Analysis of Halal Supply Chain Management in Fried Chicken Restaurant Using Supply Chain Operation Reference (SCOR) 12.0

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Abstract

As a country with the largest Muslim population, Indonesia must be able to compete with the halal industry. Food products are one of the important aspects in the halal industry. One of the food providers that is mushrooming a lot today is fast food restaurants. In this regard, fast food restaurants must be able to guarantee that the products provided are guaranteed to be hallowed. One of the fast-food restaurants located in Yogyakarta is XYZ restaurant. This study aims to determine the performance of halal supply chain performance in restaurants to help restaurants in improving performance so that they can compete in the halal industry. The methods used in this study are Supply Chain Operation Reference (SCOR) 12.0, Analytical Hierarchy Process (AHP), and Traffic Light System. It was found that there were 44 metrics with 4 of them based on Islamic values. There are 2 metrics with marginal categories and 9 metrics with unsatisfactory categories. Overall, it was found that the restaurant's performance value was 67.65% with a marginal or average category.

Keywords : AHP; Halal Supply Chain; SCOR; Traffic Light System

INTRODUCTION

Indonesia is the country with the largest population of Muslims. Based on data from the Indonesian Ministry of Home Affairs (Kemendagri), the Muslim population in Indonesia in 2021 was 237.53 million. The State of Global Islamic Economy states that Indonesia has a great opportunity in the development of the halal industry. In this case, the need for halal products will increase. As a Muslim, halal and tayyib are the main factors in choosing a product or service. Halal in Arabic means "allowed" and tayyib means "good". Choosing or consuming halal products is a form of adherence to Islamic sharia law (Najiatun & Maulayati, 2019).

The State of Global Islamic Economy Report noted that Muslim consumers spent 1.13 trillion dollars in 2018 and rose 3.1% to 1.17 trillion dollars in 2019 on halal food and will be expected to grow to 3.2 trillion in 2024. Data from the State of Global Islamic Economy Report 2020-2021 shows that Indonesia's indicator score in the halal food sector is ranked 4th with a GIEI value of 71.5, still far from the first position occupied by Malaysia (State of Global Islamic Economy, 2020/2021). This is a challenge for Indonesia to compete in the halal industry.

To be able to compete in the halal industry, fast food restaurants in Indonesia must pay attention to their supply chain by considering halal factors. Halal food is not only seen from the raw materials, but from every process to reach consumers (Nurrachmi, 2017). Therefore, companies must be able to manage their supply chains well. Performance measurement can be used as a tool to achieve company goals and as an evaluation to set a strategy (Saragih et al., 2021).

XYZ restaurant is one of the fast-food restaurants located in Yogyakarta. The restaurant provides fried chicken as the main menu. Restaurants always strive to provide halal, healthy, and hygienic food. This requires restaurants to have good supply chain management. Based on this background, this study was conducted to analyze the performance measurement of restaurant using the Supply Chai Operation Reference (SCOR) 12.0 version. This method can define the supply chain in detail in each business process through indicators that are in accordance with the restaurant and the measurement results can be used as a reference for improvement and evaluation in improving performance (Anjani et al., 2020).

LITERATURE REVIEW

This section describes a literature review related to supply chain management, halal supply chain management, Supply Chain Operation Reference (SCOR) 12.0:

1. Supply Chain Management
   Supply chain management is a process that regulates the flow of a good or service as well as related information from origin to reach consumers (Maina & Mwangangi, 2020). Supply chain management is a complex and systematic process that includes detailed key business processes from procurement to distribution of products in accordance with market conditions and cost rationalization (Suvorova & Tevanyan, 2020). Supply chain management can be concluded as a method used by companies to regulate materials, information, and finances with the company concerned so that they are integrated with each other starting from raw materials to consumers. Supply chain management needs to be carried out because its application can minimize the impact of competition in the market because it can produce a company's competitive advantage (Hwihannus et al., 2022).
2. Halal Supply Chain Management
   Halal supply chain management is the management process of raw material procurement, production, storage, and distribution processes based on Islamic sharia principles (Wahyuni et al., 2020). Halal supply chain management is a new point of view in the supply chain, halal products are handled separately from non-halal products to avoid cross-contamination that can affect the halal integrity of the product. Supply chain has an important role in ensuring product quality and condition through proper transportation, storage, and handling in the supply chain until it reaches its final destination. The success of the halal industry is based on the ability of halal supply chain management to ensure the integrity of halal products (Peristiwo, 2019).
3. Supply Chain Operation Reference (SCOR) 12.0
   Supply Chain Operation Reference (SCOR) 12.0 is a development model for previous versions. SCOR 12.0 was developed to describe business activities related to the fulfillment of all customer needs. The Supply Chain Operation Reference (SCOR) 12.0 model focuses on 6 main businesses, namely, plan, source, make, deliver, return, and enable (APICS, 2017). In addition, performance measurement using SCOR focuses on measuring and assessing the results of supply chain processes. A comprehensive approach to understanding, evaluating, and analyzing supply chain performance consists of 3 components namely performance attributes, metrics, and practices. There are 5 attributes used for performance measurement, there are reliability, responsiveness, agility, cost, and asset management efficiency.

METHODS
In this study, the data collected from restaurants will be processed using 3 methods including Supply Chain Operation Reference (SCOR) 12.0, Analytical Hierarchy Process (AHP), and Traffic Light System. The first step is the collection of data from restaurants related to the supply chain that is applied by conducting interviews with restaurant supervisors, the second is mapping 6 business processes: plan, source, make, deliver, return, and enable into 3 levels, the third step is determining metrics in each performance indicator in accordance with SCOR 12.0. The next step is weighting at each level, the last step is the calculation of the final score of the combined weight calculation and classification to determine the category of conditions of each metric.

1. Supply Chain Operation Reference (SCOR)
   The Supply Chain Operation Reference (SCOR) method is used to calculate supply chain performance. The SCOR method is standard terminology that can be used to define, manage, and implement supply chain processes between suppliers, companies, and customers (Delipinar & Kocaoglu, 2016).
2. Analytical Hierarchy Process (AHP)
   The Analytical Hierarchy Process (AHP) method can be used to solve complex problems with a hierarchical structure of criteria, stakeholders, and results with consideration for the development of weights or priorities (Widianta et al., 2018). The AHP method is used to provide weighting to business processes, performance indicators, and matrix indicators that exist at every level. The weighting is carried out directly by the restaurant supervisor.
3. Traffic Light System
   The final score is classified into 3 colors to determine the performance achievements in each matrix using the traffic light system method. The traffic light system method is used to make it easier for companies to evaluate performance by using 3 colors, red if the score is ≤ 50 with an unsatisfactory classification, yellow with a value of 50-70 with marginal achievements, and green with a value of ≥ 70 with satisfactory achievements (Putri & Pulansari, 2020).

RESULT AND DISCUSSION
1. Data Collection
   Business process mapping is performed using SCOR 12.0 mapped into a 3-level hierarchy. This process is carried out to identify the matrix that exists in each restaurant business process used to measure the performance of the restaurant supply chain. Matrix determination is based on previous research which is used as a reference in determining matrices in make-to-stock companies. Then, validation is carried out to the restaurant supervisor, to

determine the matrix that corresponds to the state of the restaurant. The following Table 1 is the data collection and validation result:

Table 1. Data Collection and Validation

No	Metrics	Level 3	Level 2	Level 1
1	RS.3.29 Sourcing Plans Cycle Time			
2	RL. Halal Raw Material	sP2.4		
3	RL Warehouse Utilization		sP2	
4	RS.3.13 Balance Production Resources with Production Requirements Cycle Time	sP3.3		
5	RS.3.28 Establish Production Plans Cycle Time	sP3.4	sP3	Plan
6	RL. Cleanliness of the Production Site			
7	RS.3.27 Establish Delivery Plans Cycle Time	sP4.4	sP4	
8	RS.3.26 Establish and Communicate Return Plans Cycle Time	sP5.4	sP5	
9	RL.3.18% Orders/Lines Processed Complete			
10	RL.3.20% Orders/Lines Received On-Time to Demand Requirement	sS2.2		
11	RL.3.23 % Orders/Lines Received with Correct Shipping Documents			
12	RS.3.113 Receiving Product Cycle Time			
13	RL.3.19 % Orders/Lines Received Defect Free		sS2	Source
14	RL.3.24 % Orders/Lines Received Damage Free	sS2.3		
15	RL.3.21 % Orders/Lines Received with Correct Content			
16	RL Raw Materials do not Mixed with Non-Halal Products			
17	AM.3.37 Percentage Excess Inventory	sS2.4		
18	RL.3.49 Schedule Achievement			
19	RS.3.123 Schedule Production Activities Cycle Time	sM2.1		
20	AM.3.9 Capacity Utilization		sM2	Make
21	RL.3.58 Yield	sM2.3		
22	RS.3.142 Package Cycle Time	sM2.4		
23	RL.3.33 Delivery Item Accuracy			
24	RL.3.34 Delivery Location Accuracy	sD2.2		
25	RL.3.35 Delivery Quantity Accuracy		sD2	Deliver
26	RS.3.95 Pack Product Cycle Time			
27	RL. Halal Certification and Halal Logo on Product Packaging	sD2.10		
28	AM.3.21 Rebuild or Recycle Rate	sSR1.5		
29	RS.3.5 Authorized Defective Return Cycle Time	sDR1.1	sSR1	Return
30	RS.3.104 Receive Defective Product Cycle Time	sDR1.3		
31	-	sE2.1 Initiate Reporting		
32	-	sE2.2 Analyze Reporting	sE2	Enable
33	-	sE2.3 Find Root Causes		

No	Metrics	Level 3	Level 2	Level 1
34	-	sE2.4 Prioritize Root Cause		
35	-	sE2.5DevelopCorrective Actions		
36	-	sE2.6 Corrective Action		
37	-	sE4.1Identify Skills/Resources Requirement		
38	-	sE4.2 Identify Available Skill/Resources	sE4	
39	-	sE4.3MatchSkills/Resources		
40	-	sE4.4DetermineHiring/Redeployment		
41	-	sE4.5 Determine Training/Education		
42	-	sE4.6 Approve, Prioritize and Launch		

Based on the Table 1, it was found that 42 metrics were in accordance with the conditions of the restaurant with 4 metrics based on Islamic values, consisting of halal raw materials, cleanliness of production sites, the materials do not mix with non-halal products, and halal certification and halal logos on product packaging. Furthermore, the calculation of the performance score is carried out using the SCOR 12.0 method and weighting in each metric. To obtain the final performance, the calculation of the Snorm de Boer can be carried out which can be seen in the Table 2 as follows:

Table 2. Final Performance

No	Metric	Actual Value	Min. Value	Max. Value	SNORM	Final Weight	Score
1	RS.3.29	2	1	2	0%	0.0607	0%
2	Halal Raw Material	70	0	100	70,0%	0.0034	0.24%
3	Warehouse Utilization	4	1	5	75%	0.0034	0.25%
4	RS.3.13	1	1	2	100%	0.0129	1.29%
5	RS.3.28	1	1	2	100%	0.0043	0.43%
6	Cleanliness of the Production Site	100	0	100	100%	0.0034	0.34%
7	RS.3.27	2	1	2	0%	0.1497	0.00%
8	RS.3.26	5	5	7	100%	0.0569	5.69%
9	RS.3.113	1	1	2	100%	0.1291	12.91%
10	RL.3.18	100	0	100	100%	0.0054	0.54%
11	RL.3.20	100	0	100	100%	0.0029	0.29%
12	RL.3.23	100	0	100	100%	0.0029	0.29%
13	RL.3.19	100	0	100	100%	0.0030	0.30%
14	RL.3.24	100	0	100	100%	0.0030	0.30%
15	RL.3.21	100	0	100	100%	0.0024	0.24%
16	Raw Material do not Mixed with Non-Halal Products	100	0	100	100%	0.0172	1.72%
17	AM.3.37.	17.64	0	100	82%	0.0311	2.56%
18	RS.3.123	221	178	248	39%	0.0612	2.36%
19	RS.3.142	2.51	0	5	50%	0.0204	1.02%
20	RL.3.49	100	0	100	100%	0.0098	0.98%
21	RL.3.58	0.99	0	1	99%	0.0098	0.97%
22	AM.3.9 (Product)	0.6	0	1	60%	0.0051	0.31%
23	AM.3.9 (SDA)	1	0	1	100%	0.0444	4.44%
24	AM.3.9 (Machines and Tools)	1	0	1	100%	0.0195	1.95%
25	RS.3.95	1.01	0	5	80%	0.0386	3.08%
26	RL.3.33	100	0	100	100%	0.0035	0.35%

No	Metric	Actual Value	Min. Value	Max. Value	SNORM	Final Weight	Score
27	RL.3.34	0	0	0	0%	0.0037	0.00%
28	RL.3.35	99.89	0	100	100%	0.0037	0.37%
29	Halal Certification and Halal Logo on Product Packaging	100	0	100	100%	0.0277	2.77%
30	RS.3.5	1	1	2	100%	0.0796	7.96%
31	RS.3.104	1	1	2	100%	0.0796	7.96%
32	AM.3.21.	14.58	0	100	15%	0.0199	0.29%
33	sE2.1	4.25	1	5	81%	0.0074	0.00%
34	sE2.2	3	1	5	50%	0.0079	0.39%
35	sE2.3	3	1	5	50%	0.0050	0.25%
36	sE2.4	3	1	5	50%	0.0073	0.36%
37	sE2.5	2.67	1	5	42%	0.0057	0.24%
38	sE2.6	4	1	5	75%	0.0079	0.59%
39	sE4.1	4	1	5	75%	0.0057	0.58%
40	sE4.2	4	1	5	75%	0.0081	0.60%
41	sE4. 3	4.2	1	5	80%	0.0072	0.58%
42	sE4.4	5	1	5	100%	0.0063	0.63%
43	sE4.5	5	1	5	100%	0.0082	0.82%
44	sE4.6	4	1	5	75%	0.0055	0.41%
	Total				78%	1	67.65%

2. Result
    After calculations, it was found that the performance of the overall halal supply chain in restaurants was 67.49% with yellow indicators with marginal or average categories. There are 9 metrics with red indicators with unsatisfactory classifications, namely on the metrics sourcing plans cycle time, establish delivery plans cycle time, schedule production activities cycle time, package cycle time, rebuild or recycle rate, analyze reporting, find root cause, prioritize root cause, and develop corrective action. There are 2 metrics with yellow indicators with marginal categories, namely halal raw material metrics, and product category capacity utilization.

3. Recommendations
    The best recommendations that can be given to halal raw material metrics are to re-examine the raw materials received, sourcing plans cycle time metrics and establish delivery plans in order, that are intense communication with the central party regarding ordering and intense communication with customers. In the metrics capacity utilization, schedule production cycle time, and package cycle time is to use a fryer with more capacity to minimize repeated production and add 1 tool to the provision of toppings in the packing section so that each worker can complete the order without having to take turns, as well as provide training to workers to reduce ineffective activities or movements so that the packing process can be done quickly. On the metrics of authorized defective return cycle time and receive defective product cycle time is that the restaurant must pay more attention to product-related reviews on the platform online sales by conducting an evaluation. Furthermore, the review of existing reports must be carried out regularly to improve the performance of analyze reporting, in find root cause and prioritize root cause, the proposed improvements that can be made are to make root cause analysis, in develop corrective action is to further understand the existing problems to determine corrective actions.

CONCLUSION

Based on the research that has been carried out, there are 44 metrics that are in accordance with the conditions of the restaurant with 4 of them based on Islamic values consisting of halal raw material, cleanliness of the production site, raw material do not mixed with Non-halal products, and halal certification and halal logo on product packaging.

The implementation of halal supply chain in restaurants has been well implemented. This is reflected in the assessment of 4 metrics based on Islamic values that the performance value obtained in each metric is 100% with a satisfactory category except for the halal raw material metric with a value of 70% with a marginal category because there are several raw materials that have not been registered on the MUI website.

Based on the results of the calculation of the overall supply chain performance in restaurants, it was found that the percentage was 67.65% with the marginal or average category. In addition, it was found that out of 44 metrics there were 2 matrices with the indicator is yellow and 9 matrices with the indicator are colored red.

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