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TASK

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This paper explores strategies for improving employee efficiency within organizations, using Huawei Technologies Co., Ltd. as a case study. In the context of rapid technological advancements and a highly competitive market, enhancing employee performance is crucial for sustaining organizational success. This study examines Huawei's human resource management practices, including talent acquisition, training and development, and performance evaluation systems, to identify key factors contributing to employee efficiency.

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ABSTRACT

Zhang Li ming. Management of efficiency and competitiveness of enterprises

Master's thesis in the specialty 073 «Management», EP «Administrative Management» SNAU, Sumy-2025- Manuscript.

In today's dynamic and highly competitive business environment, enhancing the competitiveness of enterprises has become a critical factor for long-term success and sustainability. This paper explores strategies to improve the competitiveness of enterprises, using BYD (Build Your Dreams) as a case study. BYD, a leader in the electric vehicle (EV) and renewable energy industry, provides an exemplary model for understanding how companies can leverage innovation, technological advancements, and strategic management to maintain and strengthen their competitive position.

The primary objective of this research is to analyze the key factors that have contributed to BYD's competitive success and to explore how other enterprises can apply these strategies to enhance their own market positioning. Through an in-depth examination of BYD's business model, innovation strategy, and supply chain management, this study identifies crucial elements that drive competitiveness in the EV industry and beyond.

Keywords: *competitiveness, business model, innovation strategy, electric vehicles, renewable energy, supply chain, market position.*

АНОТАЦІЯ

Чжан Лімін. Управління ефективністю та конкурентоспроможністю підприємств.

Магістерська робота зі спеціальності 073 «Менеджмент», ОП «Адміністративний менеджмент» СНАУ, Суми-2025 р.- Рукопис.

У сучасному бізнес-середовищі підвищення конкурентоспроможності підприємств стало критично важливим фактором для довгострокового успіху та сталості. Ця робота досліджує стратегії покращення конкурентоспроможності підприємств, використовуючи BYD (Build Your Dreams) як приклад. BYD, лідер у галузі електричних транспортних засобів та відновлювальної енергетики, надає зразкову модель для розуміння того, як компанії можуть використовувати інновації, технологічні досягнення та стратегічне управління для підтримки та зміцнення своєї конкурентної позиції.

Основною метою цього дослідження є аналіз ключових факторів, які сприяли конкурентному успіху BYD, та вивчення того, як інші підприємства можуть застосувати ці стратегії для покращення своєї ринкової позиції. Через глибоке вивчення бізнес-моделі BYD, стратегії інновацій та управління ланцюгом постачання це дослідження виявляє важливі елементи, що визначають конкурентоспроможність в індустрії електричних транспортних засобів і за її межами.

Ключові слова: *конкурентоспроможність, бізнес-модель, стратегія інновацій, електричні транспортні засоби, відновлювальна енергетика, ланцюг постачання, ринкова позиція.*

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INTRODUCTION

In a rapidly evolving and increasingly competitive global market, companies across various industries are confronted with numerous challenges, including technological advancements, shifting consumer preferences, economic uncertainty, and intense competition. To remain resilient and ensure long-term growth, companies must adopt innovative management strategies that allow them to navigate these challenges effectively. This paper examines the strategies that enterprises can implement to enhance their competitiveness, with a specific focus on BYD (Build Your Dreams), a leader in the electric vehicle (EV) and renewable energy industries. By analyzing BYD's success, this study offers valuable insights into how businesses can leverage innovation, strategic decision-making, and supply chain management to strengthen their competitive edge.

The primary objective of this research is to explore the key factors contributing to BYD's competitive success and to identify strategies that other enterprises can adopt to improve their market positioning. Through an in-depth examination of BYD's business model, innovation strategies, and operational practices, this study aims to provide a comprehensive understanding of the drivers of competitiveness in the electric vehicle and renewable energy sectors.

Key goals of the research include:

1. Analyze the Theoretical Foundations of Enterprise Competitiveness. This will involve exploring the core concepts of cost leadership, differentiation, and operational efficiency, and assessing how these principles help companies like BYD

maintain a competitive advantage in a rapidly changing market.

2. Examine BYD's Approach to Innovation. This section will explore how BYD has used technological advancements in electric mobility and renewable energy to drive innovation, strengthen its position in the market, and stay ahead of competitors.

3. Evaluate BYD's Strategic Decision-Making Processes: The study will examine how BYD navigates challenges such as market volatility, regulatory changes, and global supply chain disruptions, and how the company's strategic decisions enable it to sustain growth and competitiveness.

4. Investigate BYD's Sustainability Initiatives: The research will assess BYD's sustainability efforts and how these initiatives contribute to a competitive advantage in the expanding green energy market.

The research methodology includes a combination of theoretical models, case study analysis, and quantitative data to offer insights into the methods that enterprises can use to enhance their competitiveness. The findings will provide actionable recommendations for businesses seeking to improve their market position in an increasingly competitive global environment.

The object of this study is the business processes of enterprises aiming to enhance their competitiveness, with a focus on innovation, strategic decision-making, and operational efficiency. The subject of the study is the application of these principles and strategies in the context of BYD and other similar enterprises.

This research has wide-ranging applications for companies in competitive industries. By adopting the strategies discussed in this study, enterprises can improve

their decision-making processes, strengthen their competitive position, and ensure long-term growth.

The information base for this research includes academic literature from leading experts in competitive strategy, innovation, and operational efficiency, as well as market reports and case studies from industry leaders such as BYD.

Personal Achievements in Master's Degree. The results of the study presented in this Master's thesis are independent developments and recommendations formulated by the author. Comprehensive analysis of enterprise efficiency and competitiveness, with a particular focus on corporate performance management and strategic development. The research resulted in the publication of six scientific papers, addressing key aspects of human resource management, business model innovation, and organizational efficiency. The findings contribute to the academic discourse on competitive advantage and provide practical recommendations for enhancing enterprise performance in dynamic market environments

The Structure and Scope of Work. This master's thesis includes 8 tables and 3 figures, which illustrate key concepts, data analysis, and strategic recommendations. The study is based on 51 references, including academic articles, books, and case studies, ensuring a strong theoretical and empirical foundation. The research methodology integrates qualitative and quantitative approaches, combining theoretical exploration with practical case studies to enhance applicability in both academic and business contexts.

CHAPTER 1

THEORETICAL FOUNDATIONS OF ENTERPRISE MANAGEMENT

Enterprise management is a multidisciplinary field that encompasses strategic planning, organizational structure, resource allocation, and performance optimization. It integrates economic theories, management principles, and operational frameworks to ensure the sustainability and competitiveness of businesses in dynamic market environments. The theoretical foundation of enterprise management is rooted in classical management theories, which provide structured approaches to organizational efficiency and decision-making. Scientific management, developed by Frederick W. Taylor, emphasizes efficiency through standardized processes, division of labor, and performance-based incentives. Henri Fayol's administrative management theory focuses on the structural and functional aspects of enterprises, outlining fundamental principles such as division of work, authority and responsibility, and centralization. Max Weber's bureaucratic management theory highlights hierarchical structures, formalized rules, and impersonal relationships to ensure organizational stability and predictability.

With the evolution of global markets and technological advancements, modern enterprises require flexible and adaptive management strategies. The resource-based view (RBV), introduced by Edith Penrose and expanded by Jay Barney, argues that enterprise competitiveness depends on the strategic utilization of internal resources and capabilities. Michael Porter's framework identifies three

key competitive strategies: cost leadership, differentiation, and focus, emphasizing the need for unique value propositions to gain a sustainable competitive advantage. Additionally, Robert Kaplan and David Norton's balanced scorecard integrates financial and non-financial performance metrics to align business operations with strategic objectives, considering financial performance, customer satisfaction, internal business processes, and learning and growth.

As business environments become increasingly complex, new management paradigms are shaping the future of enterprise operations. Digital transformation and Industry 4.0, driven by artificial intelligence, big data analytics, and automation, are revolutionizing enterprise management by enhancing efficiency, optimizing decision-making, and creating new business models. Agile and lean methodologies prioritize flexibility, continuous improvement, and customer-centric innovation, allowing organizations to enhance responsiveness and operational efficiency. Furthermore, modern enterprises are integrating sustainability and corporate social responsibility into their management frameworks, focusing on environmental impact, social governance, and ethical business practices to ensure long-term viability.

Enterprise management is a dynamic discipline that has evolved from classical organizational theories to contemporary strategic frameworks. By integrating traditional principles with modern innovations, enterprises can enhance their competitiveness, adaptability, and long-term success. Future research and practice in enterprise management should focus on leveraging digital transformation, sustainability, and human-centric leadership to navigate the complexities of the global business landscape.

In 1990, Prahalad and Hamel first introduced the concept of core competence. As previously discussed, various scholars have presented differing viewpoints since then, including those based on the technological perspective of enterprises, the resource-based view, the knowledge-based view of enterprises, and the consumer surplus perspective. With the evolution of times and the advancement of enterprises, scholars have recognized that core competence is not merely the formation of a single capability, institution, or technology. Instead, it represents a combination of multiple resources and capabilities—what can be termed the resource-capability integration perspective of core competence. This integration may encompass the organic combination of an enterprise's resources, culture, knowledge, and technology, ultimately forming the enterprise's core competence.

Based on this integrative viewpoint from scholars, this paper defines core competence as the combination of capabilities related to products, technologies, and institutions that provide competitive advantages for the enterprise. This combination can ultimately create effective competitive barriers in the marketplace. By continuously enhancing its key capabilities, an enterprise can better integrate its resources to achieve optimal utilization efficiency. Core competence differs from mere competitiveness as it provides enterprises with a sustainable long-term competitive advantage. Its characteristics are mainly reflected in the following aspects.

Value - The value of core competence lies in its ability to help enterprises create a protective barrier in market competition, enabling them to maintain a favorable position and achieve long-term stable development. Additionally, it allows

enterprises to offer more valuable products to users, thereby generating greater consumer surplus [13].

Inimitability - Core competence is relative and emerges through comparison, meaning its existence implies significant imitation costs for other enterprises. It is a unique, differentiated capability that has been accumulated and cultivated over time [32].

Integration - An enterprise's core competence is not simply a collection of individual resources, technologies, or institutions. Instead, it is an integrated ability and resource that allows enterprises to coordinate internal and external resources more effectively, helping them maintain a stable market position and competitive advantage [45].

Dynamic Nature - Core competence is not formed instantly but is gradually accumulated and nurtured. Even after achieving a competitive advantage, it must continue to evolve. An enterprise's core competence should be adaptable to market changes and complex interrelated factors, undergoing continuous development [24].

Defining the concept of core competence is not sufficient, both domestic and international scholars have conducted extensive research on constructing evaluation systems [28]. Wang Yi and other scholars, after thoroughly studying historical literature, have summarized various evaluation systems into four major categories:

1. **Non-Quantitative Systems.** These systems rely solely on subjective expert descriptions to analyze an enterprise's competitiveness, without using any quantitative analytical methods.

2. Semi-Quantitative Systems. In this system, specific indicators in the index framework are assigned values through subjective expert scoring.

3. Quantitative Systems. All indicators within the constructed evaluation system utilize quantitative data and employ scientific quantitative analysis methods for empirical analysis.

4. Combination of Semi-Quantitative and Quantitative Systems. This design includes both objective data and qualitative data requiring expert scoring. It combines qualitative and quantitative methods, followed by comprehensive calculations.

Beyond these broad principles of quantitative and qualitative approaches, the specific hierarchical indicator system must be determined based on the influencing factors of core competence relevant to the industry or enterprise. The evaluation systems at the enterprise level vary significantly. Depending on the industry in which an enterprise operates, the required core competencies differ. The evaluation system should accurately reflect and assess the core competence of the selected sample enterprise [6]. Thus, the constructed evaluation systems should be distinct, specific, and comprehensive for different enterprises and industries.

There are numerous methods for evaluating an enterprise's core competence, each with specific applicable situations, advantages, and limitations. The appropriate evaluation method must be selected based on the sample situation [4]. Common evaluation methods include:

1. Value Chain Analysis. A qualitative research method widely used by many enterprises. The value chain encompasses all processes involved in creating a

product or service, and McKinsey was the first to model it. McKinsey identified six key activities in the value chain: design, research and development, production, marketing, sales, and service. Enterprises can establish core competencies in one or more of these areas. Porter developed a second value chain model, categorizing value creation and core competence development into basic operations (like logistics, marketing, and after-sales service) and supportive activities (like human resource management and technology development).

2. Principal Component Analysis (PCA). This method simplifies complex original issues by reducing the number of judgment factors. It extracts principal components as a linear combination of original variables, allowing for a more comprehensive reflection of the original information and reducing information loss. PCA is commonly used as a quantitative evaluation method for enterprise competitiveness.

3. Factor Analysis. Similar to PCA, factor analysis is also a widely used quantitative evaluation method. Its basic idea is to identify key factors that describe the variations among multiple variables, thereby focusing the analysis. While PCA seeks a linear combination that retains maximum information, factor analysis aims to explore the common factors behind numerous original variables.

4. Fuzzy Comprehensive Evaluation. This method transforms qualitative evaluation goals into quantitative indicators. It quantifies fuzzy and complex evaluation objects, yielding more reliable results than qualitative analysis. This approach requires expert scoring or the AHP method to determine the weight of each

indicator. However, establishing a reasonable evaluation set can be challenging, especially for problems without publicly available indicator levels.

5. Data Envelopment Analysis (DEA). Known as the data envelopment method, DEA is based on the concept of relative efficiency. It compares various evaluation indicators to the optimal production frontier to determine relative efficiency. DEA is often used to assess relative efficiency among enterprises or samples, focusing on input-output ratios. One advantage of DEA is that it determines weights during the evaluation process, eliminating the need for methods like AHP or EWM for weight determination. However, DEA is not suitable when the number of evaluation samples or indicators is too small; typically, the number of enterprises should be at least twice the number of indicators.

6. Grey System Evaluation. The "black" represents unknown information, while "white" signifies completely known information. In reality, most information lies in a gray area, representing ambiguous data that isn't entirely known or unknown. The grey system evaluation method primarily employs grey correlation analysis, which assesses the degree of fit among sample indicator data. A higher degree of fit indicates greater correlation, with rankings based on closeness to the optimal sample.

7. Analytic Hierarchy Process (AHP). AHP is an effective method to address data authenticity and reliability issues caused by expert scoring. It resolves both indicator weighting and the inability to quantify indicator data, primarily focusing on weighting. AHP involves structuring the research problem into hierarchical layers and scoring each layer's indicators based on experts' relative importance [42]. This method effectively reduces confusion during multi-indicator expert scoring and

calculates specific weights for evaluation indicators, ultimately producing a comprehensive weight.

8. Technique for Order Preference by Similarity to Ideal Solution (TOPSIS).

TOPSIS is widely used for multi-objective evaluation problems involving a limited number of goals/samples. It requires fully quantifiable data and involves quantitative evaluation processes, making it scientifically robust. TOPSIS works by normalizing the data, identifying the best and worst solutions, and calculating distances from these points to derive a comprehensive evaluation. However, TOPSIS assumes all indicators are equally important, which may not reflect reality, so it often incorporates weighting methods like AHP or EWM for more accurate results.

CHAPTER 2

INTRODUCTION TO BYD'S BUSINESS MODEL INNOVATION CASE

2.1 Industry development overview and company introduction

Under the guidance of national policies, my country's new energy vehicle industry has developed rapidly, gradually forming a relatively complete industrial chain system including raw materials, key components such as power batteries and motors, vehicle manufacturing, supporting infrastructure, etc., and new energy vehicles have gradually achieved industrialization and scale. At present, my country's new energy vehicle industry has entered a new stage of rapid development with scale [11]. Although the fiscal subsidies for new energy vehicles have declined significantly since 2021, the national fiscal subsidies for the purchase of new energy vehicles have almost been halved since 2021, and local fiscal subsidies have been completely cancelled, it can be seen from Figure 2.1 that driven by market demand, my country's new energy vehicle sales are growing rapidly. In 2023, the national passenger car companies will produce and import 20.6482 million passenger cars, and the output of new energy vehicles will reach 3.09 million, accounting for more than 50% of the global market share. my country's new energy passenger car market has strong development momentum [35].

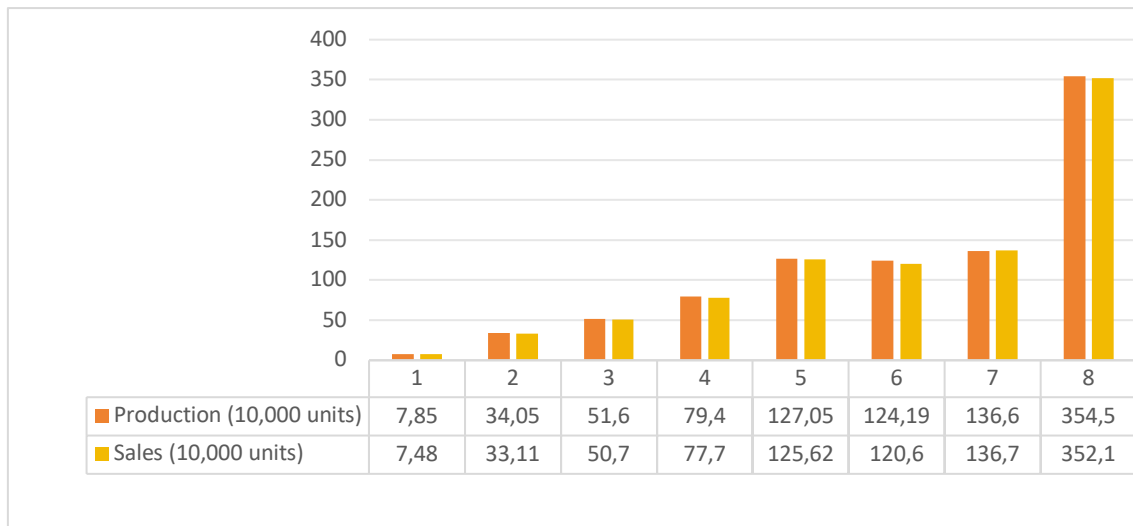


Fig 2.1 - China's new energy vehicle production and sales statistics from 2022 to 2023

Source: generated by the author

The core technology of my country's new energy vehicles is generally strong in battery technology, but weak in motor and electronic control technology. Fuel vehicles use engines, gearboxes and other core components, while electric vehicles use the "three-electric" system as the core component. The core components of electric vehicles are simpler than those of fuel vehicles, and the manufacturing complexity is lower, giving Chinese companies the opportunity to overtake. The "three-electric" system of electric vehicles consists of batteries, motors, and electronic controls, accounting for about 50% of the cost of the whole vehicle, of which batteries account for about 76% of the "three-electric" system. It can be seen that companies that master the "three-electric" system will gain greater voice in the market [3]. Chinese companies are highly competitive in batteries. The rapid rise of leading companies such as CATL and BYD has enabled Chinese companies to cover 60%~70% of the global electric vehicle battery production. In terms of motors and

electronic controls, Chinese companies are less independent than batteries, and some core components of motors and electronic controls do not have the ability to be fully independently produced in China. Especially in the core electronic control components - automotive-grade IGBT, China's independent research and development capabilities are still relatively lacking. At present, the main supplier of automotive-grade IGBT in China is the German company Infineon, but in recent years, BYD Semiconductor and Star Semiconductor have also made certain breakthroughs in this regard. In addition, in the classification of new energy vehicles, according to the degree of electrification, new energy vehicles are mainly divided into: hybrid electric vehicles (HEV) whose energy comes entirely from fuel, plug-in hybrid electric vehicles (PHEV) whose energy comes from fuel and external charging, and pure electric vehicles (EV) whose energy comes from external charging.

With the accelerated upgrade of hardware equipment such as automotive sensors and the continuous improvement of the computing power of on-board computing platforms, intelligent driving has become a major development trend of new energy vehicles [15]. Intelligent driving refers to the three major systems of perception, decision-making, and execution, as well as the communication module carried by the car, to assist the driver in controlling the vehicle, or even completely replace the driver. The intelligent driving system can provide assistance to the driver in complex traffic environments and vehicle operations, which helps to improve the driving experience and ensure traffic safety. It has become a popular differentiated selling point and has huge room for growth [20]. Many technology companies and

Internet giants such as Huawei and Baidu have laid out intelligent driving platforms, but my country is still heavily dependent on foreign companies in the fields of intelligent driving chips and operating systems. For car companies, there are two main paths for intelligent development [2]. One is to cooperate with Internet companies or technology companies with intelligent driving platforms such as Baidu and NVIDIA; the other is to conduct full-stack self-research like Tesla and Xiaopeng, and independently complete perception, decision-making and control system solutions.

Electronic manufacturing services, also known as electronic OEM services, are an industry that was created under the electronic manufacturing outsourcing model. Electronic OEM service providers provide a series of manufacturing, procurement, logistics and some product design services to electronic brands. After the reform and opening up, mainland China has become a key country in the global electronic manufacturing outsourcing business with its comparative advantages such as a good investment environment and cheap labor. However, as my country's labor prices continue to rise, the advantages of my country's electronic manufacturing service industry have weakened, and the growth rate of the industry scale has declined to a certain extent [40]. Some electronic OEM manufacturers in my country have begun to seek transformation, improving their product R&D and innovation capabilities and providing customers with integrated solutions to enhance their market competitiveness.

The electronic OEM service industry is also deeply affected by the downstream electronic manufacturing market in its industry. With the integration of

information technology and different industrial sectors, the development of emerging industries has been fostered, the electronic manufacturing industry has flourished, and new opportunities have been brought to the electronic OEM service industry. Under this trend, with the rapid development of smart homes, smart wearable devices and automotive electronics, many domestic brands have risen rapidly, and my country's electronic information manufacturing industry has achieved rapid growth[1]. In 2023, the added value of the national electronic information manufacturing industry above designated size increased by 15.7% over the previous year. Therefore, electronic OEM companies must follow the pace of intelligent manufacturing according to market demand, expand their smart product business, enhance their own flexible intelligent manufacturing capabilities, and accelerate product iterations in order to meet market demand and increase market share.

First, BYD's business model innovation measures are very distinctive. During the business model innovation period, the company's market positioning changed from the original fuel vehicle company to a new energy vehicle company, the core technology of new energy vehicles continued to iterate and innovate, the corporate value chain structure was adjusted and optimized, and the marketing methods became more flexible and diverse. Secondly, after the business model innovation, its corporate performance has improved in many aspects. In the context of fierce competition in the new energy vehicle industry, the company's operating income is still growing rapidly. In 2023, the company's operating income is nearly 3 times higher than that in 2022. BYD's brand image has also changed from a low-end and

cheap brand in the past to a technologically advanced national brand. Therefore, this paper selects BYD as the case study object to analyze the impact of its business model innovation on corporate performance, in order to provide inspiration for peer companies.

BYD Co., Ltd. (hereinafter referred to as “BYD”) was founded in 1995 and listed on the Shenzhen Stock Exchange in 2011. After more than 20 years of rapid development, it has established more than 30 industrial parks around the world and was shortlisted for the world's top 500 brands in 2022, becoming a well-known high-tech private enterprise. BYD's main businesses include automobile manufacturing, electronic OEM services, secondary rechargeable batteries and photovoltaics, and has also expanded its rail transit business [27]. The company focuses on automobile manufacturing and has now grown into a leading enterprise in the automotive field. It is the first in China to master the three core technologies of new energy vehicles, namely batteries, motors, and electronic controls. The sales volume of new energy vehicles has ranked first in China for many years.

BYD's organizational structure is a variation of the business unit system. In 2022, BYD created an organizational structure of "business group + business unit" according to its business scope, forming automobile, battery, electronics, and rail transit business groups [31]. Each business group has multiple business units, which break through the boundaries between different business units in the same industry and promote collaboration between different business units. In order to better build the automobile brand and enhance customer experience, BYD also added the Dynasty Network Sales Division, e-Network Sales Division, Brand and Public

Relations Division, and After-Sales Service Division in 2023. These four divisions constitute the Sales Business Group. BYD's development history is shown in Table 2.1.

Table 2.1 Development History of BYD

Year	Development History	Changes in Elements
2003	Qinchuan Automobile Co., Ltd. (now BYD Auto Co., Ltd.) was acquired, mainly for fuel vehicle business, while trying new energy vehicle research and development	Target market
2008	Ningbo Zhongwei Semiconductor Wafer Factory was acquired, and the company began to independently develop automotive-grade IGBT chips for new energy vehicle electronic control	Value chain structure
2009	Midea Sanxiang Bus was acquired to develop new energy bus manufacturing and parts production	Target market
2020	1. Establish 5 Fudi companies to supply parts and components, and promote the marketization of parts business 2. Release blade batteries	Value chain structure
2021	1. Open up the "Ocean" brand and target a younger product market 2. Invest in Horizon and Momenta to accelerate breakthroughs and layout of smart driving	Customer segmentation
2022	Completely stop selling fuel vehicles and focus on new energy business Target market	Important cooperation

Source: generated by the author

BYD's predecessor was BYD Industry, which was established in 1995. Its main business is the production of lithium batteries. Through the semi-automatic production model of "manual + equipment", the company's scale has expanded rapidly. From 2003 to 2022, BYD began to develop its mobile phone parts business and automobile manufacturing business. During this period, BYD acquired Qinchuan Automobile and Ningbo Zhongwei, forming a vertically integrated layout of new energy vehicle manufacturing with its own battery business. After 2021,

BYD paid more attention to the optimization of the enterprise value chain, the creation of core resources, and the marketing and promotion of products. With the continuous adjustment of the business model, BYD's automobile business and electronic manufacturing business have made great breakthroughs and progress, becoming a leading enterprise in the new energy vehicle industry.

Table 2.2 Table of Business Composition of BYD

Business categories	Main content
Automotive business	The company's automotive business includes new energy vehicles, traditional fuel vehicles (terminated in 2022), auto parts ("three electrics and one chip"), etc. The automotive products have formed a brand matrix with "Dynasty" as the main brand
Electronic manufacturing services	Mainly produce smart terminal components and modules such as mobile phones and laptops, new smart products, and automotive smart systems, and provide customers with a series of services such as material development, product design, assembly and logistics after-sales
Secondary rechargeable batteries and photovoltaics	Mainly produce lithium-ion batteries for portable electronic products such as mobile phones and laptops. Customers include Dell, Samsung, etc. The photovoltaic business is mainly related to energy storage devices and photovoltaic power stations.

Source: generated by the author

BYD's business mainly covers automobile manufacturing, electronic manufacturing services, secondary rechargeable batteries, photovoltaics, etc. Among them, automobile manufacturing is BYD's main business, accounting for more than 50% of its operating income.

2.2 BYD's business model innovation process

In 2005, BYD had formed a diversified layout of mobile phone materials and assembly business and vehicle manufacturing business.

In 2008, the company also formed a vertical integration of the new energy vehicle industry chain through the acquisition of Ningbo Zhongwei Semiconductor Company.

At this stage, the company's automotive business mainly produces and sells fuel vehicles, positioning high-cost-effective national vehicles, and gradually began to cultivate new energy vehicle business.

In terms of value proposition, BYD's three major businesses of automobiles, batteries, and electronic products OEM developed in parallel, and the new energy vehicle business was initially formed. Since 2009, the automobile business has become the company's main source of income. At this stage, the company's automobile products are positioned as high-quality and low-priced national vehicles, focusing on high cost-effectiveness, attracting a large number of low-end and mid-range customer groups. However, in the context of weak technical competitiveness of independent brand fuel vehicles, the company's profit margin is very limited with cost-effective fuel vehicles as the main product.

In terms of value creation, the company has initially mastered the "three-electric" technology of new energy vehicles and vertically integrated the new energy vehicle industry chain to form its external value chain. At this stage, the company's new energy vehicle technology is already relatively advanced, but it has not yet mastered absolute competitive advantages. In the context of the immature new energy vehicle industry, the company's internal vertically integrated automobile industry chain layout guarantees the supply of parts and materials and reduces production costs [12]. However, the company's overly closed value chain has

affected its innovation enthusiasm due to the lack of competition with the outside world. In terms of value transfer, 4S stores are the main sales channel, and offline advertising, auto shows, and large-scale event sponsorship are the main marketing and promotion methods. The company wholesales cars to dealers and authorizes dealers to sell them in 4S stores, which helps to reduce the company's inventory pressure and operating costs, but this model prevents the company from getting feedback from consumers in a timely manner, and the uneven service levels of dealers also affect consumers' purchasing experience. Moreover, traditional marketing methods have limited coverage, high marketing costs, and low efficiency. In terms of value acquisition, BYD controls production costs through semi-automated production methods and vertical integration of the industry chain. At this stage, my country's labor force is relatively cheap. "Manual + equipment" instead of fully mechanized production has saved the company a lot of money to purchase advanced equipment. Under the vertical integration model of the industrial chain, key products such as engines, molds, chassis and new energy vehicles "three electrics" are all produced by the company independently, preventing suppliers from raising prices and controlling production costs. However, the effects of these two ways of reducing costs will be weakened in the future when labor costs rise and the domestic new energy vehicle industry chain continues to mature.

In order to improve the company's profitability and meet market demand, BYD has gradually formed its current business model through innovation in multiple dimensions since 2021.

Focus on building core technologies. Through large-scale research and development, we have mastered core technologies such as power batteries and IGBTs; we have built a technical platform to integrate parts systems and improve vehicle manufacturing efficiency.

Reorganize the company's value chain. Divest businesses with weak competitiveness to prevent bloated organizational structure; establish Fudi companies to accelerate the opening of parts business to the outside world and broaden the company's growth space.

Improve corporate competitiveness through external cooperation. Cooperate with upstream companies in the industrial chain to ensure the supply of raw materials, and join Baidu Apollo and other intelligent driving platforms to improve the level of intelligent driving. In terms of value delivery:

More abundant sales channels. Expand product coverage by setting up supermarkets, and improve customer consumption experience by setting up direct stores.

Innovate marketing and promotion methods. Offline participation in international digital entertainment exhibitions such as China Joy brings the brand closer to consumers; online joint activities with new media platforms such as Bilibili convey the characteristics of the product to young consumer groups. Value acquisition [25]:

Technological innovation and industrial chain integration control costs. The continuous iteration of lithium iron phosphate battery technology reduces the cost

of battery production; strengthening cooperation with upstream companies alleviates the large fluctuations in battery costs due to market influences.

Product diversification increases revenue. In the automotive business, the company continues to enrich the product categories of new energy vehicles and penetrate the mid-to-high-end and mid-to-low-end automotive markets; in the electronics OEM business, the company actively expands new smart products and automotive electronics business to increase the revenue source of the electronics business.

2.3 Analysis of the motivations for BYD's business model innovation

New energy vehicles are an important tool for building a strong automobile country. My country has issued a number of policy documents over the years to guide the innovative development of the new energy vehicle industry.

The guiding opinions issued by the State Council in 2022 proposed that enterprises should be actively guided to innovate business models, encourage social capital to enter the fields of charging facility construction, battery leasing and recycling, and require car companies to improve after-sales service levels and strengthen brand cultivation[5].

Government policies have encouraged car companies to expand their presence in the new energy vehicle (NEV) industry, strengthening the domestic NEV ecosystem and emphasizing brand development. The 2021 fiscal subsidy adjustments raised mileage thresholds and set stricter energy consumption and

battery density requirements, pushing companies toward technological innovation [33].

Table 2.3 - Innovation policies for some new energy vehicle industries

Policy name	Issuing time	Issuing agency	Policy highlights
Notice on organizing and carrying out the new energy vehicle industry technology innovation project	2014	Ministry of Finance, Ministry of Industry and Information Technology, Ministry of Science and Technology	Further improve the technological innovation capabilities of the new energy vehicle industry and accelerate the industrialization process
Guiding opinions on accelerating the promotion and application of new energy vehicles	2015	State Council	Accelerate the promotion of new energy vehicles, promote the transformation and upgrading of the automobile industry, and guide enterprises to innovate business models
Made in China	2016	State Council	Continue to support the development of electric vehicles and form a complete industrial system and innovation system from key components to complete vehicles
Notice on the pilot work of recycling and utilization of power batteries for new energy vehicles	2018	Ministry of Industry and Information Technology	Explore diversified recycling and utilization models of waste power batteries with strong technical and economic performance and friendly resources and environment
Notice on the Development Plan of the New Energy Vehicle Industry (2021-2035)	2020	State Council	Promote the high-quality development of the new energy vehicle industry and adhere to the development direction of electrification, networking and intelligence Intelligent Vehicle Innovation and Development
Strategy	2022	National Development and Reform Commission, etc.	Build a collaborative and open intelligent vehicle technology innovation system, a cross-border integrated intelligent vehicle industry ecosystem

Source: generated by the author

The 2022 development plan emphasized charging infrastructure, business model innovation, and the high-quality growth of the NEV industry, promoting electrification, networking, and intelligence. These policies have shaped BYD's business model, accelerating its NEV expansion, core technology advancements, brand cultivation, and cross-industry cooperation.

Intensifying competition, driven by the rise of domestic manufacturers and the entry of high-end foreign brands, has further motivated BYD's innovation. With nearly 200 NEV manufacturers in China, emerging players have gained market share, increasing from 1.12% in 2022 to 8.40% in 2023. Additionally, the government's stricter subsidy requirements have heightened industry competition. Tesla's localized production in Shanghai, which exceeded 1 million units by August 2022, has placed significant pressure on domestic NEV companies. In response, BYD has focused on business model innovation, enhancing its competitiveness through advancements in core technologies and value chain optimization.

The growing diversification of consumer demand in China's automobile market requires automakers to adapt their business models. Different consumer segments have varying preferences—female users prioritize aesthetics, ease of driving, and comfort, while male consumers focus on space, power, and brand recognition. The younger post-90s generation values technology, personalization, and high-end design, whereas consumers in smaller cities and counties prefer cost-effective and durable models under 150,000 yuan. To attract a broader customer base, automakers must refine product positioning and innovate to meet diverse consumer needs.

With rising income levels and a younger consumer base, demand for intelligent cars has surged. Features such as autonomous driving, in-car entertainment, and advanced navigation enhance user experience, pushing automakers to invest in smart technology. Similarly, in the smartphone industry, the adoption of glass and ceramic casings for 5G compatibility demonstrates how shifting market trends create new business opportunities [43]. To maintain growth, BYD must expand its customer base by diversifying its business model and embracing new technologies.

As competition intensifies, brand image plays a crucial role in purchasing decisions. Market research from J.D. Power indicates that consumers increasingly select brands before choosing specific models. A strong brand image fosters consumer trust, enhances product desirability, and enables premium pricing. Additionally, it builds customer loyalty and reduces marketing costs. However, BYD's past perception as a low-cost, lower-quality brand has limited its ability to command a price premium. To reshape its image, BYD must integrate its corporate culture, national pride, and technology-driven philosophy into product design and marketing strategies, strengthening brand influence and consumer loyalty.

Business model innovation, particularly from the value creation perspective, is widely studied. According to Fang Qifeng and Xiang Yongsheng (2022), business model innovation occurs across four dimensions: value proposition, value creation, value delivery, and value acquisition. Value proposition is the foundation of innovation, defining the benefits a company provides to consumers. To capture the expanding NEV market, BYD has shifted its focus from traditional fuel vehicles to

the research, development, and production of environmentally friendly and intelligent new energy vehicles.

After the innovation of market positioning, BYD has continuously accelerated the pace of new energy vehicle layout, accelerated the iteration of various technologies, and the production and sales of new energy vehicles have continuously set new highs. In terms of technology, BYD has invested a lot of money and talents in the research and development of new energy vehicle technology. The company's hybrid system completed two iterations in 2022 and 2022, and launched the DM-i and DM-p hybrid systems with obvious technical advantages in 2022; the hardware integration platform completed two iterations in 2021 and 2023, forming the current "e platform" 3.0. In terms of automobile sales structure, new energy vehicles have gradually become the main product of the company's automobile business, and its sales volume has increased from 5.57% in 2022 to 99.72% in 2022. In 2022, BYD announced that it would stop the production of fuel vehicles and completely adjust its target customers to new energy vehicle consumers, becoming the first domestic automaker to fully transform from fuel vehicles to new energy vehicles.

Table2.4 BYD Automobile Sales Structure Analysis Table

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Fuel	35.6	32	32.6	29.6	27.2	23.2	23.7	13.6	0.51
New energy	2.1	5.9	10	11.4	24.8	23	19	60.3	186.35

Source: generated by the author

In terms of intelligent driving, BYD determined the value proposition of "electric + intelligent interconnection" dual drive in 2021 and continued to promote the research of intelligent driving technology. In 2022, the company announced the

launch of its intelligent network open platform - "D++" open platform, which attracted more participants to form network external effects and improve the commodity conversion rate of R&D investment. However, BYD does not yet have its own intelligent driving computing platform. Instead, it puts safety first and ensures the high safety and low latency of intelligent driving functions through technical improvements in chassis control, network transmission, etc. In the sectors where the company's intelligent driving layout is insufficient, BYD actively cooperates with external parties to make up for these shortcomings, and cooperates with Baidu Apollo, Momenta and other companies in intelligent driving chips, algorithms, computing platforms, etc. to improve the company's intelligent level. At present, the DiPilot intelligent driving assistance system developed by the company has achieved L2+ level automatic driving assistance [34].

In order to meet the differentiated needs of individual users, BYD has formed a brand network with "Dynasty" as the main brand and "Ocean", "e-net" and "Tenshi" as branch brands. The Dynasty brand has a luxurious and stable style, and is mainly aimed at business groups and family groups. It mainly targets mid-to-high-end consumers, while taking into account mid-to-low-end consumer groups. The Dynasty brand has rich products with high cost-effectiveness and wide price coverage. There are currently 5 series: Qin, Tang, Song, Yuan and Han, with two types of pure electric and hybrid. Among them, the Qin and Yuan series are positioned as entry-level and affordable, the Song series is positioned as mid-range mainstream, and the Tang and Han series are positioned as high-end flagships. BYD's e-net brand focuses on economy, has a low purchase threshold, is more

suitable for young customers and online car-hailing drivers, and is responsible for opening up the new energy vehicle sinking market. The Denza brand is a joint venture between BYD and Mercedes-Benz. The brand is positioned as a smart, safe and luxury car, which fills the 300,000-500,000 market for the company. The Ocean brand is a new brand launched by the company in 2023, mainly targeting young consumers, with a young and fashionable design style that is more in line with the aesthetics of young consumer groups.

In terms of new energy commercial vehicles, BYD proposed a "7+4" full market strategy in 2021, forming a full market layout with new energy private cars by deploying multiple public transportation fields. The company's commercial vehicles have six major product matrices including urban buses, passenger buses, airport shuttle buses, urban logistics, special vehicles and Class II chassis. Commercial vehicles share the company's advanced technology of passenger vehicles and meet the green vehicle needs in multiple fields. Among them, buses are BYD's key layout areas. Bus routes are fixed, and there are exclusive parking spaces and charging equipment. Pure electric vehicles have great advantages. BYD buses have developed a new B series based on the classic K series. The two series include 6 to 12 meters of micro and medium and large buses, covering a range of 210 kilometers to 370 kilometers, meeting a variety of public transportation needs.

As a technology-based enterprise, BYD has always been the core resource of its own professional technology. During the innovation period, BYD continued to deepen its research and development in the field of technology. In terms of existing battery, motor, electronic control and other technologies, BYD further developed

and integrated them, and greatly improved key component technology and hybrid system design, which consolidated the company's technological advantages and formed a technical barrier for the company. Especially in the field of power batteries, the energy density of the blade battery developed by BYD has been greatly improved, reaching the same level as the ternary lithium battery, which can meet the needs of long-distance travel. In addition, the blade battery greatly avoids the problem of battery explosion, and its safety performance far exceeds the level of the same industry, reducing consumers' concerns about new energy vehicles.

Table 2.5 Some R&D and innovation achievements of BYD

R&D results	Innovation results
Blade battery (released in 2020)	1. Strong endurance. Energy density is 50% higher than that of traditional lithium iron phosphate batteries 2. Excellent safety. Structural innovation greatly avoids battery explosion problems
"Eight-in-one" electric powertrain (released in 2021)	The system integrates eight major components, including motor, motor controller, vehicle controller, battery manager, etc., effectively reducing the volume and weight of the powertrain
Xiaoyun 1.5L engine (released in 2020)	1. Comfortable and smooth driving. Controlled noise and vibration, with excellent NVH performance 2. Ultra-low fuel consumption. The thermal efficiency is comparable to the world's first-class level, and it is the world's most thermally efficient mass-produced gasoline engine
DM-i, DM-p hybrid system (released in 2021)	1. DM-i balances economy and power performance. The EHS electric hybrid system can intelligently distribute power to engines, generators, etc., so that they work more in the high-efficiency zone 2. DM-p is powerful. The four-wheel drive hybrid architecture, which is mainly electric, has more power than large-displacement fuel vehicles.

Source: generated by the author

BYD makes full use of its own research results on vehicle architecture and opens up the B-end market through opening up to the outside world. The "e platform" is a collection of electric vehicle hardware systems that BYD has been developing for many years. The "e platform" has achieved a reduction in vehicle weight, optimization of vehicle layout, and improvement of energy efficiency through the integration and standardized design of major hardware such as high-voltage and drive systems. The standardized design greatly shortens the product development cycle and reduces R&D costs. Platform users can quickly develop new models based on this hardware system collection.

With the above characteristics, BYD is committed to building an "e platform" that the entire industry participates in. Based on this platform, other car companies can develop personalized models more quickly and conveniently [36]. The company can use this to cooperate with other car companies in technology, exchange resources, or sell "e platform" hardware products. At present, the "e Platform" 3.0 has become a partner with Mercedes-Benz, Toyota and Didi. In the future, it is expected to be promoted to more car companies, and the platform-based sales of core components of electric vehicles will be supplied to other vehicle companies, broadening its revenue sources in the B-end market.

BYD has adjusted its vertical integration model to enhance its new energy vehicle business. Initially, the company focused on reducing transaction costs and securing supply through in-house development and acquisitions. However, as the domestic auto industry grew and specialization increased, some of BYD's businesses became inefficient and hindered competitiveness.

To optimize operations, BYD divested non-competitive businesses. It exited the automotive seat sector, forming a joint venture with Faurecia in 2021 to focus on core vehicle components. Additionally, BYD discontinued its fuel vehicle business to concentrate on new energy vehicles, addressing production capacity challenges and improving product quality.

BYD also opened up some operations to external markets. Previously, its lithium iron phosphate battery technology was used internally, limiting growth opportunities. To change this, BYD established Fudi Battery and multiple Fudi-related companies in 2022, expanding its power battery business and increasing market competitiveness.

The company strengthened external partnerships to enhance competitiveness and product value. It collaborates with lithium battery material manufacturers like Anda Technology and Shengxin Lithium Energy to ensure stable supply and cost control. In the new energy bus sector, BYD partnered with UK-based ADL, producing over 1,000 electric buses by 2022, facilitating European market expansion.

In intelligent driving, BYD collaborates with Internet platforms and chip manufacturers to improve automation technology. It joined Baidu's Apollo platform in 2022, integrating advanced driving systems. In 2023, BYD partnered with Horizon to enhance intelligent driving perception and data processing. These efforts improve user experience and boost profitability through high-value intelligent services.

BYD has actively deployed supermarkets and direct-sale stores in terms of sales channels, and its sales methods are more diversified. Previously, Tesla's sales

model of opening sales experience stores in urban business districts has achieved great success and led the transformation of domestic sales models. BYD has also actively learned from it. Since the user group of new energy vehicles is mostly young and middle-aged people under the age of 40, they have the consumption habit of eating, drinking and having fun in shopping malls. Opening luxurious experience stores in shopping malls can facilitate them to come and see the car and make appointments for test drives. This model is more in line with the consumption patterns of young people and can increase the brand's chances of acquiring customers. As a traditional automobile brand, BYD has always relied on 4S stores to complete product sales in the past. Going to 4S stores to test drive and choose vehicles often takes a lot of time and has high transportation costs [44]. Now BYD has also begun to deploy supermarkets and pop-up stores. These stores are designed to be more high-end and younger, which can attract young people with consumption potential. In addition, BYD has also started to set up direct-sale stores in recent years. For consumers, the company is often more strict in controlling the quality of sales and after-sales service in direct-sale stores, and the prices of direct-sale stores are more transparent, which can bring customers a better consumer experience. For the company, direct-sale stores can reduce customer acquisition costs and help directly understand consumer demand, which is convenient for timely adjustments to the production end.

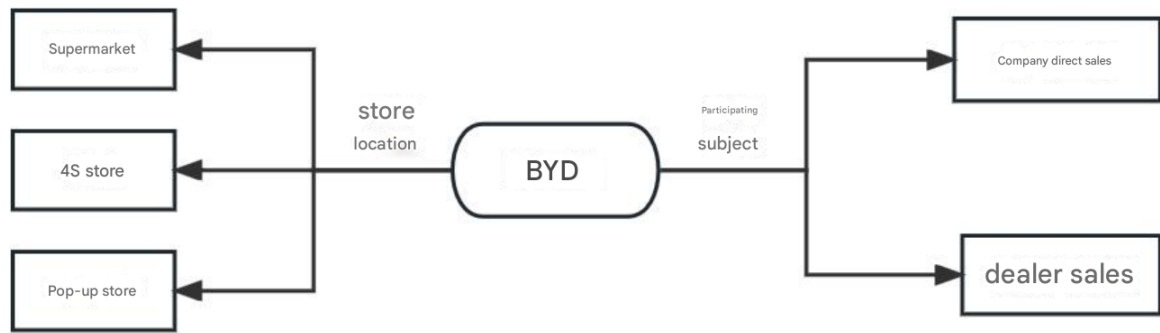


Fig 2.2 - BYD sales channels

Source: generated by the author

BYD enhances its brand image and expands its influence through product design and multi-channel marketing. Cars represent both transportation and status, making aesthetics and emotional appeal crucial alongside performance [7]. BYD integrates Chinese cultural elements, such as the "dragon" motif and dynasty seal script, into its vehicle designs, reinforcing national pride and distinctiveness. This approach shifts BYD away from past perceptions of imitation and low-cost branding.

To strengthen brand engagement, BYD employs innovative marketing strategies. Traditional advertising is less effective with younger consumers, so the company participates in events like China Joy, blending national-style electronic music with digital entertainment. Online, BYD collaborates with platforms like Bilibili for educational campaigns, using popular content creators to connect with young audiences. Additionally, BYD fosters brand identity through school-enterprise initiatives like the "Young Must Be Competitive-Campus Talent Co-creation Competition," reaching over 1,200 universities in 2022. This approach helps understand youth behavior and strengthens brand recognition.

BYD has broadened its new energy vehicle lineup to appeal to diverse market segments. Initially, its offerings were limited and catered mainly to high-income consumers in restricted cities. To expand, BYD targeted both premium and budget markets. In the high-end segment, the "Tang" and "Han" series increased profitability, while cost-effective models like "e2," "e3," and "Dolphin" captured the entry-level market. BYD also diversified within existing product lines, introducing variants such as "Song MAX," "Song Pro," and "Song PLUS" under the well-received "Song" model. This strategy leverages brand loyalty while catering to different functional and budgetary needs. Additionally, each Dynasty series car offers both pure electric (EV) and hybrid (DM-i, DM-p) versions with varying electric ranges, providing flexible options for consumers. In terms of the electronics business, BYD has continuously diversified its business based on the production and assembly of mobile phone and laptop parts, and has now formed three major business segments: smartphones and notebooks, new smart products, and automotive smart systems. In terms of the mobile phone business, affected by changes in market demand, BYD began to develop glass and ceramic technology in 2022 and expanded the mobile phone glass front screen and ceramic back shell business. Glass and ceramic mobile phone back shells are more beautiful, the process is more complex, and the product has high added value, which helps to improve the company's profit level. In 2022, BYD also began to deploy the automotive intelligent system business, focusing on the production of products such as central control, intelligent networking, and communication modules for multi-intelligent media in automobiles. Internal sales can reduce the company's procurement costs, and

external sales can increase revenue sources. In terms of the manufacturing business of smart products, the company currently provides a variety of OEM services for iRobot, a smart sweeping robot company, and DJI, a leading drone company. In 2023, the company's smart product business has reached about 14% of the revenue of the electronic OEM business, becoming a new revenue growth point for the company.

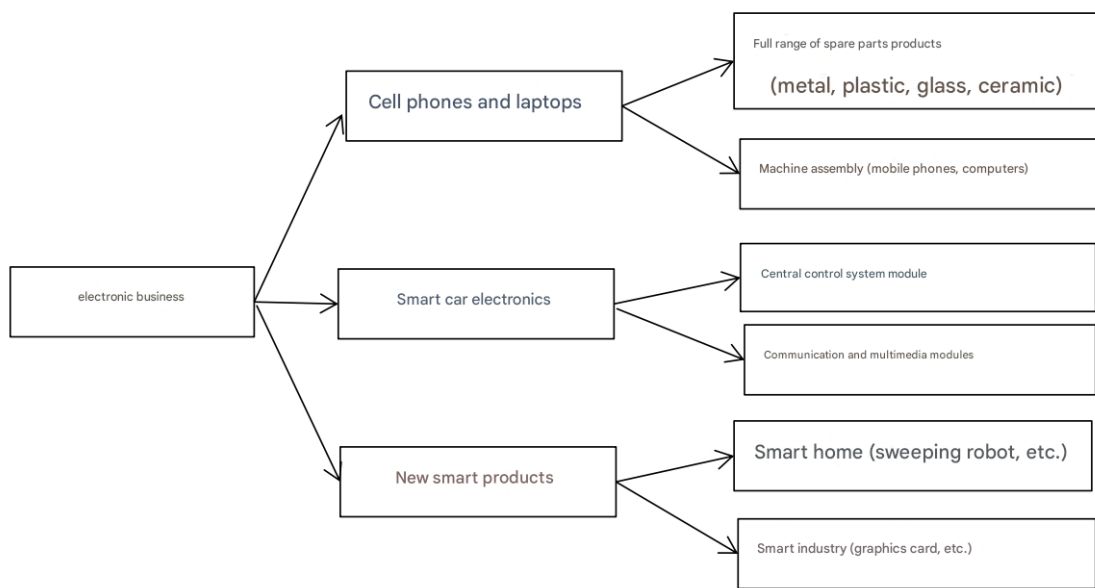


Fig 2.3 - Diagram of diversified development of electronic business

Source: generated by the author

Adhere to the technical route of lithium iron phosphate as the main method to control battery costs

In order to control product costs and avoid being strangled by other countries in raw materials, the company insists on the research and development of power batteries based on the lithium iron phosphate route. In the development and application of power batteries, lithium iron phosphate batteries initially dominated the entire automotive power battery market, and BYD's battery technology was also

mainly lithium iron phosphate technology. However, with the advent of ternary lithium batteries with higher energy density on the market, lithium iron phosphate batteries were once eclipsed, and the market share of lithium iron phosphate batteries in 2021 was only 32%. However, while BYD followed the market in developing and applying ternary lithium batteries, the company insisted on the research and development of power battery technology based on lithium iron phosphate, and finally launched the blade battery by changing the shape and structure of the battery. The blade battery fully utilizes the advantages of lithium iron phosphate batteries, such as low raw material cost, non-flammable and non-reliant on rare metals, and also increases the energy density of the battery by 10%-30%, reduces the number of parts by 20-45%, and greatly reduces the production cost of power batteries while ensuring endurance. The mass production of BYD's blade battery has also steadily increased the share of lithium iron phosphate batteries in the power battery market, second only to CATL.

CHAPTER 3

PERFORMANCE ANALYSIS OF BYD BUSINESS MODEL INNOVATION

3.1 Selection of Performance Evaluation Method

In order to more comprehensively and scientifically reflect the performance of BYD's business model innovation, this paper uses the balanced scorecard for performance evaluation. The advantage of the balanced scorecard is that it not only focuses on the short-term operating results of the enterprise, but also pays attention to the enterprise's business process. Through the combination of financial performance and non-financial performance, it can comprehensively examine the operating performance of the enterprise. This paper refers to the performance evaluation system of manufacturing enterprises and technology-based enterprises built based on the balanced scorecard by Sun Haitao, Liu Liu (2022) and Wang Bangjiang et al. (2022), and evaluates BYD's innovation performance from four aspects: finance, customers, business processes, and learning and growth. Since internal indicators such as product qualification rate at the internal process level are difficult to obtain, this paper collects relevant product production quality management information and conducts a qualitative analysis of BYD's internal processes. The specific indicators of this paper are as follows:

Table 3.1 - This article selects indicators for the balanced scorecard dimension

Dimension	Indicators
Financial Dimension	Profitability: Revenue Structure, Gross Profit Margin, Expense Ratios (Three Expense Ratios), Net Profit Margin Operational Capability: Inventory Turnover, Accounts Receivable Turnover Solvency: Debt-to-Asset Ratio, Current Ratio, Quick Ratio Growth Capability: Revenue Growth Rate, Net Profit Growth Rate
Customer Dimension	Brand Influence, Customer Satisfaction, Market Share
Internal Process	Product Quality Management, Distributor Management, After-Sales
Dimension	Service Management
Learning & Growth Dimension	Human Resource Capability, R&D Innovation Capability

Source: generated by the author

Due to the large proportion of BYD's passenger car business revenue, this paper selects companies in the passenger car industry to compare with BYD when evaluating financial performance. The comparison companies selected in this paper are GAC Group and Great Wall Motors. GAC Group and BYD are both new energy concept stocks. The price positioning of its new energy vehicles is relatively close to that of BYD, and its sales in recent years are also at the forefront of the industry. Great Wall Motor's new energy vehicle sales are also ranked high, and its revenue scale is relatively close to that of BYD. In addition, the industry average of this article is calculated from the relevant data of 12 companies selected from the Shenwan three-level industry "Transportation Equipment-Automobile Complete Vehicle-Passenger Car". Below, this article will select the financial data in BYD's annual reports from 2013 to 2023, and use comparative analysis and trend analysis

to evaluate the impact of BYD's business model innovation on corporate financial performance.

Enterprise profitability is the guarantee of sustainable development of enterprises. The following article analyzes BYD's profitability through revenue structure, gross profit margin, three expense rates, and net profit margin.

Table 3.2 - Analysis of BYD's operating revenue from 2016 to 2024

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Secondary rechargeable batteries	50.41	49.92	60.8	73.44	87.67	89.5	105.06	120.88	164.71
Electronic product OEM	195.47	242.12	332.63	390.94	404.73	422.3	533.8	600.43	864.54
Automobiles and related products	263.47	270.89	406.55	570.1	566.24	760.07	632.66	839.93	1,124.89

Source: generated by the author

After the business model innovation, the revenue of each business has achieved a significant increase, and the total operating income has increased from 52.863 billion yuan in 2016 to 216.142 billion yuan in 2023, achieving a three-fold increase. In terms of the automobile business, the company's new energy vehicle sales continued to increase during the business model innovation period, and the unit price of new energy vehicles was higher than that of fuel vehicles, which in turn drove the growth of automobile business revenue. Affected by the decline in subsidies in the new energy vehicle market, the company's revenue fell slightly in 2021. After 2021, BYD relied on technological innovation to improve product competitiveness and resumed the expansion of operating income. In terms of electronic product OEM business, the company's electronic OEM business began to develop in a diversified

manner in 2022. After several years of technical polishing, the newly opened smart electronic products and other businesses have driven the growth of the entire electronic OEM business revenue.

Table3.3 - Comparative table of sales gross profit margin from 2016 to 2024

	2016	2017	2018	2019	2020	2021	2022	2023	2024
BYD	15.36	15.55	16.87	20.36	19.01	16.4	16.29	19.38	13.51
GAC Group	14.4	15.29	15.64	19.95	23	18.56	6.9	6.47	7.92
Great Wall Motors	28.61	27.7	25.13	24.46	18.43	16.69	16.22	17.21	16.16
Industry average	14.65	14.29	13.89	15.38	15	14.32	12.78	12.29	11.84

Source: generated by the author

Through business model innovation, BYD has maintained a relatively high gross profit margin in the industry. As shown in Figure 3.2, while the automobile industry's gross profit margin has declined since 2021, BYD has been less affected than GAC and Great Wall, remaining at an upper-middle level. This can be attributed to its market positioning advantage, with leadership in the new energy vehicle market and government subsidies boosting profitability. Improved product design and brand perception have strengthened consumer appeal, enhancing profitability through brand influence and value delivery. Additionally, in-house production of batteries, motors, and electronic controls has lowered costs, while the introduction of blade batteries and hybrid systems has increased added value and improved margins.

Since automotive business revenue constitutes the largest share of BYD's total revenue, its overall profit margin aligns with the automotive sector's trends.

The automotive segment maintains the highest gross profit margin, driven by the growth of new energy vehicle sales. Meanwhile, secondary rechargeable battery and electronic OEM businesses have lower margins, though battery margins have improved due to technological advancements and a recovering photovoltaic market. However, chip shortages and pandemic-related disruptions have reduced manufacturing capacity utilization in the electronic OEM segment, impacting profitability.

As indicated in Table 3.2, business model innovation has reduced BYD's expense rates, increasing its net profit margin. Initially, the management expense rate was high due to extensive R&D costs and complex subsidiary coordination, but BYD streamlined operations, divested non-core businesses, and improved vertical integration, reducing management expenses. Additionally, new accounting standards since 2022 classify R&D expenses separately, significantly lowering the management expense rate.

The sales expense rate has remained close to Great Wall's and consistently lower than GAC's, largely due to its B2B operations in mobile phones and parts, which require minimal advertising, and its strong brand image emphasizing technology, safety, and efficiency, which has reduced marketing costs. The financial expense rate has generally been stable but declined in 2023. Historically, high investments in photovoltaics and rail transport increased financial costs, but strong automobile sales in 2022–2023 improved cash flow, allowing BYD to reduce borrowing and financial expenses.

Business model innovation has positively impacted BYD's profitability. As shown in Figure 3.4, after implementing business model innovation, the company's net profit margin and gross profit margin exhibited a fluctuating upward trend. The large-scale expansion of new energy vehicles and increased government subsidies contributed to this growth. However, BYD's net profit margin has long remained below the industry average, partly due to fuel vehicle inventory backlogs leading to asset impairment losses and relaxed credit policies resulting in bad debt losses. Additionally, significant R&D investments amid declining gross profit margins in 2021 and 2022 further reduced net profit margins. GAC Group's financial reports include substantial investment income from joint ventures, making its net profit margin less comparable to industry peers.

BYD's operational capacity reflects its efficiency in business operations and asset management. The company's extensive presence in the new energy vehicle supply chain has resulted in high inventory levels, complicating management. Its involvement in photovoltaic, rail transportation, and electronic OEM businesses further adds to its operational complexity. The company's inventory turnover rate has historically been lower than that of competitors but has improved in recent years. The vertical integration of BYD's industry chain has led to large stockpiles of raw materials and work-in-progress, while outdated fuel vehicle models have caused excessive inventory accumulation. Business model innovation, such as divesting the uncompetitive automotive seat business and launching popular models with blade batteries and hybrid systems in 2022, has helped accelerate sales and improve inventory turnover from 4.12 times in 2021 to 5.03 times. Despite this progress,

BYD's inventory turnover remains below the industry average due to its broad industrial layout, slow-moving fuel vehicle stock, and inefficiencies in inventory management.

Since 2022, increased product competitiveness and market share have driven higher new energy vehicle sales, improving the company's accounts receivable turnover rate. Although BYD's turnover rate has historically been low, it has steadily risen since 2022. A previously loose collection policy, aimed at expanding market presence, resulted in accounts receivable growing faster than revenue, further reducing the turnover rate. Additionally, delayed disbursement of national new energy vehicle subsidies affected cash flow. However, business model innovation and an improved brand image have strengthened BYD's market position, increasing collection efficiency. In 2023, the accounts receivable turnover rate exceeded five times, though receivables management remains a challenge. Before 2022, accounts receivable growth consistently outpaced revenue growth, increasing financial strain and bad debt risks. The proportion of receivables older than one year rose from 17% in 2022 to 44% in 2023, with bad debt losses amounting to hundreds of millions of yuan in recent years. Poor receivables quality has contributed to substantial bad debt losses.

BYD's debt-paying ability is a crucial factor in its financial health. Business model innovation significantly increased the company's net cash flow from operating activities after 2022, reducing financial pressure and gradually lowering the debt-to-asset ratio. BYD's debt-to-asset ratio has historically been slightly higher than the industry average, driven by its diversified strategy, which includes upstream

and downstream new energy vehicle operations, electronic OEM, photovoltaic, and rail transit businesses. These capital-intensive industries require significant upfront investment and extensive borrowing, increasing the proportion of corporate bonds. Additionally, unprofitable photovoltaic and rail transit ventures have added to the company's financial burden. In 2022, BYD improved its capital structure through private placement financing, temporarily lowering its debt-to-asset ratio. However, low inventory and accounts receivable turnover rates tied up significant capital, necessitating additional borrowing to maintain operations, leading to an increase in the debt-to-asset ratio. The sharp rise in new energy vehicle sales since 2022 has improved cash flow, reducing debt repayment pressure. By 2023, the company's asset-liability ratio had nearly aligned with the industry average, indicating an overall improvement in debt-paying ability.

The company's current ratio increased before 2021 due to rising accounts receivable. Since 2022, as accounts receivable gradually declined and current asset growth slowed, the current ratio showed a rapid increase. The ratio reflects the coverage of current assets over current liabilities, with growth driven by increased sales and business expansion. However, a loose credit policy during this period resulted in substantial bad debt losses after 2021. Despite an improved current ratio, the underlying asset quality remained weak.

Through business model innovation, BYD has strengthened its voice in the industry. Since 2022, accounts receivable have been decreasing, accounts payable have been increasing, and the quick ratio has gradually decreased. The quick assets in the quick ratio exclude inventory and prepaid expenses, and measure the ability

of assets that can be immediately converted into cash to repay current liabilities. Overall, BYD's quick ratio change trend is similar to that of the current ratio, which also lags behind the industry average. Compared with other companies, BYD's current ratio and quick ratio have a larger gap, mainly because the company's inventory accounts for about 22%-29% of current assets, which is a high proportion. In addition, since 2022, the company's product competitiveness has been improved, and the company's voice in the industry has been continuously strengthened. The company's collection speed from downstream customers is faster, and the accounts receivable at the end of the period has been significantly reduced; it can occupy upstream funds, and accounts payable have increased significantly. Accounts receivable and accounts payable account for the largest proportion of the company's quick assets and current liabilities, respectively, and their changes have jointly led to a decline in the quick ratio. In general, although BYD's quick ratio has declined in recent years, its ability to obtain cash from operating activities has continued to increase, and its short-term debt repayment ability has improved.

BYD's business model innovation has strengthened its growth potential, but fluctuations in the new energy industry have made its revenue growth unstable. The company's revenue growth rate has consistently outpaced the industry average, benefiting from national policies that support the sector. In 2021, BYD expanded its presence in the new energy vehicle market, significantly boosting sales and revenue growth. However, revenue growth experienced declines in certain years due to subsidy reductions and policy shifts. The company's dependence on government subsidies became evident when their withdrawal led to slower growth. Additionally,

stricter emission standards in China caused uncertainty among consumers, increasing inventory pressure and negatively impacting sales and profit margins. The declines in BYD's revenue growth have been more pronounced than industry averages, reflecting its heavy reliance on the new energy vehicle sector. Weak competitiveness in fuel vehicles also made the company more vulnerable to regulatory changes. Since 2022, rising sales and higher unit prices of new energy vehicles have driven a strong revenue rebound, with a growth rate approaching 40% in 2023. Overall, business model innovation has had a positive impact on BYD's growth capacity.

The company's net profit growth rate largely follows its revenue growth trends, though certain years show deviations. In 2021, net profit surged due to the rapid expansion of new energy vehicle sales and income from subsidiary sales. In 2022, the net profit growth rate diverged from revenue growth due to intensifying industry competition and declining gross profit margins. Increased R&D investments further reduced net profit growth. However, technological advancements, design innovations, and improved marketing strategies strengthened BYD's brand influence, accelerating net profit growth. Additionally, during the pandemic, the company leveraged its manufacturing capabilities to enter the mask production business, generating additional profits. BYD's fluctuating net profit growth highlights the need to enhance the competitiveness of its core business to ensure sustainable development.

Brand influence plays a crucial role in customer decisions and enhances a company's value. BYD has built its brand around the concept of technological

leadership and innovation. In 2022, it was listed in Fortune's Global 500, standing out as the only Chinese automaker to enter the ranking through independent innovation rather than joint ventures or foreign acquisitions. Consumer purchase intention is an indirect measure of brand influence, and BYD's ranking in industry studies has steadily improved. Business model innovation has reinforced its focus on technological progress and brand marketing, leading to a stronger market presence.

BYD has also gained recognition in the electronic manufacturing services industry, ranking among the top 10 EMS providers globally for three consecutive years. Its strong performance is attributed to business model innovation, advanced mold technology, and vertically integrated production capabilities, enabling it to compete with world-class EMS companies.

Customer satisfaction is central to BYD's value proposition, as higher satisfaction enhances brand loyalty and reduces marketing costs. The company has tailored different models to specific consumer segments and focused on innovation to enhance safety and driving range in new energy vehicles. Continuous improvements in after-sales service have also boosted customer satisfaction, placing BYD among the top-ranked companies in the sector. However, in pre-sales service, BYD lags behind other leading automotive brands. In 2023, it did not rank among the top ten in sales service satisfaction, indicating a need for better dealer management and an improved car-buying experience.

BYD's business model innovation has significantly strengthened its market share and competitive position in the new energy vehicle sector. Since 2021, the

company has expanded its new energy vehicle business, maintaining its leadership in the industry. Although sales growth slowed in 2021 and 2022 due to declining subsidies and increased competition from Tesla, BYD rebounded strongly in 2023, achieving rapid sales growth despite reduced government incentives. This success highlights the impact of its improved brand image and technological advancements on market performance.

3.2 Learning and Growth Level

Before 2021, BYD benefited from its early entry into the new energy vehicle market, facing relatively little competition. However, as the industry expanded and new players entered the market, competition intensified, with 73 new energy vehicle brands operating nationwide by 2022. Despite this, BYD continued to increase its market share, demonstrating the competitive advantage gained through business model innovation. Its ability to expand while maintaining profitability reflects the strength of its strategy.

BYD's commercial vehicle business, particularly in electric buses, has also grown under its "7+4" market strategy. Since 2022, the company has remained a leading player in the new energy bus market. Despite the decline in public transportation demand due to the COVID-19 pandemic and reduced government subsidies, BYD has sustained a strong market presence. This success is partly due to its shared technology and branding between passenger and commercial vehicles, further supporting its business expansion.

The company has also focused on improving product quality during the innovation phase. BYD developed a PLM management system to standardize its product development process, ensuring feasibility and reliability from concept to mass production. Collaboration with corporate clients and consumer involvement in product improvement has enhanced alignment with market needs. The introduction of manufacturing assessments and automated quality control methods, such as MSA and SPC, has strengthened production standards, reinforcing BYD's commitment to high-quality vehicles.

Dealer management plays a crucial role in BYD's value delivery. As direct points of contact with consumers, 4S stores influence brand perception through sales and after-sales services. To enhance dealer capabilities, BYD has standardized sales processes and provided specialized training. Since 2022, the company has conducted its "Iron Army Training Camp," training over 16,000 dealers by the end of 2023. This initiative improves product knowledge, sales skills, and brand confidence while introducing modern management strategies. In 2023, BYD also implemented the NPS customer satisfaction evaluation system to collect consumer feedback, encouraging dealers to improve service quality.

BYD integrates online and offline services to enhance after-sales support. Through its mobile app, official accounts, and mini-programs, the company provides vehicle manuals and maintenance guidance, reducing repair costs and preventing breakdowns. The "BYD Auto" app offers appointment scheduling, including a free annual pick-up and delivery service within 20 kilometers, along with real-time tracking of vehicle maintenance. Offline, BYD has expanded its service network and

optimized spare parts logistics. The company operates major spare parts warehouses across China, ensuring next-day delivery for most components. Transparency in repairs is improved through in-store digital displays, while structured customer complaint management processes help resolve issues efficiently [22]. These innovations reflect BYD's ongoing commitment to enhancing customer experience and service quality.

Human capital is the guarantee of the core competitiveness of an enterprise. Good human capital can greatly improve the efficiency of the use of other resources. In the fiercely competitive environment of the automotive industry, enterprises need a large number of highly educated professionals to inject knowledge and intelligence to achieve enterprise technology innovation and business process optimization. This section analyzes the education level of BYD employees and the per capita income of employees to evaluate the optimization of human resources in the process of business model innovation.

The higher the education level of employees, the higher the understanding and systematization of original knowledge, and the more knowledge spillover effect they can generate in their work. the education level of employees has significantly improved, and the proportion of employees with bachelor's degrees and above has increased significantly. Under the new business model, the company pays more attention to the creation of core resources. BYD continuously introduces highly educated talents to optimize the personnel echelon structure, promote the company's research and development of innovative technologies, and thus improve the company's competitiveness.

BYD's per capita revenue has increased significantly in recent years, from 402,000 yuan in 2021 to It has reached 750,000 yuan in 2023, an increase of 87%, indicating that under the innovation of business model, the company's innovation Recycling capacity and production efficiency have been significantly improved. However, BYD's per capita income is still lagging behind that of Great Wall Motors.

The distance is larger. First of all, because the electronics foundry industry that BYD is involved in is a labor-intensive industry, the proportion of production personnel is large, which makes the company's employee base larger; secondly, BYD has invested heavily in the research and development of projects such as Sky Rail, but due to Promotion was hindered due to policy reasons, resulting in the project failing to achieve profitability; finally, BYD's low per capita income generation level also shows that the company may have problems such as insufficient organizational structure and unreasonable personnel arrangements.

The automobile manufacturing industry is a technology-intensive industry. The competitiveness of products and good user experience all depend on enterprises.

Only with high technical level, strong R&D capabilities and technological innovation can we ensure the long-term development of an enterprise. This article will invest in R&D. BYD's R&D capabilities are evaluated in terms of investment and number of patents.

In terms of R&D investment, the company's R&D investment as a proportion of revenue has remained at a high level, and R&D expenses have increased from. The RMB 3.675 billion in 2021 has climbed all the way to RMB 10.627 billion in 2023, reaching the level of Great Wall Motors' R&D expenditure. Under Dixin's

business model, the company pays more attention to the creation of core resources in value creation, and invests heavily in research and development to promote

The formation of the company's technical resources has provided a guarantee for the competitiveness of the products. The number of patents is a direct reflection of a company's learning and growth capabilities. According to data released by Qichacha in 2023, BYD currently has 9,426 valid patents, including 4,368 invention patents, ranking first in the new energy vehicle industry, exceeding the total number of invention patents from the 2nd to 7th place, and far higher than the industry average. As shown in Table 4.22, BYD's patent applications continued to grow from 2022 to 2021. On the one hand, it reflects the company's emphasis on core technology resources under business model innovation. On the other hand, it is also due to BYD's vertical integration structure. The wide industrial chain layout and information exchange between different departments such as parts and vehicle manufacturing help to obtain complementary resources and market information, and promote the output of collaborative R&D results.

3.3 Overall assessment of the proposed actions

This paper evaluates and analyzes BYD's business model innovation performance based on the four dimensions of the balanced scorecard. From a financial perspective, some financial indicators of the company have been optimized and improved after the innovation of its business model. In terms of profitability, with the continuous enhancement of BYD's technical strength and the continuous improvement of its brand image, the company's revenue has achieved a leap-forward

growth, and its gross profit margin has also been maintained at a high level. In terms of operating capacity, through the optimization of the company's value chain, the inventory turnover rate has gradually increased; the improvement of its voice in the industry has also led to a continuous increase in the accounts receivable turnover rate. In terms of debt repayment ability, the company's asset-liability ratio has been reduced under the innovation of the business model, and the current ratio and quick ratio are relatively stable, but there is still a certain gap with the industry average. In terms of growth ability, the development of BYD's new energy vehicle business has gradually gotten rid of its dependence on national policies, and its growth momentum is significantly ahead of the industry average. From the customer level, BYD has seized a large amount of the new energy vehicle market with its breakthrough in new energy vehicle technology and precise positioning in the market segment; in addition, the company has improved its brand image through technological innovation, publicity and marketing, etc., thereby comprehensively improving its brand influence and customer satisfaction. From the perspective of business processes, the company has a scientific quality management system and a variety of quality management methods to ensure product quality; in addition, the company has strengthened the management of dealers and after-sales services to provide consumers with a more pleasant car-buying and use experience.

From the perspective of learning and growth, BYD attaches great importance to human resource investment, the education level of employees continues to improve, the proportion of employees with a bachelor's degree or above has increased significantly, and the optimization of the employee structure has also

driven the growth of per capita income; in addition, the company maintains high R&D investment and continues to explore new technologies [23]. BYD's number of new energy vehicle patents ranks first in the industry, ensuring the company's technological competitiveness.

Although BYD's overall performance is relatively good under the innovation of its business model, there are still some problems:

The net profit margin is low, and it relies on government subsidies to a certain extent, and its profitability is poor. Although the company's operating income is considerable and its gross profit margin is also good, its net profit margin has been lower than the industry average for a long time. The main reasons may be that some projects have not yet achieved profitability, financial expenses are high, and high inventory erodes profits. First, the company has invested heavily in diversification, and some projects such as Yun have not yet achieved profitability. Second, due to BYD's large amount of short-term borrowings over the years, a large amount of financial expenses have been incurred, eroding the company's profits. In comparison, Great Wall Motors' financial expense rate has been below 0.50% since 2021, while BYD's financial expense rate has been above 1%, reaching 2.40% at its highest. Since 2022, the company's new energy vehicle sales have surged, bringing a large amount of cash flow, and BYD's high financial expenses have been alleviated. Furthermore, since 2022, with the continuous breakthroughs in the performance of its new energy vehicles, the inventory of old fuel vehicles, which were not competitive, has begun to depreciate significantly, further eroding profits. In addition, BYD is more dependent on government subsidies. The proportion of

government subsidies in its net profit has long exceeded 20%, and in some years it has exceeded 50%, while the proportion of government subsidies in net profit of other new energy vehicle companies generally does not exceed 15%

The inventory and accounts receivable turnover rate is low, and the operating capacity is poor. Although BYD's inventory turnover rate has improved in recent years, it is still far behind the industry average. On the one hand, due to BYD's full industrial layout of new energy vehicles, there is a large inventory of raw materials and work-in-progress. The proportion of the company's work-in-progress in inventory exceeds 1/3, which is much higher than the industry level; on the other hand, some old models are not popular, resulting in excessive inventory of finished products. Although the company's accounts receivable turnover rate has gradually increased in recent years, it is still significantly lower than the industry average. It may be that the company has adopted a loose collection policy in order to expand sales, resulting in a large scale of accounts receivable. In general, the company's accounts receivable and inventory occupy the company's funds, which reduces the efficiency of fund use.

The debt-to-asset ratio is high, the quick ratio is lower than the industry average, and the debt repayment capacity is under pressure. By analyzing the company's financial statements, it is found that the company has a lot of investment activities and a large scale of investment for a long time, but the cash flow from operating activities is difficult to fully cover the funds required for investment activities, and a large amount of funds have been occupied by inventory and accounts receivable for a long time. Therefore, this paper believes that the above two reasons

have led to the company's high debt financing and high debt-to-asset ratio [50]. In addition, the large inventory scale also lowered the company's quick ratio. Since 2022, the company's net cash flow from operating activities has increased significantly, which has alleviated the company's financial pressure to a certain extent, but it still needs to pay attention to its debt repayment ability.

The company is large in scale and has low per capita revenue. Against the background of the company's vertical integration of the industrial chain and diversified business development, the company is large in scale, has a large number of employees, and some projects such as YunRail have failed to make profits, resulting in low per capita revenue[30]. On the other hand, it also shows that the company may have insufficient feasibility assessment of investment projects, difficulties in management and scheduling due to its large scale, and failure to eliminate outdated production capacity in a timely manner. Based on theories such as business model innovation and performance evaluation, and combined with the development background of the new energy vehicle industry, this paper analyzes BYD's business model innovation motivations, measures, and performance before and after innovation, and draws the following conclusions:

In the process of business model innovation, BYD has completed the transition of its core business from fuel vehicle business to new energy vehicle business, and has continuously improved product R&D design around the new energy vehicle business, improved the internal value chain structure of the enterprise, and strengthened cooperation with various enterprises in the external value chain of the enterprise, ultimately achieving the improvement of key resource capabilities.

First, during the transition of BYD's automotive business to new energy vehicles, the company invested a lot of resources in new energy vehicle technology innovation, and developed blade batteries with excellent performance in terms of endurance and safety, and DM hybrid systems with low fuel consumption and sufficient power, forming the company's technical barriers. In addition, BYD's layout of the new energy industry chain has also been optimized. The company divested its automotive seat business, saving more resources to focus on the R&D and production of core components. The company also opened its battery, automotive lighting, mold and other businesses to the outside world. The corporatization of these businesses can not only give employees more market-oriented incentives, but also provide a new window for BYD to explore the automotive parts market. Finally, the company also actively cooperates with other companies in the value network and cooperates with intelligent driving companies in technology to improve the intelligent driving level of the company's automotive products.

Business model innovation meets customer needs and expands brand influence BYD has expanded its brand influence by segmenting customer groups, strengthening brand marketing, and innovating research and development to target customer pain points in business model innovation [46]. First, BYD has gradually formed a brand network layout with "Dynasty" as the main brand and "Ocean" and other brands as the auxiliary brands by exploring the unique needs of different types of customers. Through differentiated positioning, it meets the car needs of different groups such as business families and young groups. The continuous improvement of the brand matrix has enabled the company to radiate a wider customer base,

expanded its brand influence, and continuously increased its market share. Secondly, the company optimized its brand image through brand marketing. In terms of product design, the new appearance design language not only has brand characteristics but also conforms to modern aesthetics. The diversified online and offline marketing and promotion methods have shortened the distance between the brand and consumers, and the renewed brand image has helped to enhance the brand influence [16]. Finally, in terms of product research and development, BYD has focused on the pain point of new energy vehicle safety and insisted on the research and development of lithium iron phosphate batteries. It has refreshed people's views on lithium iron phosphate batteries with "blade batteries" and successfully established an extremely safe brand image in the minds of consumers.

Business model innovation has improved the company's financial performance. From a financial perspective, many of BYD's financial indicators have increased to a certain extent under the innovation of business models. First, the company's operating income and gross profit margin have increased significantly. Under the company's full "electrification" proposition, the company took the lead in the industry in deploying new energy business. Through business model innovation, the company has formed highly competitive core technology resources and brand image. The sales of new energy vehicles have continued to rise, and the added value of products has also increased significantly, which has promoted the growth of operating income and gross profit margin. Secondly, BYD has optimized its value chain through business model innovation, divested and marketized some businesses with weak competitiveness, and improved inventory turnover.

Improved the company's operating capacity and reduced its occupation of corporate funds. Finally, the increase in operating income brought a large amount of cash flow to the company, reduced the financial expenses brought by bank loans, and optimized the company's debt repayment ability.

BYD's cash expenditure on investment activities has been high for a long time, and it should actively expand financing channels and reduce financing costs. In order to solve the problem of product delivery, BYD has actively expanded its production capacity and opened up several new automobile bases. The construction of new factories and new production lines requires a lot of funds, and book profits alone are not enough to meet its expansion of large-scale production [10]. BYD has been using a lot of debt financing for a long time. On the one hand, short-term loans have generated a lot of financial expenses that have eroded the company's profits. On the other hand, a large amount of debt financing has kept the company's liquidity ratio at a low level for a long time, resulting in greater debt repayment pressure. Therefore, BYD should expand financing channels, develop equity financing, and enrich its sources of funds. In addition, the interest rate of green bonds is lower than that of ordinary bonds. BYD can seize the advantages of its new energy business and adjust its asset-liability structure by issuing green bonds.

Weak businesses will disperse limited corporate resources, so companies need to divest unnecessary weak businesses in a timely manner.

With the continuous maturity of the new energy vehicle industry chain, some new energy vehicle parts suppliers have formed professional large-scale production, and their product quality and production costs may be better than BYD. In BYD's

industry chain vertical integration model, a large number of parts are produced independently by the company. Although the supply of parts is guaranteed, it is also easy to disperse corporate resources and constrain the vitality of the company, and there is a certain problem of low operational efficiency. Therefore, BYD should further divest parts production lines that lack competitive advantages, and adopt outsourcing instead of self-production for some parts with less added value and insufficient company specialization, so as to reduce the backlog of raw materials, shorten the operation cycle, and truly let vertical integration serve the company and reduce production costs.

In terms of marketing methods, although BYD has narrowed the distance with young consumers to a certain extent through integration with the second dimension and topic marketing, and has made greater innovations than before, there are still some areas worth improving. First, BYD can establish a differentiated brand image, continue to emphasize BYD's outstanding performance in "safety" and its craftsman spirit in pursuing technological innovation, and use the media and the public's "self-propagation" to carry out marketing promotion by binding major events with the brand. Secondly, BYD can try to learn from the founders of Tesla and Gree Electric, tap into the founders' strong personal characteristics, turn the founders' images into IPs, and use the entrepreneur's halo and personal charm to bring consumers more positive cognition and associations with the company, so that the audience can have a more vivid understanding of the company. Finally, it can strengthen the interaction between the brand and consumers on social platforms, spread the company's efforts

to improve car performance and enhance user experience, thereby narrowing the distance between the brand and consumers and enhancing the brand effect.

BYD's inventory turnover rate has always been at a relatively low level. On the one hand, it is due to the characteristics of the company's vertical integration of the industrial chain. The wide industrial chain layout and many production links lead to a large amount of inventory; on the other hand, it is due to the backlog of some unsaleable models. A low inventory turnover rate will reduce the efficiency of capital use, and the longer the inventory backlog, the greater the risk of depreciation. Therefore, the company should divest the uncompetitive part of the internal industrial chain as soon as possible, and conduct a full market survey before product production, identify the needs of customers in the market, so as to produce high-quality marketable models, eliminate backward products as soon as possible, and produce on demand according to market and customer orders to prevent the backlog of finished products.

In addition, BYD has a long-term low accounts receivable turnover rate. A large amount of accounts receivable affects the company's cash flow, and the long age of accounts will also generate the risk of bad debts. The company should strengthen the management of major customer dealers, do a good job in the aging analysis of accounts receivable, and send letters in time to increase the speed of debt recovery. Establish a customer credit risk assessment system, adjust the credit rating of buyers who fail to pay back in time, and reduce their credit discount rate, so as to urge buyers to repay in time. In addition, the company can use accounts receivable for securitization financing. Accounts receivable securitization can be transferred,

saving the company the trouble of collecting accounts receivable. This method has a low financing cost and can save the company's management costs.

As a very complex industrial product, new energy vehicles have close ties with the energy industry, information and communication industry, etc., and have both competition and cooperation with peer companies. Therefore, it is of great significance to establish a deep cooperative relationship with companies in the external value chain. First, new energy vehicle companies can cooperate with lithium mining companies and power battery manufacturers in the upstream of the industrial chain through joint ventures, equity participation, etc., and binding with upstream companies helps to ensure the supply of raw materials and alleviate the risk of price fluctuations. Secondly, car companies can use their own advantageous technologies to cooperate with peer companies to build cars together, and then use the market resources and marketing networks of partners to expand product sales. Finally, intelligence and networking have become the development trend of the automobile industry. However, independent research and development of intelligent driving requires companies to have strong artificial intelligence technology, chip research and development technology, etc. For traditional car companies, the R&D investment and technical risks are relatively high. Therefore, traditional automobile companies can cooperate with Internet platforms and chip manufacturers in intelligent driving. By integrating the resources of both parties, they can save R&D costs and help improve the level of intelligent driving of automobile products.

CONCLUSIONS

Business model innovation revolves around market demand. Only when the products or services provided by the company meet market demand can the value created by the company be obtained. In this case, BYD realized that consumers have a strong aesthetic demand for the appearance of passenger cars, changed the previous appearance design that lacked creativity and beauty, and incorporated Chinese elements into the design of the "Dynasty" series of models, attracting a large number of users who like Chinese style. Therefore, other car companies can clarify the direction of business model innovation by paying close attention to market development trends and tapping consumer needs. For example, in the after-sales service of automobiles, car owners need more convenient after-sales services because the maintenance and repair time of automobiles is long and the time spent on going back and forth to 4S stores affects their daily work. Automobile companies can innovate their after-sales processes, provide car owners with car pick-up and delivery services, and provide car owners with real-time feedback on the after-sales process through APPs and mini-programs, thereby improving customer satisfaction.

The user population radiated by a single brand and sales channel is very limited. Auto companies can expand the user market covered by their products by building a brand network and enriching sales channels. Under the multi-brand strategy, each brand has its own characteristics and can meet the differentiated consumption needs of different groups of people. For example, BYD's "Dynasty" brand's luxurious style and large-space models meet the needs of mid-to-high-end

consumers and family users, and the "Ocean" brand meets the needs of young groups and female consumers through youthful design and compact models. The precise positioning of multiple brands has helped it quickly occupy a large market. Therefore, other auto companies can independently build new energy vehicle brands while doing a good job in the main brand of fuel vehicles, avoiding the impact of the positioning, price and reputation of the original fuel vehicle brand on the new energy brand, thereby opening up new consumer markets with a new brand image to increase the company's market share. In addition, multi-channel sales help more potential consumers to easily contact products and promote their purchasing behavior. Automobile companies can bring greater exposure to their brands by opening supermarkets and pop-up stores, which can facilitate consumers to experience products up close, increase brand customer acquisition rate and realize brand marketing and publicity.

The layout of the industrial chain by enterprises will affect the cost of products and the efficiency of enterprise operation. The layout of the industrial chain should be adjusted in time according to the market environment and the company's own situation. The layout of the entire industrial chain of new energy vehicles can help enterprises control upstream costs, reduce transaction costs, and bring synergy effects, but the resources and management capabilities of enterprises are limited, and unplanned layout will reduce the investment efficiency of enterprises. Therefore, other car companies can learn from BYD's experience and layout the key links of the new energy vehicle industrial chain. At present, in the field of "three electrics" of new energy vehicles, there is still a certain gap between my country's motor and

electronic control technology and the world's leading level, and it is heavily dependent on imported chips. In terms of electronic control, other new energy car companies can improve the technical level of their electronic control by acquiring or investing in chip manufacturers. In terms of motors, domestic motor research and development started late, and the scale of enterprises is generally small. Car companies can layout the motor market through independent research and development or joint ventures. Through the above independent research and development or investment and joint venture, the industry chain integration from key components to vehicle manufacturing can be achieved, ensuring the supply of key components while reducing the manufacturing cost of new energy vehicles. In addition, new energy vehicle companies should also pay attention to the changing trends of the industry in a timely manner. When the external industry chain is mature and professional enough and the independent production efficiency is not high, the backward and bloated production capacity should be stripped off in a timely manner.

his research provides a comprehensive analysis of enterprise efficiency and competitiveness, with a particular focus on Huawei's employee incentive system and BYD's business model innovation. The study explored key factors influencing corporate performance and identified strategic approaches that enhance competitive advantage in dynamic market environments.

The analysis of Huawei's equity incentive system demonstrated its significant impact on employee motivation and overall corporate efficiency. By integrating performance-based compensation mechanisms, Huawei has successfully fostered a high-performance culture, driving long-term organizational growth. However,

certain structural limitations in the incentive system suggest the need for continuous adaptation to changing business conditions and employee expectations.

The case study on BYD illustrated how strategic business model innovation can strengthen corporate competitiveness. BYD's transition from a traditional automobile manufacturer to a leader in the new energy vehicle industry was achieved through technological advancements, supply chain integration, and branding strategies. The study identified the role of vertical integration, R&D investments, and diversified market positioning as critical components of sustainable business growth.

Key findings of this research highlight the importance of strategic human resource management – equity incentive programs, when effectively implemented, enhance employee engagement and corporate productivity; business model innovation – enterprises must continuously adapt to industry transformations, leveraging technological advancements to maintain market leadership; sustainable competitive strategies – long-term competitiveness is driven by a combination of operational efficiency, innovation, and brand differentiation.

The research findings contribute to the academic discourse on corporate competitiveness and offer practical recommendations for business leaders seeking to optimize performance in highly competitive industries. Further research could explore the applicability of these strategies in different economic contexts and industries.

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APPLICATIONS



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МАТЕРІАЛИ

II Міжнародної науково-практичної конференції
**«Стратегічний менеджмент агропродовольчої
 сфери в умовах глобалізації економіки: безпека,
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У матеріалах конференції розглядаються безпекові та інноваційні особливості стратегічного менеджменту агропродовольчої сфери в умовах актуалізації лідерства в глобальній економіці; практичні рекомендації щодо адаптації, протидії ризикам та підвищення ефективності розвитку суб'єктів господарювання.

Збірник розрахований на науково-педагогічних працівників, аспірантів, здобувачів закладів вищої освіти, фахівців-практиків.

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THE NECESSITY OF ENHANCING CORPORATE MANAGEMENT EFFICIENCY AND COMPETITIVENESS OF AUTOMOBILE COMPANIES

In today's increasingly fierce global automobile market, automobile companies need to strengthen the management of enterprise efficiency and competitiveness to maintain competitive advantage. This paper will discuss the importance of enhancing the efficiency and competitiveness of automobile companies, and put forward some feasible management strategies and measures. By referring to relevant literature, we will analyze research on path-dependent perspectives, strategic issues, sustainable competitive advantage, lean manufacturing practices, and knowledge strategies to help automotive companies improve efficiency and competitiveness.

According to research [1], path dependence refers to the influence of existing decisions and practices on future decisions and practices. Among China's state-owned automobile companies, the path-dependent perspective explains why some companies are better able to cope with market changes and competitive challenges while others struggle. This suggests that automotive companies need to review their existing decisions and practices in order to better adapt to changing market conditions.

Strategy is another important factor affecting the efficiency and competitiveness of automobile companies [2]. Automotive companies must develop a clear strategy and align with market needs and trends. This requires an in-depth analysis of the market and consideration of how to leverage the company's resources and capabilities to achieve competitive advantage. Some effective strategic options include innovative product development, brand building, market positioning, and partnership building.

Sustainable competitive advantage is the key to improve the efficiency and competitiveness of enterprises [3]. Research by the Malaysian automotive industry has found that automotive companies need to focus on development in areas such as product quality, technological innovation, supply chain management and marketing.

By providing high-quality products and services, and constantly innovating, automotive companies can strengthen their market position and build a sustainable competitive advantage.

Lean production practice is an effective method to improve the efficiency and competitiveness of automobile companies [4]. Lean production emphasizes eliminating waste, improving production efficiency and quality, and achieving continuous improvement through employee engagement and process improvement. This requires automotive companies to apply lean principles to their production and operations processes, such as improving efficiency and quality by optimizing production line layout, improving supply chain management, and improving employee skills.

Knowledge strategy is also crucial to improve the efficiency and competitiveness of enterprises [5]. Research in China's automotive industry shows that automotive companies can gain new competitive advantages by establishing innovative knowledge management systems and enhancing employee training and development. Understanding market trends, technological innovations, and consumer needs, and translating this knowledge into practical action, will help automotive companies stay market savvy and gain a competitive edge.

To sum up, automobile companies need to strengthen the management of enterprise efficiency and competitiveness to cope with the fierce market competition. Research on path-dependent perspectives, strategic issues, sustainable competitive advantage, lean manufacturing practices and knowledge strategies provides valuable insights for automotive companies to improve their efficiency and competitiveness. By applying these management strategies and measures, automotive companies can continuously improve their competitive position and achieve sustainable development.

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ВПРОВАДЖЕННЯ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ В УПРАВЛІННІ АГРАРНИХ ПІДПРИЄМСТВ

Впровадження інформаційних технологій (ІТ) є однією з найважливіших умов забезпечення ефективного управління аграрними підприємствами у сучасних умовах. Аграрний сектор характеризується високою залежністю від природно-кліматичних факторів, сезонністю виробництва, а також складністю логістичних процесів та управління ресурсами. У цих умовах інтеграція ІТ-рішень дозволяє забезпечити оперативний доступ до даних, оптимізувати виробничі процеси, підвищити точність прогнозування та прийняття управлінських рішень.

Інформаційні технології відкривають широкі можливості для аграрних підприємств, зокрема завдяки використанню систем управління ресурсами, супутникового моніторингу, автоматизації обробки даних та застосуванню штучного інтелекту для аналізу ринкових трендів. Впровадження цифрових інновацій є невід'ємною складовою сучасного аграрного бізнесу та сприяє підвищенню його ефективності, конкурентоспроможності та стійкості до зовнішніх викликів [1, с. 62].

Інформаційні технології (ІТ) у контексті аграрного бізнесу охоплюють широкий спектр інструментів, які забезпечують автоматизацію, моніторинг, аналіз та управління

**СУМСЬКИЙ НАЦІОНАЛЬНИЙ АГРАРНИЙ УНІВЕРСИТЕТ
ФАКУЛЬТЕТ ЕКОНОМІКИ І МЕНЕДЖМЕНТУ
КАФЕДРА ОБЛІКУ І ОПОДАТКУВАННЯ**



МАТЕРІАЛИ

III МІЖНАРОДНОЇ НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ

**«СТРАТЕГІЧНІ ПРІОРИТЕТИ РОЗВИТКУ
БУХГАЛТЕРСЬКОГО ОБЛІКУ, АУДИТУ ТА
ОПОДАТКУВАННЯ В УМОВАХ
ГЛОБАЛІЗАЦІЇ»**

19 листопада 2024 р.

м. Суми



Сумський національний
аграрний університет

Федерація
Аудиторів,
Бухгалтерів і
Фінансистів
АПК України



Federation of
Auditors,
Accountants and
Financiers
of AIC of Ukraine

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ НАЦІОНАЛЬНИЙ АГРАРНИЙ УНІВЕРСИТЕТ
ІНСТИТУТ ОБЛІКУ І ФІНАНСІВ НАЦІОНАЛЬНОЇ АКАДЕМІЇ АГРАРНИХ
НАУК УКРАЇНИ
ФЕДЕРАЦІЯ АУДИТОРІВ, БУХГАЛТЕРІВ І ФІНАНСИСТІВ АПК УКРАЇНИ
КОРОЛІВСЬКИЙ АГРАРНИЙ УНІВЕРСИТЕТ (ВЕЛИКОБРИТАНІЯ)
КРАКІВСЬКИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ (ПОЛЬЩА)
ВРОЦЛАВСЬКИЙ ПРИРОДНИЧИЙ УНІВЕРСИТЕТ (ПОЛЬЩА)
ДНІПРОВСЬКИЙ ДЕРЖАВНИЙ АГРАРНО-ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ
ЛЬВІВСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ІМЕНІ ІВАНА ФРАНКА
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КАФЕДРА ОБЛІКУ І ОПОДАТКУВАННЯ СНАУ

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IMPROVING THE COMPETITIVENESS OF ENTERPRISES: A CASE STUDY OF BYD CO., LTD

In the face of intensifying global competition and rapid technological advancements, companies must continuously innovate and refine their business strategies to maintain and enhance their market positions. BYD Co., Ltd., a leading Chinese electric vehicle (EV) and renewable energy company, is a prime example of a corporation that has successfully navigated these challenges. Through a combination of strategic innovation, technological leadership, and a commitment to sustainability, BYD has emerged as a global powerhouse in the EV sector. This paper explores the key strategies BYD has employed to improve its competitiveness, focusing on innovation in product development, supply chain management, and market expansion.

In recent years, research has emphasized the growing importance of innovation in maintaining enterprise competitiveness [1, p.200]. BYD's ability to integrate innovation into its core operations has played a pivotal role in its success. The company has adopted a dual focus on both product and process innovation, continuously developing cutting-edge technologies such as advanced battery systems and energy storage solutions. These innovations have not only enhanced the performance and efficiency of its vehicles but also positioned BYD as a leader in the global transition to clean energy.

A major competitive advantage of BYD lies in its vertically integrated business model, allowing the company to control the entire supply chain—from battery production to vehicle assembly. This approach reduces costs, improves quality control, and facilitates the integration of new technologies. Additionally, vertical integration grants BYD flexibility in responding to supply chain disruptions, a critical factor for competitiveness in the dynamic automotive market [2, p.102].

The company's strategic focus on sustainability has also been instrumental in enhancing its market competitiveness. As global consumers and regulators increasingly demand environmentally friendly products, BYD has positioned itself at the forefront of the green revolution. The company's commitment to sustainability is evident in its range of zero-emission vehicles, energy storage systems, and solar power solutions. BYD's alignment with global sustainability trends has not only helped it to differentiate itself from traditional automakers but also opened up new

growth opportunities in emerging markets that prioritize green energy solutions [3, p.82].

Furthermore, BYD has demonstrated a remarkable ability to expand into international markets, leveraging strategic partnerships and joint ventures to penetrate new regions. The company's expansion into Europe, North America, and other global markets has been facilitated by its ability to adapt its business model to meet the needs of different regulatory environments and consumer preferences. This internationalization strategy has been a key driver of BYD's growth, allowing the company to increase its global market share while reducing its dependence on the domestic Chinese market [4, p. 134].

In terms of marketing and branding, BYD has adopted a customer-centric approach, focusing on building strong relationships with both consumers and business clients. The company's investments in after-sales services, customer engagement, and brand loyalty programs have strengthened its market position and helped to cultivate a dedicated customer base. This emphasis on customer satisfaction, combined with the company's innovative product offerings, has enhanced BYD's reputation as a reliable and forward-thinking company [5, p.103].

Finally, BYD's leadership has played a crucial role in fostering a culture of innovation and sustainability, encouraging employees to develop solutions for modern market challenges. This approach has cultivated an adaptive organizational culture that positions BYD to remain competitive in an evolving industry.

In summary, BYD has strengthened its competitiveness through innovation, sustainability, vertical integration, and strategic international expansion. These strategies have enabled BYD to maintain its leadership in the global electric vehicle and renewable energy sectors while setting an example for other companies striving to stay competitive in a rapidly changing environment. BYD's commitment to green technology and customer-focused innovation will be central to its continued success.

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