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Investigating the impact of supply chain management on customer relationship management and product marketing

Abstract. The present study seeks to find the mutual effect of supply chain management (SCM) and customer relationship management (CRM) in a commercial company on the level of marketing and sales. In order to answer the research questions and also to achieve the research objectives, after reviewing the research literature and finding different dimensions of SCM and CRM variables, the research design and method were determined. After operational definitions and creating a questionnaire to measure the dimensions of the aforementioned variables, 220 employees from different agricultural product manufacturing companies were selected and a questionnaire was presented to them in the period of 2023-2024. Using structural equation modeling (LISREL), various structural models were implemented until the best structural model was selected from among the implemented models. After implementing the model, the final research model that had better fit indices than other models was selected. The results obtained show that all the described variables and the relationships between them are direct, and by strengthening and optimizing each of them, the other variable is mutually improved. By increasing the level of trust in SCM, customer retention and care are improved, and also, conversely, improving customer care leads to increased trust in SCM and marketing. Hence, the different dimensions of CRM and SCM synergistically influence and reinforce each other. Also, a positive and significant link of CRM, SCM, and marketing ($P > 0.05$) was found in our study.

Keywords: Supply Chain Management; SCM; CRM; Customer Relationship Management; Production; Marketing; Online Shopping
JEL Classifications: E24; E41; E64; I18; J28; J31

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1. Introduction

SCM is a network of connections between all components of the system, from production to sales and after-sales service, which has a tremendous impact on sales volume, satisfaction, and system transparency (Emon et al., 2024; Lazic et al., 2023). Successful design and implementation of supply chains leads to cost reduction, improved flexibility, increased quality, and ensures customer satisfaction.

In the context of dynamic SCM, continuous performance improvement is a critical issue to stay competitive. Supply chain companies employ various performance policies to enhance their SCM (Cheshmeh et al., 2023). A complex performance management system consists of a number of management processes, such as identifying measurement needs, setting goals, planning, reporting, and feedback. These processes are embedded in most of the outputs of the information system. Managers need to identify the key performance indicators that need improvement. Determining priorities within a given set of key performance indicators is a bottleneck for companies trying to improve their supply chain management (Mohammed et al., 2024).

The main objective of marketing scenario is on the appropriate link of resources and activities to reach the company's objectives in terms of a specific market/product. Hence, the critical issue in the realm of marketing strategy is to determine the specific target market(s) for a determined products. Then, companies seek to gain competitive advantage and create synergies by desig_ning and implementing an appropriate marketing mix program (basically four product mixes: product, price, distribution, and promotion) according to the needs and desires of potential customers in that target market (Kreye, 2025; Nursalim, 2021).

The key to business growth lies in its successful relationship with the customer, which involves identifying and tracking customer needs, behaviors, and life cycles, and also requires using this information to create value for the customer. The most important trends that lead to a valuable relationship with the customer are: speed of service delivery, self-service, integration, ease of use, and customer satisfaction. Trends are global issues that usually start slowly and last for about five to ten years; but as the needs of the organization and consumers increase, they quickly disperse and spread. Now, each of the above-mentioned trends will be described (Jum'a & Bushnaq, 2024; Tayeva et al., 2023):

a) Speed of service delivery. The speed of service delivery is very important to customers. Customers do not like delays and hate waiting, and the more time becomes important to them, the more they will look for organizations that provide their services faster. With the increase in the speed of service delivery, the customers' expectations for receiving more services increase. Therefore, service applications should be easy to use and have a comfortable and friendly atmosphere. Customers avoid slow and difficult business transactions (Chandrakala et al., 2023). They usually prefer self-service systems because these systems are active 24/7 and can be used to search for information and products without using sales staff.
b) Self-service. Customer interest and engagement in self-service is great in service organizations; but before self-service can become a reality, new infrastructure must be created and new protocols designed. In this case, process integration will be essential (Fernie, 2023). Self-service has caused changes in business processes. When buyers and sellers communicate directly online1, the role of intermediaries is greatly reduced. The elimination of intermediaries is considered one of the main features of e-business.
c) Providing integrated services. Instead of focusing on localized and superficial solutions that only address a part of the customer relationship, organizations need to use integrated and comprehensive tools that cover the entire relationship with the customer. Integrated solutions and services are considered an essential and vital part of any business strategy. Consumers have also moved from fragmented solutions to integrated solutions. This trend is visible in many retail stores. In these stores, customers want to get all their needs in one place and under one roof (Kunnapapdeelert & Pitchayadejanant, 2021).
d) Ease of use of the services provided. With the emergence of new trends in online shopping behaviors, companies must reduce the processing time between search, selection, order receipt and fulfillment in order to achieve success. Delays in any of the process steps cannot be

tolerated and at the same time, customer ease of use must also be fully considered; because the organization interacts with customers at different levels.

e) Customer satisfaction. A customer is someone who is responsible for making a transaction or transaction in a competitive environment and gives something and takes something in an interactive mode and customer satisfaction is the amount of emotion that he gets as a result of meeting his expectations or adding to them. Therefore, the customer, the center of the organization and the consumer, is the existential philosophy of organizations. The organization must properly understand and consider the issue of audience research, which is one of the fundamental issues in the customer-oriented culture, and update and increase the quality of products and their quantity every year in proportion to the increasing expectations of customers.

2. Method

In general, the purpose of this research is to identify the role of supply chain in improving company performance. In fact, this research seeks to examine how supply chain affects company performance through customer relationship management. The conceptual model of the research is given in Figure 1.

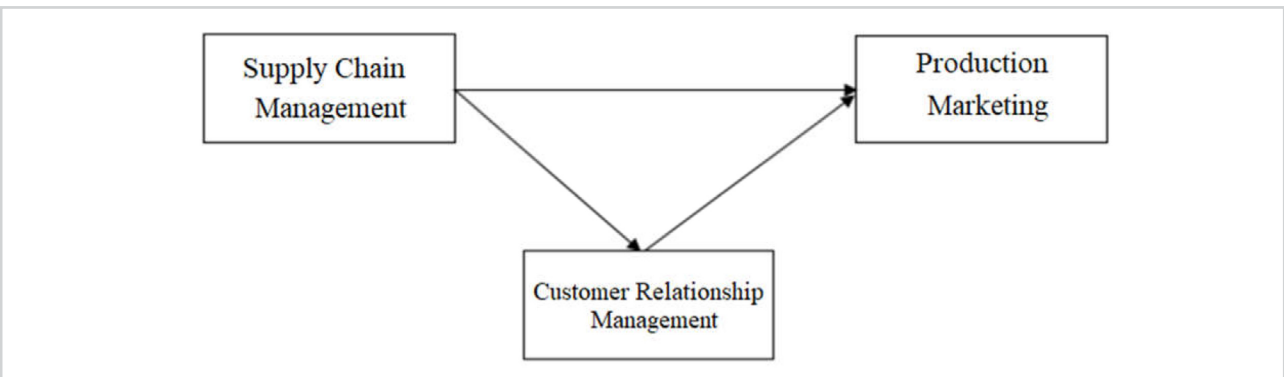

Figure 1:
Conceptual model of the research (SCM, CRM, Production Marketing)
Source: Developed by the authors

In the present study, according to the conceptual model and hypotheses, supply chain is the independent variable or exogenous latent variable and product marketing is the final dependent variable or endogenous latent variable of the research. Customer relationship management is also considered as a mediating variable. A number of questions in the questionnaire were used to measure each of the variables. The average of the questions related to each variable will determine the score of the variable. Table 1 specifies the number of questions related to each variable.

Table 1:
Research reliability test

Variable	Questions	Coefficient of reliability	AVE
SCM	12	0.87	0.73
CRM	8	0.83	0.66
Product marketing	6	0.89	0.78

Source: Developed by the authors

Given that in this study, the average variance extracted (AVE) index for all research variables is higher than 0.50, therefore, the convergent validity of the model constructs is confirmed. In addition, the findings indicate confirmation of the divergent validity of the measurement tool. Also, the coefficient of reliability (CR) for measuring reliability was obtained higher than 0.75, which indicates the stability of the measurement tool.

Hypothesis:

- SCM shows a positive and significant impact on the performance of manufacturing companies through CRM.
- SCM has an impact on product marketing
- SCM has an impact on CRM.
- CRM has an impact on product marketing.

The present research is applied in terms of its research objective, which is directed towards the practical application of knowledge and results to solve the problem. The research is descriptive in terms of data collection method and is of the causal-comparative branch. The implementation of this research requires theoretical and field studies, therefore, the necessary information in the field of theoretical foundations was collected in the form of a library, and the data required for this research was collected, categorized, and analyzed through a researcher-made questionnaire. The purpose of this study is to measure phenomena that are not directly observable, in which the survey is considered as a suitable way to obtain findings from a large population at one time. Also, questionnaire adaptation and delivery were used in this study. In the present study, descriptive and inferential analysis methods were used to analyze the data obtained in the study. In the descriptive analysis, the demographic status of the statistical population will be examined. In the inferential part of the study, after determining the normality of the data using the Kolmogorov-Smirov test (Nayal et al., 2023), correlation tests are used to express the relationship between the research variables. The structural equation model was used to examine the relationships between the research variables. The desired analyses are performed using SPSS and Smart Plus software.

3. Results

This section analyzes the distribution of the statistical sample resulting from the distribution of the questionnaire in terms of demographic variables. Gender and developments are among the variables whose distribution among the respondents to the questionnaire has been examined. 32 people, equivalent to 14.5% of the respondents, are female and 188 people, equivalent to 85.5% of them, are male. 38 people, equivalent to 17.3% of the respondents have a post-diploma education; 89 people, equivalent to 40.4%, have a bachelor's degree; 76 people, equivalent to 34.5%, have a master's degree and 17 people, equivalent to 7.7%, have a PhD degree.

After describing the variables and responses obtained from the statistical population, this section examines the hypotheses proposed and the statistical test used in the research. In order to analyze the findings, the validity and invalidity of the hypotheses can be examined statistically. Before any test, a normality test must be performed. First, the skewness and kurtosis of the data are tested. Table 2 shows the skewness and kurtosis of the research variables.

Table 2:
Skewness and Kurtosis of variables

	SCM	CRM	Product marketing
Skewness	0.590	0.267	0.543
SD skewness	0.118	0.110	0.105
Kurtosis	0.913	0.645	-0.189
SD Kurtosis	0.115	0.217	0.101

Source: Authors' own findings

The observed skewness and Kurtosis values for the supply chain management variable are 0.590 and 0.913, respectively, and are in the range (-2 and 2); that is, the supply chain management variable is normal in terms of skewness and its distribution is symmetrical. The distribution of the variable also has normal elasticity. The skewness and elasticity of other variables are also in the standard normal range, which indicates the normality of the research data.

To examine the validity, the cross sectional loads of variables have been provided. As shown in Table 3, the T-test analysis is done to determine the variables interaction. It was done by PLS to evaluate the structural model of the variables.

The path coefficient for all three variables shows a direct and positive relationship. The highest path coefficient and t-statistical value for the effect of SCM on CRM are 0.847 and 12.879, respectively, which indicate a direct effect and an index of SCM on CRM. As a result, all research hypotheses are confirmed.

Table 3:
T-test statistic of variables

	Path Coef.	*T*-value	*p*-value	Results
SCM-Product Marketing	0.701	7.265	0.019	confirm
SCM-CRM	0.847	12.879	0.000	confirm
CRM-Product Marketing	0.681	10.451	0.002	confirm

Source: Authors' own findings

4. Conclusion

Globalization and technological advancement have led to intense competition among companies, and in the competitive arena, successful businesses will be those that can compete with other competitors, which requires a greater focus on customer needs and meeting their expectations. In this paper, the impact of supply chain management through customer relationship management on product marketing was evaluated. The results showed that today's business is not only about development and improvement, delivery and sales, but also about maintaining and nurturing long-term relationships with customers. In the analysis of the first hypothesis, given that ($p < 0.05$), the main hypothesis of the significance of the regression model was confirmed and there is a significant relationship between the alignment of marketing strategies in the marketing mix dimension with the supply chain and supply chain performance. One of the major advances in today's business practices is the increase in profits and efficiency as a result of customer satisfaction and improvement in supply chain management. If production-commercial units focus on new customers, they will focus more on retaining and maintaining customers and increasing the value of the customer's life cycle. In other words, a business that does not meet customer expectations and does not have a stable and dynamic relationship with customers in the long term will disappear from the global competitive scene in the long term. In the present era, the way of interactions between organizations has changed. These rapid changes in the global environment with high demand and, conversely, abundant supply require companies to quickly integrate customer relationship management and supply chain management with the new situation in order to respond to today's market.

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