

New Quality Productivity Empowers Enterprises Risk-Driven Innovation

–Taking BYD's Entry into New Energy Vehicle Insurance Industry as an Example

Zisen Wang^{1,a,*}

¹*Business School, Liaoning University, Shenyang, China*

a. 20210608201@smail.lnu.edu.cn

**corresponding author*

Abstract: Driven by the new wave of revolution in the science and technology industry, emerging industries are emerging one after another, with huge potential and unpredictable risks coexisting. The concept of new quality productivity came into being, which represents the innovation of productivity and the future development trend of advanced productivity. This paper uses a conceptual analysis method to study and analyze the logical ideas of risk-driven innovation of enterprises empowered by new quality productivity, and takes BYD's entry into the new energy vehicle insurance industry as an example to conduct a case analysis. The study demonstrates the positive role that new productivity plays in empowering enterprise innovation at the technical level and building an innovation culture for enterprises when firms engage in risk-driven innovation. Based on this, the study suggests innovative behaviors for relevant enterprises to explore new industries in the future. Enterprises with innovation needs can realize risk-driven innovation by utilizing new quality productivity from multiple perspectives, such as enhancing core technology R&D capabilities, cultivating new production factors, forward-looking planning for new industries, and shaping the supply chain pattern of new industries.

Keywords: new quality productivity, risk-driven innovation, emerging industries, technological innovation.

1. Introduction

New quality productivity is the product of the advanced stage of productivity development, the innovation and future development trend of productivity, and a new productivity concept that attaches importance to scientific and technological innovation, pursues high-quality development and deeply integrates with emerging industries [1]. New quality productivity emphasizes the R & D and application of high-tech technologies as its main feature, new fields and new industries as its main support, and innovation as the primary driving force for development, which reflects the new form and new quality of productivity derived from technological breakthroughs and industrial upgrading under the conditions of informatization, digitalization and intelligent production. It mainly enables

high-quality economic development through innovation and breakthroughs in six aspects: new technologies, new elements, new demands, new industries, new models and new systems [2].

Risk-driven innovation focuses more on the risks posed by new areas and the opportunities hidden behind those risks than traditional innovation activities. Risk-driven innovation is mainly manifested in the impact of risks and challenges on social production and lifestyle. At the same time, it stimulates the demand potential for new means of production and means of living and new service methods, provides new development directions and development space for innovation, and forms new development momentum. For enterprises, when faced with uncertain risks in the market, technology, policies, they adopt proactive innovation strategies to deal with and transform these risks in order to gain competitive advantages and market opportunities. Conceptually, it manifests itself in the positive psychology of entering new fields, using new technologies, implementing new management styles and other behaviors, and at the same time holding a tolerant attitude to various risk factors, and finding opportunities in crisis to achieve breakthrough development of the corporate culture. Risk-driven innovation is characterized by a long innovation chain, a wide range of aspects, a large amount of resource input and a long payback cycle.

The current academic field for the role of new quality productivity in enterprise innovation effect of research is insufficient, and the traditional research is more inclined to the role of new quality productivity for enterprise management risk, enhance the ability to resist risk, for enterprises to embrace the lack of attention to risk. This paper investigates the impact path and its role of risk-driven innovation in new quality productivity-enabled enterprises through literature analysis and case studies, and provides reasonable suggestions for enterprises in related fields.

2. Logical Ideas for Risk-Driven Innovation Enabled by New Quality Productivity

2.1. Technology Enabling Risk Innovation

2.1.1. Innovative Business Management

According to its own development strategy and business needs, the enterprise introduces cutting-edge management technology in the current field and develops new management tools and methods, which can carry out all-around refined management of the company's personnel, sales, purchasing, and finance. This will improve management efficiency and decision-making level, so as to improve the efficiency of innovation in the process and strictly control the risks. It can expand the results in the output phase of the innovation to increase the efficiency of the enterprise.

2.1.2. Innovative Allocation of Factors of Production

Innovative allocation of factors of production under the role of the new quality productivity is manifested in the integration and penetration of new types of factors of production into production activities and the optimization and innovation of traditional factors and combinations. The new elements of the new quality productivity include both the quality improvement of the traditional factors of production and the embedding and integration of new factors of production such as digital intelligence represented by the data elements. On the one hand, new laborers, new means of labor, new labor objects and production tools and their combinations, as the basic elements of new quality productivity, can create higher quality labor value; on the other hand, the integration of new production factors such as data elements into production will complement and replace other production factors and inject new factor momentum into the development of enterprises.

2.1.3. Innovative Enterprise Production Methods

The key to differentiating the new quality productivity from the traditional productivity lies in the drastic changes in the mode of production and the essential changes in the workers, the means of labor and the objects of labor driven by technological innovations. First, new workers under the requirements of new quality productivity show high quality and are closely integrated with digital and intelligent technologies. This requirement meets the actual needs of productivity development in the digital economy and the intelligent era for high-quality personnel who can make full use of modern technology, adapt to modern high-end advanced equipment, and have the ability to rapidly iterate knowledge. Secondly, the new labor material under the role of new quality productivity shows high intelligence. The arrival of the fourth scientific and technological revolution has led to the fusion of traditional means of labor with science and technology, and the emergence of a number of disruptive production tools, such as drones and generative artificial intelligence, prompting a qualitative leap in the material production system of the entire society. Thirdly, the new labor object under the role of new quality productivity shows high arithmetic. Data has become an important object of labor, and technological innovations and applications represented by big data, artificial intelligence, cloud computing and blockchain provide a scientific basis for decision-making through the processing and analysis of data.

2.1.4. Ensure the Stability of Enterprise Supply Chain and Shape the Supply Chain Pattern of Emerging Industries

New quality productivity empowerment to ensure the stability of the enterprise supply chain is mainly manifested in, first, the progress of production capacity, production tools further intelligent, automation, significantly improve production efficiency and quality, reduce human error. The second is the improvement of supply chain management capabilities, big data applications and digital tools to build a platform that can realize the real-time monitoring and information sharing of all links in the supply chain, enhance the enterprise risk analysis and prediction capabilities, and help enterprises to achieve accurate production and inventory control [3]. The third is the construction of green supply chain, through technical means to help enterprises realize the sustainability of supply chain management, the development of reverse logistics, improve the efficiency of resource use, the implementation of low-carbon management, strict control of the use of carbon emission credits, and actively undertake environmental responsibility and social responsibility [4]. The importance of a stable supply chain in a firm's risk-driven innovation activities is that it can provide a continuous supply of security to support the firm's ongoing innovation activities, and that the timely supply of raw materials and components can accelerate the process of product conceptualization to the market and shorten the innovation cycle.

The process of expanding into new industries is accompanied by supply chain innovation and upgrading, and shaping the supply chain pattern of emerging industries can help enterprises capture the market quickly, compensate for the cost of innovation, and enhance the driving force for continuous R&D and innovation, thus forming a positive cycle. Large and medium-sized enterprises need to pay more attention to the construction of supply chains for emerging industries, and shape the supply chain pattern of emerging industries in which their enterprises are in the core position. For example, Huawei initiated changes in supply chain digital transformation named Integrated Supply Chain (ISC) in 2015, with the goal of creating a digitally proactive supply chain that responds quickly to business needs and dramatically shortens the time to go live for new services by encapsulating business capabilities as services and invoking and orchestrating them by scenario.

2.2. Innovation-Centric Culture Boosts Productivity

Corporate culture is an important tool to stimulate the sense of belonging of employees and enhance team cohesion, an important carrier of the spirit and brand image of the enterprise, and an important driving force for the enterprise to promote innovation. Creating a good innovation atmosphere within the enterprise can encourage employees to actively innovate and try, and at the same time with a perfect innovation platform to attract excellent innovative talents, promote the continuous innovation of enterprise technology, products and services, and provide a constant power for the innovation and development of the enterprise.

From the perspective of enterprise culture, the specific path of risk-driven innovation of enterprise empowered by new quality productivity is manifested in the fact that the management of the enterprise takes the initiative to embrace risk from the perspective of thinking, opens up new fields actively, and increases the investment in the field of emerging industries, so as to seize the market share and realize the turning of crisis into opportunity. At the same time, the enterprise gives back to the society and benefits the people through the new industry opened up, which helps the enterprise to shape a positive and highly socially responsible corporate brand image.

3. Case Study

3.1. BYD Property & Casualty Insurance Company Profile

With the rapid rise of new energy vehicle market holdings, the insurance industry's upgrading speed in the field of new energy vehicle insurance has been unable to keep pace with the iteration of new energy vehicle updates. At present, the problems of new energy vehicle auto insurance are mainly manifested in high premiums, difficult to renew insurance, high claim rates, difficult risk assessment, high maintenance costs, and insufficient data accumulation. The act of entering the new energy auto insurance market still faces high risk, but behind the high risk is the opportunity of a rapidly rising new energy vehicle market stock and an expanding new energy auto insurance market. In that case, BYD's layout of the new energy auto insurance industry belongs to an important initiative to innovate the product market and expand new service areas driven by high risk and high yield.

BYD Chairman Wang Chuanfu has said that BYD's entry into the new energy automobile insurance industry will utilize the accumulation of technology, sales and users to empower the new energy automobile insurance industry in terms of cost savings and scientific claims handling. In 2023, BYD's cumulative sales of new energy vehicles totaled 3,024,400 units, with a market share of more than 30% in China. BYD New Energy Vehicle has the scale, data, and ability to explore solutions to the auto insurance product challenges that the insurance industry wanted but could not, and hung in the balance in the past. The author will analyze in detail the advantages of BYD's entry into the field of new energy automobile insurance in accordance with the theoretical logic that new quality productivity empowers enterprise risk-driven innovation as argued above.

3.2. Three Advantages of BYD's Property and Casualty Insurance Business

3.2.1. Data Advantage Enables New Energy Car Insurance Business

Data elements play a pivotal role as the core driving force in BYD's foray into new energy automobile insurance. BYD P&C Insurance has innovated the allocation of factors of production, giving full play to the important role of new factors of production, such as data, technology and talents, in the high-tech industry, relying on the data element and technology element to customize products and manage customer relationships, which provides the driving force and possibilities for risk-driven innovation.

BYD's position in the new energy vehicle market ensures that the company has a large amount of relevant data, forming a rich database that includes vehicle technical data, driving behavior data, customer data, maintenance data and more. Based on rich vehicle and customer data, BYD can use big data and cloud computing technology to build accurate risk assessment models, quantitatively analyze different types of customers, develop Usage-Based Insurance products, and provide customers with personalized insurance services; on the other hand, based on the in-depth understanding of the parameters of the new energy vehicles, BYD Property & Casualty can provide more accurate vehicle loss determination and maintenance services, reducing product prices and saving insurance costs. On the other hand, based on its in-depth understanding of the parameters of new energy vehicles, BYD Property and Casualty Insurance Company can provide more accurate vehicle damage determination and repair services, lowering the price of its products while saving the cost of insurance, which is a win-win situation for both the company and the users.

3.2.2. Product Innovation Based on the Deep Heritage of the Automotive Industry

With more than twenty years of hard work in the automotive industry, BYD has accumulated a deep heritage of advanced manufacturing technologies. The full mastery and application of advanced manufacturing technology is an important feature of risk-driven innovation of enterprises empowered by new quality productivity. The company has fully mastered independent R&D and production capacity in core technologies such as battery technology, motor and electronic control system. For example, a series of advanced technologies such as the "blade" battery with high safety, long life and long range, and the DM-i Super Hybrid technology, which is based on electricity and offers multiple advantages such as speed, savings, quietness, smoothness and greenness. In the process of manufacturing new energy vehicles, BYD has accumulated a large number of similar advanced technologies in the field of new energy vehicles. Relying on information sharing within the company, the obvious gap in technology will enable BYD to better predict and assess the risks that exist during the use of the vehicle than other insurance companies, so as to carry out more reasonable risk management and insurance pricing, and provide solid technical support for the insurance service products.

On the other hand, BYD's whole industry chain layout, the formation of a perfect supply chain, from battery production to vehicle manufacturing, and then to sales and after-sales service, the formation of industry chain advantages, and now after entering the new energy automobile insurance industry, it is the last section of the closed loop with the self-owned spare parts and maintenance services, forming BYD's own closed-loop ecological environment, which is not only effective in controlling costs, but also more importantly For the overall competitiveness of the enterprise greatly improved and the establishment of market position.

3.2.3. Active Social Responsibility

From the background of the case, the general consensus of the insurance industry on the business of new energy automobile insurance is that new energy automobile insurance is full of potential in the future but will continue to lose money at present. According to the data of China Life Property and Casualty Insurance Company, during the period of 2021-2023, the premium growth rate of new energy vehicle insurance of China Life Property and Casualty Insurance is 52%, 86.5% and 42.6% respectively, and the policy cost ratio is maintained at 110% [5]. In this case BYD's entry into the field of new energy automobile insurance carries the expectations of a large number of new energy vehicle owners. By utilizing its technical advantages and expertise in the field of new energy vehicles, it is committed to promoting the innovation of insurance products, upgrading the service model,

promoting the healthy development of the industry, and continuously meeting the growing service needs of consumers.

4. Recommendations for Risk-Driven Innovation Activities in Enterprises

4.1. Strengthen the Key Core Technology Research Breakthroughs

The focus of the new quality productivity to drive high-quality development lies in relying on scientific and technological innovation, scientific and technological innovation is the first driving force to promote high-quality development, and the key core technology is an important tool to play a leading role in scientific and technological innovation. In this regard, the relevant enterprises should enhance the ability of scientific and technological innovation, by strengthening the key core technology research and development to build the hard power of high-quality development. Enterprises need to clarify the important role of the innovation culture and the direction of advanced technology development based on future development plans. Enterprises establish cooperative relationships with universities, scientific research institutions and other enterprises, and form innovation consortia to carry out original scientific and technological joint research. At the same time, enterprises should improve the transformation system of scientific and technological achievements [6]. Enterprises need to strengthen the transformation of scientific and technological achievements system guarantee, improve the transformation of scientific and technological achievements incentive policy, build a perfect supporting service support system for the transformation of scientific and technological achievements.

4.2. Accelerating the Promotion of the Rapid Growth of New Elements

The key elements of new quality productivity is the new type of production factors represented by data factors. Data factors release data factor productivity through the deep integration with traditional factors of production [7]. In this regard, enterprises should continuously explore new paths for data factors to empower the high-quality development of the real economy and promote data factor-enabled total factor productivity improvement. Science and technology innovation enterprises can build a data factor system within the enterprise that is compatible with the development of new quality productivity. Enterprises need to improve the role of data elements in production activities and value creation, and maximize the release of the value of data elements in promoting the high-quality development of the economy.

4.3. Forward-Looking Planning for Strategic Emerging Industries and Industries of the Future

The formation and development of new quality productive forces require further cultivation of strategic emerging industries, forward-looking layout planning for future industries and other cutting-edge industries representing scientific and technological innovation and industrial development. In this regard, it is necessary to make full use of digital technology to reform and upgrade traditional industries. Through the new application of digital information technology, the traditional industries will be transformed in an all-round and whole-chain way, and industrial technological change and optimization and upgrading will be promoted, so as to accelerate the digital, networked and intelligent transformation of the traditional industries. At the same time, it actively participates in the development of strategic emerging industry clusters, deeply participates in the national strategic emerging industry cluster development project, establishes and improves the organization and management of industry clusters and the professional promotion mechanism, encourages scientific researchers to invest in the research and development of cutting-edge science and technology, and

focuses on building a batch of new growth engines such as new-generation information technology, artificial intelligence, new energy, and new materials.

4.4. Shaping the Supply Chain Landscape for Emerging Industries

The key to shaping the supply chain pattern of emerging industries through new quality productivity empowerment in enterprise operations lies in the application of technological innovation [8]. Relevant enterprises can integrate artificial intelligence, big data and other technologies into production and management processes to improve efficiency and quality [9]. Enterprises need to accelerate the digital transformation of the supply chain, achieve management optimization and efficiency improvement, actively seize the emerging industry chain track, realize the double-wheel drive of technology and industry, and inject new kinetic energy into the enterprise operation.

5. Conclusion

New quality productivity in the operation and management of enterprises is mainly characterized by technological empowerment, covering various aspects such as innovating the management style of enterprises, innovating the production mode as well as the allocation of factors in the production practice, guaranteeing the stability of the supply chain of enterprises, and shaping the supply chain of emerging industries. Another channel is to create an enterprise innovation culture so as to empower enterprises to carry out risk-driven innovation activities in multiple ways. The BYD P&C Insurance Company in the case study relies on data elements, advanced manufacturing technologies, emerging industry supply chains and other new productivity to empower the company's innovation behavior, accelerate the transformation of risk-driven innovation results, and promote the innovation and upgrading of products and services.

This case study of innovation in the new energy automobile insurance industry demonstrates how the advantages of new quality productivity can be utilized to drive innovation and upgrading of products and services. This study enriches the academic discussion on corporate innovation, market entry strategies and application scenarios of new qualitative productivity, provides new perspectives for research in related fields, and serves as a reference for enterprises in traditional manufacturing and other industries to adapt their strategic transformation to market changes and consumer demands. With regard to the research on new quality productivity, future research directions could focus on the synergistic study of new quality productivity and the SDGs, especially the balance between the three aspects of environmental protection, social responsibility and economic growth.

References

- [1] Zhao, M.T., Liu, Z.M. (2024) *Research on Digitalization-Driven Corporate Brand Innovation and Development under the Perspective of New Quality Productivity*. *Journal of Xi'an University of Finance and Economics*, 1-12.
- [2] Li, B.Y., Yu, F. (2024) *Theoretical Logic and Practical Path of Promoting High-Quality Economic Development with New Quality Productivity*. *Contemporary Economic Studies*, 6, 5-15.
- [3] Zhang, J., Zhou, Y.J., Wang, Z.R. (2024) *New Quality Productivity to Guarantee Industrial Chain Supply Chain Security: Theoretical Framework and Path Research*. *Contemporary Economic Studies*, 1-13.
- [4] Li, G., Wang, X., Su, S., & Su, Y. (2019) *How Green Technological Innovation Ability Influences Enterprise Competitiveness*. *Technology in Society*, 59, 101136.
- [5] Zhu, Y.X. (2024) *New Energy Car Insurance Grows with Challenges*. *China Bancassurance Journal*, 4.
- [6] Fang, Q., Sheng, Y. (2020) *Study on the Relationship between Modernized Economic System Construction and Transfer and Transformation of Scientific and Technological Achievements*. *Proceedings of the Thirteenth International Conference on Management Science and Engineering Management*, Springer International Publishing, 2(13), 61-74.
- [7] Ghasemaghaei, M., Calic, G. (2019) *Does Big Data Enhance firm Innovation Competency? The Mediating Role of Data-driven Insights*. *Journal of Business Research*, 104, 69-84.

- [8] Min, S., Zacharia, Z.G., Smith, C.D. (2019) *Defining Supply Chain Management: In the Past, Present, and Future. Journal of business logistics*, 40(1), 44-55.
- [9] Garay-Rondero, C.L., Martinez-Flores, J.L., Smith, N.R. et al. (2020) *Digital Supply Chain Model in Industry 4.0. Journal of Manufacturing Technology Management*, 31(5), 887-933.