International Core Journal of Engineering Volume 7 Issue 1, 2021
ISSN: 2414-1895 DOI: 10.6919/ICJE.202101_7(1).0056

General Strategies for Improving Supply Chain Quality Management

Yan Guo

Department of Mathematics and Physics, North China Electric Power University, Baoding 071003, China.

guoyan12@126.com

Abstract

Taking Company A in the communications industry as an example, this paper introduces general strategies of supply chain quality management (SCQM). Company A implements supply chain quality management in accordance with the whole business closed-loop management philosophy and PDCA quality management principle. The focus of the work is to improve the quality of incoming inspection work. The company carries out special quality work in the procurement stage, delivery stage and construction and maintenance stage to make quality management control points cover the whole supply chain, so as to realize the implementation plan of total quality management covering the whole process.

Keywords

Supply Quality, Procurement Quality, Supplier Management.

1. Introduction

At present, SCQM [1] is the core competitiveness of many production and operation enterprises in China, but also the management pain point of many enterprises. Generally, the improvement of supply chain quality management should be divided into stages, and targeted improvement measures should be formulated, supplemented by continuous quality improvement.

2. Quality management improvement in purchasing stage

The improvement of quality management in the procurement stage is based on the strengthening of product quality certification. Quality certification is the key point for purchasing managers to organize supplier certification in the process of purchasing. The object of quality certification includes all the products and services under the first or second level collection catalog. Product quality certification includes the following contents.

2.1 Defining the scope of product quality certification

Product quality certification [2] includes internal quality certification and external quality certification". The internal quality certification is mainly to investigate the degree of quality management system perfection within the supplier enterprise, which is assessed from five aspects, namely, quality objective, implementation plan, quality improvement, tracking supervision system and information sharing platform. External quality certification is mainly to examine the degree of third-party certification obtained by external professional institutions for supplier enterprises and related products, including ISO9000, TL9000 and relevant safety or quality certification systems at home and abroad.

After the internal and external certification scores of the supplier enterprise are completed, the total score will be weighted according to the established quality certification scoring standards. For

ISSN: 2414-1895 DOI: 10.6919/ICJE.202101_7(1).0056

example, Company A stipulates that the total score of product quality certification = internal quality certification score *30%+ external quality certification score *70%.

2.2 Establishing the working procedure of product quality certification

Taken the quality certification work of communication Company A as an example, the work steps are generally divided into four steps, including "application", "review", "application" and "maintenance". "Application": Suppliers shall submit A written application to the purchasing Department of Company A in accordance with regulations, and submit authentic and effective certification materials in strict accordance with the requirements of company A's quality certification application. "Review": After the procurement department of Company A receives the admission application materials from suppliers, it shall first review the qualification of suppliers and the authenticity and validity of the materials. After passing the review, the quality certification materials of suppliers shall be evaluated according to the quality certification scoring standards. " Usage": Company A incorporate the quality certification results into the supplier access system as the key reference basis for suppliers access. "Maintenance": The procurement department of Company A will enter the certification results into the supply chain information system for registration, so that other handling departments can timely inquire and carry out follow-up work. If suppliers have any quality information changes, they should submit the changes in formal written form to the purchasing department timely. The purchasing department shall organize the maintenance in the supply chain information system after the audit is approved.

3. Quality management improvement in delivery phase

The main content of control in delivery stage is arrival detection. "Arrival detection is an important way to solve quality problems of collectible-purchase products" [3]. It is an important measure to improve the quality of centralized purchasing products, the final link of quality control in the delivery stage in the life cycle of centralized purchasing products, and the symbol of the completion of inspection work. In order to ensure the standard and orderly development of arrival detection, Company A has formulated unified arrival detection standards, methods and requirements, and listed arrival detection into the KPI assessment range of relevant departments.

3.1 Gradually expanding the scope and methods of product testing

In combination with the group's requirements and actual work, Company A adopts the arrival detection method combining third-party detection and self-detection. First, the scope of the test is defined. The product range of arrival detection is the key product stipulated by A company's purchase management, such as GSM antenna, TD antenna, WLAN, distributed system, repealing station, etc. Secondly, the detection method is determined. According to the detection characteristics of the purchased products, the arrival detection method of each product shall be determined by third-party detection or self-detection.

3.2 Strictly regulating the arrival inspection requirements

Test sample requirements: In order to ensure the quality of the test sample, the sample is directly extracted from the delivered product according to the test plan; For the samples sent out for testing, they should be sent to the testing unit through qualified transportation channels, and the packaging should be safe and reliable.

Inspection personnel requirements: according to the inspection plan, the arrival quality inspection team shall be established. The inspection team shall be composed of procurement, construction, maintenance and discipline inspection personnel.

Sampling requirements: sampling personnel shall take samples according to the product sampling plan, number and fill in the sample form of arriving products. If the third party is selected for testing, the tested product shall be sent to the designated testing institution within the specified time. The sampling process shall be attended by more than three departments, including procurement, maintenance and discipline inspection departments. Sampling personnel shall take samples in

ISSN: 2414-1895 DOI: 10.6919/ICJE.202101_7(1).0056

accordance with the "sampling plan". If blind samples are required, the identification of supplier enterprises shall be completely eliminated.

3.3 Strictly enforce the system of rewards and punishments

For the quality problems found in the arrival inspection, Company A shall take one or more of the following measures according to the contract:

Require the supplier to replace the product in question, or directly terminate the contract (order) corresponding to the arrival batch and return the product, and bear the relevant expenses incurred therefrom; Require the supplier to provide corrective actions and suspend the supplier's qualification to supply the products; Require the supplier to bear the liability for breach of contract such as payment of liquidated damages or compensation for losses; Rescind the contract with the supplier; To disqualify its products from use in the company; Within three years, the applicant shall not be allowed to participate in the bidding of the company's bidding projects; The supplier who causes heavy personal and property losses due to unqualified quality shall be investigated for legal liability in accordance with relevant laws and regulations and purchase contracts.At the same time, for the quality problems of the product suppliers, the procurement and logistics Department shall combine with the quality problem description provided by the professional departments and report the quality problems of the suppliers to the company. [4]

4. Quality management improvement in the stage of construction and maintenance

The main work in the stage of construction and maintenance is post-quality evaluation. Post-quality evaluation is an important part of the centralized procurement system to steadily improve the quality and service level of the products purchased through the comprehensive evaluation of the quality of the construction and maintenance stage. For Company A, post-quality evaluation is an important part of the closed-loop management of centralized procurement and a powerful measure to further improve the quality of procurement.

4.1 Selecting the object of post-quality evaluation

The object of post-quality evaluation is the first-level and second-level collective-purchase products and services in the construction, use and maintenance stage.

4.2 Identifying ways to evaluate after quality

In order to comprehensively and systematically evaluate the product quality, Company A adopts a combination of daily post-evaluation and quarterly post-evaluation. The evaluation results will serve as an important reference basis for supplier evaluation [5]. Daily post-evaluation means that Company A establishes the supplier product quality information reporting process, and gives feedback on the existing production problems through the form of monthly quality report. Post-quarterly evaluation refers to Company A's overall evaluation and feedback on the use of products every quarter. The assessment after the quarter adopts the weighted scoring method, from the technical specifications, the number of failures, complaints handling ability, improvement ability four aspects of assessment.

4.3 Feedback and application of post - evaluation results

After completing the analysis and assessment of post-quality assessment, Company A will analyze the assessment points with low scores, inform relevant suppliers of the assessment points and require rectification. The evaluation results will be summarized and put on record. The final assessment results serve as an important reference for the post-assessment of suppliers.

5. Implementing quality improvement and achieving closed loop management

Quality improvement is an important link of total quality management, which runs through the procurement stage, delivery stage and industrial construction and maintenance stage to monitor all links of centralized products in the supply chain.

ISSN: 2414-1895 DOI: 10.6919/ICJE.202101_7(1).0056

5.1 Identifying ways to improve quality

In order to improve the comprehensiveness and effectiveness of quality improvement work, Company A divides quality improvement into two ways: active quality improvement and responsive quality improvement. Active quality improvement refers to the establishment of quality information analysis mechanism, analysis and summary of reported monthly quality reports, and in-depth exploration of quality problems; Responsive quality improvement refers to the adoption of a differentiated handling mechanism for complaints related to product quality to improve the efficiency of handling quality problems.

5.2 Constructing quality information analysis mechanism

In order to make full use of the information in the monthly quality report and dig out potential problems, Company A adopts an active way to classify and summarize the problems reflected in the monthly quality report by constructing the quality information analysis mechanism. According to the different types of problems, it takes a differentiated approach accordingly.

6. Conclusion

The improvement of supply chain quality management is a systematic work. It is necessary to establish and improve the company's quality management system. Taking the special work of quality management as an opportunity, the company should first focus on the arrival detection and take the arrival detection as the starting point, and then gradually promote the quality certification, post-quality assessment and quality improvement work, and finally form a normalized total quality management system with the whole supply chain. This can realize the continuous improvement of the company's supply chain quality management.

Acknowledgments

This work was supported by the Fundamental Research Funds for the Central Universities no. 2018MS135.

References

[1] Zhang M, Hu H J, Zhao X D. Developing product recall capability through supply chain quality management. International Journal of Production Economics, 2020, 229, doi.org/ 10.1016/ j.ijpe. 2020. 107795.

[2] Li H, Lu Q. Can product quality certification improve farmers' technological efficiency? Chinese Rural Economy, 2020, (05), 128-144.

[3] Douglas T J, Judge W Q. Total quality management implementation and competitive advantage: the role of structural control and exploration. Academy of Management Journal, 2001, 44(1): 158-169.

[4] Womack J P, Daniel T. Jones, Daniel Roos. The Machine that changed The World. The Commercial Press. 1999.11.

[5] Robert M M, Thomas Y C, Yusoon K, Li S, Liu T. Supplier relationship management: an implementation framework. China Procurement Development Report, 2012,00,487-529.