

# Analysis of Factors Influencing Disruptive Innovation in High-Tech Listed Companies

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**Abstract:** The purpose of this paper is to study the factors influencing disruptive innovation in high-tech listed companies in China. The study concludes that: the speed of technological innovation and digital business process influence the evolution and innovation of technology and business models from within the enterprise, market demand and policy introduction provide the context for disruptive innovation as a macro-regulatory tool, and value creation is the result of disruptive innovation and the key to judging whether disruptive innovation is successfully achieved.

**Keywords:** High-Tech Listed Companies; Disruptive Innovation; Influencing Factors

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## 1. Research background

The global new scientific and technological revolution and industrial revolution made scientific and technological innovation become the main theme of promoting world development. In 2016, China revised and issued the Measures for the Administration of the Recognition of High-tech Enterprises, which defined the resident enterprises that continue to research and develop and transform technological achievements and form core independent intellectual property rights in the High-tech Fields Supported by the government as High-tech Enterprises, and refined the specific definition of high-tech enterprises. With the emergence of new generation of information technology, biotechnology and new energy technology and their penetration into all walks of life, the development of China's commercial and industrial industries has gradually changed from relying on technology import to independent technological innovation, and has transited to high-tech industries. As the core subject of science and technology power and innovation construction, facing the opportunities and challenges brought by the rapid development of science and technology, high-tech enterprises want to reshape themselves, conform to the development trend of the times and the market, and urgently need disruptive innovation.

## 2. Theoretical Prospects

Understanding the evolution of disruptive innovation theory is an important tool to help companies predict and achieve disruptive innovation. The following will illustrate the innovation perspective of high-tech companies guided by disruptive innovation theory in terms of technology evolution, business model, and value innovation dimensions.

### 2.1 Technology evolutionary perspective

Technological evolution is a prerequisite for disruptive innovation. Chao Wang et al. (2022) define disruptive technologies as a class of transformative technologies that have performance distinct from mainstream technologies, can change the trajectory of existing technologies and have a great impact on society. Tiantian Shang et al. (2022) view disruptive technologies as a binary combination of technological structural disruption and technological functional disruption, both mainly manifested by giving new value attributes to products, creating new perceived value for consumers.

### 2.2 Business model perspective

Business model innovation is the key to disruptive innovation. With big data-driven research background, Zeng (2019) points out that business model innovation can provide product value, scenario value, and personalized value for companies. Kuokkanen (2019) and Cozzolino (2018) argue that business models are key factors in creating competitive advantage for disruptive technologies, and business models prove to be an effective force in achieving disruptive technologies, respectively.

### 2.3 Value innovation perspective

Value innovation is the core of disruptive innovation. Based on the original disruptive innovation model, Christensen also divided the disruptive innovation model into Low-end Disruptions and New-market Disruptions from the perspective of changing the original value net. Low-end market disruption means that based on the original market value network, new entrants create products with the most basic functions to meet the basic needs of users by reducing product costs and prices, and then use multi-level innovation to attract consumers in the high-end market. New market disruption means through the "non-consumption" into "consumption" of the real behavior to subvert the original business value network, and build a new value network, in order to seize the control of mainstream enterprises in the market, as shown in Figure 2-1.

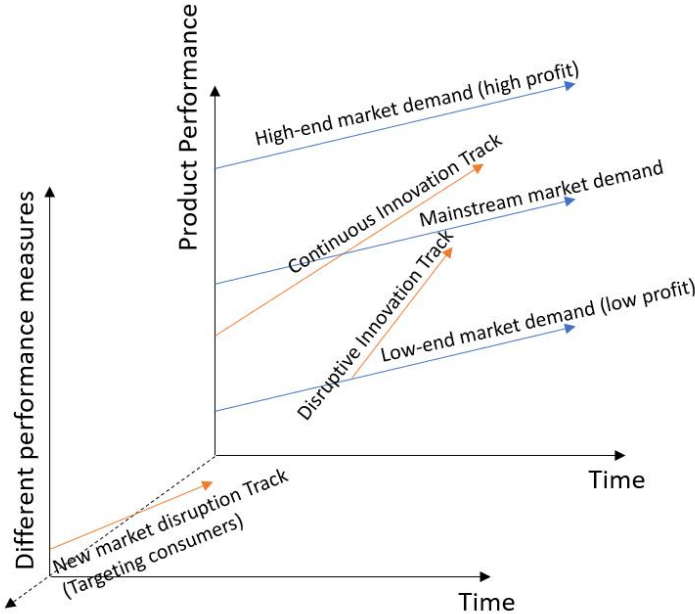


Figure 2-1 New Market Disruption Track

### 2.4 Comprehensive Review

In terms of technological innovation, disruptive technologies were the precursor to the development of disruptive innovation theory. Companies focus on non-mainstream market demand, use new technology to create new products, or give old products new functions to enter the mainstream market, and through continuous technology iteration to cause disruptive disruption in the mainstream market. In terms of business model change, a disruptive business model is the medium that fuels the success of disruptive innovation. Business model change can not only help enterprises integrate resources based on the current market development and create personalized solutions for customers, but also provide a platform for disruptive technologies to convert results, optimize resource allocation efficiency, and help enterprises disruptively innovate. In terms of value creation, value network innovation is the essence of disruptive innovation. Through disruptive technology innovation

and disruptive business model innovation, enterprises build a new value network in non-mainstream markets that is different from the mainstream market, and continuously take measures to make the new network expand and finally cover the original value network to achieve disruptive innovation.

### **3. Factors influencing disruptive innovation**

Combining the previous elaboration on the dimensions of disruptive innovation theory, this paper argues that the factors influencing disruptive innovation of high-tech listed companies can be explored around core, moderating and mediating factors.

#### **3.1 Core influencing factors**

Technology innovation and digital business enablement are core influences that affect the process of disruptive innovation in high-tech listed companies, and can have a direct impact on corporate technology, business models and value creation.

##### **3.1.1 Speed of science and technology innovation**

Technology is the core element for the operation and growth of high-tech enterprises, and technological innovation is an important guarantee for high-tech enterprises to gain lasting competitiveness. Disruptive technologies are generated from the technological innovation of enterprises. As the external environment is constantly changing and the market demand for new technologies is always arising. A higher rate of technological innovation means being able to react faster to changes in market demand, thus grasping the technological first-mover advantage and promoting disruptive technological and market changes.

##### **3.1.2 Digital business process**

The acceleration of the digitalization of the economy and the deepening of the integration of digital technology with the real economy has made the digital economy a new engine for industrial transformation and upgrading in China. High-tech enterprises are an important force in combining technology and economy, and the development of digital economy is leading the disruptive innovation change of high-tech enterprises in China from the perspective of digital technology and business model at the same time. Digital transformation and digital scenarios have produced a large number of disruptive changes, enabling various high-tech unicorns to lead with science and innovation and digital intelligence to collaboratively promote platform development and digital transformation. The development of digital economy provides the background environment for China's high-tech enterprises to carry out disruptive innovation and continuously empower the development of science and technology innovation.

### **3.2 Mediating factors**

Liru Cheng (2013) points out that the reasons for incumbent companies to suffer the devastating blow of "disruption" are mainly from these two aspects: (a) the emergence of revolutionary technologies; and (b) the threat of business model innovation. Therefore, the first task of building value networks is to pay close attention to the emergence of disruptive technologies and business models. In a complete value network, the continuous innovation of technology helps each link in the value chain realize the "value-added" process with lower cost and higher efficiency, the business model plays the role of a platform medium, which connects and integrates the resources in each network node and then distributes them, so that the participants in each node of the network can realize value creation.

### **3.3 Regulating factors**

Disruptive innovation is an innovation mechanism created to meet market demand. A favorable external and macro environment for companies is an important guarantee for high-tech listed companies to successfully carry out disruptive innovation.

### 3.3.1 Changes in Market Demand

In terms of the external environment, a prerequisite for disruptive innovation is the existence of a demand for the corresponding new product in the market or the existence of a demand to be explored. According to Christensen's theory of pioneering innovation, the creation of an initial market must focus on the value of the good, the most important aspect of which is its value to the consumer. Compared with traditional companies, high-tech companies have stronger innovation capabilities and greater advantages in both product performance and customer value, which enable them to have a more accurate grasp of market needs.

### 3.3.2 National policy support

The current policy in China mainly focuses on emphasizing the status of disruptive technologies, increasing the research and development of disruptive technologies, clarifying the direction of disruptive technologies, and promoting the application of disruptive technologies in 4 areas, indicating that the state attaches great importance to disruptive technology innovation in Chinese enterprises. The proposed national policy provides a macro guarantee for disruptive innovation by high-tech listed companies in China and points out the development direction for their innovation paths.

## 4. Conclusions and Recommendations

This paper summarizes the factors that influence disruptive innovation in high-tech listed companies by elaborating the relevant literature on the disruptive innovation realization perspective. The following recommendations will be given in relation to each influencing factor.

First, high-tech listed companies follow the development trend of digital economy and accelerate the pace of technological innovation. Technology innovation and digital economy development are the main drivers of disruptive innovation. High-tech listed companies should always pay attention to changes in market demand, focus on R&D resources for technology innovation, and digitally empower the generation of disruptive technologies and disruptive business models with the whole business system.

Second, high-tech listed companies upgrade their value networks while creating new value networks with user needs as the core. Value network creation is the outcome and core of successful disruptive innovation. Centering on user value and opening up various nodes on the value network can effectively help high-tech listed companies expand their industries and add new elements to their value networks.

Third, the government actively introduces relevant policies to provide a background guarantee for the smooth realization of disruptive innovation by high-tech listed companies in China. The existence of potential market demand and the introduction of relevant government policies are effective guarantees for companies to engage in disruptive innovation. The introduction of favorable government policies can provide a favorable environment for high-tech listed companies to carry out disruptive innovation and help them identify needs, integrate resources and promote development.

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