



**MARKET POSITIONING AND DEVELOPMENT STRATEGY OF LITHIUM  
BATTERY PRODUCTS-BASED ON BYD GROUP**



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BATTERY PRODUCTS-BASED ON BYD GROUP**

**Thematic Certificate**

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## Abstract

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The market orientation and market development strategy of lithium battery products are the core of the development of enterprises. Therefore, through the whole business management process of the enterprise, how to locate their own market and products. If we use more advanced development strategy in the course of fierce market operation, can we realize the rapid development of enterprises, which is related to the management of enterprises and the problems that must be taken into consideration in the initial and product development process of the enterprise. As we all know, human beings have already faced a more serious production situation and economic situation, and the world's population is constantly increasing and the environmental quality is declining so that human beings are faced with serious sustainable development problems, so it is necessary to develop sustainable industries through the use of sustainable energy. The management and development of the industry, while lithium battery industry, as the new energy industry, is an important link in the process of sustainable development. At present, lithium battery industry has made great progress in the government and the state, and China's market share in the production and manufacturing of lithium battery has occupied the world's first, especially the lithium-ion battery of BYD Group, which accounts for about one-third

## 摘 要

题目： 锂电池产品市场定位及发展战略研究—基于比亚迪集团

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营销锂电池产品的市场定位和市场发展战略是企业发展的核心，因此透过企业的整个经营管理过程来看，如何定位自身的市场和产品。如果在激烈的市场经营过程中运用较为先进的发展战略，能否实现企业的快速发展，这关系着企业的经营管理问题，也是企业创立之初和产品研发过程中必须要考虑的问题。众所周知，当下人类已经面临着较为严峻的生产形势和经济形势，世界人口不断增多，环境质量不断下降使得人类面临着严重的可持续发展问题，因此必须大力发展可持续产业，通过利用可持续能源实现企业的经营和发展，而锂电池产业作为新能源产业的发展重点是整个可持续发展过程中的重要环节。当下，锂电池产业在政府和国家的大力鼓励之下取得了长足发展，我国在锂电池的生产和制造方面的市场份额都占据世界第一，尤其是比亚迪集团的锂电池电子产品占据整个世界锂电池市场的 1/3 左右，因此我们通过研究比亚迪的锂电池、锂电子产品，进而研究其发展战略，通过利用市场营销的相关知识，研究比亚迪集团的整个锂电池发展战略，从而提出相应的发展规划，为锂电池产业提供更多的发展机会，从而实现我国锂电池市场的跨越式发展。

关键词： 锂电池 市场定位 产品战略 比亚迪

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# CHAPTER 1

## INTRODUCTION

### 1. 1 Background Introduction

Lithium battery as an important product of new energy development, lithium battery products from lithium battery concept research to the final development, has been more than 100 years of history, but the real commercial use of lithium battery is the important event in the development of human society in recent decades, and compared with other conventional batteries, lithium battery has a higher advantage, mainly in the following aspects. First of all, lithium battery energy density high, can in the smallest unit area of energy storage most, so from most manufacturers and product equipment suppliers, choose lithium battery as part of the product, can reduce the weight of the product, thus improve the performance of the product. In consumer electronics market, such as mobile phone, MP3, laptop, and other 3C digital products, lithium battery is a relatively extensive application. At the same time, because of the development of lithium battery industry and the progress of human technology, the unit cost of lithium battery has been reduced to the extent that can be used extensively. Therefore, it is an inevitable development direction with lithium battery instead of other traditional batteries and new energy batteries. Due to the rapid development of China's electric vehicle market, a large number of lithium-ion batteries in the Chinese market have been used to make electric vehicles and industrial energy storage equipment. The performance of lithium-ion batteries in the future will be further expanded in their application scope and application market, according to the relevant agencies' estimates By 2020, the entire market for lithium-ion batteries can reach more than \$30 billion,, and the entire market of lithium-ion batteries, combined with other market segments, is expected to exceed 50 billion.

China has earlier research and application of lithium battery, but the countries and regions such as Europe and America, Japan and South Korea are in front of China to commercialize and dock some practical equipment. Since China's lithium resources are abundant, it is a long time to export traditional mineral energy as a means of making money. At present, with the strong support of national policies and the encouragement of corresponding supporting facilities, more and more enterprises in our country have entered the development and design stage of lithium battery products, which is the so-called midstream and downstream phase. China's enterprise development and research lithium battery has a natural advantage, first of all, the market is wide, followed by the abundant resources of our lithium battery, finally the labor cost is low. BYD Group, as a leading enterprise based on automobile manufacturing and lithium battery new energy development, has formed a set of development from lithium battery mineral to the initial processing of lithium battery, to the end of lithium battery products, the whole manufacturing phase, in domestic peers ratio Yadi Group's lithium battery product has an important market share, although the company is in the first place in size, but still has a long way to go on product quality and product value-added, especially in the research and development of core technology, still inferior to the enterprises in the U.S. and Europe and Japan It's a big distance.

Through further analysis of the market threat of BYD Group and the competition among the same industry, the market positioning and future development strategy of BYD Group's products are determined, and the development of BYD Group's lithium battery business can be promoted, and the transformation and promotion of the entire enterprise structure can be promoted effectively Market competitiveness.

## **1. 2 Research Meanings**

From the enterprise's development and strategic planning to see if an enterprise is successful, it is related to the market orientation and development strategy

of the enterprise, if the enterprise can mobilize the resources that they own, develop the product adequately, and carry out corresponding marketing, and then establish a complete enterprise architecture, through effective organizational structure, accurate marketing, enterprises can be able to occupy a certain market share in the fierce market competition, thus achieve success.

Nowadays, the competition of lithium battery market is fiercer fiercer. With the increasing openness of lithium battery market in China, more and more international enterprises have entered China to carry out the development and sale of lithium battery. In the face of fierce competition in the same industry, the domestic lithium battery enterprises are still in an initial stage of development, foreign enterprises have long-term control of patents and technological advantages, and have large-scale research and development advantages in the global scope, so domestic enterprises tend to lay hands on foreign enterprises, for foreign countries. The company's products carry out some processing and earn intermediate fees, while the BYD Group, through its long-standing research and development investment, has a certain technical advantage in the lithium battery market and can completely shake off the work of foreign enterprises in the future, thus establishing its own brand and joining foreign enterprises. With fierce market competition, but in this process, the first problem to face is how to establish the enterprise's own market orientation, to build a perfect enterprise structure.

So we applied the relevant knowledge of marketing and enterprise's strategic development theory in the course of the research, and analyzed the macro-economic problems faced by BYD Group by using PEST analysis method, and analyzed the market environment of BYD Group under the five-force model of Porter, and used S WOT analyses the positioning of BYD products, meanwhile, according to the long time, the positioning of the development of lithium battery market carries out industrial analysis, complements, and improves the existing enterprise risk management and strategic theory.

At the stage of the new round of industrial structure revolution, new energy, as a bright spot in the development and transformation of the present industry, establishes its own development direction by controlling and researching the development path of new energy. New energy has become the focus of the development of many listed companies and private enterprises, and the extensive application of new energy electric vehicles has been heavily subsidized by national policies, which makes the charging and driving of these two fundamentally different jobs connected to each other, so if BYD Group can be real strong market positioning and product strategy, firmly grasp the new energy market development opportunity, then BYD will be able to succeed in the fierce market competition, its lithium battery product can also occupy the market's largest share.

### **1. 3 Present Situation of Market Research at Home and Abroad**

#### **1. 3. 1 Domestic Research Status**

After the reform and opening to the outside world, China embarked on a market economy based on the economic system and transformed the original planned economy into a market economy and centered on the products as the center, serving as the center and serving customers as the center of the market economic system. Since the introduction of western economics, the country began marketing the corresponding products after the introduction of western economics. The research on product market orientation and development strategy mainly focuses on Porter's five-force analytical model and PEST analysis method. The above-mentioned economic theory plays a very important role in the research of market segmentation and the overall development strategy of enterprises.

At present, China's research on product market positioning and development strategy in academic circles involves many industries, including agriculture industry and service industry. From the whole, the scope of research is broader, and the industry involved is more complex, especially the service industry, the market orientation and

development strategy research of service industry. As a result of the recent development of the market economy, more institutions in this area are facing customers and residents to promote the corresponding products, so the research and analysis of the service industry is determined by the analysis and analysis of the service industry product positioning and development strategy. But there has been less research on market positioning and development strategies for industrial products, especially for emerging new energy industries and lithium-ion batteries. Therefore, only through the full industry research and market integration, China's new energy industry can usher in a comprehensive development. It is especially important for China's lithium battery industry research and product positioning and future development strategy research.

### **1. 3. 2 Current Situation of Overseas Research**

Foreign enterprises have been affected by globalization, and the global network operation is earlier, so for foreign enterprises, the product is the marketing mode and development mode of globalization, and they have accumulated a great deal of work on product market positioning and development strategy in the process of globalization. This is especially true for businesses in the United States and Europe, with the globalization of operations, the production of globalization and the marketing of globalization, which enable companies to achieve the greatest degree of success in the global context.

In recent years, the research on product market positioning and development strategy is more concentrated on product culture and national marketing, and foreign enterprises have realized that the most important factor in entering into other countries is to carry out the corresponding transmission and marketing through culture, only through the camp on the cultural level In the way of marketing, enterprises can succeed in the greatest degree. Second, foreign enterprises tend to start with cultural management more in recent years. They believe that the biggest problem facing enterprises in entering foreign markets is the cultural problems of enterprises, as long as they deal with cultural problems So how to integrate the cultural problems of the two

countries has become a key problem in our business process, and secondly, how to cultivate the culture construction in the national marketing, how to cultivate in the third country market In view of the culture of the product, it is an important problem to think that our products can sell well in other countries. The main thing is to cultivate the cultural problem of the products, so as long as the product culture is cultivated, the whole market orientation and future development strategy will be solved, so abroad enterprises are more culturally sensitive in product market positioning and development research.

## **1. 4 A Summary of Strategic Management Theory**

### **1. 4. 1 Background**

With the development of management science, the theory of strategic management came into being. After years of development, the theory of strategic management has formed a mature theoretical system.

Since its establishment, the theory of strategic management has undergone a tortuous course of development. In the 1960s, after the second world war, the economy of the United States had been developing unprecedentedly, and enterprises in various industries have been fully developed; the development of enterprises has intensified competition within the industry. By 70 years, as the financial crisis happened, enterprises began to realize that simple low-cost strategies had been unable to meet the development needs of enterprises. In the fierce market competition, people began to study the enterprise strategy. In the 1980s, with the development of regional economy and market economy, many enterprises adopted a diversification strategy to maintain the development of enterprises, thus affecting the development of strategic management theory. By the 90's, people gradually discovered that, after seven or eight years, many enterprises went bankrupt gradually; the reason is that the enterprise lacks a long-term norm, and does not use strategic vision to regulate the development of the

enterprise. Against this background, the importance of strategic management theory is gradually recognized and embarked on the road of rapid development.

#### **1. 4. 2 Overview of Developments**

Strategic management theory, mainly through three main stages of development, is the embryonic stage of strategic thought, the theoretical stage of strategic management and the theoretical stage of competition strategy. In the face of different stages of development, strategic management theory has unique characteristics of development.

Firstly, the embryonic stage of strategic thought. In the embryonic stage of strategic management theory, various theoretical analysis is not very mature. For this, Michael. Professor Porter made a detailed summary of this stage and summarized it into three different viewpoints. The first is that the enterprise's theoretical system is a preliminary division of the basic types and basic functions of an enterprise. And the idea is that the most basic function of an enterprise is the planning function, which can be said to be the original state of development of the theory of strategic management; the second view is that American scholar Barnard proposed in the late 1930s, and he believed that the management and strategy of the enterprise were two basic principles. The problem, and should be analyzed by the enterprise managers, so that the enterprise can adapt to the social development environment. This view becomes the basic theory of modern strategic management theory; the third view is put forward by Harvard University scholar Andrews, who believes that the theory of strategic management must be analyzed in many ways, so he divided the specific content of the strategic theory into the development strength of the company. Social responsibility, enterprise employee value orientation, market research accuracy and so on four aspects of content. The above is the basic theory and research analysis of the embryonic stage of strategic management theory.

Secondly, the theoretical stage of strategic management. At this stage of development, we mainly analyze the four elements of enterprise's strategic



management. This is the main point put forward by American scholars in 1960, which concluded that synergy, product and market scope, competitive advantage and growth vector constitute the theory of enterprise's strategic management. And at this stage of development, the basic contents of strategic management have been discussed, including cultural school, structure school and so on.

Finally, the theoretical stage of competition strategy. With the analysis and argument of each school, the enterprise's strategic management theory in the final stage of development, mainly formed the three main schools, namely the industry structure school, the core competence school and the strategic resource school. According to the names of these three schools, they can see their basic school views, first of all, for Michael. Professor Porter is a representative of the industry structure school, they believe that enterprises face intense competition, the most important strategy is to analyze the disadvantages and advantages of industry development, by analyzing these basic content, then developing differentiation strategy, single-specialization strategy, cost-leading strategy. To promote the development of enterprises; secondly, for the core competency school represented by Hamel and by Prahalad, the core competence is the key to the enterprise's competition, only the enterprise has its own core ability, can win in the competition; and finally, for the strategic resource school, they believe that the key to the enterprise's competitiveness and strategy is to improve the utilization ratio of strategic core resources, only to improve the utilization of core resources of the enterprise, so that further development of the enterprise can be promoted.

#### **1. 4. 3 Competitive Strategy Theory**

The theory of competition strategy is a theory which is specially tailored for the enterprise itself and excavates its own competitive advantage. The theory was first proposed by a strategic theorist in the United States, which includes three general strategies and five-force models, and the five-force model is mainly to demonstrate the differentiation competitive advantage and cost competitive advantage of the enterprise. This theory can be very intuitively demonstrated the enterprise's value chain, industrial

cluster and diamond system, and so on, the enterprise is also precisely because of these strategic advantages, can achieve its own place in the market.

Michael Porter introduced a five-force analytical model in the early '80s. The concept of Five Forces Model, whose model puts forward a long-term impact on corporate strategy, especially the analysis of competition strategy, is mainly used to analyze the competitive environment of enterprises.

Porter believes that the cost is an important factor of sustainability in the development of the enterprise, and the cost can sometimes help the enterprise establish its position in the market, and the research on this aspect summarizes the strategy of low cost, differentiation and centralization, and the cost control is the modern enterprise. In the key areas of the management system, only the internal cost control can provide the basis for the development and development of the enterprise. Therefore, enterprises need to strengthen the research on cost reduction, strengthen the improvement of the enterprise management system through cost control, and on the basis of ensuring the production and quality of products. The maximum possible cost reduction is to make the development of the enterprise in an advantageous position. The enterprise should pay attention to the differences between other enterprises, establish the unique characteristics of the industry in the development of the industry, attract the attention and trust of consumers, which can effectively help enterprises gain competitive advantage in the process of development.

Michael Porter has put forward the basic competitive strategy on the basis of five forces, and he believes that companies must select one from a cost-leading strategy, a differentiation strategy and a centralized strategy as the dominant strategy for the enterprise.

The cost-leading strategy is to require enterprises to achieve the lowest competitive advantage through effective ways to lower costs and achieve the lowest cost of the whole industry. The method is to set up efficient production mode, control all departments' expenditures and minimize research and development, marketing,

advertising, services and management cost of expenditure. The gain is to set up barriers to entry for other businesses, compete with alternatives and reduce the bargaining power of buyers. But the downside is that profits are reduced and are vulnerable to external influences.

Differentiation strategy is also a personalized strategy, the enterprise divides the product, specialization, to design the products and services that meet the current needs of its customers, this to the enterprise's request is to have a strong R & D ability, and strong marketing level, its products and technology to achieve the leading level, and it also has the competitiveness of enterprises attracting innovative talents. The benefits lie in the ability to build customer loyalty, creating strong corporate access barriers. Increasing marginal cost of revenue. But the risk is that customers who lose some price-sensitive products differ significantly when the product enters maturity.

Centralization strategy is to concentrate marketing activities on a certain area, or a certain group of people, or a certain type of product, especially when the enterprise does not allow a broad-scale centralized strategy, from the point-to-face occupation market. The advantage is that it can focus on the advantages of the business to better serve a certain segment of the customer base. Strategic objectives, economic goals are simple and direct, can be very good appraisal and judgment. But the risk is that if companies aren't targeting the target group, it's easy to hit companies hard, and there must be no strong competition from the same industry.

Each enterprise must clearly select a strategy from the three strategies, otherwise it will inevitably affect the strategic position of the enterprise, it is difficult to obtain high profit, lack of market share, and reduce capital investment. The industry's profits are high unless the industry's competitors do not have a clear choice of these three dominant strategies. Such as some monopolistic enterprises.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2. 1 General Strategic Analysis Tool**

##### **2. 1. 1 SWOT analysis method**

In the general analysis strategy, SWOT analysis is mainly used to analyze the strategic characteristics of the enterprise itself, among which, it is the key strategy of all enterprises to recognize the positioning of the enterprise in the enterprise, and how to recognize the position and main competition of the enterprise itself in the industry. For advantages and disadvantages, SWOT analysis provides us with a new possibility.

SWOT analysis focuses on analyzing the enterprise's internal and external environment. First, it must analyze the internal and external environment of the enterprise. In the external market environment of the enterprise, the advantages and disadvantages of the enterprise are the advantages and disadvantages of the enterprise in the enterprise's internal environment. This analysis makes the enterprise need to grasp all the advantages of the enterprise, while SWOT analysis provides us with the opportunity and the threat analysis, the opportunity to focus on the existing, the future opportunities to analyze, and the threat is focused on the potential competitors and the future development of the market The direction is analyzed.

Among them, the advantages of the enterprise mainly refer to the business model that is beneficial in the course of operation and management, with sufficient and healthy source of funds as the support of the reserve force, and secondly, good corporate image construction can give consumers and external competitors a good impression and a great threat. The potential of enterprises is more focused on the analysis of core competitiveness of enterprises. Among them, the technological advantages of enterprises are the key consideration in the course of enterprise

management and management, whether or not the enterprise realizes the transfer of technology cost through scale economy under the condition of technology as the premise, whether the quality of the product reaches the consumption The requirements of those enterprises, enterprises and enterprises have higher market share as the competitive industrial barrier, whether have a more favorable cost advantage and so on, these aspects are the advantages of the enterprise and the focus.

The analysis of the disadvantage is more focused on the management process of the enterprise, whether the enterprise is faced with the problem of equipment update during the long-term operation, whether the management is smooth, the instruction can be issued correctly, whether it has been set up in the enterprise's day-to-day technical input. And core technology, whether the fund chain is in a more abundant state, whether there is a backlog of products, from these angles, we can examine the business disadvantages of the enterprise more objectively.

In the analysis of opportunities for enterprises, we focus more on the opportunity to change the external environment, some of the new changes in the market and some of the new technical requirements of consumers will bring new impetus to the development of enterprises and make a little mistake in the fierce market competition can be summarized as the enterprise's enormous operating opportunity.

In the threat analysis, some unexpected black swans are considered more, for example, in the normal course of operation, the market suddenly appears huge changes, or is the enterprise in normal production process, has a serious production error, and so on a series of problems are leading to business management. The reasons for the crisis are the emergence of new competitors in highly competitive markets, an increasing number of alternative products, and a shift in the market's environment to the threat posed by an enterprise.

### **2. 1. 2 PEST Analysis Method**

The PEST analysis mainly refers to the macro environment analysis, P refers to the change of external policy environment, including whether the external political

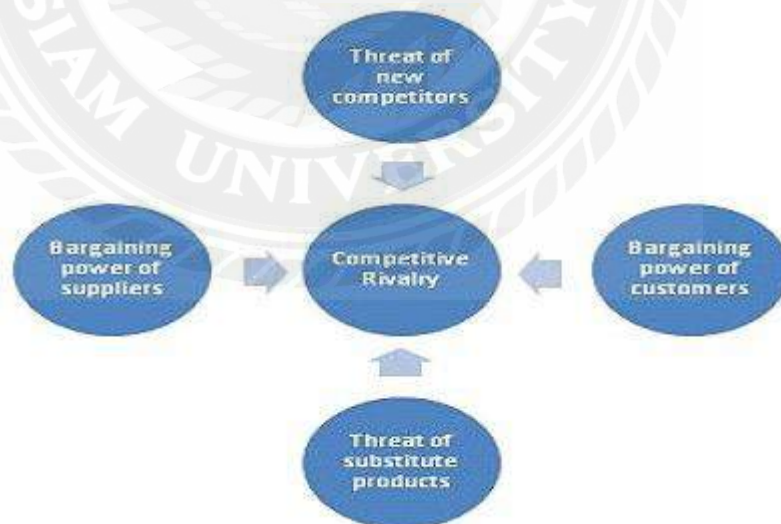
environment is stable is the main consideration in the PEST analysis process, whether the government policy will change, this is to the enterprise especially. As a result of the impact of foreign enterprise investment and its importance, foreign enterprises are most sensitive to changes in policy environment. In the macro environment, the external economic environment change is always the most important risk factor for the whole enterprise. The external economic environment has changed too quickly, which leads to the enterprise's forecast failure of the future economic situation. In order to increase the pressure within the enterprise's management and management, while the external economic situation has remained stable, it is beneficial to the enterprise to find a better economic investment decision in the long-term decision making, the exchange rate of the investment country and the change of its own exchange rate are the problems that all enterprises should focus on. In the case of domestic enterprises, the changes in their exchange rates will focus on the development of foreign businesses abroad, so they must always take account of these issues in the business management process.

Social environment has more complex characteristics. On the one hand, social environment contains social elements such as culture and religion. On the other hand, the social environment will pay more attention to the bottom. The changes in the living environment of the people of the stratum society, so for the consideration of the social environment, it is necessary to focus on the content of the enterprise entering a subdivision. The refers to the technological environment that must be considered in the course of enterprise development, and the appearance of new technology tends to cause great impact on the old technology system, so from the technical point of view, the development of technology is also an enterprise Issues that need to be addressed.

### **2. 1. 3 Porter's Five-Force Analysis Model**

Back in the 1980s, America's famous competition strategy professor Michael. Porter put forward Porter's five-force analysis model, which is the most widely used analysis model, Michael. Porter believes that the enterprise's management performance is the result of the five forces common competition, according to its theoretical

five-force competitive model, the actual bargaining power of the supplier to examine the enterprise's ability to control the suppliers, while the bargaining power of the enterprise is to examine the competitiveness of the enterprise products, the enterprise produces. The technical content contained in the product and whether the enterprise products have absolute market development advantage in the market, if the products produced by enterprises are not characteristic of consumers, then consumers will easily find substitutes from other places, and substitutes will be good for enterprise products Large threats, so from the product point of view of the business management, in the enterprise product does not have a certain degree of visibility, corresponding technical barriers or commercial barriers, the potential entrant is most likely to occupy the market, and obtain a greater victory, so from the enterprise management. From the point of view, it is necessary to build a brand-new barrier to the enterprise product through business model and technological innovation, so that the competitors can be defeated in a large degree, which mainly inspects the enterprise's own management and the control level of the upper and lower reaches.



#### 2. 1. 4 Internal External Factors Evaluation Matrix

Internal Factor Evaluation Matrix (IFE matrix) is a kind of strategic analysis tool. Its main principle is to evaluate the internal factors and quantify the enterprise's development process. According to the different factors, each factor of the enterprise

shall be graded according to the different influencing factors, and the corresponding weight shall be given according to the degree of reaction of the enterprise to the relevant factors, and then the corresponding factors shall be summed up after the product of the weighted product, and get the overall weight score. The specific steps and steps are as follows:

By collating the internal superiority, the key factor (factor of ten to twenty), the overall ranking shall be conducted according to the degree of strength and degree of the enterprise's development and the degree of importance, and the corresponding scores shall be obtained, and the scores shall be scored according to the characteristics of the selected factors, By simple descriptive language, the summary is summed up as part of the element.

Determine the importance of influencing factors. Determine the size of the weight by the degree of influence, according to the important degree, the corresponding weight is between 0% and 100%, then the summation is summed up and the sum is 100%.

Add a total score for each element, sum the score according to the principle of Li Kut's five-level scale, of which 1 is not important, 2 is a little more important, 3 points represent the general important, 4 points represent the secondary important and 5 is the most important. The results are obtained through the system's score.

The score will be summed up according to the weight of different weights, i.e. the weighted average of the score factor.

Note that, no matter how the weighted score weighted total score should be consistent with the lowest 1, highest 4, average score of 2.5 for the law, when the total score is lower than 2.5, said the current internal disadvantages than advantages of the enterprise, and when the score is higher than 2.5, expressed in the interior condition so the advantage, through constructing evaluation model, we can make the quantity of good analysis and understanding of enterprise internal management has the advantages and disadvantages, to give people a more intuitive impression.



## **2. 2 Market Positioning and Interpretation**

Market positioning is the most important method in determining the mode of operation of its products, and occupies a more important position in the market orientation research of lithium battery. Rees and Jack. In 1972, Terao put forward the core concept of market positioning, and its main method is to provide more personalized selection scheme for the products based on the existing products in the market, and to provide more personalized selection scheme for this kind of product. The product creates a distinctive image and delivers the distinctive, distinctive image effectively to the customer so that the company's products can take a more proper place in the market and provide a brand-new selection of options and strategic options for the production and operation of the enterprise.

### **2. 2. 1 Purpose of Market Positioning**

Market positioning does not represent the re-processing of products on the market, but in the minds of potential consumers and consumers, the essence of market positioning is to keep the company strictly separate from other enterprises, so as to allow customers to respect the product's brand and the dependence on the products of our company, and occupy a special place in the consumer's mind, this position must be based on the consumer's first choice of product when consuming a product.

### **2. 2. 2 Specific Implementation Steps of Market Positioning**

For most enterprises, the first thing to do is to design products according to the needs of the target consumer group according to the product of the company, followed by the characteristics of the product, the customer has a special impression, so for consumers, this product is real. The application method is very important. Product localization can be implemented according to the following three steps in specific implementation.

Identifying the strategic positioning of potential competitors

The main approach to this step is to answer the following three questions:

How competitors take a market strategy, how to position their products in the market role

What are the characteristics of the target consumers of the product, how to meet and significantly improve the target group's satisfaction with the product

How should an enterprise take action against the market positioning of our competitors and the real need for the product

The above three questions must be faced and dealt with when identifying potential competitors, from the point of view of marketers, only if market research is adequate and the results of research and market research results are provided, the market positioning can be correctly captured, and significantly improve the customer's satisfaction with our product market.

## II Positioning and positioning of core competitive advantage

In the fierce market competition, the competitive advantage mainly refers to the ability of the enterprise to overcome its competitors, which lies in every aspect of the enterprise's management, on the one hand, this ability can be present at present, on the other hand, it can also be a potential outstanding In fact, the performance of competitive advantage is actually the sustainable advantage of competitors, divided into cost advantage, differential advantage and focus advantage. The performance of this comparison indicator should be a relatively complete system. Only in this way can we accurately choose the advantage of competition. In the comparative advantage, the enterprise in the process of management, technology development, procurement, production, marketing, finance and products, compared to the final result, enterprises in comparison to the process will have the choice of what are the enterprises in the management process. Among the strengths of the company, which are the weaknesses of the enterprise in the management process.

Formulation of Competition Strategy: The main purpose of the strategy is to convey the products with special attributes to consumers through advertising, media,

Internet, etc., so that the company's products have a more complete image in the minds of consumers.

The first step in strategy formulation is to discern the consumer's needs, market preferences, the degree of identity of products, and establish a certain image for customers. Second, through the constant media advertising and advertising and so on to consumers to establish more people's corporate image, finally according to the market imperfection in the market, seize the opportunity to establish a complete product image to the opponent, and achieve the consumer's choice of the market. The goal of the medium.

## **2. 3 Analysis of Market Positioning of Lithium-ion Battery**

### **2. 3. 1 Application Features of Lithium-ion Battery**

In the consumer electronics market dominated by mobile phones, MP3 and tablet computers, lithium-ion batteries are rapidly replacing NiMH batteries. With its series of natural advantages, such as small memory effect, large number of cycles, small environmental pollution and other advantages, more and more applications are obtained, and the market is rapidly taken up. At present, people's awareness of environmental protection and the shift of ideas, making electric tools, new energy vehicles and other markets grow rapidly, this will become a new growth point for lithium-ion battery demand. The upstream industry of lithium-ion battery industry is the raw material industry, and Japanese and Korean enterprises are now in a state of monopoly on core technology. The middle reaches industry is the battery core manufacturing industry, Japan and South Korea are all involved. The downstream industry is the battery module assembly industry, Taiwan and Japan both are involved.

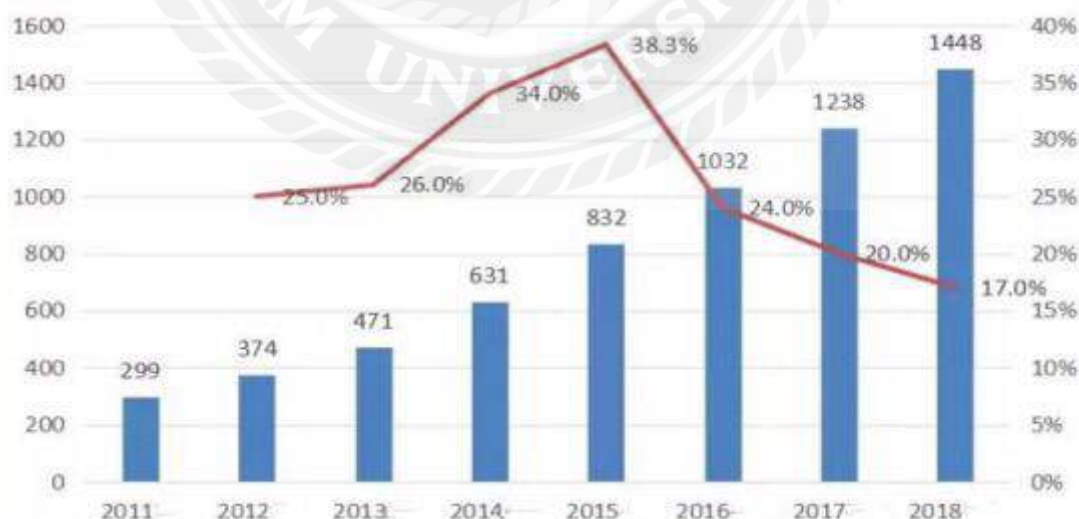
Shenzhen BYD Co., Ltd. as a professional-type lithium-ion battery manufacturing enterprise focusing on lithium ion battery core, battery pack research and development, design and manufacturing, has the capability to provide complete power supply solutions according to customers' needs. In the face of rapid changes in

the market and competitive environment, the company constantly deepens reform and strengthens management, clarifies the market orientation and development strategy. Through unremitting efforts, BYD has become the forefront of the domestic lithium battery industry.

### 2.3.2 lithium, battery market scale

At present, China's lithium-ion battery demand trend of rapid growth, originated from the rapid growth of new energy vehicles. In 2016, the power battery has gradually become the leading force in lithium battery industry, which continues the momentum of rapid development. In 2017, the concentration of lithium power battery industry has increased rapidly, industry integration trend is increasingly obvious, industry giants are continuously improving the quality. According to industry website statistics, China lithium battery core output value reached 83.2 billion Yuan in 2015, a year-on-year increase of 38%, and because of the rapid growth of power lithium battery, China lithium battery core output value reached 103.2 billion Yuan in 2016. By 2018, China's lithium battery core output value will reach 144.8 billion, Yuan.

Figure 1 Market Scale and Growth of China's Lithium Battery 2011-2018 (CNY 100 billion,)

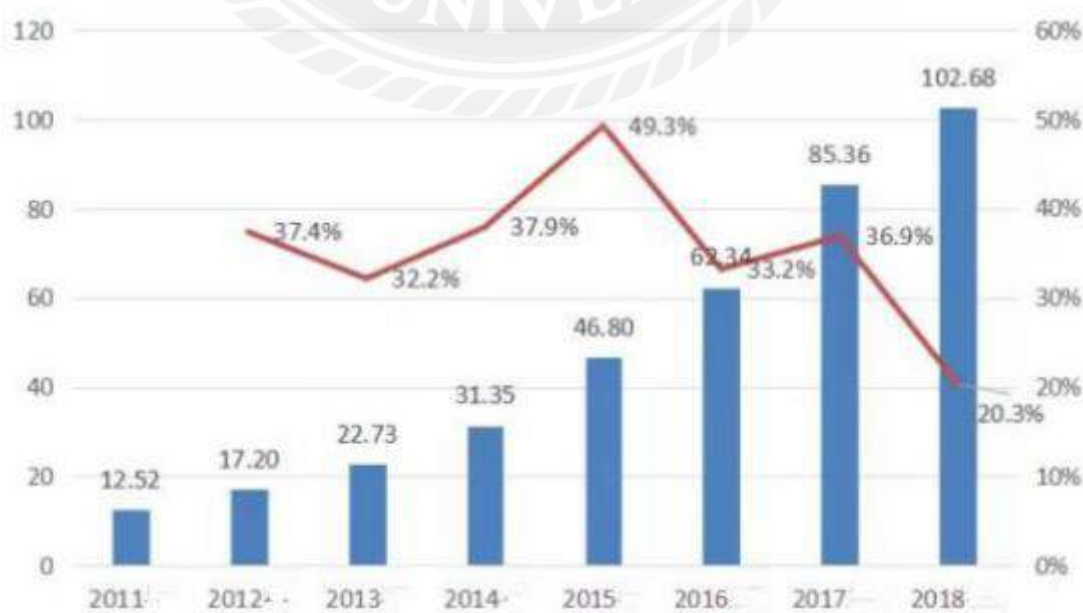


### 2.3.3 Lithium Battery Yield

According to the National Bureau of statistics data show that in the first half of 2016, China's mobile phone production reached 966 million for the first time, an

increase of 23.3%, new energy vehicles, new energy vehicles production of 285 thousand, an increase of 88.7%. The two major applications of lithium ion batteries: mobile phones and electric vehicles, as the largest volume of lithium battery applications in China, have shown rapid growth in varying degrees in terms of output. The rapid growth of downstream products is an important reason for the rapid growth of demand for lithium ion batteries. According to the industry website statistics, China's lithium battery production in the first half of was 28.15GWH, an increase of 30.5%. In the first quarter of 2017, the total output of domestic power battery production in the top ten enterprises was 3975.71Mwh, accounting for 80%. It is expected that the domestic automobile production and marketing will reach 800 thousand in 2017, the market will continue to grow, and the demand for power batteries will be greatly improved, and the demand for power batteries will be expected to increase to 34.18GWh. Lithium ion power battery demand will continue rapid growth momentum, it is expected that the annual lithium battery production will reach 62.34GWh, China power lithium battery ratio will be expected to exceed 3C batteries to become the largest application end. It is estimated that China's lithium-ion battery market will reach 180GWH in 2018, and will grow by 25% in the next 3 years.

Figure II Output and Growth of China Lithium Battery 2011-2018 (GWH%)

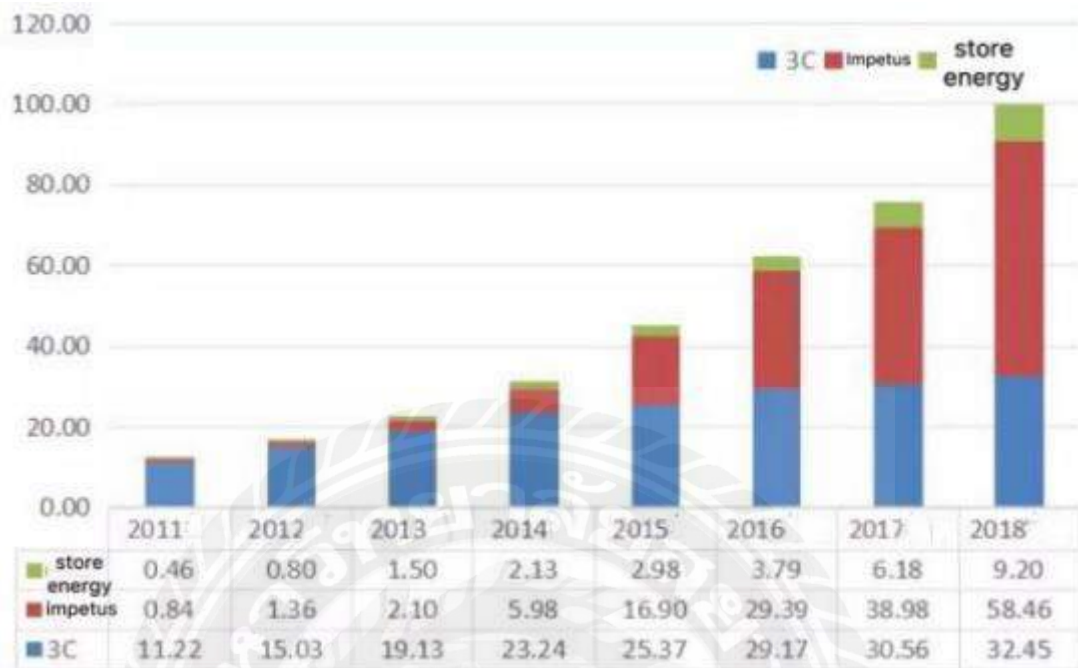


### **2.3.4 Lithium Battery Three Application Terminal**

In lithium battery three major consumer terminals, lithium battery growth is the fastest, 2015 China power lithium battery output is 16.9GWH, a year-on-year increase of more than three times, faster than the other two big terminals. In the first half of 2016, China's power lithium battery production was about 12.64GWH, China's power battery production reached 29 at the end of 2016. 39GWH. In 2016 BYD power battery business realized output 8.3Gwh. Operating revenue is about 13 billion yuan, and its power battery production is about 3Gwh in the first half of 2017, with revenue of about 5.5 billion yuan. More than 3C battery production, becoming the biggest consumer end, the power battery will be China's lithium battery in the next five years the biggest drive engine, the power battery is gradually transition from the introduction period to high speed into long-term.

The next 5 years, 3C consumer electronic products gradually become saturated, the average annual increase rate of lithium battery will shrink to about 20%, but the new energy automotive lithium ion battery market average annual growth rate will reach more than 50%, as the energy storage lithium ion battery market average annual growth rate will reach 20% in the "13th Five-Year" during storage included in the "13th Five-Year plan" 100 project, a huge potential for development, with the application of lithium battery, but due to technical reasons, policy is still in the initial stage, compared with the power battery is lagging behind. In 2015, China's energy storage lithium battery output is about 3GWH, an increase of 45.8%. In the future, with the gradual maturity of technology, the energy storage market will also become another pole pulling lithium battery consumption. China's energy storage lithium battery production is expected to be 3.79GWH in 2016.

Fig. 3 Demand and Forecast for China lithium battery in 2011-2018 (GWH)



### 2.3.5 Three Major Types of Lithium Battery

The three main types of lithium battery include the soft-core lithium battery, the square electric core lithium battery, the cylindrical electric core lithium battery. At present, the soft-clad core is still in the first place in terms of production and growth, for the most important type of electric core in recent years. However, as some leading battery companies expand the square-power core production line on a large scale, it is estimated that by 2018, the square electric core may become the main type of electrical core. Although the competitiveness of cylindrical cores is relatively weak, the market position should not be underestimated.

On the basis of specific data, China's soft-bag core production in 2015 was 20.93GWH, a year-on-year rise of 47.28%; cylindrical electric core output is 11.5GWH, a 44.42%; square electric core output is 14.37GWH, a year-on-year growth of 56.61%, faster than any other two-shape core. China's square electric core production is expected to reach 20.32GWH 2016, the speed up to 40, is still higher than the soft and cylindrical electrical core growth.

### 2.3.6 Application Scenario Analysis of Lithium-ion Battery

Since 1991, when Sony released its first lithium-ion battery, lithium-ion batteries have revolutionized the face of consumer electronics with their high energy density, long service life and light weight. From the late 90 to the present more than 10 years, the global lithium-ion battery production has been maintained at 10%-20% growth rate. At present, China is the world's largest producer of lithium-ion batteries, with output growing from 70 million in 2001 to 4.8 billion in 2013 and CAGR of up to 38.4% in 12 years. 4.8 billion lithium battery total 33.7 million kwh, sales revenue of more than 65 billion yuan. 2014 China's lithium battery production will be expected to exceed 5.4 billion. The application scope of lithium ion battery is mainly divided into consumption class

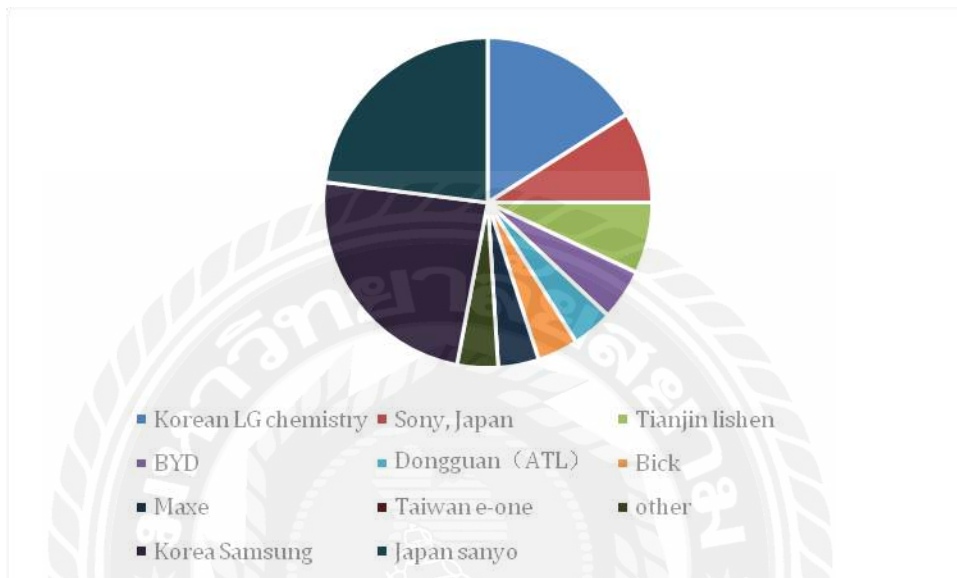


After years of development of lithium battery, electronic products have formed a complete industrial chain, and the market pattern has become more determined in the development. The early lithium battery nearly all produced from Japan, with South Korea, China into the lithium battery market, Japan lithium battery production in the global market share declined, already by Samsung, LG and other Korean companies quickly grabbed, 2011 South, Korea has become the world's largest lithium battery producer. In 2013, China's lithium-ion enterprise Tianjin Lishen, BYD



and Bick's global lithium battery market share accounted for 7%, 5% and 4% respectively. Currently, lithium-ion batteries, produced in South Korea, Japan and China, account for more than 95% of global output.

Figure 2: Market Pattern of Lithium Battery Market in Global Electronic Products in 2013



In addition to its early applications in functional phones, digital cameras and laptops, the lithium-ion battery has become a new demand point for smartphones, tablets and mobile power.

The 2014 global smartphone shipments reached 1.004 billion, the first breakthrough of the 1 billion milestone, a year-on-year growth of 38.4%. Among them, China's smartphone shipments of 320 million units, year-on-year growth of 64.1%. After 7 consecutive quarters of high-speed growth, China's smartphone penetration rate of about 50%, growth has slowed. But according to the agency forecast, the 2015 smartphone will also have the good development foreground in China. Among them, 4G mobile phones will usher in a burst of growth, 4G mobile phone shipments will reach 72.4 million, compared with 2013 4.6 million growth of nearly 16 times times. Smart phone replacement speed, short cycle, resulting in the user's changing demand doubled, so in the next few years will maintain a more stable growth, is expected to

2017 global shipments of 1.685 billion units, the annual compound growth rate of 13%-14%.

Global tablet shipments were shipped in 2015. 1.7 billion, units, up from 1 in 2014. Forty-four hundred million units have grown by 50.6%. In the fourth quarter of 2015, tablet shipments exceeded PC shipments for the first time. There are signs of slowing growth in markets such as the US, but growth in emerging markets, dominated by China, remains strong. Chinese tablets shipped 17.6 million, units in 2015 and will grow at 40%-50% over the next three years. Global tablet shipments are expected to reach 4 by, 2017. The annual compound growth rate is about 15%.

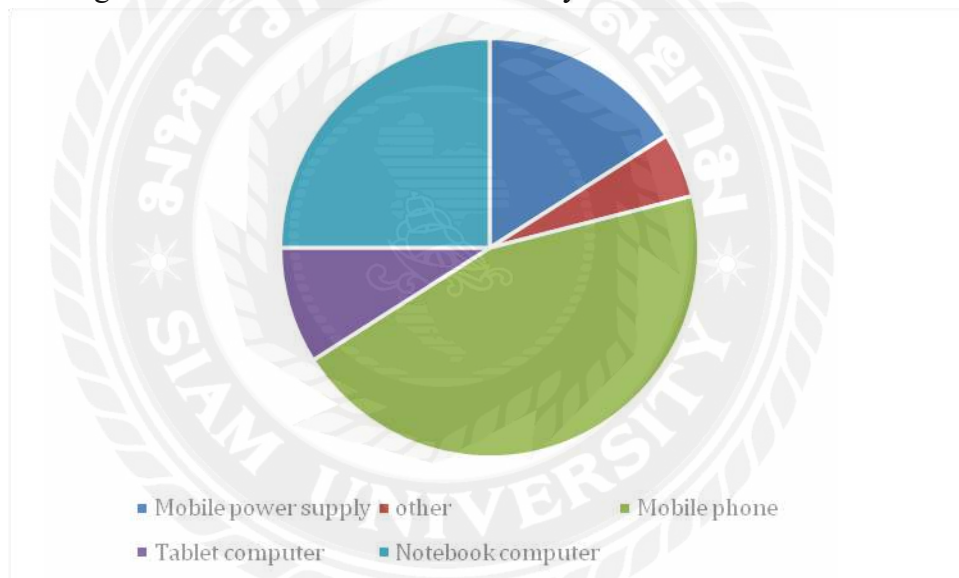
With the rapid growth of smartphones and Tablet PCs, there is another electronic product--mobile power. 2015 global sales of all kinds of mobile power products nearly 117 million units, including the Chinese market sales in 49.5 million units, compared with 2014 growth of 42.32% and 70.69% respectively. According to statistics, 2013 China Mobile Power market scale reached 10.5 billion yuan, year-on-year growth of 81.03%. This not only benefited from the expansion of mobile devices such as smartphones and tablets, but also because of the gradual increase in the capacity of mobile power cells. 2016, domestic mobile power market size will reach 19 billion yuan, and 2017 will reach 34 billion yuan.

In addition to these already popular digital electronic products, there is also a category of emerging electronics that deserve market attention and wearables. The wearables can be understood as a portable device that is directly worn, or integrated into a user or part, through software support and data interaction, cloud interaction to achieve powerful functions. For example, the U.S.-based company's Fit Sweater, which measures data such as electrocardiogram, body temperature and activity, is available for medical institutions to monitor patients' health. For instance, the Misfit Company, which is made of space-grade aluminum, is designed to track equipment Shine products with only button sizes and design-inspired physiological activities. Industry insiders believe the wearable device market is dynamic, although it shipped only 13 million,

global shipments in 2013, but expects to ship 64m units by 2017, with a compound annual growth rate of about 50%. In 2015, China's market wearable devices will be more than 40 million, units, with a market size of about 11.5 billion yuan.

In 2015, the market demand for lithium-ion batteries in China was 6.4754 million kwh, up 49.57% from 2014, with the growth mainly from smartphones, tablets and mobile power markets. Mobile phone lithium-ion batteries demand in 2.9279 million kwh, growth rate in 59.1%, accounted for 45.2%, tablets and mobile power lithium battery demand in 553,900 kwh and 1.0247 million kwh, growth rate of 94.4% and 96.3%.

Figure 4: Distribution of lithium battery demand in China in 2015



Globally, total demand for lithium batteries for electronic products has reached 296.5 million kWh in 2015, similar to the domestic situation, driven mainly by smartphones and tablets, which will remain in the next few years. It is expected that demand will reach 4791 million kWh in the next four years, with a compound growth rate of 13%

## **2.4 The Current Situation and Strategic Analysis of Lithium Battery Operation in BYD Group**

### **2. 4. 1SWOT analysis**

Analysis (advantage analysis): As the world's leading lithium battery production and full solution provider, BYD has a strong technical advantage in the field of lithium battery, its products are widely used in the digital 3C, home appliances and industrial energy storage market, and high-performance phosphate iron lithium battery as the characteristic technology of BYD Group Accumulated products, in the field of electric vehicle has a strong technical advantage, based on the latest statistics in 2016, BYD Group in the world's power lithium battery has reached 13% of the world's overall shipments of lithium battery has a strong technical advantage.

As a comprehensive large-scale group covering IT, automobile manufacturing and new energy, the company has a strong advantage in resource integration. First, it has two large lithium-ion batteries in Shenzhen and Dongguan. The center able to meet the huge demand of customers around the world, and in the field of battery production its technology and capacity in the further expansion, as the largest and most advanced lithium battery production laboratory manufacturers, BYD in the accumulation of technology accumulation and intellectual property accumulation has a greater advantage, Therefore, from the company's internal key technology and production capacity, in lithium battery production and research and development areas is absolutely no problem.

BYD Group has been widely recognized in several ways, particularly in areas such as electronics and digital 3C, where BYD's lithium-ion batteries are sold, especially in areas such as electronics and digital 3C, where BYD is a giant and domestic market with a clear conscience On the other hand, the domestic manufacturers' digital products are mostly used by BYD's lithium-ion battery technology, while BYD continues to perfect after-sales service, while BYD won't have a problem with lithium battery sales.

Analysis (disadvantage analysis): BYD is well-deserved in the domestic market, but BYD's industrial layout is not enough in terms of international market expansion, especially in areas such as Europe's long-term technological advantages, such as Europe and Japan. With independent intellectual property rights belong to phosphate iron lithium battery, and it is mainly used in the field of power battery and industrial energy storage, and in consumer market, phosphate iron lithium battery does not have the technical advantage, so from the battery business of BYD Group, there are still more technology in other. In the hands of the manufacturers, in the process of production and sale of products, still want to pay high royalty fees to the manufacturers of the source, second, lithium battery its unit contains less energy proportion of the energy storage market and electric enterprises technical requirements, the high cost of production costs is always restricting the. The development of the Group's lithium battery is an important factor.

Opportunity In our country's traditional energy consumption structure, fossil fuels still occupy a more important position in our country's traditional energy consumption structure. Because of the serious problems, how to improve the rational proportion of renewable energy and new energy in the overall economic system, less human activity has always been one of the core issues in China's economic development, and therefore, from the reality of our country, Improving the quality and level of economic development, speeding up the development level of new energy construction and renewable energy, has always been a top priority in our country's economic development. Therefore, it is a basic industrial policy of China to develop lithium battery industry.

As a necessary link in the development of new energy industry, lithium battery can be used repeatedly in the course of the development of new energy industry. It is important to support the development of new energy industry. As an important part of the development of the domestic economy, it is always correct in terms of China's industrial policy. The new energy industry, especially the lithium battery industry,

gives important industrial support, and the corresponding supporting facilities have the support of various financial funds and the support of local industrial policies, so lithium-ion batteries, as an important industry in the development of new energy, are strongly supported by the state. In the future, China's development of new energy industry has more positive and significant policy advantages and positive significance.

Liquidity (threat): China's new energy industry has a late development, in terms of technology and patent, the same day Han and other countries have a big gap, especially in power lithium battery and digital 3C lithium battery applications, China still only occupies the low value of lithium battery processing and assembly, especially in the whole technology. Compared with other manufacturers, such as design standard design of the same day, China and other manufacturers have a big gap, so pure from industry to see BYD is facing the pressure of foreign manufacturers, the second lithium battery, although has many aspects of the characteristics, but its manufacturing cost is high, in the future lithium battery big gauge Modelling is still a big problem. In the absence of the present solution, lithium battery production and manufacturing process is still a relatively complex unknown, followed by BYD's lithium battery development pace with the country's industrial support policies, if in this respect lost the support of the national industrial policy, the future of BYD's hair With the development of lithium-ion batteries, BYD's future still faces many unknowns from the market and industrial policy.

#### **2.4.2 PEST Analysis**

The PEST analysis focuses on the business management process from the macro environment, mainly used in the enterprise's production and operation environment analysis, so we discuss the macro environmental problems faced by BYD Group's lithium battery business according to the core content of PEST analysis.

Political environment of P (Politics):As the cornerstone of the development of new energy business, lithium battery technology has been widely used for the operation and production of clean energy for enterprises, especially in our country. Today,

lithium-ion batteries, as the energy storage device that can be reused for many times, are strongly influenced by national policies. The state has set up a special industrial development fund to provide various technical support in technology R & D and market marketization, especially in our country. Today, the development of new energy faces various technical difficulties, but the vigorous branch of national policy Holding down, BYD Group's lithium battery products have government procurement and technical research and development subsidies and corresponding local policy support, so for the BYD Group, its lithium battery business has a big advantage in the policy environment.

Economic environment in E (economic):China's economy is facing a period of cultivation and development of traditional industries and emerging industries, and economic growth is beginning to decline, and the traditional industry is due to its high pollution, high emissions and low output value, which has been suppressed by the industrial policies of the state, and the cultivation of new industries has become a new round of development will in the country. Today, the new energy industry has generous industrial policy support in the upgrading of economic structure and transformation of economic structure.

From the economic environment, digital products and electronic 3C products, a lot of into the hundreds of people, a variety of new electronic equipment is endless, this big led the development of lithium battery market, so in the development of industrial organization, lithium battery industry is promising. Second, new energy vehicles and new energy business continue to expand, led the market to power lithium battery demand, in the future state industrial policy vigorously support, the power lithium battery will lead to the traditional lithium battery, ushered in a new round of industrial explosion period, and based on the power lithium battery driven. The development of the energy storage market of the charging pile will bring new development opportunity to China's lithium battery market in the future. Under the favorable technology and market conditions, the better economic environment provides important support for lithium battery market.

Society of Society:Social environment analysis, people's consumption habits and consumption behavior is always the focus of our research process, so on BYD Group's lithium battery business social environment analysis, it must focus on the current social environment, that is, people's consciousness is able to arrive at the correct analysis Results.

After years of sustained economic growth in China, environmental pollution problems, smog, water pollution, soil pollution and heavy metals chemical pollution have become an important bottleneck in China's economic development, and people's awareness of environmental protection is gradually increasing, so from lithium battery In view of the development of the pool industry, the growing maturity of its technology and the expanding scale of scale are dealing with the development of lithium battery in China, with favorable social environment support. Secondly, the patriotic situation of our people is further strengthened as an enterprise with independent intellectual property rights. At the very low end of the enterprise, the external image is changing gradually, more and more people's welcome, the establishment of environment-friendly social development mode, constantly enhance the social public awareness of environmental protection, is gradually becoming the mainstream of social development, so for Biya For the Group, its lithium battery products are attracting more and more attention.

T (technology) technology environment:As a state-of-the-art technology, new energy technologies have already obtained technological advantages in key areas, and today, a growing number of skilled personnel have emerged to provide more strategic support for China's lithium battery business, so it is industrialized Today, BYD with its abundant technical reserve, is gradually becoming the new energy lithium battery business development process important technical support, but we also want to see clearly, as the technical strength of the most powerful Japan and other countries, has established a complete lithium battery The research and development, design, production and other steps of the pool, in the international patent protection



increasingly intensified today, domestic lithium battery production processing enterprises also need to pay a certain amount of patent fees to Japan and South Korea and other international large factories, the company has achieved certain achievements in lithium battery technology, However, compared with foreign manufacturers, the technical advantages are still not obvious, and the key technology R & D and other fields still lack the core technology talent, the overall R & D technology needs to be strengthened.

#### **2. 4. 3 Porter's five-force analysis model**

Porter's five-force analysis model selects suppliers and buyers, potential entrants and alternative products in the industry, as well as competitors in the industry as the analytical model, runs through the various aspects of the management of the enterprise, so the Porter's analysis of the Porter's five-force analysis model has obvious skills Preoperative advantage.

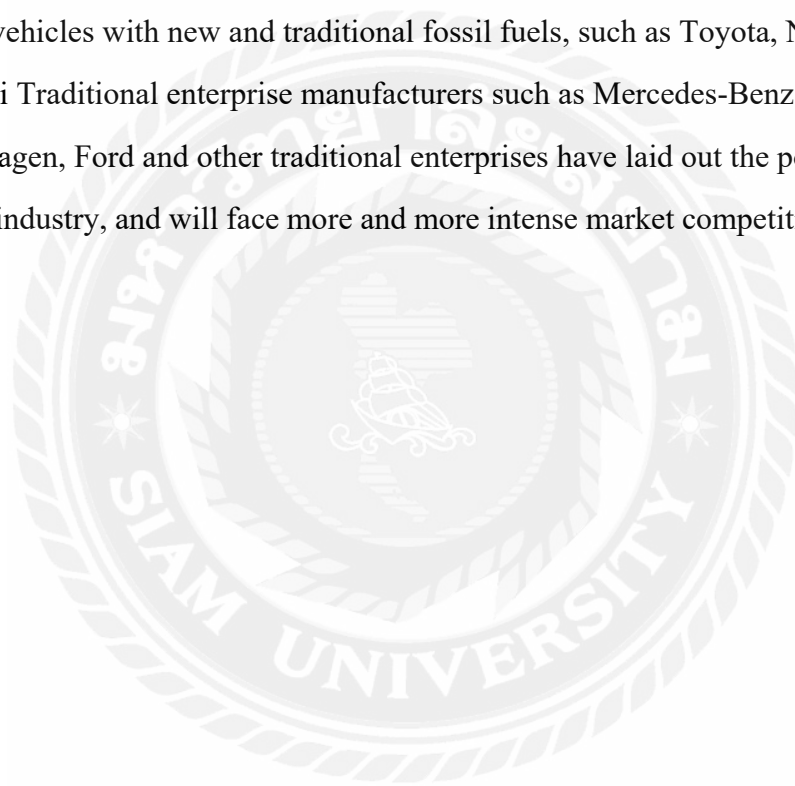
Analysis of supplier bargaining power:BYD's lithium battery business in the production process, its suppliers mainly refer to lithium battery lithium ore of primary processing suppliers, including lithium ore mining and rough processing manufacturers, this part of the production manufacturers low-content, in the industry does not have more obvious technical advantages, and replace manufacturers More, so from the supplier level of BYD, in the supplier with more choice conditions, its bargaining power is low, and as the largest manufacturer of lithium battery in China, it has strong bargaining power in the process of purchasing suppliers, and the scale effect is more obvious.

Bargaining power of the purchaser:The application area of lithium battery has many aspects, which is widely used in digital 3C, power battery and high-efficiency energy storage field. Therefore, from the sales of lithium battery, in the digital 3C field, BYD is only a regular lithium battery manufacturer, not strong technical advantage, also face a variety of patent fee collection, at the same time in consumer business. This part of the business can be avoided, in the field of energy storage and power lithium

battery, BYD's phosphate iron lithium battery has certain technical advantages, in the country to develop new energy vehicles, BYD Group in lithium the battery business area has a certain voice, followed by the use of large-scale power lithium battery, and the scale effect is emerging, for the BYD Group, this is the future promising to develop the field, in respect of the buyer's bargaining power, as the industry is still in. At the beginning of the development of the technical standards is broad, in the civilian market does not form a relatively clear price model, so on the whole, the purchaser's bargaining power in the future will be further revealed, before this BYD's lithium battery, especially the power lithium battery products in the process of pricing and bargaining. There is a large space in it.

Threats to industry competitors: In the domestic market as well as in the international market, BYD faces a fierce market competition environment, in the domestic market due to the strong support of national policies, BYD's lithium battery products have certain technical advantages, but the market has not been fully developed, in the country's economic subsidies continuously reduced Under the circumstances, BYD will face competition from international markets such as South Korea's LG, Samsung Electronics, Panasonic and Toshiba's lithium-ion batteries, while squeezing domestic rivals such as the domestic market, Tianjin Lishen, Beijing and Price New Energy. Therefore, in the light of multiple aspects, the potential competitors of BYD Group in the future market competition are many, and once the opponent has made a major breakthrough in some field, or if BYD makes a bigger mistake in the development of lithium battery research, its main competitors will actively catch up more than coming, in turn to achieve curve overtaking. Therefore, from the management of BYD, focus on strengthening the technology advantages of lithium battery business, continuously improve the technical level, increase research and development investment and product development, always occupy the domestic lithium battery production and development of the first chair, with the advantage of technology advantage in the fierce market competition to realize process Broken.

The threat of potential entrants: The lithium battery industry is the core combination of the new energy development process in the future. Today, more and more enterprises devote themselves to the development and research of lithium-ion batteries. Many enterprises have announced the production research plan of lithium battery, so pure from the whole there are still a lot of potential market competitors in the market, and many traditional businesses have begun to announce new energy industries, and some traditional car manufacturing has also begun to actively develop hybrid vehicles with new and traditional fossil fuels, such as Toyota, Nissan, Honda, Hyundai Traditional enterprise manufacturers such as Mercedes-Benz, BMW, Volkswagen, Ford and other traditional enterprises have laid out the power lithium battery industry, and will face more and more intense market competition in the future.



## **CHAPTER 3**

### **RESEARCH METHOD**

#### **3. 1 Data Source**

In the process of data selection, we adopted a more objective data screening method, among which, according to the consumer's preference for lithium battery and the development direction of lithium battery and market demand, the questionnaire was designed and distributed according to the contents of the questionnaire, and then passed the questionnaire. The collected data yielded results and SPSS 22 was used for questionnaire data. The software is analyzed, and finally the consumer's preference for lithium battery can be used to provide corresponding strategic support for the development of lithium battery of BYD Group.

#### **3. 2 questionnaire design**

In the process of questionnaire design, we attribute the demand of consumers to the demand of electric vehicles as a few categories, which mainly affect the production and development of lithium battery enterprises, and we boil them down to three categories: lithium battery enterprises own manufacturing level, from consumers selection of preference, from other aspects of the demand, and then we make further analysis of the different parts of the questionnaire, analyze the development factors that affect lithium battery, including lithium battery in the process of quality problems, lithium battery's own life problem, lithium battery energy storage size, lithium battery The applicable price model, consumer's awareness of environmental protection and consumption habits will further refine the problem and target, and then produce more research results.

The levels of the questionnaire are as follows:

target layer (lithium battery demand)

Subdivide layer: lithium battery cost performance, purchaser background, other factors and other problems

Program layer: price, energy storage scale, charge speed, consumer can pay level, consumption habit, environmental awareness, purchase channel.

### 3.3 model design

First of all the sample data to do a reliability test, the test formula is as follows:  $\hat{\alpha} = (n/n-1) * (\sum SI^2)/st^2$ , through the reliability test of the selection of data has a strong reliability, followed by the analysis of relevant questionnaires between the correlation between the relevant relationships to derive whether there is a correlation between each other, When the value deviates from 1, the better the correlation is, trend-1 is negative correlation, trend 1 is positive correlation, in order to explore the specific relationship between variables, we select the method of one-dimensional linear regression analysis, to extract the main variables to discuss whether consumers choose lithium batteries and the correlation between the factors, Before we do a linear regression, we need to make a test of whether the linear regression equation can fit the sample data well. That is, the test formula for the R-squared of the fitting is as follows: The test of the nonlinear equation (1) calculates the residual squares and  $q = \sum (y-y^*)^2$  and  $\sum y^2$ , wherein,  $y$  represents the measured values, The  $y^*$  represents the predictive value, (2) The fitting index  $r^2 = 1 - (q/\sum y^2)$  to the linear equation:  $r^2 = \frac{\sum (y \text{ prediction} - y)^2}{\sum (y \text{ actual} - y)^2}$ ,  $y$  is the average. If  $r^2 = 0.775$ , then it is indicated that 77.5% of Variant  $y$  is caused by variable  $x$ . When  $r^2 = 1$ , it means that all the observed points fall on the regression line. When  $r^2 = 0$ , it indicates the relationship between the independent variable and the dependent variable wireless. Finally, combined with the actual situation of the lithium battery consumers in BYD Group, the paper puts forward feasible policy suggestions accordingly.

### **3. 4 Data Analysis Result**

Through the method of questionnaire survey, we conducted a more detailed investigation of the major consumer groups of BYD lithium battery. Based on the survey, we found that different consumers were different from BYD's lithium-ion battery, so on this basis we analyzed data collected from the relevant investigation data. Through descriptive statistical analysis, factor analysis, correlation analysis, independent sample T-test, the relevant conclusions are drawn, and corresponding suggestions are put forward.



## CHAPTER 4

### RESULTS

#### 4.1 A Descriptive Analysis of the Survey Object

A total of 350 questionnaires were issued and 322 valid questionnaires were recovered and the recovery rate was 92.0%. Of the 322 survey questionnaires, men 162, accounting for 50.5%; 150 women, 49.5%. See Table below for details of other basic information and proportion distribution

Table 1 Basic information of the investigation object

Item	Number of people	Proportion (%)	
Gender	Male	172	53.42%
	F	150	46.58%
	Total	322	100
Education background	Undergraduate and below	173	53.73%
	Master degree or above	149	46.27%
	Total	322	100
Age	18 years old and below	78	24.22%
	19-30 years old	89	27.64%
	40-65 years old	110	34.16%
	65 or older	43	13.35%
	Total	322	100
Income	50,000 yuan and less	76	23.60%
	50,000 to 100,000 Yuan	88	27.33%
	100,000 and above to 200,000 yuan	116	36.02%
	RMB 200,000 and above	40	12.42%
	Total	322	100
Have you ever used a lithium battery made	Yes	276	85.71%

by BYD	No	46	14.29%
	Total	322	100.00%

During the investigation, the investigators conducted self-examination and review of each questionnaire collected and found and corrected potential problems in a timely manner, and randomly selected about 15% of the subjects after the investigation, and repeated the survey to ensure consistency with the content of the questionnaire. The results showed that the contents of the two surveys were SPSS 22.0 software for Kappa and its Kappa number is  $0.83 > 0.80$ . It is therefore considered that the survey data is reliable.

#### 4. 2 validity test of questionnaire

Factor analysis refers to statistical techniques to extract common factors from variables. The first British psychologist C. E. Spearman put it forward. He found that there was a certain correlation between the students' grades, a good student, and the other grades were better, so that there were some potential commonalities, or that certain general intellectual conditions affect the academic performance of the students. Factor analysis can identify hidden factors in many variables. Converting the same essential variable into one factor, reducing the number of variables, and examining the assumptions of the relationship between variables.

When using factor analysis to test validity, it is necessary to satisfy the precondition of factor analysis, that is, there is a strong correlation between the items, which is reflected in two test indexes: 1, KMO value, 2, Bartlett spherical test value. Among them, the KMO value is used to compare the simple correlation and the partial correlation coefficient between the topics, and the values are between 0 and 1. The criteria for factor analysis are: greater than 0.9, very suitable, 0.7-0.9 fit, 0.6-0.7 is not suitable, and less than 0.6. The Bartlett spherical test value is used to test whether the



correlation coefficient between the items is significant, and if the significant (i.e. sig. 0.05) is suitable for factor analysis.

#### 4. 2. 1 validity test of job values scale

Table 4. 2. 1 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.882
Bartlett's Test of Sphericity	Approx. Chi-Square	7896.879
	df	322
	Sig.	.006

Table 4. 2. The results show that the KMO inspection value of the investigation data is 0. 882, greater than 0.70. It is proved that the questionnaire is suitable for factor analysis. The Bartlett ball test results show that the approximate chi-square value is 7896. 879, the numerical comparison is large, the significance probability is 0.006 (  $P < 0. 01$ ), therefore, reject the zero hypothesis of the Bartlett ball test, and consider that the validity structure of the work values gauge is good and suitable for factor analysis.

In the process of factor analysis, by using the principal component analysis (Principal Factor assay), and by orthogonal method (VariMAX), the factor of the eigenvalue is more than 1, and the common factor with the characteristic value greater than 1 is found to be six. The results of the table show that the load of each item is greater than 0.50 and should be retained. Table 4.2.2 Results showed that the total variance interpretation rate of six factors was 70.693%, greater than 60%, so the validity of the work value scale was good.

Total variance of the description									
Component	initial characteristic value			retrieve square and load			cyclic square sum loading		
	TOTAL	of variance	Add%	TOTAL	% of variance	Add%	TOTAL	% of variance	Add%
1	1.653	8.266	26.54	1.653	8.266	26.54	1.467	7.333	22.849
2	1.491	7.453	33.992	1.491	7.453	33.992	1.461	7.304	30.153
3	1.328	6.641	47.481	1.328	6.641	47.481	1.415	7.076	44.431
4	1.193	5.967	53.448	1.193	5.967	53.448	1.308	6.538	50.969
5	1.054	5.272	58.72	1.054	5.272	58.72	1.303	6.514	57.483
6	1.018	5.092	63.811	1.018	5.092	63.811	1.266	6.328	63.811
7	0.976	4.882	68.694						
8	0.877	4.387	73.081						
9	0.817	4.086	77.166						
10	0.76	3.846	81.013						
11	0.703	3.516	84.528						
12	0.626	3.132	87.661						
13	0.614	3.071	90.732						
14		2.816	93.547						
15	0.481	2.405	95.953						
16	0.424	2.12	98.073						
17	0.385	1.927	100						

Capture method: subject component analysis.

Table 4. 2. 3 For the post-rotation factor matrix table, the 26 problem options can be grouped into six categories and named after expertise:

Factor 1, the option x1-x2 is, named as the "Lithium Battery Impression Factor";

Factor 2, named option X3-X4 as," lithium battery selection factor ";

Factor 3, named option X5 as," Product Brand Factor ";

Factor 4, the option X6 is, named as" restricting the development factor of lithium battery ";

Factor 5, the option X7-X9 is, named as the future development factor of lithium battery;

Factor 6, named option X61-X64 as," BYD Group lithium battery development factor ".

spin-element torque converter

	Element					
	1	2	3	4	5	6
How to contact lithium battery	0.922	0.168	0.108	0.725	0.028	0.118
Impression of lithium battery	0.61	-0.237	-0.166	0.341	-0.078	0.17
Reasons for choosing lithium battery	0.732	-0.112	-0.042	0.02	-0.054	0.078
Reasons for further selection of lithium battery	-0.394	0.633	0.173	-0.049	-0.095	-0.195
Product brands	-0.106	0.541	-0.029	0.341	0.099	-0.071
Factors that restrict the development of lithium battery	0.057	0.127	0.713	0.14	0.283	0.203
How to improve the position of lithium battery in the market	-0.092	0.032	0.513	-0.55	-0.129	0.193
Application Prospect of Lithium Battery	-0.099	-0.004	0.035	0.663	0.23	-0.178
How to promote the development of lithium battery	-0.08	0.334	0.12	0.542	-0.025	-0.067
Characteristics of BYD Lithium Battery	-0.068	-0.22	-0.038	0.567	-0.03	0.192
BYD Lithium Battery Business Future Development	0.428	0.122	0.122	0.614	-0.07	-0.272

Capture method: main component analysis.

Rotary shaft method: the maximum variance method with Kaiser regularization.

a Convergence cycles in the 16-stack generation.

### 4.3 reliability test

Reliability, i.e. reliability, refers to the degree of consistency of the result obtained by repeated measurements of the same object by the same method. The reliability index is often divided into three categories: stability factor (cross-temporal consistency), equivalence factor (cross-form uniformity) and internal consistency coefficient (cross-item consistency). The method of reliability analysis mainly consists of the method of retest reliability, complex reliability, half-reliability and á-reliability coefficient method. The internal consistency reliability was mainly measured by

Cronbach's Alpha coefficient to test the consistency of the responses to all questions in the same scale. This method is mainly used in this study.

#### 4. 3. 1 Reliability test of BYD lithium battery survey questionnaire

Cronbach alpha score of the questionnaire was 0. 797, the internal consistency of each factor was greater than 0.70. According to the statistical point of view, the reliability coefficient of any test or gauge is 0.70-0.90, the internal consistency of a test or gauge indicates that the questionnaire results have strong credibility

Table 4. 3. Reliability Analysis Result Table of Work Value Scale

internal control scale	Cronbach's Alpha number	Number of Items
Lithium Battery Impression Factor	0.922	2
lithium battery selection factor	0.786	3
product brand factor	0.773	1
restricting lithium battery development factor	0.723	1
Lithium battery future development factor	0.757	2
BYD Group lithium battery development factor	0.831	2

The numerical value of Cronbach's Alpha is more than 0.7, the reliability of each project in the investigation process is higher, among which the overall Cronbach's Alpha is up to 0.922 with the overall Cronbach's alpha system, therefore, in general, consumers have a deep impression on lithium battery during the course of the consumer investigation, but also can reflect the opinions of consumers on lithium battery.

#### 4. 4 Descriptive Statistical Analysis

##### 4. 4. 1 Descriptive Statistical Analysis of Ecological Village Construction Scale under Dual Creation Mo

Table 4. 4.1 A Descriptive Analysis of Ecological Village Construction Survey Data under Dual Creation Mode

factors	(N sampl e size)	Minimum ( Minimum)	Maximum	(Mean Value)	Std. Devonian standard deviation
Lithium Battery Impression Factor	322	1.75	4	3.43	0.92
lithium battery selection factor	322	1.75	4	2.56	1.03
product brand factor	322	2.5	4	3.22	0.91
restricting lithium battery development factor	322	2.4	4	2.26	0.84
Lithium battery future development factor	322	2.6	5	2.57	0.92
BYD Group lithium battery development factor	322	1.75	5	3.67	1.03

Among the scoring process for lithium battery business, consumers generally favor BYD Group's future lithium battery business development, among which BYD Group lithium battery development factor scores up to 3.67 points, overall subject to consumption recognition, followed by the impression factor of lithium battery, the consumer to a large extent on lithium battery is a more acceptable attitude, generally divided into 3.43 points, fully explain the lithium battery business in the consumer's mind is a very high market, consumers recognize lithium battery weight is lighter, the energy storage size is larger, think lithium battery is the future sustainable development must master the battery technology, although consumers more value lithium battery products However, as a highly technical product, consumers more attention to brand effect, value that manufacturer's lithium battery, so the company also needs to start with lithium battery brand building, actively seek countermeasures.

## 4.5 Comparative Analysis

### 4.5.1 Gender

A Comparative Study of Different Factors of BYD Group's Lithium Battery Products in Different Gender

	Gender	Sample size (N)	Average Values (Mean)	Standard deviation (Std. Deviation)	t value	Đ-value
Lithium Battery Impression Factor	Male	183	3	1.911	0.333	0.74
	F	139	4.69	1.743		
Lithium battery selection factor	Male	183	4.81	1.653	2.325	0.021*
	F	139	5.06	1.491		
Product brand factor	Male	183	4.32	1.369	0.041	0.067*
	F	139	4.33	1.328		
Restricting lithium battery development factor	Male	183	4.42	1.193	1.786	0.075
	F	139	4.62	1.054		
Lithium battery future development factor	Male	183	4.9	1.018	0.084	0.006*
	F	139	4.74	0.976		
BYD Group lithium battery development factor	Male	183	4.9	0.877	1.577	0.456
	F	139	4.74	0.817		

Through independent sample T test, the various factors are classified according to sex, and finally out of the different gender, consumers are satisfied with lithium battery product satisfaction survey, which in lithium battery selection, consumers in different gender conditions appear different, female consumers more heavy

## 4.6 Correlation Analysis

Correlation refers to the relationship between two things with certain connection but no direct explanation of causality. The correlation analysis is used to analyze the observed values of the related objects with some reasonable indexes.

Table 4. 6 Related analysis between the work values and the dimensions of job satisfaction

Item	object of investigation	restricting the development factor of lithium battery	Lithium battery future development factor	BYD Group lithium battery development factor
Lithium Battery Impression Factor	Pearson Correlation	.748**	.673**	.728**
	Sig. (2-tailed)	0	0	0
	N	322	322	322
lithium battery selection factor	Pearson Correlation	.488**	.498**	.356**
	Sig. (2-tailed)	0	0	0
	N	283	283	283
product brand factor	Pearson Correlation	.753**	.661**	.846**
	Sig. (2-tailed)	0	0	0
	N	322	322	322

\* Indicates that the P value is less than 0.05, \*\* indicates that the P value is less than 0.01;

As can be seen from the analysis results of the above table, the correlation coefficient of BYD's lithium battery development factor and product brand factor is highest, and the correlation coefficient reaches 0.846 and at P value less than 0.01. A significant correlation was presented on the premise, while the second was BYD Group's lithium battery development factor and the impression factor of lithium battery, and the correlation coefficient reached 0.782, and at P value less than 0.01. As a result of the above analysis, we can see that the company wants to realize the rapid development of its lithium battery business. On the one hand, it should pay attention to the construction of the product brand, but on the other hand, it should pay attention to the lithium battery to the consumer the cultivation of the image of the mind.

#### 4. 7 regression relation

The purpose of regression analysis is to analyze a large number of sample data to find the interaction between variables and to determine the mathematical relationship

between variables. At the same time, various statistical tests are carried out to the credible process of the established mathematical relationship to distinguish between variables that have a significant effect on a particular variable and an insignificant variable; use the established mathematical relationship to predict another specific variable based on the value of one or several variables The values are given and the accuracy of this prediction or control is given.

Taking the development factor of lithium battery of BYD Group as the dependent variable, according to the impression factor of lithium battery, the selection factor of lithium battery, the product brand factor is regression analysis for independent variables.

Table 4. 7. 1 Model Summary

MODEL	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.563 <sup>a</sup>	.317	.306	.94834

a. Predictors: (Constant), a Distributors: (product), product brand factor, lithium battery choice factor, lithium battery image factor

The results show that the correlation coefficient of the model is 0.563, the coefficient of determination is 0.317. The adjusted determination coefficient is 0.306. The explanation of the selected variables is 30.6%, more than 30%, so that the self-variable interpretation of the model is higher.

Table 4. 7. 2-model fit test (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	81.683	3	27.228	30.275	.000 <sup>a</sup>
Residual	176.272	196	.899		
Total	257.955	199			

a. Predictors: (Constant),a Distributors: (product), product brand factor, lithium battery choice factor, lithium battery image factor

b. Dependent Variable: B. Manufacturer: BYD Group lithium battery development factor

As can be seen from the above table, the sum of square and square sum is the sum of squares and the total sum of total square sum, total square sum, df degree of freedom, mean square and mean square The number of squared, sig is greater than the



probability of F value. The results show that when the regression equation contains different variables, the F value is 30.275, its significance probability is less than 0.01. It has significant statistical significance. Therefore, the final regression equation fitting effect is very good.

Table 4. 7. 3 Regression Analysis Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.272	.399		-.682	.496		
Lithium Battery Impression Factor	.550	.088	.400	6.272	.000	.856	1.169
lithium battery selection factor	.273	.074	.224	3.702	.000	.954	1.048
product brand factor	.214	.090	.149	2.372	.019	.888	1.126

a Manufacturer: BYD Group lithium battery development factor

The regression coefficient of lithium-ion battery, lithium battery selection factor and product brand factor were 0.550, 0.273, 0.214. The value of T values is 6.272, 3.702, 2.372. The corresponding P value is less than 0.05. It has significant statistical significance, indicating the impression factor of lithium battery and the selection factor of lithium battery, and the product brand factor will have a significant positive effect on the development factor of lithium battery in BYD Group. That is the lithium battery image factor, lithium battery selection factor, the higher the product brand factor, BYD Group lithium battery development factor also correspondingly higher.

According to the value of normalized regression coefficient, the effect of each factor on the development factor of lithium battery in BYD Group is divided into small sequence: lithium battery image factor (0.400)> Lithium battery selection factor (0.224)> Product Brand Factor (0.149).

Therefore, regression analysis equation can be established:

BYD Group lithium battery development factor = 0.550lithium battery image  
factor + 0.273y lithium battery selection factor + 0.214 Product Brand Factor-0.272;



## **CHAPTER 5**

### **CONCLUSIONS**

#### **5.1 Hold tight policy dividends and realize leap-forward development**

At present, our country is in the opportunity period of economic strategic adjustment. The state has more policy support and policy tilt in the new energy industry, recycling economy and high-tech industry in terms of policy, especially in lithium battery and electric vehicle business, according to the China National Development and Reform Commission in China 13-5 Development Plan of New Energy Enterprises As mentioned above, to increase the proportion of new energy vehicles in China's overall auto market to 30%, new energy enterprises in various provinces and cities enjoy state free subsidies and preferential trading policies, so in the foreseeable future, China's new energy car market will be further explosion, in the case of continuous tilt of national policy, for the company with higher self-determination technology intellectual property rights, technology has a higher advantage, the market prospect is broad, and the support of national policies, therefore in the foreseeable future, as the new energy industry Lithium battery business will usher in a new round of development, so in the current policy dividend is so abundant, BYD does not need to grasp the national industry planning, comprehensively improve the performance of lithium battery production to meet the market demand, and build up its own core technology advantage, ensure in the national industry planning Later, BYD Group's lithium battery business and new energy business can also achieve leapfrog development.

#### **5.2 Enhance brand building and raise awareness of products**

Lithium battery, as the most important part of the industrialization of new energy, has high technical advantages, can be widely used in the energy storage market,

the new energy automobile market and the electronics market, so from this angle, BYD's lithium battery business has more market advantages, but BYD has long been less impressed by consumers, mainly by BYD in the past as a traditional car manufacturer. Therefore, to enhance the brand image, on the one hand to enhance the brand image on the basis of full publicity, on the other hand, we need to strengthen its technical superiority, keep the technology leading level, in the consumer's heart to establish a self-reliant intellectual property, better industrial design, more perfect. The company of after-sales service system, so pure from the BYD Group, the future brand building is an important part of the development process of the group, and is the future group to participate in the market competition, must be actively considered the important part.

In our actual research process, the brand awareness has been maintained at a higher level, so it is important for consumers to trust, reliable and secure the brand image, which is also the foundation of BYD Group's development in lithium battery business.

### **5.3 Integrate industry resources, expand lithium battery application market area**

In the first half of 2017, BYD's power battery production and revenue have been surpassed by the CATL, and BYD's future development depends on whether its power supply is going well. Although BYD's lithium battery technology has extensive market prospects in many areas of the market, BYD's lithium battery products are still limited to the business of electric enterprises and electronics, and there is no large area in the market. There are several reasons behind this. Among them, the industrial cost of the production and processing of lithium battery in BYD Group is too high, and the market prospect is severely limited by one aspect, followed by the size of BYD's capacity in the field of lithium battery, which severely restricts the production capacity of BYD Yadi's lithium battery products in more market applications, especially in the daily energy storage market, so BYD is actively working through capital operation,

building and commissioning more lithium battery factories, meeting the needs of the market, and secondly, to comprehensively apply various aspects of resources, to reduce the market application of lithium battery Area threshold, let more products can carry lithium battery product, give full play to lithium battery technology superiority and industrial advantage.



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