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Research paper

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A Technical Analysis of the Impact of Supply Chain Management - A Perspective Study

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Abstract

E-Commerce means business efficiency at all operation levels. It does not just mean trading and shopping on the Internet. The SCM is the backbone of E-Commerce also a very critical component of E-Commerce. The study on the impact of Supply chain on E Commerce aims to explain the efficiency of E-Commerce in industrial supply chain management, how effectively E-Commerce is applied on industries and the functions of supply chain management. The study explains the different types of technology for supporting E-Commerce, servers in the present and future content. To understand and develop the E-Commerce and supply chain management. The research methodology adopted for the study is of a descriptive type. This method is suitable for answering the type of research questions posed for this study. In a descriptive research phenomenon of the study, are not controlled or modified and are just measured and reported. In addition, the association between the studied variable can be tested and the relationships or causal effects can also be described.

Introduction

India has a potential for transforming itself into a hub of mass manufacturing. It means business efficiency at all operation levels. Supply Chain Management means coordinating, scheduling and controlling procurement, production, inventories and deliveries of products and services to customers. Jaana Auramo, et al. (2005) in their study on "BenefiWebster, et al., (2006) in their study on "E-Business Strategy Development: An FMCG Sector Case Study", this paper sets out to discuss the development of an E-Business strategy by a UK soft drinks company. It is based within the Fast Moving Consumer Goods (FMCG) sector (also known as Consumer Packaged Goods), which is characterized by powerful retailers, tier-1

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suppliers of industrial end products and ingredient/raw material producers further upstream. The paper aims to examine the tensions created at tier-1 level relating to the adoption of E-Business solutions for B2B activities. The results of the survey indicate a lack of enthusiasm among Princes' supply chain members for the adoption of E-Commerce generally and for internet-mediated E-Commerce solutions in particular. The empirical survey is limited to the UK soft drinks sector and allows for the development of descriptive findings. These findings, discussed within the theoretical context of the paper, have potentially wider implications for the FMCG sector as a whole. The work has significant implications for the development of Princes' E-Business strategy, and by extrapolation for other companies operating in similar commercial environments. "BenefiYifeng Zhang and Siddhartha Bhattacharyya (2008) in their study on "Analysis of B2B E-Marketplaces: An Operations Perspective", the phenomenon of business-to-business (B2B) E-marketplaces has triggered a lot of interest among researchers in recent years. This study aims to fill such a gap. Employing agent based simulations, we find that supply network agents tend to keep more inventories and backlog loses fewer orders in the E-marketplace than in traditional supply chains. And this effect is profounder for the upstream agents, distributors and manufacturers than for downstream agents, retailers. Managerial implications of these findings are discussed.

Statement of the Problem

The adoption of SCM technologies and other E-Commerce technologies are mostly influenced by the cost benefit evaluation of implementing such technologies. The problems and challenges of adoption of SCM technologies, however differs with the type of industry and the size of operations. In addition, many factors such as the type of business relationship in the supply chain, the amount of information that is shared, the business strategy and IT strategy of the firms play a major role. Many large industries have already adopted SCM. However, their connection to the suppliers who are in varying sizes and relationships are not complete. The suppliers are yet to connect to their buyers through SCM. Therefore the question that arises is: "What are the factors that influence the adoption of SCM in the supplier industry to their buyers in B2B relationship and does it vary between the type of industry and the place of business?"

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Objectives of the Study

To answer the research question the following objectives are framed for the study:

1. To study the application of SCM technology in E-Commerce activities among Indian industries.
2. To study the factors that influences the adoption of SCM in Indian industries.
3. To investigate the information intensity in the supply chain that influences the SCM adoption.
4. To explore the environmental factors that influences the adoption of SCM.
5. To understand the business strategies of Indian firms that encourages them to adopt SCM.
6. To identify the problems and challenges faced by the industry in adopting SCM.

Methodology

The research methodology adopted for the study is of a descriptive type. This method is suitable for answering the type of research questions posed for this study. In a descriptive research phenomenon of the study, are not controlled or modified and are just measured and reported. In addition, the association between the studied variable can be tested and the relationships orcausal effects can also be described. To measure the phenomenon of the study appropriate observation technique has to be chosen. Interview or survey technique is the widely used technique for data collection when many number of samples are include. The instrument for the survey will be a printedquestionnaire. The questionnaire is developed out of an extensive literature review and standard measures were adopted. Series of interviews with academicians and industry experts were done to validate the instrument. A pre-test of the instrument is also done with potential respondents and fine tuning on language and structure done. The instrument is designed as a self-administered type with briefing of the concepts and instruction to filling the questionnaire. Multi item constructs that measures the phenomenon are framed. Likert Techniques of five point scale is adopted for the study. The data source is divided into two category; primary and secondary. Answer for certain research questions are explored through secondary sources. Where ever the information available in the secondary data sources is not adequate to answer the research question, then the primary data are collected. The primary data is taken from the survey responses from the industry.

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The secondary sources of information include Annual reports of the company, industry and the Government. Concepts and theories are referred from Text books and research journals. Current industry scenario and trends are collected from Magazines, Websites, and Newspapers.

Sample

The population taken for study are the manufacturing industries that are operating at the business to business (B2B) levels. However, considering the infinite size of the population, the population was limited only to Electronic goods, Auto components and Textile Machineries manufacturing companies in Coimbatore, Chennai and Bengaluru.

Findings from the Primary Data

The samples were collected from Coimbatore, Chennai and Bangalore, from three different industries namely auto component manufacturers, electronic goods manufacturers, textile machinerymanufactures. All together 244 responses were received. There were 70 (28.69%) respondents from Chennai, 119 (48.77%) from Bangalore and 55 (22.54%) from Coimbatore. This reveals that more respondents are from Bangalore. Of the 244 responses received, 92 (37.70%) respondents are from electronic goods manufacturing. 58 (23.77 %) are in auto component manufacturing and 94 (38.52%) respondents are from textile machinery manufacturing industry. This reveals that majority of the respondents are from textile manufacturing Industry and almost equal responses were from electronic goods manufacturing industry. It is found that majority of the respondents are from proprietorship companies (46.72%) followed partnership companies (36.48%) and Private limited companies (16.8%).

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Table 1 Descriptive statistics on Information Intensity

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Standard deviation
Need Reliable, relevant and accurateinformation	33 (13.52)	50 (20.49)	58 (23.77)	68 (27.87)	35 (14.34)	244 (100)	3.09	1.265
Dependent on up-to-date information	29 (11.89)	56 (22.95)	60 (24.59)	66 (27.05)	33 (13.52)	244 (100)	3.07	1.238
Access to information quickly	28 (11.48)	42 (17.21)	85 (34.84)	52 (21.31)	37 (15.16)	244 (100)	3.11	1.208
Integrate within organization	19 (7.79)	60 (24.59)	72 (29.51)	60 (24.59)	33 (13.52)	244 (100)	3.11	1.161
Provide reliable, relevant and accurateinformation	21 (8.61)	54 (22.13)	74 (30.33)	70 (28.69)	25 (10.25)	244 (100)	3.10	1.130
Closely integrate with our suppliers.	15 (6.15)	56 (22.95)	77 (31.56)	58 (23.77)	38 (15.57)	244 (100)	3.20	1.141

Table 2: Descriptive statistics on Business Strategy

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Standard deviation
Compete by cheaper pricing of products/services.	25 (10.25)	50 (20.49)	77 (31.56)	69 (28.28)	23 (9.43)	244 (100)	3.06	1.134
Compete by quality products/services rather than price.	21 (8.61)	60 (24.59)	62 (25.41)	68 (27.87)	33 (13.52)	244 (100)	3.13	1.186
Compete by distinctively differentproducts/services	27 (11.07)	59 (24.18)	67 (27.46)	64 (26.23)	27 (11.07)	244 (100)	3.02	1.186
Compete by offering a wide range ofproducts/services.	21 (8.61)	58 (23.77)	56 (22.95)	70 (28.69)	39 (15.98)	244 (100)	3.20	1.218
Improve the efficiency of our productionprocess.	24 (9.84)	60 (24.59)	64 (26.23)	56 (22.95)	40 (16.39)	244 (100)	3.11	1.227
Compete by providing quality service to our customers.	25 (10.25)	39 (15.98)	93 (38.11)	59 (24.18)	28 (11.48)	244 (100)	3.11	1.133
The rivalry in the industry is very intense	27 (11.07)	46 (18.85)	64 (26.23)	76 (31.15)	31 (12.70)	244 (100)	3.16	1.200

Customers have choice to switch suppliers	25 (10.25)	56 (22.95)	60 (24.59)	65 (26.64)	38 (15.57)	244 (100)	3.14	1.238
Customer have choice of substitutes	21 (8.61)	50 (20.49)	76 (31.15)	68 (27.87)	29 (11.89)	244 (100)	3.14	1.141

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Table 3: Descriptive statistics on Business Environment

	Strongly	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Standard
Extremely complex supply chain	37 (15.16)	43 (17.62)	70 (28.69)	74 (30.33)	20 (8.20)	244 (100)	2.99	1.200
Stable demand for goods and/services	23 (9.43)	46 (18.85)	85 (34.84)	54 (22.13)	36 (14.75)	244 (100)	3.14	1.166
Company faces change and uncertainty	20 (8.20)	52 (21.31)	62 (25.41)	66 (27.05)	44 (18.03)	244 (100)	3.25	1.191
The industry faces much change and uncertainty	37 (15.16)	45 (18.44)	63 (25.82)	70 (28.69)	29 (11.89)	244 (100)	3.04	1.261
Customers adopt new technology quickly	25 (10.25)	54 (22.13)	66 (27.05)	76 (31.15)	23 (9.43)	244 (100)	3.07	1.154
Suppliers adopt new technology quickly	31 (12.70)	56 (22.95)	68 (27.87)	60 (24.59)	29 (11.89)	244 (100)	3.00	1.217
Carriers adopt new technology quickly	25 (10.25)	45 (18.44)	74 (30.33)	64 (26.23)	36 (14.75)	244 (100)	3.17	1.201
Stable supplier base	17 (6.97)	60 (24.59)	66 (27.05)	62 (25.41)	39 (15.98)	244 (100)	3.19	1.191

Findings and Conclusion

It is concluded from the results that the percentage of firm's customers and suppliers connected with E-Commerce in some cases were zero and in some cases it was found to be 100%. This can be inferred that the online transaction with customers and suppliers by the firms has extreme variation from zero to hundred. However it is also found that the industry averages of such transaction with customers are very low at 23.01%. Similarly, with that of the suppliers is also very low at 12.98%. It is evident from the results that the percentage of documents transacted through E-Commerce technology was only at a maximum of 80%, meaning that there are always some documents that are transactedmanually. The case

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summary of the information intensity variable can beanalyzed and inferred that 'closely integrate with suppliers' have the highest mean value of 3.20 and 'dependent on up-to-date information' has the least mean score of 3.07. The other variables are also positively perceived and agreed to.

It is found from the study that 'Need Reliable, relevant and accurate information', 'Dependent on up-to-date information' are agreed by majority of the respondents. It is evident that on 'Access to information quickly', 'Integrate within organisation', 'Provide reliable, relevant and accurate information' and 'closely integrate with our suppliers' majority of the respondents stay neutral. It is understood from the case summaries of business strategies that 'Compete by offering a wide range of products/services' has the highest agreement among the respondents and 'Compete by distinctively different products/services has the lowest agreement. It is also evident that all mean values are above the mid value three, it can be inferred that there is a slight agreement with the business strategies. It is highlighted from the frequency distribution that majority of the respondents agreed with the statements 'Compete by quality products/services rather than price', 'Compete by offering a wide range of products/services', 'The rivalry in the industry is very intense' and 'Customers have choice to switch suppliers'. It is also evident from the frequency distribution that on the statements 'Compete by cheaper pricing of products/services', 'Compete by distinctively different products/services', 'Improve the efficiency of our production process', 'Compete by providing quality service to our customers'

It is evident from the regression test that there is linear relationship between the pressure and business strategy and therefore, it is concluded that the business pressure can predict the business strategy. Business pressure influences business strategy. It may be inferred that higher the pressure from the industry, the higher is their business strategy towards adoption of SCM. It is apparent from the regression test that there is linear relationship between the customer and business strategy and therefore, it is concluded that the customer relationships can predict the business strategy. The degree of customer relationship will influence business strategy. It can beinferred that the higher pressure from the customer will lead to the higher business strategy towards adoption of SCM. It is identified from the regression test that there is influence of information intensity on business strategy. In addition, it is also understood

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that the Information Intensity can predict the business strategy. Therefore, it can be inferred that the when the information Intensity is higher, the business strategy towards adoption of SCM is also higher.

It is observed from the regression test that there is linear relationship between the environment and business strategy. Therefore, it is concluded that the environment can predict the business strategy. The business environment influences the business strategy. It can be inferred that higher the environment factors, the higher are their business strategy towards adoption of SCM. The regression test reveals that Environment, Pressure, Intensity and Customer will influence the business strategy and it is concluded that the environment, pressure, intensity and customer can predict the business strategy. It can be inferred that higher the customer interaction and Information intensity, higher will be the business strategy towards adoption ofSCM. It is noticed from the regression test that there is linear relationship between the IT Strategic Value and business strategy and it is concluded that the IT Strategic Value can predict the business strategy. It is also concludethat the IT Strategic Value will influence the business strategy. Thus, the higher the IT strategic value, the higher is their business strategy towardsadoption of SCM.

It is evident from the regression test that there is influence ofpressure on IT Strategic Value. It is concluded that the Pressure from industrycan predict the IT Strategic value. Therefore, it can be inferred that the when the pressure is higher, the IT strategic value is also higher. It is apparent from the regression test that there is linear relationship between the customer and IT Strategic Value. Therefore, it is concluded that the customer can predict the IT Strategic Value. In addition, it is concluded that customer can influence the IT Strategic Value. It can be inferred that the higher the customer interaction in the industry, the higher is their IT Strategic Value. It is identified from the regression test that there is influence of Information Intensity on IT Strategic Value. It is concluded that the Intensity of information between business partners can predict the IT Strategic value. It is therefore inferred that when the information Intensity is higher, the IT strategic value is also higher.

It is observed from the regression test that there is linear relationship between the Environment factors and IT strategic value. Therefore, it is concluded that the Environment factors can predict the IT strategic value. In addition, it is conclude that the Environment factors can influence the IT strategic value. It is inferred that higher the environment factor of

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the industry, the higher is their IT strategic value towards adoptionof SCM. The regression test reveals that Environment, Pressure, Intensity and Customer will influence the IT strategic value. In addition, it is concluded that the environment, pressure, intensity and customer can predict the IT strategic value. It can be inferred that higher the pressure from the industry, customer interaction and Information intensity, higher will be the IT strategic value towards adoption of SCM. It is noticed from the regression test that there is influence ofchallenges on SCM adoption. It is concluded that the challenges can predict the SCM adoption. It can be inferred that the when the E-Commerce challenges are higher, the SCM adoption is lower.

It is evident from the regression test that there is linear relationship between the benefits and SCM adoption. Therefore, it is concluded that the benefits can predict the SCM adoption. It is also conclude that benefits can influence the SCM adoption. It is inferred that higher the benefit of E-Commerce, the higher is the SCM adoption. It is apparent from the regression test that there is influence of Business Strategy on SCM adoption. Thus, it is concluded that the Business Strategy can predict the SCM adoption. It is inferred that that when the Business Strategy is higher, the SCM adoption is also higher.

It is identified from the regression test that there is linear relationship between the IT Strategy and SCM adoption. It is concluded that the IT Strategy can predict the SCM adoption. It is concluded that IT Strategycan influence the SCM adoption. It is inferred that higher the IT strategy fromthe industry, the higher is their SCM adoption. The regression results reveal that Business strategy, IT Strategic Value, Benefits and Challenges will influence the SCM adoption. It is inferred that higher the business strategies, challenges, IT Strategy, higher will be the SCM adoption.

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