MEASUREMENT OF ALMAMATER SUIT SUPPLY CHAIN PERFORMANCE IN SACIKA COOPERATIVE USING SCOR

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Abstract: SACIKA Cooperative, as a student cooperative at the Telkom Institute of Technology Purwokerto, provides almamater suit procurement services. Currently, the process of procuring and ordering almamater suits is faced with several obstacles, which results in students as customers feeling disadvantaged during the ordering process. Therefore, it is necessary to evaluate the performance of the supply chain at the SACIKA Cooperative in order to improve efficiency and suitability in the procurement of alma mater suits. This study aims to assess the performance of the alma mater suit supply chain at the SACIKA Cooperative using the SCOR Matrix. This type of research is descriptive quantitative, with data collection conducted through interviews and observations. Supply chain performance measurement is carried out using four attributes and matrices, namely Reliability with Perfect Order Fulfillment (POF), Responsiveness with Order Fulfillment Cycle Time (OFCT) Matrix, Agility with Cost of Goods Sold (COGS), and Assets with Cash-to-Cash Cycle Time (CTCCT) Matrix. The results showed the performance value of each matrix, namely POF of 96.47%, OFCT 1 day, COGS 92.94%, and CTCCT 8 days.

Keywords: SCOR matrix; supply chain management; supply chain flow patterns

INTRODUCTION

Satria cipta karya cooperative or known as Sacika cooperative is a student cooperative located at Telkom Institute of Technology Purwokerto, Banyumas, Central Java. Cooperative comes from the Latin terms "cooperativus", "cooperative"
In the Indonesian context, these terms refer to collaboration, cooperation, or joint work [1]. Like a student cooperative, Sacika cooperative provides various kinds of needs of Telkom Institute of Technology Purwokerto students. This cooperative sells a variety of needs, such as stationery, merchandise and others.

Resources involved must be accurate and skilled in distributing goods to end consumers. [2]. Supply Chain Management is the integration of interrelated business processes between internal and external aspects of the company, starting from suppliers to consumers [3]. Without a supply chain network, company operations cannot run normally [4]. Therefore, it is necessary to measure the performance of Supply chain cooperative sacika Telkom Institute of Technology Purwokerto using the SCOR (Supply Chain Operation Reference) method.

The SCOR method is one of many approaches to measuring supply chain performance. Implementing Supply Chain Management helps reduce inventory costs, including storage, ordering, and shortage costs. [5]. For example, SCOR can organize and supervise shipping and procurement calculations by considering capital and profit aspects [6]. The SCOR model is superior to other models because it is able to identify problems from the internal and external activities of a business [7]. This method has six processes, namely plan, source, make, deliver, return, and enable [8]. There are 5 attributes which are reliability, responsiveness, agility, cost, and asset management [9]. 6 The process is level 1 of the SCOR method itself[10]. Despite its simplicity, SCOR has proven to be an effective tool for supply chain description, analysis, and improvement [11]. Therefore, researchers conducted research on measuring the performance of the Supply chain using this method has been done [9], [10],[12].

Research [13] It highlights the significance of maintaining and measuring performance to thrive in dynamic and competitive business environments. The study identified fifteen metrics across three performance attributes: five for reliability, nine for responsiveness, and one for cost. The overall performance score is 72.73, aiding in maintaining and enhancing business performance.

The investigation [14] the focus is on minimizing adjustments while meeting customer demands and service requirements. Research shows an outstanding Perfect Order Fulfillment (POF) rate of 98.72%, indicating high efficiency. Additionally, Order Fulfillment Cycle Time (OFCT) has decreased to 8 days. Cost of Goods Sold is at 75%, representing a substantial portion of operational expenses.

The objective of this study [15] to comprehensively assess the supply chain management performance of port operators in Indonesia by utilizing the SCOR Model. The focus is on understanding and appropriately evaluating the processes involved in logistics business within the main ports of the country.

The research titled "Assessing Halal Supply Chain Performance through Analytical Hierarchy Process (AHP) and Supply Chain Operations Reference (SCOR) 12.0 Approach: A Case Study" [16] explores the performance evaluation of the supply chain. The findings reveal that the supply chain performance of XYZ Supermarket from January to March 2021 reached an impressive 97.91%, indicating excellent performance.

Research Title: Evaluation of Performance Utilizing the SCOR and AHP Methodologies Research Outcome: The...
Conclusive Supply Chain Performance Score for PT. X is 80.54. This score is considered favorable, falling within the "good" category as final results ranging from 80 to 89 signify satisfactory performance[17].

The enhancement in supply chain performance of a printing services company, as per the SCOR model, indicates that while the Make and Source metrics achieved high scores of 99.0 and 95.0 respectively, the delivery process scored the lowest at 80.0 in the performance measurement[18].

The implementation of a SCOR model-based meat supply chain performance measurement information system provides quick interpretation and understanding of supply chain performance across multiple dimensions such as reliability, responsiveness, resilience, cost, and assets. Each metric is customized to meet the specific needs of individual stakeholders in the supply chain.[19].

Research on Performance Improvement Strategies for Automotive Companies with the SCOR Model and Critical Performance Analysis shows that the average supply chain performance in 2019[20] was 82.14%, a "good" category, indicating a satisfactory level of performance.

Measuring and improving Supply Chain Network Performance through DEA and SCOR Models [21] showed that in some cases, DEA method yielded lower performance than SFA method. Average performance for DEA was 0.80, slightly lower than SFA's 0.82. Identification of indicator deficiencies and stage-wise improvements led to progressive efficiency enhancement. Overall average performance during dynamic period reached 0.90.

The purpose of this study is to assess the quality of the Supply chain process in the sacika cooperative, especially in the process of procuring alma mater suits, after knowing the supply chain process from the results of observations and interviews, a performance measurement of the cooperative supply chain will be carried out.

METHOD

The supply chain is a series of ongoing business processes, a series of processes that distribute production objects and services to customers. The series runs by taking into account the factors of timeliness, cost and quantity of goods. The consideration of choosing the ITTP sacika cooperative in the case study is that the ITTP sacika cooperative has a flow where a supply chain runs.

Methods the data collection method used in the research is descriptive quantitative. The purpose of using quantitative descriptive methods is the depiction or description of the facts owned by the field. Furthermore, data containing facts in the field were analyzed using the Supply Chain Operation Reference method or SCOR for short.

![Image 1. Five main processes in the SCOR method](image-url)

Image 1 displays the 5 processes of the SCOR method. The planning process starts with identifying raw material requirements, planning production, and optimizing inventory. The second process is supplier source selection, followed by
the third process, Make, to process materials into products with strict quality management. Product delivery to campus cooperatives and inventory management in distribution warehouses are done in the fourth process, Deliver. The last process, Return, handles product defects or non-conformities by evaluating the causes of returns and improving the process.

Furthermore, the creation of a research flow chart is carried out, which aims to help facilitate the process of preparing the report by looking at the flow chart created. The following is a picture of the research flow diagram:

![Image 2. Research Flow Chart]

According to Image 2, it can be seen that the flow chart of research conducted at the Sacika ITTP Cooperative, namely in the context of data collection, the research uses interview techniques, observation, and documentation. Interviews were conducted with Sacika ITTP Cooperative staff at the DSP building on the 1st floor, while observations were made in the same area. Data collected through interviews include problems when ordering and procuring alma mater and alma mater inventory. Performance measurement uses the SCOR model with level 1 matrix, namely plan, source, make, deliver, and return, and level 2 matrix, namely reliability, responsiveness, flexibility, cost, and assets. Parameters measured include POF, OFCT, COGS, and CTCCT.

**POF Formula [22]:**

\[
\text{POF} = \frac{\text{Total Orders} \times \text{Number of problem orders}}{\text{Total orders}} \times 100
\]

**Description:**

- **Total Orders**: Total number of orders received
- **Number of problem orders**: Number of orders with problems

The OFCT formula is the total time required for all orders to be delivered.

**COGS Formula:**

\[
\text{COGS} = \frac{\text{Beginning inventory} + \text{Purchases during the period}}{\text{Ending inventory}} \times 100
\]

**Description:**

- **Beginning inventory**: Total inventory at the beginning of the period
- **Purchases during the period**: The total amount of goods purchased during the period.
- **Ending inventory**: The amount of inventory remaining at the end of the period.

**CTCCT Formula:**

\[
\text{CTCCT} = \frac{\text{Supply inventory} + \text{Average accounts receivable}}{\text{Average accounts payable}}
\]

**Description:**

- **Supply inventory**: Quantity of goods on hand
- **Average accounts receivable**: The average amount of receivables over a period of time
- **Average accounts payable**: The average amount of debt over a certain period of time.

The results of SCM performance
measurement are obtained by looking at four SCM parameters, namely reliability, responsiveness, flexibility, cost and assets. Then from the analysis of SCM performance measurement results will produce output in the form of SCOR CARD.

Data analysis can be done using the SCOR CARD Table:

<table>
<thead>
<tr>
<th>Performance Attributes</th>
<th>Matrix</th>
<th>Actual Data</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply chain reliability</td>
<td>POF</td>
<td>% % % %</td>
<td>superior advantage parity</td>
</tr>
<tr>
<td>Supply chain responsiveness</td>
<td>OFCT</td>
<td>Day Day Day Day</td>
<td></td>
</tr>
<tr>
<td>Supply chain cost</td>
<td>COGS</td>
<td>% % % %</td>
<td></td>
</tr>
<tr>
<td>Supply chain asset management</td>
<td>CTCCT</td>
<td>Day Day Day Day</td>
<td></td>
</tr>
</tbody>
</table>

In Table 1, there are performance attributes consisting of 4 parts, namely supply chain reliability with POF matrix calculation to measure the extent of supply chain reliability in avoiding failures or problems that can affect the availability of goods, supply chain responsiveness with OFCT matrix calculation to measure supply chain responsiveness to customer demand, supply chain cost with COGS matrix calculation to measure the efficiency of production costs in the supply chain, supply chain asset management with CTCCT matrix calculation to measure the time it takes to convert financial investments into reusable cash flow.

Benchmarks are used to set performance targets and direct SCM development. Comparison between actual performance and benchmarks of similar companies is used to identify performance gaps and calculate opportunities. Gap Analysis helps set performance targets based on benchmark data. Supply chain improvement is based on SCM parameters, benchmarking, opportunities, and Gap Analysis to produce SCM improvement solutions. SCM performance improvement is the final stage to increase the success of Sacika ITTP Cooperative.

RESULTS AND DISCUSSION

The sacika cooperative network system has various entities involved, namely fabric suppliers (suppliers), convection (manufacturing), and sacika cooperatives (retail). The flow of the sacika cooperative supply chain starts with the selection of materials and colors from fabric suppliers. After that, it continues with sewing materials, packing goods, then stored in the warehouse to be delivered to the sacika cooperative. The next stage, the sacika cooperative sells to customers, namely ITTP students. Meanwhile, there is a flow in the illustration.

Image 3. Sacika Cooperative Supply Chain Flow

The sacika cooperative supply chain flow consists of the flow of money, goods, and information. The flow of goods starts from fabric suppliers and conectors who make clothes according to the designs of sacika cooperatives and conectors who make clothes according to the designs of sacika cooperatives. The clothes are then marketed by the sacika cooperative and reach the consumers.

The flow of money in the sacika cooperative supply chain starts from the end consumer, then to the sacika cooperative, and on to the convection for payment of production debts and material suppliers for payment of material purchase debts. The flow of information
involves material suppliers, convectors, sacika cooperatives, and consumers, mainly related to material availability and estimated production time. Communication between material suppliers and convectors discusses material shortages or errors. Between the convection and the sacika cooperative, communication focuses on estimating production time and negotiating prices. Sacika cooperatives communicate with consumers about product details such as materials and sizes.

The following are the results of the sacika cooperative supply chain performance assessment:

Table 2. Matrix SCOR Level 1

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Matrix</th>
<th>Actual</th>
<th>Superior</th>
<th>Advantage</th>
<th>Parity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Chain Reliability POF (%)</td>
<td>96.47</td>
<td>100</td>
<td>89.6</td>
<td>87.7</td>
<td></td>
</tr>
<tr>
<td>Supply Chain Responsiveness OFCT (hari)</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Chain Cost COGS</td>
<td>92.94</td>
<td>11.95</td>
<td>42.3</td>
<td>50.2</td>
<td></td>
</tr>
<tr>
<td>Supply Chain Assets CTCCT (hari)</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows the results of superior sacika cooperative performance with the SCOR matrix according to business objectives. In POF, the actual value reached 96.47%, indicating good cooperation with suppliers and convection. OFCT is 1 day, indicating good service to customers. COGS reached 92.94%, indicating cost effectiveness. CTCCT 8 days, healthy money cycle. After setting the target, GAP Analysis is conducted to compare with competitors, the difference is interpreted as an increase in revenue. The GAP analysis table will be presented first with the aim of knowing the opportunity ties of each matrix.

CONCLUSION

In accordance with the research results above, it can be concluded that in the Sacika Cooperative Supply Chain, the entities involved are fabric suppliers, convection, and end consumers. Sacika Cooperative buys materials from fabric suppliers, then sends them to convection to be processed into alma mater and sold to students of Telkom Institute of Technology Purwokerto. POF reached 96.47%, not reaching the maximum target of 100%. OCFT Responsiveness is one day, has reached the target. HPP Chain Cost reached 92.94%, superior to competitors. Supply chain Assets CTCCT, sacika cooperative has a difference of 2 days with competitors.

In accordance with the research results obtained above, the researchers provide suggestions for increasing the speed of delivery of alma maters to increase POF, and minimizing production costs to increase COGS.

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BIBLIOGRAPHY


