Digital Transformation of Zhongtian Iron and Steel Group

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Abstract. The overall traditional business model finds it challenging to suit customer expectations and the market for businesses as a result of the advancement of current information technology. Hence, digital reform is well-liked in the financial community. In order to fulfill the demands of customers and the market, many businesses at the forefront of the global economy have engaged in digital innovation, focusing on scientific and technology forces and working in a variety of ways for different branches including manufacturing, sales, and management. According to a brief analysis of the Chinese steel market, there is still much room for development in China's steel industry, especially in the digital transformation of China's private steel enterprises. By digitizing Zhongtian Iron and Steel Group, it can improve efficiency, increase production, and reduce costs. This paper will provide several suggestions based on the welfare analysis of digital transformation, through the three elements of digitization and in combination with the digital transformation stage of Zhongtian Iron and Steel Group itself.

Keywords: Digital Transformation, Industrial economy, Information Economy.

1. Introduction

From a global perspective, with the development of the global economy is strongly related to the demand for steel and the development of the steel industry. The main economic factors affecting the steel industry include: The growth rate directly affects the social demand of steel consumers, affects the price of steel products, and affects profitability. Because the steel industry is the largest raw material industry, mainly used for infrastructure construction, transportation, and petroleum machinery manufacturing. Metal Processing and Other Industries Prosperous Development Cycle Changes in production costs in these related industries affect business activities. Growth or cyclical factors are one of the main factors affecting the profitability of the steel industry.

After three years of the COVID-19 epidemic, China's industry hit hard to make up for. In this situation, how can the private enterprise Zhongtian Iron and Steel Group improve market value through digital transformation? The following paper will analyze the current situation of Zhongtian Iron and Steel, the benefits of digital transformation, and the current stage of digital transformation of Zhongtian Iron and Steel. Through the three major elements of digitization: improving efficiency, increasing production, and reducing costs, it will provide suggestions for the future digital transformation of Zhongtian Iron and Steel Group.

2. Current Situation of Zhongtian Iron and Steel Group

In this paper, the object of study is Zenith Steel Group Company Limited. Zenith Steel Group Company Limited. was established in 2001. After many years of development, this company has achieved leapfrog development.

At this stage, the capacity of steelmaking has exceeded 11 million tons, and the operating income has exceeded 12 billion yuan. The businesses involved include steel manufacturing, hotels, international trade, modern logistics and transportation, education, etc., and become a super-large joint enterprise with multiple sectors [1].

According to the data, Zenith Steel Group Company Limited achieved an operating income of 59.218 billion yuan during the reporting period, a slight year-on-year decline. The net profit attributable to the parent company was 130 million yuan, with a year-on-year growth probability of 3.7 percent.

The first "5G+digital steel factory" in Jiangsu, China, building a dream factory of the future. The Third Steelmaking Plant is the largest production base of excellent and special steel at Zhongtian Iron and Steel, with an annual output of 5.2 million tons of excellent and special steel, and its products cover over 1150 steel grades in three categories: wire rod, bar, and large round billet. In August last year, Zhongtian Iron and Steel invested nearly 200 million yuan in the first batch of national 5G pilot demonstration digital factories built over a year, which were officially put into operation at the Third Steel Mill, which is also the first "5G+digital steel mill" in Jiangsu [2].

Zhongtian Iron and Steel Group claimed that the growth of its performance this year was due to the increase of its steel production in 2000, and the sharp increase of China's steel price in 2000, while the iron ore raw material price increased slowly, resulting in a decrease in steel costs and an increase in net profit.

In 2020, the net cash flow generated by the operating activities of Zenith Steel Group Company Limited was 2.377 billion yuan, a year-on-year decrease of 25.20%.

Zhongtian Iron and Steel Group Co., Ltd. has been selected as one of the top 50 global iron and steel enterprises for 7 consecutive years and one of the top 500 Chinese enterprises for 15 consecutive years, which shows its strong strength [3].

In China, most steel manufacturing is monopolized by state-owned enterprises. It is not easy for Zenith Steel Group Company Limited to achieve this.

For a long time, Zhongtian Iron and Steel has attached great importance to scientific and technological innovation, and the investment in scientific research is expected to exceed 800 million yuan in 2021. Since 2014, the company has continued to carry out QC (quality control) activities internally, targeting young college students and highly skilled talents. Led by leaders in the technical field and outstanding contracted college students, the company has initiated projects to tackle production difficulties and process optimization issues in each branch, generating a total of 102 outstanding topics, creating direct economic benefits for the enterprise of over 12 million yuan [4].

However, with the development of Zhongtian Iron and Steel Group, a storm followed. The sharp decline of the industry will cause irreversible damage to Zhongtian Steel. Since 2022, steel enterprises have generally faced multiple challenges such as high costs, weak demand and declining profits. The performance of Zenith Steel Group Company Limited has plummeted: from January to June 2022, Zenith Steel Group Company Limited achieved operating revenue of 30.61 billion yuan, compared with 38.525 billion yuan in the same period in 2021. The net profit was 373 million yuan, up from 2.229 billion yuan in the same period in 2021 [5].

3. Necessity of Enterprises Conducting Digital Transformation

With the development of modern information technology, the general traditional business model is difficult to meet the needs of consumers and the market for enterprises. Therefore, digital reform is popular in the financial circle with three principles: improving efficiency, increasing production and reducing costs. Many companies at the front end of the world have carried out digital innovation, centering on scientific and technological forces, and operating in a divergent manner for multiple branches such as production, sales and management, so as to meet the needs of consumers and the market. According to these three principles, enterprises will make a qualitative leap.

3.1. Benefits of Digitization for Enterprises

Digital transformation is a key driver of improved productivity and quality. Digital transformation has also led to organizational adaptation and change, as well as changes in business models such as products, marketing, manufacturing, and operating systems. Therefore, enterprises will shift from traditional production factors to specific production factors and introduce deeper innovation into their business models. From an operational management perspective, it is usually more accurate than data, and from a decision-making perspective, it is also more accurate than data. It greatly reduces the company's operating costs, research and development costs, and marketing costs, thereby improving

the quality of products and services, and improving the company's efficiency in providing basic energy. Digital transformation is a major trend in enterprise transformation, innovation, growth, and core skill upgrading. Although many companies are not under pressure in the short term, in the long term, there are still many uncertainties and challenges. Only by digitizing can companies reduce operational costs. Today, in the digital economy, as a company, only if we accept digitization and use it for our own growth can we further improve market competitiveness.

This paper gives an example of Xinhua Three Group, as a leader in digital solutions, Xinhua Third Group (H3C) is committed to becoming a trusted partner in customer business innovation and digital transformation. As the core enterprise of Ziguang Group, Xinhuasan has continuously improved the level of digital and intelligent empowerment through an in-depth layout of the whole industrial chain of "core cloud network edge end". Xinhuasan has the overall capability of a full range of digital infrastructure including chips, computing, storage, networks, 5G, security, and terminals, and provides one-stop digital solutions including cloud computing, big data, artificial intelligence, industrial Internet, information security, intelligent connectivity, edge computing, and end-to-end technical services. At the same time, Xinhuasan is also HPE ® The exclusive provider of servers, storage and technical services in China [6].

It is not difficult to see from the example of Xinhuasan that digital transformation can develop its subjective initiative based on the company's main value, make the company's management more flexible, expand sales channels, increase market liquidity and improve production efficiency. According to the first digital innovation of Xinhuasan: the transformation of Xinhuasan Mall "to launch a new one-stop ICT service model", this innovation solves the disadvantages of the long ICT service chain, shortens the ICT business links, and greatly improves the operating efficiency of the traditional ICT model. The new model combines users, partners and manufacturers in a platform way to create different customized solutions, aiming at different customer groups, and trying to meet different needs. In addition, the new model combines presale consultation, sales model and after-sales service to improve communication efficiency and reduce return rate and capital loss [7].

In China, state-owned enterprises often assume more responsibilities than non-state-owned enterprises, such as maintaining social stability and expanding employment. The management of state-owned enterprises often has an administrative nature, etc. In addition, the employment contract structure of state-owned enterprises is relatively stable. In the long run, the wages and living standards of employees have not changed much. Although state-owned enterprises have improved their operational efficiency during the digital transformation process, employee salaries may not increase at the same rate. This has led to an increase in the share of labor income after the digital transformation of enterprises.

In the context of market competition, public undertakings can flexibly adapt the use of factors of production to actual operating conditions, the market environment, human capital markets and other factors, and more frequently adjust employees' wages. As a result of digital change, better business operations and increased volatility, the wages of non-state workers will grow more significantly than state-owned enterprises.

Moreover, public enterprises are less affected by financing than non-state enterprises. This makes the economic constraints of the digital transformation of private enterprises clearer. In particular, public and non-state enterprises have achieved digital transformation through the 'information effect' and the 'exposure effect' which reduces economic constraints. However, given that NGOs' funding conditions are significantly higher than those of state-owned enterprises, the digital transformation has further reduced their economic conditions. This also means that the impact of NGOs' digital transformation on labour income participation is greater than state-owned enterprises.

On the one hand, the transformation of digital projects can help reduce restrictions on project financing and provide possible solutions to project financing difficulties, especially for private projects. On the other hand, digital transformation contributes to improving the quality of internal control by promoting the development of quality projects in the internal environment, risk assessment, operational control, information and communication, and internal control. Today, the digital

transformation from the traditional economy to the digital economy, whether to improve internal capacities or strengthen external aid, is striving for quality development. Good choice for business. By creating a digital platform, companies can maintain and increase their competitiveness. Secondly, technological innovation and business development should be further promoted. The results show that diversity influences the income share more strongly than high-tech companies and high-tech companies with the highest employment levels. On the one hand, promoting technological change and innovation in research and development, creating the technological foundation for companies of digital transformation, reducing investment costs for companies of digital transformation, and strengthening the digital transformation process On the other hand, this has increased the number of technical jobs in companies, increasing the employment level of workers by increasing human capital and improving the industrial structure of the company. Companies should therefore actively raise the level of technological development and promote the digital transformation to improve employment rates, thereby increasing the share of labor income and increasing the share of labor income in the original distribution [8].

This sharing platform is ZTE Data Aggregation Engine. Whether it's procurement, sales, logistics, transportation, production management or quality management, they all interact with data through intelligent resource collaboration platforms. As the group's main business chain, the cycle of iron ore processing is very long, the whole process involves extensive internal and external cooperation, from the needs of the production department to signing contracts with the order department to logistics and transportation departments transporting goods from abroad to Changzhou, until the production department's quality control. Feedback/approval from the production department and subsequent review from the finance department. By seamlessly integrating ZTE's collaboration platform and business platform, ZTE has achieved centralized core data management and extensive data and information exchange. ZTE has three strategic insights: First, you need to combine the code with ZTE's main data platform, 5G+Industrial Internet Intelligence, where all the code comes from one source. For example, the codes for suppliers and purchased materials are centrally managed on the master data platform and then distributed to the procurement, sales and plant management systems. Secondly, data exchange between different systems and business departments takes place via the IQ Online Collaboration Platform. Business data and processes are closely connected to the process machine, resulting in synchronization of the three "streams" of financial, business and data streams. In addition to financial flow, the business flow and data flow are supported by a collaboration platform and are ultimately connected to the financial system, ensuring comprehensive collaboration between different departments, suppliers and customers. Third, data storage, queries and data analysis via the big data platform have confirmed the value of data [9].

To sum up, this paper can reflect the positive impact of digitization on enterprise development.

Based on the above description, Zhongtian Iron and Steel Group can take the following measures to further improve the digital transformation process. First of all, it is necessary to establish an independent network operating system, which should focus on the company and distribute business multilaterally, including sales, management, services, employee and raw material supply. This can help Zhongtian Iron and Steel Group conduct its business activities in a better and orderly manner. Secondly, establishing a sound sales network platform that includes dumping goods, connecting customers, and related after-sales services (refer to the example of Xinhua Third Company) will greatly simplify sales and service procedures, establish good long-term cooperation with customers, and meet the diverse needs of individual customers. This will reduce the return rate, reduce product transportation costs, improve communication efficiency and service quality, and increase revenue.

3.2. Digital Transformation Stages of Zhongtian Group

The first stage is the period of infrastructure construction from 2000 to 2007. At this stage, Zhongtian Iron and Steel established the computer department, completed the information infrastructure construction, and the enterprise backbone network covered 100% of the production and office areas, and trained professional teams to strengthen the enterprise information promotion.

The second stage is the single application period from 2008 to 2013. The computer department was upgraded to the information engineering department. During this period, its OA (office automation) system became a unified platform for the whole group to work together. The Yonyou NC system covers such business modules as purchase, sales, warehousing and financial management. The port metering system realizes the automatic collection of port metering data. The remote centralized metering system realizes unattended weighing station, centralized metering hall office, and improves metering efficiency.

The third stage is the integration improvement period from 2014 to now. According to the requirements of the development plan, Zhongtian Iron and Steel will further accelerate the pace of the promotion of information technology, digitization and intelligence, and gradually promote the construction of the promotion of information technology and intelligence. At present, relevant system construction has been fully completed. Among them, the production and marketing system was launched in April 2014, and the equipment management module was launched in September. In October 2015, the steel rolling intelligent production workshop was rated as the demonstration intelligent workshop in Jiangsu Province. In 2016, Zhongtian Iron and Steel was rated as the pilot enterprise of integration of industrialization and industrialization in Jiangsu Province and the pilot enterprise of network information security and obtained the CMMI (software capability maturity integration model) three-level qualification. In 2017, the equipment operation and maintenance management platform, the converter sub-gun system, the mobile point patrol inspection system, the automatic sampling system, and the billet code spraying robot were online. In 2018, Mobile Zhongtian App, Enterprise Antivirus Software, Shenxin System, Operation and Maintenance Fortress Machine, Hot Eye System, etc. were launched. In 2019, the equipment management system, NC Phase I, MES (Manufacturing Execution System), HR (Human Resources) upgrade system, new OA system, intelligent heating and combustion control project, etc. were launched online. In 2020, the manufacturing management system, the master data management system, the customs affairs system, the enterprise cloud disk project, the access control system, the continuous casting billet robot number spraying project, the billet number identification project and so on were successively launched and put into use.

In 2021, Zhongtian Iron and Steel will form a new intelligent control center of "five parts in one", optimize and integrate the responsibilities, authorities and business processes of the five departments of production, logistics, energy, safety and environmental protection, and realize the flat management of "five parts in one". At the same time, the group has actively built a big data platform, carried out lean analysis, assisted in the research and development of high-quality and special steel new products, the analysis and tracking of the whole process of product quality big data, and solved the "neck" problem of high-end and special steel. Taking the 5G digital plant of Zhongtian Special Steel Steelmaking Plant as a pilot, through the 5G private network of "high bandwidth, wide coverage and low delay", online monitoring, real-time collection of process data, and real-time early warning are realized to ensure the effective control of the whole process of realizing quality of high-quality special steel products.

In 2022, with the implementation of the "one headquarters and multiple bases" plan of Zhongtian Iron and Steel, Zhongtian Iron and Steel seized the opportunity for the rapid development of the new generation of information and communication technology of "5G+industrial Internet", and the "5G+intelligent manufacturing" application scenario blossomed everywhere - the scene of sweating gradually disappeared, replaced by clicking the button in the air-conditioned room. The scene of operating the crown block in a narrow space is gone, and it is replaced by unmanned driving. The problem of frequent equipment failures is no longer a problem. Instead, the equipment preventive predictive system is used to prevent failures before they occur: automatically diagnose equipment failures and avoid unplanned equipment downtime [10].

4. Conclusion

By analyzing the three key components of digitization: enhancing efficiency, expanding output, and decreasing costs, this research offers recommendations for the future digital transformation of Zhongtian Iron and Steel Group. It is suggested that Zhongtian Iron and Steel Group can take the following measures to further improve the digital transformation process. First of all, it is necessary to establish an independent network operating system, which should focus on the company and distribute business multilaterally, including sales, management, services, employee and raw material supply. This can help Zhongtian Iron and Steel Group conduct its business activities in a better and orderly manner. Secondly, establishing a sound sales network platform that includes dumping goods, connecting customers, and related after-sales services (refer to the example of Xinhua Third Company) will greatly simplify sales and service procedures, establish good long-term cooperation with customers, and meet the diverse needs of individual customers. This will reduce the return rate, reduce product transportation costs, improve communication efficiency and service quality, and increase revenue. It would be beneficial for future research to look into the negative side of digitalization and help enterprises gain a whole picture of technology application.

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