

Study on the Factors of High-tech Enterprises

Ruochen Huang*

Business Economy, University at Albany, State University of New York, NY12222, USA

**Corresponding Author's Email: 731486822@qq.com*

ABSTRACT

with the increasingly active technological innovation, and the continuous emergence of new industries and enterprises, the economic structure has produced great changes accordingly. High-tech enterprises apply innovative technologies and achievements to production or management, and through goods and services have become the highlights of economic growth in the new economic era. This paper starts from the current hot issues of high-tech enterprises, namely the formation and growth and development characteristics of high-tech enterprises, and combines the analysis of the influence factors of high-tech enterprises.

Keywords: *high-tech enterprises, development, influencing factors.*

1. INTRODUCTION

The proportion of high-tech industries is increasing and has gradually become a promoter of sustainable development of a country's social and economic economy. At the same time, the rapid formation and development of high-tech enterprises have become one of the main driving forces for social and economic development. This technological innovation and rapid changes in economic structure provide huge space for the formation and development of high-tech enterprise market. Scholars Thomas Peters and, Robert Watman, citing profitability and growth, selected 43 historic and best model companies to conduct in-depth research and form the 7S model of research corporate organizations. 7S model believes that the factors affecting the development mainly include structure, system, style, staff, skills, strategy and corporate culture. In the model, strategy, structure, and system are considered "hardware" for enterprise success, and style, personnel, skills, and common values are considered "software" for successful enterprise operations. So what has caused such a rapid development of high-tech enterprises? This paper tries to use 7S model to discuss the reasons of high development of high-tech enterprises. [1]

2. GROWTH MODEL AND DEVELOPMENT CHARACTERISTICS OF HIGH-TECH ENTERPRISES

The formation and development of high-tech enterprises is the inevitable result of the sustainable

development of high-tech technology. From the perspective of high technology itself, it is a dynamic development process. Due to the multi-dimensional understanding of different angles and different stages, various standards for the identification of high-tech enterprises have emerged. In the process of the growth and development of high-tech enterprises, the growth model and financing mechanism have their inherent characteristics, and affect the development of high-tech enterprises. [2]

2.1. Growth model analysis and construction selection of high-tech enterprises

A good development model is the cornerstone of the healthy growth of high-tech enterprises. The most common high-tech industry development model is: technology leader development model and technology catch-up development model. The development model of technology leaders is represented by the United States, relying on the advantages of the technology field, and following the track of "research-development-engineering management". The development model of the technology catch-up is represented by Japan and South Korea, following the opposite trajectory of the technology leader. That is, the "project management-development-research" mode moves forward. From the perspective of the high-tech transfer process, there are three more typical development models. They are "Silicon Valley Model", "Japan Model" and "Taiwan Model". [3]

With the intensification of competition among enterprises, the development model selected by some

world-famous high-tech enterprises is the new entrepreneurial group model and the innovative growth model around the core capabilities of enterprises. NVG model is a new way to realize the transformation of technology to productivity through the company's venture capital, and then make the marketization of scientific research results. With the establishment of global economic integration and the GEM stock market for high-speed growing enterprises, countries around the world are exploring new development models of high-tech enterprises. [4] This model is one, which integrates high-tech, business incubation, virtual manufacturing, venture capital and capital market, and is known as the "five-element model". At present, the most common development model among Chinese high-tech enterprises is the internal development model and the use of external venture capital model. The ICD model is an enterprise development model initiated by the research and development department, completely allocated by the company, obey the unified instructions of the company, and cooperate by the production, market and other departments. The VC model is formed by the joint investment of different investors or institutions interested in this project, and the investors can invest in several projects that are not related to their own operation, without any external restrictions. The starting point of this model is the return on investment. [5]

2.2. Analysis of financing structure characteristics in the development process of high-tech enterprises

Most of the high-tech enterprises belong to small and medium-sized enterprises. Due to the large business risk, poor credit and material guarantee ability, the weak financing ability, which has become an important reason restricting the development of high-tech enterprises. The collapse of some high-tech companies with considerable development potential is often due to financial problems. In view of the above phenomenon, most countries and regions with strategic vision have adopted the establishment of a venture capital system to make up for this drawback, and have achieved success. Such as the United States, Israel, and Taiwan. The venture capital system has become one of the main channels for high-tech enterprises to raise funds, and the establishment of an effective two-board market seems to be an essential prerequisite. At present, due to the huge oscillation of American NASDAQ, the world's most successful second board market, people's thinking about the financing structure of high-tech enterprises is increasingly deep and refined. Therefore, the changes of high-tech enterprises should be analyzed for the different stages of high-tech development. [6]

American economist Ichak Edison divided the enterprise life cycle into ten periods, including gestation period, infancy period, pedwalking period, youth period,

prime period, stability period and aristocratic period. Among them, the first six periods are the necessary stage for high-tech enterprises from establishment to maturity. [7] Enterprises in each period, in the organizational behavior, goals and other aspects will be different, will appear the unique characteristics of that period. Only by choosing matching financing methods according to the characteristics of various stages can we obtain the funds needed for the development of enterprises to the maximum extent.

In the gestation period, because enterprises are in the stage of exploration and feasibility study, the ability to attract foreign investment is relatively poor, and it is difficult for enterprises to attract the investment of external funds. Therefore, at the present stage, the main body of fund supply should choose entrepreneurs' own funds, government financial funds or enterprises' gratuitous donations.

The childhood and learning period are in the period of enterprise creation. During this period, the enterprises have developed new products, but they have not obtained the market recognition. So companies will face great unknown risks. The main task of the enterprise is to conduct external integration, that is, to strive to promote new products, reduce inventory, and strive to make the product recognized by the market. Therefore, at this stage, try to attract the attention of risk companies or venture capital funds to get their financial support.

In the youth and prime period is generally a better development of high-tech enterprises. At this stage, the enterprise in all aspects of the coordination, the new products of the enterprise have entered the market, and have been recognized. At the same time, the potential and space for development is huge, and the enterprise employees all know the development direction of the enterprise. [8] Therefore, high-tech enterprises at this stage need a large amount of funds to firmly occupy a huge market share, which determines that at this stage, high-tech enterprises can not only win the loans from commercial banks, but also obtain the continuous injection of venture capital companies or venture capital funds. High-tech enterprises through the listing of the second board market, is also one of the main channels for financial support. [9]

High-tech companies in stable times have gained market recognition and have begun to make profits. This characteristic determines that the capital source of high-tech enterprises is mainly loans from commercial banks. However, based on the needs of the long-term development of enterprises, as well as the urgent requirements for new projects and new products, high-tech enterprises can strive for to obtain the stable funds needed for the sustainable development of enterprises by listing in the domestic and foreign capital markets. [10]

3. ANALYSIS OF THE RAPID DEVELOPMENT OF HIGH-TECH ENTERPRISES

3.1. Enterprise strategy analysis

Companies need to adapt flexibly to the external environment. The business strategic plan of traditional enterprises is to make a medium-term and long-term plan first, and then implement it. The plan is not based on the market demand, but according to the superior administrative instructions. What is produced and how much is produced by enterprises are difficult to adjust at any time with the changes of the market. This strategy is more suitable for industries with slow product demand change and long product life cycle. In the market economy environment, in the era of knowledge economy, the strategic plan of high-tech enterprises is closely linked to the market changes, and it adopts the strategy of flexibly adapting to the external environment. The so-called strategic mode to adapt to the external environment refers to an enterprise development strategy mode that flexibly adjusts the enterprise strategy according to the changes of the enterprise external environment. The strategic model adapted to the external environment emphasizes the direct application of Internet technology as a strategic weapon in the market competition to gain a competitive advantage.[11] It follows the principle is to anticipate the uncertainty factors in the enterprise's external environment in advance, to understand the potential needs of customers, so as to actively adapt to the external environment changes. The strategic mode adapted to the external environment has the characteristics of flexibility and strong adaptability, so it is suitable for enterprises with fast change in product market demand and short product life cycle. It is precisely due to the strategic mode of high-tech enterprises to adapt to the external environment, that other aspects of the whole enterprise, including organizational structure, system, human resources and other aspects, have adopted a more flexible way to adapt to the complex and changeable external environment.[12]

3.2. Enterprise structure analysis

Enterprise structure needs to be flat and networked. "The future of corporate organizations will no longer be a pyramid of hierarchical structure, but will gradually evolve to a flat structure." Management Master David Druke's views are always so advanced and accurate. The characteristics of the traditional organizations are manifested as the hierarchical structure. An enterprise, its high-level, middle-level, grass-roots managers form a pyramid-like structure. The chairman and president are located at the top of the pyramid, and their instructions are finally transmitted through the first level of management to the executor; the grassroots information is screened layer by layer to the

highest decision makers. The rapid changes of the external environment requires enterprises to adapt quickly. What the hierarchy with many management levels lacks is exactly a kind of rapid sensing ability and adaptability to the change. How to solve the difficult problem faced by the organization form of the hierarchy in the modern environment? The most effective way is flattening. When the scale of enterprises expands, the original effective way is to increase the management level, and now the effective way is to increase the management range. When the level of management decreases and the magnitude of management increases, the pyramidal organization form is "compressed" into a flat organization form. The reason why flattening is popular in the world: one is that decentralization management becomes a common trend.[13] The pyramid organization structure is suitable for the centralized management system, while the connection between various levels is relatively reduced, the grass-roots organizations are relatively independent, and the flat organization form can operate effectively; second, enterprises quickly adapt to the needs of market changes. The traditional organizational form is difficult to adapt to the rapidly changing market environment, in order not to be eliminated, it must be flat; third, the development of modern information technology, especially the emergence of computer management information system, makes it possible to expand the management range.[14]

3.3. Corporate culture analysis

Companies need an innovative culture. The culture of traditional enterprises is deeply influenced by the incorrect workplace culture of Chinese society, and resists competition and challenges. Traditional enterprises do not take the market, profit and culture as the core competitiveness of enterprises. With the spread of the Internet and the reduction of external transaction costs of enterprises, any business model, methods, products and services taken by enterprises are easily used to be imitated by competitors, resulting in more and more fierce competition. Only by continuous innovation can enterprises meet the demand of the market and survive. The variability of the external environment of high-tech enterprises and the high integration of internal information require that high-tech enterprises must be an organization with a learning and innovative internal mechanism. The development and management of human resources under the condition of knowledge economy requires every employee to become a learner of consciously learning, because the customer demand is more and more personalized and humanized, the product life cycle is greatly shortened, the changing market environment, whether its speed or degree is incomparable to the traditional industrial society. Learning to transform knowledge into real productive forces, and constantly create new knowledge has become the main activity for

people. Developers' potential becomes a central issue in management. The pyramid of rights in learning organizations has been dropped. In learning team organizations, team members are completely equal. This equal atmosphere promotes efficient and open exchange of ideas, constantly collision sparks of wisdom, and become the source of enterprise innovation.[15] Here, people care not about the size of power, but how much knowledge; not the status but the strength of creativity. Through learning, the overall quality of the company can be improved, the company culture can be established and spread, and the company's innovation spirit is further stimulated. When the knowledge of the individual is transformed into the knowledge of the organization, the enterprise has an extraordinary cohesion and a high sense of identity, and finally enhances the enterprise's ability to resist risks. High-tech enterprises pay attention to learning and innovation of corporate culture, which provides a good cultural atmosphere for the rapid development of high-tech enterprises.

3.4. Enterprise system analysis

Enterprises need to be people-oriented, goal and performance-oriented. The development and strategic implementation of enterprises need a perfect system as a guarantee, and in fact, various systems are the concrete embodiment of the enterprise spirit and strategic thought. Therefore, in the process of strategic implementation, we should formulate a system consistent with strategic thinking, prevent institutional mismatch and incoordination, and but also avoid the emergence of systems that deviate from the strategy. People are the biggest asset of an enterprise. In the era of network economy, we must shift the focus of enterprise management to "human-oriented management". High-tech enterprises are high-level and intensive enterprises with human resources, which objectively require enterprise management to focus on the potential of developers, to create conditions for the personality development and improvement of employees, and to achieve self-management.

For example, the innovative system of innovative 3M company, in 3M, as long as a person participates in the development of new product innovation undertakings, his position and salary in the company will naturally change with the performance of the product. Even if he was just a production line engineer, he could become a product engineer if the product entered the market and a product line manager if the annual sales reached \$5 million. This system has greatly stimulated the enthusiasm of employees to innovate and promoted the development of enterprises. High-tech enterprises often adopt many innovative systems, which provide conditions for the rapid development of high-tech enterprises.

3.5. Enterprise personnel analysis

Companies need knowledgeable elites to continuously learn and stay abreast of the dynamics and front-end of industry development. High-tech enterprises as a modern production of high-tech products enterprises, first of all, is a highly human capital-intensive enterprise. The competition of modern high-tech enterprises is essentially the competition of talents, and the strong demand for human capital makes universities and scientific research units intensively become a necessary environment for the growth of high-tech enterprises. The gathering of a large number of high-level talents is the source of continuous innovation of enterprises. Although there are many reasons for all successful high-tech enterprises in the world, whether they have and can retain first-class talents has become a common feature of high-tech enterprises, which is also a strong support for the continuous growth of enterprises. In networked organizations, the task of leadership accordingly becomes coaches, mentors, and resource coordination that assists each employee with their personal and organizational goals.

The realm of management lies to create an organizational atmosphere that promotes employees' continuous learning, and form the core competitiveness of continuous innovation of the organization. Therefore, the full play and stretch of employees' innovation and personality have become the core force of the competition between enterprises. Elastic rules and regulations, strong cultural awareness will integrate the individual behaviors of employees into the corporate goals. Technology, team and customer value are the pyramid of success. And humanized management is like adhesive makes it integrated. High-tech enterprises need passion and innovation, and employees need greater space for free imagination. High-tech enterprises generally respect their employees more than those in other traditional industries, which provides human support for the rapid development of high-tech enterprises.

3.6. Enterprise skills analysis

Enterprises need to take the knowledge of the system integration capabilities as the core. Only from the composition of human capital, it is easy to think that modern high-tech enterprises are a large number of high-tech personnel. There is no denying that modern high-tech enterprises do have a large number of high-tech talents who master advanced technology, but high-tech enterprises are not only a research institute with scientific and technological personnel, it is an enterprise that quickly transforms high-tech technology into products and forms it into a market. Therefore, it determines that high-tech enterprises not only need a steady stream of technology, but also need new entrepreneurs who

constantly transform technology into products and a large number of financial, marketing, process management and human resource management talents with professional knowledge. When looking at high-tech enterprises from this perspective, we can find that modern high-tech enterprises are an integrated system of a variety of knowledge. Although traditional manufacturing enterprises also have a variety of technology and knowledge, we cannot say that it is a knowledge integration. Because, the main component of the growth of the traditional manufacturing industry, resources are not knowledge, but capital and labor.

Although modern high-tech enterprises also need capital and general labor, they do not constitute the leading factor of the wealth appreciation of modern high-tech enterprises, and the leading factor of modern high-tech enterprises is knowledge. The reason why we should emphasize that modern high-tech enterprises are knowledge integration and knowledge enterprises is to remind people that contemporary high-tech enterprises are not only enterprises with a single technology, but also enterprises with reasonable structure of all kinds of proprietary knowledge. Only the integration of various knowledge can realize the appreciation of knowledge and technology transformation. In the popularity of the industry, the combination of first-class management and second-rate technology can be successful, while the combination of first-class technology and second-rate management may fail. This fully illustrates the importance of various proprietary management knowledge in high-tech enterprises. Management skills and technical skills can simultaneously serve to promote the rapid development of high-tech enterprises.

3.7. Enterprise style analysis

Companies need to take teams at the core. One important style of high-tech businesses is team work. Team work is a relatively novel feature of organizational structure changes in recent years. This concept and change The original management project of the source manufacturing industry, which used to do a part of a number of workers independently, is now done by a group of workers, acting as a team. This team group model is formed in the vehicle production and assembly mode in Japan and Sweden, in which the teams with self-management mechanism complete the whole vehicle assembly work. Currently, the service sector, which employs 70% of the US workforce, is trying to use team model-based assembly management to achieve intra-team collaboration. It can also improve knowledge sharing, innovation and work efficiency throughout the organization, while a higher proportion of high-tech companies adopt team work.

Team work requires team spirit. Team spirit has two meanings: one is the ability to communicate with others; the other is the ability to cooperate with people. The

individual working ability and team spirit of the employees are equally important to the enterprise. If the individual working ability is the vertical driving force to promote the development of the enterprise, the team spirit is the horizontal driving force. The effective combination of personal ability and team spirit will promote the rapid development of high-tech enterprises.

4. SUGGESTIONS ON IMPROVING THE DEVELOPMENT ENVIRONMENT OF HIGH-TECH ENTERPRISES

4.1. Accelerate the operation of the macro environment

This requires enterprises to relax their business restrictions, improve the market system, and create a fair competition environment. As a new industry, high-tech enterprises are currently not receiving a high support rate from the outside world, including the injection of capital, market development, the establishment of business mode and so on. Therefore, on the one hand, it is necessary to establish a sound legal guarantee system to ensure its legitimate rights and interests, and also through legislation to regulate the behavior of high-tech enterprises and ensure social order; on the other hand, it can create a good external environment for loose and fair competition for the development of high-tech enterprises.

In addition, tax policies are necessary to be formulated and implemented conducive to the sustainable development of high-tech and private enterprises. In order to encourage the establishment and development of high-tech enterprises, national and local governments have successively introduced some preferential tax policies, which provide a relatively relaxed environment for the development of high-tech enterprises. At the same time, the further formulation of preferential policies to determine high-tech enterprises according to their technical content, is conducive to promoting the technological progress of enterprises and the transformation of scientific and technological achievements.

Finally, we will strengthen government supervision of high-tech enterprises. The development of high-tech enterprises cannot be separated from the support of the government, but also from the government supervision. The government should proceed from the interests of consumers, the prosperity and stability of the market, and the direction of industrial development, restrict and supervise the behavior of enterprises, so as to rationalize, legalized and standardize their behaviors. At the same time, the financial service system should also be improved to provide financial support for high-tech enterprises.

4.2. Establish a good micro-operation environment

First, focus on research and development activities and increase investment in R & D costs. China's high-tech enterprises should pay attention to basic research as the entry point of R & D, and pay attention to the cooperation between high-tech enterprises and universities and institutes. At the same time, we should focus on application research and the development of products and processes. This is not only conducive to the resource allocation of application research and development, but also promotes the improvement of enterprise R & D capabilities, and promote the refinement and flexibility of enterprise technology. And it can expand the market surface and application surface of products, to meet the needs of more market segments. At the same time, we should constantly strengthen the investment of enterprise R & D, strive to build an international research and development system, and enhance the sustainability of industrial development. High-tech enterprises are the engine of a country's economic growth, and RD activities (research and development activities) are the key for high-tech enterprises to generate their core competitiveness, therefore, it is of great theoretical and practical significance to study the RD activities of high-tech enterprises.

Secondly, strengthen the awareness of innovation and form a good social environment to encourage innovation. Enterprises need the whole society to cultivate and advocate innovation culture, strengthen people's innovation consciousness, form a good social environment to encourage innovation, by focusing on the selective introduction of world advanced technology and strengthen independent development, obtain the world's advanced innovation products, promote the formation of enterprise technology innovation system, through the deep understanding of foreign high-tech enterprises, and combined with the actual, realize enterprise system innovation, establish a standard modern enterprise system. At the same time, China's high-tech enterprises should also make full use of their domestic market advantages, land and talent advantages, and pay attention to the cooperation with domestic and foreign factories with strong industrialization or production enterprises within the scope of industrial innovation capacity.

5. CONCLUSION

In conclusion, high-tech enterprises can achieve rapid development, mainly because of the strategic mode adapted to the external environment; flat organizational structure; flexible and innovative system, respect for personnel; both technical skills and management skills; corporate culture, shaping learning and innovative corporate culture. If the enterprise is compared to a person, then the operator is the enterprise brain, operators

to develop the strategy; the structure is the skeleton of the enterprise development; the system is the enterprise nervous system; the skeleton contains various people in the enterprise structure; skills are the enterprise learning to maintain the upgrade; culture is the soul of the enterprise. Among these 7 factors, the hardware factors are more intuitive, easy to operate, easy to attract attention. And the change of software factors is a long time of imperceptible process, easy to be ignored. Because of the organic combination of these seven elements, the successful high-tech enterprises have achieved remarkable achievements and promoted the rapid development of the whole society. Among these seven factors, as long as one factor cannot be continuously coordinated with other factors, according to the principle of "barrel theory", this factor will seriously hinder the development of enterprises, which is also the difficult reform of some state-owned enterprises.

REFERENCES

- [1] Cao Xing, Li Jia. Development characteristics, influencing factors and environmental analysis of high-tech enterprises. Chinese Soft Science, 2003.
- [2] Feng Ying. Analysis of the factors affecting the development of high-tech enterprises in China. Industry and Technology Forum, 2018.
- [3] Jiang Yuanrui. High-tech enterprises will become a new force in capital market innovation. China Business Times, 2021.
- [4] Qin Lili. Research on the sustainable development mechanism and evaluation of high-tech enterprise innovation ecosystem. Hunan University, 2012.
- [5] Wang Yang, Zhang Quan. Innovative fuzzy evaluation method of high-tech enterprises. Computer Knowledge and Technology, 2021.
- [6] Yin Xiangyu. Study on the factors affecting the sustainable development of high-tech enterprises. Hunan University of Science and Technology, 2017.
- [7] Zhu Xiaohong, Zhang Xin, Sun Chun. Study on innovative influence mechanism of — — qualitative comparative analysis based on fuzzy set. Scientific and technological Progress and Countermeasures, 2021.
- [8] Zhou Qun. Research on influencing Factors of Technological Innovation in High-tech Enterprises in China. (Research Dissertation, Southwest University).
- [9] Li Guowei. Research on the Factors influencing the growth of high-tech enterprises. Hunan University, 2006.

- [10] Qiao Xiuquan, Liu Jian, Gao Lin. Research on the influencing factors of R&D investment in high-tech enterprises [J]. State-owned Assets Management, 2009(11):3.
- [11] Wang Zhenpo, Duan Sijie, And Song Shunfeng." A Study on the Factors influencing the location of high-tech enterprises in China: An Empirical Analysis based on 35 large and medium-sized cities." Urban Development Research 27.9(2020):10.
- [12] Zhou Lin. Research on r&d cost management Mode and its Influencing factors of high-tech enterprises. Economic Management Press, 2014.
- [13] Qin Yuanjian, And Zhang Qing." Research on the Influencing Factors and strategies of strategic Transformation of high-tech enterprises." (2008).
- [14] Shen Mingmei. Research on value Evaluation of high-tech enterprises. Diss. Guangdong University of Technology.
- [15] Xie Dongmei." An empirical study on the influencing factors of business model innovation in high-tech enterprises -- based on knowledge perspective." Science Research Management 36.2(2015):10.