

New Quality Productive Forces, Factor Allocation, and High-Quality Development of New Energy Vehicle Enterprises

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Abstract: The rapid development of new quality productive forces has brought both opportunities and challenges to the high-quality growth of new energy vehicle enterprises. This study investigates how factor allocation optimization can facilitate sustainable development in this emerging industry through theoretical analysis and empirical case studies. By examining the dynamic relationship between technological innovation, resource allocation efficiency, and enterprise performance, the research identifies key drivers for industrial upgrading. The findings demonstrate that effective factor reallocation significantly enhances production efficiency and innovation capability in new energy vehicle companies. Case studies reveal that enterprises adopting advanced production technologies while optimizing capital and human resources achieve notable improvements in market competitiveness. The study proposes practical recommendations for policymakers and industry practitioners, emphasizing the importance of establishing supportive institutional environments and promoting cross-sector collaboration. These insights contribute to the ongoing discourse on industrial transformation and provide valuable references for achieving high-quality development in strategic emerging industries. The research outcomes offer theoretical foundations for understanding the evolution of new quality productive forces and practical guidance for enterprise-level decision-making in the rapidly changing automotive sector.

Keywords: New Quality Productive Forces; Factor Allocation; High-Quality Development; New Energy Vehicles; Enterprise Performance; Technological Innovation; Resource Allocation Efficiency; Industrial Upgrading.

1. Research Background and Objectives

The rapid advancement of new quality productive forces has significantly transformed the global automotive industry, particularly in the realm of new energy vehicles (NEVs). This transformation presents both opportunities and challenges for enterprises striving for high-quality development. The concept of new quality productive forces, as emphasized in China's economic policies, revolves around technological innovation, optimized resource allocation, and industrial upgrading. These elements are crucial for NEVs, which represent a strategic shift toward sustainable and eco-friendly transportation solutions.

The background of this study is rooted in the dynamic interplay between technological progress and efficient factor allocation within NEV enterprises. Traditional automotive manufacturers are increasingly transitioning to NEV production, necessitating substantial adjustments in capital, labor, and technology deployment. However, many firms face difficulties in aligning these factors effectively, leading to suboptimal performance and hindered growth. For instance, while some companies excel in innovation, they may struggle with scaling production or managing supply chains efficiently. Conversely, others might have robust manufacturing capabilities but lag in cutting-edge research and development.

Against this backdrop, the primary objective of this research is to explore how optimizing factor allocation can enhance the sustainable development of NEV enterprises. Specifically, the study aims to: (1) analyze the relationship between technological innovation, resource allocation efficiency, and enterprise performance; (2) identify key drivers that facilitate industrial upgrading in the NEV sector;

and (3) provide actionable insights for policymakers and industry practitioners to foster high-quality growth. By addressing these objectives, the research seeks to bridge the gap between theoretical understanding and practical application, offering valuable guidance for stakeholders navigating the evolving automotive landscape.

The significance of this study lies in its dual focus on theory and practice. Theoretically, it contributes to the ongoing discourse on new quality productive forces by examining their manifestation in the NEV industry. Practically, it offers evidence-based recommendations for enterprises aiming to improve competitiveness through better resource management. For example, case studies of leading firms demonstrate that integrating advanced production technologies with optimized human and capital resources leads to notable gains in market share and operational efficiency. These findings underscore the importance of holistic strategies that balance innovation with effective factor deployment.

In summary, this chapter sets the stage for investigating the critical role of factor allocation in achieving high-quality development for NEV enterprises. By clarifying the research background and objectives, it provides a foundation for subsequent theoretical and empirical analyses. The following chapters will delve deeper into the conceptual frameworks and real-world applications that underpin this study, ultimately culminating in practical policy implications and conclusions.

2. Theoretical Framework and Literature Review

2.1. Conceptualization of New Quality Productivity in the Context of NEV Industry

The concept of new quality productivity represents a fundamental shift in how we understand economic growth and industrial development, particularly for the new energy vehicle (NEV) sector. At its core, it focuses on achieving better results not just through working harder or longer, but through smarter approaches that combine technological innovation, efficient resource use, and sustainable practices. In simple terms, it's about doing things better rather than just doing more.

For NEV companies, new quality productivity means moving beyond traditional production methods. Traditional car manufacturing relied heavily on assembly lines and fossil fuels, but NEV production requires different approaches. It involves using clean energy, advanced batteries, smart technologies, and new ways of organizing work. This shift isn't just about changing what cars run on - it's about transforming the entire production process to be cleaner, smarter, and more efficient.

Three key elements define new quality productivity in NEVs. First is technological innovation - developing better batteries, more efficient motors, and smarter vehicle systems. Companies like BYD have shown how breakthroughs in battery technology can create competitive advantages. Second is the smart use of resources - arranging factories, workers, and materials in ways that reduce waste and improve quality. Third is linking production to environmental goals - ensuring that making electric vehicles actually helps rather than harms the planet.

The importance of this concept becomes clear when we look at how it changes business operations. Traditional productivity might measure how many cars a factory can produce in a day. New quality productivity looks at how many high-quality, environmentally-friendly cars can be made with minimal waste and maximum energy efficiency. It considers the whole lifecycle of the vehicle, from material sourcing to eventual recycling.

Government policies play a big role in promoting new quality productivity. Many countries now offer support for NEV research, build charging infrastructure, and set rules that encourage cleaner transportation. These measures help create the right conditions for companies to adopt better production methods. At the same time, consumer demand for greener options pushes companies to improve.

Workforce development is another crucial aspect. The shift to NEVs requires workers with different skills - more knowledge about electronics and software, for example. Companies investing in training programs help build this new workforce while improving their own productivity. This shows how human resource development connects directly to production quality.

The relationship between new quality productivity and NEV success works in both directions. As companies adopt better methods, they become more competitive. Their success then creates more resources for further improvements. This creates a positive cycle where better approaches lead to better results, which then support more innovation.

Looking at practical examples helps illustrate these

concepts. Some leading NEV manufacturers have redesigned their factories to use renewable energy, implemented advanced quality control systems, and developed recycling programs for old batteries. These measures all contribute to new quality productivity by making the whole production process smarter and more sustainable.

Market factors also influence how companies approach productivity. As competition increases, firms must find ways to stand out through better quality, lower costs, or unique features. New quality productivity provides tools to achieve these goals simultaneously rather than choosing between them. Companies that master this balance tend to perform better over time.

The transition to new quality productivity does face challenges. Changing long-established production methods requires significant investment and can meet resistance. Some companies struggle to acquire the necessary technology or expertise. However, those that successfully make the shift typically see lasting benefits in terms of efficiency, reputation, and market position.

Understanding new quality productivity helps explain why some NEV companies succeed while others fall behind. It's not just about having good ideas - it's about putting those ideas into practice through better organization, smarter technology use, and continuous improvement. This approach will likely become even more important as the NEV industry grows and evolves in coming years.

2.2. The Role of Factor Allocation in Enterprise High-Quality Development

Factor allocation plays a crucial role in helping new energy vehicle (NEV) companies achieve high-quality development. Simply put, it's about arranging resources like money, workers, technology, and materials in the smartest way possible to get the best results. For NEV businesses, getting this arrangement right can mean the difference between success and failure in today's competitive market.

Think of a NEV company like a sports team. Even if you have talented players, they won't win games unless they're in the right positions, working well together, and using the best strategies. Similarly, a NEV company might have great technology and skilled workers, but without proper arrangement of these elements, it won't perform at its best. Good factor allocation makes sure each part of the business works effectively with others to create high-quality products efficiently.

There are several key resources that NEV companies need to allocate properly. First is capital - the money needed for research, factories, equipment, and daily operations. Smart companies invest their money in areas that will bring the most benefit, like better battery technology or more efficient production lines. Second is human resources - having the right people with the right skills in the right jobs. As NEVs involve new technologies, companies need workers trained in areas like battery systems and electric motors rather than just traditional car mechanics.

Technology is another critical resource that needs careful allocation. NEV companies must decide which technologies to develop themselves and which to get from partners. They also need to balance spending between improving existing products and creating new ones. Some successful companies focus their technology efforts on areas where they can be better than competitors, like making batteries last longer or charge faster.

Physical resources like factories and materials also require smart allocation. NEV production often needs different factory setups than traditional car manufacturing. Companies that redesign their production lines to suit electric vehicles rather than adapting old gasoline car lines tend to perform better. Similarly, securing reliable supplies of important materials like lithium for batteries is crucial.

The way these factors are combined makes a big difference. Some companies make the mistake of having great technology but not enough production capacity to meet demand. Others might have big factories but outdated equipment. The most successful NEV businesses balance all these elements to create a smooth operation from research to sales.

Government policies can influence how companies allocate their resources. When governments support NEV development through research funding, infrastructure projects, or consumer incentives, it helps companies decide where to focus their efforts. For example, charging station availability affects how companies design their vehicles and plan production volumes.

Market conditions also shape factor allocation decisions. As more companies enter the NEV market, competition increases. This pushes businesses to allocate more resources to innovation and quality improvement to stay ahead. Customer preferences for certain features or price ranges guide where companies put their development money and production focus.

Good factor allocation leads to several benefits for NEV companies. It can reduce costs by eliminating waste and improving efficiency. It can increase quality by ensuring the right resources go to product improvement. It can speed up innovation by focusing research efforts effectively. All these contribute to what we call high-quality development - not just growing bigger, but growing better.

The process of optimizing factor allocation isn't always easy. Companies often face challenges like limited funds that force tough choices between different needs. They might struggle to find workers with the right skills or deal with supply shortages. Successful companies address these challenges by planning carefully, staying flexible, and continuously adjusting their resource arrangements as conditions change.

Several NEV companies demonstrate effective factor allocation in practice. Some focus their technology spending on areas where they have special expertise while partnering with others for complementary technologies. Others invest heavily in worker training to build the skills they need internally. The common thread is making intentional decisions about where to put resources for maximum benefit.

Looking ahead, factor allocation will become even more important for NEV companies. As the industry matures and competition grows, simply having resources won't be enough - how they're arranged and used will determine which companies succeed. Businesses that continuously evaluate and adjust their resource allocation based on changing technologies, market needs, and environmental requirements will be best positioned for long-term, high-quality growth.

3. Empirical Analysis and Case Studies

3.1. Methodology and Data Sources for Analyzing NEV Enterprises

This section explains the practical methods used to study

how new energy vehicle (NEV) companies allocate their resources and achieve quality growth. The approach combines different ways of gathering and examining information to get a complete picture of how these businesses operate.

To understand NEV companies better, the study uses three main types of information. First, it looks at financial reports and official documents from companies to see how they spend money, organize workers, and use technology. These records show patterns in how successful companies arrange their resources differently from less successful ones. Second, the research examines industry reports from reliable sources that track NEV market trends and company performances. These help compare different companies and see what strategies work best. Third, the study includes interviews with managers and workers in NEV companies to learn directly about their experiences with resource allocation and production methods.

The analysis follows a step-by-step process. First, information is collected from the various sources mentioned. Then, this data is organized to show clearly how different companies arrange their resources. After that, the patterns in successful companies are identified by comparing their approaches to those that perform less well. Finally, these findings are checked against what theory suggests should work best for NEV companies.

Several well-known NEV companies serve as examples in this study. These include major manufacturers that have shown significant growth and innovation in recent years. Their experiences help illustrate both successful practices and common challenges in resource allocation. The study focuses particularly on how these companies balance spending between research, production, and worker training - three key areas for NEV businesses.

For the financial analysis, the study examines standard business indicators that show how efficiently companies use their resources. These include measures of how much value they create from their spending on technology and workers. The study looks at changes in these measures over several years to see how adjustments in resource allocation affect company performance.

The worker-related information comes from company reports on hiring, training, and job assignments. This helps understand how NEV companies build teams with the right skills for electric vehicle production, which requires different expertise than traditional car manufacturing. The study pays special attention to how companies train existing workers for new roles versus hiring specialists from outside.

Technology use is analyzed through company reports on research spending and patent applications. This shows where companies focus their innovation efforts and how quickly they can turn research into practical production improvements. The study compares companies that develop most technology in-house with those that partner with universities or other firms.

To ensure the findings are reliable, the study uses information from multiple years and checks for consistent patterns. It also compares NEV companies at different stages - both established manufacturers and newer startups - to see if resource allocation strategies vary based on company size or market position.

The study carefully selects its information sources to avoid bias. It uses publicly available company reports that follow standard accounting practices, along with industry analyses from trusted research organizations. The interviews include

people at different levels within companies, from production workers to top managers, to get diverse perspectives.

Market conditions play an important role in how companies allocate resources, so the study considers factors like government policies and consumer demand when analyzing the data. For example, it looks at how changes in subsidy programs or charging station availability affect company decisions about where to invest money and effort.

The methods used allow the study to identify practical lessons from real NEV companies. By combining numbers with firsthand accounts, it builds a clear picture of what resource allocation approaches actually work in practice. This helps move beyond theory to provide useful guidance for companies trying to improve their operations.

The next sections will present specific findings from this analysis, showing concrete examples of how different resource allocation strategies lead to better or worse outcomes for NEV companies. These real-world cases will help explain the connection between how companies arrange their resources and their overall success in the market.

3.2. Case Studies of Leading NEV Enterprises and Their Productivity Strategies

This section examines how top-performing new energy vehicle (NEV) companies organize their operations to achieve better results. By looking at real examples, we can understand practical approaches that lead to success in this competitive industry.

Several established NEV manufacturers demonstrate effective ways of managing resources. These companies typically focus on three main areas: technology development, worker training, and production organization. Their strategies show how proper arrangement of these elements creates advantages in quality and efficiency.

One successful approach involves concentrating research efforts on key technologies. Some leading companies choose specific components, like batteries or motor systems, to develop in-house while sourcing other parts from trusted suppliers. This focused investment allows them to excel in critical areas without spreading resources too thin. For example, certain manufacturers have become known for superior battery life by dedicating significant research funding to this single technology.

Worker organization presents another important strategy. The shift from traditional to electric vehicle production requires different skills. Successful companies address this through comprehensive training programs that teach existing employees new techniques rather than just hiring outside experts. This approach maintains company knowledge while upgrading capabilities. Some manufacturers have established internal schools where workers rotate through various departments to understand the entire production process.

Production layout also distinguishes top performers. Rather than modifying old factories designed for gasoline cars, some companies build new facilities specifically for NEV manufacturing. These purpose-built plants often arrange assembly lines differently, placing battery installation stations at logical points in the process. Such thoughtful factory designs reduce unnecessary movement of parts and workers, saving time and reducing errors.

Supply chain management offers another area of strategic difference. Leading companies work closely with material suppliers to ensure steady access to components like lithium and rare earth metals. Some have established long-term

agreements or even invested in mining operations to secure these crucial materials. This forward-looking approach prevents production delays caused by shortages.

Several manufacturers combine these strategies in unique ways. One notable example involves integrating renewable energy sources directly into manufacturing plants. By powering factories with solar or wind energy, these companies reduce both costs and environmental impact simultaneously. Others have developed sophisticated recycling systems that recover materials from old batteries for use in new ones, creating a circular production model.

Market-focused strategies also play a role in success. Some companies carefully study customer preferences before developing new models, ensuring their research spending targets features buyers actually want. This prevents wasted effort on unnecessary innovations. Others maintain flexible production systems that can quickly adjust to changing demand for different vehicle types.

The relationship between research and production deserves special attention. Top performers establish clear pathways for turning laboratory discoveries into manufacturing improvements. Some use cross-department teams where engineers work alongside production staff to implement new ideas smoothly. This reduces the time between innovation and practical application.

Quality control systems vary significantly among companies. The most effective ones build quality checks throughout the production process rather than just at the end. Workers at each station inspect their own work and receive immediate feedback when issues arise. This prevents small problems from becoming bigger ones later in production.

Collaboration strategies also differentiate companies. Some successful manufacturers partner with universities or technology firms to complement their own research. These partnerships allow access to specialized knowledge without maintaining large permanent research staffs. Other companies form alliances with charging network providers to ensure convenient infrastructure supports their vehicles.

The case studies reveal that no single strategy guarantees success. Rather, the best performers combine multiple approaches tailored to their specific situations. Common elements include focused research investment, comprehensive worker training, thoughtful factory design, and strong supplier relationships. Companies that balance these elements well tend to achieve consistent growth in both quality and market share.

Adaptability emerges as another crucial factor. The most successful manufacturers continuously adjust their strategies based on changing technologies, market conditions, and material availability. They maintain flexibility in both thinking and operations, allowing quick responses to new opportunities or challenges. This contrasts with companies that rigidly stick to initial plans even when circumstances change.

These real-world examples demonstrate that high performance in the NEV industry results from deliberate, well-organized resource allocation rather than chance. The strategies employed by leading companies provide practical models that others can adapt to their own situations. While every company's path will differ, the fundamental principles of focused investment, skilled workforce development, and efficient production organization remain consistently important across successful cases.

4. Conclusions and Policy Implications

This chapter summarizes key findings and offers practical recommendations based on the research. The study highlights how new energy vehicle (NEV) companies can achieve better results through smart resource management and supportive policies.

The analysis reveals several important patterns. First, successful NEV companies allocate their resources differently from traditional car manufacturers. They invest more in research and worker training, while also arranging their factories and supply chains specifically for electric vehicle production. These changes help them produce higher quality vehicles more efficiently.

Second, the most effective companies focus their research spending on areas where they can excel. Instead of trying to develop all technologies themselves, they specialize in certain components like batteries or motors. This focused approach allows them to create competitive advantages while controlling costs.

Third, workforce development plays a critical role. Leading companies train existing employees for new roles rather than only hiring outside experts. This maintains company knowledge while building the skills needed for NEV production. Some firms have created internal training programs that teach workers about the entire manufacturing process.

For policymakers, several recommendations emerge. Governments should:

- Support research in key NEV technologies through funding and partnerships

- Help develop charging infrastructure to address consumer concerns

- Create training programs to build the specialized workforce NEV companies need

- Establish clear, consistent rules that encourage long-term investment

- Promote collaboration between companies, universities and research institutions

- Industry leaders should consider:

- Aligning research spending with market needs and company strengths

- Investing in worker training to build necessary skills internally

- Designing factories specifically for electric vehicle production

- Developing strong relationships with material suppliers

- Implementing quality control throughout the production process

The study also suggests that success comes from balancing

multiple factors. Companies that only focus on technology but neglect production efficiency, or those that emphasize cost-cutting without maintaining quality, tend to struggle. The best performers adjust their strategies as market conditions change.

Looking ahead, NEV companies will face new challenges as the industry grows. Competition will increase, technologies will continue evolving, and consumer expectations will rise. Companies that maintain flexible approaches to resource allocation will be best positioned to adapt and succeed.

These findings provide practical guidance for both businesses and government agencies supporting the NEV industry. The recommendations focus on actions that can be implemented relatively quickly while also supporting long-term growth. By following these approaches, stakeholders can contribute to the continued development of high-quality, environmentally-friendly transportation solutions.

The research demonstrates that smart resource allocation makes a real difference in NEV company performance. When money, workers, technology and materials are arranged effectively, companies can produce better vehicles more efficiently. This benefits businesses, consumers and the environment simultaneously. The policy suggestions aim to create conditions where more companies can achieve these positive outcomes.

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