



Impact of Transportation and Supply Chain of Manufacturing Industries: A Case Study of Sulfo Rwanda Industries (2016-2018)

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Abstract

This research analyzed the perceptions on impact of transportation on supply chain of manufacturing industries in Sulfo Rwanda, Kigali city. The purpose of the study is to know the effects of transportation on supply chain in manufacturing specially Sulfo. The study adopted the descriptive and correlation designs in order to get the understanding of the findings from the respondents who were the employees of sulfo and some customers. The population of this study was totalised 136 respondents. The sample size was 58. The findings demonstrated that there is a relationship between transportation and supply chain management. This is confirmed by a Pearson correlation of .970 between transportation and supply chain. Thus, the conclusion was that transportation have effects on supply chain management. The researcher recommended that SULFO management should continue to building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally, providing on having sufficient raw materials which are used in production, by finding others suppliers so that in case there is shortage of raw materials, others suppliers provide. Finally, Sulfo should manage production cost for getting high profit. It is suggested that the model can be used for shippers in negotiating service improvements with carriers and by carriers in negotiating service improvements with shippers.

Introduction

The key element in supply chain is transportation system, which joints the separated activities. Transportation occupies one-third of the amount in the logistics costs and transportation systems influence the performance of logistics system hugely [Proceedings of the Eastern Asia Society for Transportation Studies, 2005. Transporting is required in the whole production procedures, from manufacturing to delivery to the final consumers and returns (Kumar & Shirisha, 2014). Only a good coordination between each component would bring the benefits to a maximum. Rwanda is a landlocked country and far from the maritime ports having the nearest port of Dar-Es-Salaam approximately 1 400 km away. The country lacks a link to regional railway and Inland Water Transport (IWT), which means most trades are conducted by road. Moreover, the country is fully dependent imported fuel for transport.

Consequently transport costs of imports and exports are high and these have negative impacts on the economic growth and development of the country. Ministry of Infrastructure Transport Sector Strategic Plan for EDPRS2 (Henninger, 2013).

Supply chain logistics is concerned with the movement and storage of products. Achieving the former require some methods of transportation.

Statement of the Problem

Sulfo Rwanda Industries is a Manufacturer and distributor of Fast Moving consumer Goods based in Kigali, Rwanda. Sulfo also carries out trading activities of various products, and it has a Garage for the maintenance and repair of vehicles. The company was founded in 1962 by Mr. TajdinH.Jaffer&Mme.Khatun Jaffer. It aims to serve consumers in Rwanda, Burundi, Democratic Republic of Congo, Uganda, Tanzania, and Kenya with excellent quality products at affordable prices. Business directory (2013), and it doesn't stop there. With over 136 peoples employed with the company, many of which have been working there for over 10 years, Sulfo is considered one of the top job providers in Rwanda. Though it succed in various things it is still hard for Sulfo Rwanda to get products easly, because our country is far for from oceans.

However, it is hard for Rwandan Industry and customer to get what they want at the right time, it takes weeks and months so that they can receive product. That means that transportation of goods and raw material in Rwanda still have many problems to the companies even to customers.

Theory on Transportation and Communication

Transportation and communication are central to the development of any society and its economy, and early modern Europe was no exception. Despite some significant advances in the engineering and construction of roads and canals between 1450 and 1750, as well as the construction of ships and, to a much lesser extent, of carriages and wagons, for the most part European travel and, therefore communication, remained as it had been in the Middle Ages, tied to the speeds of man and horse on land, and of wind and current on water. Oceanic transport made the greatest leaps forward during this period (Gimeno et al., 2012). Europeans constructed ships capable of sailing the open seas, and navigational devices and techniques capable of guiding them on these long-distance voyages. As a result, they succeeded in circumnavigating Africa to reach Asia, and in crossing the Atlantic to reach the New World. These voyages of "discovery" opened up vast new markets and sources of labor and products that greatly boosted Europe's wealth and power. Inland commerce during this period, however, always commanded a much greater share in the European economy than long-distance trade, and thus inland transportation, by land or water routes, remained far more important in the lives of most people than oceanic navigation (Carroll, 2004).

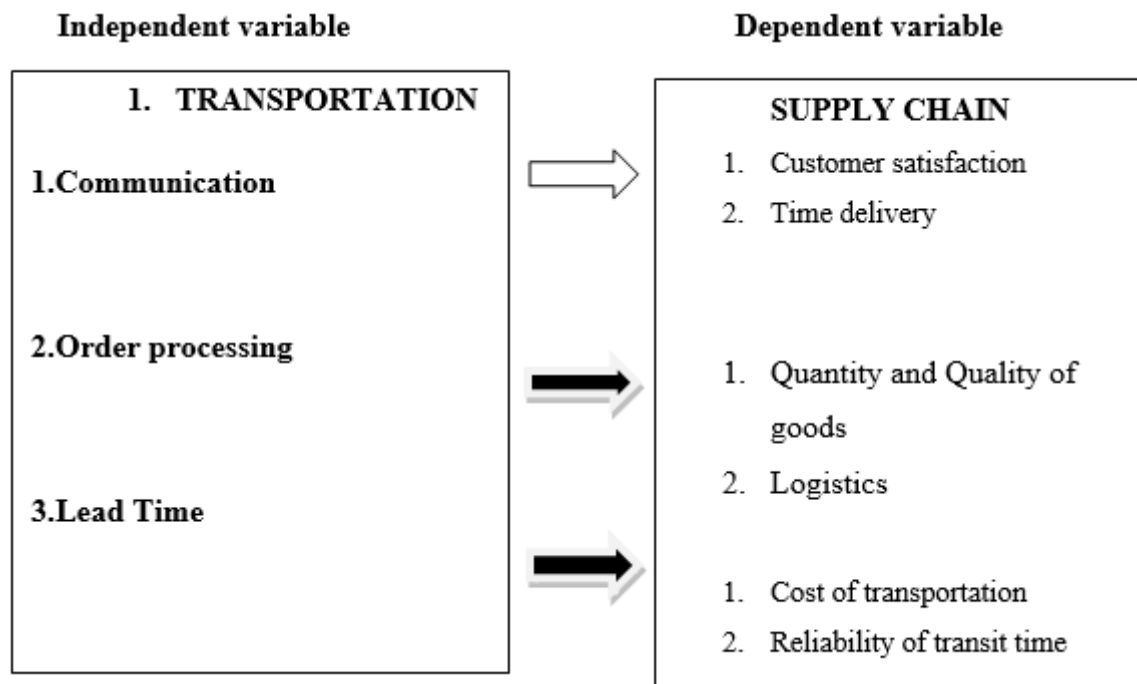
Theory on Customer Satisfaction in Supply Chain

According to Armstrong (2009), define a customer satisfaction as the most important factor in all Business Company or financial institutions. A customer is not dependent on us; we are dependent on him. A customer is not an interruption of our work; he is the purpose of it, we are not doing a favor by serving him, he is us favor by giving us the opportunity to do so.

A customer is a person or organization that buys something (services or products) from shop or a business (Išoraitė, 2016). A customer is a person who brings us his wants. It is our job to handle them profitability to him and ourselves (Armstrong, 2009).

According to Góngora-Biach, (2003) was stated on that realization understanding, meeting and anticipating the needs of customers was probably the most important source of sustained and competitive advantage for a company that had a decisive effect on the setting of corporate priorities and practices. Customer satisfaction is well known and established concept in several areas like marketing, economic psychology, welfare-economics.

Conceptual Framework



Source: Researcher Data 2019

Methods

Research Design

A study design refers to the total plan the researcher uses to aid in answering our research questions (Grinnel et al., 1989). During this study the research design used was descriptive and correlation, One of the goals of science is description (other goals include prediction and explanation). Descriptive research methods are pretty much as they sound — they describe situations. They do not make accurate predictions, and they do not determine cause and effect. This may help us better understand research findings, whether reported in the mainstream media. There are three main types of descriptive methods: observational methods, case-study methods and survey methods. observational methods, with the observational method (sometimes referred to as field observation) animal and human behavior is closely observed.

Population of the study

Williams et al. (1990) define population as the totality of persons or objects with which a study is concerned. Williaman et al. (2005) also argues that population is a combined word used to define the total quantity of cases of the type which are subject of your study. The best way to research any population is to gather from every element within it and in order to do this there is need to conduct an in depth research on small, defined and accessible population (O'Leary et al., 2004). In this study we targeted population of 136 employees and some customers of Sulfo Rwanda Industries Ltd.

Sampling size and sampling technique

Stratified random sampling is a method of sampling that involves the division of a population into smaller groups known as strata. In stratified random sampling, or stratification, the strata are formed based on members' shared attributes or characteristics. In stratified sampling, the

researcher divides the population into strata and then does simple random sampling within each stratum.

Simple random sampling involves selecting a sample from entire population, such that each member or element of the population has an equal probability of being picked. The method attempt to come up with a sample that represents the population in an unbiased manners.

A sample of 58 respondents was purposefully selected from the population using the formula of Yamane and Sato (1967). The respondents were from Sales and marketing department, Production department and procurement department in Sulfo Rwanda Industries

Result and Discussion

Data Presentation Analysis and Interpretations

Perceptions of respondents on impact of communication on customer services and Time delivery

Table 1. Perception of respondents on communication

Variables	N	Mean	Std. Deviation	Comments
They is effective communication between Sulfo and suppliers	58	3.88	0.29	Strong Homogeneity
Sulfo Rwanda aware about raw materials before shipment from suppliers.	58	2.67	1.16	Tend to Strong Heterogeneity
Raw materials are monitored by both suppliers and Sulfo during shipment period.	58	3.83	0.502	Strong Heterogeneity
Sulfo give feedback to suppliers concerning raw materials based on desired quantity and quality.	58	3.77	0.415	Strong Homogeneity
Overall Mean		3.53		

Source: Primary data 2019

The results from the table above shows that the respondents agree with a cumulative mean of 3.8889 (SD= 0.29), frequency of 58, the respondents agree homogeneously that They is effective communication between Sulfo and suppliers. A mean of 2.67 (SD= 1.16) shows that in overall, the respondents agree that, Sulfo Rwanda aware about raw materials before shipment from suppliers.

A mean of 3.83 (SD= 0.502) Shows that respondents agree that Raw materials are monitored by both parties, suppliers and Sulfo during shipment period.

A mean of 3.77 (SD= 0.415) mentions that respondents Sulfo give feedback to suppliers concerning raw materials based on desired quantity and quality.

The interpretation of these statements is that Sulfo Rwanda communicates effectively with suppliers during supply chain. This presented by an overall mean of 3.53.

Table 2. Perceptions of respondents on time delivery

Variables	N	Mean	Std. Deviation	Comments
Supplier enhancing supply chain by using how many weeks to deliver product to Sulfo	58	3.36	1.13	Strong Heterogeneity
Based on time, Sulfo perform well in supply chain cycle.	55	1.50	1.25	Weak Heterogeneity
Customers of sulfo can access information about different products	49	2.00	1.37	Weak Heterogeneity
Sulfo Rwanda has technology system which is used during delivering time.	51	2.96	1.13	Tend to Strong Heterogeneity
Overall Mean		2.45		

Source: Primary data 2019

The respondents strongly agree and in agreement that Sulfo Rwanda enhancing supply chain by using Technology during acquisition of raw materials. This is indicated with a mean of 3.36 and a standard deviation of 1.13.

Out of 58 respondents, 55 respondents agree with disparity that Based on technology, Sulfo perform well in supply chain cycle. This is presented with a mean of 1.50 interpreted as weak and the respondents gave their opinion in a current manner with a standard deviation of 1.25.

Number of 51, respondents agree with disparity that Sulfo Rwanda has technology system which is used during production time this is presented with a mean of 2.96 interpreted as tend to strong and the respondents gave their opinion in a current manner with a standard deviation of 1.13.

Overall mean given were 2.45 interpreted as tend to strong. It is clear indication that the respondents Sulfo should improve its technology for better producing quantity and quality of production and also effective supply chain management

Perceptions of respondents on Customers satisfaction

The following table shows the results on perceptions of respondents on Customers satisfaction.

Table 3. Perceptions of respondents on Customers satisfaction

Variables	N	Mean	Std. Deviation	Comments
Customer satisfaction is the ultimate goal of Sulfo Industry	58	3.40	7.05	Strong Heterogeneity
There is customer retention at Sulfo.	58	4.09	0.46	Strong Homogeneity
Based on good quality of raw materials from suppliers, Sulfo customers appreciate finishing products	58	3.70	0.65	Strong Homogeneity
Overall Mean		3.73		

Source: Primary data 2019

The respondents strongly agree and in addition of that Customer satisfaction is the ultimate goal of Sulfo Industry. This is indicated with a mean of 3.40 and a standard deviation of 0.705.

Common of the respondents indicate that in customers services. There is customer retention at Sulfo this is presented with a mean of 4.09 interpreted as strong mean and the respondents gave their opinion in a current manner with a standard deviation of 0.46. Most of the respondents indicate that Based on good quality of raw materials from suppliers, Sulfo customers appreciate finishing products in, this is presented with a mean of 3.70 interpreted as strongly agree and the respondents gave their opinion in a current manner with a standard deviation of 0.65. Overall mean given were 3.06 interpreted as strong agree of Customers services. It is clear indication that the respondents strongly agree that there is customer satisfaction which founded on good supply chain management.

Perception of respondents on impact of Lead time on cost transportation and reliability of transit time

Table 4. Perception of respondents on lead time

Variables	N	Mean	Std. Deviation	Comments
Sulfo use multi modal transportation to avoid delay	53	3.66	0.42	Strong Homogeneity
Sulfo tries as much as possible to reduce variability	58	3.61	0.53	Strong Heterogeneity
Sulfo has multiple suppliers of various products and services	58	3.61	0.53	Strong Heterogeneity
Some processes are expedited to avoid delays	56	3.71	0.32	Strong Homogeneity
Overall Mean		3.64		

Source: Primary data 2019

The results from table 4.7 shows that out of 58 respondents,5 didn't respond neither agree neither disagree and cumulative mean of 3.66 (0.42) to the statement that the company uses multimodal transportation to avoid delays. A mean of 3.61 (SD=0.53) shows that Sulfo tries as much as possible to reduce variability. A mean of 3.61(SD =0.53) shows that there is proper queue control to avoid delays and the company has multiple suppliers of various products and services majority indicated. Out of 58 respondents,2 respondents didn't respond neither agree or disagree and a mean of 3.71 (SD= 0.32) indicated that some processes are expedited to avoid delays. This shows that Sulfo lead time is well managed.

Perception of respondents on Cost of transportation

The respondents were asked to give their views on cost of transportation and the results are given in the Table below:

Table 5. Perceptions of respondents on cost of transportation

Variables	N	Mean	Std. Deviation	Comments
The cost of raw materials from suppliers is not changed	58	1.9	0.36	Weak Heterogeneity
There is no addition cost for shipment of raw materials from suppliers.	58	2.96	0.65	Tend to strong Heterogeneity

Sulfo has a formal process for purchasing raw materials	50	3.61	0.53	Strong Heterogeneity
Sulfo using the most effective method to calculate its safety stock levels	56	3.23	0.85	Strong Heterogeneity
Overall Mean		3.00		

Source: Primary data, 2019

The results from table 4.9 indicated that a mean of 1.9 (SD=0.36) demonstrated that The cost of raw materials from suppliers is changes some time and this increase production cost. A mean of 2.96 (SD=0.65) shows that some time Sulfo production cost increased by addition cost for shipment of raw materials from suppliers. A mean of 3.61 (SD= 0.53), indicated that Sulfo has a formal process for purchasing raw materials but this responded by 50 respondents out of 58, means that 8 respondents didn't respond neither agree or disagree. A mean of 3.23 (SD=.85) which presented by 56 respondents view out of 58, mean that 2 respondents didn't respond neither agree neither disagree and this mean indicated that Sulfo using the most effective method to calculate its safety stock levels. It 's should be better if Sulfo Rwanda be able to manage increase of transportation cost by researching new suppliers who are near industry.

Table 6. Perception of respondents on Reliability and transit time

Variables	N	Mean	Std. Deviation	Comments
Raw materials reach Sulfo from suppliers in 1 to 2 weeks.	53	3.66	0.42	Strong Homogeneity
Raw materials reach Sulfo form suppliers in 2 to 4 weeks	58	3.61	0.53	Strong Heterogeneity
Sulfo offers credible information to its customers.	58	3.61	0.53	Strong Heterogeneity
The quality and quantity of products at Sulfo serve as key competitive advantages on the market	56	3.71	0.32	Strong Homogeneity
Overall Mean		3.64		

Source: Primary data 2019

The results from table 4.7 shows that out of 58 respondents,5 didn't respond neither agree neither disagree and cumulative mean of 3.66 (0.42) indicated that depending on where raw materials come from, Raw materials reach Sulfo from suppliers in 1 to 2 weeks. A mean of 3.61 (SD=0.53) shows that Raw materials reach Sulfo form suppliers in 2 to 4 weeks depending on whether near or very far raw material come from . A mean of 3.61(SD =0.53) shows that Sulfo offers credible information to its customers. Out of 58 respondents,2 respondents didn't respond neither agree or disagree and a mean of 3.71 (SD= 0.32) indicated that The quality and quantity of products at Sulfo serve as key competitive advantages on the market. This shows that Sulfo supply chain characterize by reliability and transit time of raw materials from suppliers not take time beyond 4 weeks depending where it's come from.

Perception of respondents on Mode of transportation of Raw materials

The respondents were asked to give their views on mode of transportation of raw materials and the results are given in the Table below:

Table 7. Perceptions of respondents on mode of transportation used

Variables	N	Mean	Std. Deviation	Comments
Air transportation mode is more used in raw materials transportation than others.	58	3.0	0.65	Strong Heterogeneity
Sea transportation mode is more used in raw materials transportation than others.	58	3.4	0.62	Strong Heterogeneity
Road transportation mode is more used in raw materials transportation than others.	58	3.61	0.53	Strong Heterogeneity
Sulfo take its products to the customers by using a proper accommodation.	56	2.91	0.85	Strong Heterogeneity
Overall Mean		3.23		

Source: Primary data 2019

The results from table 4.10 indicated that a mean of 3.00 (SD=0.65) demonstrated that use Air mode of transportation. A mean of 3.4 (SD=0.62) shows that Sea mode of raw materials transportation is also used by Sulfo. A mean of 3.61 (SD= 0.53), indicated that Road transportation model is more used by Sulfo. A mean of 2.91 (SD=0.85) which presented by 58 respondents agree with disparity that Sulfo take its products to the customers by using a propriety accommodation. It means that, Sulfo carry products to main customers who buy big number of products, like distributor, retailers etc. It is clear that Raw materials of Sulfo are transported from Suppliers to Sulfo Industry by using two main modes than others: Sea mode and Road mode as it is show by related means above in table.

Perception of respondents on effect of order processing on logistics and quantity of goods

Table 8. Perceptions of respondents on order processing

Variables	N	Mean	Std. Deviation	Comments
There is no problem in current ordering process between different parties.	58	3.89	0.55	Strong Heterogeneity
Thus, Sulfo has sufficient use of information system	58	4.00	0.50	Strong Heterogeneity
Sulfo has standard order booking format	58	3.90	0.65	Strong Heterogeneity
Overall Mean		3.93		

Source: Primary data 2019

The respondents strongly agree and in agreement that there is no problem in current ordering process between different parties. This is indicated with a mean of 3.89 and a standard deviation of 0.55.

The respondents were asked if Sulfo has sufficient use of information system by a mean of 4.00 interpreted as strong and the respondents gave their opinion in a current manner with a standard deviation of 0.50.

Most of respondents agree that Sulfo has standard order booking for, this is presented with a mean of 3.90 interpreted as strong agree and the respondents gave their opinion in a current manner with a standard deviation of 0.65. Overall mean given were 3.93 interpreted as strong agree. It is clear indication that Logistic is practicable by Sulfo Industry in supply chain process.

Perception of respondents on logistics

This section presents the employees ‘perception of employees on supply chain. The variable analysed in this section: Technology, Customers services, Transportation management performance, Logistic in supply chain. The 58 respondents were asked to rate each statement concerning their perception on above variable

Table 9. Perceptions of respondents on Logistic

Variables	N	Mean	Std. Deviation	Comments
Sulfo manage goods from supplier up to final products.	58	3.89	0.55	Strong Heterogeneity
Sulfo plan for supply chain	58	4.00	0.50	Strong Heterogeneity
Sulfo, implement, and controlling the efficient, effective flow and storage of goods, services	58	3.90	0.65	Strong Heterogeneity
Overall Mean		3.93		

Source: Primary data 2019

The respondents strongly agree and in agreement that Sulfo manage goods from supplier up to final products. This is indicated with a mean of 3.89 and a standard deviation of 0.55. The respondents were asked if Sulfo plan for supply chain and their views were presented by a mean of 4.00 interpreted as strong and the respondents gave their opinion in a current manner with a standard deviation of 0.50.

Most of respondents agree that Sulfo, implement, and controlling the efficient, effective flow and storage of goods, services, this is presented with a mean of 3.90 interpreted as strong agree and the respondents gave their opinion in a current manner with a standard deviation of 0.65. Overall mean given were 3.93 interpreted as strong agree. It is clear indication that Logistic is practicable by Sulfo Industry in supply chain process.

Perception of respondents on Quantity of goods

Table 10. Perception of respondents on Quantity of goods

Variables	N	Mean	Std. Deviation	Comments
Based on sufficient raw materials, Sulfo offer sufficient products on market	58	2.00	0.81	Weak Heterogeneity
Sometimes, Sulfo suffer for lack of raw materials.	58	4.44	0.42	Strong Homogeneity
All raw materials of Sulfo Come from outside of the country.	58	3.55	0.49	Strong Homogeneity
Overall Mean		3.33		

Source: Primary data 2019

The results from table 4.8 demonstrated a cumulative mean of 2.00(SD= 0.81) demonstrated that the respondents weak agree that Based on sufficient raw materials, Sulfo offer sufficient products on market. A mean of 4.44(SD = 0.42) demonstrated that Sometimes, Sulfo suffer for lack of raw materials. A mean of 3.55(SD= 0.49) shows that All raw materials of Sulfo Come from outside of the country. The above statements demonstrated that Sulfo Rwanda has some difficulties on raw materials and this affect production as this presented by strong mean of 3.3

Pearson correlation coefficient between transportation on supply chain of manufacturing industries

Table 11. Pearson correlation coefficient between transportation on supply chain of manufacturing industries

		Transportation	supply chain of manufacturing industries
Transportation of raw materials	Pearson Correlation	1	0.970**
	Sig. (2-tailed)		0.000
	N	58	58
supply chain of manufacturing industries	Pearson Correlation	0.970**	1
	Sig. (2-tailed)	0.000	
	N	58	58

****.** Correlation is significant at the 0.01 level (2-tailed).

Statistically, the correlation coefficient usually ranges between +1 and -1. The correlation when is 0 shows that there is no relationship between employees involvement and job satisfaction. Therefore, when it is +1 indicates a perfect positive relationship whilst when it is -1 indicates perfect negative relationship. The correlation coefficient requires underlying the relationship between two variables. The relation as present from the Pearson correlation which shows that a positive strong impact exist between Transportation and supply chain of manufacturing industries is 0.970 when n=58 and it is a Positive strong correlation. Therefore the null hypothesis is rejecting and concluded that there is positive relationship between Transportation of raw materials and supply chain of manufacturing industries. The relation as present from the Pearson correlation which shows that a positive strong relationship exist between Transportation of raw materials and supply chain of manufacturing industries, is 0.970 when n=58 and it is a Positive strong correlation. Therefore the null hypothesis is rejecting and concluded that there is positive relationship between Transportation of raw materials and supply chain of manufacturing industries. Therefore the null hypothesis is rejecting and concluded that there is positive relationship between Transportation of raw materials and supply chain of manufacturing industries.

According the discussions above researcher confirm that there is a real positive impact between transportation and supply chain of manufacturing industries. To analyse impact of transportation on supply chain of manufacturing industry. This chapter aims at showing the summary, conclusion, and recommendations as well as areas for further research. As it has been indicated in the previous four chapters, effort were made to analyze the influence of transportation and supply chain in manufacturing industries. Before conducting the research, the researcher was asked the following questions:What is the effect of communication

technology and customer satisfaction in Sulfo Rwanda Industries?; At what extend does lead time affect cost transportation and reliability of transit time in Sulfo Rwanda Industries? How can efficiency be achieved in order processing of goods in Sulfo Rwanda Industries Ltd ?The main objective of this study was to analyse impact of transportation on supply chain of manufacturing industries at Sulfo Rwanda. Thus, the findings from chapter four above demonstrated transportation of raw material under the study have importance on supply chain of manufacturing industries. This is confirmed by a cumulative mean of 2.012, which indicated that raw materials reach Sulfo in few time of 1 to 2 weeks. It was also found that Sulfo Rwanda select supplier based on different criteria for making sure that raw materials will be derived, this is confirmed by a cumulative mean of 3.67. Concerning on mode of transportation used by Sulfo are sea transportation mode and Air mode and this is shown by a cumulative mean of 3.00. Sulfo Rwanda also maintain suppliers relationship, this is shown by cumulative mean of 3.5.Sulfo also maintain a good customer services as approved by a cumulative mean of 3.6. The findings also demonstrated that Sulfo have some weakness on inventory management as confirmed by a cumulative mean of 2.28 interpreted as weak mean. The Pearson correlations of 0.970 confirmed that there is a significant relationship between transportation of raw materials and supply chain of manufacturing industries.

Conclusion

Based on the findings the researcher concluded that transportation has impact in supply chain of manufacturing industries at Sulfo Rwanda. The main objective of this study was to determine if there is impact of transportation on supply chain of manufacturing industries at Sulfo Rwanda. After analysing the data collected at Sulfo Rwanda, the research findings indicate that there is an impact of transportation of raw materials in supply chain of manufacturing industries at Sulfo Rwanda. Though the quality and quantity of products at Sulfo serve as key competitive advantages on the market, the findings demonstrate that Sulfo supply chain should be characterized by reliability and competitive transit time of raw materials from suppliers not taking a time which is beyond 4 weeks depending where it's come from. Using the Pearson correlation, it was found that transportation of raw materials correlate to supply chain of manufacturing industries at Sulfo Rwanda. Therefore, the conclusion was taken that the transportation of raw materials has significant influence on supply chain of manufacturing industries at Sulfo Rwanda. After analysing the data collected at Sulfo Rwanda, the research findings discovered that Sulfo use Air and sea mode of transportation of raw materials and it does not go beyond two weeks from anywhere supplier is. And supplier chain process is going well even if they are some weakness for inventory management. Therefore, the conclusion was taken that transportation of raw materials have significant influence on supply chain of manufacturing industries. In terms of sufficiency, the cost aspect is to be revised, given that Sulfo Rwanda relies much on transportation by air which is colstly compared to other transportation.

Recommendation

Growth as one of the key preconditions to survive in the market is forcing companies to compete on international market and at the same time defend domestic market, share from international competitors. The result of that is increased complexity of supply chains, pressure to decrease cost and improve service level. To cope with the complexity and increased customer requirements, Sulfo management should be active for the supply chain and prerequisite. Sulfo management should empower the planning and control of activities in supply chain process. Sulfo management should continue to building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and

measuring performance globally, providing on having sufficient raw materials which are used in production, by finding others suppliers so that in case they is shortage of raw materials, others suppliers provide. The improvement of the procurement plan can help in terms of reducing the cost related to transportation by air by substitution to maritime and road transportation which is cheaper. Finally, Sulfo should manage production cost for getting high profit

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