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The Relationship between R&D Innovation, Innovative Talent Training, and Innovation Performance of Chinese New Energy Vehicle Enterprises

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Abstract

Existing studies have shown that: enterprise R&D innovation can affect the enterprise's R&D incentive management activities, and then affect the enterprise's R&D innovation performance. This study will further explore the influencing factors of R&D innovation performance of new energy vehicle companies from the perspective of talent incentives and introduce new energy vehicle companies' R&D innovation and cultivation of innovative talents by introducing R&D incentive management as an intermediary variable, providing new ideas for the R&D innovation and innovative talent cultivation of Chinese new energy vehicle enterprises. This study selected over 200 new energy vehicle enterprises in Shenzhen, Shanghai, Jiangsu, and Suzhou, Guangdong Province, and collected survey questionnaires through internet platforms. Relevant analysis and regression analysis were used to study the research and development innovation, innovative talent cultivation, and R&D incentive management of new energy vehicle enterprises. The relationship between variables was analyzed. The survey questionnaires were mainly distributed to middle and senior management personnel of new energy vehicle enterprises, a total of 226 valid questionnaires were collected. The research results show that corporate R&D innovation and cultivation of innovative talents can significantly promote R&D innovation performance, and R&D incentive management also plays a mediating role in the relationship between R&D innovation and cultivation of innovative talents and R&D innovation performance. This study can improve the R&D innovation performance of new energy enterprises, optimize the cultivation of innovative talents, and improve the incentive management model, and provide a new perspective for new energy automobile enterprises to improve R&D innovation performance.

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Introduction

Focusing on the present, energy is exhausted, and the global climate is deteriorating rapidly. How to solve the problems of energy and ecological climate has become a top priority for every country. My country has vigorously promoted the leap-forward development of renewable energy and has achieved great achievements that have attracted worldwide attention. The adjustment of energy structure on a global scale is the only way to solve the exhaustion of traditional energy sources and environmental pollution. Since the beginning of the 21st century, with the rapid development of China's economy and the acceleration of modernization and urbanization, the unsustainability of traditional fossil energy has become increasingly prominent, the situation of energy security has become increasingly severe, and the pressure of international public opinion on climate change has also continued to increase. China's energy transition is imminent. (Du et al. 2021; Guo et al. 2023; Ke et al. 2022)

The new energy vehicle industry is in a critical development period. The new energy vehicle industry is in a stage of rapid development. The policy support and the fermentation of market demand have made the industry a highly competitive "red sea market". Every company in the new energy vehicle industry is facing huge competitive pressure. According to the "Made in China 2025" plan issued by the Ministry of Industry and Information Technology, in 2025, China will develop its own brand of new energy automobiles, with annual sales of more than 3 million automobiles, accounting for nearly 80% of the market share. New Energy Automobile Manufacturers and Product Access Management Regulations have relaxed the entry requirements for new energy automobile manufacturers, lowered the entry threshold for new energy automobile manufacturers, and further stimulated the vitality of the market. In addition, the automobile industry has gradually emerged with the trend of networking, intelligence, electrification, and sharing, the new energy vehicle market has attracted many "new car-making forces", and major Internet companies have joined the ranks of new energy automobiles to contribute to the technological development of the new energy industry. Two directions are pointed out: unmanned driving and intelligent network connection. Internet companies have powerful data processing capabilities. The new car-making forces represented by the three new car-making forces of Weilai, Xiaopeng, and Ideal have carried out subversive innovations in the supporting equipment, operating systems, and additional functions of new energy vehicle products. The value creation logic and marketing methods of enterprises are also very different from traditional car companies. These new entrants in the field of new energy automobiles have had a significant impact on the current competitive landscape of the new energy vehicle industry. However, traditional car companies also have advantages in the new energy vehicle market. With years of exploration and deep cultivation in the car market, most traditional car companies have well-established sales channels and sticky consumer groups, and their supply chain relationships are more stable and reliable. With first-mover advantages in the core technologies of automotive power systems and energy systems, and better product cost control capabilities and risk response capabilities, it is still the main force in the new energy vehicle market. (Du et al. 2021; Guo et al. 2023; Ke et al. 2022)

The nature of products determines that new energy automobile companies must carry out R&D innovation. At present, the power batteries of new energy automobiles mainly include lithium-ion batteries, lead-acid batteries, nickel-metal hydride batteries and other types. However, the technology of these batteries is not fully mature. And the cost is far lower than that of traditional cars. Although new energy automobiles use clean energy and are the future development direction, their poor convenience makes most consumers unacceptable to such products, which restricts the further development of the industry. Only through in-depth R&D innovation of the battery system, so that the cost, cruising range and energy replenishment

mechanism of the new energy vehicle battery completely surpass the traditional car, can the new energy vehicle replace the position of the traditional car in most people's minds. Looking at the country, both traditional car companies and new car manufacturers need to strengthen their R&D innovation capabilities. New car-making forces can be accepted by consumers because of their "novelty". The novel product concept and product appearance attract consumers to buy. (Du et al. 2021; Guo et al. 2023; Ke et al. 2022). However, compared with traditional car companies, new car-making forces have a relatively large technical disadvantage, especially in the technology of automotive power batteries, technological breakthroughs are urgently needed. In addition, R&D innovation in production processes and other aspects is required to control costs, increase profit margins, and expand the living space of enterprises. For traditional car companies, although they have the first-mover advantage in technology, they cannot slack off in product R&D innovation. The consolidation of the first-mover advantage requires R&D innovation, updating product concepts, and improving the appeal to consumers requires R&D innovation. At the same time, the market needs more R&D innovation as it moves towards the world. For all new energy vehicle companies, it is urgent to improve R&D innovation performance.

Problem Statement

Innovation is the source of technological development and social progress, and the essence of innovation-driven is talent-driven. China's "smart" manufacturing has taken the lead in the world in just a few years in the field of digitization and intelligence. It is believed that China can quickly catch up with developed countries in the field of new energy automobiles. R&D innovation performance is an important indicator for the operation of new energy vehicle companies. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022). Against the background of rapid expansion of new energy vehicle market demand and rapid product iteration, only strong R&D innovation capabilities can help companies remain invincible. Car companies and new car-making forces will survive. The innovation performance of new energy vehicle companies mostly relies on technological innovation and product innovation, as well as the commercial transformation of the original and disruptive achievements of the company's scientific and technological talents. With the advent of the digital economy, data sharing has become a trend, technical barriers are gradually lowered, protection time is getting shorter and shorter, the living environment of enterprises is becoming more and more complex, and business risks are increasing. In order to enhance the competitiveness of enterprises, the managers of enterprises R&D activities and the human resource management links related to R&D activities should be systematically reviewed to enable enterprises to carry out R&D innovation activities efficiently. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022)

(1) There is a certain blindness in the R&D innovation activities of new energy vehicle companies, and more scientific guidance is needed

R&D innovation capability is the weight for modern enterprises to maintain their core competitiveness. It is relatively complex. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022). The R&D innovation of new energy automobile enterprises has the following characteristics: long R&D cycle and long-time span. Whether it is product innovation or technological innovation, if you want to obtain innovative results, it takes time to complete an R&D innovation project. It usually takes a long period to complete an R&D innovation project. R&D activities are not necessarily a continuous process. They may be stopped midway and restarted many times, which will lead to a long R&D cycle span and high capital supply. In the research and development stage, it is necessary to invest a large amount of funds to support the development of R & D activities. Due to the characteristics of the long R & D cycle, in the R

& D process, it is necessary to ensure continuous financial support. A stable capital supply chain is the continuous development of R & D innovation activities: R&D results are characterized by uncertainty and high risk. After the R&D activities start, there may not be results. The possibility of developing new products or new technologies is not 100%. In actual R&D, R&D activities often end in failure, the R&D output results are uncertain, and the R&D process may also be stopped midway due to external interference; there is a lag in R&D benefits, after the R&D results are put into use, the short-term benefits are not obvious, and new products are put on the market and then respond to the market. There is a need for a buffer time, so there is a lag in the benefits brought by R&D innovation; however, the R&D returns are high. Once the R&D innovation is successful, the R&D results will bring high returns to the enterprise. Due to the secretive nature of the R&D process, the results are difficult to imitate or copy, then the market will reward the "uniqueness" of new products or new technologies, bringing higher value returns. It can be seen from this that for R&D innovation, what kind of R&D support and guidance should the enterprise give, what is the attitude towards innovation achievements, and how to deal with these issues will affect the innovation ability of the enterprise. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022)

(2) Give full play to the role of talents in corporate R&D innovation activities

The role of enterprise R&D innovation activities is R&D innovation personnel. Talents are the most important resources of enterprises, and innovation-driven is essentially talent-driven. At present, my country's high-tech enterprises are facing a severe situation where the total shortage of scientific and technological talents and the loss of scientific and technological talents coexist. It has become a common problem faced by new energy automobile companies that they cannot retain scientific and technological talents, make good use of scientific and technological talents, and cannot activate scientific and technological talents. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022). The serious loss of scientific and technological talents in high-tech enterprises has become a bottleneck restricting the further development of high-tech enterprises. Technological talents are knowledge-based talents, individuals with self-driving ability and originality. Generally, it has the following characteristics: exploratory, the main work of scientific and technological talents is to improve productivity by exploring the objective laws of the movement of things, scientific and technological work is the process of continuous exploration and discovery in unknown areas; creativity, exploration is the foundation of creation, creation is the result and purpose of exploration, and it is the embodiment of exploration from quantitative change to qualitative change; accuracy, scientific and technological innovation has both chance and inevitability, but accuracy is an inevitable condition for scientific and technological exploration, which requires viewpoints, experiments, materials, data, concepts, judgments, and reasoning accuracy of conclusions; individuality and collaboration, in the process of scientific and technological innovation, the continuous combination of individual free play and collective cooperation is required. Scientific and technological innovation is inseparable from the division of labor and cooperation. It can inspire each other, conduct in-depth discussions, and promote the display of collective wisdom, especially for large-scale scientific and technological innovation. For innovative talents, enterprises should properly handle the relationship between talent cultivation and R&D incentive management, reduce employee mobility, align the development of employees' individual talents with the company's development goals, and stimulate employees' enthusiasm for innovation to the greatest extent. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022).

Research Objectives

The research objectives of this thesis include the following four aspects.

(1) To summarize the status and level of research and development innovation performance of Chinese new energy automobile companies

(2) To study the relationship between R&D innovation and R&D innovation performance of new energy automobile enterprises

(3) To study the relationship between the cultivation of innovative talents and R&D innovation performance of new energy automobile enterprises

(4)To study the mediating effect of the intermediary variable R&D incentive management on the relationship between the independent variable R&D innovation , cultivation of innovative talents and the dependent variable R&D innovation performance

Research Questions

(1) What is the status quo of R&D innovation of China's new energy automobile enterprises?

(2) What factors will R&D innovation performance be affected by?

(3) How does R&D incentive management affect the company's R&D innovation performance? What is the specific impact mechanism?

(4) How do R&D innovation and cultivation of innovative talents affect the R&D incentive management of enterprises?

(5) How does R&D incentive management play a mediating role in the relationship between R&D innovation, cultivation of innovative talents and R&D innovation performance?

Scope of study

The research of this thesis takes the new energy automobile enterprises as the research object. By sorting out the research results of previous scholars, designing the questionnaire, obtaining the number of samples, and then conducting statistical analysis, the hypothesis of this thesis is verified. There are three main areas of research:

(1) Theoretical field

In the context of fierce competition in the domestic new energy vehicle market, R&D innovation is related to the survival and long-term development of enterprises, and R&D innovation personnel are the main body of R&D innovation activities. We discuss scientific and efficient R&D innovation measures from the perspective of corporate strategy, and from the perspective of corporate management mechanisms. It is more reasonable to discuss the motivation and training of R&D innovation personnel at the same level. The research focus of this thesis is the improvement strategy of R&D innovation performance of new energy automobile enterprises. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022). The influence of two independent variables, R&D innovation and cultivation of innovative talents, and the intermediary variable R&D incentive management on the dependent variable R&D innovation performance is taken as the theoretical research content, and other influencing factors of R&D innovation performance are not included in the research scope of this thesis. To explain the mechanism of action among variables, this study introduces human capital theory, technological innovation theory and incentive theory to enrich the theoretical level of this thesis and better explain the relationship between variables.

(2) Application boundary

the R&D innovation performance improvement of new energy vehicle enterprises as the starting point and analyzes how the two independent variables of R&D innovation and cultivation of innovative talents can promote the improvement of enterprise R&D innovation performance, and then enhance the innovation ability and competitiveness of new energy

vehicle enterprises. Introducing R&D incentive management as an intermediary variable, the core mechanism of this thesis is that the company's R&D strategy and the management guidance of R&D employees jointly affect innovation activities. Both the R&D strategy and the guidance of R&D employees are inseparable from the R&D incentive management. Therefore, the application boundary of this research is to put forward the idea of empowering enterprise R&D innovation and stimulating the creativity of innovative talents, providing a new perspective for the development of new energy automobile enterprises, and expanding the application boundary of this research. (Guo et al. 2023; Ke et al. 2022)

(3) Research object
Through reviewing and summarizing relevant literature at home and abroad, this thesis clarifies the existing research results and research conclusions in the R&D innovation performance-related factors, analyzes the shortcomings of the existing results and conclusions. Based on the background of the current "dual carbon" strategy and the characteristics of enterprises in the new energy vehicle industry, this thesis points out the investment and measures of new energy vehicle enterprises in research and development innovation and innovative talent cultivation.

Literature review

R&D innovation performance

R&D innovation performance from the perspective of "output". For example, Luo et al. (2011) defined innovation performance as: the efficient development and utilization of resources by using various technologies that one has mastered, resulting in a series of innovative results, which is a work with overall benefits. Du et al. (2021) believed that the most important indicator of an enterprise's R &D innovation performance is the number of patents developed and applied for by the enterprise, and considered innovation performance as new products, new processes, new technologies, and newly applied for new patents, etc. New products based on these new technologies that maximize the benefits are called "successful new products". This study believes that the definition of innovation performance from the perspective of "output" is not completely accurate. This definition can only reflect the measures and phased results of R&D innovation and cannot reflect the "efficiency" and "effect" of R&D innovation activities. It should be used Looking at R&D innovation performance from a more comprehensive perspective, such as McEvily and Chakravarthy (2002), the innovation performance of an enterprise is a measure to evaluate the effectiveness of enterprise innovation activities. Enterprises should consider what is successful innovation activities. Whether innovation activities are successful or not is not only It depends on whether it creates actual benefits for the company and whether the benefits of innovation activities exceed the investment in this innovation activity. Xiao et al. (2021) proposed that the R&D performance of enterprises should be divided into two parts: "conversion efficiency" and "output income". Ke et al. (2022) believed that the R&D innovation performance of an enterprise is the performance of the R&D speed and R&D results compared with competitors in the same industry.

R&D Incentive Management

Innovative enterprises take innovation, especially independent innovation, as their most fundamental characteristics, and the key point of incentives for the development of innovative enterprises lies in the incentives for their innovative behavior. For the understanding of R&D incentive management, it is first necessary to define incentives. Li (2013) believes that incentives are designed by the organization through the design of the working environment and reward forms to form a series of behavioral norms and reward and punishment measures,

and through necessary communication to continuously stimulate, maintain, and guide member behaviors, and then achieve the goals of the organization and members a consistent activity. Su et al. (2022) pointed out that the essential feature of motivation is to combine the needs of people or other types of organizational members with organizational goals in a certain way, control the behavior of organizational members, and tend to the organizational goals, to achieve the goals and objectives of organizational members synergistically. Based on the definition of incentives, R&D incentive management refers to the sum of the structure, method, relationship, and evolution law that the incentive subject interacts with R&D personnel through various incentive means to make the organization constantly standardized and relatively fixed. In short, the incentive mechanism is the sum of the interaction between the incentive subject and the incentive object through incentive means or incentive factors. The R&D incentive management in this article focuses on the internal incentives of the enterprise. It acts on R&D innovation personnel through incentives to promote the formation of innovative behaviors of employees, and at the same time combines the goals of the enterprise with the material needs and development needs of employees.

Enterprise R&D Innovation

R&D is a form of innovation. Enterprises carry out R&D activities for innovation, and R&D transforms innovation from ideas into results. In a broad sense, R&D innovation is identified as a research activity; in a narrow sense, R&D innovation is regarded as a separate research object, including research and development investment and technological innovation investment. (Su et al. 2022; Wu et al. 2023; Du et al. 2021; Guo et al. 2023; Ke et al. 2022). The study of this thesis chooses the definition of R&D innovation in the narrow sense and takes R&D innovation as the research object. R&D innovation refers to the application of new knowledge, technology, business methods, etc. by enterprises, and can produce or provide a series of valuable products and services. This concept first appeared in the field of economics and was proposed by Schumpeter in his book "The Theory of Economic Development". Since then, after continuous development and evolution, R&D innovation has gradually become a means for enterprises to maintain their core competitiveness. Different from Schumpeter's earlier definition of innovation, that is, the fusion of production factors and conditions, and their understanding of recombination in the production system, the definition of modern innovation refers to innovation as a collection of all technological changes, and new ideas as a breakthrough, deal with problems in the process of chaotic changes, and finally form a new project with practical value. In the research process, scholars generally divide R&D innovation activities into two stages: one is the research stage, which is a basic activity that does not produce direct economic benefits, such as the construction of knowledge framework, the exploration of basic theories, etc.; the other is the research stage. It is the development stage. In this stage, in order to obtain benefits, enterprises will use research results to transform them into popular products with demand and market, such as the research and development of aerospace materials, the improvement of integrated circuits, and so on.(Su et al. 2022; Wu et al. 2023; Du et al. 2021)

Cultivation of Innovative Talents

Guo and Pang (2023) proposed that cultivation of innovative talents refers to satisfying the demand for high-skilled talents for technological progress of enterprises and quickly adapting to the environment of technological innovation of enterprises. Practical technology and further promote new products, enterprise technical personnel and management personnel who can bring certain social or economic benefits to the enterprise, through the process of developing innovative talents by strengthening innovative education and building an innovative education system. An important prerequisite for enterprises to carry out the cultivation of innovative

talents is to identify and define innovative talents. At present, most of the definitions of innovative talents in the academic circle are based on the definitions of innovation and talents, and everyone has not formed a unified definition of innovative talents. Wu et al. (2023) pointed out that innovative talents refer to those who have a good sense of innovation, innovative spirit, innovative quality and innovative ability, and have achieved new results through engaging in innovative activities. Tao (2018) believes that innovative talents include " Knowledge preparation combining broad and professional skills, free development of personality, strong body and mind, highly developed intelligence and ability, as well as economical life value orientation and lofty dedication", Liu (2013) believes that innovative talents should be divided into generalized and there are two aspects in the narrow sense. In the broad sense, innovative talents should be "engaged in the professional and management work of all walks of life in the national economy and social development, have a strong sense of innovation, high innovation quality and innovation ability, and contribute to the country's science and technology, economy. Outstanding talents who have made outstanding contributions to social and cultural development. In a narrow sense, innovative talents refer to excellent and outstanding research and development talents and innovative and entrepreneurial talents".

Methodology

Research Design

This article first uses the method of literature research to organize relevant literature on R&D innovation, cultivation of innovative talents, R&D incentive management, and R&D innovation performance of new energy automobile enterprises. It puts forward the research content and research purpose according to the existing research results, determines the research object, and puts forward research hypotheses, then use questionnaires to collect the data required for hypothesis verification, and finally use empirical research to test the research hypotheses and draw research conclusions.

(1) Literature research method

This thesis research R&D innovation, cultivation of innovative talents and R&D incentive management of new energy vehicle companies. First, it is necessary to read many relevant documents, and also to conduct research on the R&D practices of new energy vehicle companies. By investigating the actual situation of new energy vehicle companies based on the situation, combined with data collection and analysis, the goal of researching the R&D innovation performance of new energy automobile enterprises is realized.

(2) Questionnaire survey method

Based on literature review, this thesis establishes a relationship model between R&D innovation performance, R&D innovation, and cultivation of innovative talents of new energy automobile enterprises. Based on mature scales at home and abroad, combined with the characteristics of new energy automobile companies and R&D personnel, the questionnaire of this thesis is designed, and the first-hand data of endogenous variables, exogenous variables, intermediary variables, and moderating variables are obtained through actual research. In the specific measurement, the 5-level Likert scale is first clearly used for measurement. The questionnaire requires the respondents to evaluate the degree of recognition of each influencing factor. Through literature review, this thesis divides the questionnaire into basic information of the enterprise, R&D innovation , cultivation of innovative talents , R&D incentive management and R&D innovation performance are divided into five parts, among which R&D innovation is divided into two dimensions of innovation output and innovation support, cultivation of innovative talents is divided into two dimensions of talent quality improvement and talent reserve, and R&D incentive management is divided into two dimensions: economic

incentives and promotion incentives. In terms of the way of distributing questionnaires, this study sends questionnaires to target companies through online distribution, and then the target objects fill in the answers according to the questionnaire items and submit feedback directly through the APP. This thesis uses SPSS software to build a relationship model between R&D innovation performance and R&D innovation and cultivation of innovative talents, and make an objective evaluation of the path relationship.

(3) Empirical research method
There are many factors that affect the R&D innovation performance of new energy automobile companies. This study starts from the pre-factors of R&D innovation performance of new energy vehicle companies—— R&D innovation and cultivation of innovative talents and uses R&D incentive management as the intermediary variable to analyze the relationship between R&D innovation performance and its influencing factors and the mechanism of action. After collecting the data required for the study through questionnaires, SPSS software is used to analyze and process the data, to verify whether the hypothesis is true.

Data collection
The survey data used in this study are obtained by distributing questionnaires to the target audience in an anonymous manner through Internet tools. The sources of the samples are mainly MBA/DBA eligible previous students and corporate managers at all levels who meet the research requirements. The design of the questionnaire clearly requires ethical considerations. When designing the measurement items, it first considers avoiding the use of items related to privacy and other issues and promises that the relevant data will only be used for academic research and will not be used for commercial purposes. Data is retrieved in a named manner.
Since the research objects of this study are new energy automobile companies, in order to ensure the comprehensiveness of the sample, the survey considered the nature of the company, the number of years of operation, the number of employees, operating income, and the job roles of the respondents (ordinary employees, grassroots managers, middle managers, etc.) managers, senior managers), and the sampled data meet the requirements of this study.

(1) Eliminate invalid data
The questionnaire excludes the question of "what is your position in the company" in the basic information part of the enterprise and selects the questionnaire of "ordinary staff". This research involves the actual operation of the enterprise, business strategy and talent management. In the questionnaire During the distributing process, it has been emphasized that relevant management personnel who have mastered the enterprise data and operating conditions must complete the questionnaires to ensure the accuracy and authenticity of the information. After eliminating invalid data, a total of 225 valid questionnaires were obtained.

(2) Sample structure
From the perspective of sample structure, this survey received questionnaires from 15 provinces (municipalities directly under the central government and special administrative regions) in total. All belong to the regions with better development of new energy automobile industry.

A total of 300 questionnaires were distributed in this study, and 260 questionnaires were collected, the recovery rate was 86.67%. After removing similar and invalid questionnaires, 225 questionnaires were valid, that is, the effective recovery rate was 75%.

Target population

The term "target population" refers to a certain group of people that the researchers would like to focus their attention on while carrying out the study (Sekaran & Bougie, 2016). There are many distinct target groups that may be found in various types of research; therefore, we need to choose which target population will provide us with the best opportunities to collect data and information for our study. The employees of the new energy automobile enterprises of China are the population that will serve as the focal point of this investigation. The surveyed enterprises mainly come from areas with relatively dense new energy vehicle enterprises in China, such as Shanghai, Shenzhen, Guangzhou, Xi'an and other places, there are many new energy automobile enterprises in the above-mentioned areas, and the development level is relatively high, which can well reflect the R&D innovation performance of new energy automobile enterprises.

Sampling frame and sampling location

The new energy automobile companies of China were the focus of this research. The sampling frame consisted of all employees of new energy automobile companies of China in this study. The surveyed enterprises mainly come from areas with relatively dense new energy vehicle enterprises in China, such as Shanghai, Shenzhen, Guangzhou, Xi'an and other places.

The survey data used in this study are obtained by distributing questionnaires to the target audience in an anonymous manner through Internet tools. The sources of the samples are mainly MBA/DBA eligible previous students and corporate managers at all levels who meet the research requirements.

Sampling size

The size of the sample that is collected from the whole population is known as the sampling size. The size of the sample should be large enough to eliminate the possibility of sampling errors and biases (Gill, Johnso 8, 1 8 0 n & Clark, 2014). Full population research will be impractical and prohibitively expensive to carry out; instead, establishing a sampling size will be the most effective way to cut down on the time and money required to carry out a study. For the purpose of our study, a total of 300 questionnaires were distributed in this study, and 260 questionnaires were collected, the recovery rate was 86.67%. After removing similar and invalid questionnaires, 225 questionnaires were valid, that is, the effective recovery rate was 75%.

Questionnaire design and instrumentation

The variable selection and scale design of this study mainly refer to the research literature at home and abroad, looking for scales related to the measurement variables, and making appropriate adjustments and corrections to the measurement scales based on the actual situation of new energy automobile companies to meet the research needs. In the specific measurement, the questionnaire requires the respondents to evaluate the degree of recognition of each influencing factor, which is mainly measured based on the 5-level Likert scale: 1=disagree completely, 5=agree completely. This thesis is an empirical study on variable career and its antecedent and outcome variables. This study mainly involves 4 variables, including 2 independent variables (R&D innovation, cultivation of innovative talents), 1 dependent variable (R&D innovation performance) and 1 mediator variable (R&D incentive management). According to the design of the scale, we uniformly represent R&D innovation, cultivation of innovative talents, R&D innovation performance and R&D incentive management with RI, PT, IM, and IP respectively. Among them, R&D innovation is divided into two dimensions: innovation output and innovation support, respectively represented by IO and IS, cultivation of innovative talents is divided into two dimensions of talent quality improvement

and talent reserve, represented by IT and TR respectively, R&D incentive management is divided into two dimensions of economic incentive and promotion incentive, respectively represented by EI and PI express.

Enterprise R&D Innovation Questionnaire Design

R&D innovation usually measures R&D innovation from two levels of initial investment and later results. The measurement indicators for R&D innovation in the current research generally include R&D innovation cost input, R&D innovation personnel input, R&D innovation output capability and achievement transformation. This thesis mainly measures the R&D innovation of enterprises from three aspects. The first is R&D innovation investment. R&D innovation investment in China regards the human and material resource expenditures in the research and development of new products and new processes as R&D investment, among which R&D expenditure reflects the level of R& D innovation of enterprises. The second is the R&D innovation investment ratio. The R&D innovation investment ratio reflects the allocation of R&D funds in the enterprise investment and is a form of expression of whether the enterprise values R&D innovation. This thesis uses R&D intensity and R&D density to indicate the proportion of R&D investment; The third is R&D innovation awareness. When an enterprise has a strong R&D innovation awareness, it will be reflected in daily R&D activities, such as R&D innovation training and lectures. In this thesis, the R&D innovation- related activities carried out in the daily operation of enterprises and the concepts related to R&D innovation in management are used as qualitative indicators of R&D innovation awareness. Through the above research and analysis of innovation theory, this thesis refers to the questionnaire designed by Diao (2021) on the impact of R&D model on innovation performance, and designs 6 questions to measure R&D innovation from the two dimensions of innovation output and innovation support, such as Table 3-1 shows.

Table3- 1R&D innovation scale

dimension	serial number	topic
innovation output	IO1	Relative to competitors, the number of patents filed by enterprises is relatively large
	IO2	Enterprises are often the first to launch new products and services in the industry
	IO3	Enterprises have developed highly innovative and disruptive technological achievements
innovation support	IS1	Enterprises closely track the latest research results in the field of technology
	IS2	Enterprises focus on integrating industry-related technologies to assist new product development
	IS3	The number of industry customers served by new technologies and new products is increasing

Source: Compiled by this study

Cultivation of Innovative Talents Questionnaire Design

In the process of innovation, in addition to huge capital and material input, there must be the support of talents. In essence, any innovation activity is driven by talents. Excellent talents are usually the core competitive resources of enterprises. Only by effectively motivating R&D innovation talents, developing and cultivating them, and establishing an effective selection mechanism for management talents, can enterprises achieve innovative development in the fierce market competition in the future. Enterprises are more inclined to cultivate management talents internally or to introduce talents from the outside. It is very likely that a differentiated innovation incentive mechanism will be formed, which will have a differentiated impact on the managers who lead the innovation of the enterprise, and further affect the innovation ability. form an impact. Xie (2019) believes that the core goal of enterprises to attach importance to human capital investment is to continuously cultivate and reserve production, operation, and

management talent resources for enterprise development, especially the reserve of executive talent resources. What kind of talents are cultivated, trained, and selected by enterprises Practice also concentratedly demonstrates its concept of talent selection. Zhang et al. (2017) believe that through internal training, companies can identify and train employees with great potential. Through the above research and the analysis of the theory of scientific and technological innovation talents, combined with existing research and case analysis, this research plans to design 6 topics to measure scientific and technological innovation talents from the two dimensions of talent quality improvement and talent reserve, as shown in Table 3- 2.

Table3- 2Cultivation of innovative talents scale

dimension	serial number	topic
Talent quality improvement	IT1	Improve the conversion rate of new products of enterprise R&D talents
	IT2	Enterprises introduce more high-level scientific and technological talents
	IT3	Compared with competitors, enterprises have a higher proportion of scientific and technological talents
Talent reserve	TR1	There are a large number of research topics for scientific and technological innovation talents in enterprises
	TR2	Enterprises' scientific and technological innovation talents communicate more frequently with foreign countries
	TR3	Compared with competitors, the proportion of self-trained core employees of enterprises is higher

Source: Compiled by this study

R&D Incentive Management Questionnaire Design

The research on R&D incentive management is relatively rich, and many studies have proposed the measurement method of R&D incentive management. This thesis refers to the knowledge employee motivation scale developed by Bai (2014), divides R&D incentive management into two dimensions: economic incentive and promotion incentive, and designs 7 items for measurement, as shown in Table 3-3.

Table3- 3R&D incentive management scale

dimension	serial number	topic
economic incentives	EI1	The basic salary of enterprise R&D employees has been rising steadily year by year
	EI2	The basic salary of enterprise R & D employees will increase with the improvement of personal skills
	EI3	The company will provide certain cash rewards according to the personal performance of R&D employees
	EI4	The company will have certain share rewards based on the personal performance of R&D employees
promotion incentive	PI1	R & D employees have broad room for promotion in the enterprise
	PI2	Enterprises will provide promotion path information for R&D employees
	PI3	R&D employees will be promoted to technical positions
	PI4	R&D employees are promoted to management positions

Source: Compiled by this study

R&D Innovation Performance Questionnaire Design

Chrisman et al. (1998) divided enterprise R&D performance into two dimensions: survival and success. Survival is an absolute performance indicator that depends on the ability of the enterprise to continue operating as an independent economic entity, while success is a relative performance indicator that is achieved when the enterprise creates value for customers in a sustainable and cost-effective manner; Covin and SLevin (1991) believed that the two main

dimensions of growth and profitability constituted the business performance of an enterprise, and the implicit financial indicators included sales growth rate, return on assets, sales profit rate, etc.; Bostjan et al. (2001) divided business performance into growth and profitability; Venkataraman (1997) used two dimensions of economic performance and growth performance to measure enterprise R&D performance; Cai et al. (2010) divided corporate operating performance into two dimensions of profitability and growth; Yang et al. (2011) used sales profit margin to measure business performance; Wang (2012) divided business performance into two dimensions: earnings per share and return on total assets; Su (2014) divided business performance into sales growth, cash flow status, profit growth, return on sales, return on assets, enterprise operating efficiency, market share growth, and return on investment; Yang (2014) divided enterprise operating indicators into return on total assets and return on net assets Two financial indicators; Liu (2015) divides corporate operating performance into two dimensions: profitability and development: profitability is divided into three dimensions: profit margin on cost and expense, return on total assets, and basic earnings per share; development capability is divided into sales growth rate, total asset growth rate and net profit growth rate; Wu (2015) used sales revenue, market share, investment income, and pre-tax and after-tax profits as cross-beam indicators; Yan (2019) divided corporate operating performance into Profitability, operating capability, solvency and development capability; Jiang and Chen (2020) divided corporate operating performance into five dimensions: operating capability, profitability, cash collection capability, solvency and development capability. Based on the above research, this study refers to the innovation performance measurement scale of Qian (2010), and designs 6 items to measure the R&D innovation performance of enterprises, as shown in Table 3-4.

Table3- 4 R&D innovation performance scale

serial number	topic
IP1	The actual completion time of the enterprise's product is faster compared to its peers
IP2	Compared with peers, the company's product market performance is better
IP3	Compared with peers, the company's product development costs are lower
IP4	Compared with peers, the company's products have higher social attention
IP5	Companies are more innovative in their products than their peers
IP6	Compared with peers, the company's products come to market faster

Source: Compiled by this study

Findings

Demographic Profile

(1) From the perspective of the location of the enterprise, this survey received a total of 225 valid questionnaires from 15 provinces (municipalities and regions), mainly from Guangdong, Jiangsu, Shanghai, and Shaanxi, accounting for 80.44% of the total. The new energy automobile industry in the region is developing well (as shown in Table 4-1).

Table4- 1Sources of Survey Respondents

Province of origin	Subtotal	Proportion
Guangdong	104	46.22%
Jiangsu	36	16%
Shanghai	23	10.22%
Shaanxi	18	8%
Fujian	12	5.33%
other	32	14.22%
total	225	100%

Source: Compiled by this study

(2) Judging from the positions of the respondents, the respondents of the questionnaire cover the grassroots, middle and high-level management personnel of the enterprise, among which the grassroots management personnel accounted for 25.78%, the middle-level management personnel accounted for 51.55%, and the high-level management personnel accounted for 22.66% , as shown in Table 4-2.

Table4- 2Classification of questionnaire survey roles

options	Subtotal	Proportion
top management	51	22.66%
middle management	116	51.55%
grassroots management	58	25.78%
total	225	100%

Source: Compiled by this study

(3) From the perspective of the business life of the enterprise, the business life of the questionnaire survey objects is at least 0-2 years, and the maximum is more than 10 years, of which 2.22% have a business life of 0-2 years, and the business life is 3-5 years 34.22% of them, 53.33% of those with a business life of 6-10 years, and 10.22% of those with a business life of more than 10 years (as shown in Table 4-3).

Table4- 3Enterprise operating years

options	Subtotal	Proportion
0-2 years	5	2.22%
3-5 years	77	34.22%
6-10 years	120	53.33%
over 10 years	23	10.22%
total	225	100%

Source: Compiled by this study

(4) From the perspective of the number of employees in the enterprise, the number of employees in the questionnaire survey is mostly 20-1,000, and they belong to small and medium-sized enterprises. The number of employees is less than 20. Enterprises with 300-1,000 employees accounted for 42.66%, and enterprises with more than 1,000 employees accounted for 11.11% (as shown in Table 4-4).

Table4- 4Number of Employees in Enterprises

options	Subtotal	Proportion
Less than 20 people	19	8.44%
20-300 people	85	37.77%
300-1000 people	96	42.66%
More than 1000 people	25	11.11%
total	225	100%

Source: Compiled by this study

Table4- 5 Annual Operating Income of Enterprises

options	Subtotal	Proportion
Below RMB 3 million	13	5.77%
300-20 million yuan	65	28.88%
20 million-400 million yuan	110	48.88%
More than 400 million yuan	37	16.44%
total	225	100%

Source: Compiled by this study

(5) From the perspective of the annual operating income of enterprises, the annual operating income of most of the surveyed enterprises is 20 million-to-400-million-yuan, accounting for 48.88%, and the annual operating income of enterprises with annual operating income below

3-million-yuan accounts for 5.77%. Enterprises with operating income of 3-20 million yuan accounted for 28.22%, and enterprises with annual operating income of more than 400 million yuan accounted for 16.44% (as shown in Table 4-5).

Reliability and Validity

Reliability and Validity Analysis of Enterprise R&D Innovation

According to the scale design, R&D innovation is represented by RI, and R&D innovation is further divided into two dimensions: innovation output (IO) and innovation support (IS). This section analyzes the reliability and validity of R&D innovation, and the KMO of R&D innovation The test results are shown in Table 3-5.

Table3- 5KMO test results of R&D innovation

measurement standard	KMO	Approximate chi-square value for Bartlett's spheroid test	degrees of freedom	significant
Measurements	0.898	2380.039	15	0.000

Source: Compiled by this study

As shown in Table 3-5, the KMO test result of R&D innovation is 0.898 (greater than 0.7), the approximate chi-square value of the Bartlett sphere test is 2380.039, the degree of freedom is 15, and the significance probability value reaches a significant level (P=0.000< 0.05), which indicates that the R&D innovation data can be subjected to factor analysis. Then conduct exploratory factor analysis on the R&D innovation scale, as shown in Table 3-6.

Table3- 6Exploratory factor analysis of R&D innovation scale

index	item	Factor DW1	Factor DW2	Cronbach's Alpha	
IO1	Relative to competitors, the number of patents filed by enterprises is relatively large	0.957		0.790	0.898
IO2	Enterprises are often the first to launch new products and services in the industry	0.948			
IO3	Enterprises have developed highly innovative and disruptive technological achievements	0.947			
IS1	Enterprises closely track the latest research results in the field of technology		0.952		
IS2	Enterprises focus on integrating industry-related technologies to assist new product development		0.953	0.819	
IS3	The number of industry customers served by new technologies and new products is increasing		0.950		

Source: Compiled by this study

As shown in Table 3-6, it can be seen from the table that after the rotation of the maximum variance method, a total of two common factors are obtained, the factor loads of each item are greater than 0.6 (>0.5), and the cumulative variance contribution rate is 90.477%, indicating that the scale validity is good. The factor loads of original variables IO1, IO2, and IO3 in factor 1 are relatively large, and the factor loads of original variables IS1, IS2, IS3 in factor 2 are relatively large, so factor 1 is called innovation output factor, and factor 2 is called innovation support factor. DW1α=0.790, DW2α=0.819, Cronbach'S Alpha value is greater than 0.7, and less

than the Cronbach'S Alpha value of R&D innovation scale 0.898, indicating that the data is credible.

Reliability and Validity Analysis of Cultivation of Innovative Talents

According to the scale design, the cultivation of innovative talents is represented by PT. The cultivation of innovative talents is further divided into two dimensions: talent quality improvement (IT) and talent reserve (TR). This section analyzes the reliability and validity of cultivation of innovative talents Analysis, KMO test results of cultivation of innovative talents, as shown in Table 3-7.

Table3- 7KMO test results of cultivation of innovative talents

measurement standard	KMO	Approximate chi-square value for Bartlett's spheroid test	degrees of freedom	significant
Measurements	0.907	2516.598	15	0.000

Source: Compiled by this study

As shown in Table 3-7, the KMO test result of cultivation of innovative talents is 0.907 (greater than 0.7), the approximate chi-square value of the Bartlett sphere test is 2516.598, the degree of freedom is 15, and the significance probability value reaches a significant level (P= 0.000<0.05), which indicates that the R&D innovation data can be subjected to factor analysis. Then conduct exploratory factor analysis on the R&D innovation scale, as shown in Table 3-8.

Table3- 8Exploratory factor analysis of cultivation of innovative talents

index	item	Factor DW1	Factor DW2	Cronbach's Alpha	
IT1	Improve the conversion rate of new products of enterprise R&D talents	0.914		0.788	0.907
IT2	Enterprises introduce more high-level scientific and technological talents	0.928			
IT3	Compared with competitors, enterprises have a higher proportion of scientific and technological talents	0.911			
TR1	There are a large number of research topics for scientific and technological innovation talents in enterprises		0.914		
TR2	Enterprises' scientific and technological innovation talents communicate more frequently with foreign countries		0.924	0.826	
TR3	Compared with competitors, the proportion of self-trained core employees of enterprises is higher		0.912		

Source: Compiled by this study

As shown in Table 3-8, it can be seen from the table that after the rotation of the maximum variance method, a total of two common factors are obtained, the factor loads of each item are greater than 0.6 (>0.5), and the cumulative variance contribution rate is 91.725%, indicating that the scale validity is good. The original variables IT1, IT2, and IT3 have relatively large factor loads in factor 1, and the original variables TR1, TR2, and TR3 have relatively large factor loads in factor 2. Therefore, factor 1 is called a talent quality improvement factor, and factor 2 is called a talent reserve. factor. DW1α=0.788, DW2α=0.826, Cronbach's Alpha value is greater

than 0.7, and less than the Cronbach's Alpha value of R&D innovation scale 0.907, indicating that the data is credible.

Reliability and Validity Analysis of R&D Incentive Management

According to the scale design, R&D incentive management training is represented by IM. R&D incentive management is further divided into two dimensions: economic incentive (EI) and promotion incentive (PI). This section analyzes the reliability and validity of R&D incentive management. The KMO test results of incentive management are shown in Table 3-9.

Table3- 9KMO test results of R&D incentive management

measurement standard	KMO	Approximate chi-square value for Bartlett's spheroid test	degrees of freedom	significant
Measurements	0.942	3532.547	28	0.000

Source: Compiled by this study

As shown in Table 3-9, the KMO test result of R&D incentive management is 0.942 (greater than 0.7), the approximate chi-square value of the Bartlett sphere test is 3542.547, the degree of freedom is 28, and the significance probability value reaches a significant level (P=0.000 <0.05), which indicates that the data of R&D incentive management can be subjected to factor analysis. Then conduct exploratory factor analysis on the R&D incentive management scale, as shown in Table 3-10.

Table3- 10R&D incentive management exploratory factor analysis

index	item	Factor DW1	Factor DW2	Cronbach's Alpha	
EI1	The basic salary of enterprise R&D employees has been rising steadily year by year	0.883		0.890	0.942
EI2	The basic salary of enterprise R & D employees will increase with the improvement of personal skills	0.888			
EI3	The company will provide certain cash rewards according to the personal performance of R&D employees	0.898			
EI4	The company will have certain share rewards based on the personal performance of R&D employees	0.871			
PI1	R & D employees have broad room for promotion in the enterprise		0.884		
PI2	Enterprises will provide promotion path information for R&D employees		0.893	0.744	
PI3	R&D employees will be promoted to technical positions		0.881		
PI4	R&D employees are promoted to management positions		0.881		

Source: Compiled by this study

As shown in Table 3-10, it can be seen from the table that after the rotation of the maximum variance method, a total of two common factors are obtained, the factor loads of each item are greater than 0.6 (>0.5), and the cumulative variance contribution rate is 91.514%, indicating that the scale validity is good. The original variables EI1, EI2, EI3, and EI4 have relatively large

factor loads in factor 1, and the original variables PI1, PI2, PI3, and PI4 have relatively large factor loads in factor 2, so factor 1 is called an economic incentive factor, and factor 2 is called Motivation factor for promotion. DW1α=0.890, DW2α=0.744, the Cronbach's Alpha value is greater than 0.7, and less than the Cronbach's Alpha value of the R&D incentive management scale 0.942, indicating that the data is credible.

Reliability and Validity Analysis of R&D Innovation Performance

According to the design of the scale, R&D innovation performance is represented by IP. This section analyzes the reliability and validity of the R&D innovation performance scale. The KMO test results are shown in Table 3-11.

Table3- 11KMO test results of R&D innovation scale

measurement standard	KMO	Approximate chi-square value for Bartlett's spheroid test	degrees of freedom	significant
Measurements	0.956	3733.104	15	0.000

Source: Compiled by this study

As shown in Table 3-11, the KMO test result of cultivation of innovative talents is 0.956 (greater than 0.7), the approximate chi-square value of the Bartlett sphere test is 3733.104, the degree of freedom is 15, and the significance probability value reaches a significant level (P= 0.000<0.05).

Conclusion

This research takes new energy automobile enterprises as the research object, based on the literature review, takes the data obtained from 225 effective questionnaires as the research sample, and analyzes R&D innovation, cultivation of innovative talents, R&D incentive by using factor analysis and multiple regression analysis. The interactive relationship and mechanism between management and R&D innovation performance help to identify the antecedent variables and outcome variables of R&D incentive management, and provide a theoretical basis for the innovation path design of new energy vehicle companies to improve R&D innovation performance. Based on the above literature analysis and empirical analysis results, the research conclusions are as follows:

R&D innovation performance of new energy vehicle companies is analyzed, and the questionnaire collects data from new energy vehicle companies in 15 provinces (cities, regions) across the country. The survey objects cover enterprises in different regions, different years of operation, different scales, and different levels of development. The respondents to the questionnaire are limited to managers at all levels of the enterprise. The research shows that there are large differences in the research and development level of new energy automobile enterprises. In regions with a relatively high level of economic development and a relatively complete industrial chain, the R&D innovation performance of new energy automobile enterprises is relatively high, while the performance of enterprises in western regions and northern inland regions. The performance level of R&D innovation is relatively low. In today's increasingly fierce market competition, differences in innovation performance levels will exacerbate the differentiation of enterprises. Therefore, in response to the differences in innovation performance levels, studying the improvement path of R&D innovation level and helping backward enterprises overcome difficulties and enhance competitiveness has gained significance.

Second, this thesis research the antecedent mechanism of R&D innovation performance. R&D innovation and its factors innovation output, innovation support, cultivation of innovative talents and its factors talent quality improvement, talent reserve, R&D incentive management and its factors economic incentives, promotion incentives all have a significant positive correlation with R&D innovation performance. Enterprises pay enough attention and support to R&D innovation activities and focus on the development of some special innovation achievements in a targeted manner, focusing on the long-term value of innovation achievements, which can effectively promote the improvement of R&D innovation performance. The improvement of the knowledge and skill level of R&D personnel can improve the innovation output level of R&D personnel. Focusing on the independent training of senior employees and core employees of the enterprise can also improve the stability and comprehensive strength of the R&D team, thereby improving innovation performance. Both material incentives and non-material incentives can fully mobilize employees' work enthusiasm and burst out innovation vitality.

Thirdly, it analyzes the specific action mechanism of R&D innovation and cultivation of innovative talents on R&D innovation performance. On the one hand, high-quality human capital can directly affect the progress of technology from within the enterprise. R&D personnel are the main body of innovation activities. The effect and efficiency of R&D innovation activities ultimately depend on the personal capabilities of R &D personnel, which is a direct and very effective measure of innovation performance. On the other hand, R&D innovation is the internal driving force of an enterprise's innovation performance. Through continuous investment in R&D funds, an enterprise explores new development vitality points, adopts the latest production process and production method, and adjusts the organizational structure and management model of the enterprise. This reduces the production cost of the enterprise and improves the production efficiency to the greatest extent.

Fourth, empirical research is carried out on the antecedent mechanism and impact of R&D incentive management. It constructs the analysis framework model of R&D incentive management and R&D innovation performance and establish the relationship between R&D innovation (independent variable), cultivation of innovative talents (independent variable)-R &D incentive management (intermediary variable)-R &D innovation performance (dependent variable). The model conducts research on the antecedent variables and consequent variables of enterprise R&D incentive management at the same time and analyzes and demonstrates it from the theoretical and empirical perspectives, which enriches the research content of R&D incentive management and provides new insights for follow-up research. This thesis divides R&D incentive management into two dimensions of economic incentives and promotion incentives for quantitative empirical analysis. R&D innovation and its factors of innovation output and innovation support, cultivation of innovative talents and its factors of talent quality improvement and talent reserve have a significant positive impact on R&D incentive management. R&D incentive management and its factors economic incentive and promotion incentive have a significant positive impact on R&D innovation performance.

Fifth, the intermediary role of R&D incentive management is verified. R&D incentive management plays a partial intermediary role between R&D innovation, cultivation of innovative talents and R&D innovation performance and reveals the internal mechanism of R&D innovation and cultivation of innovative talents affecting R&D innovation performance. On the one hand, the talent reserve in the cultivation of innovative talents provides a basis for R&D incentive management, improves the R&D incentive management system, and the standards for entering the talent reserve pool and improving personal titles can also be used

as economic incentives or promotion incentives. Such incentive standards are more in line with the actual requirements of enterprise development and can better guide R&D personnel to develop in the direction of enhancing enterprise innovation capabilities. On the other hand, while carrying out R&D innovation, it is necessary to establish matching R&D incentive management measures, so that the R&D employees in the resource-inclined team of the enterprise can enhance their enthusiasm for innovation and use resources most efficiently.

Sixth, it puts forward the ways for new energy automobile enterprises to strengthen R&D innovation and suggestions for enterprises, governments, and policy makers. Ways for new energy vehicle companies to enhance R&D innovation performance include: changing R&D innovation thinking, optimizing R&D resource allocation, strengthening cultivation of innovative talents, building core innovation capabilities, improving the R&D incentive management system, stimulating the vitality of innovation subjects, and turning R&D incentive management into R&D Innovation services, incentives and cultivation of innovative talents are coordinated. At the enterprise level, we should pay attention to non-material incentives such as promotion incentives, build a strong team of scientific and technological talents, correctly view the flow of talents, and make full use of preferential policies. At the level of government and policy makers, it is necessary to increase financial support for new energy vehicle enterprises, promote the transformation of scientific research achievements, inject innovative driving forces into enterprises, and improve and optimize the new energy supply chain system architecture.

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