

Research on Organized Academic Entrepreneurship Based on Demand Orientation

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Abstract: In the current context of rising counter-globalization, organized academic entrepreneurship can help break the technological blockade imposed on China by Western countries in key fields and important industries. This paper first boils down to the research results on academic entrepreneurship, then proposes the concept of organized academic entrepreneurship and analyzes the favorable conditions and unfavorable factors of organized academic entrepreneurship in China, and finally makes specific suggestions on how to develop organized academic entrepreneurship. The above research contributes to the smooth development of organized academic entrepreneurship, breaking the blockade and improving China's competitiveness in key fields and industries.

1. Introduction

Academic entrepreneurship is the process of setting up commercial enterprises by savants (including professors, researchers, doctoral students, etc.) to commercialize their research results, that's commercial entrepreneurial activities in which academic researchers and academic organizations are involved[1]. From a micro perspective, academic entrepreneurship can promote the transformation of research results and cultivate high-end innovative and entrepreneurial talents, while from a macro perspective, it can increase the proportion of high-tech enterprises, optimize the industrial structure, promote the transformation of old and new dynamics and drive healthy economic development. In order to promote the development of academic entrepreneurship, in recent years, the state and local governments have issued corresponding incentive policies, such as the "Opinions on Further Improving Employment and Entrepreneurship in the New Situation" issued by the Ministry of Human Resources and Social Security, "Several Opinions on Implementing the Distribution Policy Guided by Increasing the Value of Knowledge", and "Guidance on Further Supporting and Encouraging the Innovation and Entrepreneurship of Researchers in Institutions", etc. Correspondingly, local governments have local policies and

measures have been issued, such as Jiangsu promulgated the “Opinions on Encouraging the Personnel Management of Professional and Technical Personnel of Universities and Scientific Research Institutes Concerning Innovation and Entrepreneurship”, and Zhejiang issued the “Implementation Measures for Encouraging and Supporting the Departure of Scientific Researchers from Institutions for Entrepreneurship and Innovation in Zhejiang Province” (for trial implementation). With the encouragement of relevant policies, a number of excellent academic entrepreneurial enterprises such as Xunfei and Neusoft have been born, which proves the role of the above policies in promoting academic entrepreneurship. However, the current international situation has changed tremendously, and the western countries led by the United States have increased their efforts to block technology in China. In order to solve the "containment" phenomenon in the field of technology, the country proposes to carry out organized scientific research activities and improve the ability of collaborative research in complex and major scientific research activities. Technology is the basis of industrialization, and as far as the laws of historical development is concerned, the technological revolution will give rise to the industrial revolution. However, there is still a certain distance from the technological breakthrough to the industrialization revolution, especially in the industrial field treading national strategic competitiveness, which is characterized by many disciplines, a wide range of industrial fields, and complex technological sophistication, and has high requirements for talents, management, and capital, and it is difficult to carry out effective entrepreneurial activities solely by enterprises or researchers, and it is difficult to effectively transform technological advantages into industrial advantages in a short period of time. Organized academic entrepreneurship can bridge the last mile from scientific research to market and multiply the transformation of technical value to industrial value and social value.

Foreign research on academic entrepreneurship began in the early 1980s, and domestic research on "academic entrepreneurship" emerged in 2008 as a separate topic, which has enriched academic entrepreneurship theory and promoted the development of academic entrepreneurial practices. However, the organized academic entrepreneurship in academic entrepreneurship has not yet attracted the attention of researchers. In this paper, we propose the development of organized academic entrepreneurship based on the summary of related academic entrepreneurship.

2. Research status and analysis in current academic entrepreneurship research

2.1. Research status

The content of academic entrepreneurship research involves several elements and can be divided into different research categories according to different classification criteria. This paper analyzes the dynamics of academic entrepreneurship research from three perspectives: academic entrepreneurship micro-individual research, academic entrepreneurship meso-organizational research, and academic entrepreneurship macro-environmental research according to the range of subjects involved in academic entrepreneurship research.

2.1.1. Micro-individual Study of Academic Entrepreneurship

Academic entrepreneurship micro-individual research refers to the researcher's study of academic entrepreneurs' ontological entrepreneurial behavior and related elements, mainly involving motivation, role perceptions, entrepreneurial behavior and so on. In the study of academic entrepreneurial motivation, Whelan, Scott (2001) found that academic entrepreneurs have a different entrepreneurial mindset from ordinary entrepreneurs, and academic entrepreneurs have a stronger tendency to be risk averse and prioritize their entrepreneurial motivation towards achieving academic goals in addition to business opportunities [2]. Yao Fei and other scholars (2014) used the

rooting analysis method to summarize the motivation of academic entrepreneurship into four aspects, including scholar dimension, university dimension, government dimension and environment dimension[3]. In terms of role perception research, Xie Jueping (2014) and others studied the influence of gender on the marketability of university research results from human capital and gender role theory, and found that female scholars' entrepreneurship is influenced by more factors and the entrepreneurial process is more difficult compared with general scholars' entrepreneurship[4]. Guo Feng et al. (2019) explored the mechanism of integration of identity paradox of academic entrepreneurs and its role mechanism on academic entrepreneurship performance from the perspective of social identity and revealed the moderating role of entrepreneurship narratives[5]. In the area of academic entrepreneurial behavior research, Gintaras Binkauskas(2008) analyzed the barriers affecting the entrepreneurial behavior of scientists and the hopes and opportunities they faced[6]. Martin Obschonka (2019) found through a survey of 137 German scientists that a person's basic entrepreneurial personality traits determined the formation of his or her entrepreneurial enthusiasm.[7] Based on the meaning construction-meaning giving theory, Xiong Mingming et al. (2021) explored the micro-processes of how academic entrepreneurs open up entrepreneurship and how to start a business in a conflict situation[8].

2.1.2. A Study of Meso-academic Entrepreneurial Organizations

The academic entrepreneurship meso-organizational study refers to the researcher's analysis of the impact of academic entrepreneurship on the carrier of academic entrepreneurship, i.e., university research institutes. PAUL BENNEWORTH (2001) criticized the separation of research and commercialization and redefined the role of universities in academic entrepreneurship[9]. Arlen D. Meyers & Sarika Pruthi (2011) defined five key characteristics of universities that foster academic entrepreneurs using successful bio-industrial clusters in the United States and Europe as examples[10]. David F. J. Campbell & Elias G. Carayannis (2015) argued that academic firms represented a new design for entrepreneurship in an innovation-driven knowledge economy and discussed a model for cross-employment of academic staffs in academic startups and academic institutions[11]. Bruno Brandão Fischer et al. (2019) studied the impact of university regulations on academic entrepreneurship in developing countries and showed that some of the systems borrowed from developed countries that have proven to be effective are not significant in developing countries for promoting academic entrepreneurship[12]. Fu Bajun (2020) examined the top-level design and implementation strategies of school-based policies for university faculty academic entrepreneurship[13].

2.1.3. Macro academic entrepreneurial environment study

In macroscopic studies, researchers focus on the mutual influence relationship between academic entrepreneurship, regional economic development and entrepreneurial environment. BENNEWORTH P and CHARLES D. (2005) argued that the impact of academic entrepreneurship was not only in terms of economic promotion, but also in terms of upgrading regional infrastructure development and services. For example, universities and university-derived enterprises can contribute to regional economic development by establishing a "regional knowledge base" and achieving knowledge aggregation[14]. Needleman (2012) studied the entrepreneurial ecosystem in the Chicago area and found that successful entrepreneurship by academic entrepreneurs is a strong model and leader, attracting more scientific and technological talents to the entrepreneurial area and into the entrepreneurial field[15]. While university academic entrepreneurship provides knowledge, technology and services to support regional economic development, regional development and local government policies also influence the development of academic entrepreneurship. Feng Guo (2019)

et al. studied the determinants of academic entrepreneurship success through 248 academic entrepreneurship samples based on social recognition theory[16]. Ju Wei et al. (2020) explored the real-life dilemmas of academic entrepreneurship and proposed corresponding countermeasures[17].

In summary, in the micro-individual research of academic entrepreneurship, researchers focus on the external entrepreneurial behavior and internal psychological activity characteristics of academic entrepreneurs, and the main research contents include the entrepreneurial motivation, goal pursuit, risk attitude, entrepreneurial model choice and its influencing factors of academic entrepreneurs, compared with other entrepreneurs, domestic researchers are more concerned about the role recognition and legitimacy of entrepreneurs. In terms of academic entrepreneurship meso-organizational research, researchers focus on the influence of university orientation, organizational structure, regulations and discipline construction on academic entrepreneurship on the one hand, and the significance of academic entrepreneurship activities on the construction of entrepreneurial universities and discipline development on the other. In terms of the above mentioned factors, Chinese scholars pay more attention to rules and regulations, which may be related to the fact that most universities in China are public educational institutions with fixed organizational structure; in terms of the macro environment of academic entrepreneurship, researchers concentrate on the influence of academic entrepreneurship on regional economic growth, industrial upgrading and other macro environment on the one hand, and government policies that promote academic entrepreneurship on the other hand. Compared with the synergistic innovation mechanisms and strategies of academic, industrial and policy elements, domestic researchers have focused more on the verification measurement of academic entrepreneurship for regional economic development, the government's positioning and policy promotion in academic entrepreneurship, and more emphasis on the catalytic role of the government in promoting academic entrepreneurship.

2.2. The analysis of organized academic entrepreneurship

Theoretical studies on academic entrepreneurship have been conducted and have yielded fruitful research results, and these studies have played a positive role in promoting the practical activities of academic entrepreneurship. However, there are not only similarities but also uniqueness between academic entrepreneurship and general academic entrepreneurship, there are mainly manifested in three aspects:

2.2.1. Micro-subject aspect academic entrepreneurship

Our researchers focus more on the learning of the depth of professional knowledge in the process of cultivation and work, and the breadth of knowledge is insufficient, lacking for economic management knowledge and entrepreneurial consciousness, which is a disadvantage of organized academic entrepreneurship. However, our researchers are nurtured by the traditional Chinese culture during their growth, and generally have the spirit of family and national sentiment and responsibility. Whenever the nation needs and the country calls, this spirit will make them step forward and contribute to the organization without hesitation, which is a favorable factor for organized entrepreneurship.

2.2.2. Meso-organizational aspect of academic entrepreneurship

Chinese universities emerged much later than in the West's, and unlike the Western model, most Chinese universities are established by the government, and each resource element is subject to government management constraints, such as funding comes from government financial expenditures, the establishment of disciplines is guided by relevant government agencies, the number of staff establishment is set by the government, and the mobility of staff lacks autonomy.

On the one hand, these elements influence the formulation of regulations for academic entrepreneurship in universities and the establishment and operation of derivative enterprises; on the other hand, as each resource element is subject to government management constraints, it facilitates the dispatch of resources for organized academic entrepreneurship.

2.2.3. Macro environment of academic entrepreneurship

On the one hand, unlike the long history of market economy in western countries, China has been reforming and opening up since 1978, and has transformed from a planned economy to a market economy and has made great progress in more than 40 years of development. But the market system policies, property rights laws and regulations still need to be elevated. On the other hand, the advantages of the Chinese system, which is to coordinate the overall situation and concentrates on major issues, and the national spirit of unity and mutual assistance in the face of crises constitute an academic entrepreneurial environment with Chinese characteristics, and this environment is beneficial to the development of organized academic entrepreneurial activities.

3. Suggestions on organizing academic entrepreneurship

3.1. Building a platform of academic entrepreneurship organization at different levels

In order to meet the new trends of modern scientific research activities, such as in-depth cross-cutting, application-oriented and resource-dependent, the Ministry of Education proposed a new model of "organized scientific research", which is organized and centrally invested by the government (organization) and implemented by scientific researchers aiming at the major needs of the country with guided and directed scientific research and innovation practices.

As far as the law of historical development is concerned, the technological revolution will give rise to the industrial revolution. Compared with scientific research activities, industrial development based on national competitiveness involves not only technical factors, but also higher requirements for industrial development trend research, capital demand, talent gathering, resource deployment and even policy and regulation matching, which is a systematic project that requires the coordinated operation of scientists, entrepreneurs, investors and government agencies from a high level.

3.2. Identification of academic entrepreneurship opportunities based on demand orientation

There are two types of demand-driven academic entrepreneurship opportunities. One is where a researcher has made a breakthrough in the process of developing a technology that will effectively enhance the country's competitiveness in a key area. The researchers concerned can apply to organize a professional team to evaluate the entrepreneurial opportunity and thus confirm the feasibility of starting a business based on that technology. Another type is that academic entrepreneurship platforms at different levels regularly organize teams to analyze and judge key areas that will have a significant impact on the country's competitiveness from a global perspective, search for relevant technological advances nationwide and globally, assess the possibility of technological breakthroughs and then organize the feasibility of joint development and transformation of technologies across regions and disciplines.

3.3. Organized academic entrepreneurship resource integration

Necessary entrepreneurial resources are necessary for the implementation of academic entrepreneurship, especially for entrepreneurial projects that are recognized by organized academic entrepreneurship platforms, which often involve a multitude of resources that are difficult to deploy

solely by the entrepreneurs themselves, such as technical talents, investment talents, management talents across disciplines and regions, sky-high entrepreneurial capital, and even specific production equipment. After the academic entrepreneurship opportunity is accurately identified, the academic entrepreneurship organization platform conducts entrepreneurial resource analysis for the opportunity in order to ensure the smooth implementation of the academic entrepreneurship. First, the platform analyzes the key resources for the successful implementation of the academic entrepreneurship opportunity and constructs an entrepreneurial resource assessment scale; then, it evaluates the current status of resources according to the scale and assesses the status of each resource; finally, the platform consolidates resources from a national or even global scale for those resources whose conditions are not yet ripe.

3.4. Organized academic entrepreneurship policy support

In order to promote the transformation of scientific research results, national and local governments have issued corresponding policies and regulations to encourage academic entrepreneurial activities. The aforementioned regulations and policies have a certain promotion effect on encouraging researchers to participate in academic entrepreneurship and improving the transformation rate of scientific and technological achievements. However, for academic entrepreneurship projects that are related to national competitiveness, due to the complexity, uniqueness and foresight of the technology involved, the existing universal policies and regulations may not be able to substantially promote them. The academic entrepreneurship organization platform should study and implement individual matching policies according to the characteristics of the project, or even modify the existing regulations or make new regulations for them, which has precedents in other countries, for example, South Korea intends to pass laws change to incentivize major R&D projects and facility investments in the chip industry in order to achieve its strategic goal of becoming a global memory and non-memory chip powerhouse.

4. Conclusion

Science and technology is the first productive force, but many resources are needed to support the transformation from science and technology innovation to industry, especially for complex interdisciplinary and cross-industry science and technology innovations that often lose the first opportunity in the process of industrialization due to the slow progress or even failure of insufficient resources. In the current unique Chinese context, this paper investigates the favorable and unfavorable factors of organized academic entrepreneurship, and then proposes recommendations for its implementation. This study is conducive to promoting organized academic entrepreneurship, thus bringing into play the leading role of advanced science and technology, realizing the integration of resources, depositing the industrialization of major research achievements and improving the comprehensive strength of the country.

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