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## A research of multi-agent collaboration of entrepreneurship cultivation mechanism

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### ABSTRACT

Our lack of entrepreneurship has caused widespread concern in the community, cultivating of entrepreneurship has become one of the most important research problems in recent years by researchers. Based on the deep analysis of the concept of entrepreneurship and the present situation of the four subjects – university, government, society and enterprise, this essay will change the single subject entrepreneurship into multi-agent cooperative way by using Word to design the four main cooperative cultivation mechanism of entrepreneurship.

As a consequence, with the help of joint efforts from multiple perspectives, the entrepreneurship will become more continuous and complete, and then form a cultivated system of multi-agent collaboration which goes upward spirally.

### KEYWORDS

Entrepreneur; Entrepreneurship; Entrepreneurship cultivation; Multi-agent; Collaboration.



## INTRODUCTION

Since the reform and opening up, China's economy entered a period of rapid growth. In the enterprise make snap to record highs at the same time, there are also a series of far-reaching problem. The rapid development of the enterprise cannot do without the entrepreneurship's lead. But it is lack of the core capabilities, resulting in a large number of enterprise innovation ability is weak, not strong vitality. So, the cultivation of entrepreneurship has become the contemporary social problems.

In recent years, the cultivation of entrepreneurship has been a certain degree of development in different subjects. Universities, society, government and enterprises make the nurturing of entrepreneurship as the focus of the sustainable social economic development in the future. As present, the subjects have deeper research on cultivation of entrepreneurship; have a certain reference for different learners in the entrepreneurship cultivation areas. But there are no study could combine research results of each subject so far. So the research about multi-agent collaboration of entrepreneurship cultivation is scarce.

## LITERATURE REVIEW OF ENTREPRENEURSHIP CULTIVATION

Entrepreneurs are able to have the courage to take risks, and can actively to take each production elements together to create greater economic benefits (Cantillon,1755; Say,1803). In the study of entrepreneurship, entrepreneurship is essentially such as the comprehensive embodiment of entrepreneur's quality, ability, authority and experience (Kirzner, 1973; Schultz,1980; Sombart,1982), its connotation includes the innovation spirit, adventure spirit, cooperation spirit, pioneering spirit and social responsibility of fusion (Wang Dingding, 1999; Li Zinai, 2000; Zhang Yuli, 2004; Li Changshu, 2011). The core of entrepreneurship is the spirit of innovation (Schumpeter, 1934; Drucker, 1985).

With the change of entrepreneurs and enterprise growth environment, the subject and content of entrepreneurship cultivation is not the same (Li Changshu, 2011). Colleges and universities cultivate entrepreneurship like adventure, pragmatic, teamwork and hard-working spirit through enterprise education (Hou Xilin, 2006; Gong Junjiao, 2009; Ying Xiaoyue, 2010; Wang Caixia, 2011). Enterprises build entrepreneurship cultivation mechanism through perfecting entrepreneur selection mechanism, education and training mechanism, incentive and restraint mechanisms and so on (Li Weian, 2003; Chen Jin, Zhu Chaohui, Wang Anquan, 2003). The government to protect the entrepreneurship cultivation mechanism operation effectively by reasonable institutional arrangement (Lv Yongbin, 2004). Society establish business incubator, special advisory institutions, industry organizations and so on to provide some opportunities, education or counseling for employees or social personnel about entrepreneurship cultivation (Burgelman, R. A., 1983; Zu Liangrong, Lu Hualiang, 2011). Fostering the entrepreneurship needs the joint efforts of society, government and market (Lv Aiquan, 2006).

From the above view can be seen, in the different historical background and economic conditions, people define the entrepreneurship is different. Generally speaking, the entrepreneurship is corporate spirit creative, good at adventure. Men who have entrepreneurship can take the existing resources to reintegration configuration, and to bear the risks. He also has forward-looking, could predict the development trend of future social economy, and make full use of the national policy. At the same time, He must have the good moral character and personal accomplishment.

## DEFINITION AND STRUCTURE OF ENTREPRENEURSHIP CULTIVATION

Entrepreneur was first used by the French economist Richard Cantillon (Cantillon, 1755), at his book "Business Survey". He defined the entrepreneur as the person who bears the risk of operation. He thought that every people who engaged in economic activities can be called entrepreneurs, and these people are not able to buy and sell goods at a fixed price; they must be born the price risk in the uncertain market<sup>[1]</sup>. Say (Say, 1803) was the first to recognize the importance of the entrepreneur. He thought the entrepreneur as the production manager who combined all factors of production together and make them more useful<sup>[2]</sup>. Marshall (Marshall, 1890), the new classical economic school founder thought that the entrepreneur is the "with his own insight and leadership, to discover and eliminate imbalance in the market, and create trading opportunities and utility, to indicate the direction of the production process, and make the factors of production more organized"<sup>[3]</sup>.

The concept of entrepreneurship was first proposed by the America economist Joseph Schumpeter (Schumpeter, 1934). He thought innovation spirit is the necessary spiritual elements entrepreneur must have. The entrepreneur is the person ongoing reform in economic structure and do something to old mode of production "of creative destruction, implement production elements to a new organization, is the subject to promote the development of national economy"<sup>[4]</sup>. So, the most important definition of entrepreneurship Schumpeter thought is innovation and practice. This view is supported by Hayek (Hayek, 1937) and Kirzner (Kirzner, 1937) part of the affirmative, they thought the entrepreneur have entrepreneurship must possess the ability of getting information and making full use of resources. Because entrepreneur is the decision maker, so its entrepreneurship embodied in the "decisions have been made in a highly uncertain environment and bear the

consequences”<sup>[5]</sup>. But Knight (Knight, 1921) also mentioned the essence of entrepreneurship in the definition of enterprise existence is “confident or dare to take a risk”<sup>[6]</sup>. America managerialist Druck (Druck, 1985) thought entrepreneurship is the ability to meet the consumer demand through innovation to change the allocation of resources. This requires entrepreneur do positive and effective work to the various factors of production, using innovative means to meet the development needs of the times<sup>[7]</sup>.

In recent 30 years, study on entrepreneurs and the entrepreneurship of our country also gradually developed, such as Zhang Weiyang, Ding Donghong, Wang Dingding, Li Weian, Zhang Yuli and so on. They analyzed from different perspective that important feature of entrepreneurship are innovation, dedication, adventure, cooperation, learning and so on. And they highlight in the future society, the entrepreneurship is the first condition to lead business success and to support the enterprise development.

### **According to our research, constitute the entrepreneurship to roughly five**

#### **Innovation spirit**

Innovation spirit is central to entrepreneurship. The view of Schumpeter’s the theory of creative destruction is entrepreneurs could break the existing market structure and resource allocation continually, implementation of new combination, to create new wealth. Entrepreneurs should dare to challenge the existing achievements and knowledge to find new resource and opportunities, through scientific methods and routes to create new things different from others. They could open up a new market to meet the needs of social development.

Innovation spirit is the power and fountainhead for entrepreneurs doing business innovative, and it is the fundamental characteristic of entrepreneur different from the general manager and the occupation managers<sup>[8]</sup>.

#### **Adventure spirit**

Adventure spirit is the basic quality of entrepreneurship. The real entrepreneurs should have enough courage to break the balance of existing, dare to break the bondage of “too observant of conventional standards”, willing to try new approaches, creating a new utility. For an enterprise, no dare to risk as sailing against the current, falling behind. Because the society is advancing, if one always satisfied, he will be out of the community.

#### **Dedication spirit**

Dedication spirit is the fundamental guarantee of entrepreneurship. The entrepreneur only loves his career with enough dedication that could put one’s heart and soul into work. Due to the situation of our country, many business leaders are not able to give full play to their talent, not innovation, afraid to take responsibility, more afraid to take risk. So for the management of the enterprise is not able to make all-out efforts, does not have enough dedication spirit. Therefore, very few enterprises in our country can be prosperous.

#### **Pioneering spirit**

Pioneering spirit is an important manifestation of the entrepreneurship. If an enterprise has pioneering spirit, he must be tended to in pursuit of opportunities through practice to take the initiative, to lead the trends rather than follow the trend. So compared with other competitors, he shows an enterprising attitude<sup>[9]</sup>.

America management scholar Miller (Miller, 1983) thought, if an enterprise can take the initiative to manipulate the environment rather than passive to react to environment changes, the enterprise leader has entrepreneurial<sup>[10]</sup>.

#### **The continuous self-improving spirit**

The continuous self-improving spirit is a necessary condition for entrepreneurship. The one can be called entrepreneur must have excellent personal ability and quality, such as management ability, communication ability, executive ability, integration ability and so on. But the development of the Times is changing on high speed, the entrepreneur need to continually update their knowledge system, understand the latest trends and national policy. They should perfect personal self-cultivation and moral character that let themselves and enterprise flowing fresh blood constantly. In this way, enterprises could seize the initiative in the market competition and maintain an invincible position.

## **THE DESIGN OF ENTREPRENEURSHIP CULTIVATION MECHANISM**

### **Responsibility of entrepreneurship cultivation with single subject**

This research selected university, government, society and enterprise these four subjects to study entrepreneurship cultivation mechanism. We should first clear understanding what important work every subject made in the process of cultivation. As shown in Figure 1.

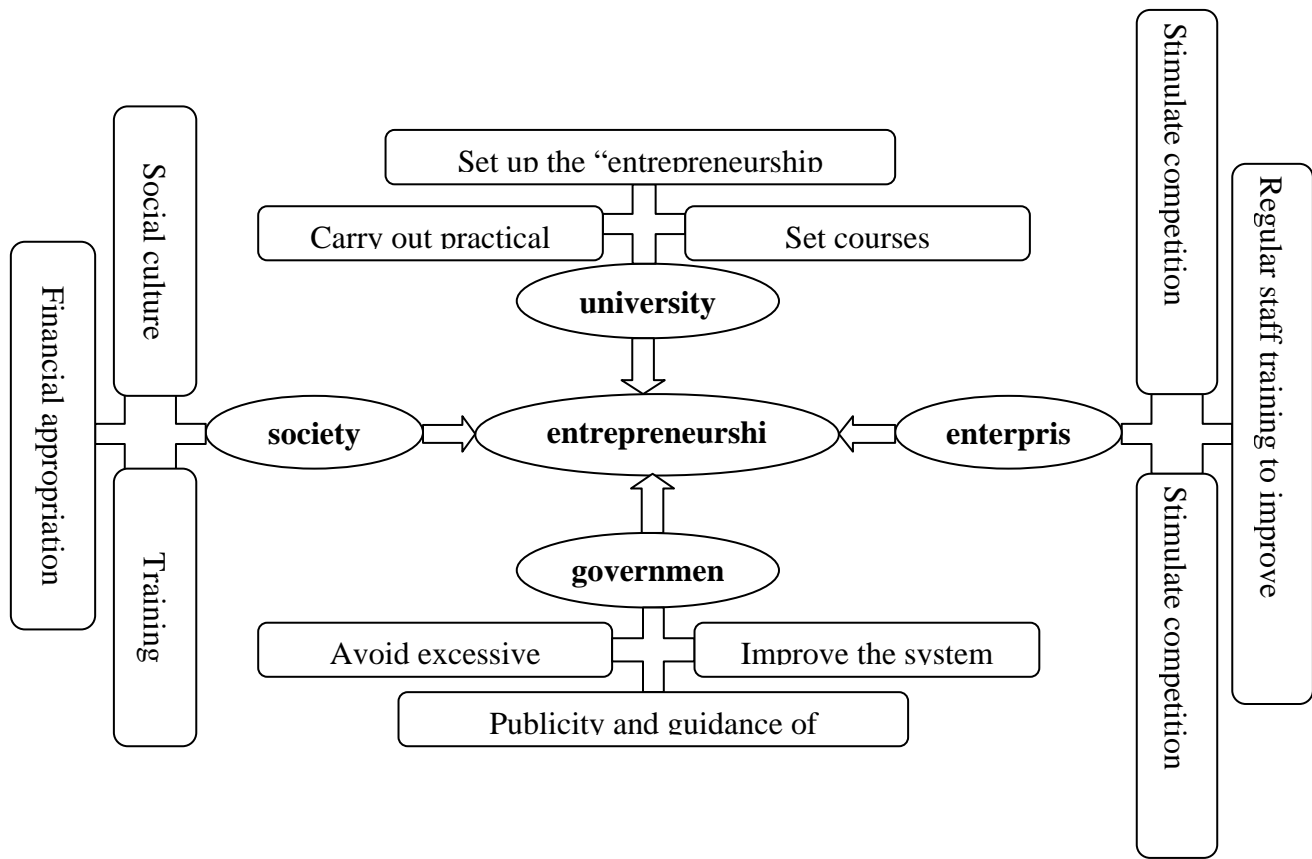


Figure 1 : Single subject's responsibility

The government plays the leading role in cultivating entrepreneurship. If the entrepreneurs have no policy support in the entrepreneurial process, it is difficult to operate. Alfred. D. Chandler found in 1999 that, in building social culture, the government plays a crucial role in forming the entrepreneurship, such as foster personal adventure spirit, the innovation entrepreneurship by overcome the difficulty and the pursuit of personal success<sup>[11]</sup>. Chinese scholar Ding Xiaojing believes that if the government to carry out the cultivation of entrepreneurship from the macro environment perspective, he need from the following four aspects: establish perfect socialist market economy system, cultivation a social culture atmosphere for courage entrepreneurial and failure tolerance, standardize and perfect entrepreneur talent market, perfect the system of property protection and intellectual property system. These studies indicate that, the attention to cultivating entrepreneurship the government pay determines the depth and distance entrepreneurship development. Through the research and summary of previous literature, we think that the government can cultivate entrepreneurship from three aspects: to guide and encourage entrepreneurship cultivation by some support in policy and funds, to establish and perfect the system, standardize the market by forming relevant laws and regulations to build a health and stable environment for entrepreneurs, to avoid excessively intervene and let the other subject play its effectiveness.

In the research system of entrepreneurship, American is the earliest introduced into college education system and further research and perfect. In fact, cultivate entrepreneurship through college and university is the most correct and effective way. After entering in 21 Century, our country study deeper on entrepreneurship and its education. In the “2010-2020 national medium and long-term education reform and development outline” pointed out clearly that we should vigorously promote the entrepreneurship in higher school. An army of academics like Hou Xilin, Gong Junjiao, and Ying Xiaoyue and so on all think that universities need to cultivate students through entrepreneurship education and make it be a very important part of higher education system. We consider that universities to foster the entrepreneurship from three angles: setting entrepreneurship correlative curriculum to lay a solid theoretical foundation for the student; setting up the entrepreneurship education concept that avoid the ideology of “official standard”, cultivate their correct outlook on life and values; carrying out various activities and competition, focusing on mining potential of innovation and entrepreneurship of students, screened mort potential students to training intensively.

Social plays a very important role in entrepreneurship cultivation system. The society is a survival and activity space for broad population, the development direction of the environment also affects the growth path of the public. Zu Liangrong and Lu Hualiang has mentioned in their study of social entrepreneurship, in the past 10 years, some important organizations for cultivating entrepreneurship spring up worldwide, such as special funding mechanism, special consultancy, business incubator, industry organization and so on. These organizations provide such education opportunities or consulting services to people have intention to cultivate entrepreneurship oneself, help them valuable ideas into reality. We think the social could

take three aspects to promote the cultivation of entrepreneurship: rendering attention to entrepreneurship culture atmosphere to bring a harmonious market environment for the growth of enterprises, forming a culture of innovation that encourage adventure and tolerate failure; setting up training consultancy, organize relative activities by the incubator or industry associations to help people who have consciousness of innovation to learn more entrepreneurship; establishing relate financing funding agencies to provide a chance to create a miracle for people have innovation ability but lack of funds.

With the pace of economic transformation in our country, the development of enterprises not only rely on the control of individual entrepreneurs, but also let the entrepreneurship full application in the enterprise operation process to make the enterprise more vitality. Karlsson says the entrepreneur behavior is competitive essentially. Therefore, to cultivate the entrepreneurship should start from the inspire competitive consciousness of the employees. Chinese scholar Chen Jin, Zhu Chaohui and Wang Anquan analyzed the factors affecting the cultivation of entrepreneurship by the model, foster the entrepreneurship is helpful to improve the performance of the company. So the attention to entrepreneurship enterprise pay decided the vitality of the enterprise. Through the research and summary, we think the enterprise can cultivate the entrepreneurship from the following three aspects: through regular training for staff to enhance their opportunity alertness and always keep the mind flexibility, be good at seizing every creative inspiration; stimulating staff the sense of competition to be vigilant in peace time, and making full use of their initiative and creativity to make profits for the enterprise; exploring and enhancing the depth staff's capacity, always encourage them to pay attention to foster entrepreneurship and ability, so that the enterprises and employees could keep the vitality and vigor constantly.

### The design of entrepreneurship cultivation mechanism with multi-agent

Construction of entrepreneurship cultivation system by multi subjects commonly and each subject have an intricate logical relationship with others. This requires that we study between four of the mutual relation and influence, so as to design a mechanism to prompt entrepreneurship spiral uprising.

#### University & government

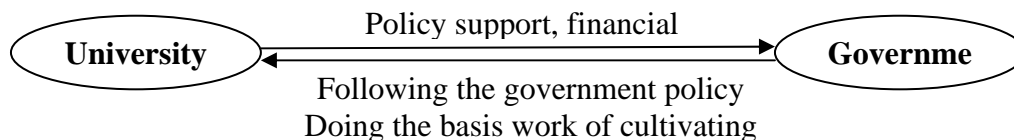


Figure 2 : The relationship between university and government

As shown in Figure 2, the main task of universities is to promote and establish the entrepreneurship concept to students, offer entrepreneurship courses, encourage students to innovate by join some competitions. These all cannot do without the government support in policy and funding. The government formulate corresponding guide about the demand condition of entrepreneurship according to the market environment. The policy target of university is to cultivate students good at innovation and the spirit of risk-taking, so that is to carry out the education of students training.

#### University & society

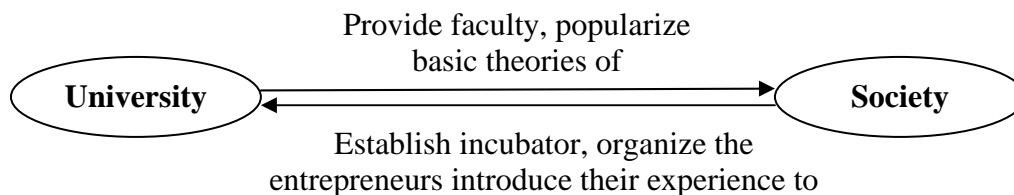
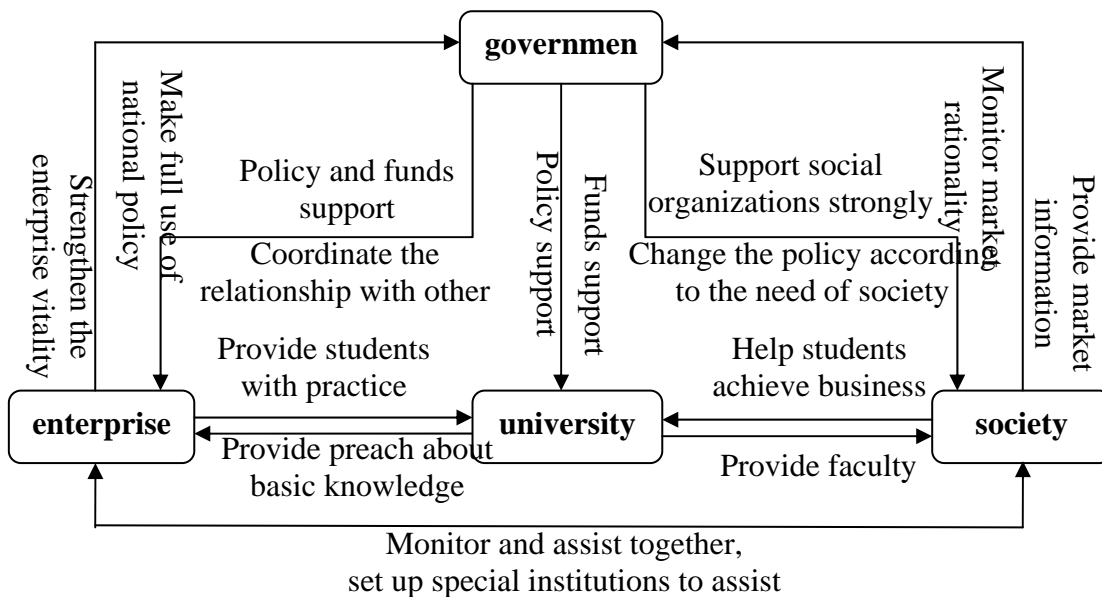


Figure 3 : The relationship between university and society

In the Figure 3 we can see, there is cooperation relationship between society and universities. Society provide a place to cultivate entrepreneurial ability for students, such as sponsoring the university to establish business incubators, providing students with entrepreneurship teach-in and organizing some entrepreneurs introduce their experience to students. Society should actively cooperate with universities to cultivate entrepreneurship. Universities support necessary expertise for social organization; senior teachers could popularize the basic theory about entrepreneurship to social group, to provide basic education working good for the healthy development of the social environment.



As show in Figure 7, enterprises and social organizations are complementary relationship. Enterprises can enhance staff awareness of innovation and entrepreneurship internal, and could provide students with opportunities to practice together with school external. The social organization can provide necessary help for this behavior. Industry association may organize the enterprise employees to learn entrepreneurship, to provide special funds to the comply eligible, to provide the entrepreneurial opportunities for outstanding students. This will be a successful case of enterprises and social organizations work together to respond to the government policy and combined with the university basic education.



**Figure 8 : The design of entrepreneurship cultivation mechanism with multi-agent**

Multi-agent collaboration of entrepreneurship cultivation system couldn't be done by two subject cooperation, but the four subjects connected with each other constantly. Figure 8 design the entrepreneurship cultivation mechanism with multi-agent through a deep research on the subject. University education development as the principal, government lead reform as the principal, and society support as the principal, enterprise execute incentive as the principal. When a subject found problems, he could communication with other subjects timely, forming a spiral development process. In this way it could make the cultivation system not be broken, suspend or incomplete, and the ultimate goal about entrepreneurship cultivation can come true roundly.

**CONCLUSION**

In the era of economic transformation and rapid development, entrepreneurship cultivation is very important, and needs the whole society to mission accomplished. Universities, society, government and enterprises as the support of human social development, although each holds its responsibility, they should work together to foster entrepreneurship into the life of every people.

According the mechanism design figure in the fourth part, we could see the cultivate responsibilities of each subject and the relationship of the four subjects cooperative cultivation. This is represented the core content of the article. The cultivation of entrepreneurship is not a short duration of time will be able to achieve the effect, it need the common concern of the whole society and concerted effort by more subjects. From the micro and macro angle synchronous improvement, our country could go on innovation road vitality. Reform and innovation is the theme of our times, the entrepreneurship is the basic spirit of reform and innovation. We must keep pace with the developed countries, making the entrepreneurship back in the joint efforts of various subjects.

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