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Research on the Competitive Strategy of Cement Industry in the Period of "14th Five-Year Plan"

-- Take Huaxin Cement Co., LTD as an Example

Ning Wang[1, *], Lili Wang[2]

[1] Business School, Hunan University of Science and Technology, Xiangtan 411201, China
[2] Business School, Hunan University of Science and Technology, Xiangtan 411201, China
[*] Corresponding Author

Abstract: China's economic and social development made brilliant achievements in the 13th Five-Year Plan period. During the "14th Five-Year Plan" period, the cement industry is faced with the new topic of "comprehensively deepening reform". At the same time, with the rapid development of digital economy, enterprises should develop appropriate competitive strategies in order to enhance their competitive advantages and obtain sustainable development. This paper adopts Porter's five forces model to discuss the typical enterprise in cement industry, namely Huaxin Cement Co., LTD., analyzes the competitive environment of the company, and then puts forward certain conclusions, in order to provide some reference suggestions for the realization of high-quality development of the industry.

Keywords: The 14th Five-Year Plan Period, Competitive strategy, Cement industry, Huaxin cement.

1. Introduction

The construction materials industry has entered a new era, from the planning and construction to high-end development, and then achieve high-quality development, which is not only the ardent expectation of the Party Central Committee, but also the common dream of the contemporary construction materials industry. Nowadays, the external environment is complex and changing, and the task of reform and development is arduous and heavy. Under this circumstance, China cement industry views the general situation, plans the overall situation and does practical work, insists on the new development concept, goes to the production capacity, makes up the short board, optimizes the structure, grasps the real work, makes historic new achievements in curbing the production capacity addition, improves the technology and equipment, strengthens the industry self-regulation and improves the profitability[1]. The company has made historic achievements in curbing capacity addition, upgrading technology and equipment, strengthening industry self-regulation and improving profitability. In the 13th Five-Year Plan period, Huaxin Cement insists on the idea of transformation and high-quality development, and implements the strategies of cement and environmental protection transformation, overseas development of cement business, traditional industry + Internet innovation, etc. Looking forward to the 14th Five-Year Plan, Huaxin Cement will adjust its strategy according to the actual situation.

2. Overview of Related Theories

Michael Porter, the "father of competitive strategy", summarized the factors that influence

competition and determine the intensity of competition into five factors: competition from existing competitors, the threat of potential competitors, the bargaining power of suppliers, the threat of substitute products or services, and the bargaining power of buyers, which is also known as the Five Forces Model[2]. This is the famous five forces model. The "five forces" refer to:

First, competition from existing competitors. Competition from existing competitors within the industry is commonly in the form of price competition and advertising competition. When a company's position in the industry is challenged or encounters better development opportunities, it tends to further intensify intra-industry competition. Among them, price war competition may lead to a lose-lose result, which will have a negative impact on all parties involved in the competition and thus restrict the healthy development of the whole industry. The advertising war approach will generally allow companies to use this to boost product sales and help enhance the visibility of the company.

The second is the threat of potential competitors. Potential competitors are competitors who have the intention to choose to enter the industry new, the new entrants may have a positive or negative impact on both. The degree of ease of entry of new competitors into the industry and the probability of retaliation determine the degree of negative impact on existing companies. The lower the barrier to entry into the industry, the lower the probability of potential retaliation, and the greater the threat from a new competitor will be.

Third is the bargaining power of suppliers. When there is only one supplier in the market and few substitutes, the bargaining power of the supplier will increase, which in turn will increase the procurement cost of the company.

Fourth, the bargaining power of the buyer. When the buyer has a wealth of product knowledge, while the cost of shopping between different products is not high, the bargaining power of the buyer will also be enhanced, which will force companies to reduce the selling price of products.

Fifth, the threat of substitutes. The emergence of substitutes on industrial development is relatively large, because the threat of substitutes is not a particular enterprise, all enterprises in the industry will be threatened by substitutes, this situation is extremely detrimental to business operations.

Porter's five forces model can effectively analyze the

competitive environment of a market and is often used in the analysis of competitive strategies. At the same time, Porter's "five forces" analysis can statically scan the profitability and attractiveness of an industry in cross-section[3]. It reflects the average profitability of enterprises in the industry, so it is not an indicator of enterprise capability, but a measure of the industry situation.

3. Cement Industry Environmental Analysis

3.1. Political Environment

Strictly prohibit new production capacity: In 2016, the "General Office of the State Council on promoting the stable growth of building materials industry to adjust the structure of the guidance of increasing efficiency" pointed out that by the end of 2020, the record and new expansion of production capacity of cement material projects are strictly prohibited, promote the merger and reorganization between enterprises, the resolution of serious overcapacity contradictions as the immediate foothold, resolutely curb blind expansion; based on the current focus on the long term, and comprehensively promote industrial transformation To promote industrial transformation and upgrading.

Peak production: In 2020, the Ministry of Industry and Information Technology "two ministries and commissions to further improve the normalization of cement peak production notice" to promote the normalization of the national cement peak production territory and time. Enterprises must raise their political status, strengthen their responsibility and continue to do a good job in peak production.

Energy saving and green development: President Xi Jinping pledged at the UN General Assembly that China will strive to achieve carbon neutrality by 2060. Based on the green background of "30 peaks, 60 neutral", the carbon emission requirements of enterprises are greatly increased. The increase in environmental protection will undoubtedly increase the cost of enterprises, in each production process, enterprises need to strictly control their own carbon emissions, each link should do a good job of dust collection, to avoid excessive pollution of the surrounding.

Belt and Road high quality development: The 2020 State Council Government Work Report proposes to implement "Belt and Road" high quality development[4], since the implementation of the strategy, countries along the route for new infrastructure construction, the demand for cement is rising; in the future, under the "Belt and Road" high quality development, China will carry out in-depth cooperation with countries along the route, the infrastructure investment in countries along the route will increase, the demand for cement building materials will also continue to improve.

3.2. Economic Environment

In 2022, due to the complex global economic situation, domestic economic pressure and risks coexist, the cement industry may have the risk of a large decline in cement demand, so we should do a good job to cope with this risk of the plan, specific measures such as: increase the implementation of normalized peak production, adjust the dynamic balance of supply and demand, actively play the market initiative of large enterprise groups, play the coordination and service capabilities of provincial associations, the correct use of energy Double control and pollution reduction policies, effective control of excess capacity on the supply side, etc. The cement industry has the characteristics of energy dependence, if the market significantly increase the price of coal and electricity, cement production costs will also rise significantly. At the same time, if the safety, energy consumption, environmental protection requirements to improve, will also lead to increased costs of investment in cement technology, which in turn will lead to an increase in the cost of various factors of production, which will negatively affect the development of the cement industry. However, these development risks and challenges faced by the cement industry can be effectively solved with the maturity of the Chinese cement market, the rational degree of entrepreneurs, and the improvement of the service capacity of industry associations.

3.3. Social Environment

China's infrastructure investment continues to increase. China's infrastructure investment due to the impact of the epidemic has basically been lifted, 2020 China's infrastructure special bonds about 1.2 trillion hairstyle, the future demand for cement is large and stable. As the level of urbanization continues to improve, China's infrastructure and new rural construction scale continues to expand, the planning of three or four line city construction needs continue to release, "one belt and one road" planning and implementation, in the future infrastructure field, cement demand will be durable and a lot.

3.4. Technical Environment

With the accelerated progress of high-tech transformation of the cement industry and the continuous elimination of backward production processes, China found that the new dry process cement production technology is more suitable for China's cement enterprises, the continuous improvement of the level of new dry process cement equipment technology makes China's cement production method has undergone a major change, China's cement industry is developing in the direction of advanced manufacturing and environmentally friendly industries, in terms of capacity scale, efficiency contribution, energy efficiency In terms of capacity scale, efficiency contribution, energy efficiency, environmental protection, resource utilization, etc., China's cement industry is in the forefront of the world.

4. The Current Situation Facing Huaxin Cement During the 14th Five-Year Plan

4.1. Company Profile

Huaxin Cement Co., Ltd. (hereinafter referred to as "Huaxin Cement ", code 8008010) originated from the Hubei Cement Factory founded by the foreign affairs faction in 1907 at the end of Qing Dynasty, which is called "the cradle of Chinese cement industry"[5]. It has more than 110 years of cement business history and it is a large enterprise group on the list of "China's 500 Most Valuable Brands" announced by World Brand Lab in 2022. Huaxin Cement has always adhered to the concept of scientific development, management and technological innovation, and has a significant influence in the Chinese building materials industry. Huaxin Cement has been featured in the top ten buildings in Beijing in the 1950s, Beijing Asian Games Village, Gezhouba Dam, Beijing-Zhuhai Expressway, dozens of highway and railroad bridges in the middle and lower

reaches of Yangtze River, Three Gorges Project and other national key projects.

4.2. Status of Huaxin Cement

During the "13th Five-Year Plan period ", Huaxin Cement's sales revenue doubled on the basis of 2015, achieving the goal of the "13th Five-Year Plan ", doubling its operating performance, achieving remarkable technological innovation results, high digital level, obvious environmental protection results, and steady improvement in operating capacity. The brilliant achievements of the "13th Five-Year Plan " to double performance in advance have laid a solid foundation for the "14th Five-Year Plan ".

4.2.1. Business Performance

In 2015, Huaxin Cement proposed to multiply its sales revenue from 2014 to about 30 billion by the end of the 13th Five-Year Plan. As shown in Figure 1, by the end of 2019, the target of 30 billion revenue has been achieved, and exceeded the expectation by 4.7%. 2020, due to the epidemic, revenue decreased by 6.62% year-on-year, with a total revenue of 29.3 billion and profit of 5.631 billion, which is a doubling of profit from 2014.

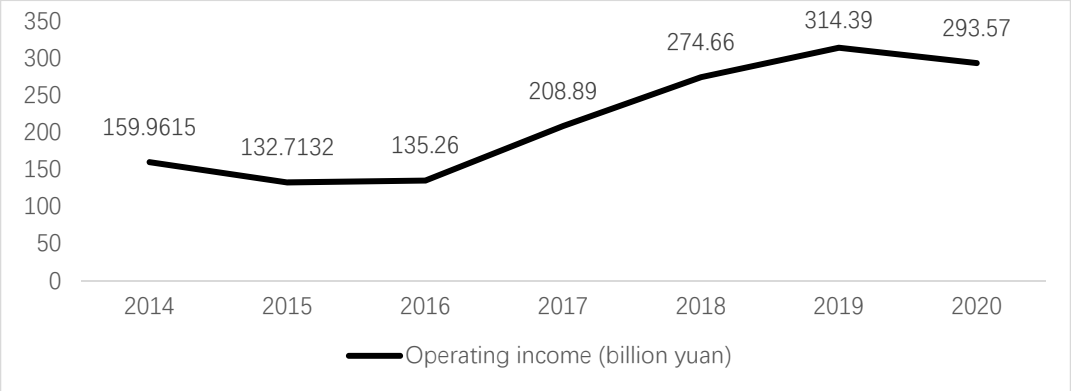

Figure 1. Huaxin Cement Operating Revenue and Net Profit, 2014-2020

4.2.2. Industry Chain

Through measures such as cost reduction by scale effect, opening up the upstream and downstream of the industrial chain and taking advantage of the whole industrial chain, Huaxin Cement's market competitiveness has been greatly improved. By the end of 2021, the company has formed a cement production capacity scale of 116 million tons in 14 domestic provinces and cities and overseas countries such as Tajikistan, Cambodia, Kyrgyzstan, Uzbekistan and Tanzania through continuous mergers and acquisitions and investment in new construction[6]. Meanwhile, Huaxin Cement takes advantage of its main cement business to steadily develop concrete, aggregates, environmental protection wall materials, cement equipment and engineering, cement-based high-tech building materials and environmental protection industries relying on cement kilns for co-disposal, and is among the early enterprises in the cement industry to achieve vertical integration development, while having the potential to achieve full industrial chain integration by synergizing upstream and downstream.

4.2.3. Technological Innovation

Through a combination of independent R&D and introduction, Huaxin Cement has established a complete set of technological innovation system. As shown in Figure 2, the achievements of technological innovation are measured by the number of new patents granted, and Huaxin Cement has added new patents every year from 2016 to 2019, indicating that the company has continuously made breakthroughs in technological innovation. 2020, Huaxin Cement became the only cement enterprise on the list of "Industrial Internet Pilot Demonstration Projects" of the Ministry of Industry and Information Technology. Huaxin Cement was also awarded the "National Best Practice Case of Intelligent Enterprise Construction" by China Enterprise Confederation, "Intelligent Manufacturing Demonstration Enterprise" by China Building Materials Confederation and "Intelligent Manufacturing Pioneer Award" by China Cement Association. The company has been awarded the "Intelligent Manufacturing Pioneer Award" by China Cement Association. By the end of 2020, the company had 41 invention patents and 76 utility model patents from production practice.

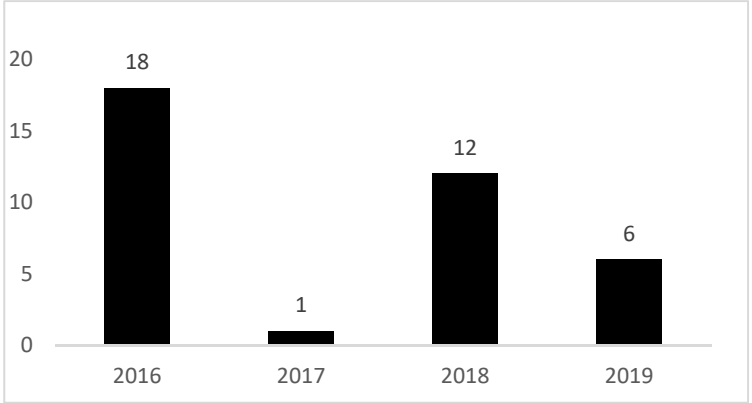

Figure 2. New patents of Huaxin Cement from 2016 to 2020

4.2.4. Trade Names and Brands

Huaxin Cement is one of the oldest cement production trademarks in China, with the Chinese well-known trademark "Huaxin Fortress", which enjoys high popularity and recognition in the industry. 2022, Huaxin Cement was ranked 167th in the "Top 500 Asian Brands". In 2021, Huaxin Cement entered the list of "China 500 Most Valuable Brands" for the seventh time in a row, ranking 80th, with a brand value of 70.269 billion yuan, an increase of 17.4% compared with last year's brand value[7].

4.2.5. Overseas Operation Advantages

For overseas market, Huaxin Cement firmly follows the national "One Belt, One Road" plan and focuses on cooperation with China-friendly countries. Since 2011, Huaxin Cement has been carrying out overseas cooperation, including Southeast Asia and Central Asia, and has rich experience in overseas operation.

4.2.6. Green Development

According to Huaxin Cement's 2021 annual report, Huaxin Cement has mastered the "complete set of technology for efficient ecological co-disposal of solid waste in cement kilns" by the end of 2021, which has independent intellectual property rights and has been applied to 20 cement plants in seven provinces and cities in China. In 2020, the integrated energy consumption of clinker of three kilns (K2 in Utopia, Xinyang and Zhuzhou) has reached 90kgce/t.KK, which is the leading level in the industry.

5. Analysis of Huaxin Cement's Competitive Environment Based on Porter's Five Forces Model

5.1. Threat of Potential Competitors

According to Michael Porter, potential competitors must have the following characteristics: (1) size of the firm (2) product differentiation (3) brand awareness (4) marketing channels (5) cost leadership (6) government guidance[8]. The country currently has serious overcapacity, and the state strictly controls new production capacity, while encouraging joint restructuring among enterprises to eliminate backward production capacity. Even if approval is obtained, it is still difficult for cement enterprises to survive without reliable limestone mineral resources. So potential competitors are reluctant to enter such an industry with strong resources, strong environmental protection, huge investment, uncertain prospects and fierce competition and high elimination rate, so there is less threat.

5.2. Competition among Existing Companies

Huaxin Cement is already a leading company in the cement industry, and its main competitors in the industry are: China Resources Cement Holdings Limited and Shandong Shanshui Cement Group Co.

China Resources Cement Holdings Limited ("CR Cement") is a competitive cement, clinker and concrete producer in South China and was listed on the Fortune China 500 in 2022[9]. It is listed on the Fortune China 500 in 2022. As of December 31, 2021, China Resources Cement had 97 cement grinding lines and 46 clinker production lines in operation, with an annual production capacity of 85.3 million tons of cement and 62.7 million tons of clinker, and 62 concrete mixing plants in operation, with an annual production capacity of 37.3 million cubic meters of concrete, according to its website. In addition, through its equity interests in certain associated companies and joint ventures, CR Cement owns a total of 20 concrete mixing plants with a total annual production capacity of 9.5 million cubic meters[10]. In 2021, CR Cement is in third place and Huaxin Cement is in fifth place on the list of China's cement listed companies in terms of overall strength[11]. However, due to the limited transportation radius, the cement industry can only form a market leading phenomenon in specific regions. The major demand markets of the two overlap less, so the competitive conflict between the two is not very obvious.

Shandong Shanshui Cement Group Co., Ltd. (hereinafter referred to as " Shandong Shanshui ") is a wholly foreign-owned limited company established by Pioneer Cement in Jinan City, Shandong Province, China in 2005 through equity acquisition in accordance with Chinese laws and regulations[11]. Shandong Shanshui is one of the 12 national large cement enterprises supported by the state. At present, Shandong Shanshui has 108 affiliated enterprises throughout Shandong, Liaoning, Shaanxi, Inner Mongolia, Xinjiang and other provinces. Based on Shandong, Shandong Shanshui has formed an industrial pattern with Jinan, Zibo, Weifang and Yantai as clinker bases and supporting cement grinding enterprises in more than a dozen prefecture-level cities in the province. As of December 31, 2021, its cement production capacity reached 94.79 million tons, clinker production capacity reached 50.47 million tons per year, and commercial concrete production capacity reached 17.1 million cubic meters[13]. The production scale ranks sixth in the cement industry, and there is little gap with Huaxin Cement, which ranks fifth. Similarly, due to the limited transport radius, the cement industry can only form a market leader in specific regions. Therefore, Shandong landscape is more competitive in Shandong, but the main demand market is in the two lakes and the southwest region, so the competitive conflict between the two is not obvious.

5.3. Pressure from Alternative Products

The main consideration for using alternatives is cost savings. Cement products have matured and stabilized over the past 200 years since they were created in 1824[14]. The technology is mature and stable. No material has been researched in the world to replace cement in terms of use. The main materials that can reduce the amount of cement used by users are steel and mineral powder. Steel is mainly used in simple plants and bridges, which is costly and poses little threat to replace cement. The largest amount of cement is mainly used in commercial concrete. In order to improve the strength of commercial concrete, concrete companies use mineral powder to replace a small amount of cement to improve the strength data in order to reduce the cost, but the cementitious role of cement cannot be replaced. Therefore, in the cement industry, the threat of facing substitutes is relatively small. However, for heavy polluting products such as cement, enterprises can achieve carbon emission reduction from five low-carbon technologies commonly used in cement production : raw material substitution, fuel substitution technology, clinker substitution, energy utilization efficiency improvement and carbon capture and storage (CCS)[15].

5.4. Bargaining Power of Buyers

The purchasers of cement are generally as follows: The first

is the key project. National large-scale infrastructure projects such as high-speed rail, bridges, water conservancy projects, urban subways and other general budget cement demand will be shortlisted for bidding. After winning the bid, cement enterprises will price according to the cost of each province or city or the price of cement authoritative website[16]. Key projects demand higher requirements for cement quality and supply assurance, guaranteed payment of cement, and fair and transparent prices. National key projects are the main target of cement enterprises, which can enhance the brand influence of cement enterprises, so the bargaining power of purchasers in this category of national key projects is very strong .

The second is the middleman. Intermediaries have their own sales network channels through advances, logistics, warehousing, and service to end users. It is an important link for cement enterprises to speed up capital turnover, open the market quickly, regulate the off-peak season and extend their after-sales service. General middlemen are dependent on cement manufacturers and have weak bargaining power, but in recent years, as the concentration of cement enterprises increases, several cement manufacturers share a middleman customer, especially in the off-season when the bargaining power of the middleman is enhanced.

Finally, there are the terminal concrete mixing plants, builders and civilian customers. The general nature of the concrete mixing station is mainly private, the more square meters produced the greater the capital turnover required, and the bargaining power of reputable companies is strong. Due to the large and long commercial mix advances sold to construction sites, commercial mix stations are short of funds almost all year round. Moreover, they are particularly sensitive to price changes due to high requirements for quality and supply assurance. Therefore, in the context of cement homogenization, concrete customers significantly depress prices. Especially in the off-season, concrete companies' bargaining is the main factor causing the price drop in the whole market. Builders' sites and civil customers mainly use low grade varieties of cement, such as masonry cement, which are not price sensitive due to the large number of customers and low monomer usage.

5.5. Bargaining Power of Suppliers

The main suppliers of raw materials for the cement industry are limestone, coal and electricity, mixed materials, equipment and other suppliers. As many large cement companies have their own limestone mineral resources, coal and electricity supply has become the main supplier of cement companies, accounting for 60% of the total, and is also the focus of our investigation. China Cement Industry Association data show that coal and electricity costs account for more than 60% of the overall cement production costs, labor and depreciation costs total about 23%, raw material costs (limestone, slag, gypsum, clay, etc.) is only about 15%.

The coal resources in the two lakes and the southwest region are limited, and the proportion of purchased coal is large. As there are many coal enterprises and operators, they also attach great importance to the coal used by cement enterprises, and they mostly have certain bartering and other behaviors with cement enterprises, resulting in the bargaining power of coal merchants is not very strong. And fly ash, slag and other resources are relatively concentrated, mainly in power plants, iron and steel plants, the number of enterprises is relatively small, and the number of production is limited, there is a certain gap in each year, affecting the production of cement enterprises, and these products are currently a necessity for cement production, it is difficult to have replacement products. Cement enterprises generally have more fixed suppliers of coal, fly ash, slag, gypsum and other materials, and easily do not convert. Because the change of raw materials has a greater impact on the stability of the quality of cement, and the stability of cement quality is one of the keys to competition in the cement market. In a comprehensive view, coal, fly ash, slag and other suppliers have a higher bargaining power in the negotiations with cement companies.

As the above 5 competitive forces determine the price of Huaxin cement products is not easy to rise and close to the cost. In turn, suppliers have a great deal of dominance over costs, so costs are not easily reduced.

6. Huaxin Cement's Competitive Strategy for Development

Through the analysis of the five forces model, it is easy to conclude that all five competitive forces have a considerable influence on the long-term stable development of Huaxin Cement Co. On the basis of the company's original strategy, we mainly analyze the applicability of the cost catch-up strategy, vertical integration strategy and digital innovation strategy to Huaxin Cement Co. Through the analysis of these three competitive strategies, the competitive strategy of Huaxin Cement Co., Ltd. can be determined in order to cope with the more intense market competition in the future.

6.1. Cost Catch-up Strategy

Current cement prices are under pressure and production costs are rising. With the national energy industry to production capacity, environmental protection standards continue to improve, the implementation of policies such as transportation overtaking and mine remediation continue to increase, the procurement of raw fuel and transportation costs of cement companies, environmental protection inputs will continue to rise. Therefore, the sales price will be close to the cost line, and only through cost reduction can we obtain profit margin. Therefore, Huaxin has to implement cost catch-up strategy. Cost optimization is benchmarked against the industry benchmark - Conch Cement.

6.2. Vertical Integration Strategy

Due to the continuous domestic overcapacity and the national policies of staggered production and strict ban on new production capacity, it is difficult to achieve performance multiplication by domestic cement business alone. From the business level, Huaxin Cement should take the integration strategy as the core and accelerate the key layout of non-cement business.

The company should steadily promote its cement business, continue to improve the quality of cement products, increase capacity replacement, merge low-efficiency plants and carry out technical transformation and upgrade to expand its market share. The aggregate industry is currently in the windy period, and with the government leading the intensive development of the aggregate industry, the approval for entering the aggregate industry will be more stringent in the future. Huaxin has to summarize its past experience and accelerate the layout of the aggregate industry. Aggregate and concrete business are highly interrelated. While accelerating the backward layout of aggregate industry, Huaxin should also

use aggregate to make bigger and stronger commercial concrete and new building materials business.

Huaxin, as a designated manufacturer of cement packaging bags, should seize their own advantages, to ensure their own internal demand, to further expand the sales of cement packaging bags to the outside world. The environmental protection business of enterprise waste disposal should still maintain steady development. In short, Huaxin in the "14th Five-Year Plan" period, we should take the integration strategy as the core, make the whole industrial chain stronger, and create new competitive advantages.

6.3. Digital Innovation Strategy

From the operation level, the company should continue to deepen its digital innovation strategy. Focus on the three intelligent closed loops of "industry, business and management", based on production and energy management and data center, continuously optimize the business operation mode and production management mode, build a digital operation system from the inside out and upstream and downstream collaboration, build a smart factory based on digital technology, activate the industry digital control center, and provide monitoring and warning, command and dispatch, and decision support for the company's business operation. Provide monitoring and early warning, command and dispatch, and decision support. In the next five years, we will build and promote a model of "unmanned factory".

7. Conclusion

As a leading company in the cement industry, Huaxin Cement Co., Ltd. plays an important role in the infrastructure construction. On the basis of the original strategy maintained, with the help of Porter's five forces model, the market competition in which Huaxin Cement Co., Ltd. is developing is analyzed, and combined with the current situation of the company, it is concluded that the cost leadership strategy is less suitable, and the cost catch-up strategy, vertical integration strategy and digital innovation strategy are relatively better choices, and the effective combination of competitive strategies will help to enhance the competitiveness of the company, thus promoting the sustainable development.

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