Research on Green Transformation of Enterprises from the Perspective of Innovation Driving

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Abstract. This paper takes Zhejiang Zhongguang Electric Group Co.Ltd. as an example to explain how enterprises overcome the problems faced in the transformation of green manufacturing, take innovation-driven green manufacturing as the primary premise, and become the pathfinder of innovation-driven green manufacturing in the manufacturing industry. The research in this case found that CGE adheres to the "innovation" driven development, and strives to create a development model of "one main body, innovation driven and five integration" with itself as the main body, innovation driven and five integration complemented; Through the construction of green factories, the design of green parks, the research and development of green products and the operation of green supply chain, the in-depth development of innovation is promoted in an orderly manner, providing valuable experience for the organic integration of green manufacturing and sustainable development. At the same time, the strategic layout of Zhongguang Electric is also improving day by day, constantly pursuing enterprise growth and technological breakthroughs, and integrating green management into enterprise management, product design and production. Keywords: sustainable development; Green factory; Driven by innovation; Green manufacturing.

1 Introduction

With the new round of scientific and technological revolution and industrial transformation, green and high-quality development has become the common goal of mankind. How to use innovation to promote green manufacturing and sustainable development has become an important topic. This paper will take Zhejiang Zhongguang Electric Appliance Group Co., Ltd. as the research object, and provide reference for the green transformation of enterprises through four aspects of innovation-driven green development of Zhejiang Zhongguang Electric Appliance Group.

2 Literature review

Today, the world is in a critical period of entering a new stage of development, and green development has become an important combination of environmental protection and economic development. Green innovation has become an important consideration for businesses aiming to balance environmental and economic benefits to achieve sustainable development[1]. In order to find a solution to the problem of insufficient innovation, the general research indicates that more emphasis should be placed on the sustainable use of resources and the sustainability of organizations [2,3]. Innovation drive provides a steady stream of power for green development, innovation system drives the green transformation of the manufacturing industry, is the formation of an endogenous power system by the innovation system, with clean production and low-carbon production as the pressure, intelligent and green manufacturing as the path, to provide the whole process of innovation support for the green transformation of the manufacturing industry.

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Enterprises must develop different environmental governance as a driving force to reveal the advantages of the ability to implement green innovation [4,5]. To reduce negative impacts on the environment, organizations need to adopt green practices, develop and implement work strategies to reduce waste, promote a green or healthy environment, save energy, and contribute to environmental sustainability [6,7]. Green innovation effectively minimizes the adverse effects of environmental degradation and resource (and energy) consumption procedures, thereby contributing to environmental development[8].

3 Case selection and data sources

Zhejiang Zhongguang Electric Appliance Group Co.Ltd. is a first-class provider of comfortable smart home systems and commercial HVAC and hot water integrated solutions in Asia, with an annual production capacity of over one million sets. As the leader of innovation-driven green development, a complete set of experimental equipment has been built, and a large number of patented technologies ensure the reliability of processes and products.

This paper investigates the building of ZHEJIANG Electric Appliance Group on the spot, acquires all aspects of the enterprise information with the related staff in the form of interviews.

4 Case Analysis

4.1 Green factory building

4.1.1 Planning and utilization of land resources

Extensive use of the original led to a large amount of resources occupation consumption while the environment has been greatly damaged the optimization of land use structure is imminent. In order to change the land use structure from low-benefit utilization mode to high-benefit utilization mode, CGE Group starts from itself to ensure the continuous improvement of the utilization rate of existing land.

4.1.2 Optimization of land structure and layout

Pay more attention to the high-quality use of the original land, which can balance the input and output of the land well, so as to optimize the land structure and layout, and provide a good foundation for enterprises to better cut into the market and improve production capacity. Secondly, enterprises also innovate the land use system, and associate the land use system and its influence, so that green payment can be put into practice.

4.1.3 Operation of intelligent facilities and intelligent workshops

The operation of intelligent workshop has further improved the infrastructure, and the continuous integration and development of technology and equipment provides more and more practical solutions for enterprises. The improvement of infrastructure also better communicates inside and outside enterprises, ensuring the efficient transformation of sustainable development of enterprises.

4.2 Design of Green Park

4.2.1 Starting from the source of pollution, pay attention to the reuse of energy

By controlling pollution sources, enterprises can reduce the discharge of pollutants as much as possible. In addition, they can extract available energy from the discharged wastes by certain technical means, so as to control the pollution discharge to the maximum extent and protect people's health.

4.2.2 Improve the exploration of low-carbon energy and implement energy-saving strategies

Through the combination of "zero-carbon green electricity", enterprises develop solar energy on the basis of the original factory buildings, which not only guarantees their own power supply, but also brings certain economic benefits to the country and surrounding enterprises.

4.3 Research and development of green products

4.3.1 Popularize and develop safe and energy-saving equipment

Air source heat pump equipment is considered as one of
the most important core technologies in the whole heating field to help the cause of "carbon peaking" and "carbon neutralization" in the next 30 to 50 years. Enterprises seize this opportunity and find that it has many advantages of cleanliness, safety, low energy consumption and high temperature resistance, and constantly promote the popularization and development of related equipment.

4.3.2 Develop new technologies and processes with low carbon and low energy consumption

Based on promoting the development of "double carbon", the enterprise has innovatively developed a series of advanced technologies, among which the core air energy heat pump low-temperature heating technology and EVI technology are the leading levels in China. These two technologies effectively reduce carbon emissions and power consumption, and the energy efficiency ratio in operation can reach up to 500%, which is in line with national policies. In addition to the innovation of new technologies, new processes have also been integrated into technological development, involving all aspects of products, providing a steady stream of power for innovation to drive green development.

4.4 Green supply chain operation

4.4.1 Establish a new purchasing mode

Under the new procurement mode of centralized procurement and separate procurement, the waste of resources is effectively reduced, and the low-carbon emissions in the production and recycling process are ensured. In addition, from green design to green manufacturing, enterprises not only strive for perfection in relevant standards, but also rationally plan relevant processes to improve production efficiency and reduce waste and redundant consumption.

4.4.2 Innovating sales model and sales strategy

Zhongguang has launched a sales model with online sales as the main line and sales as the supplement, which has won the favor of a large number of customers. Enterprises also apply to relevant departments for green signs in time, which promotes the publicity of green concepts.

4.4.3 Pay attention to product recycling and re-creation

At the beginning of its establishment, Zhongguang Group pursued the recycling of products. With the gradual growth of the enterprise, it first learned experience from foreign enterprises, which provided an opportunity for the development of the enterprise. In addition, enterprises are actively seeking cooperation to manufacture more and more environmentally friendly materials. Finally, enterprises also use the advantages of "Internet plus" to establish a smooth network recycling model.

5 Conclusions and implications

5.1 Research conclusion

Zhongguang Electric Appliance Group adheres to the innovation drive and builds a series of green industries such as green factories and green parks. The spirit of innovation makes it continue to deepen in the field of green development, and more and more new products come out, which is more in line with the concept of sustainable development, creating professional services and a leading green development system in the whole country and even the whole world.

CGE Group can consistently adhere to the pursuit of green, while promoting harmlessness, it can also maximize the use of resources. Establishing a high-standard operation mode to ensure the high quality of all links, there is no doubt that enterprises pursue green.

Innovation-driven green development is the common pursuit of modern enterprises. The concept of green innovation is not only a high requirement for enterprises in the process of low carbonization, but also the pursuit of innovative development in the process of enterprise management. The ultimate goal of green innovation is to provide power for sustainable development, reduce energy consumption and promote economic development.
5.2 Management implications

As an important part of enterprise development, the development of manufacturing industry cannot be separated from innovation. Enterprises need to pay attention to the role of innovation drive in the process of green transformation.

Innovation drive first requires enterprises to have sufficient talent reserves, and high-quality talents bring new technologies and management models to enterprises, which can effectively guarantee all links from product production to sales; Secondly, the concept of "green innovation" can also provide new impetus for the development of enterprises; finally, we can't shake the foundation of innovation-driven green development. Innovation not only enables enterprises to gain better competitiveness, but also is an important part of product structural transformation and quality development.

References

2. Begum et al. Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement, Bus. Strat. Environ 8(5)12-23(2022)
5. X. Zhang, Q. Meng, Y. Le,How do new ventures implementing green innovation strategy achieve performance growth,Sustainability,2(2)99-110(2022)
7. Tzu-Yun Chiou, Hing Kai Chan, Fiona Lettice, Sai Ho Chung. The influence of greening the suppliers and green innovation on environmental performance and competitive advantage in Taiwan, Transportation Research Part E: Logistics and Transportation Review,47(6), 822-836(2011)
8. Yunpeng Sun Ahsan Asif Razzaq Xueping Liang Muhammad Siddique, Asymmetric role of renewable energy, green innovation, and globalization in deriving environmental sustainability: Evidence from top-10 polluted countries, Renewable Energy,6(3)280-290(2022)