

V. N. KARAZIN KHARKIV NATIONAL UNIVERSITY

Educational and Research Institute «Karazin Business School»

Department of Management and Administration


**MASTER'S THESIS**

Title: «Improvement of the marketing product policy management system of healthcare institutions»

Completed by 2<sup>nd</sup> year student,  
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Lyu Mingming



Supervisor: Anna KRAMARENKO,   
PhD (Economics), Associate Professor

Reviewer: Olga MELENTSOVA,  
PhD (Economics), Associate Professor

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**APPROVED BY**

**Acting Head of the Department**



Viktoriya TRETIAK

signature

Name, LAST NAME

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**TASK**

**TO MASTER THESIS**

Lyu Mingming

(last name, name of the student)

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Supervisor: Anna KRAMARENKO, PhD (Economics), Associate professor

(last name, name, degree, academic rank)

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3. List of issues that need to be developed

1. To study the theoretical approaches to marketing product policy for healthcare institutions


2. Analyze the marketing product policy in AT medical institutions

3. Develop the recommendations for optimizing marketing product policy in AT medical institutions

#### 4. Work plan

№	Stages of work
1	Approval of the thesis content
2	Preparation of the thesis' first section
3	Completion of the first section according to the supervisor recommendations. Writing the thesis' second section
4	Completing of the second section according to the supervisor recommendations. Preparation of the thesis' third section
5	Completing of the third section according to the supervisor recommendations. Preparation of a report for a scientific conference with a presentation of the main results of the thesis
6	Writing of the introduction, conclusions of the thesis. Making references list
7	Submission of the thesis to the Department of Management and Administration

#### 5. Date of assignment issue October 17, 2023

Student  Lyu Mingming  
signature Name, LAST NAME

Supervisor  Anna KRAMARENKO  
signature Name, LAST NAME

## CONTENT

INTRODUCTION.....	5
SECTION 1 THEORETICAL FOUNDATIONS OF MARKETING PRODUCT POLICY .....	8
1.1 Main aspects in the research on marketing strategies .....	8
1.2 Key concepts of marketing product policy.....	14
1.3 Managerial issues in product policy for healthcare institutions .....	28
Conclusions to Section 1 .....	36
SECTION 2 ANALYSIS OF MARKETING ISSUES IN AT MEDICAL INSTITUTIONS .....	37
2.1 Overview of AT medical institutions.....	37
2.2 Current situation of product marketing in AT medical institutions .....	39
2.3 Analysis of the marketing product policy in AT medical institutions .....	56
Conclusions to Section 2 .....	64
SECTION 3 OPTIMIZATION OF MARKETING STRATEGIES FOR MEDICAL INSTITUTION.....	66
3.1 Basic objectives of marketing strategy optimization .....	66
3.2 Marketing strategy optimization .....	70
3.3 Guarantee measures for optimizing the implementation of marketing strategies in medical institutions.....	80
Conclusions to Section 3 .....	84
CONCLUSIONS.....	85
REFERENCES.....	88

## INTRODUCTION

**Relevance of the study.** With the continuous deepening of China's medical system reform, medical insurance reform, and industry regulation, there have been many new and significant changes in the medical environment, followed by changes in the demand for medical products in the market. In vitro diagnostic products are an important branch of medical products, which have developed rapidly in recent years under the development opportunities created by changes in China's policies and economic environment. However, due to the late start of China's diagnostic industry compared to foreign countries, there is still a gap. Nearly half of the domestic market is still occupied by international giants, while the remaining half is divided by more than 2000 domestic enterprises. The concentration of China's diagnostic industry is low, product homogenization is severe, and competition is fierce. Based on this background, this research selects the top ranked AT companies in China for research and analysis.

With the deepening of medical reform and the opening up of the medical service market, various medical institutions directly participate in the competition of the medical service market, making the competition in the medical service market increasingly fierce. It is imperative for medical institutions to carry out marketing in the medical service market, operate medical services, and do a good job in medical service management.

**Goal of the research** is to develop optimization suggestions for the marketing

strategies of AT medical institutions.

**Research objectives:**

- to define main aspects in the research on marketing strategies;
- to identify key concepts of marketing product policy;
- to reveal managerial issues in product policy for healthcare institutions;
- to analyze product marketing in AT medical institutions;
- to identify marketing issues in AT medical institutions;
- to clarify the basic goals of optimizing marketing strategies in AT medical institutions;
- to provide relevant suggestions for optimizing marketing strategies in AT medical institutions.

**The object of the research** is pharmaceutical marketing, marketing model transformation and innovation strategies for medical institutions under the basic drug system.

**The subject of the research** is marketing organization, and market operation strategy of marketing drugs in AT medical institutions.

**Research methods.** Literature research method: before and during the writing of the paper, relevant literature from both domestic and foreign sources was collected through the China National Knowledge Infrastructure (CNKI) and EBSCO literature resource library for research. The research determines the theoretical framework and research methods, takes optimizing the marketing strategy of AT Company's in vitro diagnostic products as the starting point, using the 4P marketing strategy as the main line. Interviews and survey questionnaires

helped to identify the problems in the marketing strategy of medical institution products, and propose optimization strategies one by one along the 4P main line.

**Practical significance.** Practical suggestions have been proposed to optimize the marketing strategies of medical institution products. Through theoretical frameworks and analytical tools, systematically sort out and seek solutions within the institutional and cultural context of China's national conditions, and explore the development path for domestic enterprises to break through and join the global industrial chain. The research takes optimizing the marketing strategy of in vitro diagnostic products in AT medical institutions as the starting point, analyzes the existing marketing strategies of medical institutions, analyzes the external business environment, explores the competitive environment of products, identifies existing problems in marketing strategies through research, and formulates the optimal marketing plan suitable for the current internal and external environment of medical institutions, guiding them to develop steadily and in the long run.

**SECTION 1**  
**THEORETICAL FOUNDATIONS OF MARKETING PRODUCT**  
**POLICY**

**1.1 Main aspects in the research on marketing strategies**

Foreign scholars mainly focus on the following aspects in their research on marketing strategies for medical products:

(1) Environmental factors have a significant impact on the formulation and implementation of marketing strategies, such as political, economic, and technological environments. Foreign scholars have elaborated on the influencing factors that need to be paid attention to in the medical market marketing: Steg conducted research on 150 medical device companies and found that the new regulatory policies proposed by Europe have a positive impact on the innovative marketing of medical device companies. Therefore, he analyzed the impact of national laws and regulations on the marketing innovation of medical device companies in the European market. The formulation and implementation of marketing strategies are positively influenced by policy factors, as well as constrained by policies. Baker believes that the restrictions imposed by governments on medical products are reasonable [7, p.15].

In addition to the policy environment, the impact of other external

environments should also be fully analyzed, such as the economic and technological environment of the market where the enterprise is located, which can also affect the formulation of marketing strategies. Veselin Dickov proposed that when making decisions in the healthcare market, the impact of environmental factors should be fully considered [15, p.17]. Weinstein A. analyzed that the medical device market is highly specialized and has high technical barriers. When formulating marketing strategies, it is necessary to fully analyze the differences in user technical proficiency, and then differentiate and select target markets. Marcia Angel mentioned that the healthcare industry holds wealth and power, focuses on technology research and development, and has the highest proportion of investment in research and development projects.

(2) Innovative promotional methods and forms can enrich the marketing strategies of medical enterprises. In the formulation and application of marketing strategies in pharmaceutical enterprises, many scholars have elaborated on special promotion methods and forms. Purshpendra Singh analyzed the effectiveness of medical product companies participating in academic activities to enhance marketing through a 4P marketing strategy, confirming the driving effect of promotional methods on the success of enterprise marketing [54, p.22]. Owusu Alfred confirmed the important role of marketing promotion in the marketing process of medical products through innovative forms of marketing promotion. Scholars have also expanded their research on marketing promotion [2, p.58]. Jean Paul Gaudiliere studied the extension of brand building to the concept of scientific marketing when promoting medical products [23, p.69]. The salesperson is the one

who understands customers and products the most in marketing activities. Wazana found that the promotional strategies proposed by medical product salespeople have a decisive impact on their sales performance [59, p.102]. The most important aspect of marketing activities is the customer. When studying marketing strategies, Angulo Ruiz pointed out that detailed and accurate research should be conducted in advance from the customer's perspective to clarify their needs, in order to accurately formulate marketing strategies [4, p.99]. Especially in the marketing of medical products, both their customers and products have special characteristics, and the promotion process needs to be more professional. Chandan, Shashikumar, Nagabushan conducted experimental research, allowing sales representatives of medical products to receive professional training and communicate appropriately with doctors [10, p.50]. The results have shown that it can change doctors' perception and recognition attitude towards medical products [10, p.69]. Amec believes that medical products and services belong to medical consumption and should be based on the traditional 4P marketing model, emphasizing the creation of customized consumer experiences, establishing long-term interactive relationships, and delivering products and services to consumers (Patient) [28, p.35].

(3) The marketing path of medical products should try the Internet. In the digital age, fully leveraging the advantages of technology enables more timely and smooth communication between enterprises and users. When conducting research on marketing strategies, Wei Li proposed using network technology to achieve more efficient communication between enterprises and customers [60, p.155]. Lack of effective marketing communication methods can greatly reduce marketing

effectiveness and even lead to marketing failure. When Hawkins analyzed the reasons that constrain the development of the medical product industry, it was attributed to the emergence of alternative technologies and poor communication with customers [30, p.34].

(4) Properly and reasonably utilize marketing methods. Foreign scholars have long recognized the necessity of marketing and promotion of medical products, emphasizing that the marketing of medical products should use marketing strategies correctly and reasonably, guiding enterprises to use marketing methods reasonably and compliantly to promote the market of medical products.

Ziemann pointed out that the medical industry is increasingly reliant on marketing models, and the cost of enterprise marketing activities is high. Promotion forms include free samples, visits from business representatives, face-to-face product displays, and email promotions [81, p.66]. For special products such as medical products, it is necessary to use promotional methods reasonably and compliantly in marketing strategies. Lisa focuses on medical marketing and advertising regulation, which can avoid inducing unnecessary medical needs and reduce false information induced consumption due to information asymmetry [66, p.101].

The views of foreign scholars include several influencing factors of marketing strategies for medical products, including political environment factors, social environment factors, technological environment factors, etc. Scholars have demonstrated the rational application of the 4P theory in pharmaceutical product marketing strategies, and have studied new methods for promotion and channels. It

can be seen that foreign enterprises have long realized the necessity of marketing and promotion of medical products, guiding them to use marketing methods in a reasonable and compliant manner to promote the market of medical products.

Domestic scholars have conducted research on marketing strategies for in vitro diagnostic products and medical products, mainly focusing on the following aspects:

(1) Policy regulation affects the marketing of in vitro diagnostic products. The deepening implementation of medical reform provides opportunities and challenges for the medical market. Only by formulating reasonable marketing strategies can enterprises adapt to the situation. Nie Haixin, from the perspective of medical institutions, studied how to increase hospital testing revenue and ensure hospital revenue after the initial adjustment of the revenue and expenditure structure system of public hospitals. Using the perspective of game theory, studied a new negotiation model for medical institutions regarding the purchase of in vitro diagnostic products [53, p.36]. This argument helps companies find a win-win entry point between the enterprise and medical institutions at the beginning of marketing, increasing hospital testing revenue while achieving win-win results, in order to ensure long-term cooperation between the two parties. For medical institutions, policy supervision not only standardizes processes but also benefits the people. For enterprises, policy supervision is conducive to the healthy development of the industry. Yin Xiangfei studied the characteristics of the procurement model of the "two ticket system", analyzed the impact of the policy implementation on the circulation field and medical institutions, and proposed

corresponding strategies and measures for the marketing strategies of in vitro diagnostic enterprises [71, p.58].

(2) Optimizing marketing strategies promotes the long-term development of enterprises. The regulation of policies has to some extent limited the marketing profits of in vitro diagnostic products, and upstream enterprises in the industry still lag behind the international level, relying on imports and maintaining high prices. Based on this background, Gu Jinyu studied non price competition strategies, explored how to enhance the core competitiveness of domestic enterprises, conducted in-depth analysis of the market structure and technological innovation of the in vitro diagnostic industry, pointed out the necessity of promoting industrial concentration development, and pointed out the importance of large enterprises strengthening and extending their development upstream of the value chain [25, p.25]. At present, the dispersion of domestic industries will inevitably lead to the emergence of vicious competition in the market, including low-cost marketing, opaque market information, and uncertain product quality. The ultimate victims of vicious competition are users, which will also have a negative impact on the development of large and well-known enterprises in the industry. Based on this situation, some scholars have proposed new marketing methods. Zhou Huiming suggests using transparent marketing to enhance the visibility of enterprise products in response to the vicious competition in the in vitro diagnostic industry [76, p.68].

(3) Develop marketing strategies based on the unique characteristics of in vitro diagnostic products and customers. The medical market is a special market,

with unique users and products. It closely follows the needs of medical institutions and subdivides them to develop reasonable and accurate marketing strategies for medical products. Cai Xiangting conducted a study on the current market segmentation of medical products in medical institutions, and elaborated on the specific application of market segmentation theory in medical product marketing [9, p.60]. In terms of marketing channel construction, scholars have proposed optimizing channels to promote marketing based on the current situation of graded diagnosis and treatment in the medical market. Yang Mingyu took China Resources Shandong Pharmaceutical Company as an example, used a questionnaire survey method to study the marketing situation of the enterprise, used the Five Forces model and enterprise marketing data, proposed optimization measures for the construction of the enterprise's marketing channels, and proposed constructive suggestions such as setting up subsidiary vertical integration and rural primary medical services [66, p.58]. In the context of the rapid development of information technology, some scholars have noticed that the marketing of medical products requires the utilization of information big data. Chen Xiaotong focuses on the functional positioning, research and development ideas of information systems in the marketing of medical device enterprises. By mining and transforming big data into useful information, potential users can be identified in a timely manner.

## **1.2. Key concepts of marketing product policy**

The relevant theory of basic drugs: From a humanitarian medical perspective, drugs are a public welfare product that guarantees human life and health. As long as they can treat and save people, there should not be a distinction between "basic" and "non basic". However, from an economic perspective, the drug resources of any country are limited and cannot meet all medical and health needs. Therefore, in the context of resource scarcity, countries can only prioritize meeting the basic medical and health needs of the vast majority of people based on actual situations, thus giving rise to the concept of essential drugs. In 1977, the World Health Organization officially proposed the concept of essential drugs, which are defined as the most basic and essential medicines that can meet the healthcare needs of the majority of people [68, p.60]. In 2002, the World Health Organization changed the term essential drugs to essential drugs. Although there was no significant change in the literal meaning of Chinese characters, the concept of essential drugs was further expanded and improved in essence. It was redefined as drugs that can meet the health needs of the people, are of reliable quality, affordable, suitable dosage forms, and have sufficient supply.

From the above concept of basic drugs, it can be seen that basic drugs must have several characteristics: first, prevention and treatment are necessary; secondly, it is safe and effective; thirdly, it is easy to obtain and use; the fourth is reasonable price - that is, the price is affordable. This requires consideration of both the availability and economic and social benefits of essential drugs when selecting them. Therefore, in international drug practice activities, essential drugs have

basically played three roles: allocating medical and health resources, slowing down the rise of drug costs, and promoting rational drug use among the public.

Medical marketing theory: drugs are products of a market economy that possess the general attributes of a commodity; however, due to its relationship with the national economy, people's livelihood, and the safety and health of the people, it is also a special commodity. Therefore, drug marketing not only conforms to the basic laws and theories of marketing, but also has certain differences.

Firstly, the types of drugs are complex and their pharmacology is specific. Different diseases are treated with drugs of different specifications and categories, which requires strict adherence to relevant conditions and circumstances when using drugs. Meanwhile, the efficacy of drugs is largely determined by their usage, dosage, and duration of use. For patients without professional knowledge, medication must be taken under the guidance of a doctor or instructions. Therefore, for drug marketing, practitioners must have a certain breadth and depth of medical and pharmaceutical professional knowledge to ensure the smooth progress of their work; secondly, from the perspective of demand, drug demand is a negative demand, and no one is willing to actively consume drugs; only when a person's health condition is affected or threatened, will there be a significant increase in demand for drugs [68, p.102]. Therefore, drug consumption has passivity. This also requires companies to allocate more resources to guiding demand rather than exploring demand when conducting drug marketing; In addition, drugs are closely related to human life and health, and any slight carelessness in quality, use, and other aspects may cause serious consequences. Therefore, there are laws and

policies to regulate the production, operation, use, inspection, research and development, and storage of drugs. Therefore, for the marketing of pharmaceutical enterprises, they are greatly constrained by policy changes and legal regulations, and pharmaceutical marketing activities cannot be carried out freely like other products.

In short, under the dual mechanism of market and policy, marketing activities in the pharmaceutical market not only conform to the general theory of marketing, but also differ from other market laws in terms of operation. This requires enterprises to comprehensively analyze and summarize the relevant theories of pharmaceutical marketing in order to carry out marketing operations.

#### Pharmaceutical Market Segmentation Theory:

The market segmentation theory was proposed by American scholar Smith in the 1950s. Its main solution is a market strategy for enterprises to act within their capabilities and make optimal choices in the face of the contradiction between diversified consumer demands and scarce enterprise resources. It mainly segments the overall market through a certain differential factor, and then selects certain customer groups or markets to provide products and services. In market segmentation theory, the basis for market segmentation - that is, the distinguishing factor of a certain consumer group - is the core of this theory. According to practical summary, market segmentation variables mainly include geographical location variables (geography, climate, transportation, resource distribution, etc.), demographic variables (gender, age, occupation, income, social status, etc.), psychological variables (values, attitudes towards life, etc.), and behavioral

variables (purchase timing, usage quantity, etc.) to operate according to four standards [23, p.60].

Specifically, in the pharmaceutical market, due to the particularity of drugs and the limitations of policies, different enterprises have different market segmentation methods. Generally speaking, there are several classifications: according to the channels of drug distribution, enterprises in the pharmaceutical distribution field can be divided into four levels based on their business strength and coverage - national pharmaceutical companies, provincial capital/central city pharmaceutical commercial enterprises, regional/county pharmaceutical companies, and township pharmaceutical stations.

1. The medical institution market in large and medium-sized cities, namely provincial capitals/central cities, and hospital pharmacies in medium-sized cities, is also known as the first terminal.

2. The second terminal of drugs, namely various retail pharmacies.

3. Grassroots medical and health service facilities mainly include third terminals such as township hospitals/health centers, rural and community clinics, enterprise and school medical service rooms (see Figure 1.1).

Table 1.1 - Basic forms and marketing models of domestic prescription drug market

MARKET TYPE	MARKET DISTRIBUTION	MARKET CHARACTERISTICS	MARKETING MODEL
High end prescription drug market	Third class hospitals in provincial capitals/large and medium-sized cities	Expert guidance and high medical level; Patients have strong economic strength and extensive medical knowledge	Professional promotion or self built channels

MARKET TYPE	MARKET DISTRIBUTION	MARKET CHARACTERISTICS	MARKETING MODEL
Midrange prescription drug market	Hospitals in small and medium-sized cities/counties, specialized hospitals, and hospitals below Grade III in large cities	Doctors have rich knowledge and a high level of proficiency; Patient trust is high	Bottom price contracting
Low end market	Township hospitals/health centers, urban community service centers	Low medical level; Patient prices and advertising are sensitive and easily influenced by others	Office or enterprise base price contracting
Specialized market	Maternal and child health hospitals, specialized disease prevention and control centers, etc	Strong professionalism and low market competition	Agency based model; Specialized clinics
Retail market	Prescription drugs are sold in designated pharmacies, chain pharmacies, and some community health clinics	Low drug price, high degree of homogenization, direct sales, conference marketing	Direct sales, conference marketing

*Source: built by the author*

From the above table, it can be seen that in the prescription drug market, its sales channels are mainly medical institutions in large and medium-sized cities, while the main sales channels in the non-prescription drug market are retail pharmacies. It can be seen that whether divided by drug properties or channels, the division of the drug market can further integrate the above two segmentation theories, and can be further divided into: the prescription drug market (i.e. the first terminal) and the OTC market (the second terminal) and the third terminal market (primary healthcare market).

Table 1.2 - Main characteristics of the over-the-counter drug market

CHANNEL	MARKET CHARACTERISTICS	MARKET STRATEGY
Hospital pharmacy, ward	Recommended by doctors	Joint sales
Chain drugstores	Wide distribution and high consumer awareness	Brand marketing, price war, medical insurance consumption
Monomer Pharmacy	Limited variety, cash transactions	Direct concession

*Source: built by the author*

According to the nature of drugs, they can be divided into prescription drugs and over-the-counter drugs. Prescription drugs refers to drugs that can be formulated, purchased, and used only with the prescription of a qualified physician or assistant physician; non prescription drugs, also known as OTC drugs, refer to drugs that can be purchased and used without the need for a physician's prescription. Therefore, the drug market can be divided into prescription drug market and over-the-counter drug market. From the perspective of medication models, the prescription drug market is mainly concentrated in pharmacies of qualified medical institutions such as hospital wards and pharmacies (see Table 1.1 for details); the over-the-counter drug market is mainly concentrated in the retail pharmacy channel (see Table 1.2 for details).

From an economic perspective, essential drugs are also a commodity that exists under market mechanisms, and their supply and demand are regulated by market laws. Therefore, under a free market mechanism, the supply side of the essential drug market will aim to maximize profits and focus on producing and operating products with high profit margins. This will reduce the production of low

return essential drugs, leading to a vicious cycle of essential drug supply and resulting in insufficient essential drug supply. In addition, without drug regulation, there will still be a market failure phenomenon of "inferior drugs driving out good drugs" [24, p.58]. It can be seen that in the essential drug market, it is necessary to use administrative means - the essential drug system - to manage and regulate it, in order to ensure the availability of essential drugs.

The essential drug system:

Since the World Health Organization (WHO) officially introduced the concept of essential drugs in 1977, the essential drug system has been widely adopted worldwide. The basic drug system has undergone more than 30 years of development, and its scope of influence and demonstration effect have achieved significant results. As the core content of a country's drug policy, the policy goal of the basic drug system is to solve the medical and health problems of the majority of people and ensure that citizens have fair access to basic health care; And this goal must be combined with one's own actual situation. Therefore, in the practice of drugs, a country's basic drug system should not only consider meeting the medical and health needs of the majority of the population, but also make efficient use of the country's limited health resources, achieving optimal economic and social benefits. It can be seen that the basic drug system is the unity of fairness and efficiency.

The Chinese government actively responded to and participated in the World Health Organization's Action Plan on Essential Medicines in 1979, and began to develop the National Essential Medicines System in 1992. However, before 2007,

due to the lack of supporting measures, the National Essential Medicines System had not been truly implemented in practice. It was not until the report of the 17th National Congress of the Communist Party of China proposed the establishment of a national basic drug system that China's basic drug system work began to truly advance [25, p.115]. The Implementation Opinions on Establishing a National Essential Drug System, released in August 2009, marked the official implementation of China's efforts to establish an essential drug system.

The basic drug system in our country aims to improve the current drug supply guarantee system and ensure the safe use of drugs by the people. We have developed comprehensive systems and strategies for the selection, production, procurement, circulation, allocation and use, price management, quality supervision, and other aspects of basic drugs. Specifically, it mainly includes six aspects:

Firstly, the selection of essential drugs mainly revolves around public health and common and frequently occurring diseases among the public. The list of essential drugs is dynamically managed and adjusted every three years, based on the development level of China's pharmaceutical industry and drug application monitoring [26, p.90].

Secondly, pricing of essential drugs. The price of essential drugs must be affordable for the public. Therefore, China's essential drug system has included all essential drugs in the scope of government pricing, and has effectively reduced the price of essential drugs while considering the reasonable profit margin of enterprises. From the current pricing mechanism for essential drugs in China,

administrative intervention has played an important role, while market pricing mechanisms are still being explored and improved.

Thirdly, the production of essential drugs. The production of essential drugs is entirely regulated by the market, but in terms of market access, the country has carried out GMP qualification certification for essential drug manufacturing enterprises. In terms of quality supervision and control, the country adopts a strategy of full variety coverage sampling and full variety electronic supervision for essential drugs.

Fourthly, the procurement of essential drugs. According to the national essential drug system, for essential drugs used by government run medical institutions, online centralized bidding and procurement must be carried out on a provincial basis in accordance with relevant laws and regulations. For procurement activities without a clear procurement entity, there are also clear regulations for the supply entity: in principle, large quantities of essential drugs can be directly purchased from production enterprises, while small quantities of essential drugs can be purchased from drug wholesale enterprises or agency enterprises.

Fifth, the delivery of essential drugs. In the distribution process, the basic drug system stipulates that drug production enterprises selected through bidding, drug trading enterprises with modern logistics capabilities, or other enterprises with conditions shall be uniformly distributed.

Sixth, the use of essential drugs. In a certain sense, the excessive use of essential drugs is a manifestation of rational drug use, therefore the essential drug system proposes that essential drugs should be given priority and used reasonably.

It is a clear provision of the national essential drug system that all primary medical and health institutions must be equipped with and use national essential drugs, while other medical institutions must use essential drugs in proportion [27, p.160].

The basic drug system in our country is a national drug policy launched on the basis of comprehensively drawing on international implementation experience and combining it with the current social reality. It is implemented with the support of a series of supporting policies and measures. Over the past three years of implementation, China's basic drug system has achieved preliminary results, and the rights and habits of the public to use drugs have significantly improved.

#### Basic drug supply chain theory:

From the perspective of the physical links in China's pharmaceutical industry chain, drugs are produced by pharmaceutical enterprises and transferred to urban medical institutions, retail pharmacies, and third-party terminal markets through primary or multi-level pharmaceutical wholesale enterprises. In the production process, pharmaceutical companies are subject to drug regulation and market economy regulation; in the circulation process, pharmaceutical wholesale enterprises undertake most of the functions of promoting the pharmaceutical market, logistics distribution, and channel management. At the end of the supply chain, patients are the ultimate consumers of drugs, which can be obtained from various levels of medical institutions or retail chain pharmacies [28, p.32]. Therefore, from the perspective of the value chain, the transactions and benefit distribution of drugs at each node are completed throughout the entire supply chain. Under the national essential drug system, although the physical nodes of each link

in the supply chain have remained largely unchanged, with the clarification of the supply subject, price control, and configuration and usage requirements, the interests and competitiveness of each node in the supply chain have undergone significant changes.

For enterprises with terminal control capabilities and monopolistic distribution channels, the implementation of the basic drug system has strengthened their discourse power in the production and sales chain, and further enhanced their competitiveness in the distribution process. After the original right of medical institutions to choose drugs was forcibly partially deprived, the promotion ability of pharmaceutical production and wholesale enterprises towards medical institutions further weakened; In terms of logistics distribution, enterprises with strong logistics capabilities, low costs, high efficiency, and excellent services will have a stronger level of competition in secondary and tertiary medical institutions as well as grassroots markets.

Under the promotion of the national essential drug system, the improvement and integration of the essential drug supply chain will further achieve the transfer of industry resources and factors, thereby promoting the concentration and circulation efficiency of the essential drug market.

Marketing concept: Marketing is a purposeful and conscious enterprise activity carried out by enterprises. Through the process of production, manufacturing, communication, exchange, and dissemination of goods, it meets customer needs, brings benefits to enterprises and partners, and even brings value to the entire society [29, p.88]. Marketing mainly refers to the process in which

marketers carry out business activities and sales activities in the market.

Philip Kotler's book "Marketing Management" points out that marketing is a social and managerial process that satisfies individual or collective needs by creating and exchanging products, as well as the value they bring. Based on this definition, it can be understood that marketing has three meanings: firstly, the ultimate goal of marketing activities is to meet the needs of individuals or groups; secondly, the core essence of marketing activities is exchange, and the process of exchange is to actively seek and create opportunities to meet the social and management needs of both parties through the exchange process; thirdly, the smooth completion of the exchange process depends on whether the product and its value can meet the needs of customers, and the level of management during the exchange process also affects the smooth progress of the exchange process [30, p.55]. The American Marketing Association has defined marketing four times, and its definition in 2004 has caused a great response in the academic community of marketing. Its content is "marketing is a series of activity processes and organizational functions that create, transmit, and exchange value in a way that can create benefits for enterprises and stakeholders, while maintaining and managing customer relationships.". This definition has four meanings: firstly, marketing is not solely the responsibility of the marketing department, but is closely related to the responsibilities of various departments of the enterprise, reflecting the organizational function of the enterprise; secondly, throughout the entire process of marketing activities, attention should not only be paid to products and services, but also to the value of their use; thirdly, while meeting customer needs, marketing

activities should also focus on meeting the needs of stakeholders; fourthly, in the marketing process, emphasis should be placed on customer relationships. Enterprises should not only exchange value with customers, but also prioritize managing customer relationships.

The concept of in vitro diagnosis: In vitro diagnosis is an important component of modern medicine, and in vitro diagnostic products belong to an important branch of medical products. In Vitro Diagnosis (IVD) literally means obtaining clinical diagnostic information outside of the human body. The initial diagnosis of diseases by doctors comes from observation, hearing, questioning, and empirical judgment, and further confirmation of diagnosis requires the use of certain means, with in vitro diagnosis being one of the auxiliary methods. Usually, the components inside the human body are within the normal reference range when in a healthy state [31, p.50]. However, when the body experiences abnormalities or illnesses, it can lead to the corresponding organs in the body secreting more or producing less substances. The levels of these substances are not within the normal reference range and can indirectly reflect abnormalities in certain organs or states of the human body. The process of in vitro diagnosis is to add specific reagents to the blood, body fluids, or tissues collected from the human body, and test them with specific instruments to obtain numerical results. By checking whether the numerical range is within the normal reference range, it indirectly reflects the condition of certain organs or states in the human body, thereby assisting doctors in confirming their diagnosis.

In vitro diagnosis and medical testing are organic entities that are distinct and

closely related to each other. In vitro diagnosis can be seen as a tool for medical testing, and medical testing can be seen as the service object of in vitro diagnosis. The common goal of cooperation between the two is to play an auxiliary role in clinical diagnosis. About 80% of the effective information for auxiliary clinical diagnosis comes from in vitro diagnosis, and its cost accounts for less than 20% of the total medical expenses. In vitro diagnostic technology has increasingly become an important component of disease prevention, diagnosis, and treatment.

In vitro diagnostic products include in vitro diagnostic instruments and in vitro diagnostic reagents. The complete in vitro diagnostic industry consists of enterprises engaged in the research and development, production, and sales of in vitro diagnostic instruments and reagents, as well as upstream raw material supply enterprises and downstream demand markets [32, p.44]. Upstream enterprises in the in vitro diagnostic industry mainly supply core raw materials for in vitro diagnostic reagents and core components for in vitro diagnostic instruments. Downstream markets in the in vitro diagnostic industry mainly include testing laboratories in medical institutions, third-party testing laboratories, epidemic prevention stations, blood stations, etc.

### **1.3 Managerial issues in product policy for healthcare institutions**

Although there have been considerable achievements in marketing theory in

the academic community, there is still no unified understanding of the marketing model in the theoretical community. Some people believe that the marketing model is a way and method of selling things mentioned in the aforementioned marketing mix theory (such as direct sales, chain operation, etc.); some people also believe that marketing models are not the same level of concept as the 4P theory. Marketing models are a long-term transaction system that is more regular and guiding (such as the value chain model). It can be seen that marketing model is not a theoretical term. However, this does not prevent various industries from exploring marketing models in practice [72, p.60].

In the pharmaceutical industry, pharmaceutical companies and pharmaceutical operating companies have also actively explored the marketing models of drugs, and their main theoretical achievements are as follows:

Firstly, chain operation is the main development direction of the pharmaceutical retail industry. At present, the main business model of chain pharmacies in China is: pharmaceutical enterprises - chain headquarters - chain branches - consumers. The main advantages of this drug sales model are its wide coverage, fewer circulation links, unified pricing and logistics system, and low comprehensive costs. This not only helps to ensure the quality of drugs, but also facilitates market supervision and management, undoubtedly playing a significant role in promoting the standardized development and resource intensive application of the drug market.

Secondly, key elements in the pharmaceutical marketing process play a decisive role in marketing activities. For pharmaceutical companies of different

scales, their resource endowments and competitive advantages are not the same. Some companies have scale advantages, and their prices become a powerful tool to occupy the market; some companies have brand awareness, and brand marketing becomes their first choice [34, p.87]. Therefore, in terms of product marketing models alone, certain key elements can play a decisive role in marketing activities. In a marketing model that focuses on quality, price, and reputation as key marketing elements for drugs, for large and medium-sized enterprises that have advantages in product quality and corporate brand, the factor combination strategy is to use the "advantages" of quality and reputation to compensate for their "shortcomings" in price; for small and medium-sized general medicine enterprises, they can use the advantage of low prices to compensate for their shortcomings in drug quality and brand. In short, for pharmaceutical production or operation enterprises that have a certain competitive advantage, they must highlight their own advantages in the selection of marketing models in order to effectively carry out marketing practices.

Thirdly, from the perspective of the entire pharmaceutical supply and marketing industry chain, drugs can adopt various marketing models in the circulation field, such as agency based marketing, distribution based marketing, and direct operated marketing. Regardless of the model, enterprises at all levels in the pharmaceutical supply chain undertake different market functions under a certain trading system [35, p.41]. It can earn a price difference between purchase and sales through price negotiations in upstream and downstream transactions, or it can only undertake logistics and distribution functions to earn distribution

commissions. Therefore, from the perspective of profit distribution, the marketing model of drugs is influenced by various circulation links the competitive situation of level enterprises has a significant impact.

In summary, with the continuous exploration and deepening of marketing practices by domestic pharmaceutical enterprises, the pharmaceutical marketing model has accumulated a considerable amount of theoretical achievements, which has important guiding significance for both the theoretical and business communities.

Main issues in product policy for healthcare institutions:

(1) May lead to too many hospitals being burdened with complaints.

The damage caused by medical products to others is not a new problem, and it can be solved by assuming responsibility from producers and sellers through relevant provisions of the Product Quality Law. The promulgation of the Tort Liability Law puts medical institutions in the category of being held liable for compensation for using problematic medical products, without questioning whether they were at fault for the damage. Usually, drugs and consumables

The producers of toxic agents, medical devices, or providers of blood may be too far away from the victim, and requesting compensation from medical institutions is convenient for the victim to claim their rights. Therefore, although the nominal responsible parties are producers, sellers, and medical institutions, in practice, most medical product damage disputes will inevitably point to medical institutions [35, p.66]. Almost all medical services involve different types of medical products, and medical institutions may be responsible for countless

medical products. Therefore, they need to invest huge manpower and resources to deal with these lawsuits, and then engage in recovery lawsuits with medical product producers or blood providers, bearing the risk that producers cannot compensate. It actually serves as the guarantee responsibility for the flawless medical products and the insurance function for patient compensation, which is far from the essential work of medical institutions to save lives and assist the injured, and also contradicts the purpose of establishing medical institutions. There was once a case in Beijing where a certain orthopedic hospital used steel plates to fix patients after surgery. The patients chose cheap domestic steel plates, but the doctors repeatedly advised them to choose imported steel plates with more reliable quality. However, the patients refused [36, p.102]. The cheap steel plates fractured after being implanted into the patient's body. After the hospital underwent a new surgery, the patient sued the hospital for compensation, and the court ruled in favor of the plaintiff. It is worrying that the increase in these costs for medical institutions will ultimately be shared by all patients. If medical institutions refuse to provide necessary medical equipment, many diagnostic and treatment activities will be unable to proceed. Even if it provides all medical products at zero markup, medical institutions may still be in a difficult situation of survival until the healthcare system reform is resolved to address the problem of insufficient funding for medical institutions.

(2) Difficulty in realizing the recovery rights of medical institutions.

From the literal meaning of the article, after a patient requests compensation from a medical institution, they can seek compensation from the responsible

producer [37, p.90]. The medical institution only provides convenience for the relief of the victim and does not assume ultimate responsibility. But in reality, it is far from that simple. The practical result of the "Qi Er Yao" case is just an example. After the court made the final judgment, all the victims involved in the case requested the hospital to fulfill their effective judgment obligations, and all received compensation from the hospital through the execution procedure. Due to defects in medical products causing patient damage, which usually involves a large number of people, huge compensation requests and potential administrative responsibilities are enough to cause the producers of the products to go bankrupt. In this way, the intervention of medical institutions not only leads to the advance compensation of medical institutions, but more importantly, the producers and sellers who should truly bear the responsibility for counterfeit drugs have escaped the responsibility of product liability. The plaintiff's lawyer in the "Qi Er Yao" case also admitted that "Qi Er Yao" has been fined 19.2 million yuan by the Heilongjiang Provincial Drug Administration due to the counterfeit drug incident. The responsible person has been put on criminal trial, and the company has lost its ability to pay. Only hospitals have actual compensation capabilities [38, p.60].

Due to multiple institutional reasons, the priority protection of the right to claim infringement liability as stipulated in Article 4 of the Tort Liability Law is often difficult to achieve, and the recovery right of medical institutions is often superficial. In addition, in practice, a large number of disputes are resolved through consultation between doctors and patients. As producers may not recognize the compensation amount negotiated between hospitals and patients, hospitals find it

difficult to effectively recover from producers.

(3) Sometimes it can exacerbate doctor-patient conflicts.

The contradiction between doctors and patients has become one of the problems currently affecting social stability in China. Due to the imperfect medical system and management of medical services, both doctors and patients, who were originally required to have high trust, have mutual suspicion and developed hostile emotions. A well-designed system should not only resolve disputes in reality, but also help improve existing conflicts, at least not further exacerbate them. Article 59 of the Tort Liability Law requires hospitals without fault to also bear responsibility first, which will inevitably lead to more lawsuits between doctors and patients and may fuel the already serious doctor-patient confrontation. In this way, producers who should be responsible for the defects of defective medical products are left out, while medical institutions that are already overwhelmed are pushed to the forefront of the storm [39, p.51]. Due to the fact that even if medical institutions fulfill their duty of care, it is difficult to avoid being sued, so their efforts to improve service quality seem somewhat futile. After all, under the strict supervision of multiple links such as drug research and development, quality, and operation by the government, it is unnecessary, unlikely, and even absurd for hospitals to re inspect quality issues such as drug ingredients to discover defects in upstream links. Is the drug safety issue reflected in the "Qi Er Yao" case the responsibility of the hospital? The answer should be clear.

(4) Contrary to the direction of healthcare system reform.

The healthcare system in our country is currently undergoing a period of

reform and transformation. The newly introduced healthcare reform plan requires "adhering to the public welfare nature of public healthcare", implementing "separation of medicine and medicine", "separation of for-profit and non-profit", and "strengthening government responsibility and investment". The drawbacks of drug price hikes formulated by the government to compensate for the insufficient financial investment in public hospitals in public institutions have become increasingly apparent in reality. Therefore, the State Council's Key Implementation Plan for the Reform of the Medical and Health System (2009-2011) clearly requires the promotion of the reform of the compensation mechanism for public hospitals, gradually changing the compensation for public hospitals from three channels: service fees, drug markup income, and financial subsidies to two channels: service fees and financial subsidies [40, p.63]. Promote the separation of medicine and medicine, gradually cancel drug bonuses, and do not accept drug discounts. The reduced income or losses incurred by hospitals as a result can be solved through various means such as adding pharmaceutical service fees, adjusting some technical service fee standards, and increasing government investment. Article 59 of the Tort Liability Law officially affirms the phenomenon of for-profit drug sales by medical institutions, which deviates from the direction of medical reform. In addition, although the recognition of sales based on hospital price increases may be somewhat far fetched, with the deepening of medical system reform, the phenomenon of hospitals selling drugs at higher prices may withdraw from the historical stage as a policy. Article 59 of the Tort Liability Law will lose its basis for existence, and its application in practice will completely lose

its legitimacy.

### **Conclusions to Section 1**

Environmental factors have a significant impact on the formulation and implementation of marketing strategies, such as political, economic, and technological environments. Innovative promotional methods and forms can enrich the marketing strategies of medical enterprises. The marketing path of medical products should try the Internet. Optimizing marketing strategies promotes the long-term development of enterprises. Develop marketing strategies based on the unique characteristics of in vitro diagnostic products and customers.

In the prescription drug market, its sales channels are mainly medical institutions in large and medium-sized cities, while the main sales channels in the non-prescription drug market are retail pharmacies. The basic drug system in China aims to improve the current drug supply guarantee system and ensure the safe use of drugs by the people.

Throughout the entire process of marketing activities, attention should not only be paid to products and services, but also to the value of their use. While meeting customer needs, marketing activities should also focus on meeting the needs of stakeholders. In the marketing process, emphasis should be placed on customer relationships.

## **SECTION 2**

### **ANALYSIS OF MARKETING ISSUES IN AT MEDICAL INSTITUTIONS**

#### **2.1 Overview of AT medical institutions**

AT Company was established in 1998, mainly engaged in agency and distribution business, as well as small-scale production. In 1999, the company adopted the strategy of co selling reagents and instruments as its development strategy. In 2003, the company expanded through acquisitions and entered the stage of large-scale production. AT Company realized the importance of technological research and development, so it collaborated with relevant scientific researchers in Austria to develop instruments such as enzyme-linked immunosorbent assay (ELISA) and microplate chemiluminescence (MCL) [41, p.58]. From then on, the company's comprehensive capabilities were truly improved, while also possessing research and production capabilities. After continuous development and strength, the company went public in 2016. In 2018, AT Company developed the first domestic assembly line and obtained a medical device registration certificate. Since then, AT Company has become the first local enterprise in China to provide laboratory fully automated assembly line products.

AT Company belongs to the in vitro diagnostic product manufacturing

industry, and its current main business is the research and production of in vitro diagnostic products, including in vitro diagnostic instruments and reagents. At present, AT Company's products include testing products related to clinical immunology, clinical biochemistry, and clinical microbiology. In the past two years, they have gradually actively expanded their presence in the molecular testing field. The types of diseases that can be detected by the product cover infectious diseases, tumors, diabetes, eugenics, hypertension, heart disease, etc. The related supporting instruments include the automatic chemiluminescence analyzer for clinical biochemical projects, the chemiluminescence immune analyzer for clinical immunology, the automatic microbial mass spectrometry detection system for clinical microbiology, and the automatic assembly line for combination products.

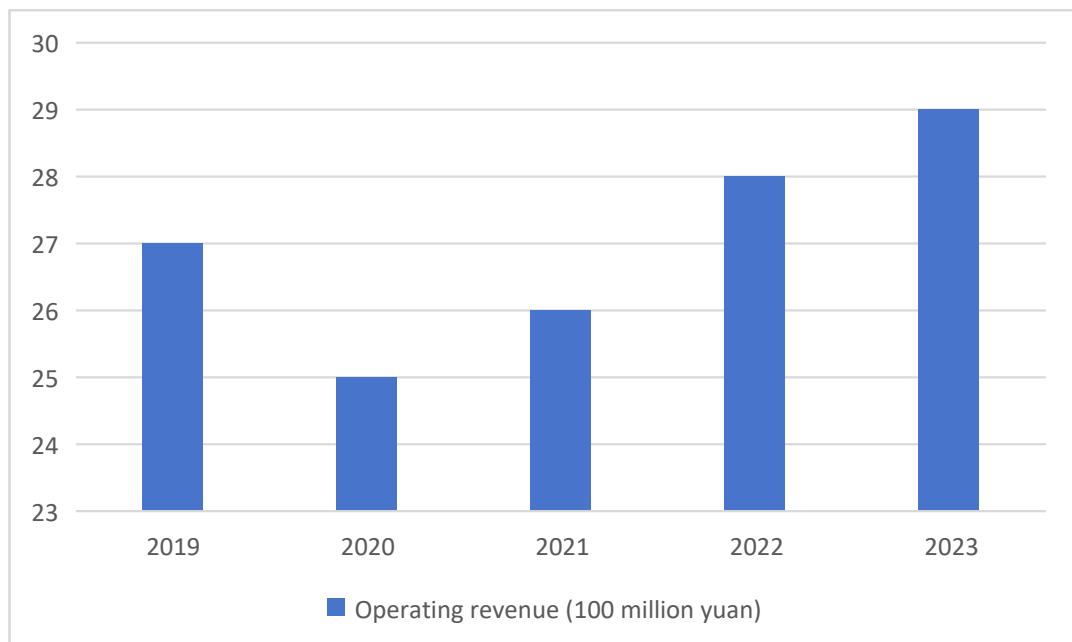


Figure 2.1 - Revenue of AT Company

*Source: built by the author based on [13]*

In recent years, with the continuous increase in market capacity of China's in vitro diagnostic industry, domestic in vitro diagnostic products have good development space, and AT Company's revenue and profit have maintained a good growth trend in recent years. From 2019 to 2023, the compound growth rate of the company's revenue and net profit attributable to shareholders was both 45% [42, p.30].

## **2.2 Current situation of product marketing in AT medical institutions**

The General Manager of AT Company has multiple centers: Marketing Center, Customer Service Center, Administrative Center, R&D Center, Production Center, Finance Center, Quality Center, and Logistics Center. The General Manager directly manages the work of 8 centers. Currently, the company has more than 4500 employees, including more than 1700 sales personnel.

The marketing center of AT Company is divided into six departments in parallel, including the storage and transportation department, sales department, medical affairs department, non clinical sales department, marketing support department, and assembly line consultant:

- The storage and transportation department is responsible for the storage, shipment, and logistics of products;

- The Marketing Support Department is mainly responsible for signing

contracts and processing sales orders;

–The Medical Affairs Department is mainly responsible for marketing and promoting new products to clinical users;

–The non clinical sales department is mainly responsible for product sales with laboratories such as the Centers for Disease Control and Prevention and universities;

–The assembly line consultant is mainly responsible for promoting assembly line products and maintaining customers;

–The sales department is responsible for product promotion and directly oversees sales in various regions, namely provincial sales managers. Provincial sales managers manage regional project managers, technical personnel, promotion personnel, and local distributors.

Table 2.1 - 4P Core Results of Theoretical Analysis

	Fast selling products	Drug
<b>PRODUCTS</b>		
Understanding of the product	Consumers do not need professional knowledge to use general fast-moving goods, and emotional consumption is the main focus.	The use of drugs requires a certain level of professional knowledge, especially prescription drugs, which consumers usually do not possess. Therefore, rational consumption is the main focus.
Product loyalty	Low loyalty, typical of liking new and hating old	After using medication, there is a good loyalty to the medication product. You can consider entering the market first, establishing loyalty, and then raising prices. For example, Madam Pharmacy
Understanding of the product	Widely introduce product features to consumers	Widely introduce product characteristics to store staff and doctors. The efficacy of drugs with the same formula is basically the same, but consumers have little understanding of this
The impact of	Single item sales are	Very few products with sales exceeding 1

	Fast selling products	Drug
individual products	significant, mainly profiting from volume trading	billion
PRICE		
Consumer sensitivity	Consumers are very price sensitive	Consumers have relatively weak awareness of drug regulatory policies
Cost	The proportion of mature wood in the price is relatively large	The proportion of cost to price that is relatively small
PEOPLE		
Consumers	Consumers can completely lead their own consumption behavior	Consumers themselves cannot dominate their consumption behavior Prescription drugs: basically unable to dominate, influenced by doctors; Non prescription drugs: Influenced greatly by pharmacy staff, about 70% of consumers will be guided by pharmacy staff.
Terminal	The salesperson has a certain role to play	The influence of doctors is enormous: OTC salespersons have a significant influence
PROMOTION		
Marketing activities	Market driven, brand influence is crucial	Over the counter drugs: Brand influence is also crucial as it is a key factor for consumers to choose and purchase: Prescription drugs: Starting from December 1, 2005, all prescription drugs are no longer allowed to be advertised on mass media and can only be placed in pharmaceutical professional media. The marketing target of prescription drugs is doctors.
Promotional activities	The focus is on targeting consumers	The activity is mainly aimed at dealers, pharmacies, and doctors: The main focus is on price rebates, which rely on the promotion of dealers, and the important factors that stimulate dealer action are rebates and deductions.

*Source: built by the author*

From the perspective of the macro environment faced by Chinese pharmaceutical enterprises, the pharmaceutical market in China will experience rapid development in terms of politics, economy, society, and technology in the

future. It is crucial for pharmaceutical manufacturing enterprises to fully utilize these favorable factors and accelerate the launch of products with independent technological advantages that meet objective market demands, in order to gain a competitive advantage in the market.

AT Company's Marketing Status:

(1) In terms of products.

AT Company's products, with a good reputation, are mainly focused on the field of microbiology. There are a variety of microbiological products with fast growth and high industry recognition. Its microbial culture medium flat plate series products and fully automatic microbial mass spectrometry detection system have a high market share in China. Another flagship product of the company is the magnetic levitation assembly line, which caters to the market demand of laboratory automation development and is the first in China.

In terms of product categories, AT Company has comprehensive testing products, and its current products can cover clinical immune testing, biochemical testing, and microbiological testing. Due to the impact of the epidemic and the development of molecular biology, the hot spot of rapid market demand is nucleic acid diagnostic reagents. However, AT Company started relatively late in the field of molecular diagnosis and missed the best opportunity to occupy the market. For in vitro diagnostic products, raw materials account for a large proportion of the product cost, and the core technology is too dependent on imports. AT company has begun to attach importance to the research and development of raw materials. After more than a decade of technological research and accumulation, preliminary

results have been achieved. In addition, the company has established development platforms for reagents and instruments in various fields, which not only meet the research and development needs of various products, but also provide technical services to customers.

(2) In terms of price.

The pricing of the company's products is mainly determined by cost, and pricing is limited by the prices of raw materials. At the same time, the pricing of products is regulated and restricted by the government's "two ticket system", "sunshine procurement", and "quantity based procurement" policies, greatly weakening the bargaining power of product sales and compressing the profit margin of products. The company's product sales model relies on dealer sales, which inevitably leads to intermediate premiums.



Figure 2.2 - AT Company number of distributors

*Source: built by the author based on [13]*

(3) In terms of marketing channels.

The market of AT Company includes domestic sales and overseas sales. The current marketing model of AT Company is "distribution oriented, with direct sales as a supplement". Most of the company's product sales activities are carried out through distributors, and there are also a small number of regions that sell directly to end customers through the company. After years of development in the distribution model, the company has distributors all over the country. As shown in the figure 2.2, the number of dealers of AT Company has been increasing year by year, and now the company has more than a thousand dealers, distributed in various provinces and major prefecture level cities across the country, basically forming a marketing network covering the whole country.

(4) In terms of promotion.

AT Company mainly enhances product awareness and brand recognition by participating in academic activities and publishing advertisements in authoritative journals. At the same time, it assists dealers in product promotion and promotion by organizing large-scale academic events. The company has one product promotion personnel in each province to assist the sales personnel of distributors in promoting products to target users. They are responsible for organizing local academic activities, and the final sales of products and the maintenance of cooperative customers are all completed by distributors.

Table 2.2 - PEST analysis of AT Company

Political environment	(1) The Reform of China's Medical and Health System (2) Industrial policies for the pharmaceutical industry: Decision of the State Council on Accelerating the Cultivation and Development of Strategic
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	Emerging Industries, 13th Five Year Plan for National Economic and Social Development of the People's Republic of China Outline
Economic environment	<p>(1) China's economy is growing rapidly, and the level of urbanization is constantly improving;</p> <p>(2) The new normal of economic growth led by supply side structural reform;</p> <p>(3) The continuous improvement of people's income and consumption level.</p>
Social environment	<p>(1) Population factors: In terms of population factors, the aging population in China is one of the important factors affecting the development of China's pharmaceutical industry. Between 1990 and 2014, the proportion of people aged 0-14 in China's total population decreased from nearly 30% to around 15%, with a decrease of nearly half in 25 years. Correspondingly, the proportion of people aged 65 and above in the total population has been continuously increasing, from less than 6% in 1990 to over 10% in 2014, during which time it has increased by more than half;</p> <p>(2) The education level of our country's population is constantly improving;</p> <p>(3) Residents have strengthened their awareness of health, and the aging population is becoming increasingly severe;</p>
Technical environment	<p>(1) The development strategy of science and technology in our country has shifted from "exchanging market for technology" to "independent research and development, independent innovation";</p> <p>(2) The transformation of the technological environment in China's pharmaceutical industry. The level of technology has an extremely important impact on the development of the pharmaceutical industry. In the 1980s, only a few well-known large multinational corporations came to China for investment, with a small number of investment projects and mostly focused on the production of low-level preparations such as ordinary tablets and capsules. During this period, the main strategic intention of Western multinational pharmaceutical companies investing in China was to quickly occupy the Chinese pharmaceutical market for low-level drugs. After the 1990s, China's technological level, including overall technological level and the ability to introduce and absorb technology, has greatly improved. Multinational corporations are gradually upgrading their investment industries in China, and industries such as patented drugs, biotechnology, medical devices, and new formulations are developing rapidly.</p>

*Source: built by the author*

The macro environment of an enterprise belongs to objective factors, and external factors comprehensively affect the operational activities of the enterprise.

At the same time, the country has stricter quality and price supervision for pharmaceutical products. The in vitro diagnostic industry belongs to a high-tech industry that is interdisciplinary, knowledge intensive, and capital intensive. The sales of products are also influenced by market demand, changes in social environment, and other factors [43, p.30]. Therefore, to study the marketing strategies of in vitro diagnostic enterprises, it is necessary to first understand the national policy orientation, technological environment, social and economic environment.

Active industrial policies and healthcare system reform:

(1) Policy benefits.

In the newly formulated "National 14th Five Year Plan and 2035 Vision Goal Outline", the following policy items are related to the in vitro diagnostic products:

- comprehensively promote the construction of a healthy China,
- adhere to prevention as the main focus, reform the disease prevention and control system,
- strengthen testing and testing capabilities,
- strengthen laboratory network construction,
- strengthen chronic disease prevention,
- early screening,
- comprehensive intervention.

(2) Support domestic brands.

The National 14th Five Year Plan and 2035 Vision Outline propose to enhance the independent brand influence of domestic brands, enhance the

competitive strength of domestic brands, carry out domestic brand creation actions, promote China's own technological strength, support the development and growth of ethnic enterprises, help domestic brands promote to the world, join the global industrial and supply chain, and enhance the cross-border business capabilities and operational level of Chinese ethnic enterprises.

(3) Strengthen technological breakthroughs.

The National 14th Five Year Plan and the 2035 Vision Outline propose to tackle original technology, concentrate advantageous resources, and focus on the production and research and development of key components and components in medical equipment, as well as core technology in the field of basic materials. Supporting the integration and development of the industrial chain, large enterprises driving innovation, and small and medium-sized enterprises integrating innovation. Encourage leading enterprises in the industry to cooperate with universities and research institutes in scientific research, and jointly create national industrial innovation centers. Encourage enterprises to increase investment in technology research and development, and implement tax incentives for high-tech enterprises.

(4) Policy regulation.

The policy regulatory measure that caused the greatest sensation in the medical industry in 2016 was the "two invoice system", which refers to the situation where medical products can only be invoiced once from manufacturing companies to distributors, and then from distributors to medical institutions, they can be invoiced again. The introduction of this system has mixed flavors for

pharmaceutical market enterprises. The one vote system is more stringent than the two vote system [44, p.15]. The State Council has made it clear that pilot provinces for medical reform should promote the "two ticket system" throughout the province and encourage the "one ticket system". In the "14th Five Year Plan for National Medical Security" issued by the State Council in 2021, it is clearly stipulated to continue implementing the policy of quantity based procurement and continuously promoting the reform of medical insurance payment methods.

In the bidding announcement, the procurement quantity should be publicly disclosed, and enterprises should consider both the price and their own production energy when bidding. The reform of medical insurance payment methods is to adopt different medical insurance payment methods based on the characteristics of different medical services. For example, inpatient diagnosis and treatment fees are paid by disease type and diagnosis related group (DRG), long-term chronic disease diagnosis and treatment fees are paid by bed day, and grassroots medical diagnosis and treatment fees are paid by head. The plan points out that the policy implementation scope of centralized and volume based procurement of medical consumables will be continuously expanded in a normalized manner. Through nationwide, provincial-level, or cross regional alliance procurement, collaborative promotion and mutual cooperation will be carried out to create a provincial-level centralized procurement platform. The platform is based on medical insurance payment and integrates functions such as bidding, procurement, trading, settlement, and supervision. The plan also mentions the implementation of national pharmaceutical price monitoring, curbing the inflated prices of medical

consumables, and ensuring transparent and low prices for centralized procurement varieties. The Implementation Opinions on Promoting Sunshine Procurement of Drugs (Trial) released in 2020 pointed out that it is required to establish a sunshine procurement mechanism in the procurement process of drugs and medical consumables, and all public medical institutions must conduct sunshine procurement, open transactions, and all purchases on the provincial platform. The implementation of this system effectively avoids possible opacity in the procurement process.

(5) Economic development and industry prosperity: The economic situation is the fundamental environment for industry development, and the development of an industry depends on its macroeconomic environment. On January 17, 2022, the National Bureau of Statistics released China's economic data for 2021 and previous years. The month on month growth rate of China's GDP in the past 6 years has fluctuated between positive 1% and 3%, except for the unstable economic environment caused by the impact of the epidemic in early 2020. The overall trend shows that China's economic development momentum is great, and the country's economic strength is constantly increasing. In 2021, the per capita disposable income of Chinese residents was 35128 yuan, a nominal increase of 9.1% compared to the previous year, and an average nominal increase of 6.9% over the past two years. The increase in disposable income of residents, according to Maslow's hierarchy of needs theory, once people's material lives are met, they must pursue safety needs and an improvement in their spiritual level. People's demand for medical care is no longer limited to the treatment of diseases, but begins to

focus on disease prevention, health management, and higher quality medical precision treatment.

Against the backdrop of rapid economic development, China's pharmaceutical industry has also seen rapid growth [45, p.50]. According to statistics from the National Bureau of Statistics, in 2020, the growth value of China's patent intensive industries was 12128.9 billion yuan, an increase of 5.8% compared to the previous year. The proportion of the added value of patent intensive industries to GDP was 11.97%, an increase of 0.35 percentage points from the previous year. According to statistical data, the added value of the pharmaceutical and medical industry was 1098.4 billion yuan, an increase of 10.1% compared to the previous year, accounting for 9.1% of the composition of intensive industries. The in vitro diagnostic industry is an important branch of the pharmaceutical industry. Although China's in vitro diagnostic industry started relatively late, it has developed rapidly, and in recent years, the market size has maintained a high growth level. According to the statistical data from the Blue Book of Chinese Medical Devices (2021), the market size of in vitro diagnostics in China was 51 billion yuan in 2017, and has grown to 89 billion yuan by 2020, with an average compound annual growth rate of 20.39%. It is expected that the market size of in vitro diagnostics will reach 129 billion yuan by 2022. The development of in vitro diagnostics industry is flourishing [46, p.52].

(6) Health concepts and aging population: Social culture can subtly influence people's consumption concepts and behaviors. In recent years, the consumption level of the Chinese people has been continuously increasing, and the proportion of

medical consumption has also been increasing year by year. In addition, the fast-paced lifestyle pressure of modern people and changes in lifestyle have led to sub health conditions such as high blood lipids and high blood sugar in the population. People have paid more attention to health, and the demand for medical care in the whole society has begun to shift from disease treatment to disease prevention and health management. In addition, the problem of aging population is becoming increasingly serious, and the incidence of chronic diseases among the elderly will increase. It is necessary to prevent and control them in advance and with precision. These demands for medical and health require the support of the in vitro diagnostic industry. The aging population will inevitably lead to the expansion of the pharmaceutical market and the upgrading of the industrial structure, and the elderly population has a great demand for medical resources. These will undoubtedly stimulate the rapid development of the in vitro diagnostic market.

(7) Technological innovation and industrial concentration: The in vitro diagnostic industry belongs to a multidisciplinary and knowledge intensive emerging high-tech industry, which is of great significance for the country's industrial transformation and upgrading, and for enhancing China's position in the global value chain. Technological innovation is the core for enterprises to acquire and maintain competitive advantages [47, p.22]. China's in vitro diagnostic industry started relatively late, and there is still a gap compared to the level of foreign countries. The European Union, North America, and Japan have the world's largest in vitro diagnostic markets, occupying a large market share globally. The

core precision technology for in vitro diagnostic product manufacturing is still controlled by several foreign giants. In recent years, the Chinese government's policies in technology research and development, market response, and policy orientation in the field of in vitro diagnostics have shown the government's emphasis on this field. According to statistics from the State Intellectual Property Administration, the overall number of patent applications related to in vitro diagnostic products in China is on the rise, with a growth rate of 31.5% in patent applications in 2016 [48, p.11].

The concentration of China's external diagnosis industry is low, with small enterprise scale, scattered products, and severe product homogenization. The top domestic in vitro diagnostic companies, Mindray, Mike, Kehua, Meikang, and AT, together account for about 20% of the market share. Excluding international giants who hold about 40% of the market share, the remaining market is divided by more than 2000 small businesses. With the increasingly mature development of the in vitro diagnostic industry, in order to achieve industrial scale efficiency and break through the high difficulty of technological innovation, the future trend is inevitably to promote industrial concentration and achieve upstream migration of the industrial chain. A centralized market helps to improve innovation efficiency, relying on the strong funds and scale of monopolistic large enterprises to achieve import substitution of raw materials.

In the market competition environment, the marketing of enterprises cannot be separated from the industry and operate independently. For AT company's in vitro diagnostic product marketing, the upstream and downstream of the industry,

competitors, substitutes, and potential entrants will all affect the company's marketing ability and revenue. Therefore, analyzing its competitive environment can provide targeted guidance for the formulation of marketing strategies.

#### (1) Supplier bargaining power

The upstream of the in vitro diagnostic industry mainly consists of the core raw materials for in vitro diagnostic reagents and the original parts market for in vitro diagnostic instruments[48, p.52]. The bargaining power of suppliers is mainly demonstrated by analyzing the bargaining power of these two types of raw material suppliers. Due to the late start of China's in vitro diagnostic industry, it belongs to a multidisciplinary and knowledge intensive emerging high-tech industry with a long research and development cycle, large capital investment, low return on investment, and extremely high entry barriers. At present, the upstream raw material market for in vitro diagnostic products in China still relies on imports for the main core technologies, resulting in high prices. Although several domestic companies are currently conducting raw material research and development, only some sub sectors have succeeded, and the overall quality is not high. There is still a gap in product technology and purity compared to foreign products. The quality of raw materials directly affects the quality and stability of products. At the same time, it also faces the problem of unstable or even supply interruption in the raw material supply chain, and suppliers have strong bargaining power [50, p.12].

#### (2) Buyer bargaining power

The purchasers of IVD products include medical institutions at all levels, physical examination centers, epidemic prevention stations, blood stations, etc.,

mainly medical institutions. Due to the particularity of medical institution users, the use of products directly affects the diagnosis and treatment process of patients. Therefore, users may pay more attention to the quality assurance, advanced technology, stable performance and after-sales service of products when purchasing products, but are not particularly sensitive to the price and have a general bargaining power. However, in recent years, with the implementation of the "two vote system", "quantity based procurement", and "sunshine procurement" policies and price adjustments, medical institutions have gradually been influenced by policies when purchasing in vitro diagnostic products, and prices have become an important consideration factor, enhancing their bargaining power.

### (3) Threats from potential entrants

The in vitro diagnostic industry has several major characteristics: high-tech, capital intensive, long return period, and high risk. The in vitro diagnostic industry is a knowledge intensive industry that integrates interdisciplinary knowledge applications such as biology, clinical medicine, and chemistry. It has high requirements for raw material quality and complex production processes. The research and development, transformation, approval, and final market promotion of new products require a significant amount of capital investment. Moreover, technological research and development takes a long time, and the newly developed products require clinical trials. The approval and registration of new products also take 12-18 months, and economic benefits can only be generated after they are truly put into the market. The development of new products goes through a long process, especially for pharmaceutical products, where quality

supervision and repeated performance verification are extremely strict. Any resistance or failure in each intermediate stage may ultimately hinder the product's entry into the market. Such investment poses a high risk for newly entered enterprises [24, p.60]. The marketing of the medical industry requires the establishment of channels, which require screening, maintenance, and follow-up of distributors. It requires a long-term process of adaptation, and new enterprises entering the industry cannot establish a wide and effective channel in a short period of time. For buyers, medical institutions place more trust in commonly used brands, and for new brands that are not well-known, it is difficult to persuade medical institutions to trust them and make purchases.

#### (4) The substitutability of substitutes

The threat of substitutes mainly lies in the substitution of similar products. In vitro diagnostic products, products from different brands and methods can replace the original products. For example, for the detection of homocysteine, in traditional immunofluorescence testing, the substitutes faced by the products are not only other enterprises producing homocysteine. With the development of technology and the application of mass spectrometry technology, the quality of homocysteine can be more accurately detected. Therefore, its substitute is a new type of technological methodological product. The substitute for in vitro diagnostic products is not only similar diagnostic products, but also other diagnostic technologies, such as imaging diagnostic technology, which has become the most commonly used diagnostic method in modern evidence-based medicine.

#### (5) The competitiveness of existing competitors

The current competitive landscape in the in vitro diagnostic industry includes several foreign giants and numerous domestic enterprises. At present, the concentration of the in vitro diagnostic industry in foreign countries is high, and the five major companies are continuously expanding the industry through mergers and acquisitions. The five giants jointly occupy about 41% of the market share of the in vitro diagnostic industry, leading the development of the industry. According to revenue analysis in 2020, Roche, as the industry leader, accounts for 13% of the global in vitro diagnostic market, Abbott accounts for 10%, Danaher accounts for 7%, and Thermo Fisher and Siemens account for 6% and 5% respectively. The growth rate of the in vitro diagnostic market in China is fast, and several international giants are accelerating their efforts to seize the market and occupy the high-end market [32, p.60].

Compared to foreign countries, the concentration of the domestic in vitro diagnostic industry is not high and is still in the growth stage. The market share of the domestic in vitro diagnostic industry is divided into three levels. The first level is foreign giant companies, with an average market share of over 5%. The second level is domestic leading enterprises, with an average market share of 1% -5%. The third level is domestic small and medium-sized enterprises, with an average market share of no more than 1%.

### **2.3 Analysis of the marketing product policy in AT medical institutions**

Through the previous explanation of the company's marketing situation, the company's marketing model is mainly distribution. Based on this marketing model, in-depth interviews were conducted with the management, employees, and distributors of the company's sales department. Distribute survey questionnaires to existing users through sales personnel distributed throughout the country. This chapter summarizes and analyzes the research results of internal employees and external users, integrates internal and external factors, explores the problems that the company faces in the marketing process, and conducts in-depth analysis to identify the causes of the problems, in order to propose optimization solutions.

To understand the current marketing situation of the company, direct feedback from employees is first-hand information, authentic and relevant. Choosing face-to-face and one-on-one in-depth interviews with company employees can guide respondents to explain questions in a simple and easy manner, with a high response rate and strong flexibility. Interviewers can adjust the pace of the interview by observing their demeanor, tone, and micro movements. The interviewees selected representatives from various aspects closely related to the marketing process.

The main interviews revolve around the following aspects:

Question 1: The educational background and current position of the interviewee in the company.

Question 2: How do you view the company's existing sales structure and model?

Question 3: Do you support the company's adoption of online sales channels?

Question 4: Do you think there is a gap between the product and international and domestic leading brands?

Question 5: Is your company's response mechanism for user feedback reasonable? Is it timely?

Question 6: Do you think the pricing process of the product is reasonable?

Question 7: What factors affect product prices?

Question 8: Based on your actual work experience, what kind of sales promotion method achieves better results?

Question 9: Your long-term expectations and suggestions for the company.

The selected interviewees for this interview are 10 representative employees from various stages of AT Company's product sales process. They are classified and summarized based on age, gender, working hours, job position, education level, etc., as shown in Table 2.3 for the sample composition of interviewees.

The original intention of the interview was to gain a deeper understanding of the problems experienced by AT company's internal employees during the marketing process [73, p.12]. The interviewees selected representatives who participated in relevant aspects of the marketing process, with a total of 10 people: 1 national sales manager of the company, 3 regional managers of the company in Hebei, Anhui, and Shandong provinces, and 2 after-sales technical personnel of the company. Based on the company's marketing model of "distribution as the mainstay and direct sales as a supplement", distributors occupy an important part of the company's marketing process. Therefore, on the other hand, the interviewees

selected two cooperative distributor managers and two frontline sales personnel from the company. The survey was distributed to existing customers of the company across the country, including inspection department directors and inspectors, equipment department directors and employees, and bidding and procurement department directors and employees.

Due to the different work areas and locations of the selected interviewees, the interview process lasted for 10 days. National sales managers and regional sales managers conducted interviews in the company's conference room, technical and sales personnel conducted interviews in the user's workplace conference room, and dealer managers conducted interviews in their company's conference room. The interview process delves deeper into the questions layer by layer, and can be flexibly adjusted according to the answers of the interviewee at any time. For example, the interviewee can summarize briefly and guide them to expand their narration. For example, the interviewee can talk freely and make key notes under the ideas of this article.

Table 2.3 - Sample composition of interviewees

	<b>Gender</b>	<b>Age (years)</b>	<b>Working hours (years)</b>	<b>Job position</b>	<b>Education level</b>
Interviewee 1	male	34	11	National Sales Manager	Bachelor's degree
Interviewee2	male	39	17	Hebei Province Sales Manager	Bachelor's degree
Interviewee 3	male	38	15	Shandong Provincial Sales Manager	Master's degree
Interviewee 4	male	45	20	Anhui Province Sales Manager	Junior College
Interviewee 5	male	34	8	Technical backbone	Master's degree

	<b>Gender</b>	<b>Age (years)</b>	<b>Working hours (years)</b>	<b>Job position</b>	<b>Education level</b>
Interviewee 6	female	36	8	Technical backbone	Master's degree
Interviewee 7	male	43	20	Hebei Province Agent	Junior College
Interviewee 8	male	45	19	Shandong Province Agent	Junior College
Interviewee 9	male	30	5	Hebei Province First line Sales	Junior College
Interviewee 10	male	34	10	First-line sales undergraduate in Shandong Province	Bachelor's degree

*Source: built by the author*

After recording the interview process and summarizing the answers, the feedback from the company's sales manager mainly focused on the restrictive effects brought about by policy changes, lack of management by distributors, unclear responsibilities and rights of the marketing structure, serious product homogenization, poor stability of key personnel, and poor marketing and promotion effects. The issues reported by technical personnel mainly focus on untimely response to after-sales feedback, inaccurate grasp of new product performance, slow development speed of new products, lack of attention to user feedback issues, and poor communication effect through hierarchical reporting. The feedback from dealers and frontline sales personnel mainly focuses on price restrictions caused by policy changes, short supply cycles, long payment cycles, high travel expenses of sales personnel, and weak professionalism of sales personnel.

(1) Serious product homogenization

During the interview, the regional sales manager mentioned that there are many companies of the same type and product category, and there is too much competitive pressure. The level of technological development of domestic brands cannot widen the gap [45, p.31]. This situation reflects the user's evaluation during use, which can confirm that the user's recognition of the product's performance, type, personnel, and brand in the questionnaire is only above average. During the interview, the regional sales manager mentioned that there are many companies of the same type and product category, and there is too much competitive pressure. The level of technological development of domestic brands cannot widen the gap. This situation reflects the user's evaluation during use, which can confirm that the user's recognition of the product's performance, type, personnel, and brand in the questionnaire is only above average.

## (2) Multi factor limiting product pricing

The pricing of the company's products entering institutions is influenced by various factors. Based on questionnaire data and cross analysis, this study analyzes the positions of institutions of different natures and levels on the pricing of in vitro diagnostic products. During the product sales process, public hospitals are restricted by government and medical insurance policies, and are more concerned about whether the product prices are reasonable and whether they comply with policy regulations. However, private hospitals and other types of hospitals with ownership can set their own prices without being restricted by medical insurance, and are not greatly affected by policies, resulting in relatively low attention to pricing policy requirements. In combination with the policies introduced by the

country in recent years, such as "sunshine procurement", "two ticket system", "quantity based procurement", and the reform of medical insurance payment methods, as mentioned by the dealer manager during the interview, the implementation of a series of policies has had a significant impact on the sales of in vitro diagnostic enterprises. After implementing the policy of paying by disease, the proportion of inspection fees in medical institutions can be small, resulting in a significant decrease in the sample size of the hospital's inspection department, When the revenue of the inspection department decreases, it is necessary to consider compressing costs [45, p.66]. As a result, the sales prices of in vitro diagnostic products have significantly declined, and there is often a phenomenon where products of the same quality are purchased at a cheaper price, which repeatedly compresses the profit margins of enterprises and distributors. The statistical results show that only 41% of the users surveyed whether it was acceptable for AT company's product pricing to be higher than 10% of the market pricing. From this, it can be seen that AT Company's in vitro diagnostic product price factor does not have an advantage in the competition of similar products.

### (3) Marketing channels urgently need to be optimized

By summarizing and analyzing several questions about marketing channels in the questionnaire, and using cross analysis method to analyze the degree of recognition of AT Company's agent channels by users from different professions, and at the same time, analyzing the degree of recognition of AT Company's direct sales channels by users from different professions. The problem reported by the regional manager is that the company's distribution oriented model reduces

payment pressure, but the company relies too much on distributors, making it difficult to control the communication between end users and the company. However, whether it is a direct sales or distribution model, the company represented by sales personnel, whether personnel quality affects user recognition of their channel, Pearson correlation analysis between personnel quality (attitude and ability, cultural dissemination) of sales channels and user recognition of agent channels.

Table 2.4 - Pearson correlation analysis

		You are quite satisfied with the sales channels of AT Company's in vitro diagnostic products as agents
Do you think the attitude, communication skills, and professional skills of AT company's sales personnel are better than those of other companies	correlation coefficient	0.459***
	P-value	0.000
Do you think the sales/technical personnel of AT company have a good ability to spread their corporate culture	Correlation coefficient	0.530***
	P-value	0.000

\* $p < 0.05$  \*\* $p < 0.01$

*Source: built by the author*

Use Pearson correlation coefficient to represent the strength of the correlation relationship. Specific analysis shows that the sales channels of AT Company's in vitro diagnostic products are relatively recognized, and the correlation coefficient between the better attitude and ability of sales personnel is 0.459, which shows a

significant positive correlation at the 0.01 level [76, p.11]. Therefore, it indicates a significant positive correlation between the two. The correlation coefficient between sales personnel and their ability to spread corporate culture is 0.530, and it shows a significant positive correlation at the 0.01 level, indicating a significant positive correlation between the two.

Conclusion analysis shows that the personal qualities, professional abilities, and company culture of sales personnel who have direct contact with users in the agent channel will all affect the recognition of agents by users. Based on interviews with national sales managers, the company lacks a unified culture, system, and training management for agents scattered across the country. Such loose management may result in users scoring impressions of the company or channels based on the quality level of the sales personnel they interact with.

## **Conclusions to Section 2**

In terms of product categories, AT Company has comprehensive testing products, and its current products can cover clinical immune testing, biochemical testing, and microbiological testing. The pricing of the company's products is mainly determined by cost, and pricing is limited by the prices of raw materials. Most of the company's product sales activities are carried out through distributors, and there are also a small number of regions that sell directly to end customers

through the company. AT Company mainly enhances product awareness and brand recognition by participating in academic activities and publishing advertisements in authoritative journals.

After recording the interview process and summarizing the answers, the feedback from the company's sales manager mainly focused on the restrictive effects brought about by policy changes, lack of management by distributors, unclear responsibilities and rights of the marketing structure, serious product homogenization, poor stability of key personnel, and poor marketing and promotion effects. The issues reported by technical personnel mainly focus on untimely response to after-sales feedback, inaccurate grasp of new product performance, slow development speed of new products, lack of attention to user feedback issues, and poor communication effect through hierarchical reporting. The feedback from dealers and frontline sales personnel mainly focuses on price restrictions caused by policy changes, short supply cycles, long payment cycles, high travel expenses of sales personnel, and weak professionalism of sales personnel.

## SECTION 3

# OPTIMIZATION OF MARKETING STRATEGIES FOR MEDICAL INSTITUTION

### **3.1 Basic objectives of marketing strategy optimization**

Based on the summary of the existing problems in the marketing strategy of AT Company's in vitro diagnostic products in the previous section, this section will optimize the marketing strategy for the problems, formulate basic goals for marketing strategy optimization, segment the in vitro diagnostic market, and optimize the strategies for each of the four aspects of product, price, channel, and promotion along the main line of the 4P theory.

Based on the annual reports of China's in vitro diagnostic industry in recent years, this article analyzes AT Company's position in the domestic diagnostic market. According to the key data ranking of listed companies in vitro diagnostic, in 2018, it ranked 9th in revenue, 1st in net profit, and 320th in market value. In 2020, it ranked 12th in revenue, 12th in net profit, and 3rd in market value. There was no annual report statistics for 2019 [77, p.8]. From the ranking, it can be seen that AT Company is at the forefront of the in vitro diagnostic industry in China, but not the leader. Other leading companies include BGI Gene, Mindray Medical, Daan Gene, Runda Medical, Kehua Biotechnology, and Mike Biotechnology.

These companies have their own advantages in product segmentation, and their industry concentration is relatively low, failing to achieve a dominant monopoly trend. The decline in AT Company's revenue ranking in 2020 is a wake-up call, and the company has to pay attention to market marketing optimization, identify reasons, and optimize and improve.

As a leading enterprise in domestic in vitro diagnostics, AT Company can see the characteristics, marketing practices, and specific marketing behaviors of this type of enterprise in its marketing strategy analysis, which all affect the thinking framework of enterprise managers [42, p.19]. When we study the optimization of marketing strategies for this type of enterprise, it is also exploring how the enterprise needs to be optimized, how to support its changes, and how to formulate actionable optimization paths.

The basic goals of optimizing the marketing strategy of AT Company's in vitro diagnostic products can be summarized into points:

(1) Reasonable layout.

From the analysis of various factors in the current marketing strategy, it can be seen that the internal coordination mechanism of AT Company needs to be improved. Through the formulation of optimization paths and the support of various guarantee measures, this section strives to collaborate with multiple departments and improve internal efficiency.

(2) Balanced development. From the decline of the company's operating revenue in 2020 and the development of COVID-19 epidemic in 2020, it can be seen that AT company does not have an advantage in the field of molecular

diagnostic products and lost the best opportunity to make profits. Optimize the market response mechanism of AT Company, pay attention to grasping market competition dynamics, scientifically layout, and develop product lines in a balanced manner, avoiding any opportunities to expand the market.

(3) Management optimization [36, p.10]. The optimization of marketing strategies is not only the responsibility of the marketing department, but also the internal optimization and enhancement of the entire enterprise. The recognition and support of the management team, the allocation and guarantee of internal advantageous resources, and the improvement of internal efficiency ensure the sustainable optimization of the enterprise.

(4) Market demand prediction. In vitro diagnostic products belong to medical products, and their ultimate users are medical personnel. The ultimate impact is on the diagnosis and treatment of patients.

Therefore, the special nature of the product market determines that the direction of its production and research is influenced by the forefront of the medical field [61, p.12]. AT company needs to achieve demand prediction in advance in product development, that is, to comply with the latest clinical diagnosis and treatment guidelines, study clinical needs, and predict market demand in advance, undertake product research and development and production to seize market opportunities.

In the market, different customer groups have different needs, corresponding to different product marketing plans. Segmented variables can be a single variable or multiple variables, depending on factors such as product and marketing

objectives:

(1) Conduct market segmentation. The customer group variables of AT

Company include:

–Customer categories: medical institutions, third-party testing institutes;

–Customer nature: Public hospitals, private hospitals;

–Customer level: tertiary hospitals, secondary hospitals, hospitals below secondary level;

–Customer regions: First and second tier cities, third tier and below cities, remote areas cities, towns and rural areas.

At present, AT Company's market segmentation is mainly based on sales experience. In the future, a customer market segmentation mechanism can be established, with unified national sales segmentation rules. Key customer variables can be combined to describe the characteristics of segmented markets.

(2) Select the target market.

Almost half of China's in vitro diagnostic market is occupied by foreign giant brands, especially in the high-end market of tertiary hospitals. Domestic enterprises want to compete with foreign enterprises, and their product technology does not have an advantage [32, p.32]. However, they can rely on national policy preferences, fully utilize the guidance of national support for domestic enterprises, reform of medical insurance payment methods, and implementation of government procurement policies are both restrictions and opportunities, and utilize the leading resources of their own brand in the domestic industry.

(3) Maintain good relationships with the government's medical insurance

department, predict the cooperation mode and scope of different customers based on the different payment methods of different institutions in the government's medical insurance, evaluate the risk level, and then make target market choices based on the company's different product characteristics.

(4) Conduct market positioning. The top few companies in China have similar strength, and it is difficult to widen the gap in terms of technology level and product prices. However, each company has its own advantages in specific fields, and AT Company needs to focus on its own advantageous products and combinations. Based on factors such as the geography, population, and level of medical institutions, list the potential needs of different institutions, determine business goals based on the company's own strength, provide personalized service design, and carry out differentiated key marketing.

### **3.2 Marketing strategy optimization**

Based on the above explanation, the problems in AT Company's in vitro diagnostic product marketing strategy have been identified. Based on the analysis of the reasons for the problems, measures to optimize AT Company's in vitro diagnostic product marketing strategy are proposed from four aspects: product, price, channel, and promotion [56, p.5].

(1) Improving product quality with research and development as the core.

- Enhance research and development capabilities. Based on the gap between AT Company and several other leading companies in China, but with a leading position in the industry, several well developed domestic enterprises cannot widen the gap in technology, and there is still a gap in core technology compared to foreign enterprises. Therefore, the homogenization of similar products in the domestic market is more severe. Some small enterprises with poor product quality compete maliciously by lowering product prices in order to seize the market. This phenomenon is not a virtuous cycle for the development of domestic enterprises. AT Company should break through the encirclement with products as the core, regard scientific research and academia as the main culture, and enhance the research strength of the enterprise as the main development, striving to become a representative enterprise that improves the competitive situation in the domestic industry.

- Seize the support of national policies and develop high-end medical equipment. Grasp the rapid review and approval mechanism opened by the country for medical devices. National policies support leading enterprises in the industry to collaborate with higher education institutions or research institutes, collaborate with upstream and downstream enterprises in the industry, and jointly build national level industrial innovation centers [63, p.13]. Inspired by policies, AT Company, as a leading company in the industry, should take the lead in establishing scientific research cooperation with research institutes and universities, drive enterprise innovation through academic research, seek cooperation and co construction with upstream enterprises through new research models, and actively

attract high-precision and cutting-edge talents to join, Including talents who have returned from studying abroad, and the added value of foreign knowledge flowing into enterprises. Optimize the management process of the company and emphasize the process management of research and development innovation. Emphasize R&D investment from the company's core resources and adjust the proportion of investment. Emphasize research and development innovation from the company's cultural philosophy, implant innovation awareness into the company's corporate culture, and create a research-oriented emerging enterprise. Improve quality and efficiency, strengthen internal process optimization within the enterprise. Based on existing users as advantageous resources, the research and development of products and their promotion to the market are self tested and qualified, while the use of products by users is tested by others [64, p.30]. When problems are found and feedback is given to the company, it is the first-hand resource. The after-sales department is responsible for identifying and solving problems on site when users use the products. The company should establish a mechanism to encourage users to provide feedback. After the after-sales department receives the problems, it analyzes and summarizes them and reports them to the R&D department as soon as possible, Make full use of user feedback on product issues, identify blind spots in the product development process at the time, guide future development processes, and timely update and replace products.

- Combination sales of assembly line products. AT Company has the first maglev assembly line in China, which caters to the trend of modern laboratory automation development. The company aims to promote the advantages of flexible

and versatile assembly line products, free combination, and localization, and design integrated biochemical and immune whole process assembly line products for large hospitals, freeing the hands of staff. For small and localized hospitals, the company will design simple and precise assembly lines, and sell reagents in combination with instruments to promote the development of full process automation [10, p.8]. The front-end pre-processing and back-end sample automatic built-in low-temperature refrigerator processing of AT company's assembly line have not yet been implemented. The fully automated assembly line of international giant Roche has achieved full process integration of front-end and back-end processing. AT company is accelerating the improvement of its assembly line products, maintaining the reputation of being the first assembly line in China, so that domestic products can compete with international standards. Balanced development of products. From the decline in AT Company's revenue rankings in 2018 and 2020, it can be seen that AT Company's molecular diagnostic products did not seize the market expansion brought about by the changes in the epidemic. Since the outbreak of the epidemic in 2020, the country has gradually required hospitals at all levels to establish nucleic acid testing laboratories. With the support of government funding and the market demand for epidemic prevention and control, hospitals of all sizes across the country have gradually established nucleic acid laboratories, A large amount of equipment and reagent reserves have been purchased, which provides a great development opportunity for many companies with solid molecular diagnostic technology. For example, Shengxiang Biotechnology, in just one year, has jumped to become the net profit ranking first

of in vitro diagnostic listed companies [5, p.102]. AT Company missed out on a large customer market due to its late involvement in molecular diagnostics. Huada Gene and Daan Gene, which are also ranked at the forefront of AT Company, have balanced development in their product lines and firmly seized opportunities to defend their positions in the market during the epidemic. This is a wake-up call for AT Company[11, p.51]. The company's product layout should achieve balanced development, while also not forgetting to supplement the research and development of weak products.

(2) Open up sources and reduce costs, adjust product pricing.

In recent years, under the major policies of medical reform, with the implementation of "sunshine procurement" and "two ticket system", various enterprises have faced the survival problem of repeatedly declining product sales prices and compressing product profit margins. The development of the industry is facing difficulties, and AT Company is in such an industry dilemma. Firstly, open source is necessary. With the policy trend of "quantity based procurement", the reform of medical insurance payment methods, and even the development of the "two ticket system" towards the "one ticket system" trend, the most core bottleneck lies in the government [78, p.5]. The medical insurance payment of medical institutions is constrained by the government's medical insurance department, and the procurement of medical consumables is constrained by the medical insurance department. As a leading large enterprise in the industry, AT Company should grasp the political direction early and actively apply for exchanges with local government medical insurance departments. By establishing good relationships and

prioritizing local policy dynamics, one can gain a dominant position in market activities [22, p.50]. The 14th Five Year Plan encourages enterprises to increase investment in research and development, and implements tax incentives for high-tech enterprises. AT Company should seize policy advantages, seize opportunities in technology research and innovation, and strive to obtain national policy support as much as possible, enjoy relevant tax incentives for national support for scientific research and innovation, and reduce the tax costs of enterprise research and development.

It is necessary to throttle. Conduct cost management for enterprises, create more benefits for the company with limited resources, establish a cost management organization, and conduct cost accounting for every aspect of production to avoid unnecessary waste of non core resources. In recent years, AT Company has focused on the research and development of raw materials to reduce the cost of raw material procurement, and has achieved remarkable results in the field of diagnostic antigen antibodies [23, p.63]. The company independently develops and produces raw materials, reduces the price difference in purchasing raw materials, lowers product costs, and gains a price advantage in peer competition.

As the company's products circulate in the market, they transition from new products to mature products as the years of listing increase. With the accumulation of experience, the company's production costs decrease, the market has opened up, and distribution costs also decrease. At this time, AT company can re price the product, use low prices to stimulate further market expansion, achieve the highest sales growth of the product, and at the same time, low prices can also suppress

competition. Set up a dynamic price adjustment mechanism to dynamically adjust products, making product sales and prices more flexible. Set some variables to affect price adjustments, such as product launch time, product sales, and prices of similar competitors.

(3) Unified management and exploration of diverse new channels.

For the sales channels of medical products, they are mostly agent channels, because medical products are different from ordinary products sold. After the sales activities of medical products are completed, there are additional services that require personnel and time to follow up, including after-sales service, product distribution service, and user relationship maintenance. However, the production enterprises of general medical products do not have enough local grassroots manpower and management energy for customers, And agents are usually local companies with abundant network resources, who are well versed in local policies and are more likely to enter the market.

Table 3.1 – Different promotion models

<b>DISTRIBUTION MODEL</b>	<b>DIRECT SALES MODEL</b>
1. Dealers have more regional resources and wider customer coverage	1. Enterprises have access to terminal customer resources, resulting in higher customer loyalty
2. Distributors bear the financial risks caused by customer payment terms on behalf of production enterprises	2. It is easier to obtain profit margins
3. Distributors provide precise regional logistics distribution and services, reducing logistics and service costs for production enterprises	3. Favorable sales policy implementation for enterprises
4. Reduce the pressure of terminal promotion for production enterprises	4. Higher input-output ratio for customer marketing promotion

*Source: built by the author*

The marketing model of AT Company is "distribution oriented, with direct sales as a supplement". Currently, the company is facing common problems with this marketing model, namely insufficient terminal control and difficult control of intermediate premiums [71, p.6]. In addition, AT Company does not have unified management, training, and performance for agents scattered throughout the country. The professional and technical abilities of agent sales personnel are not supervised, and they are not familiar with the corporate culture and lack sufficient promotion. AT company needs to optimize internal management processes. Establish a dedicated organization to manage agents in various regions, including selection and assessment of agents, unified performance, pricing supervision, various training (medical knowledge, sales knowledge, product characteristics, company culture, social etiquette) and assessment for sales personnel under agents. Only those who pass the assessment are eligible to receive AT company products for sales, maintaining consistent quality and culture among personnel representing AT's image across the country.

Developing and attracting pharmaceutical companies with customer sources to join the company as agents. After the reform of the medical system, many pharmaceutical companies have switched to acting as agents for other medical equipment. These pharmaceutical companies have a network of contacts in medical institutions within the local area for many years, which is worth exploring by the company. Develop online channels [72, p.14]. In the era of information big data, AT Company should fully utilize its information system for sales, and connect the ordering system of the company headquarters with the procurement platform of

user units. Firstly, users can schedule order quantities in advance to reduce intermediate inventory levels. Secondly, for near expiry products scattered across the user end, the company's main platform can coordinate turnover and reduce resource waste. Thirdly, add a panoramic VR exhibition of device products on the official website, allowing users to browse products in the system more intuitively and freely, as well as the company's product catalog, product parameters, product advantages, and information on products under development, to achieve better product promotion effects.

(4) Flexible and innovative marketing and promotion forms.

AT Company's promotion is relatively active among its peers, but it also adopts forms such as holding forums, seminars, product promotion meetings, and publishing articles in journals that are commonly used by peers. AT Company's marketing network is spread throughout the country, and this advantage should be fully utilized to vigorously promote products through the distribution of distributors. The technical ability of the sales personnel of the distributors should be improved uniformly. Only marketing with first-class professional ability can gain the trust of users and add points to product promotion. Targeting grassroots promotion [43, p.51]. With the national hierarchical diagnosis and treatment policy, supporting the sinking of medical resources, and the promotion of the medical consortium model, the efficiency of grassroots hospitals is getting better and better, and the demand for ordinary testing in grassroots medical institutions is higher. Primary healthcare institutions are not suitable for promoting international brands and have a higher recognition of domestic brands. AT Company is a leading

company in the domestic industry. In recent years, the market was mostly focused on medical institutions at or above the county and city level. The people familiar with the AT brand are generally large hospitals at or above the second level. The next step for the enterprise is to target small and medium-sized medical institutions at the grassroots level and penetrate the brand into the blank market of grassroots medical institutions.

From the survey results, it can be seen that brand elements account for 61.79% of the most important factors affecting customer product selection, indicating that the influence of brands in the medical market cannot be ignored and is something that companies need to focus on [24, p.61]. AT company ranks ahead in the industry, but does not attach importance to brand penetration, which is too weak. AT's brand is only familiar to existing users, and its penetration is far less than that of Huada Gene and Da'an Gene, which are also at the forefront of the industry. The latter two have achieved a penetration that is familiar to all medical workers. AT Company's brand penetration relies on both channel and promotion penetration, driving brand culture dissemination and promotion through company culture dissemination. The cultivation of a brand is a long-term process that requires a strong cultural atmosphere to lay the foundation for the company. It requires the supervision of the cultural literacy of terminal sales personnel, the improvement of their cultural dissemination ability, and the continuous efforts of the company to drive the dissemination of the brand through culture. Benchmark demonstration. The company can choose a representative medical institution at level three and below, and create a benchmark demonstration base. In the

healthcare system, recommendations and promotional recognition from peers far exceed the marketing efforts of sales personnel.

### **3.3 Guarantee measures for optimizing the implementation of marketing strategies in medical institutions**

#### **(1) Human resource guarantee.**

Firstly, establish a diversified incentive mechanism for sales personnel. Strengthening the foundation of investigation, the company regularly conducts various surveys on marketing personnel at all levels in a comprehensive manner, covering all employees. Questionnaire surveys, in-depth interviews, open mailboxes, etc. can be used to fully grasp sales information at all levels, gradually forming a scientific and reasonable diversified incentive mechanism. The incentive mechanism should clarify the promotion channels for employees, stimulate the enthusiasm of marketing personnel, and clarify the work goals of marketing personnel [75, p.6]. The mechanism should have flexible space and provide different compensation systems for market development with different difficulties. For example, in mature markets, task incentives are used, while in new markets, base salary and task incentives are used to encourage marketing personnel to explore and innovate.

Secondly, implement unified performance management for distributors. All

dealers are managed uniformly, with goals set at the beginning of the year and performance evaluations at the end of the year. For dealers with excellent sales performance, in addition to performance rewards, a level is set. High level dealers can enjoy the company's relaxed policies, such as inventory levels and payment terms.

Furthermore, a training and assessment mechanism should be established for the technical assessment of sales personnel. In the face of highly specialized users like medical institutions, the professionalism of marketing personnel is highly tested. They need to have sufficient professional skills and a sufficient understanding of the company's products in order to generate credibility in the minds of users[76, p.28]. AT company should regularly conduct thorough assessments of marketing personnel to understand their true technical level, and develop training mechanisms based on actual situations, including training plans, plans, assessments, retraining, re assessments, etc., to form a circular improvement mechanism. The training content covers multiple aspects, including professional foundation, product performance, cutting-edge academia, corporate culture, corporate strategic planning, communication skills, emotional intelligence cultivation, etc. A good sales talent is definitely a versatile talent.

## (2) Corporate culture guarantee.

Corporate culture influences the cohesion and overall development of a company. A nation should have a national culture, and a company should also have a corporate culture [17, p.81]. Corporate culture is the spiritual driving force that drives and leads employees to work together. For the good operation of a company,

management ability is crucial, and corporate culture plays a crucial auxiliary role.

Firstly, inherit the spirit of craftsmanship. Let all employees of the company practice the spirit of craftsmanship and strive for excellence. In the product production department, it is required to have a craftsman spirit, be focused, and ensure good quality. In the product development department, it is required to have a craftsmanship spirit and achieve innovation; In the sales department, it is required to have a craftsmanship spirit and be dedicated to work. The spirit of craftsmanship has many connotations, conveying excellent qualities such as patience, focus, perseverance, innovation, and dedication [18, p.5]. It requires every employee of the company to inherit and carry forward the spirit of craftsmanship, and apply it to their own job positions.

Secondly, highlight the social responsibility of enterprises. The use of in vitro diagnostic products in medical institutions involves the diagnosis and treatment of patients, as well as the health and safety of the people. Therefore, scientific and standardized products are of utmost importance, and every aspect of the work of company employees must be rigorous with social awareness. The research and development of every new medical product and the transformation of its achievements bring good news to disease diagnosis and treatment, bringing indelible medical and social benefits [69, p.15]. Developing new fields of in vitro diagnostic testing, realizing the health and economic benefits of in vitro diagnosis, improving the construction of medical transmission chains, and endowing the work culture of enterprises with social value.

Thirdly, putting people first and reflecting employee value. The happiness of

employees comes from their personal and social values being fully reflected. Creating a good learning and progress atmosphere in the company, building a knowledge-based enterprise, encouraging employees to continuously learn and improve, providing employees with learning opportunities, providing cutting-edge learning materials in related fields, hiring well-known experts in related fields to give lectures, and providing excellent employees with opportunities for external communication. Provide employees with sufficient development space, provide promotion opportunities for outstanding employees, realize career value, and encourage healthy competition among employees. Give ordinary employees the right to speak and participate, allowing them to experience a sense of ownership and responsibility. Fourthly, an innovative research culture. For enterprises in the high-tech field, R&D innovation is the key to survival and development. It is necessary to establish a working atmosphere of R&D innovation throughout the company, build an inclusive enterprise, attract high-precision and cutting-edge talents, and have the same long-term goal as all employees, that is, to build a good example of innovative R&D enterprises [80, p.101].

The optimization of AT Company's marketing strategy is not only the responsibility of the marketing department, but also a common goal of the entire enterprise, which is the internal optimization and improvement process for the entire enterprise. The company management should accept new marketing concepts and provide support for marketing strategies from multiple perspectives. Provide support for the rational allocation of internal advantages and core resources, support for corporate culture, and improvement of internal efficiency.

Ensure the long-term stability and sustainable optimization of the enterprise. Managers all hope that the company can achieve the industry's maximum. AT Company is already a leading enterprise in the domestic industry, and the concentration of the in vitro diagnostic industry in China is low. AT Company needs to form a economies of scale advantage through mergers and acquisitions to enhance its core competitiveness [51, p.15].

### **Conclusions to Section 3**

Marketing variables can be a single variable or multiple variables, depending on factors such as product and marketing objectives. To obtain them it is needed to conduct market segmentation, select the target market, maintain good relationships with the government's medical insurance department, conduct market positioning.

The following guarantee measures can be used for optimizing the implementation of marketing strategies in medical institutions. Firstly, establishing a diversified incentive mechanism for sales personnel. Secondly, implementation of unified performance management for distributors. Thirdly, training and assessment mechanism should be established for the technical assessment of sales personnel. Fourthly, inherit the spirit of craftsmanship, highlighting the social responsibility of enterprises, putting people first and reflecting employee value.

## CONCLUSIONS

In international drug practice activities, essential drugs have basically played three roles: allocating medical and health resources, slowing down the rise of drug costs, and promoting rational drug use among the public. Under the dual mechanism of market and policy, marketing activities in the pharmaceutical market not only conform to the general theory of marketing, but also differ from other market laws in terms of operation.

Under the national essential drug system, although the physical nodes of each link in the supply chain have remained largely unchanged, with the clarification of the supply subject, price control, and configuration and usage requirements, the interests and competitiveness of each node in the supply chain have undergone significant changes.

With the continuous exploration and deepening of marketing practices by domestic pharmaceutical enterprises, the pharmaceutical marketing model has accumulated a considerable amount of theoretical achievements, which has important guiding significance for both the theoretical and business communities.

Main issues in product policy for healthcare institutions are too many hospitals being burdened with complaints, difficulty in realizing the recovery rights of medical institutions, doctor-patient conflicts, direction of healthcare system reform.

The concentration of China's external diagnosis industry is low, with small

enterprise scale, scattered products, and severe product homogenization. In the market competition environment, the marketing of enterprises cannot be separated from the industry and operate independently. At present, the upstream raw material market for in vitro diagnostic products in China still relies on imports for the main core technologies, resulting in high prices. The research and development, transformation, approval, and final market promotion of new products require a significant amount of capital investment. The current competitive landscape in the in vitro diagnostic industry includes several foreign giants and numerous domestic enterprises.

Analysis shows that the personal qualities, professional abilities, and company culture of sales personnel who have direct contact with users in the agent channel will all affect the recognition of agents by users. Based on interviews with national sales managers, the company lacks a unified culture, system, and training management for agents scattered across the country. Such loose management may result in users scoring impressions of the company or channels based on the quality level of the sales personnel they interact with.

The basic goals of optimizing the marketing strategy of AT Company's in vitro diagnostic products can be summarized to reasonable layout, balanced development, management optimization, market demand prediction.

Based on the analysis of the reasons for the problems, measures to optimize AT Company's in vitro diagnostic product marketing strategy are proposed. Firstly, improving product quality with research and development as the core, enhancing research and development capabilities, seizing the support of national policies and

develop high-end medical equipment, combination sales of assembly line products. Secondly, opening up sources and reduce costs, adjust product pricing. Thirdly, using the unified management and exploration of diverse new channels. Fourthly, providing flexible and innovative marketing and promotion forms.

## REFERENCES

1. Al Thabbah D. H., Almahairah M. S., Naser A. Y., Alrawashdeh H. M., Araidah M. The effect of pharmaceutical companies' marketing mix strategies on physicians prescribing practices in Jordan: a cross-sectional study// *BMC Health Services Research*. 2022. № 22(1). P. 1293.
2. Alfred O. Marketing Communications Process on the Pharmaceutical Market in Hhana// *International Journal of Academic Research in Business and Social Sciences*. 2017. № 7(2). P. 256-273.
3. Angell M. The Truth About the Drug Companies// *Harvard Business*. 2017. №12. P. 200-220.
4. Angulo-Ruiz F., Donthu N., Prior D., Rialp J. How does Marketing Capability Impact Abnormal Stock Returns? The Mediating Role of Growth// *Journal of Business Research*. 2016. № (9). P. 69-71.
5. Azeem M., Aziz S., Shahid, J., Hayat A., Ahmed M., Khan M. I. The impact of customer-centric business strategies on customer relationship management: pharmaceutical fieldforce perspective// *International Journal of Pharmaceutical and Healthcare Marketing*. 2022. № 16(1). P. 138-154.
6. Bai Jingwei, Ge Yanfeng. China's healthcare reform goes against the development of the healthcare industry// *Health Vision*. 2005. № 8. P. 27-28.
7. Baker M.J., Ballington L. Country of Origin as a Source of Competitive Advantage// *Medicine of Strategic Marketing*. 2012. № 10.

8. Bharskar G. R., Siddheshwar S. Digital marketing in the pharmaceutical sector// *International Journal of Pharmaceutical Science and Health Care*. 2020. № 2(10). P. 1-7.
9. Cai Xiangting. Application of Market Segmentation Theory in Marketing of Medical Device Products// *Economic Research Guide*. 2021. № 15. P. 31-33.
10. Chandan N. G., Shashikumar N. S., Nagabushan H. Pharmaceutical Drug Promotion Perception and Attitude of Medical Interns Towards Drug Company Interactions in a Tertiary Care Teaching Hospital// *International Journal of Basic&Clinical Pharmacolog*. 2017. № 6(6). P. 1456-1460.
11. Chen Qin. Empirical analysis and evaluation of the development status of government health investment// *China Health Administration*. 2006. № 2. P. 68-69.
12. Chen Xiaotong, Yu Xinhai, Zou Meifang, Yu Haichao. Research and development strategies for marketing management information systems for medical device enterprises// *China Medical Device Information*. 2018. № 24 (04). P. 151-152.
13. Chinese Medical Device Blue Book. Beijing: China Medical Technology Press, 2021.
14. Deepening Health Reform and Accelerating Health Development// *Chinese Hospital Management*. 1993. № 3. P. 5 -10.
15. Dickov V. Management-Marketing Environment in Pharmaceutical Industry in transition countries// *International Research Journal of Applied and Basic Sciences*. 2016. № 10(3). P. 232-237.
16. Ding Shujuan. The Definition of Basic Medical Services and Government

Responsibility: A Review of "Strengthening Basic Medical Services"// *Economic Management Cadre College*. 2009. № 21 (4). P. 62-65.

17. Du Wansong. Public Goods: Boundary Puzzle and Its Cracking// *Fujian Administration Journal of the College*. 2010. № 3. P. 11-16.

18. Eldrwish M. A., Aigbogun O., Kani Y., Sambasivan M. Attitude towards pharmaceutical promotional tools and its influence on physicians' prescribing behaviour in Sudan// *International Journal of Pharmaceutical and Healthcare Marketing*. 2022. № 16(4). P. 469-489.

19. Fan Fengchun. A review and analysis of the policy of equalization of basic public services since the founding of the People's Republic of China. Reflection: From the Perspective of Text Analysis// *Journal of Shanghai University of Administration*. 2016. № 17 (1). P. 46-57.

20. Fang Pengqian, Dong Siping, Xiao Jingjing. Institutional Changes in Chinese Government Health Investment Migration and path selection// *Journal of Wuhan University (Philosophy and Social Sciences Edition)*. 2009. № 62 (2). P. 201-212.

21. Fang Pengqian, Yang Xingyi, Zhang Xiaoyan. Further Discussion on Basic Medical Services in China// *Chinese Health Policy Research*. 2015. № 8 (6). P. 52-56.

22. Gaudiliere J.-P., Thoms U. Pharmaceutical firms and the construction of drug markets: rombranding to scientific marketing// *History and Technology*. 2013. № 11. P. 105-115.

23. Ge Yanfeng, Wang Liejun. Challenges and Strategic Choices for Healthy

Aging in China// *Management World*. 2020. № 36 (04). P. 86-96.

24. Gu Jinyu. Analysis of Business Prospects and Competitiveness of Reagent Enterprises in China under Non Price Competition Strategies// *China Business Review*. 2021. №18. P. 136-138.

25. Gu Xin. The "two vote system" is forcing the industry to undergo a major transformation// *Medical Economic News*. 2016. № 2.

26. Gu Xin. The Great Transformation of Medical Policies in the 70 Years of New China: Towards Administration and Market. The complementary embeddedness between field and community governance// *Learning and Exploration*. 2019. № 7. P. 1-13.

27. Guan Zhongjun, Chen Xin, Ye Xiaoqin. The Changes of China's Medical Service Supply System and an Analysis of Intrinsic Logic// *China Administrative Management*. 2017. № 7. P. 73-80.

28. Hawkins D. L., Best R. J., Coney K. A. Consumer Behavior: Medicine Marketing Strategy. New York: Mc Graw2Hi11, 2001.

29. Higgins J. If you want strategic change, don't forget to change your cultural artifacts// *Journal of Change Management*. 2016. № 4(1). P. 63-73.

30. Hole G., Hole A. S., McFalone-Shaw I. Digitalization in pharmaceutical industry: What to focus on under the digital implementation process?// *International Journal of Pharmaceutics*. 2021. № 3.

31. Jiang Yu. From "World Health Miracle" to "Building a Healthy China"// *In National Health*. 2018. № 12. P. 14-17.

32. Kaur J. The Effect of Internal Marketing on Organizational

Pharmaceutical Marketing Strategy// *American Journal of Applied Sciences*. 2012. № 11. P. 1480.

33. Kulkarni G. R., Agrahari S., Sen S. Launching a new brand in the multi-brand portfolio: a real-world observational study evaluating the mediating role of detailing priority and time on physicians' prescription behavior// *International Journal of Pharmaceutical and Healthcare Marketing*. 2023/

34. Leonardo Alves T., Lexchin J., Mintzes B. Medicines information and the regulation of the promotion of pharmaceuticals// *Science and Engineering Ethics*. 2019. № 25(4). P. 1167-1192.

35. Li Hongchao. Analysis of the Public Goods Nature of Essential Drugs and Essential Drug Systems// *China Pharmacoeconomics*. 2009. № 4. P. 45.

36. Li Jiuxiang, Huang Tai. Analysis of Marketing Strategies of Pharmaceutical Enterprises in China under the New Situation of Medical System Reform// *China Pharmacy*. 2009. № 20 (13). P. 961.

37. Li Yana, Cao Yang. Exploration of the Impact of the Implementation of the Essential Drug System on Chinese Pharmaceutical Enterprises// *China Health Policy Research*. 2010. № 1. P. 75-77.

38. Lim W. M. Transformative marketing in the new normal: A novel practice-scholarly integrative review of businessto-business marketing mix challenges, opportunities, and solutions// *Journal of Business Research*. 2023. № 160.

39. Limbu Y. B., Huhmann B. A. Ethical issues in pharmaceutical marketing:

A systematic review and future research agenda// *Journal of Global Marketing*. 2022. № 35(1). P. 1-20.

40. Lin Fei. Third terminal marketing strategy after the implementation of the essential drug system// *China Pharmacy*. 2010. № 16. P. 12.

41. Liu Yunguo. The connotation of primary healthcare and its development review in China// *China Health Economy*. 2007. № 7. P. 11–15.

42. Nandy M. Marketing Activities of Indian Pharmaceutical Companies// *Relationship between R&D and Financial Performance in Indian Pharmaceutical Industry*. 2022. P. 49-73.

43. National Bureau of Statistics of the People's Republic of China. China Statistical Yearbook. Beijing: China Statistical Publishing House, 2021.

44. Nie Haixin. Constructing a new negotiation model for in vitro diagnostic reagents in hospitals using game theory// *Chinese Journal of Disaster Rescue Medicine*. 2020. № 8 (12). P. 703-704.

45. Qin He. The 14th Five Year Plan for National Medical Security has introduced a countdown to traditional access models// *Medical Economic News*. 2021. №1.

46. Qin Ying. On the Essence of Public Goods and the Limitations of Public Goods Theory// *Economist*. 2006. № 3. P. 77-82.

47. Qiu Yulin. 70 Years of Medical Security in China: Review and Analysis// *Social security obstacle comment*. 2019. № 3 (1). P. 89-101.

48. Ren Fei, Wang Junhua. Justice Based on Differences: Basic Medical Services in China Reasonable source configuration and implementation path//

*Journal of Suzhou University (Philosophy and Social Sciences)*. 2019. № 40 (5). P. 27- 33.

49. Sadiku-Dushi N., Dana L. P., Ramadani V. Entrepreneurial marketing dimensions and SMEs performance// *Journal of Business Research*. 2019. № 100. P. 86-99.

50. Sestino A., Amatulli C. Branded vs. Generic drugs: the role of self-perceived seriousness of disease// *International Journal of Pharmaceutical and Healthcare Marketing*. 2022. № 16(1). P. 22-39.

51. Shao Dexing. Analysis of the Evolution of Public Welfare in Medical and Health Care: From the Perspective of Reform and Opening Up Taking the Changes of Rural Grassroots Medical and Health Policies as an Example// *Zhejiang Social Sciences*. 2015. № 8. P. 69-75.

52. Singh P. Marketing Strategies of Pharmaceutical Companies in Diabetic Segment and Key Success Factors// *International Journal of Scientific Research*. 2016. № 2(5). P. 513-516.

53. Steg H., Thumm N. Single-market regulation and innovation in Europe's medical devices industry// *International Journal of Technology Assessment in Health Care*. 2001. № 17(3). P. 421.

54. Theoretical Reflection: Analysis Based on the Advocacy Alliance Framework// *The Communist Party of China Ningbo Municipal Committee School Journal*. 2020. № 42 (2). P. 5-14.

55. Wang Jun. Essential Drug Catalogue Stimulates Corporate Nerve// *Chinese Pharmacy*. 2009. № 9. P. 16-17.

56. Wang Shaoguang, He Huanrong. Paradise Policy orientation, absorptive capacity, and public health// *Chinese Social Sciences*. 2005. № 6. P. 101-120.
57. Wazana M. Hedge fund marketing by broker-dealers questions and comments in response to recent developments// *Journal of Investment Compliance*. 2013. №4(3). P. 34-35.
58. Wei Li, Bo Lang. A Tetrahedral Data Strategy for Unstructured Data Management// *Science China Information Sciences*. 2017. № (3). P. 8.
59. Weinstein A. Target market selection in B2B technology markets// *Journal of Marketing Analytics*. 2014. № 2(1). P. 59-69.
60. Wu Fenglan, Shen Yong. The Reform of Public Hospitals: Historical Evolution, Institutional Dilemmas, and path selection// *Chinese Health Policy Research*. 2016. № 9 (1). P. 34-39.
61. Wu Haili, Ji Xianfeng. Comprehensive analysis of the evolution of marketing mix strategy theory// *Modern Business*. 2010. № 32. P. 179-181.
62. Xu Fangping, Huang Huiyuan. The current development status, problems, and countermeasures of China's in vitro diagnostic reagent industry// *Chinese Journal of Pharmaceutical Industry*. 2019. № 50 (11). P. 1367-1373.
63. Xu Jing, Yu Shaohua. Development status of biomedical in vitro diagnostic reagents in China// *New Materials Industry*. 2019. № 12. P. 20-23.
64. Yan Ni, Shen Xiao. Public Goods: Classification and Production of Health Services in China. Theoretical analysis of provision methods// *Theoretical Monthly*. 2014. № 5. P. 158-161.
65. Yang J., Liu C., Teng M., Liao M., Xiong H. Buyer targeting

optimization: A unified customer segmentation perspective. URL: <https://dblp.org/db/conf/bigdataconf/bigdataconf2016> (accessed 19.03.2024)

66. Yang Mingyu. Exploring the Construction of Marketing Channels for Medical Device Enterprises under the New Medical Reform Policy - Taking China Resources Shandong Pharmaceutical Company as an Example// *China Business Review*. 2021. № 15. P. 67-70.

67. Yang Wenyi. Under the background of the new healthcare reform, basic medical services and grassroots healthcare institutions exploration of Structural Relationships// *Chinese and Foreign Medical Research*. 2011. № 9 (2). P. 46-47.

68. Yang Yue, Li Shan, Wu Zhiang. Progress research on the principles of essential drug selection in the World Health Organization// *Chinese Pharmacy*. 2011. № 28. P. 36-38.

69. Yao Li. Putting the Focus of Medical and Health Work on Rural Areas: A historical investigation of the "6.26" indication// *Contemporary Chinese History Research*. 2007. № 3. P. 99-104.

70. Yin Xiangfei, Yu Fang, Zhang Hehua, Wei Anhai. Exploring the "two ticket" procurement model for in vitro diagnostic reagents// *Biomedical Engineering and Clinical*. 2018. № 22 (06). P. 696-698.

71. Yu Runji, Ma Li. Research on basic medical services// *Health economy Research*. 1998. № 6. P. 4-46.

72. Yu Xiaozhong, Feng Shan. 4P, 4C, 4R Marketing Theory Comparative Analysis// *Productivity Research*. 2002. № 3. P. 248-249.

73. Zhang Hongcai. Reflections on Several Issues Concerning Basic Medical

Services// *Health Economic Research*. 2012. № 2. P. 10-11.

74. Zhang Jinwu, Qi Shouyin. The Defects in the Definition of Public Goods and Its Re definition Construction// *Financial Research*. 2016. № 8. P. 2-13.

75. Zhao Wenfang. The multidimensional connotations and practical implications of "Healthy China"// *In National Rural Health Management*. 2020. № 40 (1). P. 11-14.

76. Zheng L., Noroozi V., Yu P.S. Joint deep modeling of users and items using reviews for recommendation. URL : <https://arxiv.org/abs/1701.04783> (accessed 16.03.2024).

77. Zhou Huiming. Demand Analysis of Transparent Marketing in the In Vitro Diagnosis Industry// *Administrative Assets and Finance*. 2018. № 16. P. 87-88.

78. Zhou Yi. Comparative Study on Medical System Reform. Hangzhou: Zhejiang University, 2015.

79. Zhu Ling. The selection of government and rural basic healthcare security system// *In National Social Sciences*. 2000. № 4. P. 89-99.

80. Ziemann M. Patient relationship and medicines// *Public Relations Review*. 2016. № 24(1). P. 72-73.