

Research on Influencing Factors and Internal Mechanism of International Entrepreneurship Based on Complex Network Algorithm

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Abstract. Entrepreneurs' social capital consists of relational dimension social capital, cognitive dimension social capital and structural dimension social capital. Relationship dimension social capital and cognitive dimension social capital have positive promotion effect on entrepreneurial survival performance, but have negative feedback effect on entrepreneurial success performance. From the investment stage, the investment intensity of Chinese venture capital institutions in the initial stage is obviously lower than that in other development stages, especially in the growth stage, which accounts for half of the venture capital. Although the entrepreneurial orientation and knowledge innovation ability of entrepreneurial individuals or teams are helpful to improve the efficiency and effectiveness of identifying and utilizing international entrepreneurial opportunities, it is necessary to choose an appropriate internationalization model according to the types of international entrepreneurial opportunities in order to achieve extraordinary international entrepreneurial performance. Based on the complex network algorithm, this paper analyzes the evolution of the concept of international entrepreneurship and its influencing factors, and reveals the internal mechanism of international entrepreneurship.

Keywords: International entrepreneurship, internal mechanism, influencing factors.

1. Introduction

The research object of international business theory is often mature large multinational companies, emphasizing the important role of international knowledge in the process of enterprise internationalization, while entrepreneurship theory focuses on the study of new ventures in the domestic context, believing that entrepreneurial orientation has a significant impact on the establishment of new ventures [1]. Whether for start-ups or mature enterprises, entrepreneurial social capital is conducive to the expansion and utilization of resources and information of enterprises, and is more likely to transform virtual resources into real economic profits of enterprises [2]. Entrepreneurship is a process of thinking, reasoning and behavior, which is driven by opportunities and focuses on the balance between methods and leadership, while entrepreneurship is a highly dynamic process [3]. In this process, opportunity, resource and team drive the development of entrepreneurial process. Entrepreneurship research, as a new interdisciplinary research field, scholars from different disciplines often start from their own perspective, drawing on the theories and research methods of sociology, anthropology, psychology, economics, management and other disciplines, resulting in great differences in research boundary, research content and research paradigm [4]. At present, to promote China's economic transformation and upgrading, it is not only necessary to transform and enhance the traditional kinetic energy, but also need to take venture capital as the support, implement the innovation driven development strategy, develop the new economy, cultivate new kinetic energy, and accelerate the construction of an innovative country [5].

With the great changes in the global economy and the rapid development of science and technology, market competition has become more and more cruel, and all industries are facing their own adjustment and secondary entrepreneurial development [6]. The current international economic environment is becoming increasingly dynamic and complex, and the trend of international competition of enterprises is becoming more and more obvious. As an important force in global competition, international start-ups, facing scarce resources and markets, rely less and less on land, human resources, capital and other factors for their competitive advantage [7]. With the upsurge of

venture capital in China, the number of Chinese venture capital institutions is increasing year by year, and the amount of investment in start-up enterprises is also increasing. The measurement of international competitive position of enterprises is no longer only based on output value and sales, but on the degree of organization and coverage of knowledge network. The importance of traditional resources gives way to knowledge resources, and knowledge management has become the key source for enterprises to obtain competitive advantage [8]. Venture capital plays an important role in China's economic development by providing financial support to start-up enterprises [9]. However, due to the lack of technical maturity and the high risk of management and operation, the enterprises in the start-up period are generally unable to obtain funds from commercial banks and other financial institutions, and the venture capital institutions have become an important financing channel for the start-up enterprises. Although the entrepreneurial orientation and knowledge innovation ability of entrepreneurial individuals or teams help to improve the efficiency and effectiveness of international entrepreneurial opportunity identification and utilization, it is still necessary to choose the appropriate internationalization mode according to the types of international entrepreneurial opportunities, so as to finally obtain extraordinary international entrepreneurial performance [10].

2. An analysis of the influencing factors of International Entrepreneurship

2.1 Relationship network, learning orientation and institutional environment

If international entrepreneurial opportunities are regarded as the external cause of international entrepreneurship, entrepreneurial orientation will become the internal cause of international entrepreneurship. In the process of entrepreneurs identifying and utilizing international entrepreneurial opportunities, international knowledge and international entrepreneurial ability play an important role, and learning orientation and relationship network are important ways to acquire international knowledge. When the economy is prosperous, the scale of the enterprise is large and the profit is high, the entrepreneur will make a more optimistic judgment on the enterprise's ability or the enterprise's prospect, show an optimistic attitude in the process of international entrepreneurship, and show a positive, even risk-taking characteristic when making decisions. Entrepreneurial performance is an important indicator to measure the entrepreneurial process, and it is also the fundamental embodiment of the competitive advantage of entrepreneurial companies. Accurate measurement of entrepreneurial performance is very valuable for entrepreneurial research. Due to the differences in the definition and purpose of entrepreneurship, it is difficult to define the performance of entrepreneurial enterprises in practice.

Institutional environment interacts with new ventures. Not only institutional environment affects start-ups, but also entrepreneurs can have a certain impact on the establishment, maintenance and change of institutional environment. The organizational structure is embodied in formalization, centralization and integration. High formalized organizations have clear processes and procedures, which hinder the spontaneity and flexibility of internal innovation of international start-ups to a certain extent. The reason why there are opportunities in the market is that the market is unbalanced. When entrepreneurs identify entrepreneurial opportunities, they also carry out evaluation activities intentionally or unconsciously, that is to say, opportunity evaluation is accompanied by the whole process of opportunity identification [11]. International knowledge, international entrepreneurial orientation and international entrepreneurial ability international knowledge refers to the commercial, institutional and operational knowledge that enterprises need to carry out international operations. Concentration will reduce the initiative of communication between different departments of international start-up enterprises, reduce the communication between international start-up participants, and thus reduce the flow and sharing of international entrepreneurial knowledge. The integration makes the internal communication of international start-ups more smooth, and is conducive to the flow and management of international entrepreneurial knowledge in the organization.

2.2 International entrepreneurial opportunities and internationalization model

In the field of international business research, scholars generally believe that the success of an enterprise's international operation largely depends on the mode of entering the international market, because the internationalization mode is directly related to the internationalization degree of enterprise's resource allocation, and then affects the benefits and risks that an enterprise obtains in the international market. From the perspective of resources, only entrepreneurial opportunities can not support the entrepreneurial process. On the basis of grasping the external opportunities, it is a complete entrepreneurial process to transform the existing resources into useful value for consumers and realize the return of enterprise wealth. Although entrepreneurship is not limited to the current resource conditions and the pursuit of entrepreneurial opportunities, but without the support of the resources required by the enterprise, the entrepreneurial process can not be carried out. It is self-evident that the use of resources is of great importance to the development of enterprises. Resources are the source of enterprise ability, enterprise ability is the source of enterprise core competitiveness, and core competitiveness is the basis of competitive advantage.

Different types of international start-ups have different ways of taking advantage of opportunities. Among them, industrial enterprises invest a lot of resources to take advantage of opportunities quickly, while scholar enterprises take advantage of opportunities gradually. The research objects of international entrepreneurship are born global enterprises and international new ventures, which have both the characteristics of internationalization and entrepreneurship. Therefore, the intersection and integration of international business theory and entrepreneurship theory constitute the theoretical basis of international entrepreneurship research. The theoretical framework of entrepreneurial team competency is shown in Figure 1.

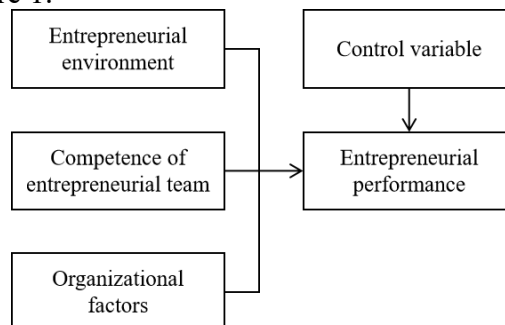


Figure 1 The theoretical framework of entrepreneurial team competence

The research on internationalization mode mainly focuses on various influencing factors of international market entry mode, and also discusses internationalization mode from a dynamic perspective [12]. Although organizational learning and international relations network are critical to the success of international entrepreneurship, they are not the most basic factors that affect international entrepreneurship, because the ultimate result of organizational learning is to acquire international knowledge, and international relations network can also be attributed to the knowledge of how to evaluate, choose and cooperate with international business partners. Only when an enterprise greatly surpasses its competitors in sales and profits, can it generate sustainable profits. Wealth creation emphasizes the long-term development of the enterprise and the promotion of its competitiveness. Strategic activities are the actions of enterprises to develop and utilize existing competitive advantages, while entrepreneurial activities are the actions of exploring opportunities for forming future competitive advantages of companies. If enterprises want to succeed in the new competitive situation, they must combine entrepreneurship and strategic management organically.

3. Comprehensive driving model of international entrepreneurship

Because the change of international environment brings international business opportunities, under a certain institutional environment, entrepreneurs with international entrepreneurial orientation and entrepreneurial ability identify and utilize international entrepreneurial opportunities, and obtain

international entrepreneurial performance through a certain international entrepreneurial model. In the process of internationalization growth of a born global enterprise, international knowledge and entrepreneurial orientation not only change in type, but also have differences in the relative importance of each dimension in the gestation period, initial stage, growth period and maturity period of a born global enterprise. In the process of international entrepreneurship, the relative importance of knowledge innovation and entrepreneurship orientation is different in the identification stage and utilization stage of international entrepreneurial opportunities. Entrepreneurial opportunities come from the unstable external environment, so entrepreneurial activities can see and pursue entrepreneurial opportunities. The turbulent external environment not only brings threats to entrepreneurial activities, but also creates a lot of opportunities. Enterprises carry out entrepreneurial activities in order to pursue entrepreneurial opportunities through innovation, advance action and risk-taking, and to survive and develop in a turbulent and complex environment. Entrepreneurial strategy based on wealth creation can better grasp the entrepreneurial opportunities in the external environment by identifying the matching degree of opportunities and resources, and integrate limited resources to support the development of entrepreneurial process. The effect of active entrepreneurship education on college students' entrepreneurial psychological quality is shown in Figure 2.

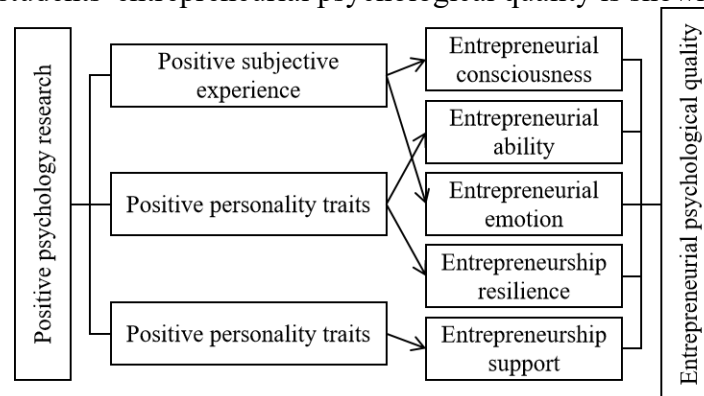


Figure 2 The effect of active entrepreneurial psychological education on the improvement of college students' entrepreneurial psychological quality

International entrepreneurial activities include the gestation process before starting a business, the discovery and utilization process of international entrepreneurial opportunities and the internationalization growth process. Therefore, a complete international entrepreneurial process should include pre-internationalization stage, initial internationalization stage and post-internationalization stage. Entrepreneurial resources are an indispensable element in the process of enterprise development, and run through the whole process of enterprise production and operation. Entrepreneurial resources are essential factors of production and supporting conditions in the whole process from establishment to business development. Therefore, entrepreneurial resources are a collection of various elements that can be used by entrepreneurs and create value for customers [13]. Entrepreneurial orientation and international knowledge are prerequisites for identifying and utilizing international entrepreneurial opportunities, and both are indispensable. Entrepreneurs with only entrepreneurial orientation can only identify domestic entrepreneurial opportunities, while entrepreneurs with only international knowledge can only maintain the international operation of enterprises. Entrepreneurial process begins with the discovery of opportunities in the external environment by entrepreneurs, and its development needs the support of relevant resources. The resources held by entrepreneurs may not match the resources required by entrepreneurial opportunities. At this time, entrepreneurs need to integrate the existing resources of the organization or lend external resources to support them to seize entrepreneurial opportunities.

In the process of starting a business, the external market environment is unpredictable, and change is the eternal truth in the market economy. Change will inevitably bring uncertainty, but uncertainty contains an opportunity to pursue profits. The initial purpose of starting a business is to seize this opportunity. The data mining process in financial analysis is shown in Figure 3.

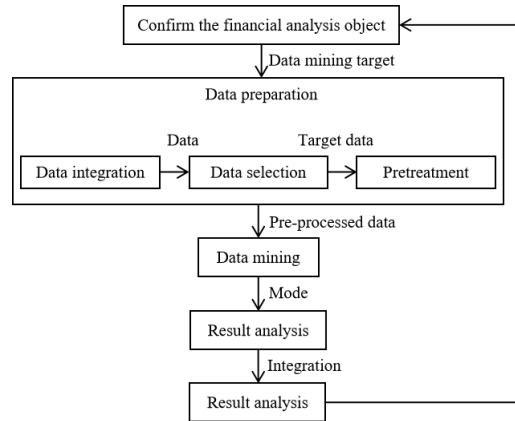


Figure 3 Data mining process in financial analysis and management

The resources owned by entrepreneurs are constantly consumed in the process of their evolution, so it is increasingly important to integrate resources and opportunities with strategic tools. Entrepreneurs' social capital not only has positive social effect and promotion value, but also may have some negative functions. Specifically, the process from survival to success means that entrepreneurs should invest more time. If network members have a high degree of trust, close relationship and common language, culture and values, information exchange will be smoother, knowledge owners will be more willing to share their tacit knowledge with others, and knowledge recipients will be easier to understand and absorb tacit knowledge, thus realizing the intrinsic and combined innovation of knowledge. The turbulence of the external environment and the scarcity of resources will lead to the regulation of entrepreneurial behavior by both entrepreneurial opportunities and entrepreneurial resources. Figure 4 is a conceptual model of the influence mechanism of entrepreneurship policy on entrepreneurs' entrepreneurial behavior.

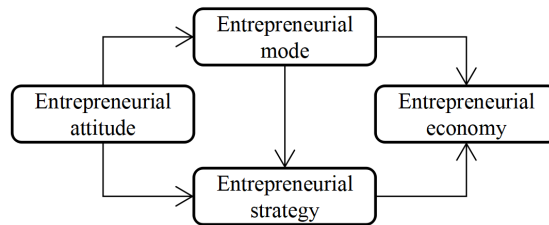


Figure 4 Conceptual model of the mechanism of entrepreneurial policies affecting entrepreneurial behavior

In order to eliminate the influence of different dimensions of the original data, data preprocessing is carried out based on data mining. The standardized formula is:

$$CI_i = \frac{\sum_j (\frac{C_{ij}}{C/N}) \ln(\frac{C_{ij}}{C/N})}{N \ln(N)} \quad (1)$$

Need to meet:

$$P_i = \frac{f_i}{\sum_{i=1}^N f_i} \quad (2)$$

Define the distance formula:

$$Y_j(t) = \phi \left(\sum_{i=1}^n w_{ji} x_i - \theta_j \right) \quad (3)$$

Take the variance contribution rate of each factor as the weight, and take the first n factors to reflect the original evaluation index:

$$o_j(t) = f\left(\left[\sum_{i=1}^n w_{ij}x_i(t - \tau_{ij})\right] - T_{ij}\right) \quad (4)$$

Table 1 shows the empirical analysis results of entrepreneurial policies and entrepreneurial models.

Table 1 Empirical analysis results of entrepreneurial policies and entrepreneurial attitudes

Variable	Perceptual skills	Perceived opportunity	Entrepreneurial willingness	Fear of failure
Entrepreneurial support	0.087	0.155	0.064	0.258
Entrepreneurship education	0.071	0.251	0.062	0.394
entrepreneurial environment	0.022	0.079	0.055	0.032
Type of economy	0.024	0.078	0.092	0.038

If the opportunity factor plays a key role in the development of the entrepreneurial process, the path of entrepreneurship may become narrower once it is restricted by the entrepreneurial opportunity. In the field of international entrepreneurship, searching for information bearing international entrepreneurial opportunities and interpreting it with creative thinking is a prerequisite for identifying opportunities, while integrating global resources and investing resources in specific foreign markets is an important link in utilizing opportunities. After obtaining information, innovative entrepreneurs tend to use creative mental models and novel ways to process the information, so as to identify the huge commercial value behind the information, that is, the better the effect of opportunity identification. Under the action of open mind and common vision, international new ventures will acquire and receive information and knowledge about internationalization with a positive and open mind [14]. In this process, the members of the enterprise will enhance the communication and interaction with customers, suppliers and other stakeholders, and combine all kinds of international knowledge with their original knowledge through a highly intelligent model, and then internalize to form their own unique innovative knowledge. The expansion of entrepreneurs' social network scale and the increase of network members significantly improve entrepreneurs' access to effective market information. At the same time, the increase of entrepreneurs' social network members brings entrepreneurs more choices, more cooperation space and cooperation opportunities, which helps enterprises to transform this intangible social relationship capital into real sales income or other tangible benefits.

4. Summary

Under the guidance of international entrepreneurship, enterprise members are more inclined to exchange and share international entrepreneurship knowledge and share and transfer new knowledge, which will accelerate the transformation and diffusion of international entrepreneurship knowledge, and thus accelerate the application of knowledge in the process of international entrepreneurship. Entrepreneurial relationship dimension social capital has positive influence value on entrepreneurial survival performance, but it has negative feedback effect on entrepreneurial success performance. Entrepreneurial cognition dimension social capital positively promotes entrepreneurial survival performance. As a new type of start-up, international start-up has become a new and important driving force for employment and global economic growth. As a new type of international enterprise, international new ventures urgently need to be refined and applied to the theoretical guidance of successful internationalization practice in order to better implement the "going out" strategy. Neither the enterprise nor the government can completely copy the development model of other enterprises or regions. Because each region has its own characteristics, it has its own unique soft environment

and hardware facilities. Only by making good use of our own conditions and putting more energy into creating a good economic environment can we develop the regional economy and promote the development of enterprises in this region.

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