

Determination of Logistical Behavior in Sanitation Industry

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ABSTRACT

Performance measures related to its way of use is a way of verifying logistics operations, so that it can be measured if a given organization is offering an effective service to its client. With this, the main objective of this article is to present and discuss the importance of using logistic performance measures. This research is an exploratory study, developed through theoretical review and case study, where the procedure of data collection was interviewed, carried out through a questionnaire prepared by the authors. One of the results is the use of 78% of the theoretical measures presented in the organization, with emphasis on measures related to productivity and management of logistics assets.

Keywords: World-class logistics. Logistics performance measures. Sanitizers.

INTRODUCTION

For Neely, Gregoroy & Platts (1995), performance measurement is the process of verifying the efficiency and effectiveness of an on-site action, and performance measures are the metrics used for such verification. The set of metrics establishes performance measurement (MD) systems. The MD is a measure of parity with another variable, since the analysis of the improvement of a given measure is related to other elements, such as measures taken in previous periods. According to Holmberg (2000), one of the challenges of organizations' performance measurement systems is that they are trained by a very large number of measures, many of them being wrong or incompatible with the nature of the company. This is generally the case when the number and variety of measures used by enterprises increase over time, since the tendency is not to withdraw earlier or already used measures compared to the current strategy and activities. In addition, old metrics cause the application of resources and bring little value aggregation, since they were introduced to control past problems that have little chance of occurring again if corrective actions were taken.

Neely & Adams (2000) indicate that there are several approaches to performance measurement, each with a specific purpose and thus are incomplete in their specialty. Some traditional approaches involve the Excellence Models in

Business, Value Structures, ABC, Benchmarking and Balanced Scorecard. Performance measurement is one of the most important tools for assessing whether the objectives set are achieved by the company, that is, if the operations, one of them logistics, carry out the desired service goals, raising if the logistics resources are being applied well, that is, the performance measures allow the evaluation of how the available resources are being applied by the organization and if this use entails the provision of superior services to the clients and, from this, the creation of competitive advantage (HIJAR, GERVÁSIO & FIGUEIREDO, 2005).

The interest of measuring logistics performance has already been evidenced by the Council of Supply Chain Management Professionals, through the presentation of the World Class Logistics model. This model represents the main logistic practices. According to this model, there are four critical logistics assignments developed by companies with world-class logistics performance:

Positioning: analysis of how the organization behaves towards the competitor, target public, market prices in relation to other suppliers;

- Integration: how to generate efficient logistics;
- Agility: how the company is prepared for supposed changes according to the real scenario;

- Measurement: structured system of measurement of logistic performance.

Thus, logistic performance measurement is a critical logistics skill for organizations with world-class logistics performance. Furthermore, Ganga et al. (2003) show that performance measurement is linked to the administrative process, which regulates performance standards, monitors performance, confronts with established standards and performs corrective action to achieve the desired goals. In the same context, it is stated that the measurement of logistics is a way to verify and follow the improvements of the logistics process and the reduction of costs, thus enabling the offer of greater value to consumers. For the World Class Logistics Model (CLM, 1995) and proposed logistic performance measurement, Hajar, Gervásio & Figueiredo (2005) carried out a theoretical survey on the most influential measures that this system should have. Therefore, this article has as main objective to expose and to address the importance of logistic performance measures. Then, based on the training and logistic performance measures presented by Hajar, Gervásio & Figueiredo (2005), it is verified its application in an industry of cleaning products in general.

PROCEDURES

To the methodology, the article deals with qualitative research approach, case study and for data collection was done by interview, carried out by a questionnaire produced by the authors. It is taken as an exploratory study, of the applicability of the measures raised by the last authors. The participating company was chosen by one of the authors is on the staff.

The model proposed by the Global Logistics Research Team, the performance measurement system of organizations with world-class logistics performance, is made up of four groups of metrics, four evaluation perspectives and three operational and management aspects. This model shows the existence of four possible perspectives for the evaluation of performance measures: functional, process, Benchmarking and Supply Chain, which are not eliminatory to each other, each of which has its own characteristics. Functional Perspective, analyzes the efficiency and effectiveness of activities, involving different operational areas in a unique way, which affects the realization of the concept of integration.

The Process perspective emphasizes the integration between departments, where the inter-relation of the parts of the organization and its influence of trade-off in the logistics activities. The Benchmarking Perspective in turn helps in the external assessment of the organization's logistic performance by comparing with other divisions of the company, called internal benchmarking, now comparing competitors with competitive benchmarking, or with organizations belonging to other sectors, qualified as functional benchmarking. Thus, it is possible to check the organization with a "outside" look when assessing performance and not limiting this rating to parity with past performance.

Supply Chain Perspective is a broader approach than the one involving the supply chain as a whole, calculating the performance of this chain. For this, it is indispensable to have an integrated scenario, and the measures must be compatible and logical with the functions of the company and the other companies in the chain. However, measures of supply chain performance in organizations are not common. These perspectives are adjusted with the result of Marchesini & Alcântara (2006), who identified the importance of MD systems that present an overview of the organization for the adoption of Supply Chain Management initiatives. Performance measurement systems should reflect the connection of activities to the pursuit of the organization's overall objectives and, therefore, the integration and coordination between activities. This should always seek collective performance goals, not just specific departmental goals (BOWERSOX & CLOSS, 2001). On the other hand, Figueiredo & Arkader (1998) and Wanke & FLEURY (2003) support the importance of subsidized systems in an overview and focused on global and non-fragmented evaluation, without errors in specific areas, where the expected measurement is in total performance and not the functional one. In particular in logistics, Wanke (2003) stated that the performance evaluation should turn to the aggregation of logistics costs, since the different logistics costs must be analyzed together to achieve an excellent logistic function performance analysis.

Christopher (1997) justifies far-reaching performance measurements, that is, the use of measures on asset management, costs, customer service level, productivity, and quality. Hajar (2003) presented performance indicators related

to the level of service, in order to predict the logistics process as a whole. The level of service or customer service is a measure of the quality of the logistical service granted and is considered by Bowersox & Closs (2001) as a logistics capacity in the situation of Integrated Logistics. The level of customer service is defined by the recognition of the logistic performance required by the consumer and the definition of the performance to be provided by the company. Acceptance of the external sphere to the performance measurement company, Christopher (1997) and Hajar (2003) speak about the need to use external indicators of logistic performance, that is, to verify the service standards established by the organization based on competition analysis and market research. It is relevant to highlight that the internal logistic performance can only be analyzed by means of the comparison with suitable parameters.

Competitor analysis can be performed through Benchmarking, which is a tool for continuously measuring the products, services, processes and practices used by the organization in order to compare them to the standards of the best competitors. In this way, comparative analysis seeks to achieve the excellence of the organization through continuous improvement, that is, it wants to quickly achieve high levels of performance.

According to Hajar (2003), customer research enables us to evaluate the actual levels of customer satisfaction in relation to the level of service and minimize gaps in understanding between company and consumers. Three types of gaps were identified: (1) the change between the service planned by the organization and that expected by the consumer, (2) the difference between the service provided by the company and that received by the customer, and (3) the dissimilarity between the service received by the client and the one desired by him.

The gaps verification makes it possible to identify the differences in perception between the organization and the consumer and the actual levels of customer satisfaction and expectations. In addition, gaps can point to improvement points in the logistics system, leading to the determination of procedural priorities. According to the world-class logistics model, the performance measures used by organizations that fit into such a logistic standard are classified into four groups: customer service / quality, costs, productivity and asset management.

RESULTS

The case study occurred in a large sanitation chemical industry in the state of Goiás. Its gross sales for the year 2016 were estimated at R \$ 2,285.30 million, according to the company's data base. Within the logistics area, there are three priority processes:

- Customer Service: all order flow management;
- Storage: makes use of two distribution centers;
- Transportation.

Around one year, the company's headquarters indicated a process of change in the logistic performance measurement system, compelled by the search for a global alignment with the consumer customer. These alignments enable better communication between the company and its customers. Thus, the measure of performance used by the company until the month of July of this year was OTIF (On Time In Full), which mediates if the orders were delivered in the correct time and volume, that is, the measure for the perfect order. In this way, the OTIF is being replaced by Case Full, which is the total of boxes delivered / total of boxes requested. Case Full is developed on several levels: Case Full On Time, which is the total of boxes requested in the date / total of boxes requested on the date, and the Customer Case Full On Time, reflecting the highest count per customer. Both OTIF and Case Full are seen as "parent" indicators, which extend into "child" indicators, which indicates the existence of a hierarchy between the indicators. The "parent" indicators are called control items, at the same time as the "child" indicators, check items, through the trace, the identification of the origin of a given problem demonstrated in a "parent" indicator. Such a division constitutes a loss tree associated with the "parent" indicator.

After identifying the source of the problem, the company uses some Problem Solving, Cause and Effect Diagram tool to identify its causes, the next step being the formation of multifunctional groups to control and / or eliminate the causes of the problem. According to the interviewee, the benefits of changing the OTIF indicator to Case Full are:

- Improved integration of the performance measurement system with corporate strategy. He also stated that KPIs are fully aligned with corporate strategy;

- Higher level of detail according to need: by business unit, product, region, by SKU, category, volume, sales region, periodicity (weekly, monthly and annual);
- Higher accuracy of the performance measurement system: it is fully integrated with SAP, with incompatibility with OTIF.

The three large dimensions of KPIs are service level, cost, and inventory. The set of KPIs are the indicators that management performs decision making. The presentation of the KPIs of the analyzed company will be carried out based on the theoretical survey of Hajar, Gervásio & Figueiredo (2005) on the main measures that should constitute a system of measurement of logistic performance in companies included in the World Class Logistics Model (CLM, 1995).

The first three measures are framed in the greatness of Financial Costs. The Customer Service group is assimilated by all the measures used to build Case in Full. It can be seen that twelve of the theoretical logistic measures included in this group are not used by the organization. The interviewee said that the biggest flaw in the organization's logistic performance measurement system is the lack of cost measurement in serving: cost incurred to correct problems. Regarding the "early cancellation information" measure, the company has this information but it is not denied to its customers, and the failure will be solved later through the installation of a relationship center, so that customers have information about the status of their requests. This control panel will also enable the measurement of the delay time to provide order status information. It should be noted that the Full-Time Customer Case itself is the measure for the optimal order.

There was the introduction of one more measure used by the company to measure Asset Management, which was the percentage of assets over sales. When asked about the inclusion of financial measures in the analysis of performance in logistics costs and the ROE, ROI and ROA measures, the interviewee reported that they are more measures of the financial area of the company, but that are used by the logistics area not in their day -a-day, for decision making of openings of new distribution centers.

CONCLUSION

Because it is an exploratory research in a single industry and of a qualitative nature, it would not be possible to verify an in-depth statistical analysis. A verification of the 73 measures of logistic performance in the practice of the company surveyed showed a high degree of utilization of the theoretical measures of logistic performance, which was 78.1% of the total measures or 57 measures, while 15 measures are not used. Due to the complexity of access to other professionals of the organization, it was not possible to analyze the use of a theoretical measure, representing 1.4% of the total measures, referring to the "waiting time to receive pending" from the availability dimension of the level of service.

Deep in the dimensions, the Productivity and Asset Management groups gathered all their logistic measures, practiced by the organization. In the Logistic Costs group, the application rate of its theoretical measures was 84.2% or 16 measures. At the end, there was the Customer Service group, composed of the largest number of theoretical measures (36), with 66.7% or 24 measures used by the organization. Customer service is identified by the organization as one of its major logistics processes. However, it is the process with the least number of theoretical performance measures used. This failure to measure consumer service performance was verified by the interviewee himself.

The ongoing change in the organization's logistic performance measurement system aims to remedy the problem. Specifically, performance measurement regarding the flexibility of the distribution system, product support, and delivery quality is a failure. The most focused measures are the availability, order cycle speed and consistency of delivery time. The existing logistic service measurement system acts on the transaction spheres and is defined by Ballou (2001).

The elements of the Logistic Service in the Transaction occur during the sale and are directly related to the delivery of the products to the customers. These elements relate to product assistance, to providing product support. The failure of the organization happens in the measurement of the post-sale logistics service. It is stressed the obligation to carry out greater specialization of the literature on the subject to be a survey of logistics performance measures.

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