# RESOURCE ENDOWMENT, CONTINUOUS INNOVATION, AND THE COMPETITIVE ADVANTAGE OF ENTERPRISES IN LESS DEVELOPED AREAS: A CASE STUDY OF ERDOS GROUP

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**Abstract:** In recent years, the development of enterprises in less developed areas and how they gain and sustain a competitive advantage has become a popular issue among economists, managerialists, and sociologists. This paper first reviews and summarizes the literature on theories pertaining to resource endowment, continuous innovation, and enterprises' competitive advantage. It then constructs a theoretical model of resource endowment, technological innovation, and enterprise competitive advantage in less developed areas. Using Erdos group as a case study, we conducted a field survey and in-depth interviews in order to analyze the source of its competitive advantage.

**Keywords:** Competitive advantage; Resource endowment; Innovation; Erdos Group; Less developed areas

**Хураангуй:** Сүүлийн жилүүдэд буурай хөгжилтэй бүс нутагт аж ахуйн нэгжүүдийг хөгжүүлэх, тэдгээр аж ахуйн нэгж нь хэрхэн өрсөлдөөний давуу талтай болох, түүнийгээ яаж тогтвортой байлгах зэрэг нь эдийн засагч, менежер, социологчдын дунд түгээмэл асуудал болоод байна. Энэхүү судалгаагаар нэгдүгээрт, аж ахуйн нэгжийн өрсөлдөөний давуу тал, инноваци, нөөцийн хуваарилалттай холбоотой онолын судалгааг хийсэн. Дараа нь хөгжил буурай бүс нутаг дах нөөцийн хуваарилалт, технологийн шинэчлэл, аж ахуй нэгжийн өрсөлдөөний давуу талын онолын загварыг гаргасан. Судалгааны обьектоор Эрдос группыг сонгон авч, өрсөлдөөний давуу талын хүчин зүйлийг нь шинжлэхийн тулд талбарын судалгаа болон нарийвчилсан ярилцлага хийсэн болно.

**Түлхүүр үгс:** Өрсөлдөөний давуу тал; Нөөцийн хуваарилалт; Инноваци; Эрдос групп; Буурай хөгжилтэй бүс нутаг

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"Competitive advantage is the core of the enterprises' performance in the competitive market."[2] "The source of enterprises' competitive advantage is the most important issue of competitive strategic theory."[3] Therefore, this is also the focal point of enterprises and theorists. The study and practice of competitive advantage theories is important to Chinese enterprises, especially those in less developed regions of China. These areas are generally remote and suffer a lack of both capital and talent. Therefore, it is meaningful for us to study the development patterns and experiences of successful enterprises in less developed regions, such as Erdos Cashmere Group, Meng Niu Dairy (Group), and Little Sheep Group.

## 1. Theoretical basis

The main debate over the source of enterprises' competitive advantage is whether the competitive advantage originates externally or internally. Hence, there are two theories of competitive advantage—exogenous and endogenous.[4] Within the existing literature, the direction of research has gradually transitioned from exogenous to endogenous. However, with the development of competitive advantage theories, management scholars and entrepreneurs generally agree that enterprises' internal resources have a greater impact on obtaining and maintaining a competitive advantage.

### 1.1 Exogenous theories on enterprises' competitive advantage

In competitive theory, if an enterprise in business or the market, capable to practice the theory, is in conformity with the economic processes of the specific market, and only a few enterprises have such capacity while most enterprises lack of the ability of fully carrying it out, then this enterprise will achieve the competitive advantage. Exogenous theories on enterprises' competitive advantage consider that enterprises' competitive advantage is mainly determined by external factors. This viewpoint is the one usually found in neoclassical economics and management.

In neoclassical economics, enterprises are considered to be a black box, which is the input-output system of homogeneous technology. In the hypothesis of perfect competition, enterprises in the market are homogeneous, therefore no competitive advantage exists. But in reality, there are profit differences among enterprises in the same industry. According to neoclassical economics, individual enterprises acquire excessive profits mainly because of the different market structure. Masson and

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[2] Porter, M. E., Competitive Advantage, Simon & Schuster Ltd., 2004, Preface, p. 1.

[3] 新宅純二郎 (Jyunjirou Sintaku)•浅羽茂 (Sigeru Asaba): 競争戦略のダイナミズム, 日本経済新聞社, 2001, p. 27

[4] Barney, J. B., Gaining and Sustaining Competitive Advantage, Tsinghua University Press, 2003, p. 10

Bain of Harvard University subscribed to the above theories and suggested three categories of industrial organizational theory: market structure, market conduct, and market performance—that is, the SCP model. The purpose of this model is to formulate industrial organization policy. The model also takes into account enterprises' performance differences and considers it to be determined by the market structure and market conduct. Thus, the enterprises' performance (competitive advantage) is exogenous.

According to Michael E. Porter's competitive strategy theory, competitive strategy is to find the favorable position within an industry. The choice of competitive strategy consists of two central issues: that of industry choice and of competitive position—in other words, how an enterprise can gain a favorable competitive position in an industry. In fact, Porter's competitive strategy theory is the application of the Mason-Bain model of industrial organization theory in the level of enterprise. Porter's competitive strategy theory supports that competitive advantage is also exogenous, and is determined by competitive relations and market opportunities.

### 1.2 Endogenous theories on enterprises' competitive advantage

Based on the Mason-Bain model, Porter's competitive strategy theory or industry analysis regards the market structure and market opportunity of the enterprise as the source of an enterprise's competitive advantage. However, this theory cannot answer the question why, if competitive advantage is decided by external factors, different competitive advantages emerge when different enterprises face the same conditions.

In the 1980s, management scholars shifted their focus to enterprises in the study of competitive advantage. After modifying industry analysis model over a decade, it became clear that it is necessary to study the internal characteristics of enterprises in order to find the specific sources of competitive advantage. Since then, many theories on this have appeared. Among these are a resource-based view of firms, a view of enterprises' dynamic capabilities, a view of firms' overall capabilities, and a view of core competence. The common ground of these theories is the idea that enterprises' internal characteristics and the accumulation of capabilities are key to explaining the gaining of excessive profits and sustaining of enterprise competitive advantage, rather than the enterprises' exogenous condition.

From the perspective of resources, this theory originated in 1984 with the famous paper "The Resource-Based Theory of the Firm"[5] by Wernerfelt. The core of the theory is that a firm is a collection of a set of resource bundles, and

[5] B. Wernerfelt viewed an enterprise as a set of resources and believed that enterprise resources had an important influence on enterprise performance, thus having a decisive role on getting and maintaining a competitive advantage. See Wernerfelt, B., "A Resource-based View of the Firm," Strategic Management Journal, 1984, (15): 171–180.

that a firm's competitive advantage is derived from the firm's resources, especially heterogeneous resources. Under the condition of resource heterogeneity and untransferability, the resources which affect enterprise competitive advantage must possess five characteristics: inimitable, non-trading, complementary, belonging, and continuous.

This theory proves that resources will have some effect on a firm's competitive advantage, but with diverse consumer preferences and rapid development of science and technology, the inimitable and non-trading characteristics of key resources have been gradually blurred; enterprises based on existing resources have been unable to obtain excess profit and a continuous competitive advantage. Therefore, this theory is deficient and requires further study.

Researchers continued to explore the determinants of underlying resources and have produced the firm capability theory, which is a capability-based view of firms. There are two main schools of thoughts - core capability and overall capability. The theory of core capability of firms coined by Hamel and Prahalad has gradually achieved a dominant position. Firm capability theory supports that how much utility the objective existence of material resources can play depends on the people who use them. Underlying resource heterogeneity is human heterogeneity. Thus, the ability of enterprise competitive advantage is determined by the combination of various resource technologies and skills, not simply the resources of an enterprise. Therefore, the capability-based view is seen as the evolution and development of the resource-based view. However, there is continued debate over the definition of capability and its influencing factors.

Although firm capability theory develops the understanding of the source of enterprises' competitive advantage, Patton found that when a firm's capability does not match the organization's innovation behavior, its inherent capability will become core rigidity, affecting the development of the firm. Therefore, the question of what is hidden behind this capability needs further investigation.

In the early 1990s, subsequent to both resource- and capability-based theories, firm's knowledge theory was proposed. From the view of knowledge theory, knowledge is seen as the enterprise's most valuable resource. An enterprise's competitive advantage mainly stems from diversity knowledge. Knowledge can be divided into two categories: articulable knowledge and tacit knowledge. Articulable knowledge is what enables the use of accurate words to communicate, transfer, or store information. Tacit knowledge is often difficult to communicate with words and must be reflected in a particular situation. The production cost of articulable knowledge is high and the copy cost low, while tacit knowledge is exactly the opposite, which can be the source of enterprise innovation and bring about continuous competitive advantages for the enterprise.

From the perspective of firm knowledge theory, how to coordinate the relationship between "knowledge creation" and "knowledge use" is the first problem that enterprises must solve because knowledge creation needs knowledge depth, and knowledge application requires knowledge breadth. At the same time, the transfer of knowledge cannot be unlimited and must go through the process of accumulation instead. Therefore, to promote efficient acquisition of specialized knowledge, effective coordination and integration are necessary, so as to make the competitive advantage maintainable.

Based on the above analysis, the framework of exogenous and endogenous theories of competitive advantage are shown in Figure 1.

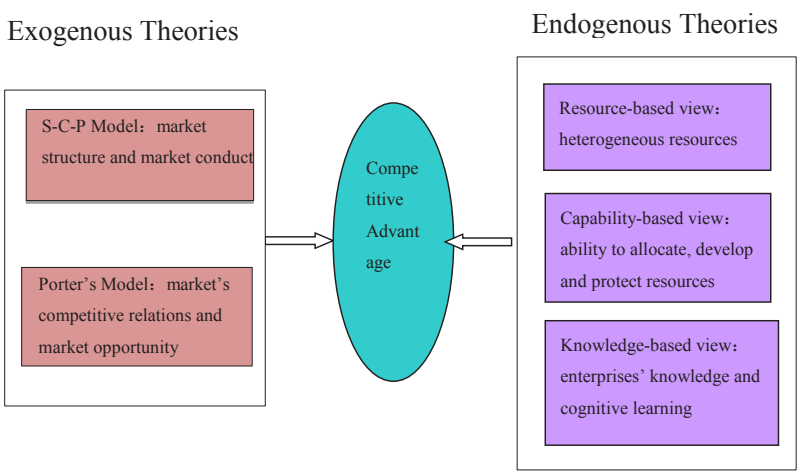


**Figure 1.** Exogenous and endogenous theories of competitive advantage

We have analyzed the exogenous and endogenous theory of the source of enterprises' competitive advantage with an integrated and targeted approach. For an outline of a simple and intuitive model, see Figure 1. At the same time, we generalize and summarize the endogenous theory of enterprises' competitive advantage and conclude that this theory offers a deeper understanding of the source of enterprises' competitive advantage.

## 2 Literature review

### 2.1 Resource endowments and competitive advantage

Liu(2009) found that resource-oriented enterprises form an industrial cluster based on natural resource development and processing, and that enterprises should

focus on the sustainable development of natural resources. Enterprises should establish a resource-based technical innovation platform, reduce dependence on resources, and eventually seek a sustainable competitive advantage with resource-based industrial clusters. Wu studied resource-based enterprises achieving a competitive advantage through the institutional and technical innovation transformation and found the government to have a dominant role. In the whole process of resource-based enterprises' industry transformation for obtaining a competitive advantage, the government remedies the deficiency of enterprises. Cao studied how resource-based enterprises gain a competitive advantage from the perspective of green innovation. She pointed out that only under the unceasing action of the driving force within the enterprise and the government for green innovation can resource-based enterprises maintain a continuous competitive advantage. Drawing from the concept of natural resource theory (i.e., natural resources need environmental protection to achieve development), Pan found that only when environmental strategies are included in the competitive natural resources market can enterprises keep a sustained competitive advantage.

In the information age, developing competitive advantages in regional industry is an important measure for Inner Mongolia in accelerating supply-side structural reforms. It is also the main direction in cultivating strategic emerging industries. Less developed areas should undertake effective strategies according to the competitive market and time range, promote the goal of enterprise core competitiveness, improve the competitive level, and form groups of competitive enterprises on various levels, so as to lay the foundation for rapid economic development. From the literature, we can conclude that resource endowments have a great influence on the competitive capabilities of enterprises. Taking full advantage of resources endowment and improving the utilization rate of resources can improve the enterprises' competitive advantage.

### 2.2 Continuous innovation and enterprises' competitive advantage

The meaning of the concept of Schumpeter's innovation is quite broad; it refers to the various new activities that can improve the efficiency of resource allocation, including technical innovation of technical change and organizational innovation of non-technical change. Angelmar pointed out that enterprises can take advantage of products and services produced by technological innovation and satisfy customers' demands in order to gain a competitive advantage in terms of market shares. Cerrato studied innovation within multinational corporations and global, regional strategic choices and found the efforts on technical innovation and the profit of enterprise sales comply with the principle of proportionality. Mansfield, Thshnan, and Nadler found the demands and interests of consumers stimulate production innovation.

Enterprises make the effort to develop new products to meet the evolving needs and requirements of the consumers. Regarding customer relationship management, Wang(2011) concluded that enterprises should provide different products and services from other enterprises to attract the attention of the customer. A system of customer relationship management can help enterprises understand the dynamics of the market, the demand for products, and the forefront production equipment. This management system should analyze the enterprise's source of innovation, make a series of preparations for technological innovation, obtain the competitive advantage, and achieve more economic goals. Li (2005) claimed that if an enterprise wants to be successful in terms of technical innovation, it must change according to consumer demand. Zhang (2011) regarded technological innovation as having a significant role in gaining and maintaining a competitive advantage because through technology innovation, enterprises improve the products' technology content and quality as well as the quality of the service level. In this way, the market share and core competitiveness continue to increase.

Venus (2001) theorized that while technology innovation makes the product manufacturing process more efficient, it attracts customers' attention by the output of products and services, which can increase the enterprise competitive advantage. Bhoovaraghavan, Vasudevan, and Chandran(1996)[6],based on the elimination-by-aspect (EBA) theory model, concluded that technological innovation can be divided into process innovation and product innovation and that companies must consider these two aspects and allocate the proportion of two kinds of innovation according to customer demand. Liu Minhui (2009) found technological innovation to have an important impact on enterprise competitive advantage. Liu Xunhua (2009) studied the domestic manufacturing industry, exploring the 11 years from 1996 to 2006 to understand technological innovation's contribution to economic growth. He found that technological innovation contributed to about 50% of economic growth. Early attention to research and development is very helpful for new products or new technology. Paying close attention to market demand can create the greatest competitive advantage and provide higher profits.

## 3 Competitive advantage in less developed areas: Hypothesis

### 3.1 Resource endowments and enterprise competitive advantage

Analyzing the enterprises' general environment in less developed areas, we find that natural and biological resources are abundant and cheap, but there is a lack of funds, technical and personnel resources, good institutions and ideas.

[6] Bhoovaraghavan, S., Vasudevan, A., Chandran, R., "Resolving the Process vs. Product Innovation Dilemma: A Consumer Choice Theoretic Approach," Management Science, 1996, 42(2): 232–246.

The competitive advantage of enterprises in early time in less developed areas was derived from the plentiful and affordable natural and biological resources. According to exogenous theories, with an increase in resource depletion or procurement costs, when the resource advantage is lost, it becomes difficult for the enterprises to survive. But reviewing a few enterprises started by natural resources and biological resources in less developed areas, such as Erdos Cashmere Group, why they not only become the leading enterprises in the domestic industry, but also outperform the international competitors?

### 3.2 Knowledge creation and enterprise competitive advantage

Senge said, "In the past, cheap natural resources were the key to a country's economic development, and the traditional management system has been designed to explore these resources. But this era is gone, exerting the creativity of people has now become the center of management efforts".[7] For the enterprise, in order to get a sustainable competitive advantage, the knowledge creation process must be conducted. Ikujiro Nonaka(1995) thinks the ability to gain a competitive advantage depends on enterprises continuously reviewing internal and external environmental factors. The way to get this ability is to focus on the knowledge created by individuals and enterprises as a whole. Knowledge is not only a human asset, but also exists in organizations, reflected in the process of cooperation among group members. Because knowledge creation not only depends on the organization's present ability, but is also reflected in its organization principles, which have the obvious characteristics of path dependence.

In a dynamic environment, the knowledge that enterprises already have cannot be the source of a competitive advantage. The knowledge is too old to be unique to the enterprise and thus the enterprise competitive advantage is eroded. Individual tacit knowledge is achieved under the special situation in the enterprise, which is not easily imitated by competitors and can bring competitive advantage for enterprises. Moreover, this tacit knowledge is usually produced by individuals' creation or interpersonal communication. An organization's ability to integrate tacit knowledge is also a source of competitive advantage. The knowledge and the structure of the enterprise will influence the allocation and coordination of resources within the organization, thus largely determine market competitiveness. The key to knowledge management is to integrate the knowledge of all the individuals within the organization as a source, which builds and forms a resource advantage that is better than that of its competitors.

Knowledge as the source of innovation must establish a mechanism which

[7] Senge, P. M., translated by Guo Jinlong, The Fifth Discipline-The Art and Practice of the Learning Organization, Shanghai Joint Publishing Press, 1998, p. 6.

can make the tacit knowledge and the articulable knowledge interchangeable. The process of between tacit knowledge and articulable knowledge is the process of organizational knowledge innovation. This is a dynamic process of circulation with continuous rising spiral development.[8] See Figure 2.

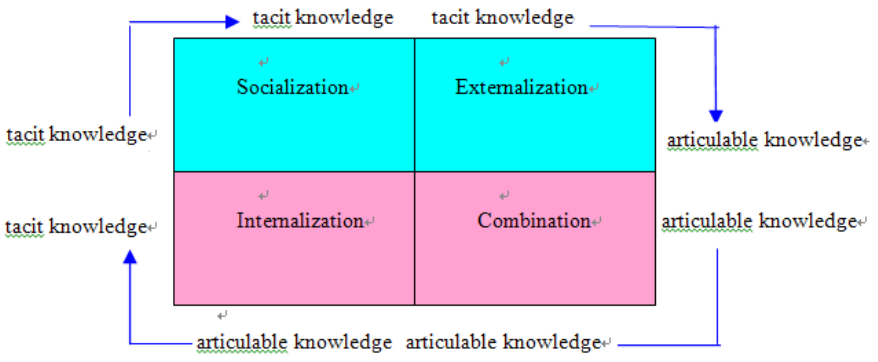


**Figure 2.** Knowledge mode

(Ikujiro Nonaka & Hirotaka Takeuchi. The Knowledge Creating Company. Oxford University Press, 1995, (Japanese version), p. 93)

Enterprises in less developed areas acquire, create, and accumulate firm-specific knowledge, despite initially relying on natural and biological resources. The enterprises gain not only articulable knowledge such as patents, intelligence, products, technology, and solutions, but also the articulable knowledge such as skills, experience, and wisdom. Enterprises gain the competitive advantage from the creation of enterprise knowledge.

### 3.3 Continuous innovation and competitive advantage

The theories on innovation we can trace back to Joseph.Schumpeter's theory of economic development. The innovation that Schumpeter identified include five kinds of situations: (1) introducing new products or providing a new quality; (2) referring to new technology and new methods of production; (3) opening up a new market; (4) adopting new raw materials or controlling a new supply source for materials; (5) implementing a new organization for the enterprise.[9] These five

[8] Ikujiro Nonaka & Hirotaka Takeuchi. The Knowledge Creating Company, Oxford University Press, 1995, (Japanese version), pp. 83—134.

[9] Joseph, Alois Schumpeter. translated by He Wei, Yi Jiaxiang, Theory of Economic Development, The Commercial Press, 1991, 73—74.

situations cover three aspects of innovation—technical, market, and organizational. Since Schumpeter, the study of innovation has continued, with the connotations of innovation constantly enriched and enterprise strategic innovation and business model innovation developed. Business model innovation has a greater range and stronger effect compared with enterprise strategy innovation. It not only includes the traditional sense of innovation on the technology market and the organizational level, but also means breaking the original organizational structure of busines enterprise inside, recombining the manpower and stakeholders of the entire enterprise, adapting to the external environment of dynamic systems, and building a business model of competitive advantage that is not easily emulated. In the fierce competition in the external environment, enterprises should constantly acquire new knowledge and technology, engage in innovation activities, promote flexible ability, build a competitive business model, and form a unique enterprise competitive advantage.

From the numerous enterprise development tracks, the enterprises in less developed areas cannot simply rely on resource endowments and knowledge creation to obtain and maintain a competitive advantage in the long run. These enterprises can maintain a long-term competitive advantage only through conducting continuous innovation. Such efforts should be directed toward concepts, technology, management, products, markets, and systems. Enterprise innovation is made up of various types of innovation and related factors within an innovation network system. See Figure 3.

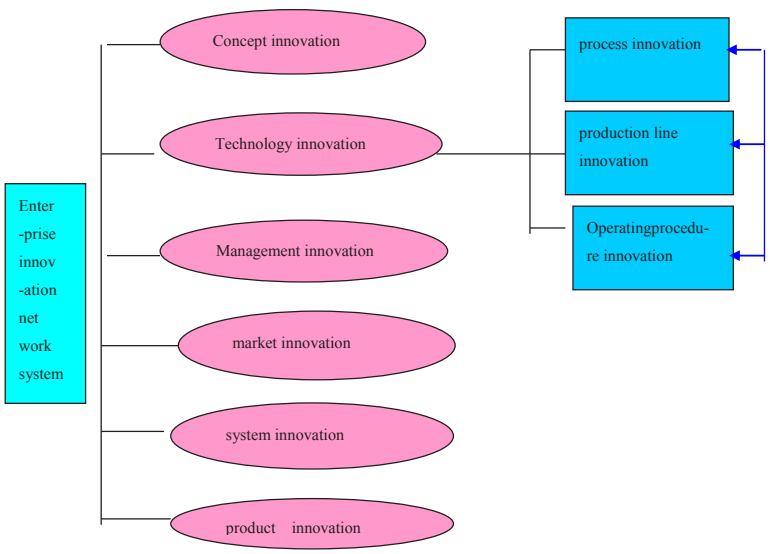


Figure 3. Enterprise innovation network

In the above discussion on the source of enterprises' competitive advantage, no matter the theories are exogenous or endogenous, these are the developed countries' or regions' successful enterprises. And scholars draw conclusions through continuous empirical study and deductive reasoning. However, will the same conclusions apply to the less developed areas, especially the less developed, western regions of China?

Based on a large number of empirical studies, we consider the theories of the source of competitive advantage above and put forward a hypothesis: the source of enterprises' competitive advantage in less developed areas is rooted in continuous innovation and competitive advantage (see Figure 4).

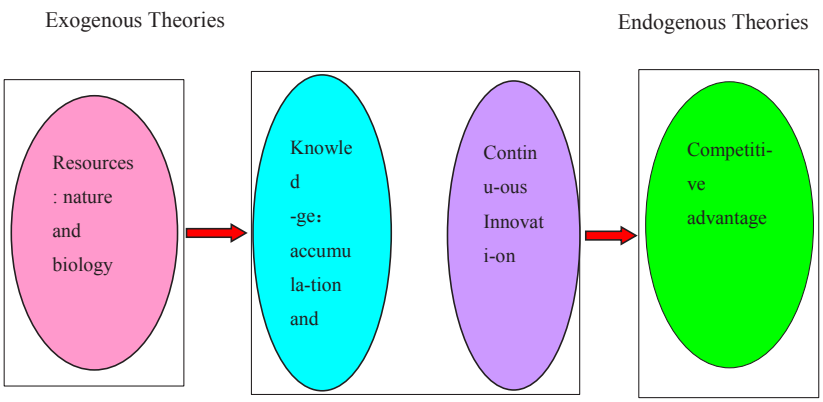


Figure 4. The source of enterprises' competitive advantage in less developed area

## 4 Research design

### 4.1 Research method

For this study, we selects the exploratory case study method, based on the following two points. First, we analyze the evolutionary path of competitive advantage with enterprise resource endowment and technological innovation. At present, there is much research on this topic in academia, but the analysis for those enterprises in less developed areas is insufficient. Therefore, building a new enterprise competitive advantage theory particularly for less developed areas is valuable. Second, in this paper we discuss how competitive advantage in less developed areas is formed. The research is particularly suitable to use case study method.

### 4.2 Selecting the enterprise

"Erdos," as China's iconic textile and apparel industry brand, has a brand value amounting to 88.066 billion yuan, which makes it one of the top 500 private

enterprises in Inner Mongolia and China. The cashmere industry is the foundation of the Erdos group. Its top cashmere brand "1436" was chosen for Chinese ambassadorial gifts in 2008 and as the APEC leaders' brand in 2014. After 30 years of development, Erdos group has emerged as the cashmere textile industry leader, possessing the world's largest production and sales, the most sophisticated industrial system, the most advanced technology level, a sound marketing network, advanced technology and equipment, and advanced brand advantage. The production capacity of cashmere products is more than 10 million globally, accounting for 40% of the entire output in China and 30% of the world. Products range from fine woolen knits, tatting, and household items. Its product quality, market share, sales revenue, and volume of exports have made it the leader of China's wool spinning industry for the last15 years.

### 4.3 Case data source

On the basis of reviewing related literature, this study team identified the research questions and research framework and carried out the preparatory work. We selected Patton's triangulation method to collect data in order to ensure comprehensive and authentic data.

(1) In-depth interview

In order to enhance the reliability and validity of this study, the team visited Erdos group three times between May 2016 and October 2017 and interviewed a total of 18 members of the senior management team and staff. Before interviewing, the research team designed an interview outline according to the framework to ensure the collection of rich data in a limited amount of time. The interviewees included a senior R&D director, strategic department employees, each business department manager, and customers.

From high-level managers, the team primarily obtained information on enterprise important strategic changes, attitudes toward competitive advantage, and the match between technology innovation and competitive advantage. The team got dynamic development data between the technology innovation and enterprise competitive advantage from the technical department. In addition, the team also interviewed strategy department staff, each business executive, and customers.

(2) Field Research

The team through on-the-spot investigation and visit, did the further observation which was highly related to the research topics. With the permission of the Erdos group, the team audited the technical department internal meetings, observed the interactions between technology innovation and employees, and experienced the role of technological innovation department in promoting enterprise competitive advantage.

(3) Documentation

The team accessed the content of the dynamic development of the enterprise and innovation through the Erdos website and searched for public reports on Erdos. In the field study, the team collected valuable information relating to the system of innovation, R&D experience, and technical innovation department meeting notes.

### 4.4 Reliability and validity

The case study method also needed to be tested for reliability and validity (see Table 1).

Table 1. Ensuring the reliability and validity of strategy

| Verification | Strategy | mode of operation |
|---|---|---|
| Construct validity | Multiple sources of evidence<br>Form the research report<br>Check and confirm by the evidence provider | Data sources: interviews, second-hand information<br>Verify the paper to Erdos group to easure the correctness of the object of study<br>Get the raw data; establish a theoretical framework; collect data for verifying theory repeatedly; form the theory |
| Internal validity | The establishment of the Interpretation | Through careful analysis of the data, test data |
| External validity | Theory guides the case study<br>Form the theory frame | Review of relevant literature, paying attention to the dialogue between case study and the theory<br>Based on the theory and data analysis, form the theoretical model for inspection, providing the basis tested from other research |
| Reliabilit | Research plan<br>Case study database<br>Repeat implementation<br>Polytype data reproduced | The researchers proposed a comprehensive research plan, allowing for the replication by other researchers<br>Set up a database, including observation record, interview recording, and data analysis<br>Many researchers conduct the data analysis independently; the analysis results are repeatedly compared, eventually forming a unified opinion<br>Present the verbal, examples, and written evidence |

## 5 Erdos Group's case study

### 5.1 Resource endowment: rich natural resources and biological resources

Erdos Group is located on the Erdos Plateau in Inner Mongolia Autonomous Region, China. Erdos Plateau enjoys rich cashmere resources, accounting for about one-fifth of the global cashmere yield. Erdos Aerbasi white cashmere is known as the "diamond fiber" and "soft gold." Erdos white cashmere was once sold at the international market price of 1.2million yuan per ton.

Erdos Group does not simply rely on existing resource advantages, but actively increases the income of the herdsmen, protects the ecological system, and promotes sustainable development. As early as 1988 to 1994, the Group invested over 10 million yuan in buying about 3 million acres of sandy land in the Kubuqi Desert in the hinterland of Engebei, planting about 1 million trees, developing more than 3000 hectares of pasture, and planting 50 thousand acres of grass. It established a goat research base in 1995 and cultivated 25 thousand Chinese cashmere goats. The annual income of herdsmen increased by about 10 million yuan. It spent 150 million yuan on scientific breeding and processing and captive grass for farmers and herdsmen from 2005 to 2011. It established the Al Bath Goat Reserved Zone in 2006 for protecting regional resources.

### 5.2 Knowledge creation: the process of knowledge learning and knowledge accumulation

In 1979, the Yimeng cashmere sweater factory, Erdos Group's predecessor, adopted the world's most advanced cashmere processing technology and equipment at the time from Mitsui Corporation, as well as Japan's advanced management model, methods, and expertise. Under the guidance of Japanese technical staff and management personnel, all employees, from frontline staff to middle and senior managers, devoted themselves to acquiring and accumulating new knowledge. With the introduction of sophisticated foreign equipment at the same time, the Yimeng cashmere sweater factory selected its most outstanding employees to study advanced technology and management styles in Shanghai and in Japan. These people became the technological and managerial backbone after returning.

In 2002, the Ministry of Science and Technology and Inner Mongolia Science and Technology Department invested 5.8 million yuan and Erdos Group invested more than 55 million yuan to jointly establish a base for the highest level of domestic cashmere research and product development. With collaborative efforts among many parties, the engineering center has carried out 270 key research projects within the industry, made more than 150 scientific and technological achievements, and developed more than 220 new products. The base includes not only a laboratory

and research institutions, but also Erdos University, which was founded at the same time. The establishment and operation of these platforms has created conditions for the accumulation of knowledge of the Group and laid a solid foundation for the Group's own knowledge creation. In October 2004, the second session of the Erdos international cashmere fair was held in Erdos City. In the fair, Erdos Cashmere Group exhibited 23 varieties of materials, including bamboo fiber, silk, cotton, hemp and other natural fiber products, and more than 2000 different sample cashmere products characterized by Nano, antistatic, antibacterial, and other new properties and features, leaving delegates dazzled and astonished. in addition to digital printing technology, Erdos Group has developed two other patented technologies since 2006, cashmere sweater radiation protection, and cashmere products machine washable cleaning technology. Erdos also has an exclusive patent on "durable antistatic" technology and another for Nano "Three Prevention" technology. The fine quality of Erdos cashmere has led its products to receive the national origin protection certification. Recently, the Group formulated the international standard for 1 item, national and industry standards for 16 items, and 39 enterprise standard items. It has undertaken the national key new products 11 items and 5 national torch plans. These 12 achievements won the provincial textile industry progress prizes in science and technology. All of these, from the point of view of Ikujiro & Takeuchi,[10] are included in articulable knowledge and tacit knowledge.

### 5.3 Continuous innovation: Overall innovation

5.3.1 Idea innovation

Erdos Group is located in Erdos, an area in which inconvenient traffic, limited access to information, and the natural environment are all restrictions to the development of enterprises. In less developed areas, if a company wants to transform its resource advantages into economic advantages as quickly as possible, it must make the resource conversion strategy choice on the basis of China's economic structure. If the company can make full use of local resources to develop, it would not have a structural conflict with the development of the area, but embrace prospects of development and have effective docking with the economic structure of the eastern coastal areas. At the same time, it would be possible to form industrial advantages in a relatively short period of time and form its own first products, promoting the development of the regional economy.

The fierce competition in the textile industry, appreciation of the RMB, and adjustment of employee wages have prompted Erdos to think strategically of the

[10] Ikujiro Nonaka & Hirotaka Takeuchi. The Knowledge Creating Company, Oxford University Press, 1995, (Japanese version).

future development of the enterprise. The West Development Strategy supported by the state provided an important opportunity for the development of advantageous industries in less developed areas. Erdos Group seized this opportunity to make strides in strategic industrial transformation. Since 2003, the company has been committed to the implementation of diversified development strategies of the cashmere and ferroalloy industries, which are two major industries. With the characteristics of a circular economy, Chessboard Well Industrial Park is a core business and the fruitful result of one of Erdos's diversification strategies. Since 2003, Erdos Group has completed a total investment of 17 billion yuan in industrial park project planning and construction. Relying on abundant local resources, the industrial park adheres to the requirements of new industrialization—"high starting point, high technology, high efficiency, high industrial chain, high value-added, high energy saving and environmental protection" and the operation mode of a circular economy—"low mining, high use, low emissions." The industrial park sets the coal industry as its source and foundation, taking the electric power industry as the core hub and seeing transport logistics as a bridge. The industrial park drives the development of iron alloy, polycrystalline silicon, calcium carbide, PVC, caustic soda, coal, and natural gas industries and forms a competitive terminal link. In 2003, Chessboard Well Industrial Park was listed as one of the 20 key industrial parks in the Autonomous Region. The park was commended in 2005 and in 2006. In 2007, it was awarded as one of the top ten development zones by the Autonomous Region. After eight years of construction and development, the park has produced 4.5 million tons of raw coal, 4.5 million tons of washing coal, 550 thousand tons of ferrosilicon, 1.3 million tons of calcium carbide, 1 million 720 thousand kilowatts of generator set final assembly capacity, 600 thousand tons of synthetic ammonia, and 1.04 million tons of urea. In 2011, the industrial park fully realized the industrial cycle and industrial metabolism between industries. Erdos Group developed this 25 km2 circular economy park on its own strength, which has become a successful case in Inner Mongolia by promoting the "big base, big cluster, big project and large cycle" construction strategy. It is considered the first national "high and new technology enterprise," "resource-conserving and environmentally friendly pilot enterprise," "circular economy demonstration enterprise," and "innovation method pilot enterprise." It is a key large cultivating-and-developing industrial park of Inner Mongolia. In China, the mode of Erdos Group is cutting edge and unique.

In addition to the industrial park, the Group invested 3.5 billion yuan in 2010 in Hantai town of Dongsheng District for building up the cashmere industry, beginning full operation in 2014. Hantai town now has a modern cashmere industrial park with the most advanced technology, the most complete chain, and the grandest scale. In 2016, there were a total of 500,000 tourists in Hantai town, including

30,000 visitors who came to experience all sorts of culture and creative activities. In April 2017, China's Academy of Urban Planning tailored a whole plan of cashmere characteristic town activities for Hantai. After the completion of the program, Hantai town will offer cashmere experience tours, exhibitions, and cultural entertainment.

5.3.2 System innovation

The first system innovation of Erdos Group began in 1988, when Yimeng cashmere sweater factory was required to separate from its parent organization due to the state-owned enterprise property rights system reform. On February 13, 1989, the separation was finished. The second institutional innovation initiated state-owned privatization operation in 1993. The third institutional innovation occurred in 1998, when Erdos Group invested in ESOP Association and gradually formed four private enterprises. Then it transformed three state-owned enterprises into ESOP private enterprises. This was a crucial step in the innovation of the property rights system, in order to optimize the capital structure of the company. In 1999, Erdos Group carried out the fourth reform, completing the overall property rights system reform of the enterprise. The Group parent company restructured into state-owned holding and ESOP Limited Liability Corporation, at the forefront of large enterprises nationwide in terms of institutional innovation once again. After four consecutive system innovation initiatives, Erdos has established a modern enterprise management system.

(1) The establishment of the ESOP Association allows employees to receive benefits. With the coexistence of a variety of economic components and increasingly fierce competition, the Group has made a comprehensive reform decisively—first with an annual salary system and then through the shareholding of employees.

The ESOP Association of Erdos Group has responsible officers and a special bank account and is registered as a legal entity. Shareholding capital has reached 83.4 million yuan, among which employees holds 92% and the Group holds 8%. In this way, the workers have fewer worries and a stronger sense of pride.

(2) The realization of "every worker holding shares." This is also the purpose of the property right system reform. The Group applied for 257 million yuan to support each employee in buying stock. After the implementation of the measure, staff members have a positive attitude and their enthusiasm for work is high.

(3) The establishment of the mechanism of "holding shares and not inheriting." The reform of Erdos has its own characteristics: although it is referred to as a shareholding system reform, it is not the exactly as the name suggests. It includes post shares, which means if an employee is in a position and duteous, he or she can enjoy the post shares. However, the shares cannot be inherited. Employees can take basic dividends after retirement, but when they die, the shares must be returned and

are redistributed to new employees.

At the same time, the Group also has 30 million factor stocks, which are only given to managers with senior titles and others at decision-making levels. Factor stocks are transferable by whomever is in the position and holds the stock. In addition, the Group has issued tens of millions of mobile stocks. Mobile stocks should be allocated to those talented employees responsible for the development of enterprises. Furthermore, the enterprise also allocates shares to talents to attract them. The purpose of this series of systems is to turn stock reform into a sustainable system that can generate employee enthusiasm.

*5.3.3* Technology innovation

The core of technological innovation is to realize product innovation. Over the past three decades, Erdos Group firmly grasped the direction of product innovation to constantly adjust the industry and product structure as the introduction of advanced equipment. The grade, structure, cultural, and technological content of products are gradually evolving to high technology, fine quality, and good taste. The update of product production has led to expansion from woolen to worsted and from knitting to tatting, while the variety of products now extends from ordinary shirts to jacquard and fashion knits comprising more than 300 styles in more than 2500 colors.

Technological leadership had laid a solid foundation for the construction of the Erdos brand. In 2002, Erdos Group set up a base for the highest level of domestic cashmere research and product development, a first-class cashmere product R&D and demonstration base at home and abroad. It is comprised of an 11,000 square meter multifunctional, integrated building and has a post-doctoral research workstation involving new products and new technology R&D, testing, standard research, open services, and eight other departments. It employs six doctors, 25 masters and 180 professionals, which form the elite R&D team. It gradually established a technological innovation service platform for the Chinese cashmere industry, integrated R&D, testing, standard research, achievements, technology promotion, personnel training, and technical exchanges of cashmere and cashmere products. In 2007, the Group's 1436 pure cashmere blankets and pajamas were included in an ambassadorial ceremony by the general office of the State Council, which marked the R&D of new products and new technology of the enterprise to a new level and once again proved the high quality of the products. In 2009, the Ministry of Science and Technology, the SASAC, and the ACFTU awarded Erdos cashmere Group the honorary title of "National Innovative Enterprise." "The cashmere wool knitwear pilling test method" standard draft led by the Group officially become the IWTO standard in 2013. The release of this international standard won more international market voice for Chinese cashmere. The Group

has become the first enterprise in the domestic cashmere industry to independently undertake international and national industry standard requirements. It has mobilized the entire cashmere industry technological progress and become the only Chinese enterprise in the CCMI.

5.3.4 Management innovation

Management innovation is one of the inexhaustible motivating forces that prompted Erdos Group to develop from a medium-sized enterprise to a large one. Erdos not only introduced foreign cutting-edge equipment, but drew on advanced management methods. At the same time, the management mode of Erdos is also consistently innovative.

(1) In the management of production, the enterprise adopts a step-by-step method and sets one goal every year, from quality management to basic management to cost management. It overcomes a difficulty nearly every year. Early in 1996, the Group put forward the "5321" project, which was to reduce the annual overall cost by 5%, and then 3%, 2%, and 1%. Each drop in percentage point saves the enterprise 10 million yuan. Since 2009, the group has gradually begun to implement excellence performance management, and further strengthened the quality control of products. In 2010, Erdos Group won the title of "National Advanced Enterprises for Product Quality" from 2009 to 2010. The achievement of this award is direct proof that the capacity of the product quality control has been continuously improved from the raw materials purchase to product design and development, from production to finished product inspection. After seven years of effort, "The cashmere wool knitwear pilling test method" standard draft led by the Group officially become the IWTO standard in 2013. This landmark achievement shows that Erdos having reached the international level in quality control.

(2) In the management of employees, Erdos is the first enterprise in the whole region to implement the full floating wage system. It then abolished the cadre tenure system and implemented the "democratic election, competition for posts." This measure generated the full enthusiasm of employees and greatly improved labor productivity.

(3) In the management of talents, Erdos Group has established its own development strategy. It cultivated a dedicated and skilled entrepreneurial team and professional group. It has nurtured a united and competitive production and management team formed by entrepreneurs, national model workers, exemplary female employees, the NPC members, Women Pacesetters, and technical experts. Moreover, Erdos group has, since 2001, actively sought to open the door internationally and invite the world's best cashmere experts to China, and hold international cashmere measurement technique seminars, successfully for six sessions.

The seminar presented the latest research achievements from different countries in different fields and gave a huge boost to Erdos cashmere industry development.

5.3.5 Market innovation

Erdos Group adheres to the marketing channel construction of both internal and external marketing. The Group has more than 3000 marketing outlets in China, forming the marketing pattern of self-operated shops, franchise stores, and special halls in shopping malls, becoming one of the largest marketing networks of the textile industry in China. The quality, market shares, and export earnings of the company's leading product, the "Erdos" cashmere sweater, ranked first in the national cashmere industry consecutively. Moreover, Erdos's products are exported to Japan, the United States, the European Union, and more than 30 other countries and regions, with an annual export capacity of more than two million items.

It has seven international sales companies and more than 20 sales outlets in Los Angeles, Tokyo, London, Moscow, Hong Kong, Cologne, and Milan. It has also established factories in Madagascar and Mongolia. The company has primitively established an international production-sale-service framework, laid a sound foundation for its development as an international brand. In order to further expand the Group's imports and exports and shift from a single supplier to comprehensive multiple suppliers, the Group has set up three business companies in Beijing, Shanghai, and Shenzhen and specializes in the import and export of cotton, wool, linen, silk, and textile garment products.

In 2009, the textile market was in downturn, which prompted the Group to find new market. The Group studied the Spring Sale strategy common in western countries and built its own "Gold Rush." The Group chose the last weekend of each February as the time for the Erdos Gold Rush, with more than 4000 Erdos specialty stores and three Taobao shops offering sales at the same time. This action benefits the consumers, boosts sales, and increases consumer's awareness. Since 2016, for all-round development of the young generation market, Erdos began transforming the fashion and household industries and carried forward a series of major initiatives. In the "Chasing the Light" Show in August 2017, the Group invited international supermodel Liu Wen to attract young consumers while at the same time sold the show style products online, which realized the attempt of "watch and buy at the same time" for the first time.

## 6 Conclusion

According to the development track of Erdos Group, enterprises in less developed areas started and developed on the basis of abundant and cheap natural and biological resources. Therefore, less developed areas should focus on the development of resource advantages of prominent industries based on these resources. Energy is the advantaged industry in less developed areas. Less developed areas should develop the energy advantage industry with abundant resources.

But with the depletion of natural resources and the increase of acquisition costs, the inherent competitive edge is gradually disappearing. Thus, to gain a continuous competitive advantage, enterprises must keep acquiring, accumulating and creating knowledge while simultaneously developing continuous innovation in terms of ideas, management, systems, technology, products, and markets. By learning advanced management and development and marketing strategies, enterprises enhance their ability to absorb and learn, improve labor skills and overall quality, and carry out knowledge innovation. Through continuously innovation of independent intellectual property rights, enterprises can obtain the competitive advantage. Only if enterprises continuously carry out technical innovation can they launch new products to the market, improve the knowledge and technological content of products, improve production technology, and improve customer value and the products' market competitiveness and market share. The practice shows that vigorously strengthening the independent innovation of intellectual property rights is critical to improving enterprises' core competence and creating a competitive advantage. In today's global market, the highest level of competition is the competition of the brand. The enterprises that actively carry out independent innovation of intellectual property rights and create the world's famous brands with independent intellectual property rights will be able to rebuild the competitive advantage and be in an impregnable position in the international market. Erdos Group is not the only company to demonstrate the process of obtaining the competitive advantages in less developed areas. The successes of Yili, Mengniu, and Little Sheep show it as well.

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