

# *Analysis of Financing Strategies of ECOVACS Robotics Based on PEST*

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**Abstract:** The artificial intelligence business has a wide potential as a young industry that continues to influence human social and economic growth. The development of efficient finance techniques has emerged as a crucial challenge for artificial intelligence businesses as they look to expand their markets and implement their plans. In order to sort out and analyze the strategic influencing factors on the development of artificial intelligence in China, particularly the status quo and issues of enterprise financing, this paper uses ECOVACS Robotics as a research sample. Financing is the primary source of funds necessary for the survival and development of enterprises. The demand for financing capital from businesses will rise as the worldwide market for service robotics continues to grow rapidly. According to the report, ECOVACS should adopt a targeted approach by bolstering technological advancement, boosting visibility, boosting legal support, boosting funding sources, and directing the targeted strategy in various ways.

**Keywords:** PEST analysis, financing strategies, artificial intelligence (AI)

## 1. Introduction

After the epidemic, the world economy was affected in several ways, which increased China's significance in the global supply chain and in world trade. The artificial intelligence sector is a quickly expanding industry that has now seen its technology used in many sectors, including education, healthcare, and services, and it will continue to have an impact on future developments in both the global economy and human lifestyle. The most comprehensive product range of home service robots is offered by Ecovacs Robotics, a leader in this sector in China. Understanding the industry's current development status and potential may be achieved by analyzing Ecovacs Robotics' external environment and financing plan. This will enable SMEs in the sector to create their financing strategies more methodically.

This essay examines the current state of artificial intelligence businesses in China as well as their financing plans. The artificial intelligence (AI) sector is a knowledge-intensive sector and a technology that is widely adopted. The AI sector's financing market is influenced by domestic and international macropolicies in the policy environment, GDP and macroeconomic conditions in the economic environment, levels of population aging and urbanization in the social environment, the rate of development of each enterprise in the sector in the technological environment, and the financing structure and institutional factors. This paper adopts the PEST analysis method to analyze the advantages of national policies for AI enterprises in financing, the opportunities and challenges

of the economic environment for AI enterprises' financing, the opportunities and challenges of the social environment for AI enterprises in the process of financing, and the requirements of the technological level for enterprises' financing, respectively.

## **2. Introduction of Ecovacs**

### **2.1. Company Introduction**

ECOVACS Robotics Co. was founded on March 11, 1998 and successfully listed in 2018, referred to as ECOVACS, stock code: 603486, its main business is the research and development, design, production and sales of various types of family service robots, cleaning small household appliances and other intelligent household equipment and related parts, and its main products can be broadly divided into two major service robots and cleaning small household appliances, etc. The main products can be roughly classified into major modules: service robots and cleaning appliances. The company is among the world's earliest service robot research and development and manufacturers, specializing in independent research and development, design and manufacture of service robots, is committed to becoming the world's top robotics company. Depending on industry statistics, the company has occupied the position of the No. 1 domestic brand in the market for sweeping robots for many years. In overseas mainstream markets, the ECOVACS trademark has gradually been recognized and accepted by more and more consumers, becoming a representative brand of service robots [1].

### **2.2. Corporate Strategy**

Following years of research and development, ECOVACS has created a more complete product range of home service robots, including sweeping, window cleaning, air purification, and housekeeping robots, and has also invented the following techniques.

The first strategy is to increase the core technology of intelligence and transform robots from traditional to intelligent. ECOVACS home service robot iteration goal is to gradually evolve from a "tool" to a "housekeeper", and even "companion". "Companion" robots, that is, with the help of artificial intelligence technology, let the robot understand the user. Companion robots can not only help the owner to complete the task, but also understand the owner's joys and sorrows, and become the owner's partner [2].

The second strategy is to build a domestic marketing network and enter the global market. In terms of market expansion, ECOVACS has formed a complete family service robot product line with Dibao, Qinbao, Window Bao, and Parent Bao as the main products: it has established eight sales regions in China, with hundreds of stores, and constructed a distribution and service network covering major large and medium-sized cities across the country. While vigorously building the domestic marketing network, ECOVACS has adopted the internationalization strategy of "first the difficult, then the easy" - that is, to enter the markets of developed countries with mature markets and fierce competition, and then enter the markets of developing countries. At present, ECOVACS has established sales subsidiaries in Germany, the United States and Japan, and has successfully opened up markets in Spain, Switzerland, France, Canada, the Czech Republic, Poland, Germany, Iran, Malaysia and other countries and regions [2].

The third point is to strengthen multi-party strategic cooperation. Currently, ECOVACS has business cooperation with a number of companies, including Qualcomm, Huawei HiLink (a smart home open interconnection platform developed by Huawei), Disney, and some financial institutions [2].

The fourth point is to deepen the dual-wheel drive strategy and fully develop the high-end market. The company continues to deepen the dual-wheel drive strategy of ECOVACS plus Timco, giving

products new functions and values with technological advantages, and realizing the rapid growth of sales revenue of its own brand by virtue of its leading product power and diversified channel layout. Through three years of accumulation, the brand of Timco has realized the leap from function to intelligence and from product to brand, and has continuously opened up new tracks with intelligent technology, rapidly creating the subsequent growth curve of the company [2].

### **2.3. Corporate Outlook**

In the future, ECOVACS will continue to strengthen its position as the center of gravity of the home service robot business while insisting on the development of commercial service robots and other technologically cutting-edge business areas, and at the same time, continue to maintain its cost leadership in the cleaning category of the small home appliance business. ECOVACS will also actively increase its internationalization strategy by expanding its existing overseas management team, setting up brand concept stores, building a marketing network information platform and an international official website platform to enhance its existing overseas marketing service network and expand its overseas market share. To realize the goal of “building service robots for life, production, and ecological scenes, and bringing all human beings a new experience of wisdom, convenience, and humanization”, the company will explore new fields with the power of wisdom, and develop new technologies, give back to the society sincerely, and create a satisfactory intelligent life [3].

## **3. PEST Analysis**

PEST analysis model is a type of analysis tool used for the macro-environment of the enterprise, in which P refers to politics, E refers to economy, S refers to society, T refers to technology [4]. These four factors are utilized to the external environment in which ECOVACS is located and to analyze the financing policy situation of the company.

### **3.1. Analysis of the Political and Legal Environment**

#### **3.1.1. Analysis of the Domestic Environment**

As the most emerging technology and industry in recent years, artificial intelligence is gradually changing everyone’s life. As the industry’s theories and technologies become increasingly mature, and the industry’s scientific and technological achievements are transformed into market applications, the relevant state departments have formulated and issued a series of policies to support the development of related industries, including Made in China 2025, Guidelines for the Construction of the National New-Generation Artificial Intelligence Standard System, Ethical Norms for the New-Generation Artificial Intelligence, and Development Plan for the New-Generation Artificial Intelligence, among others.

In order to realize the goal of “Made in China 2025” put forward by the CPC Central Committee, the National People’s Congress and its Standing Committee have actively implemented legislation and supervised the work of the AI industry, encouraging enterprises and organizations to enhance their independent innovation capabilities in the field of AI, and reinforcing the role of the national level to support the strategy of scientific and technological innovation.

#### **3.1.2. Analysis of the International Environment**

According to the global enterprise database query, the main active enterprises in the current AI industry are mainly distributed in China, and as of April 2022, there are a total of 6,052 active and relevant AI enterprises in China, accounting for 73.9% of the total number of AI enterprises available

for querying; followed by 609 enterprises in the United States, accounting for 7.4% of the total number of AI enterprises available for querying [5].

In terms of the coverage of listed enterprises, the United States has a total of 209 AI enterprises listed, the enterprise listing rate is 34%; while Japan has 46 AI enterprises listed, the listing rate is 55%; on the contrary, China, there are only 29 AI enterprises listed, the listing rate is 0.5%.

According to the data, in addition to China, the United States, the Netherlands, the United Kingdom and other countries are also quite active in artificial intelligence enterprises, and many countries in the world are supporting the development of artificial intelligence from the political and legal had side. In addition, 2023 the world’s major countries in the field of artificial intelligence competition is fierce, each country is trying to become a leader in the field of artificial intelligence through the national strategic level of the first layout planning. ECOVACS can develop markets overseas and obtain investment by virtue of the competitive advantage of its core products of household robots.

### 3.2. Analysis of the Economic Environment

#### 3.2.1. GDP Factor Analysis

GDP as one of the most important economic indicators affects a country’s purchasing power and other business activities.

Table1: The top eight countries by GDP in 2022 [6].

Rank	Nationality	GDP (trillion dollars)	Year-on-year growth
1	America	22.94	6%
2	China	16.86	8%
3	Japan	5.1	2.4%
4	Germany	4.23	3.1%
5	English	3.11	6.8%
6	India	2.95	9.5%
7	France	2.94	6.3%
8	Italy	2.12	5.8%

Analyzing these top GDP countries, and then combining the per capita GDP, human environment, consumption level and other factors of each country, we are able to roughly analyze the relevant target markets suitable for ECOVACS Robotics to invest in. From the GDP data, the United States, China, Japan, India and several European countries are the target alternative markets with better economic volume.

#### 3.2.2. Analysis of the Financing Environment

Financing, in a narrow sense, refers to the act and process of raising funds for an enterprise; in a broader sense, it refers to the financing of monetary funds. Financing is separated into three types: whether it comes from within the enterprise, whether the funds need to be returned in the years of use and return, and whether it is through a financial institution. Among them, financing from within the enterprise is endogenous financing, and financing from outside the enterprise is exogenous financing; short-term financing is short-term financing if the use and return period of the incorporated funds is less than one year, and long-term financing is long-term financing if it is more than one year; bond financing is bond financing if it needs to be returned, and equity financing is equity financing if it doesn’t need to be returned; indirect financing if it needs to be financed through financial institutions,

and direct financing if it doesn't need to be financed through financial institutions [7]. At present, the main financing methods in the artificial intelligence industry are direct investment, issuance of convertible bonds, private financing, and other capital markets.

In terms of the number and amount of investment and financing, the number of global AI financings in the first half of 2022 was 1,579, down 30% year-on-year, with a total financing amount of \$27.4 billion, down 28% year-on-year. 2022 There were a total of 971 financings in the national AI segment, with a cumulative total of ¥109.635 billion in financing amount disclosed.

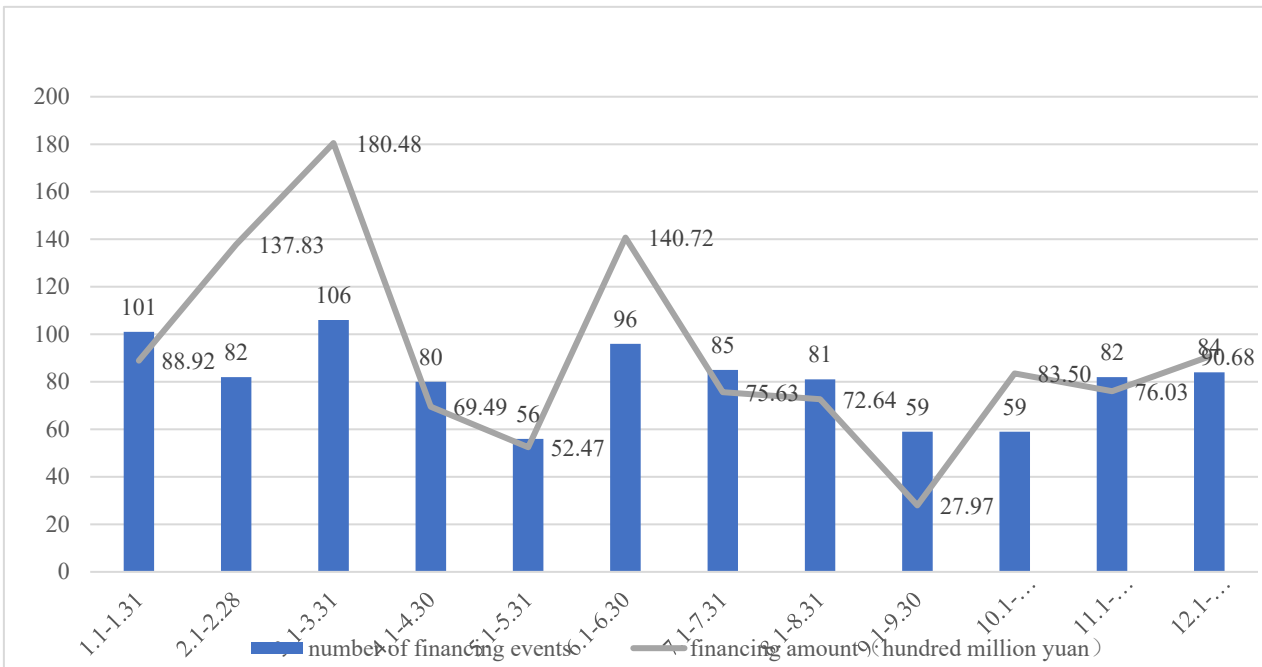


Figure 1: National financing situation from January to December 2022.

The huge funding figures prove how much the market recognizes the AI industry.

In addition, ECOVACS's domestic market has the advantage of a mega-economy. China has the world's largest and most promising market with a population of 1.4 billion and more than 400 million middle-income groups, the world's most complete and largest industrial system and perfect supporting capacity, and 130 million market entities, which provide rich application scenarios for artificial intelligence.

Medium and long-term credit, Internet financing platform, venture capital, corporate bonds, financial leasing, pawn financing, bank acceptance are all financing methods that enterprises in China will use, and many other financing methods such as the use of the Internet financing platform, venture capital for financing and so on are financing methods that ECOVACS can use [8].

### 3.3. Analysis of the Sociocultural Environment

ECOVACS Robotics has many sorts of robots for various scenarios, and studying the company's market thrust and examining the socio-cultural environment has a significant impact on the macro-environment in which the company operates.

#### 3.3.1. Total Global Population and Ranking

According to statistics, as of January 28, 2023, the total population of 238 countries in the world is about 7.8 billion people, of which China ranks first with about 1.4 billion people, making it the most

populous country in the world, and India ranks second globally, which is a market that may need to place emphasis on analyzing in the field of artificial intelligence in the future. The U.S., on the other hand, has become a high-quality target market for the AI field with the strength of having the third largest population in the world, ranking first in terms of economic output, and having a GDP per capita that is ahead of most countries. Therefore, only from the population data, the United States, China, India are ECOVACS robotics company may need to focus on the target market. In addition, countries such as Japan and the United Kingdom have a higher GDP per capita than most additional countries, and are therefore also in the target market selection considerations, and other indicators need to be further analyzed. The target market population is more likely to invest more money in the AI industry.

### 3.3.2. Proportion of Ageing Population

With the advent of the era of negative population growth, there is an “inverted U” between population aging and labor productivity.

Table2: Global aging ratio.

Country	Population	Share of world	Share of country
China	186 million	24.48%	13.5%
India	95.7 million	12.62%	6.4%
American	55.4 million	7.29%	16.5%
Japan	37.4 million	4.93%	29.1%

According to the analysis of the above data, the trend of global population aging is getting more and more serious in general. Elderly people are slow to accept new things, and artificial intelligence as a new industry in the promotion of the elderly group will face many difficulties, so the selection of the target market also need to take into account the aging rate of the population as an indicator. For ECOVACS, the design, research and development and investment in domestic service robots account for a relatively large market, for countries with a high proportion of aging can give priority to the promotion of domestic robots that help the elderly life and are easy to operate to open up the market.

Japan ranks first in the percentage of aging population and is geographically close to China, which can save transportation and logistics costs. Therefore, it is possible to focus on the development of a domestic robot program in Japan to increase sales and obtain investment.

### 3.4. Analysis of the Technological Environment

Artificial Intelligence (AI) is one of the frontier scientific and technological fields explicitly prioritized for development in the 14th Five-Year Plan, and is a major national scientific and technological project with foresight and strategy. Research on the laws of human intelligence activities, research on how to let the computer to complete the work that used to require human intelligence, how to apply computer hardware and software to simulate some of the human intelligence behavior of the basic theories, methods and technologies is the main research direction of artificial intelligence. ECOVACS can get funding with the support of national technology policy.

## 4. Discussion

ECOVACS, as a listed company, has the world’s most complete product line of home service robots, the most important financing channel is the global stock market, the company is in the industry to obtain more external policy support, the overall financing environment is more relaxed. We can

utilize the advantage of the domestic market with a large-scale economy, steadily develop the domestic market while opening up foreign markets, and take advantage of the “14th Five-Year Plan” policy in terms of technological development. The company can actively expand external financing channels, combined with a variety of ways to reduce risk. In addition, ECOVACS belongs to the mature artificial intelligence industry and is in the development period, the core products of the enterprise are highly competitive, which can bring high profits for the enterprise, so the use of the enterprise’s own funds to carry out endogenous financing has also become ECOVACS’s main financing methods [9], the company also obtains long-term equity investment through business combinations, cash payments, and the issuance of equity securities [10]. When the company develops subsequent financing strategies, it should actively utilize its endogenous financing ability, improve the efficiency of capital utilization, and actively seek investment opportunities as a way to further maximize the enterprise value [11].

## 5. Conclusion

According to the PEST analysis, ECOVACS should take to strengthen technology development, increase publicity, legal support, increase financing channels, and multi-lead targeted strategy. Make use of the enterprise’s endogenous financing ability, improve the utilization rate of funds and actively develop and explore external financing channels to maximize enterprise value. The shortcoming of this paper is that it only analyzes the status qua and opportunities of the company’s financing situation, and does not react to the problems and shortcomings in the company’s financing policy.

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