

The Role of Supply Chain Management toward Performance of Manufacturing Companies in Yemen

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Abstract— Supply chain management plays a major role in industrial companies, with strengthen collaboration among their suppliers and customers. The main aims of his paper, is to examine the role of Supply Chain Management Capabilities- SCMC toward industrial companies performance in Yemen. Top and middle managers were asked to answer the questionnaire, which drawn from a geographical clustered sample. Thirty nine manufacturing were surveyed in five governorates. To examine the role of SCMC towards industrial companies hypothesis testing employed correlation. The findings showed a significant positive relationship at statistical significant level ($\alpha \leq 0.05$) between outside-in capabilities and inside-out capabilities, inside-out capabilities and companies' market performance only, and spanning capabilities with both outside-in capabilities and company's performance.

Keywords— Supply chain management Capabilities, Manufacturing Performance, Yemen, Field Study.

1. Introduction

To ensure continuous competitiveness, companies must acknowledge the importance of supply chain toward their performance, it also create value through the way of making optimal customer satisfaction and helping to improve the overall performance of a business significantly [1]. [2] Justified that supply chain management (SCM) is a complex serving to be an important determinant of the success or failure of any manufacturing enterprise.

Study's aim is to examine the role of SCMC toward manufacturing companies' performance in

Yemen, as these manufacturing companies are seeking to secure the competitive position and improve organizational performance.

Industrial companies play an important role it in Yemeni economy as indicated by the following facts number of employs in the industry sector was (162750) employee and export volume for the industry sector was (9.85%) of the total exporting volume in 2005 (Central Statistical Organization, 2005). Furthermore, manufacturing described by its vigorous weaknesses and propriety nothingness of the vertical and horizontal level, and it doesn't have forward and backward linkage like what is known in strong and effective manufacturing. It largely depends on imported intermediate and raw material in production. Also, it faces much external and internal strangulation and challenges which form constrain of its prosperity and developing [3]-[4].

In addition to that, there is wake role of forward and backward interrelation in national economic in general and manufacturing sector in particular. Thus, it is necessary to adopt broad and extensive motive system directed to motivating manufactures that are depending on local raw material, labours density, and forward and backward interrelation and integration with other national economic sectors[5]. Due to The dearth of empirical research effort on the capability of supply chain management and its linkage to business performance in Yemen [3] [5] [4]. This research will examine SCMCs' role toward Yemeni Industrial companies. In the following, it will present related literature, methodology, and findings followed by conclusions.

2. Literature Review

2.1 Supply Chain Management

Being a complex subject, the SCM is an important determinant of the success or failure of any manufacturing enterprise [2]. It evaluates the operational strategies that affect the various aspects and it looks into the flow of goods and services in the supply chain to boost the profitability [6]. The integration of key business processes from end user through original suppliers provides products, services, and information that add value to not only the customers but also to other stakeholders [7]. First used in the early 1980s [8], the term SCM refers to the alignment of firms that bring products or services to market [7] which include the transporters, warehouses, retailers, and customers themselves [9]. To remain effective in today's competitive environment, firms must expand their integrated behaviour to bring customers and suppliers together [10], ensure superior supply chain management's impact on a firm's operational and financial performance [11], its' capabilities serve as a source of competitive advantage and, also account for the durability of these advantage [12]. Companies have to practice SCMC for their advantages and future growth, even though obstacles are inevitable when it comes to executing the supply chain management within their context [3].

2.2 Supply Chain Management Capabilities

For competitiveness, organizations must acknowledge the importance of supply chain management toward business performance, it also create values by optimizing customer satisfaction and helping to improve the overall performance of a business in a significant way [1]. The concept of capabilities and building distinctive capabilities or competencies were established by [13]. Capabilities and organizational processes were very much related because it is the capability that enables the activities in a business process to be done [14].

Thus, the capability and its strategic importance lies in their demonstrable contribution to sustainable competitive advantages [12]. Supply chain capabilities refer to the ability of an organization to recognise, use, and merge both

internal and external resources information to help smooth along the entire supply chain activities [15].

Similarly, Day [14] mentioned that every company planning to be a "market-driven organization" must sustain certain distinctive capabilities regardless of the industry in which it competes, and classified supply chain management capabilities into three categories, adopted by [16]. These three classifications are' *First* Outside-in processes capabilities; denoting the group of capabilities that enables the company to rival with one another by forecasting and acting on changes in markets through the development of very strong relationships with suppliers, channel members, and customers. *Second*, Inside-out processes capabilities refer to those internal capabilities that allow the firm to manifest the opportunities in the environment. Alternatively, they facilitate the company acting on information in a manner that adds value to customers and assures the organization viability in the long run. *Third*, Spanning processes capabilities have to do with the processes that lend support to the anticipated needs of patrons, fulfilled by the business. They do so primarily through the integration of the outside-in and inside-out capabilities [17]-[18]-[19].

2.2.1 Outside-in Capabilities (OIC)

Businesses today often have tangible assets, but not having the underlying capabilities required them to be successful [19]. Day [14] linking the organization with its environment, to allow the business to be anticipatory and responsive to fulfil customers' needs with regard to the quality, product features, and delivery arrangements. Although physical distribution and logistics spanning activities have outside-in elements, the SCM/logistics processes commonly regarded as physical supply fit best in Day's outside-in classification. These processes taking place before or during the production process as potential distinctive outside-in capabilities are: Inbound transportation, material warehousing, inventory control (inputs), and production support [16].

2.2.2 Inside-Out Capabilities (IOC)

An organisation has the main aim of satisfying its customers, as a satisfied customer may be likely to repurchase and refer additional business to the firm

[20]. Customers are satisfied if they receive the products and they ask for together with good delivery service [21]-[22]. Building a reputation consequently promotes long-term prosperity by creating a base of loyal customers who will account for a high proportion of sales and profit growth through time [5]. Based on Day [14]-[16] suggested that the processes performed to transform the raw materials and the component parts into the finished product are called inside-out capabilities construct that consists of packaging, finished goods warehousing, among others.

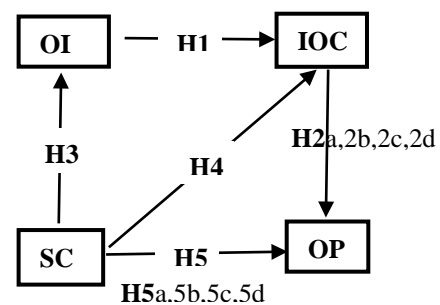
2.2.3 Spanning Capabilities (SC)

Day [14] states that spanning capabilities ensure that the organization's processes emphasise the act of providing superior value to external or internal customers. The spanning capability sheds light on the development of the information dissemination capabilities within the supply chain as a very important factor to gather and exchange the different data in the supply chain for developing its strategy [23]. These capabilities give the horizontal connections that ensure the resources available in the supply chain. Purchasing, customer order processing, and strategy development are categorized by Day [14] as being included in the spanning processes. Information dissemination has been acknowledged as a crucial component of SCM as logisticians pay attention towards providing superior service to both internal and external clients [24]. The dissemination of information across an organization's supply-chain which is thought to be very timely, helps it to respond in a positive way to opportunities uncovered in the environment. Information dissemination will be regarded here as a fourth SCM/logistics spanning process.

1.3 Organizational Performance (OP)

Organizational performance can be measured based on financial and market indicators such as market share, return on investment, profit margin on sales, overall of competitive position and the growth of market share, and return on investment [25]. There is a direct link between the SCM practices and the organizational performance, some studies emphasized on operational measures, while others stressed on financial measures [26]. The financial measures and non-financial measures in terms of customer satisfaction and cycle time are equally

important, and there are no significant differences between them in identifying the performance of the procurement function [27]. Furthermore, [28] stated that supply chain strategy has a significant and positive relationship with the financial performance and with the marketing performance. Also, [29] in their study findings from customer point view, found that, there is a significant relationship between supply chains and both of the time delivery and market share, whereas there is an insignificant relationship between supply chains and the rate of damages in shipments that transporting to the customers. In same context, some of researchers found that supply chain partners can extend their partnership further in order to increase the profit, to reduce the lead time and to improve the customers' satisfaction [30]. Supply chain management in the companies which have a high maturity in the practices, processes and strategies and achieving low level of volatility are significantly correlated with their financial performance [31]. Furthermore, inventory management practices have a positive relationship with financial performance [32], and with both of the organizational effectiveness and profitability [33]. Therefore, this research aims to examine the role of SCMC on organizational Performance in manufacturing companies in Yemen. Figure 1.1 shows the research framework.



3. Methodology

This research used a quantitative approach to examine the role of SCMC practices toward companies' performance in Yemen which represent population of this study. A sample is taken on a geographical cluster from five governorates in Yemen to represent this population, with considering each organization must be in business for at least 5 years, must be classified as a large organization (25 employees and more) [3]-[4]-[34]. Due to important of this sector toward Yemeni

economy as it represent 9.85% of the total exporting volume and employed 162750 [34]. Then the researcher adopted instrument 5-point Likert Scale that measure SCMC from [16]. Total of (48) questionnaires were distributed to the study sample and collected back. Out of the (48) questionnaires, only (39) of them were suitable for statistical analysis. The reliability of an instrument indicates the stability and consistency with which it measures the concept. The most popular test of reliability is Cronbach's alpha which measures the internal consistency of an instrument. The questionnaire was exposed to this test, and Table 1. Demonstrates the results found. The results show that, Alpha value for all study constructs was more than (60%) which represent satisfactory value to analyse the results depending on the current instrument measure [35].

4. Findings

Depending on study's objectives and problems five main hypotheses have been stated. Hypotheses number two and five have four subsidiaries hypotheses for each. For testing these hypotheses Pearson's correlation coefficient is used to find the relationship between them, with considering the statistical significant level (P- Value) to be ($\alpha \leq 0.05$).

4.1 First Hypothesis: There is a significant positive relationship between outside-in capabilities, and inside-out capabilities for Yemeni industrial companies. Due to emphasize the hypothesis one, Pearson's correlation coefficient was applied, table (1.1) shows that.

Table (1.1) Pearson's correlation coefficient between Outside-in Capabilities, and Inside-out Capabilities.

Ind. Variable	Outside-In Capability	
	Correlation Coefficient	P-value
Inside-out Capability	0.531	0.000

Depending on results showed in table (1.1), the positive correlation coefficient is (.531) with P-value (0.000). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$). This means

that when the outside-in capabilities increase, the inside-out capabilities also tends to increase.

4.2 Second Hypothesis: There is a significant positive relationship between IOCs, and (a) level of perceived customer value, (b) customer loyalty, (c) market performance, and (d) financial performance for Yemeni industrial organizations. To test this hypothesis, it is separated to four subsidiaries hypotheses. For emphasize the hypothesis two, Pearson's correlation coefficient was applied to find the relationship between inside-out capabilities (independent variables), and performance indicators (dependent variables). Table 1.2 shows that.

Table (1.2) Pearson's correlation coefficient between inside-out Capabilities, and Firm Performance.

Ind. Variable	IOCs	
	Correlation Coefficient	P-value
(a) Perceived Product Value	0.299	0.061
(b) Customer Loyalty	0.190	0.241
(c) Market Performance	0.355	0.025
(d) Financial Performance	0.160	0.323

H2a: There is a significant positive relationship between organizations' inside-out capabilities, and level of perceived product value. Depending on the results showed in table 1.2. The positive correlation coefficient is (%29.9) with P-value (.061). So, we reject the hypothesis at statistical significant level ($\alpha \leq 0.05$).

H2b: There is a significant positive relationship between organizations' inside-out capabilities, and customer loyalty. Depending on the results showed in table 1.2. The positive correlation coefficient is (%19.0) with P-value (.241). So, we reject the hypothesis at statistical significant level ($\alpha \leq 0.05$).

H2c: There is a significant positive relationship between organizations' inside-out capabilities, and market performance. Depending on the result showed in table 1.2. The positive correlation coefficient is (%35.5) it represents weak positive relationship with P-value (.025). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$).

H2d: There is a significant positive relationship between organizations' inside-out capabilities, and financial performance. Depending on the results are showed in Table 1.2. The positive correlation coefficient is (%16.0) with P-value (.323). So, we reject the hypothesis at statistical significant level ($\alpha \leq 0.05$). Briefly, this means if the inside-out capabilities increased, only the market performance tends to increase.

4.3 Third Hypothesis: There is a significant positive relationship between spanning capabilities, and outside-in capabilities. Due to emphasize of the hypothesis three, Pearson's correlation coefficient was applied, table 1.3 shows that.

Table 1.3 Pearson's correlation coefficient between Spanning Capabilities and Outside-In Capabilities.

Ind. Variable Dep. Variable	Spanning Capability	
	Correlation Coefficient	P-value
Outside-In Capability	0.434	0.005

As showed in table 1.3. The positive correlation coefficient is (%43.4) with P-value (0.005). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$). This means that when the spanning capabilities increase, the outside-in capabilities also tend to increase.

4.4 Fourth Hypothesis: There is a significant positive relationship between organizations' spanning capabilities, and inside-out processes. For emphasize the hypothesis four, Pearson's correlation coefficient was applied, table 1.4 shows that.

Table (1.4) Pearson's correlation coefficient between Spanning capabilities, and Inside-out Capabilities.

Ind. Variable Dep. Variable	Spanning Capability	
	Correlation Coefficient	P-value
Inside-Out Capability	0.357	0.024

Depending on result is showed in table 1.4. The positive correlation coefficient is (%35.7) with P-value (0.024). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$). This means that when the spanning capabilities increase, the inside-out capabilities also tend to increase.

4.5 Fifth Hypothesis: There is a significant positive relationship between organizations spanning capabilities, and level of (a) perceived customer value, (b) customer loyalty, (c) market performance, (d) financial performance the firm will experience. To test this hypothesis, it is separated to four subsidiaries hypotheses, and Pearson's correlation coefficient is used to find the relationship between spanning capabilities (independent variables), and performance indicators (dependent variables). Table 1.5, shows that.

Table 1.5 Pearson's correlation coefficient between Spanning capabilities, and Firm Performance.

Ind. Variable Dep. Variables	Spanning Capabilities	
	Correlation Coefficient	P-value
(a) Perceived Product Value	.796	.000
(b) Customer Loyalty	.780	.000
(c) Market Performance	.455	.003
(d) Financial Performance	.575	.000

Table 1.5 shows there is a positive relationship between spanning capabilities and business performance at statistical significant level (0.05), while positive correlation coefficient reached (0.882) by significant level (P-value) (0.000). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$). But for sub hypothesis five shows the following:

H5a: There is a significant positive relationship between organizations' spanning capabilities, and level of perceived product value. Depending on result showed in table 1.5. The positive correlation coefficient is (%79.6) with P-value (.000). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$).

H5b: There is a significant positive relationship between organizations spanning capabilities and customer loyalty. Depending on results showed in table 1.5 that positive correlation coefficient is (%78.0) with P-value (.000). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$).

H5c: There is a significant positive relationship between organizations' spanning capabilities, and market performance. Depending on result showed in table 1.5. The positive correlation coefficient is (% 45.5) with P-value (.003). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$).

H5d: There is a significant positive relationship between organizations' spanning capabilities and financial performance. Depending on result showed in Table 1.5. The positive correlation coefficient is (%57.5) with P-value (.000). So, we accept the hypothesis at statistical significant level ($\alpha \leq 0.05$). This means that when the spanning capabilities increases, the perceived product value, customer loyalty, market performance, and financial performance tend to increase.

5. Conclusion

Conclusions from first hypothesis of study sample. There is a significant positive relationship between practicing outside-in capabilities and practicing for inside-out capabilities this. If outside-in capabilities practicing level is increased the level of practicing inside-out capabilities will increase.

Conclusions from second hypothesis. There is no a significant positive relationship between organization's inside-out capabilities with level of perceived product value and customer loyalty. However, there is a significant positive relationship between organization's inside-out capabilities with market performance and financial performance.

Conclusions from third hypothesis. There is a significant positive relationship between spanning capabilities and outside-in capabilities.

Conclusions from fourth hypothesis. There is a significant positive relationship between spanning capabilities and inside-out capabilities.

Conclusions from Fifth hypotheses. There is a significant positive relationship between spanning capabilities with level of perceived product value, customer loyalty, market performance, and financial performance.

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