ปัจจัยสู่ความสำเร็จในการประยุกต์ใช้การบริหารคุณภาพทั่วทั้งองค์กรในอุตสาหกรรมหม้อแปลงไฟฟ้า

THE SUCCESS FACTORS FOR TOTAL QUALITY MANAGEMENT IMPLEMENTATION IN TRANSFORMER INDUSTRY

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ (1) ศึกษาปัจจัยส่วนบุคคลที่มีอิทธิพลต่อความสำเร็จในการประยุกต์ใช้การบริหารคุณภาพทั่วทั้งองค์กรในอุตสาหกรรมหม้อแปลงไฟฟ้า ในมณฑลเจียงซู และ (2) ศึกษาปัจจัยสู่ความสำเร็จตามเกณฑ์รางวัลคุณภาพแห่งชาติที่มีอิทธิพลต่อความสำเร็จในการประยุกต์ใช้ระบบบริหารคุณภาพทั่วทั้งองค์กรในอุตสาหกรรมหม้อแปลงไฟฟ้า

การวิจัยนี้เป็นการวิจัยเชิงปริมาณ ประชากรที่ใช้ในการวิจัยครั้งนี้ คือ พนักงานที่ทำงานในองค์กรที่ได้รับรางวัลคุณภาพแห่งชาติในอุตสาหกรรมหม้อแปลงไฟฟ้า ในมณฑลเจียงซู สาธารณรัฐประชาชนจีนแห่งชาติ ไม่ทราบจำนวนที่แน่นอน กลุ่มตัวอย่างจำนวน 398 คน ใช้วิธีการสุ่มตัวอย่างแบบเฉพาะเจาะจง และใช้แบบสอบถามเป็นเครื่องมือในการเก็บรวบรวมข้อมูล สถิติที่ใช้ในการวิเคราะห์ ได้แก่ ค่าความถี่ ค่าร้อยละ ค่าเฉลี่ย ค่าส่วนเบี่ยงเบนมาตรฐาน และการวิเคราะห์การถดถอยพหุคูณ

ผลการวิจัยพบว่า (1) ปัจจัยส่วนบุคคลที่แตกต่างกัน มีอิทธิพลต่อความสำเร็จในการประยุกต์ใช้การบริหารคุณภาพทั่วทั้งองค์กรในอุตสาหกรรมหม้อแปลงไฟฟ้า ในมณฑลเจียงซูแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 และ (2) ปัจจัยสู่ความสำเร็จตามเกณฑ์รางวัลคุณภาพแห่งชาติที่แตกต่างกัน ได้แก่ การมุ่งเน้นลูกค้าและตลาด การปรับปรุงอย่างต่อเนื่อง และการวางแผนเชิงกลยุทธ์ มีอิทธิต่อความสำเร็จในการประยุกต์ใช้การบริหารคุณภาพทั่วทั้งองค์กรในอุตสาหกรรมหม้อแปลงไฟฟ้า ในมณฑลเจียงซูแตกต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

คำสำคัญ: ความสำเร็จ การบริหารคุณภาพทั่วทั้งองค์กร อุตสาหกรรมหม้อแปลงไฟฟ้า

ABSTRACT

The objectives of this research were: (1) to study the personal factors influencing the success for total quality management implementation in transformer industry in Jiangsu province; and (2) to study the success factors on the National Quality Award criteria influencing the success for total quality management implementation in transformer industry in Jiangsu province.

This research was quantitative research. The population used in this research was employees working in organizations that have won the National Quality Award in the transformer industry in Jiangsu province, the People's Republic of China. The exact number was not known. The sample group consisted of 398 employees. Used a purposive sampling method and used a questionnaire as a tool for collecting data. The statistics used in the analysis were frequency, percentage, mean, standard deviation and multiple regression analysis.

Major Findings: (1) different personal factors influenced on the success for total quality management implementation in transformer industry in Jiangsu province differently with statistically significant at the 0.05 level; and (2) different the success factors on the National Quality Award criteria such as customer and market focused, continuous improvement and strategic planning influenced on the success for total quality management implementation in transformer industry in Jiangsu province differently with statistically significant at the 0.05 level.

Keywords: Success, Total Quality Management, Transformer Industry

Research Background

The 14th Five Year Plan released by the State Council of China in March 2021 pointed out that China's offshore wind power is expected to have an installed capacity of 19GW, 2.4 times that of the 13th Five Year Plan period, with great market potential. China will become the world's largest offshore wind power market. The Era of Great Leap Forward in Offshore Wind Power Begins! Therefore, based on the "explosion" of offshore wind power installation in China, in the research of offshore wind power system systems, with the continuous progress of wind power

technology, the installed capacity of offshore wind power generation continues to expand, requiring wind turbines to have large capacity, stability, reliability, easy maintenance, and strong risk resistance. Dry type transformers are a key component of offshore large megawatt wind turbines, with advantages such as safety and reliability, pollution and moisture prevention, sturdy structure, and simple maintenance. They occupy a high proportion in offshore wind turbines.

With the expansion of market demand, Domestic company realized the need to establish a new production base for dry-type transformers in Chinese Mainland. At present, the company is committed to the development and production of high-quality transformers, specializing in manufacturing of wind power specialized transformers. Therefore, we implement comprehensive quality management to improve efficiency and continuously meet customer needs.

Compared with advanced Siemens and ABB from abroad, we still have some gaps, mainly due to the insufficient stability of product quality. Product quality issues often occur, making it difficult to achieve zero defect management. This quality situation has become the biggest obstacle to product competitiveness, which is not conducive to competition with large multinational enterprises in the international market. The magic weapon of product competition is to win with quality, which is the life of enterprises. Continuously improving product quality has always been one of the most important means for the enterprise development and enhancing market competitiveness. With the increasingly fierce market competition, the market has become a demand driven market. Improving customer satisfaction is the focus of enterprise work, and quality is a measure of customer satisfaction (Business Studie, 2013:17) Especially after 2020, domestic offshore wind power transformer enterprises have been continuously catching up in terms of quality improvement and cost reduction. Customer selection concepts and consumer demands have undergone significant changes, shifting from foreign brand choices to domestic brand choices, and being picky about product quality (Chinese quality, 2004:81-82). Therefore, advanced quality management has become an important part of enhancing the core competitiveness of transformer enterprises.

Modern enterprise thinking believes that quality management should be a comprehensive, all staff involved, all process, and all method management activity, also known as Total Quality Management Type (Journal of Zhejiang University on Engineering Edition, 2005: 500-505) Total quality management is a management model developed on the basis of behavioral science, and one of its core concepts is to attach importance to human factors and people. Even IS09000, as a technical standard, as one of the eight principles of quality management, "full participation" is also regarded. Full participation is the foundation for effective implementation of quality management (Science and Technology Management, 2002: 49-51).

In order to employees to participate, it is necessary to treat them as "people", care for them, and help them solve practical difficulties as much as possible, rather than just treating them as "human resources" that are the same as funds, facilities, and information. According to ISO 9004, "organizations should identify their people"

The needs and expectations of employees in terms of recognition, job satisfaction, and personal development should be met as much as possible. Therefore, paying attention to the psychological changes of employees, analyzing the reasons for the changes, and taking corresponding countermeasures is the key to the success of enterprises

The meaning of quality management, especially in quality management questions. Domestic company has been implementing comprehensive the quality management for many years, and has achieved some results in the actual operation of quality management. Therefore, this article Select the factory as the empirical research object. The successful implementation of quality management is rooted in human factors. How do employees work in organization on gender, work experience, and training influence TQM implementation behavior? How can companies increase the motivation of employees to participate in total quality management? This is the key question to be examined in this thesis.

Research Objectives

1. To study the personal factors influencing the success for total quality management implementation in transformer industry in Jiangsu province.

2 . To study the success factors on the National Quality Award criteria influencing the success for total quality management implementation in transformer industry in Jiangsu province.

Research Hypotheses

1. Different the personal factors influencing the success for total quality management implementation in transformer industry in Jiangsu province, differently.

2. Different the success factors on the National Quality Award criteria influencing the success for total quality management implementation in transformer industry in Jiangsu province, differently.

Research Scopes

In this research, the researcher has defined the scope of research as follows:

Content Scope

Research on the Scope and Content of Total Quality Management (TQM) The concept, theory, and principles of a Total Quality Management System (TQM), particularly the importance of implementing a TQM system.

What are the factors that can promote or support the successful application and use of software in an organization's quality management system? Or any obstacles leading to development or acceptance of disposal

Variables Used in the Study - Independent Variable 1 Gender 2) Age 3) Education Level 4) Work Experience 5) Department 6) training - Varies according to the level of acceptance of employees in overall quality management and quality management practices across the department.

Area Scope

Research on the methods for implementing Total Quality Management (TQM) in Changzhou city, Jiangsu province, the People’s Republic of China.

Population and Sample Size

The population used in this research was employees working in organizations that have won the National Quality Award in the transformer industry in Jiangsu province, the People's Republic of China. The exact number was not known.

The sample group consisted of 398 employees working in organizations that have won the National Quality Award in the transformer industry in Jiangsu province, the People's Republic of China.

Research Framework

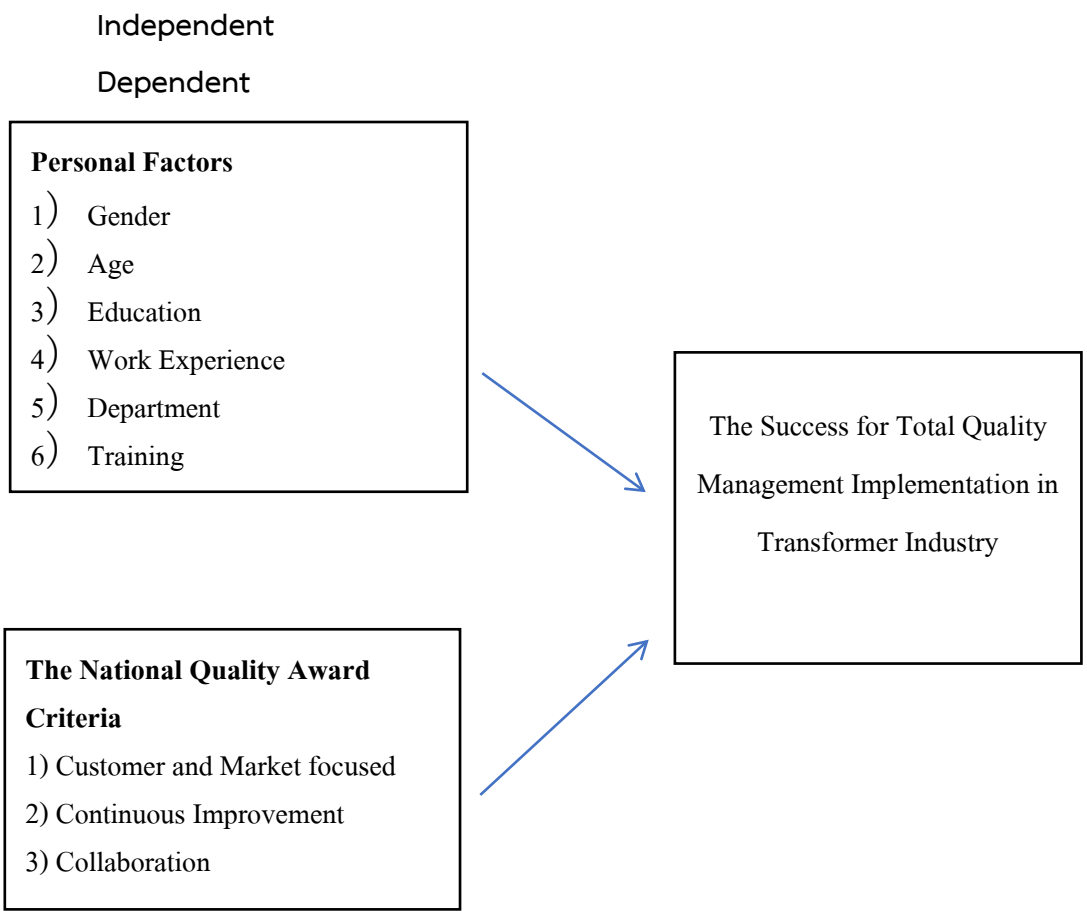

Figure 1 Conceptual framework

Expected Benefits

According to the actual situation of the company, investigate the gender, skills, experience and training of employees, analyze and research, find out the impact on total quality management (TQM), and propose corresponding

countermeasures and solutions to improve the total quality management level of enterprises.

Literature Review

This part is a literature review that makes the research result of the success factors for total quality management implementation in transformer industry useful and achieves the set goals. It is divided into four parts:

2.1 Theory of Total Quality Management

2.2 Current Situation of Employee Participation in Quality Management

2.3 Theory of Individual Behavior

2.4 Related Research

Research Methodology

Research Model

The researcher conducted the study according to the research process and quantitative research methodology. By using a questionnaire to collect information from a sample of the population, it is descriptive research.

Population

The population used in this research was employees working in organizations that have won the National Quality Award in the transformer industry in Jiangsu province, the People's Republic of China. The exact number was not known.

Sample Size

The sample group consisted of 398 employees including senior managers, middle managers and grass-roots employees working in transformer industry in Jiangsu province. According to Krejcie and Margan (1970), the 95% confidence level and the tolerance of 5% sample selection are accepted, totaling 398.

Research Tools

The research collected information from the sample by using questionnaires, as shown below. By using a questionnaire to collect information from a sample as follows.

1.General information of the respondents is about gender, age, education, Affiliated Sector, training and work experience

2.The respondent's opinion is to evaluate the effectiveness of the company's total quality management activities. The Likert scale is used to divide them into five levels, namely 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree.

3. Suggestions

Data Collection Methods

This research, the researcher has collected the data as follows:

1. Primary Data collected questionnaires from the sample group.

2. Secondary Data the researcher gathered the data from the study of related documents

The Statistics Used in Data Analysis

Descriptive statistics analysis. The questionnaire part 1 used the frequency, percentage, mean and the questionnaire part 2 used the mean, standard deviation to describe general information from the sample and analysis of opinion data, independent variables and dependent variables. The criteria for interpreting the results are as follows:

In analyzing the data, the students collected all scores to find the mean and the standard deviation of the sample based on the criteria by which the question is a rating scale, which is divided into 5 levels.

Score Level

Strongly Agree means a score of 5 points

Agree means a score of 4 points

Neutral means a score of 3 points

Disagree means a score of 2 points

Strongly Disagree means a score of 1 point

Therefore, the criteria for interpreting to classify the mean into the following ranges:

Average score between 4.20 – 5.00 means Strongly Agree

Average score between 3.40 – 4.19 means Agree

Average score between 2.60 – 3.39 means Neutral

Average score between 1.80 – 2.59 means Disagree

Average score between 1.00 – 1.79 means Strongly Disagree

Conclusions

1. Personal factors influencing the success for total quality management implementation in transformer industry in Jiangsu province.

Different personal factors influenced on the success for total quality management implementation in transformer industry in Jiangsu province differently with statistically significant at the 0.05 level

Gender differences affected the implementation of total quality management in companies. In the company, the nature of the position determines the gender requirements, for example, the front desk of the company was more suitable for women because they are more affinity, in the field of engineering & technology, the proportion of male employees will be more than female, in the implementation of the TQM system, continuous improvement, customer attention and team, there was no gender difference.

Age had a greater impact on collaboration. Study the impact on the quality management system of the entire organization according to the age range of the employee. According to statistics, older employees were more prominent in overall quality management throughout the organization, have a more thorough understanding of customer needs, and are more proactive in continuous improvement and cooperation

Work experience, according to research, differences in working age differ in knowledge level, understanding, and understanding of the TQM system. Often in terms of continuous improvement teams, experienced employees do better,

Through the survey of employees, this study attempts to obtain the individual factors that affect the implementation of continuous improvement and collaboration in total quality management, and the results show that: (1) gender has affected on TQM continuous improvement and collaboration, (2) employee work experience, education level and training had a greater impact on continuous

improvement, and secondly, age and department had a greater impact on collaboration.

Within the company, the intention to participate was an important factor in participating in quality management, and individuals can actively participate in the continuous improvement process of the company if they are willing to participate, regardless of gender Rich work experience can guide relevant personnel and improve efficiency, and more training can make employees understand the relevant processes and be more willing to participate in the improvement process. Education levels are more thorough in understanding the logic of continuous improvement, they are more willing to do their work better, and young people are more willing to try new objects and accept new ideas, which promotes continuous improvement. Employees in different departments have different perspectives on continuous improvement and collaboration due to their job responsibilities, which leads them to perform mediocrely in this regard.

2. The success factors on the National Quality Award criteria influencing the success for total quality management implementation in transformer industry in Jiangsu province.

Different the success factors on the National Quality Award criteria such as customer and market focused, continuous improvement and strategic planning influenced on the success for total quality management implementation in transformer industry in Jiangsu province differently with statistically significant at the 0.05 level.

The knowledge level and understanding of the implementation of total quality management in the transformer industry through the survey of employees. It was found that: (1) the company's employees' level and understanding of TQM are average, and employees need more training and guidance to understand TQM views, (2) employees agree with customer-oriented, continuous improvement and collaborative views, but there are many problems in the actual operation of the process, and employees also need training and guidance.

Suggestions

1. Improve the quality awareness of employees and strengthen the intention to participate

Improving the quality awareness of employees is the only way for enterprises to pursue competitive advantage, if all employees of the enterprise pay attention to quality, the products produced can gain the trust of customers. The level of employee quality awareness directly affects the effect of quality management and determines the quality of products and services. When employees establish a sense of quality, they attach importance to quality in the production process, and this attitude and awareness influence their participation in TQM

(1) Further increase the publicity and training of quality knowledge

(2) Further deepen the "Quality Month" activities

(3) Further improve the professional skills and quality of employees

(4) Extensive QC group activities

(5) Further establish and improve quality standards and management systems

(6) Enterprise leaders attach importance to and practice

Improving the quality awareness of employees is not only relying on the lectures of quality management personnel and trainers to solve problems, but also requires leaders to attach importance to and take the lead in setting an example. Leaders' attention should not only be paid lip service, but should also be implemented in actual work, and should be embodied in the company's decision-making, formulation of work guidelines, and resolution of practical difficulties. Leaders and managers should be good at observing employees' behavior intentions, consciously take the lead in participating in TQM, and establish a sense of ownership and dedication among all employees.

2. Strengthen employees' understanding of TQM

Perceived utility has a positive effect on employees' attitudes towards TQM. Perceived utility here refers to the degree to which employees perceive that participation in TQM behavior will improve their job performance. Therefore, employees must first understand what TQM is and what potential benefits can be brought by participating in TQM. Employees on TQM model.

3. Improve the level of employee self-management

Allow employees to ask questions, solve problems, and put solutions into practice. If everything is decided by the leadership, everyone can only work passively and wait. People are the main body of management activities, and in quality management, we should fully tap the management potential of people, give play to the effectiveness and efficiency of management, improve the ability of employees to self-discovery, self-improvement and self-improvement, put an end to artificial low-level and repetitive quality problems and improve product quality and work quality. If you can improve the ability of employees to deal with quality problems independently, you can naturally improve their self-efficacy. Be more proactive in participating in TQM activities.

4. Create a corporate quality culture and enhance employees' professional ethics

Enterprise quality culture is the product of the development of modern market economy, a valuable intangible asset, and a special product. In order to determine its dominant position in the competition and make the enterprise invincible, it is necessary to improve the quality and cultural quality of its employees from the inside and establish the reputation and image of the enterprise based on quality from the outside. As a form of culture, enterprise quality culture has the guiding function, incentive function, cohesion function, constraint function and radiation function of culture, which can enable enterprises to enhance cohesion, competitiveness and vitality, and continuously improve the value and creativity of enterprises. Enterprise quality culture not only affects the current survival of enterprises, but also is crucial to the sustainable development of enterprises and many successful enterprises can develop and grow behind the support and contribution of their corporate quality culture. Therefore, every enterprise that wants to succeed must have its own quality culture and promote the improvement of quality with quality culture. In order to improve the quality culture of the enterprise, you can start from the following aspects:

(a) Establish the core quality values of the enterprise

(b) Advocacy and full participation of senior managers

(c) Improve the quality of employees themselves

As the source of strength, enterprises should advocate workers to display their enthusiasm, initiative, and creativity with the attitude of masters and actively participate in the decision-making, management, and various beneficial activities of enterprises; enterprises should first respect people and no longer regard workers only as economic people but also as social and cultural people. Therefore, continuously improving the quality and cultural quality of enterprises and employees should be the long-term development strategy of enterprises.

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