic development model is to innovate, especially in today's fierce international competition, to seize the opportunity of innovation and development is to seize the core competitiveness of the future.

Since Schumpeter (1912) put forward the theory of innovation, both the neoclassical economic growth theory put forward by Solow and the new economic growth theory put forward by Romer believe that the innovation ability is the key element of enterprise competition, regional development and national sustainable economic growth. As the main body of the market economy, enterprises are the main force of technological innovation, and it is of great significance to systematically sort out the influencing factors affecting enterprise innovation for the sustained development of the economy. Based on the summarization and organization of the existing literature, this paper compiles the external and internal factors affecting enterprise innovation, and points out the next research direction.

II. THE EXTERNAL FACTORS AFFECTING ENTERPRISE INNOVATION

A. Industrial Policy

For industrial policy, different scholars have different connotations defined, and industrial policy is to a large extent an important embodiment of the national development strategy and an extension of the national will in the economic field (Tan *et al.*, 2017). Existing research shows that

industrial policy can promote substantial innovation in enterprises, focusing on the efficiency of innovation quantity and the value-added of innovation quality, but Li and Zheng (2016) found that the number of patent applications increased significantly in the companies motivated by industrial policy, but only the non-invention patents increased significantly, the pursuit of “quantity” but ignored “quality”, and it did not bring substantial innovation, and this effect is more significant in the private enterprises, and this effect is more significant in the private enterprises. This effect is more significant in private enterprises (Yu *et al.*, 2016). It has also been found that the uncertainty of economic policy also affects the innovation input of enterprises and then affects the innovation output, and scholars have not reached a unanimous conclusion in this regard (Hao *et al.*, 2016; Gu, 2018).

B. Government R&D Subsidies

The impact of government R&D subsidies on enterprise innovation has been studied for a long time (Görg and Strobl, 2007), and government R&D subsidies have the dual effects of “incentive” and “crowding out”, but there is no consistent conclusion. Some scholars believe that firms that receive government innovation subsidies will release positive signals to the outside world, thus gaining more social resources, which will significantly promote the increase of R&D investment and substantive innovation output (Chen *et al.*, 2016; Guo and Yue, 2018), and the increase of the firm's own R&D investment is conducive to the firm's absorption and utilization of the government's R&D subsidies (Bai and Li, 2011), and government subsidies have a significant impact on private enterprises' R&D development, and government subsidies have a greater role in promoting the innovation performance of private enterprises (Yang *et al.*, 2015). Another group of scholars found that firms often send false “innovation type” signals to obtain government R&D subsidies (An *et al.*, 2009), and although government innovation subsidies are positively correlated with firms' overall R&D investment, firms' independent investment in innovation decreases with the increase of government innovation subsidies (Li *et al.*, 2017), and only moderate subsidies can promote private firms' innovation performance (Bai and Li, 2011), only moderate subsidies can significantly incentivize firms' new product innovation, while high subsidies inhibit firms' new product innovation (Mao and Xu, 2015).

C. Digital Economy

With the rise of the digital economy and other emerging fields, a large number of scholars have studied the impact of the digital economy on enterprise innovation. On the one hand, by measuring the level of regional digital economy

development, it has been found that the digital economy can have a positive effect on the quality of corporate innovation by promoting the upgrading of human capital and enhancing R&D capabilities (Song *et al.*, 2023). The development of digital economy can not only positively drive the improvement of enterprise innovation efficiency (Wang and Xu, 2022), but also significantly enhance the level of enterprise innovation sustainability (Du and Hu, 2023). On the other hand, existing studies have found that the digital economy can positively promote the digital transformation of enterprises, and the digital transformation of enterprises can help them overcome the innovation dilemma by enhancing their innovation efficiency, improving the quality of innovation, and strengthening the capacity of absorption and transformation, which has a significant positive impact on enterprise innovation (Li *et al.*, 2022; Zhuo and Chen, 2023; Shi and Peng, 2024). Moreover, Ling and Zhang (2024) found that enterprises undergoing digital transformation also have a sustained impact on enterprise innovation. Other scholars have also studied the impact of digital finance on enterprise innovation, and found that there is indeed a “structural” driving effect of digital financial development on enterprise technological innovation (Tang *et al.*, 2020), and that the development of digital finance can significantly alleviate the financing constraints of enterprises, and the relaxation of financing constraints will have a significant positive impact on enterprise innovation (Wan *et al.*, 2020), and not only this, digital financial development can also have a significant impact on enterprise innovation. Not only that, digital inclusive finance (Liang and Zhang, 2019; Qi *et al.*, 2023), science and technology finance (Lin and Mao, 2024) and fintech (Li *et al.*, 2020) all have a positive impact on enterprise innovation.

III. INTERNAL FACTORS AFFECTING CORPORATE INNOVATION

A. Managerial Characteristics

Managerial characteristics (executive experience) can have a significant impact on corporate innovation decisions, and managers will make strategic decisions based on the reality and their own experience, thus affecting the results of corporate innovation. Yao and Zhou (2018) found that the stronger the ability of enterprise management, the higher the level of enterprise innovation, and the higher the efficiency of enterprise innovation, and if the entrepreneur’s career experience is richer, the higher the level of enterprise innovation (He *et al.*, 2019). Entrepreneurship has a significant positive effect on corporate innovation behavior in an environment of economic uncertainty (Liu, 2023), and Yu *et al.* (2018) found that inventor executives have a significant positive contribution to corporate R&D investment, innovation output, and innovation efficiency. Transformational and transactional leadership styles have a positive impact on organizational learning, and organizational learning has a prospective impact on innovation performance (Cui *et al.*, 2022). In addition, Liu *et al.* (2017) found that there is a positive effect of the proportion of executives with overseas background in the executive team on the number of corporate patent applications, and Yang *et al.*, (2018) also concluded that the

more tacit knowledge executives learn in overseas functional positions and industry environments, the more innovative they will be and engage in innovative activities more efficiently.

B. Corporate Governance

Different corporate governance can produce different results on corporate innovation. Zhu *et al.* (2018) argued that the existence of multiple large shareholders inhibits corporate innovation, while the implementation of employee stock ownership plans promotes corporate innovation output (Meng, 2019), and some scholars have found that there is a positive effect of pay gap on innovation output, and the positive incentive effect of pay gap on innovation is mainly driven by management pay premium, and the employee pay premium, on the contrary, reduces the innovation output to a certain extent (Kong *et al.*, 2017). In addition, Liu (2017) found that financial asset allocation significantly reduces corporate R&D innovation in the current period, but the share of financial asset holdings helps to promote corporate R&D innovation in future periods, while financial channel profitability presents a dampening effect. Reasonable and scientific equity structure is an important prerequisite for the healthy development of a company, and other scholars have found that there is a significant negative correlation between controlling shareholders’ equity pledges and corporate R&D investment (Zhang *et al.*, 2017; Li *et al.*, 2018).

IV. APPROACHES AND PRACTICAL PATHS TO ENTERPRISE INNOVATION

A. Product Innovation

Product innovation is the key to determine the success or failure of enterprise performance in market competition. Wu and Mi (2011) found that the efficiency of co-operative innovation enterprises is the highest, the efficiency of imitation enterprises is the second, and the efficiency of independent innovation enterprises is the second. This suggests that in China’s economic transition, collaborative innovation is a better product development model than imitation and independent innovation, and is the best strategic choice for enterprises to gain competitive advantage. Firms’ innovation decisions and product innovation are also positively affected by industrial agglomeration, and there is significant industry heterogeneity and firm heterogeneity: localised economic agglomeration promotes firms in high-technology industries more strongly, while urbanised economic agglomeration promotes firms in medium- and low-technology industries more significantly (Du and Li, 2015). In addition, the integration of product design, marketing and information technology improves the tendency of product innovation investment of enterprises, and the integration of manufacturing and information technology improves the tendency of process innovation investment of enterprises (Zhang and Zhou, 2016).

B. Conceptual and Strategic Innovation

Li (2006) pointed out that the marketing concept is a guide for enterprise marketing activities, and the soul of marketing innovation is the innovation of marketing concept; enterprise management should pay attention to a number of new marketing concepts, focusing on the use of philosophical

thinking to think about the innovation of marketing concepts. At present, more enterprises have also carried out the green innovation strategy, and the research of Cao and Chen (2017) found that the strategy is affected by a variety of factors, such as policy pressure, market pressure, internal innovation resources, and innovation ability. Yin (2018) pointed out that on the basis of reflecting on the shortcomings of traditional performance management, he put forward the idea of strengthening the foundation of performance management from the dimension of basic management, realizing the improvement of performance management from the dimension of strategic management, and constructing a strategy-oriented enterprise performance management system.

C. Sustainable Innovation

Enterprises driven by the culture of sustainable innovation are more vital, which is the trend of modern enterprise development. According to Sun *et al.* (2008), sustainable innovation of enterprises includes three driving modes: bottleneck-driven, policy-driven and culture-driven. The sustainable innovation of small and medium-sized enterprises is usually driven by development bottlenecks; the sustainable innovation of large state-owned enterprises is usually driven by policies, and the sustainable innovation of private enterprises is usually driven by sustainable innovation culture. Xu (2008) points out that collaborative enterprise based on sustainable innovation is the requirement of lean production in modern enterprises, and also an effective way to improve the competitiveness of enterprises and continuously win the market and customers. Technology as a product support, the need for forward-looking layout, and the market as a source of enterprise survival, the need to maintain and develop, only sustainable innovation can ensure the resilience of the enterprise and thus contribute to the long-term development of the enterprise (Zhao, 2017).

V. CONCLUSION

A. Literature Review

Through the combing of the above literature, we can find that there has been a large amount of literature to study the influencing factors of corporate innovation, and the research perspectives on corporate innovation have both macro and micro perspectives. And as the world economy enters the fifth downward cycle, economies are paying more and more attention to the role of innovation, and the number of articles on enterprise innovation has gradually increased in recent years. However, there are still the following deficiencies in the current research field: first, with the rapid development of the digital economy, many scholars have studied the impact of the regional digital economy and its accompanying economic effects on enterprise innovation, but few literatures have studied the impact of the development of the regional digital economy on the internal factors of the enterprise, and how the digital economy affects the innovation of the enterprise by influencing the internal factors of the enterprise has yet to be explored. Secondly, the existing literature mostly starts from the perspective of domestic own industrial policy to study its impact on domestic enterprise innovation, but in today's economic globalization, the impact of a country's economy by foreign industrial policy should not be

ignored, and the existing research lacks to study its impact on host country's enterprise innovation from the perspective of foreign industrial policy.

B. Research Perspectives

Although the current research on enterprise innovation has achieved fruitful results, there are still some areas worth exploring in depth. Combined with the existing literature, the research on the sustained impact of enterprise innovation and the economic consequences of enterprise innovation is the direction of future development: firstly, the existing research mostly cuts in from the macro or micro a certain perspective to study its impact on enterprise innovation, but only sustained innovation can better increase the output of the enterprise and strengthen the core competitiveness of the enterprise itself. The next step of the research can go further and explore the impact of various influencing factors on the sustained innovation of enterprises. Secondly, relative to the quantity of innovation output, there are relatively few studies on the quality of output, the most important issue is to focus on the economic outcomes of enterprise innovation, one or several variables influence to improve the innovation capacity of the enterprise, but the economic performance of the enterprise is really effectively improved? Can innovating firms capture more market share from their main product markets, are they more likely to enter new markets and enjoy higher operational performance? And since a firm's leader or executive is a key factor influencing firm innovation, what factors attract or create a leader who is favorable to the firm's growth? This is also a key question for the next research. Thirdly, there have been studies on the impact of the digital economy on corporate innovation, and some scholars have studied the combination of finance and digital economy in the field of digital financial inclusion, but the "digital economy +" effect brought by the digital economy is far more than that, and the new information technology revolution triggered by the digital economy can bring about horizons far beyond the current research, such as The impact of "digital economy + enterprise management mode", "digital economy + smart factory" and other factors on enterprise innovation are the focus of the next research.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Xinfei Pan and Lini Xu were involved in the literature collection at the same time. Xinfei Pan did the pre-writing of the article; Lini Xu made additions and formatted adjustments to the pre-writing; all authors had approved the final version.

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