

Dependency of Organizational Performance on Supply Chain Management Processes: a Study on Base Technologies

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Abstract:

Individual specialized products or services alone cannot make the organization market leader in modern competitive business world. Companies must focus on intricate network of business relationships for achieving sustainable development as well as ultimate success for the organization. Supply Chain Management (SCM) helps organizations in coordinating and collaborating between internal as well as external entities. Over the last decade the concept of SCM has achieved much popularity. This study conceptualizes four dimensions of SCM practice (customer relationship management, order fulfillment, supplier relationship management, product development & commercialization) and tests the relationships with organizational performance. Data for the study was collected by conducting a survey in BASE Technologies, an entity with unique combination of EPC (Engineering, Procurement and Construction) Contracting and Systems Integration ability and the required relationships were tested using statistical techniques. The results suggest that appropriate SCM practice can lead to improved organizational performance in many folds. Structural equation model suggests that there is a strong correlation between supplier relationship management and product development and commercialization on Financial Measurement of

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Organizational Performance whereas product development and commercialization has strong positive impact on non-financial performances of the organization. These results have value to both the academic and business worlds as they provide verification of the widely held belief of the value of effective SCM.

Key words: Supply Chain Management, Organizational Performance, Supplier Relationship Management, Customer Relationship Management

INTRODUCTION

At present, organizational performance depends on marketing success which ultimately depends on supply chain performance. Today, competition amongst the companies exists outside the organizations in addition to the quality of the product. In the globalized world, customers are money rich but time poor that is why availability of the products and services are the core competences of the organization. To develop more effective strategic plan for the organizations, effective SCM is required for all organizations. Today world economy is dominated by services sector and many countries including Bangladesh is shifting from manufacturing based economy to service based economy. Today, the largest share of Gross Domestic Product (GDP) in developed countries is accounted by the service sector. Above and beyond, the major employment opportunities in developed and developing countries are also largely contributed by service sector. Economic growth of Bangladesh is compiled of three main sectors which are: a) Agriculture (18.64%) b) Industry (28.61%) and c) Service (52.76%). In the era of the competition, services sector face severe competition in terms of distribution efficiency. Today supply chain management is more competitive as competition in the 1990s intensified and markets became global, so did the challenges associated with

getting a product and service to the right place at the right time at the lowest cost. Effective management of supply chain is an utmost requirement for the survival in the market place. Moreover, services sector has been shifted from labor intensive to technology intensive service sector. Some of the traditional participants of the supply chain have disappeared whereas some of the new participants in the process have been emerged. Practice of SCM is different in manifold in service industry like Base Technology Ltd than same in traditional manufacturing companies. This study intends to explore the SCM practice along with its impact on organizational performance.

METHODOLOGY

This is an applied research as it aimed in finding out the relationship between four selected supply chain variables with organizational performance. Again from the objective view point, this is an explanatory research where both qualitative and quantitative methods have been used. This research has been conducted in Base Technology with a questionnaire survey method. A convenient sample yet maintaining proper representation of 65 respondents who are directly or indirectly involved in supply chain of this organization was selected for this study. Both content and correlation analyses were made in order to understand the correlation between selected supply chain variables (independent) and organizational performance (dependent variable). Finally the study tested four hypotheses with appropriate testing tools. Use of Structural Equation Model has been made to find out the impact and interrelationship of four independent variables including Customer Relationship Management, Supplier Relationship Management, Order Fulfillment and Product Development and Commercialization on two dependent variables i.e Financial Performance and Non Financial Performance.

BASE Technology is an entity with unique combination of Contracting and Systems Integration ability with a vision 'To harness the full potential of technology for the benefits of humanity and to ensure the best use of it'. They do wide range of consulting and provide technology services. They aim of being one of the strongest integrated providers of a wide range of services including Consulting, Designing, Engineering, Procurement, Construction with Fabrication and Systems Integration. They provide reliable solutions while maintaining a relentless focus on commitment and uncompromising standard of quality. Their partners, clients, employees and all stakeholders choose to work with BASE Technologies for their unique business values and "everybody wins" culture. They do amazing things. Their people do amazing things to help businesses, government, nonprofits and different communities to solve their toughest challenges. They are capable in providing customized services in the area of Procurement, Construction, Fabrication, Project Management and Consulting, Engineering and Planning & Design etc.

RESULT

The goal of this research project was to determine if four dimensions of SC practices (customer relationship management (CRM), order fulfillment (OF), supplier relationship management (SRM), product development & Commercialization (PD&C)) are related to organizational performance. The organizational performance has been considered on both financial and non-financial measures. This chapter summarizes the findings of a survey conducted on 65 executives of BASE Technologies. 65 surveys were distributed and 59 surveys were returned and of those 59 surveys 52 were deemed usable (n = 52). Parameters (mean and standard deviation) for each variable (CRM, OF, SRM, PD&C,

organizational performance) were estimated using the response data sample ($n = 52$). All data were analyzed using the SPSS software package in evaluating the hypotheses.

In order to measure relationships between each of the four SC practices to organizational performance, a Pearson correlation coefficient was calculated. Pearson correlation is a measure of the correlation (linear dependence) between two variables X and Y, giving a value between +1 and -1 inclusive (Nunnally, 1978). The larger the absolute value of the correlation coefficient, the stronger the relationship. The calculation has been given in Appendix 1.

HYPOTHESIS ONE

Based on non-financial measures, the resulting Pearson correlation coefficient for the response data sample ($n = 52$) was .334, means there is positive correlation between CRM and OP, which supported hypothesis 1. The Sig. (2-Tailed) value is 0.016. This value is less than 0.05. Because of this, we can conclude that there is a statistically significant correlation between CRM and OP.

And based on financial measures, the resulting Pearson correlation coefficient for the response data sample ($n = 52$) was 0.225, means there is positive correlation between CRM and OP, which supported hypothesis 1. The Sig. (2-Tailed) value is 0.109. This value is greater than 0.05. Because of this, we can conclude that there is no statistically significant correlation between CRM and OP.

HYPOTHESIS TWO

Based on non-financial measures, the resulting Pearson correlation coefficient for the response data sample ($n = 52$) was 0.228, means there is positive correlation between OF and OP,

which supported hypothesis 2. The Sig. (2-Tailed) value is 0.104. This value is greater than 0.05. Because of this, we can conclude that there is no statistically significant correlation between OF and OP.

And based on financial measures, the resulting Pearson correlation coefficient for the response data sample ($n = 52$) was 0.177, means there is positive correlation between OF and OP, which supported hypothesis 2. The Sig. (2-Tailed) value is 0.208. This value is greater than 0.05. Because of this, we can conclude that there is no statistically significant correlation between OF and OP.

HYPOTHESIS THREE

Based on non-financial measures, the resulting Pearson correlation coefficient for the response data sample ($n = 52$) was 0.413, means there is positive correlation between SRM and OP, which supported hypothesis 3. The Sig. (2-Tailed) value is 0.002. This value is less than .05. Because of this, we can conclude that there is statistically significant correlation between SRM and OP.

And based on financial measures, the resulting Pearson correlation coefficient for the response data sample ($n = 52$) was 0.156, means there is positive correlation between SRM and OP, which supported hypothesis 3. The Sig. (2-Tailed) value is 0.268. This value is greater than 0.05. Because of this, we can conclude that there is no statistically significant correlation between SRM and OP.

HYPOTHESIS FOUR

Based on non-financial measures, the resulting Pearson correlation coefficient for the response data sample ($n = 52$) was 0.407, means there is positive correlation between PD&C and

OP, which supported hypothesis 4. The Sig. (2-Tailed) value is 0.003. This value is less than 0.05. Because of this, we can conclude that there is statistically significant correlation between PD&C and OP.

And based on non-financial measures, the resulting Pearson correlation coefficient for the response data sample (n = 52) was 0.301, means there is positive correlation between PD&C and OP, which supported hypothesis 4. The Sig. (2-Tailed) value is 0.030. This value is less than 0.05. Because of this, we can conclude that there is statistically significant correlation between PD&C and OP.

STRUCTURAL EQUATION MODELING

Structural Equation Model has been used to find out the impact of independent variables i.e Supply Relationship Management, Customer relationship Management, Order Fulfillment and Product development and Commercialization on dependent variable i.e Organizational Performance (Financial and Non Financial). This model has also been used to find out the interrelationship among the independent variables so explained above. The graphical representations of two models have been given below:

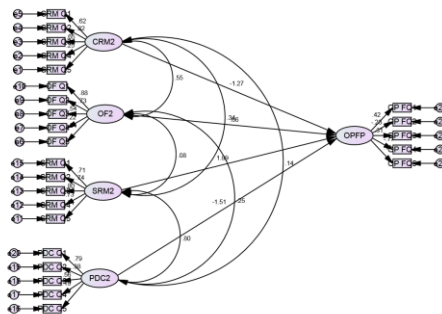


Figure 1: SEM on Financial Performance

From the above structural equation model, it has been observed that SRM has strong relationship with the organizational performance (financial). There are covariance amongst the construct i.e. CRM, OF, SRM and PDC. From the structure, it has also been found that there is a strong correlation between supplier relationship management and product development and commercialization which is expressed in coefficients of the relationship is 0.80. The relationship between customer relationship management and order fulfillment is also remarkable. Developing a CRM process team is the largest contributor to CRM system. Order fulfillment team is also largest contributor to order fulfillment which ultimately lead to organizational performances. Criteria used in segmenting the suppliers are the major contributor to the supplier relationship management. On the other hand, corporate strategy strongly influences the product development and commercialization which ultimately lead to financial performance of the organization.

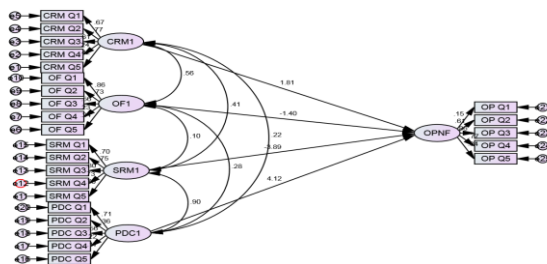


Figure 2: SEM on Non Financial Performance

From the analysis, it has been observed that Product development and commercialization has strong positive impact on non-financial performances of the organization. Besides these, CRM is the second position which has positive impact on non-financial performance of the organization. Retaining strategy is the major contributor to the non-financial

performance of the organization and structural performance appraisal system also contributes to the non-financial performance of the organizational performances. If we compare, product development and commercialization has more effect on nonfinancial performance of the organization than other variables.

DISCUSSION

Organizations began to realize that it is not enough to improve efficiencies within an organization, but their whole supply chain has to be made competitive. They now realize that understanding and implementing effective SCM practices is an essential prerequisite to profitably competing in a global marketplace (Power et al., 2001; Li et al., 2005). To find out the link between supply chain and organizational performance, Tan, Kannan, Handfield & Ghosh (1999) attempted to link certain SCM practices with firm performance. In particular, they examined the effects of quality management, supply base management and customer relationship practices on firm financial performance. They found that some aspects of quality management - use of performance data in quality management, management commitment to quality, involvement of quality department, and social responsibility of management -- all were positively related to firm performance. On the other hand, Boddy, Cahill, Charles, Fraser-Kraus, and Macbeth (1998) found that more than half of the respondents to their survey considered that their organizations had not been successful in implementing supply chain partnering; Spekman, Kamauff, and Myhr (1998), noted that 60% of supply chain alliances tended to fail. Deloitte Consulting survey reported that only 2% of North American manufacturers ranked their supply chains as world class although 91% of them ranked SCM as important to their firm's success (Thomas, 1999).

Krause (1997) surveyed purchasing executive members of the National Association of Purchasing Managers (NAPM) representing different industries to investigate outcomes of supplier development activities and whether companies were satisfied with the outcomes. The results showed that supplier performance had improved as a result of the supplier relationship management effort. Buyers reported that supplier management efforts with a single supplier had led to significant improvement in incoming defects, percent on time delivery, order cycle times and percent orders received complete. Also, the results showed that buyers perceived an improvement in the continuity of the relationship with their suppliers after the supplier relationship effort than before. Humphreys, Li, and Chan (2004) examined the role of supplier relationship management in the context of buyer-supplier performance from a buying firm's perspective using a survey of 142 electronic manufacturing companies in Hong Kong. Overall, their findings were that transaction-specific supplier development and its infrastructure factors (supplier development strategic goals, top management support of purchasing management, effective buyer-supplier communication, buyer's long-term commitment to the supplier, supplier evaluation, supplier strategic objectives, and trust in supplier) significantly correlated with the perceived buyer-supplier performance outcomes.

Krause and Ellram (1997) surveyed 527 high-level purchasing executives who were members of the NAPM to determine whether buying firms' success in their supplier relationship efforts varied, and if so, to identify factors contributing to perceived success or failure. They found that success in supplier development did indeed vary and they split the respondents into two groups representing those firms that had successfully implemented supplier development programs and those that had received less success. Specifically, the successful group experienced significantly higher improvements

in incoming defects and percentage orders received complete; however, the two groups appeared to have experienced roughly the same increases in on-time delivery and order cycle time reduction. This study revealed that four of the dimensions of SCM as identified have positive effect on organizational performance.

CONCLUSION

A thorough review of prevalent SCM literature indicates that improving competitive advantage and organizational performance is one of the main objectives of SCM. This study evaluated whether four dimensions of SCM practice (customer relationship management, order fulfillment, supplier relationship management, product development & commercialization) have an effect on organizational performance. The results of this study support the hypotheses that CRM, OF, SRM, PD&C have a positive effect on organizational performance. These findings are also consistent the relationship's strongly suggested throughout prevalent SCM literature. These findings highly suggest that organizations should embrace and actively promote high levels of these SCM practices. The findings of this research should assure industry that SCM is an effective way of competing, and the implementation of SCM practices does have a positive impact on organizational performance.

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Table 1.1 Correlations between CRM and OP

Correlations

		CRM	OP F
CRM	Pearson Correlation	1	.225
	Sig. (2-tailed)		.109
	N	52	52
OP F	Pearson Correlation	.225	1
	Sig. (2-tailed)	.109	
	N	52	52

Table 1.2 Correlations between OF and OP

Correlations

		OF	OP F
OF	Pearson Correlation	1	.177
	Sig. (2-tailed)		.208
	N	52	52
OP F	Pearson Correlation	.177	1
	Sig. (2-tailed)	.208	
	N	52	52

Table 1.3 Correlations between SRM and OP

Correlations

		SRM	OP F
SRM	Pearson Correlation	1	.156
	Sig. (2-tailed)		.268
	N	52	52
OP F	Pearson Correlation	.156	1
	Sig. (2-tailed)	.268	
	N	52	52

Table 1.4 Correlations between PD&C and OP

Correlations

		PDC	OP F
PDC	Pearson Correlation	1	.301*
	Sig. (2-tailed)		.030
	N	52	52
OP F	Pearson Correlation	.301*	1
	Sig. (2-tailed)	.030	
	N	52	52

*. Correlation is significant at the 0.05 level (2-tailed).