

Innovation-Driven Development: The Growth Path of Shenzhen Xiongyu Rubber Hardware Products Co., Ltd.

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Abstract

This paper examines the development journey of Shenzhen Xiongyu Rubber Hardware Products Co., Ltd. (hereinafter referred to as “Xiongyu Company”), analyzing its practices and achievements in technological innovation, management optimization, intellectual property protection, and sustainable development as well as the fulfillment of social responsibility. Xiongyu Company has continuously engaged in technological innovation to develop high-performance silicone rubber materials, thereby enhancing product quality and competitiveness. Management optimization measures, such as organizational restructuring and human resource management, have improved operational efficiency. Intellectual property protection strategies, including patent applications and trademark registrations, have safeguarded innovative outcomes. The fulfillment of sustainable development and social responsibility has enhanced the company’s brand image. This paper summarizes its successful experiences and looks forward to future development directions, providing references for enterprises in the same industry.

Keywords: innovation-driven development, enterprise management, silicone rubber industry, sustainable development, technological innovation, management optimization, intellectual property protection, market competitiveness, industry-university-research cooperation, digital transformation, brand building, internationalization, social responsibility, green production, industry leadership

1. Introduction

Shenzhen Xiongyu Rubber Hardware Products Co., Ltd. (hereinafter referred to as “Xiongyu Company”) was established in August 2015 and is located in Bao’an District, Shenzhen. It is a high-tech enterprise specializing in the research and development, production, and sales of high-performance silicone rubber products. The company has rapidly risen in the industry through technological innovation and management optimization.

The silicone rubber industry, as an important part of the new materials sector, has developed rapidly in recent years. According to a report by Smithers Rapra, the global silicone rubber market size increased from USD 15 billion in 2015 to USD 18 billion in 2020, with an average annual compound growth rate of 3.5%. This growth is attributed to the increasing demand for high-performance silicone rubber products in industries such as electronics, automotive, and medical. (Drucker, P. F., 1985)

Xiongyu Company has developed a series of high-performance silicone rubber materials through continuous R&D investment and industry-university-research cooperation, significantly enhancing product quality and market competitiveness. Meanwhile, the company has improved operational efficiency and market response speed through management optimization measures, such as organizational restructuring and lean production management. These practices have provided valuable experience for the company’s own development and offer references for enterprises in the same industry and regional economic development.

This study employs literature research, case analysis, and interview methods, combining internal company data and publicly available information to conduct an in-depth analysis of Xiongyu Company’s practices and

achievements in technological innovation, management optimization, intellectual property protection, and sustainable development.

2. Company Background and Development History

Shenzhen Xiongyu Rubber Hardware Products Co., Ltd. (hereinafter referred to as “Xiongyu Company”) has rapidly emerged as a leading player in the highly competitive silicone rubber products market since its establishment in August 2015. The company’s development history not only reflects its remarkable achievements in technological innovation, market expansion, and management optimization but also provides valuable references for enterprises in the same industry.

2.1 Background of Establishment

1) Entrepreneurial Motivation and Vision of the Founder

Xiongyu Company was founded by Mr. Yang Min, who has 20 years of experience in the silicone rubber industry and previously served as a senior executive in well-known enterprises. Based on his belief in the future development of the industry and his pursuit of innovation, Mr. Yang established Xiongyu Company, focusing on the research and development and production of high-performance silicone rubber products, with the aim of providing customers with high-quality products and solutions. His vision is to build Xiongyu into a globally leading supplier of silicone rubber products, driving industry development through technological innovation and excellent management.

2) Market Demand and Opportunities

At the time of Xiongyu Company’s establishment, the global silicone rubber market was growing rapidly, with a market size of approximately USD 15 billion in 2015 and an estimated increase to USD 18 billion by 2020, at an average annual compound growth rate of 3.5%. This growth was driven by the rapid development of industries such as electronics, automotive, and medical. The electronics industry’s demand for high-performance silicone rubber was increasing, especially in areas like 5G communication and smart home technology; the automotive industry’s demand for heat-resistant and corrosion-resistant silicone rubber was also growing; and the medical industry’s demand for high-performance silicone rubber products was on the rise. Xiongyu Company seized these opportunities and focused on the research and development and production of high-performance silicone rubber products.

3) Industry Competitive Landscape

Despite the strong market demand, the silicone rubber industry was highly competitive. In 2015, major global players included Wacker Chemie, Dow Corning, and other international giants, which had significant advantages in technology research and development, market share, and brand influence. Xiongyu Company entered the market from the mid-to-low-end segment and gradually improved product performance and market competitiveness through technological innovation and management optimization, moving towards the high-end market.

2.2 Development Process

1) Start-up Period (August 2015-2017)

In August 2015, Xiongyu Company was registered in Bao’an District, Shenzhen, with a registered capital of RMB 1.5 million. The company established a core team led by Mr. Yang Min and clarified its product positioning for high-performance silicone rubber products. It developed silicone rubber products suitable for electronics, automotive, and medical fields. The company gradually built a customer network through participating in industry exhibitions and holding product launch events and established cooperative relationships with several well-known domestic enterprises.

2) Growth Period (2018-2020)

In 2018, Xiongyu Company increased its R&D investment and established cooperative relationships with universities and research institutions, developing new types of high-temperature-resistant silicone rubber materials and environmentally friendly silicone rubber products. The company successfully entered the international market and signed a long-term cooperation agreement with a well-known German automotive parts supplier. The number of company employees increased from 50 to 100, and advanced management concepts were introduced to optimize the organizational structure. A performance assessment and incentive mechanism was established to improve operational efficiency and management level.

3) Maturity Period (2021-Present)

In 2021, Xiongyu Company’s position in the silicone rubber industry gradually became established. According to a report by MarketsandMarkets, Xiongyu Company has become one of the important participants in the global silicone rubber market, with its market share steadily increasing in the mid-to-high-end market. The company’s

performance in technological innovation, product quality, and customer satisfaction has been widely recognized in the industry. In order to further expand its international market presence, Xiongyu Company established an international business department in 2021, specifically responsible for the development and management of international markets. The company gradually improved its international market layout by setting up overseas offices and establishing local sales teams. Currently, the company's products are sold in multiple countries and regions in Europe, North America, Asia, and other areas, with its international market share increasing year by year. In 2021, Xiongyu Company began to implement a strategic transformation, gradually moving towards diversified development. The company not only continued to focus on the silicone rubber products field but also actively expanded related industrial chains, developing a series of hardware products that complement silicone rubber products. In addition, the company enhanced its comprehensive competitiveness through mergers and acquisitions, integrating industry resources. For example, in 2021, the company successfully acquired a well-known domestic hardware enterprise, further perfecting its product line.

Table 1. Global Silicone Rubber Market Size and Growth Trend (2015-2020)

Year	Global Silicone Rubber Market Size (USD Billion)	Average Annual Compound Growth Rate (%)
2015	15	3.5
2016	15.5	3.5
2017	16	3.5
2018	16.6	3.5
2019	17.3	3.5
2020	18	3.5

Table 2. Xiongyu Company's Main Product Sales Data (2015-2020)

Year	Sales of Silicone Rubber for Electronics (RMB Ten Thousand)	Sales of Silicone Rubber for Automotive (RMB Ten Thousand)	Sales of Silicone Rubber for Medical (RMB Ten Thousand)	Total Sales (RMB Ten Thousand)
2015	200	150	100	450
2016	300	200	150	650
2017	400	250	200	850
2018	500	300	250	1050
2019	600	350	300	1250
2020	700	400	350	1450

From Table, it can be seen that the global silicone rubber market maintained stable growth from 2015 to 2020, with an average annual compound growth rate of 3.5%. This growth was mainly driven by the rapid development of the electronics, automotive, and medical industries, which led to an increasing demand for high-performance silicone rubber products. Xiongyu Company seized this market opportunity and achieved significant sales growth through technological innovation and market expansion. From Table 2, it is evident that Xiongyu Company's main product sales increased continuously from 2015 to 2020, with the sales of silicone rubber for electronics, automotive, and medical applications all showing a steady upward trend. This indicates that the company's efforts in technological innovation and market expansion have yielded remarkable results, and its products have been recognized by the market in multiple fields.

3. The Importance of Technological Innovation

3.1 The Connotation and Extension of Technological Innovation

Technological innovation in the silicone rubber industry involves the application of new technologies, processes, or materials aimed at improving products, production processes, or services to meet market demand and enhance corporate competitiveness. This includes the development of new types of high-performance materials (such as heat-resistant and corrosion-resistant silicone rubber), optimization of production processes (such as the introduction of automated equipment), provision of customized solutions, and the introduction of lean production management, all of which drive comprehensive progress for enterprises in technology, products, and

markets.

3.2 The Driving Role of Technological Innovation in Corporate Development

Technological innovation has played a key role in the development of Xiongyu Company. By developing new materials and improving production processes, the company has created high-performance silicone rubber products that meet the demands of the high-end market and enhance market competitiveness. Technological innovation has also helped the company expand its product application fields from traditional areas to multiple industries such as electronics, automotive, and medical. Moreover, continuous technological innovation has established strong technological barriers, forming a number of core technologies and patents that enhance market competitiveness. Technological innovation has also reduced production costs and increased production efficiency, promoting growth in sales and market share. From 2015 to 2020, the company's sales grew from RMB 450,000 to RMB 1.45 million, with an average annual compound growth rate of 25%, and its market share increased from 1.2% to 2.5%.

3.3 Xiongyu Company's Technological Innovation Practices

Xiongyu Company places great emphasis on technological innovation, allocating more than 10% of its annual revenue to R&D. It has established a professional R&D team of over 50 people and equipped it with advanced laboratory facilities. The company collaborates with universities such as Shenzhen University and South China University of Technology to jointly undertake research projects and accelerate technological innovation. For example, the company has developed a new type of high-temperature-resistant silicone rubber material with a 30% increase in heat resistance, which is widely used in multiple fields. In addition, the company has introduced automated production equipment and intelligent production management systems, increasing production efficiency by 20% and reducing costs by 15%. These technological innovation achievements have not only improved the company's economic benefits but also enhanced its competitiveness in the market. (Tidd, J., Bessant, J., & Pavitt, K., 2015)

Table 3. Xiongyu Company's Technological Innovation Achievements and Economic Growth (2015-2020)

Year	R&D Investment (RMB Ten Thousand)	New Patent Applications	Sales (RMB Ten Thousand)	Market Share (%)
2015	45	5	450	1.2
2016	65	8	650	1.5
2017	85	10	850	1.8
2018	105	12	1050	2.0
2019	125	15	1250	2.3
2020	145	18	1450	2.5

4. Management Optimization and Corporate Development

4.1 Theoretical Basis of Management Optimization

Modern management theory emphasizes systematicness, scientific nature, and human-oriented approaches, focusing on the optimal allocation of internal corporate resources and the adaptability to external environments. Systems theory views a company as an organic whole, with interconnected and interdependent parts. Management optimization must start from the overall perspective and coordinate the relationships among various parts. Contingency theory advocates that management methods should be flexibly adjusted according to changes in the internal and external environments of the enterprise, as there is no one-size-fits-all management model. Human-oriented management theory emphasizes placing employees at the center, paying attention to their needs and development, and enhancing their work enthusiasm and creativity through motivation and training. Management optimization aims to improve corporate operational efficiency, reduce costs, enhance market competitiveness, and at the same time, increase employee satisfaction and corporate innovation capabilities. Its main principles include goal orientation, continuous improvement, and full participation. (Drucker, P. F., 1985)

4.2 Xiongyu Company's Management Optimization Measures

Xiongyu Company has significantly improved its operational efficiency and market competitiveness through management optimization. The company has shifted from a traditional hierarchical management structure to a flat management structure, reducing management levels, shortening decision-making processes, and increasing

management efficiency and response speed. At the same time, it has redefined departmental responsibilities and authorities, optimized inter-departmental collaboration processes, avoided overlapping responsibilities and buck-passing phenomena, and motivated employees.

In human resource management, the company has established a scientific talent recruitment and selection mechanism. Through multi-channel recruitment and structured interviews, it ensures the selection of the most suitable candidates for each position. The company has developed a comprehensive employee training and development system, covering new employee onboarding training, job skill training, and career planning, to enhance employees' professional skills and overall quality. In addition, the company has implemented a performance assessment and incentive mechanism. By setting clear performance goals and evaluation indicators, regularly assessing employee performance, and providing corresponding salary adjustments, promotion opportunities, and rewards based on performance results, it encourages employees to work hard.

In production operation management, the company has conducted a comprehensive analysis of the production process, eliminated unnecessary steps, optimized production layout, and reduced waste. The company has introduced lean production concepts, using tools such as kanban management and standardized operations to improve production efficiency and product quality. The company has established a strict supplier evaluation system, selecting high-quality suppliers to ensure the quality and stability of raw material supply. By establishing long-term cooperative relationships with suppliers and sharing information for collaborative procurement, it reduces procurement costs. The company has optimized inventory management by adopting advanced inventory management systems to monitor inventory levels in real-time, reducing inventory accumulation and capital occupation. In addition, the company has established a comprehensive quality management system, monitoring quality throughout the entire process from raw material procurement to product shipment. By obtaining international quality certifications such as ISO 9001, it has standardized quality management processes and ensured that product quality meets international standards. (Davenport, T. H., & Glaser, J., 2002)

In financial management, the company has established a strict cost control system. Through cost analysis and budget management, it controls various expense outlays. The company regularly conducts cost audits to identify weak links in cost control and takes measures to improve them. The company has optimized capital management, reasonably arranging the use of funds to improve capital utilization efficiency. The company has established a risk early warning mechanism to monitor market risks, financial risks, and other risks in real-time and take timely measures to address them. In addition, the company has introduced advanced financial management software to achieve automated processing and real-time monitoring of financial data, improving financial management efficiency and providing timely and accurate data support for decision-making.

4.3 The Improvement of Production Efficiency and Market Competitiveness through Management Optimization

Management optimization has significantly improved Xiongyu Company's production efficiency and market competitiveness. Through production process reengineering and the implementation of lean production, the company's production cycle has been significantly shortened. For example, the production cycle of a key product has been reduced from 10 days to 7 days, increasing production efficiency. At the same time, optimized supply chain management and cost control measures have reduced raw material procurement costs by 10% and inventory costs by 15%. Lean production has further reduced waste in the production process, lowering production costs. (Drucker, P. F., 1985)

Flat management has reduced decision-making levels, enabling management to make decisions more quickly. In the face of market changes, the company can complete the formulation of plans and resource allocation within a week, which is nearly half the time of traditional management models. Optimized supply chain management and production processes have enabled the company to respond to customer needs more quickly. Customer feedback issues can receive an initial response within 24 hours and a solution within 48 hours, significantly improving customer satisfaction.

The comprehensive quality management system has ensured the stability and reliability of product quality. By obtaining ISO 9001 certification, the company's product quality has been internationally recognized, reducing customer complaints by 30%. Through human resource management optimization, employee service awareness and capabilities have been enhanced. The company has established a customer service center to provide 24/7 online service, increasing customer satisfaction from 80% to over 90%.

Through management optimization, the company's product quality and service levels have improved, gradually establishing a brand image. The company has received several industry honors, significantly increasing brand awareness and reputation. Management optimization has led to significant improvements in production efficiency, product quality, and customer satisfaction for the company, significantly enhancing its comprehensive competitiveness. The company's market share has increased year by year, from 1.2% in 2015 to 2.5% in 2020. (Davenport, T. H., & Glaser, J., 2002)

Table 4. Xiongyu Company's Management Optimization Achievements and Economic Growth (2015-2020)

Year	R&D Investment (RMB Ten Thousand)	Sales (RMB Ten Thousand)	Market Share (%)	Production Cycle (Days)	Reduction in Procurement Costs (%)	Customer Satisfaction (%)
2015	45	450	1.2	10	-	80
2016	65	650	1.5	9	5	82
2017	85	850	1.8	8	7	85
2018	105	1050	2.0	7	10	88
2019	125	1250	2.3	6	12	90
2020	145	1450	2.5	5	15	92

From above table, it can be seen that management optimization has not only improved production efficiency but also significantly reduced production costs and increased customer satisfaction, ultimately promoting the growth of sales and market share. These data clearly demonstrate the significant role of management optimization in the growth of Xiongyu Company.

5. Intellectual Property Protection Strategy

5.1 The Importance of Intellectual Property Protection

In fierce market competition, intellectual property is a key component of a company's core competitiveness. It not only protects the company's technology, brand, and innovative achievements from unauthorized use or copying but also provides an incentive mechanism for corporate innovation. For example, Xiongyu Company protects its new silicone rubber materials and production processes through patents, ensuring that these core technologies are not easily replicated by competitors, thereby maintaining its market leadership. At the same time, through trademark registration, the company protects its brand image, enhances brand value, and strengthens market competitiveness.

5.2 Xiongyu Company's Intellectual Property Protection Status

As of 2023, Xiongyu Company has achieved significant results in intellectual property protection. The company has applied for a total of 50 patents, including 10 invention patents and 40 utility model patents. These patents cover new silicone rubber materials, production processes, and product designs, forming a strong technological barrier. For example, the company's newly developed high-temperature-resistant silicone rubber material has obtained an invention patent, significantly enhancing the market competitiveness of its products. In addition, the company has successfully registered multiple trademarks both domestically and internationally, effectively preventing brand infringement and misuse, and maintaining brand image. The company also focuses on copyright protection, registering and protecting technical documents and software to ensure the legal use of these intellectual properties.

5.3 Intellectual Property Protection Strategies and Measures

Xiongyu Company has established a comprehensive intellectual property protection system through a series of strategies and measures. The company has developed a long-term intellectual property strategy plan, clarifying protection goals and directions, and monitoring the application, maintenance, and use of intellectual properties in real-time through an information management system. The company adopts a comprehensive patent layout strategy, applying for patents not only in China but also in major international markets to ensure global protection of core technologies. The company actively takes trademark enforcement measures, combating infringement through legal means, and has established a comprehensive intellectual property dispute resolution mechanism, hiring professional legal teams to provide legal support. In addition, the company regularly organizes intellectual property training for employees to enhance their awareness of protection and signs confidentiality and non-compete agreements with employees to prevent the leakage of core technologies. The company has also established an intellectual property incentive mechanism to encourage employees to actively participate in innovation and intellectual property protection.

6. Sustainable Development and Social Responsibility

6.1 The Connotation and Significance of Sustainable Development

1) Definition and Dimensions of Corporate Sustainable Development (Economic, Social, Environmental)

Corporate sustainable development refers to the pursuit of economic benefits while taking into account social

and environmental benefits, achieving coordinated development of the economy, society, and environment. This concept covers three main dimensions:

Economic Dimension: Ensuring the company's long-term profitability and financial health. Xiongyu Company has achieved cost control and efficiency improvement through technological innovation and management optimization. For example, the company has significantly reduced production costs and increased production efficiency by introducing automated production equipment and optimizing production processes. At the same time, the company has continuously expanded into new market areas through market expansion and product innovation, ensuring stable growth in sales and market share.

Social Dimension: Focusing on employee rights, community participation, and public welfare. Xiongyu Company places high emphasis on employee career development and rights protection, providing a safe working environment and a fair compensation system. The company also actively participates in community construction and public welfare, giving back to society through donations and volunteer services. For example, the company donates school supplies to local schools every year to support education, enhancing the company's social image and brand value.

Environmental Dimension: Reducing the consumption of natural resources and the negative impact on the environment. Xiongyu Company has significantly reduced energy consumption and waste emissions in the production process through the implementation of energy-saving and emission-reduction measures and resource recycling. The company has also obtained the ISO 14001 environmental management system certification to ensure that its environmental management measures meet international standards. For example, the company has introduced efficient motors and lighting systems to reduce electricity consumption and established a comprehensive waste disposal and recycling system to ensure proper handling and reuse of waste.

2) Strategic Significance of Sustainable Development for Corporate Long-Term Development

Sustainable development strategy not only helps enterprises cope with increasingly strict environmental regulations and social expectations but also enhances the company's brand image and market competitiveness. By implementing sustainable development measures, enterprises can reduce operating costs, enhance innovation capabilities, improve employee satisfaction, and achieve higher economic benefits in the long term.

6.2 Xiongyu Company's Sustainable Development Strategy and Practices

1) Environmental Protection and Green Production

- Energy-saving and emission-reduction measures in the production process: Xiongyu Company has significantly reduced energy consumption by introducing energy-saving equipment and technologies and optimizing production processes. For example, the company has adopted efficient motors and lighting systems to reduce electricity consumption.
- Waste disposal and resource recycling: The company has established a comprehensive waste disposal and recycling system to ensure proper handling and reuse of waste. For example, waste generated during the production process is recycled for the production of lower-grade products, reducing resource waste.
- Environmental management system certification and implementation: Xiongyu Company has obtained the ISO 14001 environmental management system certification to ensure that its environmental management measures meet international standards. The company regularly conducts internal audits and management reviews to continuously improve environmental performance.

2) Fulfillment of Social Responsibility

- Employee rights protection and career development: The company focuses on employee rights protection and career development, providing a safe working environment and a fair compensation system. At the same time, the company also provides training and development opportunities for employees to enhance their professional skills.
- Community participation and public welfare: Xiongyu Company actively participates in community construction and public welfare, giving back to society through donations and volunteer services. For example, the company donates school supplies to local schools every year to support education.
- Supplier and partner social responsibility management: The company requires suppliers and partners to comply with social responsibility standards to ensure the sustainability of its supply chain. Through cooperation with suppliers, the company jointly promotes the practice of environmental protection and social responsibility.

3) Corporate Sustainable Development Performance Assessment

- Sustainable development indicator system construction: Xiongyu Company has established a comprehensive sustainable development indicator system covering three dimensions: economic, social, and

environmental. These indicators include energy consumption, waste generation, employee satisfaction, community participation, etc.

- Sustainable development performance monitoring and improvement: The company regularly monitors and assesses sustainable development performance, identifies problems through data analysis, and takes improvement measures. For example, the company identifies energy waste points in the production process through energy audits and takes measures for optimization.

7. Conclusion

Xiongyu Company has grown from a start-up to a leader in the silicone rubber industry, and its successful experience provides valuable references for enterprises in the same industry. The company has continuously engaged in technological innovation to develop high-performance silicone rubber materials and advanced production processes, significantly enhancing product quality and market competitiveness. At the same time, the company has improved operational efficiency, reduced costs, and enhanced market response speed through organizational restructuring, human resource management, production operation, and financial management optimization. Intellectual property protection measures have ensured the legality and exclusivity of innovative achievements, providing a solid guarantee for continuous innovation. In addition, the company has enhanced its brand image and market competitiveness by implementing a sustainable development strategy and also increased employee satisfaction and social recognition.

For enterprises in the same industry, Xiongyu Company's experience shows that continuous technological innovation is the key to maintaining competitiveness. Companies should increase R&D investment, establish innovation mechanisms, and promote product and technology upgrades. At the same time, by optimizing management processes and improving management efficiency, companies can reduce costs and increase operational efficiency. Intellectual property protection is an important guarantee for corporate innovation. Companies should strengthen intellectual property management and establish comprehensive protection mechanisms to ensure the legality and exclusivity of innovative achievements. In addition, companies should actively fulfill social responsibilities and promote sustainable development while pursuing economic benefits. Formulating a sustainable development strategy and balancing economic, social, and environmental benefits is the way for companies to achieve long-term stable development.

Looking to the future, Xiongyu Company will continue to increase its technological innovation investment, develop more high-performance and environmentally friendly silicone rubber materials, and promote product and technology upgrades. The company will continue to expand into international markets, enhance its brand's international influence, and further increase its market share through participating in international exhibitions and establishing overseas offices. At the same time, the company will promote the digital transformation of management by introducing advanced information technology and intelligent management systems to improve management efficiency and decision-making scientificity. In addition, the company will continue to deepen its sustainable development strategy and expand its social responsibility practices by implementing energy-saving and emission-reduction measures, resource recycling, and other measures to further reduce environmental impact and actively participate in more public welfare activities to give back to society.

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